

SPC/NELSON FISHERIES OFFICERS COURSE

REVIEW

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Summary

The first SPC/Nelson Fisheries Officers Course was run in 1979 by the SPC, in collaboration with the then Nelson (NZ) Polytechnic. The Course targeted fisheries officers, particularly those working at fisheries centres in remote locations. After more than 20 years, the Course has trained 275 Pacific islanders, including 26 from the private sector and six women.

This review is part of SPC's ongoing programme development, monitoring and evaluation process, and is considered timely in light of the considerable changes occurring in the fisheries sector. During the review, six Pacific Island Countries and Territories were visited and stakeholders interviewed. SPC and Nelson were also visited and questionnaires circulated to heads of fisheries and past Course participants. This paper is based on information drawn from these sources and the experience of the reviewer.

The role of the fisheries officer has changed considerably since 1979. While the need for sustainable development of marine and fisheries resources and the generation of income and food security for Pacific islanders remains a key activity, several new challenges have emerged. These challenges include those relating to fisheries management and the marine environment. The rapidly expanding domestic fishing industries in the Pacific, based primarily on longlining are also of major significance.

The Course is almost universally well regarded by fisheries departments, who continue to strongly support a broad-based regional training programme for fisheries officers. Heads of fisheries departments (HoF) generally agree that while the Course must still cater for fisheries development needs there is also a requirement for the Course to adapt to changing circumstances in the fisheries sector.

Recommendation: A regional fisheries officers course should continue to be offered, subject to consideration by HoF of subject material, delivery and other matters raised in this review.

In reviewing papers and proceedings from regional fisheries meetings, and from discussions with fisheries departments and Course participants, there is little doubt that the School of Fisheries in Nelson has provided an excellent service during the past 20 years. Changes to the Course have occurred during this time, the most significant being the addition of a practical fishing component run in the region. While other minor changes have also been adopted, it is appropriate to have a major re-think of Course curricula to align it more towards sustainable management topics that will address resource and habitat threats. The Course must also give consideration to assisting with industry development issues, including those related to the long-term economic viability of the private sector. In addition, training facilities for more basic subject areas are now available in-country and the expense and opportunity of overseas training should focus on facilities and experience not usually available to PICT fisheries officers.

Recommendation: That the 'Nelson' component of the Course be re-aligned more towards sustainable management and industry development, while maintaining key elements of existing practical training.

Previous reviews have discussed the desirability of running the Course within the region (in a Pacific island country or territory). At the present time, there is no clear way forward for this to occur although there continues to be interest from the USP in coordinating and delivering a fisheries managers course in the future. A clear majority of stakeholders are of the opinion that, on balance, running the Course outside region is a preferable option.

Recommendation: That the current 'Nelson' component of the SPC Fisheries Officers Training Course continue to be offered at an overseas institution.

The practical fishing component of the Course has traditionally been run in the region, initially on a voluntary basis by Pacific Island countries and territories (PICTs) making offers to host at the Regional Technical Meeting on Fisheries (RTMF). Since 1997 the practical fishing component has been run in New Caledonia. While running the Course in New Caledonia is not without challenges, the process is now well established and the component offers a wide range of practical fishing and other learning opportunities. Greater use should be made of the range of specialist expertise available at SPC, including the sections dealing with community fisheries, reef monitoring and assessment, and tuna biology and management. This would considerably broaden and enhance the value of the current practical fishing component.

Recommendations:

- ?? **that the current practical fishing component continue to be run in New Caledonia; further, that topics offered be broadened considerably in scope to make full use of SPC and other facilities and operations available in New Caledonia; and**
- ?? **consideration be given to changing the name of the component and extending its duration by at least two weeks.**

There is limited support for lengthening the Course to accommodate additional subject areas and for such a lengthened course to be accredited as a certificate or diploma course. Most stakeholders considered that the current Course length of around six months was appropriate, given cost, time away from home and job considerations. Another group considered that at the end of six months, fatigue was beginning to show in a number of participants and that a shorter, more intensive course be considered.

Recommendation: That the length of the fisheries extension officers Course be no longer than six months (currently 23 weeks).

In considering the target group and objectives of any future fisheries officers course, the majority of fisheries departments and other stakeholders consider that such a course should focus equally on the inshore fisheries sector and the expanding domestic longline industry. Further, it should provide an understanding of the relationships between the operational, social, economic and biological aspects of fishing.

Recommendation: That any future fisheries officers course should focus on the basic training required to promote the sustainable development and management of fisheries resources. This will include the delivery of extension services to remote communities, as well as working with and supporting the private sector engaged in tuna longlining and other commercial enterprises.

While the Course is currently open to the private sector, training individuals in this way is an expensive exercise. Greater value is likely to be achieved by providing the private sector with shorter, in-country training programmes targeting various topics of particular interest, including fishing techniques, fish handling and grading, refrigeration, value adding, principles of HACCP. SPC is currently coordinating these types of courses. A number of PICTs requested these services during discussions and in the HoF questionnaires.

Recommendation: That Course participants should continue to be drawn primarily from the public sector.

The Course was found to have generated a number of positive impacts, not the least being that many Pacific islanders in prominent positions are past participants. Other measures of impact include the high level of retention of participants in fisheries departments, the establishment of the Course as a

training benchmark, and increasing numbers of women in fisheries. Fisheries officers are increasingly beginning to use their training beyond 'traditional' extension work with communities, by supporting small enterprises and liaising with domestic industry operators.

Student selection processes and Course administration appear to be time consuming. The short lead times between nominations and the start of the Course frequently creates difficulties, made worse by delays in official approval.

Recommendation: That a longer lead-time be allowed between invitations to apply and the commencement of the Course to allow for effective national selection processes, adequate in-country briefings and administrative and student preparations.

There is strong support for the Course to remain as a broad-based introduction to fisheries. Differing levels of entry, including deficiencies in English can restrict the effective delivery of the Course. A slight elevation of entry requirements, which would not eliminate junior officers, is suggested.

Recommendation: That Course entry requirements be reviewed and consideration given to an entry requirement that includes one or two years fisheries experience.

Funding for the Course is an ongoing issue, with core support coming from New Zealand and the Commonwealth Secretariat and Commonwealth Foundation. Other donors have made up the shortfall, and SPC funds are frequently used to balance Course budgets. PICTs also provide a substantial input (about NZ\$4,700 or 16%) to the cost of each successful Course nominee. Cost per participant for the six month Course is around NZ\$30,000.

The Course is generally an integral part of human resource development for fisheries officers in PICTs. In it is widely considered as the best course available in the region for fisheries officers. As a result, demand for the Course remains strong into the future.

An opportunity exists for certain units of the Course to be unitised under some form of fishing industry accreditation scheme. This would formalise and standardise elements of the Course, enable students to progress towards other qualifications where appropriate and provide a level of quality assurance against a well-accepted industry standard. It would also make the delivery of units of the Course in other locations easier, subject to the availability of appropriate facilities and teaching staff.

Recommendation: That SPC and the training provider give full consideration to unitising the Course where possible and accrediting relevant sections or units under the New Zealand Qualifications Authority fishing industry standards, or some equivalent accreditation scheme.

There is no doubt that the SPC Fisheries Training Section has been effective and efficient in its coordination of the Course. While it may be possible to provide similar fisheries officers training in the region at some point in the future, a change now may well compromise the effective delivery of the Course at a significant time in its evolution.

Recommendation: That the SPC Fisheries Training Section continue to act as Course manager/coordinator for a period of at least five years.

Given the substantial changes occurring in the fisheries sector and after training around 275 individuals in basic fisheries extension, it is time to thoroughly review Course content. Course curriculum and delivery should be considered in detail to ensure that it is fully relevant to the needs of Pacific islanders. An emphasis should be placed on providing the skills, exposure and experience that is not available in national situations. The relevant programmes at SPC and this document should be used to provide input into the review of Course content.

While the Nelson School of Fisheries at the Nelson Marlborough Institute of Technology (NMIT) has provided an excellent service over the years, other providers exist that are would be able to deliver the Course. There is now an opportunity to consider these.

Recommendations:

- ?? That SPC undertakes a review of the curriculum in relevant areas and provides an outline of a revised curriculum to the 2003 HoF meeting for comment and input; and**
- ?? invitations to training providers to bid for provision the Course be arranged; alternatively, negotiations could be directly entered into with NMIT for continued delivery of the Course**

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ABBREVIATIONS

ACP	African, Caribbean and Pacific (States)
ADB	Asian Development Bank
CPUE	catch per unit of fishing effort
DWFN	distant water fishing nation
EEZ	exclusive economic zone
ENSO	El Nino / Southern Oscillation
EU	European Union
FAD	fish aggregating device
FAO	Food and Agriculture Organisation of the United Nations
FSM	Federated States of Micronesia
FFA	Forum Fisheries Agency
HACCP	Hazard Analysis of Critical Control Points
HoF	Heads of Fisheries
HRD	Human Resource Development
JICA	Japanese International Cooperation Agency
MCS	monitoring, control and surveillance
MFAT	Ministry of Foreign Affairs and Trade (New Zealand)
NFA	National Fisheries Assessment
NFC	National Fisheries College (Kavieng, Papua New Guinea)
NMIT	Nelson Marlborough Institute of Technology
NZQA	New Zealand Qualifications Authority
OFCF	Overseas Fisheries Cooperation Foundation
OFM	Oceanic fisheries management
OFP	Oceanic Fisheries Programme (SPC)
PICT	Pacific Island Countries and Territories
PROCFish	Pacific ACP and OCT Regional Oceanic and Coastal Fisheries Development Programme
RTMF	Regional Technical Meeting on Fisheries
SAR	search and rescue
SICHE	Solomon Islands College of Higher Education
SPC	Secretariat of the Pacific Community
USP	University of the South Pacific
WCPO	western and central Pacific Ocean

Note: Unless otherwise stated, all amounts are expressed in New Zealand dollars.

1. Introduction

The Secretariat of the Pacific Community/Nelson Fisheries Officers Course (the Course) was first run in 1979, as part of the programme of activities of the Fisheries Training Section of the SPC Coastal Fisheries Programme. The Course was initiated in response to a request from Pacific island countries and territories to provide additional training opportunities for their fishers and extension officers.

In the period 1979-2002 275 Pacific islanders from 18 countries and territories in the region have completed the Course. Since 1984 the Course has been run in two parts. Core training has been provided by the School Fisheries at the Nelson Marlborough Institute of Technology (NMIT), formerly known as Nelson Polytechnic. The second part, a period of practical training, is usually held at a Pacific island location, most recently New Caledonia.

The training was initially intended to provide the practical fisheries skills necessary to operate a small fish-receiving station or remote extension centre, especially on outer islands. In its more than 20 year history, the Course has undergone a number of relatively minor changes driven primarily through directions received from the annual Heads of Fisheries (HoF) Meeting (formerly the Regional Technical Meeting on Fisheries - RTMF).

Fisheries in the Pacific have undergone a number of major changes over the last two decades as development of subsistence, artisanal and industrial sectors has occurred. While 'fine tuning' of the Course has occurred during this period as mentioned, it is considered timely that a more complete review be undertaken.

2. The Review

The SPC undertakes a process of programme development, monitoring and evaluation as part of its commitment to accountability and excellence, as outlined in the SPC Corporate Plan, 1999-2003. This review is part of that process, and has the following purpose:

To review the role, goal and objectives of the SPC/Nelson Fisheries Officers Course in support of the fisheries administrations of the region, to evaluate its effectiveness in meeting stakeholder expectations and to provide advice on how SPC can best fulfil its mandate for fisheries officer training in the future.

The complete terms of reference are provided as **Attachment 1** to this document.

A consultant was engaged to undertake the review. Five countries were visited (Niue, Tonga, Fiji, Papua New Guinea and Solomon Islands) and discussions held with both public and private sectors. The consultant also visited SPC and NMIT. Questionnaires to HoF and past participants were sent out and followed up as necessary with telephone interviews. A total of 16 returns were received from HoF (including two from Provincial Heads of Fisheries) and 30 from past participants. Personal interviews with 21 Course participants were carried out during country visits.

3. The Role of the Fisheries Officer

To review the past performance and possible future directions of the Course requires an understanding of the work of fisheries officers in the fisheries departments of Pacific island countries and territories (PICTs). Fisheries officers in the Pacific have traditionally been associated with the development of artisanal and subsistence fisheries, particularly through the provision of technical and other hands-on assistance. The early syllabus of the Course reflects this trend. In many cases, the fisheries extension officer was the only individual with sufficient knowledge to offer advice or hands-on assistance to communities in the event of mechanical breakdown, or fill a need for fish marketing and handling, small-scale development projects and so forth. From its inception, the Course has been oriented towards the fisheries extension officer – and particularly those that typically work with communities, often in remote island situations.

According to a rationale developed by a regional fisheries workshop on extension and communication skills in 1988 extension exists ‘...largely because of the desire of Governments to develop natural resources and increase food supply and production’ (SPC, 1991). It is perhaps a function of those times that the term ‘sustainability’ was little mentioned during the workshop – or if it was, it is not reflected in the proceedings. The definition of extension offered by the same workshop is ‘... a means of spreading and enlarging useful knowledge and skills to people in a context of achieving national goals within a local situation’ (SPC, 1991).

Fisheries extension officers form a vital link between fisheries administrations, researchers, fishers and the private sector. The provision of extension services is generally given high priority in statements on coastal fisheries and enjoyed a particularly high profile in the 1980s. The common factor in most statements on the role of the fisheries officer was to assist communities with all aspects of fisheries development.

The operation of fisheries centres as commercial entities has been a core activity of many extension services. These centres sought to provide markets, access to fishing gear, maintenance and repair of fishing boats and engines, technical advice and other services to facilitate coastal fisheries development. Many fisheries departments are now withdrawing from such activities and either privatising them or handing them over to communities. In Vanuatu for instance, EU-funded extension centres were privatised in 1995 following the end of EU funding to ‘...free up the extension officer to move out from the centre and do “extension” work in all areas under his jurisdiction’ (Vanuatu Fisheries Department Annual Report, 1996). Similar circumstances exist in Solomon Islands, where the EU is attempting to rejuvenate fisheries centres and make them economically self-sufficient using fishing associations and the private sector (export companies). In this case, fisheries officers will have a facilitating and advisory role, rather than running the centres.

The region continues to face substantial challenges in terms of the sustainable development of inshore and other domestic fisheries. Increasing populations, struggling national economies and a demand for cash income to meet the growing costs of everyday existence at community level will continue to place pressure on fisheries resources and habitat in the region.

If used wisely, inshore resources from both reef and reef-slope areas as well as oceanic species (including tuna) can increase food supplies and provide sustainable incomes. In this respect, fisheries officers will need to have current and relevant knowledge and experience of the practical aspects of fishing to be able to assist with fisheries development. This must include the ability to facilitate the establishment of and provide ongoing support to commercial operations that are economically sustainable over time.

Hand in hand with economic sustainability is the requirement for fisheries officers to be able to work with individual fishers, communities and administrators to promote methods and levels of fishing effort that are biologically sustainable. Working with communities and fisher groups and motivating them to have awareness of, and concern for, for their fisheries resources and associated marine environment will most effectively achieve this.

The fisheries officer also has a role, some of which is extension, in tuna longline and other domestic commercial fisheries development. Government can play a substantial role in assisting the private sector to succeed in the highly competitive export seafood industry. Formerly this would have been through Government ownership and operation of vessels and processing plants, which has frequently proven to be unsuccessful. That said, the private sector has also had its share of failures. The Asian Development Bank has commented on the problems associated with a number of PICT governments that have ‘...all consistently committed large sums of public funds to invest in and sustain loss-making tuna ventures’ (ADB, 1997). Now governments are increasingly likely to act as facilitators rather than take operational roles, in line the ADB suggestion that PICTs should redeploy efforts to ... ‘indirectly support the industry by investing in education, training and regulations to protect the interests of the nation... as well as the investor’ (ADB, 1997). Areas where government (often through the activities of fisheries officers) can assist the private sector include:

- ?? facilitating and streamlining bureaucratic processes and introducing participatory and effective management arrangements;
- ?? providing an effective and responsive information flow to the private sector, particularly in respect of publications and services provided by national and regional training and technical organisations (e.g. USP, FFA, SPC);
- ?? catch monitoring;
- ?? monitoring control and surveillance; and
- ?? the implementation of certification processes that cover international seafood safety/export requirements.

Understanding the dynamic nature of the fishing industry and what makes it successful is an essential skill for fisheries officers if they are to help it flourish, create jobs and generate sustainable wealth.

4. Views on fisheries officer training from key stakeholders

4.1 National Fisheries Departments

4.1.1 Views on the current Course

Attachment 2 provides the views of national fisheries departments obtained either through visits during the review or from telephone and questionnaire surveys. It is very clear from the information provided that there is a great deal of satisfaction with, and support for, the Course.

The majority of PICTs see the Course providing the broad, base level fisheries skills required by fisheries officers. In some instances candidates are sent to the Course as part of an initial training programme for junior officers, a number of whom may not end up working in the field (e.g. Tonga). Others assign or reassign candidates from the Course directly into field positions, and consider the Course an important prerequisite for those who will be required to manage fisheries centres in remote locations (e.g. Solomon Islands). Owing to the long-standing nature of the Course, it has assumed a level of ‘currency’ in terms of progression and promotion through fisheries departments. Fisheries Departments are generally pleased with the overall retention rate of staff returning from the Course and 60% of those that have been trained in Nelson over the last 20 years remain within fisheries departments (see *Attachment 3*).

Reviewing past RTMF papers and records, it is clear that there has been considerable support for the Course in its current form. At the RTMF in 1996, Samoa stated that the Course is ‘...an essential part of the training of all promising fisheries officers’ and the Course is considered by most HoF to be of fundamental importance to fisheries staff development.

Samoa, also at the RTMF in 1996, noted that there was a continuing need for the operation of the Course, given ‘...that departments were continually taking on new recruits and that many nations were too small to develop the required type of specialised training under their own resources’. This is a view currently shared by many PICTs and reflected during discussions with fisheries departments visited during the review. One exception was Papua New Guinea, which has the need, critical mass and resources to develop its own training programmes for fisheries officers.

4.1.2 Challenges to be addressed by future national fisheries officer training

In 1979 there were few small-scale commercial fishing operations, particularly in rural areas, and extension work was associated primarily with subsistence fishing. Fishing effort was generally light. Over the 20 years of the Course, a number of emerging issues in fisheries have been identified by fisheries departments as impacting (or will impact in future) on the role of the fisheries officer in the Pacific. Many of these have been allowed for to some extent in the Course while others have not.

In discussion with fisheries departments in the region and from recent papers and proceedings of RTMF/HoF meetings, the following have been identified as key challenges facing Pacific fisheries:

Increases in fishing pressure on fisheries resources. Between 1970 and 1990, the Pacific Island population increased by 2.2 million people, an annual growth rate of 2.3%. Weak prices for agricultural products including copra will continue to drive an interest in artisanal fishing. A recent World Bank report (World Bank 1999) noted that marine resources in the five Pacific island countries studied were perceived by the coastal communities interviewed to be in a state of decline. Some of these communities were in remote locations, indicating that overfishing may not simply be a feature associated with population centres. PICTs have made reports to RTMF and HoF meetings concerning increasing catches of inshore resources and the need to deal with overfishing, particularly of specific species, e.g. parrotfish and mullet in American Samoa (Tulafono 1999).

Fishing pressure is also being exerted in the tuna fishery by domestic fleets and in some cases the effects are being felt in falling catch rates (e.g. the *alia* longline fleet in Samoa). This pressure will continue as Pacific islands expand their domestic longline and other fleets.

An increase in reef-associated export fisheries, including those for live fish and marine aquarium fish. While it is possible to achieve sustainable reef fisheries for both live food fish and aquarium fish, there has been a dramatic increase in unsustainable operations, many of which have been in remote locations where adequate control of illegal fishing operations is difficult. Fishing of high value sedentary species including giant clams, beche de mer and lobster has increased to a point where stocks have collapsed in some locations. Examples include some populations of giant clams and beche de mer in Papua New Guinea, Solomon Islands and other PICTs.

A shift away from government supplying services that could be more appropriately and effectively delivered by the private sector. Following the problems experienced with government-run fishing centres, the view that the primary role of extension is to market (and in some cases even catch) fish, hand out donated fishing gear and repair boats and engines is changing in a number of countries. The fisheries officer is becoming more of a facilitator and coordinator, assisting communities and domestic commercial fishing ventures to establish sustainable operations that will function without continuous injections of donor funding.

The rapid growth of small to medium scale longlining operations. Over the last 10 years or more, many Pacific islands have experienced rapid growth in locally based longlining. Numbers of PICT-based tuna longliners has increased to over 1,000 vessels, of which 481 are locally owned and operated, the balance being owned offshore but based locally (SPC data). This combined total is now larger than the distant water fleet. Domestic tuna longline fishing is now seen to offer a major development opportunity and the means to derive increased benefits from tuna resources, which would otherwise be limited to the returns from foreign fishing access agreements. Managing this growth and its economic, biological and social effects has already become an issue in some countries (Samoa, Fiji) and is likely to become one in other PICTs in the future.

Growth of export trade in fish and the need to meet international seafood processing and handling requirements (e.g. HAACP). Two of the key determinants of success in the export seafood industry are consumer food safety and fish quality. As demand (and price) for quality seafood increases, the opportunities for PICTs will increase as long as appropriate standards of hygiene, fish handling and other requirements can be met. This will require substantial training at all steps in the process.

The emergence of community-based and participatory approaches to managing coastal fisheries. Following the success of the Samoan example a number of PICTs are actively introducing community-based management into their inshore fisheries. Centralised, highly bureaucratic command-and-control forms of fisheries management are being reassessed in the light of shrinking government budgets and recognition that unless there is community support regulations in coastal fisheries are highly unlikely to be effective. The SPC Community Fisheries Section is particularly active in the area of community-based approaches and is working closely with fisheries officers and communities to develop such arrangements in a number of locations in the Pacific.

An integral part of community-based management is the ability of fishing communities to effectively monitor their reef systems, using simple and robust tools. The regional EU-funded SPC PROCfish project is one example of such an approach. The coastal component of the project aims to conduct a comparative assessment of the status of reef fish resources and the social aspects of fishing in Pacific

island ACP countries. One of the key assumptions of the project is that ‘... fishers do not see field workers as outsiders fulfilling their own research (and management) goals, or imposing unasked for solutions, but as helping them address real problems’ (EU 2002). The PROCfish project considers effective extension services (and training) to be a significant determinant of the success of the project. PROCfish staff have indicated a willingness to work with any future fisheries officers course by supplying relevant training material, as well as providing practical demonstration and training during the practical fishing component in New Caledonia.

Increasing threats to reefs and other sensitive habitats from pollution and other sources. Fishing activities are just one threat to the productivity of reefs, mangroves and other critical marine habitat areas. Small-scale fishers are often aware of changes to the ecosystem that would go undetected in capitals. In 21 of the 31 sites in five countries covered by the 1999 World Bank study fishers interviewed believed that coastal resources would continue to decline in the future, and perceived that the fastest rising threat to marine resources was pollution.

The growing interest in aquaculture. SPC has now established an aquaculture programme and despite a number of failed ventures in the region, a number of species are being successfully cultured. A list of priority commodities for aquaculture in the region has been recently developed and includes pearls, prawns, coral, clams, beche de mer and seaweed. Past experience with seaweed culture in Kiribati at Abaiang atoll has shown that farmers growing even relatively robust species require effective extension support to be successful.

Increasing roles of conservation NGOs. Conservation non-governmental organisations (NGOs) are becoming increasingly involved in Pacific fisheries, going beyond traditional bilateral volunteer programmes and getting involved in conservation and management issues at village level. For example, the Nature Conservancy is working in Papua New Guinea, Palau, FSM, and Solomon Islands on the live fish trade and the identification and protection of grouper spawning aggregations. Many conservation NGOs have the resources to have substantial influence and are increasingly employing well-qualified and experienced island nationals. There is a need for government fisheries officers to co-ordinate with, and as appropriate, assist in guiding the work of conservation NGOs in accordance with national and provincial government priorities.

The key issues listed above, combined with other changes to Pacific fisheries will inevitably change the traditional role of the fisheries officer. As the first line of communication, there will be significant changes to training required to equip fisheries officers to meet these challenges. From discussions and completed questionnaires, a number of key reasons were provided by fisheries administrations for retaining a regional fisheries officers course (rather than relying solely on national delivery) delivered outside the region. These include:

- ?? insufficient resources and low numbers of trainees in most PICTs to mount a similar course in-country;
- ?? an opportunity for experience outside the national environment;
- ?? an opportunity to learn from and establish links with the wide range of fisheries programmes at SPC;
- ?? observation of ‘best practice’ in terms of the seafood industry;
- ?? transfer of experience between participants; and
- ?? exposure to different forms of fisheries management, including participatory management.

4.2 Private sector

A total of 23 students from the private sector have attended the Course to date (about 8% of the total of 275). It was difficult to track these students, but general impressions from interviews with fisheries departments are that private sector participants have benefited from their attendance at the Course. A few students from the Course have moved from fisheries departments into employment in the private sector (5% of total students, based on data supplied by PICTs). Private sector companies from Tonga (Alatini Fisheries), Papua New Guinea (Latitude 8) and Fiji (Robert Stone) were interviewed

concerning their views about fisheries officers and their role in the private sector. All employers considered that staff in fisheries departments had a very limited understanding of the requirements of the private sector, and in particular the need to meet business deadlines. Areas where it was felt that fisheries officers and associated training should focus were:

- ?? an increased awareness of HACCP principles, and the role of government in food safety and other requirements facing the export seafood industry;
- ?? increased awareness of customer service – i.e. fisheries officers as facilitators assisting the private sector with their needs, in a timely and efficient manner;
- ?? communication, particularly between the private sector and government and donors, including the dissemination of technical information from SPC and other sources;
- ?? identification and coordination of training opportunities for the private sector;
- ?? understanding of the key determinants of profitability, including variations in catch rates, impacts of el Nino and market price fluctuations; and
- ?? working at the village level to promote understanding, rather than suspicion, of the private sector e.g. access for bait fishing.

4.3 Past students

All student end-of-Course comments for the last 10 years were examined in this review. These were for the most part non-critical and supportive of the status quo, however discussions with a number of participants revealed that a number of the skills learned at the Course were not later applied in the workplace. Also, the background and cultural context of the students tend to mitigate strongly critical reviews.

Of the 30 past Course participants either interviewed or who supplied questionnaires around 50% considered that the Course in its current form had met all their training needs, 37% almost all their needs and 13% about one-half of their needs. They did all however agree that additional subject areas were needed, inferring that while current training needs were being met, there was still room for some improvement.

4.4 Training providers

Views of training providers are summarised in *Attachment 4*. A number of PICTs are conducting their own fisheries training programmes, including training for fisheries officers. Three colleges were visited during the Review. This section is included to provide some background on related fisheries training offered at regional institutions.

National Fisheries College (NFC), Kavieng, Papua New Guinea

The National Fisheries College in Kavieng is currently being strengthened through a substantial AusAID funded project. The project, augmented by National Fisheries Authority (NFA) funding, has resulted in a complete rebuilding of the NFC and a reorientation to meet the needs of the burgeoning private sector in Papua New Guinea. Clients are listed as commercial fisheries operators, seafood processing companies and small-scale fisheries operators. While courses in fishing operations and processing are provided, there are currently no courses on offer at NFC that are specifically targeted at fisheries officers.

In response to a request arising from NFA liaison with the Provinces, a Provincial Fisheries Officers Upgrade course has been planned for delivery in 2003. It is intended that up to 40 officers will be trained over two years. The proposed course outline has many of the elements that are suggested for the SPC/Nelson course in Section 5.2. For most participants it will be the first formal training they will have received for some years.

Solomon Islands College of Higher Education (SICHE)

The Solomon Islands College of Higher Education runs a School of Maritime and Fisheries Studies in Honiara with a small fisheries section. Significantly, the two lecturers currently teaching fisheries

subjects at the School are past participants of the SPC/Nelson course, as well as being graduates of the USP Diploma of Tropical Fisheries. Both lecturers consider that the Course provided an invaluable source of extension officer training and had used the skills obtained at Nelson extensively in their own work.

Tonga Maritime Polytechnic Institute

Tonga Maritime College focuses on education for the maritime sector, training a range of levels of seamen and engineers. The College has excellent engineering facilities, including a fully equipped workshop, welding bays, lathes and other equipment. It is relatively typical of the types of facilities available in many PICs where advanced technical and fisheries-related training can be provided locally, in a good learning environment. The Head of the Maritime Division, Malakai Tapealava, was of the opinion that much of the hands-on practical training of the SPC/Nelson course could more effectively be delivered in the region at institutes such as the Tonga Maritime College. One the mechanics working at the Institute is a past participant of the Course.

University of the South Pacific

USP does not offer practical training in the full range of general fisheries subjects but has an active seafood handling section, which provides hands on courses and other technical services in the region. The leadership and direction of the Marine Studies Programme (MSP) is in a state of flux at present due to the resignation of long-standing Director Professor Robin South and the outcomes of a recent review. It is not clear at this time what policy will be adopted by the MSP with respect to offering vocational, certificate and diploma training in fisheries. Some interest was expressed in running all or part of the Course at USP.

4.5 Donors

Financial assistance for the Course from donors, while sometimes tenuous, has been remarkably solid over time. NZAid and the Commonwealth Secretariat and Commonwealth Foundation have been long-standing core supporters of the Course and consider that, to date, it has provided sound development outcomes. However after 20 years there are some concerns that if the Course has been so effective, why has it not been institutionalised in the region (at, for instance USP), and recurrent funding not been identified from the budgets of PICT governments. This review seeks to answer some of these and other questions on the future of the Course.

5. Course review

This Section reviews the Course and places suggestions for future training strategies for fisheries officers in the context of existing subjects and activities. This approach has been adopted (rather than starting with a 'clean sheet') in light of the substantial level of support from PICTs for not deviating too far from the current structure and content.

5.1 Evolution of the Course

The basic Course structure is provided in Figure 1. The Course has been modified and updated from time to time using end-of-course feedback from participants, reports from Nelson and the training sector, and comments made at regional meetings.

In 1983 a full Course review was conducted by the then SPC Assistant Fisheries Officer G. Preston, the results of which were discussed by RTMF in 1984. The most significant change to the Course resulting from that review was the inclusion of a practical fishing component from 1984 to ensure that participants gained experience of tropical fishing operations and FAD fishing practices. Prior to 1984, this component had been run in New Zealand, where the target species and methods of fishing were found to be of limited relevance to Pacific Island fisheries. The review also resulted in the agreement by the RTMF for the full-time assignment of an SPC masterfisherman to the practical component.

The New Zealand Ministry of Foreign Affairs (MFAT) reviewed the Course in 1985 (MFAT 1985) with the objective of determining the degree to which the Course was meeting its objectives and the justification for continuing and funding the Course into the future. This review concluded that the

Course should continue for at least three years, but that a long term objective should be to establish the teaching skills and experience needed to deliver the Course in the region (i.e. the 'tropical south Pacific').

An option was provided by SPC to the RTMF in 1998 to run the Course in two streams, to reflect a perceived re-orientation of the work of the fisheries officer towards more 'clerical, environmental and resource management aspects rather than towards hands-on field duties'. New subjects to be delivered in the second stream included resource management, ecology, research strategies and survey techniques, additional computing and aquaculture. This option was not supported by RTMF, which expressed support for maintaining the Course in its original form. Funding implications associated with the development of two streams were also a factor.

In addition to the direct involvement of the Fisheries Training Section, other technical areas of SPC have become involved in the delivery of the practical component of the Course. The most significant aspect of this involvement is that of the Fisheries Development Officer, Steve Beverly, who spends around 6 weeks per annum on the practical fishing module, providing training in vessel operation, practical fishing and fish handling. The Reef Fisheries Assessment and Management section (underwater visual census) and the Live Reef Fish Project provided minor inputs into the Course in 2001.

The Course does not lead to a formal qualification, although a certificate of attendance is provided. Students also receive an internationally recognised Radio Operators Certificate, upon satisfactory completion of the applicable component of the Course. Some past participants and other staff from fisheries departments interviewed considered that there was value in providing some form of assessment at the end of each unit of the Course. This assessment was considered important as a means of ensuring that students had reached a certain level as well as helping to motivate students to remain attentive during the Course. Most units at Nelson are now assessed.

5.2 Course curriculum and structure

The current SPC/Nelson Course consists of two major components, an 18-week Nelson component followed by a five-week practical fishing component, which has been run in New Caledonia for eight of the last nine years. The main sections/subjects of the Course are shown in Figure 1. The Course has been run continuously since 1979 with the only break being in 1981. The break was caused by a review of the Course content, which at the time was considered to have too much focus on the New Zealand fishing industry, creating some doubts about its relevance. Following strong support from PICTs at RTMF in 1980, the Course, with some minor adjustments, was again run in 1982 and has continued annually since that date.

As stated earlier, the Course is very much aimed at individuals who will work primarily with fishers and go to sea on boats from time to time. It provides many of the skills needed by a traditional extension officer in their role of increasing food supply and marine resource production (SPC 1991).

The Nelson component uses the facilities and staff available at the NMIT as well as site visits to components of the extensive seafood industry situated in the port of Nelson. Aquaculture farms in the nearby Marlborough Sound are also visited.

Considering feedback on the Course at RTMF/HoF meetings, end of Course summaries and interviews during the review, it is clear that there is a high level of satisfaction with the level of commitment and quality of past teaching at NMIT. A number of the tutors have Pacific island experience, although there is an acknowledged need for greater awareness by NMIT of the needs for, and impacts of, the Course.

The practical component has moved beyond a focus on the training needs for fisheries officers undertaking a traditional extension role in remote locations. In particular, there is a greater emphasis on the development of domestic fishing industries, and particularly tuna longlining. This wider role of the fisheries officer has not been fully reflected in the Nelson component.

Facilities for teaching (laboratories, workshops etc.) and accommodation at NMIT are generally good and support the current teaching programme adequately. Teaching and delivery methods appear

appropriate, with efforts made to combine theory, practical and field visits to maintain interest and motivation. Of particular note is the high level of attention given to student welfare and co-ordination through a dedicated Course tutor. The tutor works to ensure student needs are effectively met at both academic and personal levels, and accompanies students to New Caledonia for the practical fishing component. This system has been very effective and should continue.

A recent restructure at NMIT, and general pressure on educational institutions in New Zealand to achieve greater efficiencies, continue to present challenges to NMIT management and staff.

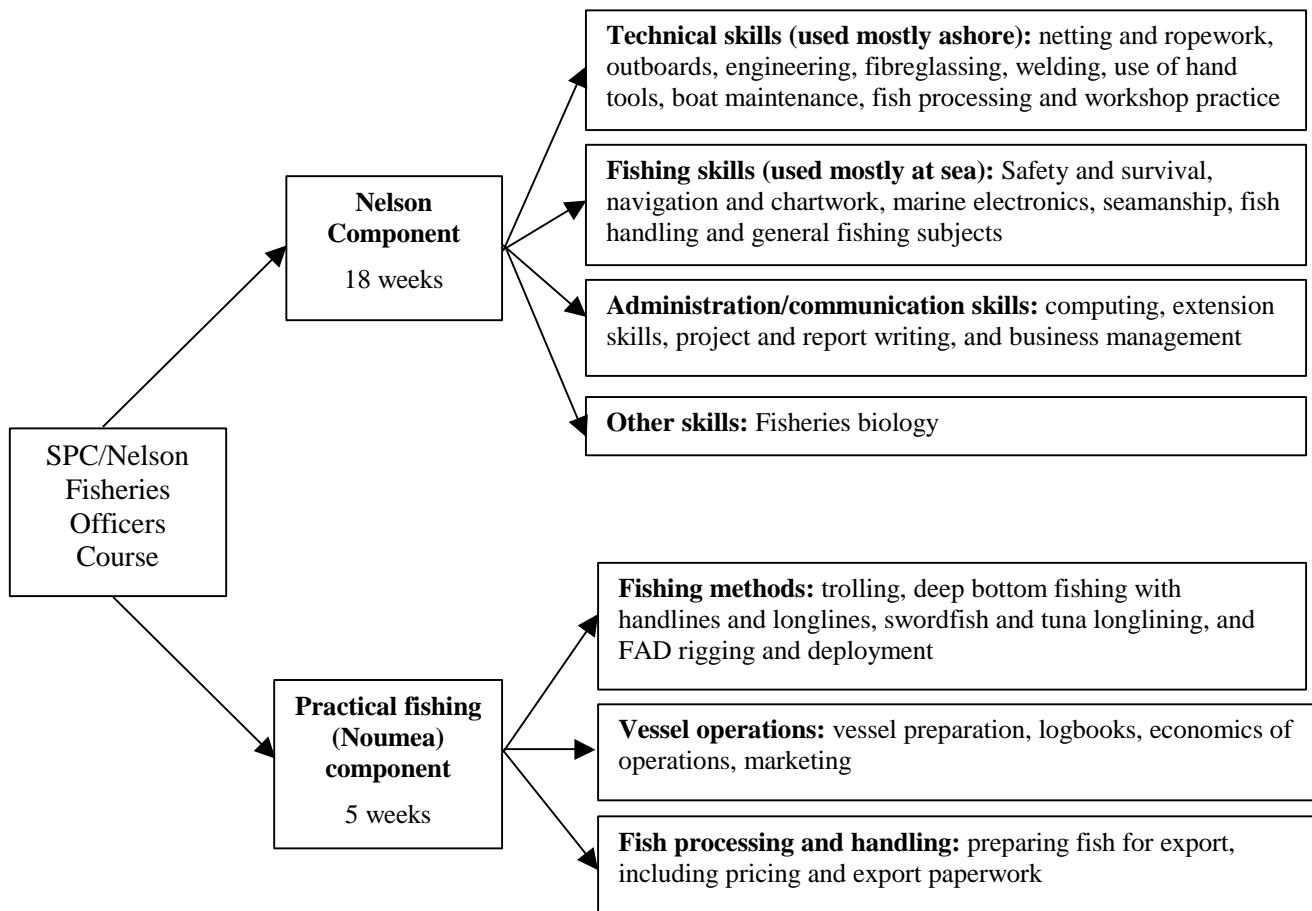


Figure 1: Course structure SPC/Nelson Fisheries Officers Course

Existing Course components (Nelson)

Subjects currently covered by the Nelson component of the Course are analysed in some detail in *Attachment 5*. Some elements of the current Course are considered of minimal relevance and ranked particularly low on a number of HoF questionnaires. These are:

- ?? **engineering workshop practice (28 hours)** – few, if any of the participants will come across the types of machinery and techniques covered; and
- ?? **welding (28 hours)** – again, few participants will undertake welding activities. It is suggested that what is required is little more than a basic knowledge of welding techniques. Where there is a specific requirement for more in-depth training, most PICTs have technical training facilities and are able to deliver the necessary training in country.

Other topics, while useful to fisheries officers, could be shortened considerably and equally or more effectively delivered in country, and to a wider audience, increasing the benefits of training. These are:

- ?? **fibre-glassing (28 hours)** - an understanding of boat/ice box construction/repair would be useful and with welding, could form a much-shortened practical component to reinforce learning;
- ?? **use of hand tools (14 hours)** - most participants have received this training as part of high school education or other vocational training;

- ?? **outboard repair and maintenance (28 hours)** - an important requirement in the islands; suggestion is to retain sufficient time to gain knowledge of basic maintenance and operation. More complex tasks should be fulfilled by the private sector. This would tie-in with the role of fisheries extension officer to facilitate (rather than attempt to undertake) outboard repair; and
- ?? **practical netting and seamanship (45 hours)** - basic net-making can easily be taught in country by some of the 275 past participants of the Course. Seamanship should be retained and benefits from the facilities and expert teaching in Nelson or a similar location.

Removing or reducing these topics would free up around 140 hours for training on other topics as suggested in *Attachment 5*.

A similar argument for local delivery could be mounted for some other practical subjects, including navigation and chartwork and boat maintenance. However the great value of the Course to date has been to combine practical skills with the increasingly significant management-related roles of the fisheries officer. If the syllabus is carefully redeveloped it will still be possible to maintain the key elements of the Course that are fundamental to its success while also reflecting the changing role of the fisheries officer. In this way, a combination of 'hands on' development subjects and more theoretical management-related ones will produce balanced training outcomes that reflect the economic and biological sustainability challenges of fisheries in the future.

In response to feedback from HoF and past participants it is therefore suggested that, subject to careful consideration of subject content, the remainder of the Course be substantially retained.

Suggested new or enhanced Course components (Nelson)

Section 4.1.2 provided an overview of new challenges facing fisheries officers. *Attachment 6* suggests some of the skills required to address these challenges and how the 'Nelson' component can be modified (where necessary) to provide those skills. These strategies should be widely canvassed within countries as well as with specialists in specific areas. The suggestions represent a shift towards sustainable management topics to address resource and habitat threats as well as giving additional consideration to long-term economic viability and the needs of the private sector.

It is again emphasised that key practical elements of the Course should be retained. Innovative teaching techniques, field visits and some practical sessions will need to be used to ensure student interest is maintained and sound learning outcomes are achieved from what will be a more challenging but relevant course.

Recommendation: That the 'Nelson' component of the Course be re-aligned more towards sustainable management and industry development, while maintaining key elements of existing practical training.

Existing Course components (practical component, New Caledonia)

Introduced in 1984, the practical fishing component is designed to give students exposure to relevant tropical fisheries techniques and species. By circulating the practical component between PICTs, it gave an opportunity for participants to experience fisheries in other relevant situations.

Table 1 below shows where the practical Course has been run in the region since 1984.

Table 1: Locations of the practical fishing component of the SPC/Nelson Fisheries Officers Course, 1984-2002

Dates	Location
1984, 1985, 1990, and 1991	Fiji
1986 and 1987	Tonga
1988	Palau
1989	Tuvalu
1992 and 1993	Vanuatu
1996	Kiribati
1994-1995 and 1997-2002	New Caledonia

The practical fishing component is considered to be highly relevant and extremely useful. It is well appreciated by students who are able to directly benefit from the considerable experience of the SPC Fisheries Development Section that, with the SPC Fisheries Training Section, manages this part of the Course. Trips to sea are made on training and commercial vessels to gain practical experience of some of the skills and theoretical knowledge learnt at Nelson, increase practical fishing skills and gain experience of vessel management and operation. Hands on fish processing and the requirements for export are also covered.

Suggested new or enhanced Course components (New Caledonia)

Currently the emphasis of the practical component is on fishing operations. While knowledge of these skills is essential, it is suggested that consideration be given to reducing the number of repeat operations. An understanding and practical experience of the operation is the requirement rather than proficiency in the method. If an individual wishes to gain more fishing experience, then it is likely to be more efficient for that individual to undertake further trips to sea on commercial vessels.

While there has been some involvement of SPC programmes with the Course it is suggested that this involvement be extended. The chance to introduce junior fisheries officers from around the region to SPC programmes presents a substantial opportunity to use specialists and facilities unavailable elsewhere. Key areas where additional involvement could occur are:

- ?? community fisheries management techniques and lessons learnt – this would be facilitated by the SPC Community Fisheries Section, including field trips to local communities in New Caledonia for fieldwork (translation can be arranged);
- ?? reef monitoring techniques, including practical sessions provided by the SPC-managed PROCfish project;
- ?? sessions on tropical aquaculture provided by the SPC Aquaculture Section and ICLARM specialists located at SPC, including visits to, and practical sessions at, tropical aquaculture facilities;
- ?? presentations on tuna fisheries and biology with hands on dissection, aging etc.; and
- ?? experience in the role of observers, port sampling and logbooks including practical sessions.

If the suggested changes are adopted, then consideration should be given to:

- i) changing the name of the practical component to reflect its broader emphasis; and
- ii) extending the duration of the practical component by at least two weeks.

Recommendations:

- ?? **that the current practical component continue to be run in New Caledonia;**
- ?? **that topics offered be broadened considerably in scope to make full use of SPC and other facilities and operations available in New Caledonia; and**
- ?? **consideration be given to changing the name of the component and extending its duration by at least two weeks.**

5.3 Location**5.3.1 Nelson Component**

In discussion with various stakeholders a range of considerations (see Table 2) are considered relevant in the selection of Nelson as the primary location for fisheries officers training.

Sutherland (1992) noted that senior staff from fisheries departments that had attended overseas courses, which were specifically run for foreign students, indicated that such courses were not a preferred means of training their staff. Reasons for taking up foreign training opportunities were cited as; using the opportunity for staff to experience a different environment; taking advantage of a free offer; it was easily organised with minimal effort; and departments did not wish to offend by refusing the offer. Some of these issues were raised by a minority of stakeholders contacted during this review, but were not generally shared.

Difficulty in dealing with training delivered in a foreign language is an additional issue that was raised by PICTs and past Course participants, and can be a constraint for some. Good selection procedures are essential to ensure that participants have an acceptable level of English.

The alternative of spending the same level of funding for overseas training on in-country extension officer training attracted limited support. Some respondents in Papua New Guinea considered that needs for extension training in that country were so vast that it would be better to invest in national training for a number of individuals from Provincial fisheries, rather than send one or two students overseas on a relatively expensive course.

Table 2: Nelson attributes as a centre for fisheries officer training

Issue	Nelson attributes	Comments
'Out of country experience'	See below.	Considered by many to be an essential requirement to maximise learning outcomes. Improves focus. Travel costs can add expense although may be marginal since travel in the region is also costly.
Training facilities	The School of Fisheries and other selected Schools have specialist training facilities in the areas of seamanship, communications, engineering, navigation and seafood handling and processing.	Alternative facilities exist in a number of other training institutions, both in the islands region and in Australia. In the islands, there are few locations (with the possible exception of Fiji) that have a similar range of facilities at a single location. Engineering training facilities exist in most PICTs and several have good maritime training facilities, based on merchant marine requirements (Vanuatu, New Caledonia, PNG, Fiji, Solomon Is., Kiribati etc.).
Modern seafood industry	Nelson has a wide range of seafood companies (catching processing, and export), and corresponding infrastructure to support them.	While some PICTs are rapidly developing their seafood industries, most have some way to go in terms of vertical integration, infrastructure and advanced processing facilities. There is a little value adding (apart from canning in three PICTs and other very limited processing of tuna products).

Fisheries management	New Zealand has an international reputation for innovative and effective fisheries management.	Some progress is being made in the region, but few examples of long-standing management arrangements exist.
Experience and identification with the region	NMIT and its staff have had a long association with the region. A number of School of Fisheries staff have worked in the region.	A regionally-based course would maximise the local input and experience.

Overall, however, it was the view of the majority of respondents (and the reviewer) that there is substantial cost-benefit in providing regional extension officer training in an out-of county context. The primary benefits are:

- ?? an ‘eye opener’ on all aspects (from catching to marketing through to support industries) of modern/innovative fishing and aquaculture industries;
- ?? exposure to different approaches to tackling fisheries management-related issues; and
- ?? an opportunity to network and share experiences with other Pacific Island personnel, allowing for considerable transfer of ideas and initiatives.

Recommendation: That the current ‘Nelson’ (NMIT) component of the SPC Fisheries Officers Training Course continue to be offered at an overseas institution

5.3.2 Practical Fishing Component

See Section 5.2.

5.4 Length of Course

To simply retain all the current subjects and introduce new areas in the Course is not a practical option since the timetable is already fairly intensive. Lengthening the Course is one possibility but most respondents at both HoF and participant level considered the current length of Course to be about right in terms of time away from jobs and families. There is also the issue of funding – the Course is at about the limit of unaccompanied travel and if it were to stretch beyond six months, costs would increase substantially, as well as limiting the pool of those prepared to nominate for the training. Reducing the length of training was suggested by a number of commentators, particularly those observing the performance of students on the practical component in New Caledonia, which is at the end of the six-month training period.

It may be that, after a thorough review of curriculum, it would be possible to reduce the length of the Course and consideration should be given to achieving this.

Recommendation: That the length of the Fisheries Extension Officers Course be no longer than six months (currently 23 weeks).

5.5 Target group and objective of the fisheries officers Course

As noted earlier, the term ‘fisheries officer’ means many things to many people. This review, as directed, has focused on assessing the role of the Course in the context of training participants to work in fisheries extension, with communities, often in remote locations. Before finalising future Course content and emphasis a decision will be required on the target group. It is suggested that in the future the Course should target those that will deal with domestic fisheries, including both the inshore fisheries sector and the expanding longline industry. The Course should emphasise the increasing need for sustainable management at all levels of the fishery by providing a thorough understanding of the relationships between operational, social, economic and biological aspects of fishing.

A suggested objective for the Course would be:

To provide training to Pacific island fisheries officers to enable them to assist fishing communities and fishing enterprises to develop sustainable and profitable fishing operations.

Recommendation: That any future fisheries officers course should focus on the basic training required to promote the sustainable management and development of fisheries resources. This will include the delivery of extension services to remote communities as well as working with and supporting the private sector engaged in tuna longlining and other commercial enterprises.

The Course is currently open to participants from the private sector. Training one-off private sector participants is expensive, and the value is somewhat questionable. In-country technical training targeting various elements of the private sector (e.g. fishing techniques, fish handling and grading, value adding, HACCP accreditation, refrigeration and enterprise management) has been generally successful and is a better avenue for increasing private sector capacity. It is also better value.

Recommendation: That Course participants should continue to be drawn primarily from the public sector.

6. Impact of the Course

In assessing and discussing the impact of the Course, this review focused on its long-standing objectives, which have remained little changed since 1979. Quoting from the current Course announcement, these are ‘...to train Pacific Island fisheries officers or fishermen in those practical fisheries skills required to operate a small fish receiving station or extension centre in a remote location. The training offered covers a wide range of technical skills and knowledge of value to a fisherman or fisheries extension officer responsible for providing support facilities and advisory services to local fishermen’.

It is difficult to separate the performance of individual fisheries officers from that of the overall delivery of extension services in country. In countries like Tonga it has been noted that despite considerable investment in training (Gillett et al 1998), there were substantial problems with the delivery of effective extension services. The degree to which fisheries officers have been able to deliver effective extension services has been hampered by a number of constraints. From discussions with stakeholders (primarily government officials) during field visits the following key constraints were identified.

- ?? **Funding constraints** exacerbated by short term donor interventions that often lead to the creation of permanent positions in the extension services but, once projects are complete, leave the burden of recurrent funding with host governments.
- ?? **Insufficient field time** due to funding constraints – field travel often requires relatively expensive travel allowances that are frequently cut or set too low in response to budget limitations in the general public service.
- ?? Lack of **management direction** from national or provincial governments.
- ?? **Inappropriate roles** as fishermen, fish buyers, processors and mechanics – activities better carried out by the private sector where possible.
- ?? **Poor motivation** arising from limited career prospects, isolated duty stations and limited communications.
- ?? **Lack of standing** in the community due to limited resources and knowledge, and general low productivity.
- ?? Increased **emphasis on the private sector** in training and other programmes.
- ?? Retention of ineffective ‘**top down**’ and ‘**command and control**’ philosophies towards fisheries development and management rather than empowering/assisting communities to develop their own strategies.

Training can help to deal with some but not all of these issues. Others are being addressed by strategies such as shifting emphasis towards community-based approaches or using funding generated from tuna fisheries to supplement recurrent budgets (e.g. Papua New Guinea). Samoa, Tonga and others are implementing major coastal fisheries projects that will assist with the revitalisation of extension services, both to small scale and larger commercial operations.

These issues aside, there are a number of direct and indirect indicators of the impacts of the Course. These indicators include:

Positions held by ex-Course participants. Many of today's leaders in fisheries are former participants of the Course and include:

- ?? General Manager of the National Fishing Corporation of Tuvalu;
- ?? Chief Fisheries Officer of the Fisheries Division of the Ministry of Natural Resources Development, Kiribati;
- ?? Chief Fisheries Officer of the Fisheries Division, Wallis and Futuna;
- ?? Director and Chief Licensing Officer, Marshall Islands Marine Resources Authority;
- ?? Head of Fisheries and Aquaculture, Department of Natural Resources, Southern Province, New Caledonia;
- ?? Fisheries Adviser (Head, Division of Fisheries) Morobe Province, Papua New Guinea; and
- ?? Heads of Provincial and State fisheries services in various PICTs, including the Federated States of Micronesia and Solomon Islands.

While some of these individuals will have undertaken additional training and education en route to their current position, the Course provided an excellent basis in fisheries on which to build career progress in fisheries.

Retention of past SPC/Nelson course participants in fisheries. Of the 163 individuals who have completed the Course and whose current positions were determined during the review, around 60% remain in employment with fisheries departments (see *Attachment 3*). By far the most common positions held by ex-students of the Course are in extension services, where the multiplier effect of training is likely to be greatest, particularly in terms of reaching communities.

Course satisfaction and demand. The Course has consistently been supported by PICTs over the past two decades, primarily on the basis that it has been responsive to change and provides training that is needed. Courses in the past have frequently been oversubscribed and the forecast demand for the Course over the next decade remains strong (see Section 8.3).

Use of the Course as a training benchmark. As previously mentioned, the reputation of the Course is such that it is used as a recognised qualification within fisheries departments.

Positive feedback from trainees. Evidence from questionnaires, interviews with past students during visits and end-of-Course reports indicate that participants leave the Course with a much-enhanced ability to tackle a wide range of duties.

Increasing numbers of women in fisheries. In 1998, Samoa sent the first female student to attend the Course. Since then five others have attended, two from Tonga, two from Kiribati and one from Niue. This avenue of training provides a good opportunity for island women to become involved in one of the fastest growing industries in the region by completing a well-recognised and accepted training course.

In an ideal world, all Course participants would be of equal aptitude, be able to use their new skills to the good of the community at large, and would gain rapid promotion in their chosen career. This is not realistic. Considering the opinions of the fisheries departments as the major clients and the realities of the region, the reviewer considers that impacts of the Course over the last 20 years reflect good value for money in terms of training outcomes and the sustainable management and development of fisheries.

7. Student selection and funding issues

7.1 Student selection and briefing

There are few formal barriers to entry to the Course. The current SPC Course announcement stipulates:

- ?? orientation of the Course towards government fisheries officers or extension agents;
- ?? the Course is also open to private fishers subject to government nomination;
- ?? the Course is suitable for female participants;
- ?? it is essential for participants have a good command of both written and spoken English;
- ?? nominated candidates have sufficient work experience to benefit from the Course; and
- ?? nominated candidates should be between 20 and 35 years of age.

Most stakeholders viewed these selection criteria as reasonable, although NMIT staff were particularly concerned at the age limit. They felt that the experience with older (but not necessarily senior) students had been overwhelmingly positive and that, on the whole, they were very rewarding to teach. In addition, older students tended to promote a responsible attitude to learning among students as a whole and generally provided valuable input from personal experience.

HoF are asked to put forward ranked nominations accompanied by a Government endorsement. Short listing and selection of students by SPC usually occurs in December. Application forms are carefully reviewed, including comments from HoF. Particular attention is paid to assessment of the motivation of the candidate. Steve Beverly of the SPC Fisheries Development Section also provides comments on applications based on assessment of practical fishing and other experience.

The short period of time between nomination, approval and the start of the Course in late January or early February can be problematic and each year a number of students commence the Course late due to administrative problems, including processing of visa applications.

Briefing is provided through a range of documentation, commencing with the invitation to apply and a number of follow-up documents, including an explicit document on the Course provided to successful candidates. Given the problems with timing (selections are often last-minute as noted above), it is not clear that participants fully understand their commitments in terms of their input as well as what will be supplied in terms of allowances, living conditions, etc. The issue of timing of notices concerning training courses has been raised previously at RTMF.

It has been suggested that fisheries administrations often wait until the last minute to forward the Course advertisement to provincial offices. Official endorsement by Foreign Affairs within countries can also hold up the process.

One factor contributing to the short lead-time has been the uncertainty associated with funding and the need to hunt around for funds on an annual basis. It would be helpful if a more certain funding commitment for the Course could be achieved.

Recommendation: That a longer lead-time be allowed between invitations to apply and the commencement of the Course to allow for effective national selection processes, adequate in-country briefings and administrative and student preparations.

7.2 Entry-level

There is little doubt that there remains strong support for the Course as the primary means of addressing broad-based training needs for fisheries officers in the region. While a number of countries (e.g. Tonga) use the Course to meet entry level needs, others (e.g. Solomon Islands) would prefer to see the standard raised slightly to ensure that all participants have a basic ability to deal with the Course material as well as some fisheries experience to place the material in context.

As discussed, different levels of trainee experience, education and language ability can severely restrict the effective delivery of the Course. A number of past students commented that particular years/units were held back at times due to the entry level and/or English ability of fellow students. It is suggested that the entry requirements for the Course be elevated slightly to build on past training in some areas but still be broad-based in approach, including basic introductions to most subjects. Other current criteria should be adhered to and, where possible, a number of candidates from each country could be nominated to allow the selection process to be more rigorous.

It is suggested that at least two years experience dealing with the fisheries sector be a pre-requisite for the Course. This is based on feedback from countries and participants who feel that outcomes are sometimes prejudiced by sending persons with no experience in fisheries. Others may consider this to be excessive for what is essentially a foundation course.

<p><u>Recommendation:</u> That Course entry requirements be reviewed and consideration given to an entry requirement that includes one or two years fisheries experience.</p>
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7.3 Funding issues

7.3.1 Budget

For a summary of the Course budget see Table 3. *Attachment 7* provides a full budget breakdown for the 2001 Course. The approximate cost per student is NZ\$30,000, assuming an intake of 11 students. In 2002 the Government of New Caledonia provided a donation of CFP4 (NZ\$68,800) million in support of the practical fishing module and the Commonwealth Foundation and Commonwealth Secretariat reduced the number of places funded from 3 and 4 to 2 and 3 respectively.

PICTs that send trainees on the Course provide a contribution to the costs of the Course (USD2,380 or NZD4,760 per participant) as agreed to at RTMF in 1996. This payment was instigated to help deal with funding difficulties, including exchange rate movements, that were being experienced at the time. To the knowledge of the reviewer, this is one of the only fisheries courses where PICTs pick up a substantial proportion of the costs, and is indicative of support by Governments in the region.

Table 3. Summary Course budget, 2001

	Foreign Currency	CFP Amount
INCOME		
NZ Government	NZD 130,000	6,774,062
Commonwealth Secretariat	STG 30,000	5,730,900
Commonwealth Foundation	STG 21,000	4,054,098
Participant Course fees		1,231,824
TOTAL INCOME		17,791,874
EXPENDITURE		
Nelson module	NZD 186,654	11,397,412
Practical Fishing module	NZD 68,794	4,200,713
General expenditure, including airfares	NZD 63,420	3,872,618
TOTAL EXPENDITURE (10 students)	NZD 318,868	19,470,743
SURPLUS/(SHORTFALL)		(1,678,869)

In addition to these costs, SPC staff time, including salary and all on-costs is around \$51,000 per annum (see Section 9).

In comparison with other overseas technical training the Course is not overly expensive as a six-month programme involving a high level of practical work. The latter is essential to achieving the Course outcomes. A mechanical engineering course at NMIT for instance would attract slightly higher tutorial charges for international students (\$9,500 vs. \$8,300 per student). Indications are that a similar course run in Australia would cost about the same in tutorial charges.

7.3.2 Donors

Sourcing funds for the Course has been an ongoing problem for the SPC Fisheries Training Section, despite appeals made by countries at a number of RTMF meetings. New Zealand has provided substantial funding support for the Course every year since its inception and is now looking forward to the outcomes of this review.

Commonwealth Secretariat and Foundation funding is provided on a per student basis to cover specified costs, including tutorial charges, educational material, accommodation and allowances. They prefer that other donors fund travel costs. Formerly the Commonwealth Secretariat provided a 3 year funding agreement but both Commonwealth donors are currently only willing to consider applications on an annual, ad hoc basis, and funds are not currently provided for in their established budget planning process. These donors are also looking to this review to inform future decisions on funding.

The CFP 4 million (NZ\$68,800) funding commitment by New Caledonia was renewed for 2002. From informal discussions between the SPC Fisheries Section and Government officials in New Caledonia it appears that this funding could become a regular annual commitment, contingent on the practical component remaining in New Caledonia.

In addition, there is a form of donor funding provided for in the time spent by Fisheries Training Section and other SPC staff on the Course. Around 22 weeks in total from four staff are utilised, at a total cost of NZ\$51,260 (including all salary on-costs).

7.3.3 Student allowances

The level of living allowance provided by SPC has been an issue for some students. The information provided to students clearly states that only a small allowance (it is currently \$105 per week) will be

paid to cover basic costs over and above accommodation and food costs, which are met by SPC. Despite this, some students, possibly used to the relatively generous *per diem* rates paid for overseas travel, have caused significant problems on the Course, to the point of influencing learning outcomes. It is considered that a more detailed briefing is required before students sign up for the Course to ensure that there is no misunderstanding about the level of allowances they will receive. It is relevant to note that students usually receive full pay while overseas.

8. Human resource development

8.1 Upgrading, unitisation and accreditation opportunities

Interest has been shown in upgrading the SPC/Nelson course into a Certificate programme or at least in formalising some of the modules in a way that could be used to support later vocational studies. In 1992 RTMF considered the issue of upgrading the Course to a certificate and recommended that it remain in its current form. During this current review, some past participants considered that a longer course and a formal qualification would be advantageous to career advancement, but it was not entirely clear if much consideration had been given to cost-benefit results in terms of fisheries extension and other outcomes.

An alternative approach is to consider existing accreditation schemes to see if some of the Course units could fit such schemes while remaining relevant to Pacific island fisheries. The suggestion to unitise the Course to improve portability is not a new one. The representative of Vanuatu at RTMF in 1994 suggested that the Course be modularised, thereby making it easier to offer in other locations around the region. Following discussions with the Seafood Industry Training Council and NMIT staff there appears to be good scope for applying existing NZ fishing industry unit standards registered under the New Zealand Qualifications Authority (NZQA) to a number of the subjects currently delivered on the Course. This would formalise and standardise elements of the Course, enable students to progress towards other qualifications where appropriate, and provide a level of quality assurance against a well-accepted industry standard. Part of the qualification requires assessment of the unit standard under working conditions (e.g. cleaning and sanitising plant and equipment in a seafood processing plant), which could be done during the practical component.

<p><u>Recommendation:</u> That SPC and the training provider give full consideration to unitising the Course where possible and accrediting relevant sections under the New Zealand Qualifications Authority fishing industry standards or some equivalent accreditation scheme.</p>

8.2 The role of SPC/Nelson course in human resource development strategies.

Of the 14 questionnaires returned by HoF, 9 (64%) have training plans and the Course is an integral part or vital to those plans. Of the other HoFs, three did not have training plans (but were supportive of the Course) and two (Guam and New Caledonia) have training plans but the fisheries officers' course is not part of these. Of these two, only Guam felt that the Course was not relevant to their needs.

The sheer range and types of training available for fisheries staff can lead to indiscriminate and unplanned training that tends to strip already stretched fisheries departments of staff. The notion that 'all training is good training' is a problem identified by the SPC Fisheries Training section and others in the past. It appears from the interviews conducted and comments received that the Course is considered to be a fundamental building block for human resource development (HRD) in PICT fisheries departments. The fact that some PICTs use the Course to train junior staff almost as a matter of course is not seen by them to be an indiscriminate use of training without clear HRD objectives. Rather, they consider that due to the multidisciplinary nature of fisheries, a broad understanding of all key issues is vital to future career paths and the effective operation as fisheries officers.

8.3 Future needs for fisheries officers' training

It is clear from *Attachment 2* that demand from fisheries administrations in the Pacific for the SPC/Nelson course, or an equivalent, remains strong. Over the next 10 years, the total estimate from the 14 countries where HoFs responded was that there would be a need for between 84 and 103 places

for fisheries officers. Based on past participation, it is estimated that there will be an additional need of around 20 to 24 students from those countries that did not return questionnaires. This equates to around 10 to 12 students per annum.

In addition, it is envisaged that some private sector personnel will continue to be sent on the Course. Since 18 have attended the Course in the last 10 years, this would add around an additional 2 students per annum.

8.4 Other reviews of fisheries training needs in the Pacific region

A number of studies dealing with fisheries training have been completed during the life of the SPC/Nelson course. Many of these are included within fisheries project or technical reports, including those from the SPC Coastal Fisheries Programme. The most significant relevant training reviews to occur to date are:

- ?? a fisheries sector human resources and planning development study completed by Sutherland and his team in 1991 (Sutherland et al. 1992), which included 14 country studies; and
- ?? a more recent marine training and education needs assessment done in 2000 by Dick Watling under the auspices of USP (Watling, 2001).

Sutherland noted the need for ongoing extension training and, after considerable field research, concluded that the in-country extension courses conducted by SPC at the time should be continued as a useful model. The ongoing nature of such training was recognised with a recommendation to provide upgraded 'refresher' extension courses designed to build on and reinforce basic skills. The changing roles of the extension officer (i.e. shift to the privatisation, dealing with overfishing problems and the related requirement for the collection of inshore fisheries data, and the need to increase awareness of fisheries issues in the community) were also flagged by Sutherland.

Watling (2001) made specific mention of the SPC/Nelson course, and recommended that it and other similar courses and programmes dealing with 'fishing techniques' should be modified but not abandoned. Some specific needs in relation to training relevant to extension officers were highlighted and included simple and robust techniques for reef monitoring, and community level training in marine ecology and taxonomy.

8.5 Other training opportunities

The SPC/Nelson course is considered unique in the region. Some national fisheries extension officer training is being carried out in Vanuatu, Kiribati and at USP but not at the comprehensive level provided by the current Course.

The Japanese International Cooperation Agency (JICA) Kanagawa International Fisheries Training Centre in Kanagawa, Japan, offers a wide range of courses suitable for PICT fisheries extension officers. A number of staff from fisheries departments in the region has attended the courses, which include fishing gear, extension, fisheries management, hull and engine maintenance and fish handling and processing. The Overseas Fisheries Cooperation Foundation (OFCF) also funds courses relevant for fisheries officers, but offers are limited to those countries with fisheries agreements or joint ventures with Japan. Feedback from participants and fisheries departments obtained during the review indicates that the courses tend to be more specialised and less applicable than the SPC/Nelson Course.

Other training providers were approached to determine capability to provide a course with a similar content and training outcomes to that currently provided by NMIT. These were: Manakau Polytechnic (Auckland), Bay of Plenty Polytechnic, the Australian Maritime College and the Australian Fisheries Academy. All are capable of providing the majority (if not all) of units currently delivered at Nelson, although it is beyond the scope of this review to undertake a comprehensive comparison.

USP indicated interest but are in a state of considerable flux following the recent review, a possible restructure and the resignation of the Director of the Marine Studies Programme, as discussed earlier. Given these factors, as well as the low likelihood of gaining adequate funding and the previous recommendation that the Course be provided outside the region, USP is not considered as a viable alternative at this time.

9. The future role of SPC in Fisheries Officer Training

Over the period of the Course, the SPC Fisheries Training Section has increased emphasis on the coordination of training for the private sector, including traineeships, enterprise management, seafood quality and vessel crew training. This shift has been a result of improved outcomes, primarily as a result of private sector having the funds and opportunities to capitalise on the training provided. The Course represents the Training Section's last major training programme targeting the Government Sector.

SPC has a substantial involvement in the Nelson Course on an annual basis, at a total cost of about NZ\$51,000. This involvement consists of:

- ?? SPC Fisheries Training Specialist (Terii Luciani) and Project Assistant (Christine Bury) spend around two person weeks on Course administration and coordination, including processing of applications, liaison with fisheries departments, compilation of final reviews and donor liaison and reporting.
- ?? SPC Fisheries Training Specialist and the SPC Fisheries Training Adviser (Michel Blanc) spend around six person weeks each planning, organising and teaching (part time) on the practical fishing module. The Fisheries Development Officer (Steve Beverly) spends around six weeks on the same module. Activities of SPC staff include the management of boats, resource persons, fishing trips and fish marketing.
- ?? SPC provides a range of training materials to NMIT to support the Course, including Course materials and videos.

The Course is a major activity for the Fisheries Training Section of SPC. It is expensive in terms of staff time, particularly in the area of processing applications, Course administration and sourcing funds.

While the Course is clearly meeting identified needs in the fisheries sector, consideration was given to the possibility that there will be a disappearing need for the Course (and SPC involvement) as fisheries departments stabilise in terms of staff levels or for budgetary and other reasons. This reduction in demand is unlikely to occur for at least five years, but should be carefully examined in future reviews

Another entity in the region such as USP may become capable or and/or interested in managing and co-ordinating the Course. USP could also fulfil the role of training provider. Future involvement of USP in the Course will depend heavily on the direction USP takes with respect to certificate/diploma level training in fisheries. While USP has an active seafood handling and processing section dealing with industry issues, there is limited USP involvement with other technical/hands on aspects of fisheries.

An entity or country outside the region (e.g. Japan) may decide to offer (as well as fund and manage) a similar course to that provided by the current Nelson Course. It seems likely that neither the Kanagawa Fisheries Centre nor the OFCF courses will fit the bill as alternatives. The former offers relatively few places per annum while the most relevant OFCF course (the Pacific Island Nations Coastal Fisheries Extension Course) excluded many PICTs, limiting participants to '...those nations with which Japan keeps a close relationship in the fisheries field.'

The SPC Fisheries Training Section has the objective of filling gaps that the established training institutions cannot fill and has stated that once the Course can be financially and institutionally self-sufficient within the region it will withdraw from involvement and assist with elsewhere (SPC 2002). For at least the next five years however, it is difficult to see an entity other than SPC that could provide effective support for the co-ordination of the fisheries officer course

As previously discussed, greater involvement of other SPC staff and programmes on the Course (see Section 5.3.2) will add considerable value and extend these activities among a cross section of the region's up and coming fisheries officers. It will also maintain a balance in the Fisheries Training Section between the needs of the public and private sectors.

While there are sound reasons for running the Course out of the region (see Sections 4.1 and 5.3), it is important that the extensive use of the lessons learned in the region over the past 20 years are fully utilised. It is suggested that the Course curriculum be carefully reviewed and scrutinised for Pacific island relevance given recent developments.

The SPC has a wealth of training and other materials that are already used extensively and there may be scope to increase their use. In addition, the SPC Fisheries Training Section would seem to be in a position to take a key role in the development of a revised curriculum (with adequate consultation). As a step towards this, SPC specialists should review curriculum in relevant areas (especially inshore fisheries management, fisheries development, community-based management, aquaculture etc). An outline of this revised curriculum could then be presented to the 2003 HoF meeting for comment and input.

Following comment and input from HoF it would then be possible to either invite bids from training providers or negotiate the continued provision of training at Nelson, reflecting the revised curriculum.

Recommendations:

- ?? the SPC Fisheries Training Section continue to act as Course manager/coordinator, for a period least for a period of five years;**
- ?? SPC undertakes a review of the curriculum in relevant areas and provides an outline of a revised curriculum to the 2003 HoF meeting for comment and input; and**
- ?? invitations to training providers to bid for provision the Course be arranged; alternatively, negotiations could be directly entered into with NMIT for continued delivery of the Course**

10. Conclusions

There is little doubt that the SPC/Nelson Fisheries Officers Course has had a positive impact on the fisheries of the region. Quantifying this impact is difficult, primarily due to the degree of confounding caused by the resource shortages and management challenges facing national fisheries departments and extension services.

The dynamic nature of fisheries in the region and the growing focus on the value and use of fisheries resources for economic benefit and food security is placing growing demands on already stretched fisheries departments. Appropriate training in key areas will help address these demands and promote the use of new and innovative strategies to facilitate sustainable fisheries development.

The reviewer supports the continuation of the Course, with the strong recommendation that the current development and fishing emphasis in fisheries officer training be more balanced with basic fisheries management and development skills. Particular attention should be given to learning about community-based other participatory initiatives that will be less reliant on government to provide funding and control and more on communities and industry to take responsibility for ensuring a sustainable future for their fishery.

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Review of the SPC/Nelson Fisheries Officers Course

Terms of Reference

Secretariat of the Pacific Community

1. INTRODUCTION

To review the role, goal and objectives of the SPC / Nelson Fisheries Officers course in support of fisheries administrations in the region, to evaluate its effectiveness in meeting stakeholder expectations and to advise on how SPC can best fulfill its mandate for fisheries officer training in the future.

2. RATIONALE

This review is part of the programme of evaluations that the Secretariat of the Pacific Community undertakes as part of its corporate commitment to “project development, programme monitoring and impact evaluation”, to “increase accountability” and to excellence “in the delivery of priority work programmes aimed at improving the well-being of Pacific Island people (SPC Corporate Plan 1999 – 2003).

Since its inception in 1979, and under the technical scrutiny of senior fisheries officials gathered at the Head of Fisheries meeting (HoF), the course syllabus and structure have been continually revised to reflect the changing needs of Pacific Island countries. Changes and developments in the fisheries sector in the Pacific, which may influence the future direction for the training of fisheries officers, make it an opportune time to review the course. These include:

- The rapid growth in the localisation of the tuna longlining and other fisheries in the region previously dominated by overseas and foreign operators;
- Global changes in fisheries management practice;
- Growing public concern regarding the sustainability and side-effects of fisheries; and
- Growth within the aquaculture sector.
- Growth of other training providers in the Pacific.

3. THE NELSON FISHERIES PROGRAMME

The SPC/Nelson Fisheries Officers course has been, since 1979, part of the programme of activities for the Fisheries Training Section of the SPC Coastal Fisheries Programme. The Fisheries Training Section was established as an umbrella project to co-ordinate all SPC fisheries training activities and to organise specialised training courses in subject fields not generally available within the region.

The course is financed from a range of sources including the New Zealand government’s aid programme, the Commonwealth Secretariat, the Commonwealth Foundation, the government of New Caledonia and participating countries and territories.

Table 1 : Participation by countries from 1979 to 2001.

	1979-1996	1997	1998	1999	2000	2001	Total
American Samoa	1						1
Cook Islands	8						8
Federated States of Micronesia	16		1				17
Fiji	22	1			1		24
French Polynesia	4			1			5
Guam	3						3
Kiribati	17	1	1	2	2	1	24
Marshall Islands	6	1	1				8
Nauru	3	2	1	2	1	1	10
New Caledonia	8		1				9
Niue	6					1	7
Northern Mariana Islands	5	1			2		8
Palau	7	2			1		10
Papua New Guinea	25	1		1			27
Samoa	9	1	2	1	1	1	15
Solomon Islands	22			1	1		24
Tokelau	4					1	5
Tonga	17	1	2	1	2	3	26
Tuvalu	13			2		1	16
Vanuatu	13		1			1	15
Wallis & Futuna	2					1	3
TOTAL	211	11	10	11	11	11	265

4 Scope of Services

Relevance to the Pacific Island Countries and Territories (PICTs) and Impact

1. Obtain the views of PICT governments and other stakeholders such as National Fisheries departments, former students, employers, the course providers and donors on whether the course is teaching the skills they believe are most needed, and what skills are likely to be needed in future to address national fisheries trends.
2. Assess the quality of the course curriculum and structure, with particular reference to appropriateness and relevance. Review the curriculum and resource materials, consider if the programme is of the right duration, and if the course is taught in the most effective way.
3. Find and review outcome indicators such as evidence of skills being applied by trainees, and the current positions and contributions of trainees to local or regional development or other capacity, etc. (the reviewer will visit a number of countries and conduct surveys of and interviews with former trainees and their employers). Based on these findings, draw conclusions about the impact of the course.

Student Selection and Funding issues

4. Determine the course unit cost (i.e. cost per student), taking into account direct course costs and SPC staff costs directly related to the course, in-kind contributions by PICTs and contributions by donors and member governments.
5. Review & document the student selection procedures, and if there are problems, analyse causes and propose remedies.

6. Comment on the mix of funding sources and assess the possibility of PICTs being able to increasingly meet all or part of the training costs. Consider also the opportunity to use bilateral aid for scholarships.

Human Resource Development

7. Explore the opportunity for and potential benefits from accreditation of the course, or parts of it, through the New Zealand Qualifications System, or other training accreditation systems in the Pacific to establish such training in other regional training institutions.
8. Identify whether the course is part of human resource development strategies of recipient countries' fisheries organisations and estimate future needs for Fisheries Officers training in the region.
9. Explore alternative options to the current SPC/Nelson Fisheries Officers course, including both financial and logistical implications

The Future Role of SPC in Fisheries Officer training

10. Based on the principal findings and recommendations from the TORs above, make specific recommendations with regards to the future of the course and PICTs, donors' and SPC's role in Pacific Island Fisheries Officer training.

5. METHODOLOGY

An independent expert (the Reviewer) with extensive experience in vocational training and fisheries development in the Pacific will conduct the review. He/she will have full responsibility for the satisfactory completion of the review, including the preparation of the review report.

SPC's Fisheries Training Section will assist with the logistical aspects of the review. Michel Blanc will be the point of contact in Noumea and will also assist in the organisation of the review. The Reviewer will report to the SPC Director General who will also be, for contractual purposes, the Reviewer's client. The Director General will be represented by the Head of the SPC Planning Unit and the Director of the Marine Resources Division as necessary. Remuneration of the reviewer's contract will be output-based, rather than activity-based.

The reviewer will take the following broad approach in carrying out the tasks detailed in the TOR:

- ?? Attend an initial briefing at SPC Noumea (involving the Director of Marine Resources, the Fisheries Training Adviser, other staff of the SPC Marine Resources Division and the Planning Unit)
- ?? Study relevant reports and course documents including the course outline, database of former students as well as working papers presented at previous regional Heads of Fisheries meetings.
- ?? Conduct a survey (by surface or electronic mail) of heads of national fisheries services, seeking views on course impact and relevancy as well as selection and funding issues
- ?? Visit the NZ School of fisheries, inspect facilities and resource materials, and interview relevant staff
- ?? Discuss fisheries training approaches and the NZ industry experience with the NZ Seafood Industry Training Organisation, Wellington, New Zealand (www.sito.co.nz, Barbara Johnsen, General Manager)
- ?? Conduct face-to-face or telephone interviews with relevant stakeholders and beneficiaries(in a number of countries, including New Caledonia and two-three other PICTs. Those consulted should include:
 - Former students
 - Directors and/or Senior staff of national fisheries departments
 - Senior staff of other training institutions involved in fisheries training

- Managers of fishing companies (fishing boat operators and fish processors) employing staff who have completed the Course
- ~~///~~ Brief the client and the Fisheries Training Section on preliminary findings and recommendations towards the end of the fieldwork.
- ~~///~~ Prepare draft and final reports, in English, as specified below:
- ~~///~~ If possible, and appropriate, provide the SPC Heads of Fisheries Meeting (tentatively planned for October in Fiji) with a short briefing on the review (travel costs would be provided for).

Subject to flight schedules, the review is expected to take approximately three weeks of fieldwork. One week will be available for preliminary work and report writing. The review is expected to be conducted and completed as soon as possible.

Within one week of the completion of the fieldwork, the Reviewer will prepare and submit the **Draft Report** for consideration by the Secretariat together with NZAID (Pacific Regional Coordinator), which will respond with their comments.

The Reviewer will consider the comments, and incorporate any reasonable changes and modifications suggested or required into the **Final Report** no later than one week after the receipt of the comments on the Draft Report.

The structure of the reports will closely follow the Terms of Reference for the review. It must be clear from the report how the Reviewer has addressed each TOR. The final report will include an Executive Summary (including a list of recommendations), the main report of no more than 25 pages and any essential annexes. Recommendations are expected to focus on, and be limited to, the main issues.

All reports will be prepared in Microsoft Word format (PC version) and submitted to SPC by electronic mail. SPC will take responsibility for producing and distributing –as appropriate – bound hard copies of the report.

The copyright for the report will rest with the Secretariat of the Pacific Community.

Expected Review Outputs

- ?? Briefing on preliminary findings and recommendations
- ?? Draft Report
- ?? Final Report

ATTACHMENT 2

Selected comments on the SPC/Nelson Fisheries Officers Course provided by national fisheries departments

Country/Territory	Is the Course meeting needs?	Is Course duration about right?	Comments on existing Course	New skills most likely to be needed by fisheries officers in the future	Numbers for future training over next ten years	Other comments
Cook Islands	The Course is meeting the needs of the Ministry and is fully relevant; ex students have been able to adapt to a wide range of working conditions and were well suited for the positions.	Yes, for fisheries officers. Private sector needs shorter, more targeted courses.	Reduced need for net work, boat maintenance, welding etc, Would like more emphasis on subjects that cannot be offered in the Cooks, e.g. HACCP, marine electronics etc.	Vessel management, aquaculture, marketing, HACCP and risk management, community based management. export documentation and fisheries legislation and compliance.	4-5	Some topics such as fisheries resource assessment and environmental assessment generally require long-term studies. Given that the tuna industry is developing in the Cook Is it is important that training be related to this activity. Hope aquaculture will be tropical and that the Course coordinator works closely with the SPC aquaculture adviser in designing the curriculum.
Fiji	Course is fully relevant to needs of Fiji and is a key part of training for fisheries officers.	Yes	Reduced need or practical netting and seamanship, engine workshop practice, and other practical subjects. Strong emphasis on extension and communication, fisheries biology, business management and computing.	The Course is now moving towards sustainable management and conservation of marine resources and hence the need to move towards these topics (domestic longline/industry development, marketing, environment and management, etc.	9-10	Fiji Fisheries Department has just finished its tuna management plan and a review of fisheries legislation. Next priority is to carry out resource profiles and management plans at village (qoliqoli) level. Future orientation of Course towards conservation and management blends in very well with future development plan
Guam	The Course is mostly NOT relevant to the needs of the Fisheries	NA	While some parts of the Course are relevant to our	NA	0	The Fisheries Section has a relatively small staff, composed of biologists and

	Section of Aquatic and Wildlife Resources.		mandate others are not; our fisheries programme is primarily concerned with recreational fishermen.			technicians. Biologists are required to have at least a Bachelor's degree, while technicians must have fishing experience to qualify for employment. Guam cannot afford to send anyone for 'such a lengthy training'.
Kiribati	The Course is fully relevant and as a multidisciplinary course, it covers all aspects required of a fisheries officer.	Yes	All subjects useful to vital. Extension, fish handling, safety and survival at sea and practical fishing of greatest value.	Greatest emerging skills need will be in the area of supporting domestic industry development (tuna longlining). Also vessel management, HACCP and risk management plans, environmental management and computing.	9-10	Need to emphasise the capability of the environment and how we can manage marine and fisheries resources. Should be a balance between how we harvest fish and at the same time are able to conserve fish populations and the environment. May need to offer different courses over time to account for different skillbase needs.

Nauru	The Course is fully relevant, but does not meet all needs of the Nauru Fisheries and Marine Resources Authority.	Prefer 12 months to allow for new subjects and retention of practical areas such as aluminium welding.	All subjects currently taught either vital or very useful. Fibreglassing considered to be a low priority.	Conservation issues, value adding and aquaculture. Also vessel management, fisheries management, marketing, HACCP. and fisheries science.	9-10 +	The SPC/Nelson course is vital to the development of a skilled workforce in Nauru. Essential that new modules are added in the future, but that hands-on modules are retained. May be possible that existing modules continue to be taught in Nelson and new muddles in Fiji, using USP and FIT.
New Caledonia	The Course is fully relevant and meets all needs	Yes	Very useful subjects include extension, general fishing, fish handling, business management and practical fishing. About half the subjects are of some use, but not a priority.	Some support for additional subjects, including domestic industry development, aquaculture, resource assessment and computing .	0-4	Vies on the Course vary between Provinces.
Niue	Almost all the Course is relevant to needs. It provides an opportunity for new fisheries officers to gain a wide appreciation of fisheries related work as a foundation for further specialisation.	Yes	Most subjects vital or very useful. Practical netting, fibreglassing, and welding are not a priority.	Vessel management, domestic industry development, fisheries management, fish marketing, fisheries science and the expanded use and application of computers.	1-3 or 4/5 if tuna industry is developed.	Having officers that have a basic knowledge and feel for operating boasts, outboards and other fisheries related tools is very useful, particularly given limited personnel.

Northern Mariana Islands	Almost all Course content relevant to needs. Very helpful to meeting development goals.	Yes	All subjects vial or very useful.	Would like to see Course broadened to include additional work on environment/ resource issues, HACCP, vessel management and domestic industry development	10	The Course and other SPC activities have been very useful to fisheries development in CNMI. Would like to see some in-country training courses if funds available.
Papua New Guinea	The Course is relevant to needs. Due to the size of PNG there remains a clear need for the type of broad-based training provided by the SPC/Nelson course. With the Provincial needs for extension services within PNG, the Nelson course is meeting (and is likely to meet) only a small proportion of these needs.	Yes	The Course is running well, and subjects are generally vital or useful, with the exception of welding.	Emphasis required on the basic principles of fisheries management, community-based initiatives and support for the private sector as those while will be direct players in the development of the fishing industry.	12	A number of the public sector officers trained have found difficulties in directly implementing skills acquired from SPC/Nelson training, course to limited government support and planning. In the future, NFA will be working with Provinces to identify training needs and plans to ensure that benefits from future training are fully realised.
Samoa	The Course is fully relevant to the needs of Samoa and is the best course offered in the region – it addresses both theoretical and practical aspects of our needs	Yes	Current topics generally vital or very useful. Welding and fibreglassing are of some use, but are not a priority.	Knowledge of vessel management in the longline fishery a priority. Also interest in fisheries management related topics, aquaculture, environmental management and computing	1-3	The Course needs to be upgraded.

Solomon Islands	The Course is relevant and based on feedback from trainees and supervisors the Course has met the needs of Solomon Islands.	Yes	All current topics have relevance to fisheries. Of particular benefit are extension and communication skills, and fish handling.	Resource management topics should be included in all future training, The fail of small fishing business is due to poor business management and more topics should be included in this area.	9-10	The SPC/Nelson course will continue to be useful for the future, with changes as needed. While fisheries development will continue to be a priority, there is an equal need for resource and environment protection, and management.
Tonga	The current Course is fully relevant to Tonga's needs. It provides all new recruits with an opportunity for a basic appreciation of fisheries subjects and issues.	Yes	Generally satisfied with current subject mix. Could deliver some elements of training locally. Extension skills, navigation, fish handling, safety and survival, fisheries biology and practical fishing especially useful.	Strong support for more tropical aquaculture, and basic resource assessment and monitoring. Also HACCP plans, fisheries management related skills and domestic industry development.	9-10 +	The SPC Nelson course is very significant to training for fisheries officers in Tonga. It is THE most relevant training available and its continuation as a good introduction to the 'world of fisheries' is strongly supported.
Tuvalu	There is no question that the Course meets our needs and is fully relevant for fisheries officer training.	Yes	All subject considered vital or very useful; only exception practical meeting and seamanship.	Reduce emphasis on general fishing subjects, engine workshop practices. Support for introduction of private sector support topics (vessel management, industry development HACCP etc and fisheries management.	6-8	The Course is vitally important to our manpower development. Finance is often a constraint and there may be ways to source funds internally so that we can at least contribute to and/or support the SPC/Nelson course so that it can run on for the next 10 years.
Vanuatu	The Course is very useful and fully relevant, especially when there is	Yes	Almost all current subjects are highly relevant with the	Support for expanding topics for future Course. Would welcome	5-10	The Course is the only comprehensive course in the region on which new staff can

	new recruitment to the fisheries extension programme.		exception of welding.	emphasis on knowledge of export fisheries, including marketing, packaging and HACCP certification.		receive training because fisheries are a technical area. Consideration should be given to having it delivered in two stages – one for capture fisheries and a second for marketing and processing.
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Current status of ex-SPC/Nelson course trainees, 1979-2002, by country

Country	Fisheries Dept. (National/ Provincial)	Other government	Migrated overseas	Private sector Fishing	Private sector non-fishing	Unemployed	Other, including unknown	Total of Trainees
Cook Islands	4	0	0	1	3	0	2	10
Fiji	14	1	3	0	0	0	2	20
Kiribati	19	1	0	0	0	0	3	23
Nauru	9	0	0	0	0	0	0	9
Niue	1	0	3	0	1	0	0	5
Northern Marianas	3	1	0	0	2	0	1	7
PNG	17	0	0	4	0	0	7	28
Samoa	6	1	2	0	0	0	4	13
Solomon Is	11	2	0	0	1	0	9	23
Tonga	14	1	3	3	1	2	1	25
Total	98 (60%)	7 (4%)	11 (7%)	8 (5%)	8 (5%)	2 (1%)	29 (18%)	163 (100%)

Comments on the fisheries officer training from training providers and SPC Fisheries Training Section

Training Organisation	Comments
University of the South Pacific	The Marine Studies Programme (MSP) and Institute of Marine Resources (IMR) of USP are now focused more towards aquaculture than capture fisheries. Also active with HACCP planning and seafood handling training. Agreed need to look more closely at IMR involvement with the fisheries sector – current situation unclear with possible restructure and the establishment of IMR as a commercial arm of the School of Pure and Applied Science. In the future, USP interested in running a regional fisheries officers course, in collaboration with Fiji Institute of Technology (FIT).
National Fisheries College Kavieng	Will be running courses for extension officers at Kavieng in next 12 months. Aware of problems with extension services and seeking to address training needs. Also beginning to focus on artisanal fishermen and offering short courses in practical skills and small business development. Agree with need to begin to include management/sustainability issues in Course content. Supportive of SPC/Nelson course.
Australian Fisheries Academy (AFA), Port Lincoln, South Australia	No strong views – extension services are not widely provided in Australia. AFA considers that it has much to offer the region as an institution and has experience with training PICT fishers under an AusAID sponsored Pacific Island Fishing Traineeship scheme that has been running for two years. AFA has facilities in Adelaide and Port Lincoln, the latter being is a major fishing centre, with an emphasis on tuna fishing
SPC Fisheries Training Section	Strongly supportive of Course (subject to PICT views). Consider that some changes are appropriate to reflect changing role of fisheries officers, including co-management, increase in domestic longlining/export fisheries, increase in seafood safety and quality requirements, and growing interest in aquaculture etc. Support investigation of using Course as building block to further education, possibly through recognition by some form of certificate of training standard achieved.
Nelson Marlborough Institute of Technology	Very keen to maintain Course. Believe Course has the firm backing of PICTs and participants have been generally well motivated and able to put training to good use in region. See continued and growing relevance as fisheries develop in the Pacific with the growth of domestic industry development, and in particular, longlining.

Analysis of SPC/Nelson Fisheries Officers Course subjects

Topic	Hours	Learning outcome	Current role	Relevance to fisheries officer (development) role	Relevance to future fisheries officer (management) role
INTRODUCTION AND ORIENTATION	7	N/A	N/A	N/A	N/A
Extension and communication skills	35	Understanding of the role of extension officers and skills to assist with the planning and delivery of extension services.	Highly relevant	Highly relevant.	Needs expansion. Promoting community management and shared decision making. Links between fisheries departments, community and private/commercial sectors. Monitoring of resources and habitat; working with PROCfish.
Practical netting and seamanship	45	Ability to repair and build nets; do basic ropework, and understand basic rigging.	Highly relevant	Highly relevant; technology unlikely to change significantly, especially in remote locations. – Net-making can be delivered in country. Seamanship is a basic life-skill, including knots, splices, ropes etc.	Environmental aspects associated with fishing picked up elsewhere.
General fishing Subjects	35	Ability to identify and understand main fish catching methods in NZ; understanding of NZ and Pacific fisheries.	Highly relevant;	Remove reference to NZ industry. Increased emphasis on longlining and other pelagic fishing operations and basic construction and use of longline gear.	Increase emphasis on fishing industry organisation – consider remove to separate subject – Fisheries organisation and administration; Emphasise sustainability issues including unsustainable fishing (dynamite/ poison/some live fish) and by-catch. Emphasise environmental impacts .aspects of fishing methods.

Topic	Hours	Learning outcome	Current role	Relevance to fisheries officer (development) role	Relevance to future fisheries officer (management) role
Fisheries biology and research, incorporating fisheries management	35	Introduction to fisheries management, and fisheries. Identification of fish, basic understanding of life histories and behaviour biology and research.	Highly relevant.	Separate biology and management (as is current practice). Ensure student understands the finite nature of living marine resources. Impacts of commercial fishing on subsistence fishers and communities. Look at ecosystem approaches – data collection etc.,. Focus on what is practical and feasible on a sustainable basis.	Differences between reef and pelagic/HMS species. Community based management and collaborative decision-making. Should be linked to management strategies, emphasise difference between e.g. sessile reef species (giant clams) and highly migratory species (tuna). Should be expanded to increase wider ecological and management considerations; basic stock monitoring.
Navigation and chartwork	42	Skills to allow participants to make short passages between islands or find an offshore FAD using basic chartwork and navigation skills.	Highly relevant; life skill. Major safety considerations	Will remain a priority; increased use of electronics (GPS).	N/A
Computer studies	56	Introduction to computing hardware and basic use and knowledge of word processing, database and spreadsheet software. Knowledge and use of email and internet.	Relevant, but limited applicability in remote locations. Basic skills only	Will increase in significance (highly relevant); record keeping, and project proposals. Could be increased when availability of computers increases	data collection Reporting; record keeping. Realities and costs of IT in remote locations will hinder value of computer-based solutions in extension situation.

Topic	Hours	Learning outcome	Current role	Relevance to fisheries officer (development) role	Relevance to future fisheries officer (management) role
Fish handling, quality control etc	31	Understand fish spoilage why it occurs, and the impact spoilage has on quality. Methods of controlling spoilage and current handling and storage methods and practices. Product and process control including HACCP.	Highly relevant.	Will increase in significance as export opportunities grow and food safety certification is implemented. Local market will become more discerning, especially in capital cities.	N/A
Outboard repair and maintenance	56	Understanding of basic principles of operation of an outboard motor. Ability to strip, clean, repair/ replace key parts, including power units and bottom end assemblies.	Highly relevant; basic knowledge a life skill. Useful for all small motors	Will continue to be an issue; question is level of knowledge required.	N/A
Engineering workshop practice	28	Safety practices and introduction to hand tools and machinery, including lathes, milling, forming and drilling machines. Completion of simple tool/object, e.g. fid.	Not relevant; lack of similar facilities that are available to fisheries officers in Pacific Islands.	Not relevant.	N/A
Fiberglassing	28	Identification and use of fiberglass materials for repairing wooden and other surfaces, including hulls and iceboxes. Construction of a fiberglass boat using a model.	Some relevance; depends on vessel construction. Could/should be done in country.	Some relevance.	N/A

Topic	Hours	Learning outcome	Current role	Relevance to fisheries officer (development) role	Relevance to future fisheries officer (management) role
Welding	28	Safety practices associated with welding and joining of a variety of metals using gas, arc, mig and tig welding	Very limited relevance; specialised skill requiring extensive knowledge and equipment. Few that need advanced training should be serviced in country	Little or no relevance.	N/A
Marine Electronics	31	Familiarisation of students with the modern electronic equipment used at sea, including the theory, operation, advantages and limitation of the equipment.	Relevant to commercial sector and Department of Fisheries vessels, less so for artisanal and subsistence fishing	Increasing relevance as domestic commercial fishing increases. Sea temperature, echo sounders etc.	Understanding of use and operation of FFA VMS – explore installing an Inmarsat receiver at training provider site
Boat maintenance/ hand tools	28	Ability to use basic hand tools and construct simple timber joints. Apply skills to the production of a plywood box and Samoan hand reel.	Some relevance, particularly boat maintenance; depends on vessel construction. Could/should be done in country or on practical time	Increased focus on boat construction and maintenance, including slipping and the need for support infrastructure for growing longline fleet.	N/A
Sea safety and survival	21	Exposure to safety procedures and practices that pertain to small boat, single person operations up to large vessel, multiple crew situations.	Highly relevant – essential part of Course	Will continue to be relevant, and increase as tuna fishing increases and fleet grows.	N/A
Topic	Hours	Learning outcome	Current role	Relevance to fisheries officer (development) role	Relevance to future fisheries officer (management) role

Business management	28	Ability to collect and collect fisheries data and records, make basic business calculations relating to interest, profit and loss and taxation. Understanding of small business (fishing and fishing related) practices and key issues relating to profitability, including cost control and basic record keeping.	Relevant; depends on role of extension officer.	Important role to assist with facilitating the success of small commercial operations that are free of govt. and other subsidies Increasing interest in longlining and other commercial operations; level of Course should focus on awareness of/ability to refer to financial services (development bank etc) rather than give direct assistance	N/A
Radio operators certificate	7	Certificate of competency to allow the legal operation of all marine radio equipment.	Highly relevant; used both at sea and ashore; ensures correct radio protocols maintained. Helps with remote area communications.	Need will continue; some changes in technology likely to occur.	N/A

Note: additional hours are allocated to:

1. **Learning Review – 18 hours** (consolidates learning outcomes and improves ability of students to give and receive feedback and thereby communicate).
2. **Project, private study and reports – 40 hours** (completion of regionally or national based fishing project, study skills and report writing).

Suggested Course amendments to meet emerging fisheries challenges

Challenge	Basic actions/skills required	Suggested Course amendments
Impacts arising from increasing pressure on fisheries resources	<p>Conduct simple surveys associated with the status of fish and habitat (reef) health; fish consumption patterns.</p> <p>Communicate with communities and fisheries departments on ways and means of assisting communities to sustainability management their resource.</p> <p>Understand and promote the principles of fisheries management and in particular the value of co-management.</p>	<p>More training in basic resource monitoring and assessment; indicator species etc. Reinforce with field training in New Caledonia using PROCfish staff.</p> <p>Field visits to organisations dealing with fisheries management. Trips with fisheries officers</p> <p>See section on community-based approaches.</p>
Changing role of government as a supplier of services more efficiently delivered by the private sector	<p>Identify technical problems and provide assistance, using the private sector as appropriate.</p> <p>Facilitate training services as required.</p> <p>Work with the private sector to identify opportunities that will meet the long-term needs of communities.</p> <p>Disseminate information between fisheries departments and fishers and receive and process feedback</p>	<p>Analysis of why government-run inshore enterprises frequently fail and the factors that can make or break a small fishing/processing business.</p> <p>Field visits to gain an understanding of port services and support infrastructure, including fuel suppliers, ships chandlers/provenders and slipways.</p>
Unsustainable/resource threatening fishing practices such as illegal fishing and the live fish/aquarium trade	<p>Need for understanding of monitoring, control and surveillance (MCS) procedures.</p> <p>Identify threats posed by unsustainable fishing; ability to explain to communities why caution may be required in dealing with potentially unsustainable practices.</p>	<p>Exposure to MCS approaches, including VMS .</p> <p>Understanding of the live fish and marine aquarium trade. Knowledge of impacts and means of controlling impacts.</p> <p>Practical training in fish husbandry techniques.</p>
Growth of commercial operations, including FAD fishing and longlining	<p>Liase with and understand the needs and circumstances of the private sector. Be responsive to appropriate needs and problems.</p> <p>Disseminate information on the economic and technical aspects of commercial fishing, particularly using SPC, FFA and other materials.</p> <p>Be aware of potential negative impacts - including bycatch issues, interactions between artisanal and industrial fisheries, overfishing and the need for effective management.</p>	<p>Increased understanding of small scale fishing businesses. Emphasise whole of-chain approach i.e. more than just killing fish; include transport, packaging, handling, inspection, export procedures markets etc.</p>

Challenge	Basic actions/skills required	Suggested Course amendments
Growth in export fish trade	Understanding export markets and their needs. Knowledge of processing facilities to meet export standards and for commitment from governments (legislation, national competent authorities to enable export to EU, etc)	Increased emphasis on seafood processing, handling, export. Establish stronger links between Nelson section of Course and practical fishing component.
Community based and other participatory approaches to fisheries management	Ability to effectively interact with communities to promote collective responsibility for fisheries resources. Understanding that the role of Government in fisheries is not simply to regulate and direct.	Training on, and exposure to participatory management at a range of levels that include all key stakeholders. Fully utilise experience of, and materials generated by the SPC community fisheries section.
Non-fishing threats to the marine ecosystem and fisheries production	Understanding of concerns at village level and identification of threats and impacts. Communication between communities, and fisheries and environment departments	Practical work on sources of pollution (including land-use planning mechanisms and agriculture chemicals) and how they can severely impact marine ecosystems.
Aquaculture	Ability to work with communities towards identifying opportunities and realistic aims and outcomes for aquaculture projects.	Training in basic biology and farming systems of eight key aquaculture commodities chosen by the region in 2002 – 1 st SPC aquaculture conference. including seaweed, pearls and clams.

ATTACHMENT 7

STATEMENT OF ACCOUNT - 2001 SPC/ NELSON COURSE

		Foreign Currency	CFP amount
INCOME			
New Zealand Government	NZD	\$ 130,000	6,774,062
Commonwealth Secretariat	STG	£ 30,000	5,730,900
Commonwealth Foundation	STG	£ 21,000	4,054,098
Participants Course Fees paid to SPC			303,027
Participants Course Fees paid to Nelson/ NZSoF Secretariat of the Pacific Community			929,787
Total INCOME			17,791,874
EXPENDITURE			
NELSON MODULE			
01 Tutorial Charges	NZD	\$ 91,800	5,605,465
01 English tutorial	NZD	\$ 2,000	122,123
<i>Tutorial Charges</i>		NZD \$ 93,800	5,727,588
02 Class & Teaching Material	NZD	\$ 12,900	787,696
02 Field Trips	NZD	\$ 1,291	78,831
02 Wet weather gear	NZD	\$ 1,500	91,593
<i>Course materials & other course costs</i>		NZD \$ 15,691	958,119
03 Students Board/ Lodgings	NZD	\$ 38,402	2,344,892
03 Meals (Allowance)	NZD	\$ 13,220	807,236
<i>Board & lodging</i>		NZD \$ 51,622	3,152,127
04 Living Allowance	NZD	\$ 11,880	725,413
04 Warm Clothing Allowance	NZD	\$ 3,300	201,504
<i>Trainees Allowances</i>		NZD \$ 15,180	926,917
05 Communication, postage, misc.	NZD	\$ 4,215	257,375
05 Social and EC activities	NZD	\$ 6,146	375,285
<i>Other costs</i>		NZD \$ 10,361	632,660
Total Nelson module		\$ 186,654	11,397,412
Practical Fishing Module			
New Caledonia June 17 - July 20, 2001		\$ 61,396	3,748,856
Practical module (NZ tutor)	NZD	\$ 7,400	451,857
Total Practical Fishing Module		\$ 68,796	4,200,713
General Expenditure			
Students AirFares			3,653,753
Students Insurance			192,410
Communication, Miscellaneous			26,455
Total General Expenditure			3,872,618
Total EXPENDITURE			19,470,743
Surplus / (Shortfall)			(1,678,869)

ATTACHMENT 8**Key individuals contacted during the Review**

Name	Post and affiliation
Aruhane, William	Fisheries Lecturer, SICHE, Solomon Islands
Barnabas, Norman	Manager, Provincial and Industry Liaison Group, NFA, PNG
Densley, Bob	Advisor, Provincial and Industry Liaison Group, NFA, PNG
Emberson, Tricia	Director, Alatini Fisheries Co. Ltd. Tonga
Fao, Bernard	Deputy Director, Fisheries and Aquaculture, S. Province, New Caledonia
Fossett, Brian	Tutor, NZ School of Fisheries, Nelson, NZ
Hay, Cameron	Director, Institute of Marine Resources, USP
Carnie, Grant	Chief Executive Officer, Australian Fisheries Academy, SA.
Kasu, John	Principal, National Fisheries College, NFA, PNG
Labrosse, Pierre	Principal Scientist, Reef Fisheries Observatory, SPC
Lewis, Tony	Managing Director, National Fisheries Authority, PNG
Little, Ian	Dean of Technology and Primary Industries, NMIT, Nelson, NZ.
Macfarlane, Ross	Pacific Regional Coordinator, MFAT, NZ
Orianihaa, Ambrose	Fisheries Lecturer, SICHE, Solomon Islands
Russell, David	Marketing specialist, Rural Fishing Enterprise Project, S.I
Walton, Hugh	Team Leader, PNG NFC Strengthening Project, PNG
Wilson, Marc	Team Leader/Institutional specialist, Ausaid Tonga Fisheries Project, Tonga