The Forum Fisheries Agency And Its MCS Initiatives In The Western And Central Pacific

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Origins of the FFA

The notion of formalising South Pacific regional co-operation on fisheries matters was initially discussed in 1976 at the South Pacific Forum meeting. In 1977, at the next Forum meeting, it was agreed in principle to establish the South Pacific Forum Fisheries Agency (FFA), and set up a permanent headquarters in Honiara, Solomon Islands. In August 1979 the Convention establishing FFA as an independent legal body entered into force. At its establishment, the Forum countries decided to limit FFA's membership to exclude Distant Water Fishing Nations (DWFN). The initial membership of eight countries has grown to the current membership of sixteen countries[1].

Representatives of from FFA member countries form the Forum Fisheries Committee (FFC) which meets at least annually to set FFA's policy, work programme and budget, and to review its performance. The 36th meeting of the FFC (FFC36) took place at Tokyo, Japan from 22-26 June 1998. FFA's work programme is financed from contributions from member countries and external assistance from several international donors. The Agency's annual budget is approximately USD4.2 million.

FFA has undergone two major independent reviews in the last 19 years. The first, in 1989, which celebrated FFA's tenth anniversary, concluded that FFA had performed efficiently in implementing much of its work programme and achieving its primary objectives. One of FFA's major successes highlighted in the review was the development of a multilateral tuna fishing treaty between the Governments of Certain Pacific Island States and the Government of the United States of America, signed in 1987.

A second review conducted in 1992 concluded that the Agency has been very successful. Notable achievements include the negotiation of an extension to the multilateral Treaty with the U.S., harmonised minimum terms and conditions of access to EEZs, the Arrangement for the Management of the Western Pacific Purse Seine Fishery, and the Niue Treaty on Fisheries Surveillance and Law Enforcement in the South Pacific Region. FFA was instrumental in providing the logistical support and guidance for the coastal states of the region in the development of policies which led to the eventual banning of drift-net fishing in the region, and the energizing of international action which led to the UN global moratorium on drift-net fishing in 1991.

FFA's Corporate Plan (1998-2001)

In December 1992, work commenced on a second review of FFA's organisation and management, culminating in the production of the FFA Corporate Plan (1993-1995). This plan was further reviewed in 1996/97 resulting in acceptance of the Agency's 1998-2001 Corporate Plan by FFC34 held at Honiara from 24-28 November 1997. The Plan provides for an Executive Management team and 5 Divisions, with the number of professional staff not to exceed 26 and support staff 24 at the FFA Secretariat during the life of the plan. There are currently 24 professional staff and 23 support staff employed by the FFA Secretariat.

Four of the Agency's Divisions deliver services to FFA member countries and support specialised Working Groups set up by the Agency. The Information Technology and Communications Division serves both member countries and other divisions of FFA. Corporate and Treaty Services supports all the Agency's activities. The Management Team brings together executive and divisional managers, and senior professionals in regular meetings, to ensure close co-ordination of divisional activities, and to encourage inter-disciplinary debate in formulating professional advice to FFA member countries.

[1] Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

The Agency's mission is to **enable its member countries to obtain maximum sustained benefit from the conservation and sustainable use of their fisheries resources**. The Corporate Plan lists 4 key objectives for FFA;

1. to assist and facilitate efforts by FFA member countries to conserve and optimally utilise the fisheries resources of their region;
2. to assist and facilitate efforts by FFA member countries to secure the maximum sustainable benefits from the fisheries resources of their region for their peoples and for the region as a whole;
3. to promote and facilitate co-ordination, consultation and co-operation in the field of fisheries in the region;
4. to facilitate the collection, analysis, evaluation and dissemination of relevant statistical, scientific and economic information about the fisheries resources of the region.

FFA's Monitoring, Control and Surveillance (MCS) Division

The FFA Corporate Plan 1998 – 2001 provides for a MCS Division at the FFA Secretariat, marking it as a core function of the Agency's business. The MCS Division's stated objective is to "**Reinforce member countries' capacity to achieve compliance by fishing operators with national regulations and regional arrangement licence conditions**". In addition to line management and inter-divisional activities undertaken by the Manager Monitoring, Control and Surveillance, the MCS Division utilises five strategies to achieve this objective:

1. *MCS Co-ordination* – Assist member countries to develop and co-ordinate national MCS
2. *Observers* – Co-ordinate regional observer programmes and assist in the development of national observer programmes.
3. *Surveillance* – Act as a co-ordination point for regional surveillance operations.
4. *Data dissemination* – Collect and disseminate data in support of national MCS.
5. *Maritime boundaries* – Assist member countries to determine their maritime boundaries.
6. *Training* – Provide training, advice and regional exchanges on enforcement and technological developments.

There are currently six professional positions within the MCS Division – Manager Monitoring, Control and Surveillance (AusAID funding), Co-ordinator Observation and Monitoring Programme (AusAID funding), Maritime Boundaries Co-ordinator (AusAID funding), Surveillance Operations Officer (Australia Department of Defence) and two Regional Data Officers (FFA General Fund). To assist in the technical operations of the VMS Project, the position of VMS Support Officer will be added in 1999, supported by the FFA General Fund. The MCS Division is also served by a Fisheries Enforcement Adviser on assignment from the U.S. National Marine Fisheries Service and a Technical Support Adviser (Australia Department of Defence).

The western and central Pacific

The Pacific Islands region encompasses almost 30 million square kilometres (km²) of ocean. Bordered by Australia and New Zealand to the west, this vast ocean region, stretching east almost to Easter Island, includes 14 independent, small island developing States, three U.S.-administered territories, three French territories, and a territory administered by the United Kingdom. The total land area of 0.5 million km² supports a population of slightly less than 6 million, increasing at a relatively high rate of 2.1 per cent annually.

Within the Pacific Islands region, Papua New Guinea accounts for 87 per cent of the land area and 67 per cent of the population, providing some insight to the distribution of land and human resources for the remainder of the region. The smallest States in terms of land area are Nauru and Tuvalu, which have a total of 21 km² and 26 km² of land respectively. However, on a global scale, the exclusive economic zones (EEZs) of the small island States of the region are large, covering 19.8 million km² (excluding Australia and New Zealand). Kiribati's zone covers almost 3.6 million km² and that of the Federated States of Micronesia, 2.9 million km².

All island States in the region are developing nations with a traditional reliance on foreign aid. Per capita incomes in the region are low, by standards of the developed world, but poverty and malnutrition are relatively rare. Apart from Papua New Guinea, Solomon Islands and to a lesser extent Vanuatu and Fiji (the Melanesian group) which also have forest and mineral resources, the sustainable exploitation of fisheries resources offers one of the few options to develop greater economic independence and promote self-reliance.

Tuna resources of the western and central Pacific

The western and central Pacific region is host to the most productive tuna fishing grounds in the world, supplying over 50 per cent of the world's canning tuna. The annual catches of the four principal species - skipjack, bigeye, yellowfin and albacore – consistently total between 1.2 - 1.3 million metric tonnes.

The value of the unprocessed tuna catch in 1997 has been estimated in excess of USD1.5 billion. With global demand for tuna growing each year, and limited scope for increased catches elsewhere, the western and central Pacific is destined to become an even more dominant source of the world's tuna in the future.

Tuna fisheries operating in the western and central Pacific

The region's tuna fisheries are complex in nature. There is a range of target species (tuna), in some cases captured at different stages of their life by three fishing gears (purse seining, longlining and pole-and-lining) operated by a variety of fishing nations. A variety of other non-target species (by-catch), some of considerable economic value, are also landed.

The situation is further complicated by the tunas' migratory nature, in that each stock may migrate through numerous national jurisdictions and areas of high seas. Approximately 50-60 per cent of the total catch is taken within the exclusive economic and fisheries zones (EEZs) of FFA member countries, the remaining 40-50 per cent being caught in high seas areas and in the waters of non-FFA members. An overview of the region's tuna fisheries in 1997 is appended at **Attachment 1**. A description of the FFA member countries' recent progress with domestic tuna fishing industry development is appended at **Attachment 2**.

The tuna resources of the region, if managed effectively, are capable of generating sustainable revenues over time. Effective management of these resources will only be achieved if the fishing operators whose vessels harvest the tuna comply with the management plans being put in place by FFA member countries in their EEZs. The two main business problems facing the FFA member countries in relation to the operations of fishing vessels from distant water fishing nations (DWFN) are illegal fishing and mis-reporting and/or under reporting of catches of tuna in their EEZs.

Under-reporting and mis-reporting

In addition to the reasonable financial returns received under the multilateral treaty on Fisheries, the U.S. vessels have agreed to all the administrative requirements of FFA member countries for fishing vessel operations in the region. As a result, the logsheet data provided by the U.S. fleet, and in particular the data from the high seas, has provided fisheries managers from the South Pacific with some useful material with which to compare the data submitted by other fleets operating in the region.

An analysis of available logsheet data by FFA and the South Pacific Commission (SPC) concluded that, up until 1993, under-reporting and non-reporting by DWFNs in the western and South Pacific posed significant constraints on scientific and economic assessments of the tuna fisheries in the region. With the gradual implementation of the harmonised minimum terms and conditions since 1990 (see below), all fleets have improved their high seas catch reporting, especially where a fishing trip involves in-Zone and high seas fishing. Another major factor that has contributed to an improvement in the quality and quantity of catch information was the introduction of a requirement that vessels only trans-ship at designated ports in the region. This came into effect in June 1993. In 1994, the SPC advised that Taiwan reported 96 per cent of its total catch and Korea reported 92 per cent.

Innovative tools to achieve compliance

Effective control over all fishing activity in the region is essential if domestic industry development is to stand any chance of long-term success. For this to occur, the island States in the region require improved fleet monitoring and regulatory procedures. Past efforts to establish administrative arrangements for foreign fishing vessels operating in the region have proven difficult. This has largely been a function of the size of the region, combined with the fact that the small island States in the South Pacific have only limited personnel and financial resources to apply to this effort.

In recognition of these constraints, the Pacific Island countries have adopted some innovative procedures to assist their fishing vessel administration and monitoring efforts. The procedures developed combine legal and technical elements that are applied at either the national level, or regionally in co-operation with other island States, and in some cases, supra-regional agencies. A diagram depicting the relationship between national, regional and supra-regional vessel MCS arrangements is presented at **Attachment 3**.

Minimum Terms and Condition of Fisheries Access

The Minimum Terms and Conditions of Fisheries Access (MTCs) were originally adopted by the South Pacific Forum in 1982. Recognising the dynamic nature of tuna fisheries in the western and central Pacific, FFA member countries reviewed the MTCs in 1990. The revised, harmonised MTCs were adopted by the South Pacific Forum in the same year, and now apply to all arrangements for fisheries access to the EEZs of FFA member countries. As a result of the implementation of the FFA member countries' Vessel Monitoring System, the MTCs were revised again in 1997 and now include the following:

Uniform Vessel Identification: All vessels operating in the region are required to be marked according to the 1989 FAO Standard Specifications for the Marking and Identification of Fishing Vessels. This is to ensure that each vessel licensed is uniquely marked and can be easily identified during aerial and surface patrols. It also serves to make licence-swapping more difficult.

Catch and Position Reporting: Foreign fishing vessels (FFVs) are required to provide to the licensing country or its representative, information relating to the vessel position and catch on board at least every Wednesday while in the Zone, and prior to entry to and departure from the Zone. As with all other MTCs, countries are free to impose more stringent requirements if they desire.

Trans-shipment: Full reporting on trans-shipment activity, including 24 hours notice of the intention to do so, is required. Only vessels listed in the Regional Register can take part in trans-shipment operations. Since 15 June 1993, the licensing country determines the time and place (at designated areas or designated ports) where trans-shipment may occur, and may elect to place an observer aboard the vessel to monitor operations. Vessels that continue to trans-ship at sea jeopardise the possibility of obtaining future licences from FFA member countries for in-Zone fishing.

Catch and Effort Logsheets: Standard logsheets have been adopted for all fishing operations in the region. These are required to be completed daily and returned to the licensing country within 45 days

of trip completion. A preliminary report is required within 14 days of trip completion. Information on activities within the Zone, as well as adjacent high seas areas, is required when a trip includes fishing in both areas.

Observers: The licensing country has the right to place observers on board FFVs for scientific, compliance, monitoring and other functions. The observer is entitled to officer-level accommodation and the vessel operator is responsible for observer travel, salary and insurance. Observers placed on board foreign vessels can continue their observation duties during a trip which extends beyond national jurisdiction into high seas areas.

Appointment of an Agent: The flag State government and/or fishermen's association and/or vessel operator is required to nominate, appoint and maintain an agent. The agent shall be resident in the licensing country, and must have authority to receive and respond to any legal process.

Foreign Fishing Vessels in Transit: Foreign fishing vessels navigating through the fisheries zone or EEZ are required to have all fishing equipment on board stowed or secured in such a manner that it is not readily available to use for fishing,

Flag State or Fishermen's Associations Responsibility: Flag States, or in the absence of access arrangements with flag States, the appropriate Fishermen's Associations, are required to take measures to ensure compliance by their fishing vessels with coastal State laws. Difficulties encountered with vessels operating under flags of convenience is an issue that requires considerable attention in the region. Although the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (the Compliance Agreement), developed by FAO, provides a useful start for dealing with flag of convenience fishing vessels, FFA member countries will need to develop additional arrangements to supplement that Agreement.

Vessel Monitoring System: The vessel monitoring system shall be implemented by the operation of a VMS Register of Foreign Fishing Vessels. The operator of a foreign fishing vessel shall apply for registration of an Automatic Location Communicator (ALC) each year and pay a prescribed fee; install and operate a registered ALC on board the vessel; and maintain the ALC in good working order. The operator shall not interfere with, tamper with, alter, damage or disable the ALC; move or remove the ALC from the agreed installed position without the prior permission of the licensing country; or impede the operation of the ALC. There are also several measures relating to the operation of the ALC while it is on a fishing vessel.

The Regional Register of Foreign Fishing Vessels

The Regional Register of Foreign Fishing Vessels is a compliance mechanism. It constitutes a database of details for foreign fishing vessels that are able to apply for licences to fish in the South Pacific region. The database holds information on vessel owners, operators, masters and the physical characteristics of the vessels, and provides a history of any changes in that information over time.

The intention behind the Regional Register is to shift some of the responsibility for ensuring compliance to the flag State or fishing association. The fundamental requirement of the Register, which is administered by the Director of FFA, is that before any vessel may be licensed to fish in the region, it must be in "Good Standing"on the Regional Register. Good Standing is a status which is automatically conferred on a vessel upon registration. The status may be suspended in certain circumstances, such as where a vessel has committed a serious fisheries offence. Once Good Standing is suspended, the vessel is effectively prevented from fishing in the region, as no FFA member country will issue a fishing licence to vessels that are not in Good Standing on the Register.

The Niue Treaty

In an effort to enhance their control over foreign fishing vessels operating in the region, FFA member countries signed a Treaty on Cooperation in Fisheries Surveillance and Law Enforcement during the South Pacific Forum in Honiara in July 1992. The Treaty entered into force in May 1993, after the deposit of the fourth instrument of ratification.

The Treaty is a head agreement intended to provide flexible arrangements for cooperation in fisheries surveillance. It is proposed that bilateral or subsidiary agreements will contain clauses facilitating closer cooperation in more concrete ways, such as the physical sharing of surveillance and enforcement equipment, the empowerment of each other's officers to perform enforcement duties, enhancement of extradition procedures and evidentiary provisions.

The Palau Arrangement

After the Parties to the Nauru Agreement considered a brief prepared by Papua New Guinea concerning the rapid expansion of the purse seine fleet operating in the western Pacific in 1990, the Parties recognised the urgent need to agree on a mechanism to regulate purse seine fishing effort within their EEZs. The final text for the Arrangement for the Management of Western Pacific Purse Seine Fisheries (Palau Arrangement) was signed by the parties in October 1992. While stock conservation is a consideration in the Arrangement, it primarily seeks to improve the economic returns to coastal States through access fees and local fishery development.

The main components of the Arrangement, which stem from Articles 56(1)(a), 61 and 62 of the UNCLOS and the First and Second Implementing Arrangements of PNA, and which recognise the special interest of the PNA in high seas adjacent to their EEZs are:

- the inclusion of all tuna, tuna-like species and by-catch;
- a clear definition of domestic, locally-based foreign and foreign fishing vessels;
- special working groups (catering for scientific, legal, economic or socio-economic areas relating to tuna resource exploitation) to serve in an advisory capacity to a management body consisting of all parties which will meet at least once a year;
- the establishment and implementation of surveillance, enforcement, observation and inspection procedures consistent with regionally agreed initiatives, now facilitated through the Niue Treaty;
- agreed license allocation criteria; and
- a clear role for the FFA Secretariat.

In an effort to regulate fishing effort and thus support prices for raw material, vessel numbers by fleet nationality will be capped under the Arrangement according to agreed criteria. These include the history of compliance and co-operation with South Pacific island nations and the fact that flag of convenience vessels will no longer be licensed. The Palau Arrangement will not necessarily prevent new fleets entering the fishery. In fact, interest from potential new operators in the fishery will be encouraged by FFA member countries on the basis that the new entrants would have the potential to displace existing operators if the new entrants demonstrated an improved commitment to terms and conditions for access to the region and were willing to pay increased fees.

Not only do buoyant tuna prices create a more favourable environment for DWFNs to be able to meet license fee expectations of South Pacific island countries, but depressed tuna prices constrain attempts by Pacific island countries to develop their own tuna harvesting capacity, a development already actively pursued in the region. Thus, it is in the interests of South Pacific countries to promote mechanisms that will help support prices for raw tuna at reasonable levels. By regulating the number of purse seine vessels that will be licensed to operate within zones, the Palau Arrangement promotes this objective.

In the future, additional tools including improved domestic fisheries legislation which will address issues such as port State enforcement, and vessel tracking, observer programmes and communications will be further developed and implemented by the FFA member countries themselves, or where possible, in co-operation with others with a mutual interest in the long term rational utilisation of the resource.

Agreed Minute on Surveillance and Enforcement

In 1994, the Director of FFA, on behalf of FFA member countries, and the United States signed a minute of agreement relating to cooperation in fisheries monitoring and surveillance in the central and western Pacific. The Minute provides for co-operation between FFA member countries and the U.S. in all matters relating to fisheries compliance in the western and South Pacific. It includes the exchange of intelligence on fishing vessel activities in the region, the exchange of personnel to assist with the investigation of fisheries infringements, the exchange of information in the case of suspected violations and fisheries enforcement training. Following consultation with the appropriate FFA member country, the Minute also provides for the U.S. to take action, consistent with U.S. law, against vessels that violate the conservation and management measures of FFA member countries.

Lacey Act

Increased awareness and successful application of the Lacey Act is perhaps one of the most significant recent developments as far as regional cooperation in fishing vessel monitoring in the South Pacific is concerned. This provides a useful means by which, in collaboration with U.S. authorities, FFA member countries can seek the prosecution of foreign fishing vessel operators who infringe the fisheries laws of their country, and who subsequently enter a U.S. port and attempt to discharge their fish. Although the FFA member country concerned receives no financial settlement as a result of a successful prosecution under the Lacey Act in U.S. courts, the effect of deterring foreign fishing vessels from future illegal activity while within the zones of member countries, and promoting improved compliance, is of significant value. In any case, additional action, utilising the Regional Register, can be initiated as supplementary support for any action that may be taken by the U.S. against foreign fishing vessels for contravening FFA member country laws.

Papua New Guinea and Solomon Islands have incorporated “Lacey Act-style” provisions in their national fisheries leglislation which, in the case of Papua New Guinea, has been successfully tested in the PNG courts. Under these provisions, a fishing vessel operator may be charged with importation of fish which was illegally caught in the EEZ of another FFA member country.

Port State Enforcement

In the absence of effective flag State control, as is the case for a number of fleets operating in the South Pacific, port State control offers an effective mechanism to ensure compliance with regional or sub-regional agreed conservation and management measures.

Port State control should cover elements such as reciprocal rights to inspect documents, logbooks and licenses, the catch on board, to enforce the rules and regulations of other parties to an arrangement, which ideally should be regional or sub-regional in scope, and provide for enforcement action against fishing vessels that infringe coastal State laws when the flag State fails to do so within a limited time period. FFA member countries have supported a clear elaboration of port State enforcement in the outcome of the United Nations Conference of Straddling Fish Stocks and Highly Migratory Fish Stocks. In the future, all FFA member countries are likely to, individually and as a group, develop comprehensive legislation relating to port State enforcement.

Harmonisation of National Laws

National legislation provides the basic framework for all fisheries activities in the region. Thus the incorporation of arrangements, such as the MTCs, into domestic law is important in ensuring the effectiveness of the regionally agreed arrangements. Once the MTCs are part of national law, they can be enforced through the courts and cannot be called into question during access negotiations.

FFA member countries have met with varying degrees of success in implementing the MTCs through national legislation. In most countries, considerable time is needed to effect changes to legislation. The Parliamentary process can be extremely slow, and it is impractical for a country to pass a new Fisheries Act every few years.

To overcome this, many countries have used enabling provisions to allow regulations to be promulgated by the Minister or other authorities. Alternatively, power may be conferred on designated bodies to conclude access agreements in conformity with certain prescribed parameters. A less satisfactory mechanism is to confer upon the Minister or Cabinet, power to attach conditions to a licence. The disadvantage of this approach is that it still leaves scope for the DWFN to enter into negotiations on the conditions to be attached to the licence.

Observer programmes

The observer programme implemented under the multilateral Treaty on Fisheries between FFA member countries and the U.S. is the only regional observer programme currently operational in the South Pacific. This programme is designed to monitor the compliance of U.S. vessels licensed under the Treaty. In addition to compliance duties, observers deployed under this programme also collect biological and scientific information. FFA, as administrator of the programme, encourages observers to report sightings and activities of other foreign fishing vessels observed during trips aboard U.S. vessels.

The regional programme conducted under the auspices of the Treaty on Fisheries complements national observer programmes operating in a number of member countries of FFA, including Australia, New Zealand and Federated States of Micronesia. FFA has recently expanded its regional observer programme with the intention of achieving some observer coverage for all foreign fishing fleets operating in the South Pacific region in the near future.

Several other FFA member countries such as Federated States of Micronesia, Solomon Islands, Palau, Kiribati, Papua New Guinea, Fiji and Nauru have also established observer programmes for foreign vessels operating within their zones. The Secretariat of the Pacific Community (SPC) also has a scientific monitoring programme that will extend throughout the region. Coordination of the various programmes that will be operating in the western and central Pacific in the future will most likely be the responsibility of the regional agencies, the SPC and the FFA.

Port Monitoring

The implementation of the ban on trans-shipment at sea in mid 1993 has been of substantial economic benefit to FFA member countries. Most of the trans-shipment activities in ports have, so far, taken place in Federated States of Micronesia and Solomon Islands. These countries, and to a lesser extent, Kiribati and Nauru, have benefited from the registration, port and trans-shipment fees levied on the purse seiners and carrier vessels and from the expenditures made by the vessel operators on provisions, fuel, agency services and travel while they are in port.

Overall, the trans-shipment activities in ports have generated substantial economic benefits and can be expected to spur the development of local service industries to cater more effectively for the needs of the foreign vessels. The monitoring of catches has also been dramatically improved with the onboard monitoring of trans-shipment operations now possible. Port visits by vessels also make it considerably easier to deploy observers on fishing vessels for scientific research and compliance monitoring. With the development of additional national observer programmes and the commencement of enhanced observer and port monitoring programmes at the two regional fisheries agencies, the SPC and FFA, port monitoring will play an increasingly important role in gathering information and compiling vessel activity profiles for fishing operations throughout the western and central Pacific region in future.

Aerial and Surface Surveillance

Currently, Australia provides 750 hours of aerial surveillance and New Zealand provides 500 hours of aerial surveillance annually to the South Pacific. France recently re-commenced providing 90 hours of aerial surveillance per year to Fiji, Vanuatu and Tonga. In addition, some countries, for example Tonga, operate national aerial surveillance programmes using either their own defence force, or chartered, aircraft.

Co-ordination for the majority of the aerial surveillance effort in the region increasingly involves FFA. In recognition of the value of this role, an informal meeting of personnel involved in regional aerial surveillance issues has been convened annually since 1992.

Utilising industry sources and periodic reports from observers, FFA is well placed to identify areas of primary interest for aerial surveillance. This has been used to good effect in the last few years resulting in several significant settlements for infringements reported during aerial surveillance flights.

The majority of the surface patrol vessels operational in FFA member countries have been provided as part of an Australian defence cooperation initiative, the Pacific Patrol Boat Programme, which was announced at the 1983 South Pacific Forum Meeting. Under this programme, now known as the Maritime Surveillance Programme, vessels, spare parts and technical assistance have been provided to enhance the capability of island nations to detect and apprehend vessels operating illegally within their respective EEZs. Since 1983, 23 vessels have been built and provided to 11 FFA Pacific island member countries under this programme.

Vessel monitoring systems in the western and central Pacific - position and catch reporting

Introduction

For several years, member countries of the South Pacific Forum Fisheries Agency (FFA) have been considering the research, development and implementation of a satellite-based vessel monitoring system (VMS) in the western and central Pacific. This is because the FFA member countries have become increasingly aware of the value of such systems to improve compliance, surveillance and data retrieval in the field of fisheries management.

Increasingly, government fisheries organisations world-wide are adopting such systems to assist in the management of their fisheries resources. In the Pacific, VMS have been successfully introduced for domestic fishery management in Australia, New Zealand and Hawaii. Other countries which have recently set up national VMS include Argentina and Morocco.

What is a VMS and how does it work?

A VMS is a technical system which enables a vessel's position to be reported to a monitoring station, without that station being on board the vessel. Modern VMS use satellite technology to pin-point a vessel's position and then relay that information to the monitoring station on-shore. The system may be pre-set to determine a vessel's position on a regular basis, or set to "poll" a vessel thought to be acting suspiciously.

A VMS must know the location of each vessel that is to be tracked. This is achieved by installing an Automatic Location Communicator (ALC) on each vessel that is participating in the VMS. These units are quite small - about the size of a car radio-cassette player.

An ALC consists of an integrated Global Positioning System unit and an Inmarsat C unit which monitors the vessel's position, speed and course as directed by an authorised user. In the case of the FFA VMS, the authorised users are the FFA Secretariat and the FFA member countries.

In its simplest application, a unit may be programmed to provide a position report once a day. The same unit may be re-programmed to report on demand or by increasing regularity, as often as once every 15 minutes.

Position information from a fishing vessel will be transmitted from an aerial on board to an Inmarsat satellite fixed in a geostationary position above the Pacific Ocean. The information will then be transmitted to a Land Earth Station (LES) at Perth, Western Australia which is operated by Telstra. From there it is carried by telephone lines to Solomon Telekom in Honiara, Solomon Islands and on to the FFA Secretariat where it is processed by the VMS decision engine.

Each member country has VMS equipment which will enable it to connect to the VMS hub-site in Honiara and down-load the positions of vessels in its own EEZ which have been fitted with the correct type of ALC. Downloading is possible via the Internet, International Direct Dialling or by Inmarsat C.

Getting the FFA VMS started

Funding for the development of the FFA VMS was provided by the Australian Government in late 1995. The first step was the production of a VMS Business Plan by Telstra Applied Technologies of Australia, which set the scope of the project. The VMS Business Plan was then used to prepare a request for tender for the technical implementation of the baseline VMS. The successful tenderer, Aspect Computing Limited of Australia, signed a contract with the FFA in early November 1996 to design and build the satellite-based FFA VMS. A sub-contractor, Absolute Engineering Ltd of New Zealand, designed the tracking "front end" of the FFA VMS, known as "SmartTrack".

Since the signing of the VMS Project contract the project has achieved its goal of providing FFA member countries with the capability of tracking in their EEZs, the position, speed and direction of distant water fishing nation (DWFN) fishing vessels. In terms of implementation of small to medium sized information technology projects, it is of world class, and has attracted strong international attention.

Capabilities of the FFA VMS

The FFA VMS offers a range of capabilities that cannot be readily achieved by other means. The baseline form of the FFA VMS, in accordance with the stated preference of FFA member countries, will enhance the effectiveness of several other measures being implemented to assist with the sustainable development and management of the tuna resources of the western and central Pacific. The VMS will assist with monitoring the position, speed and direction of DWFN vessels that are fitted with ALC devices.

The VMS is capable of simultaneously monitoring the position, speed and direction of up to 1,000 fishing vessels at any one time with the potential to monitor up to 2,000 vessels. A computer based at the FFA Secretariat headquarters in Honiara, Solomon Islands, known as the "VMS Decision Engine" identifies those vessel position reports which violate a set of rules stored in the computer. Exception and alert reports are generated accordingly by the computer and sent to the FFA member country in whose EEZ the vessels are operating. The FFA Secretariat and each FFA member country is equipped with a graphical monitoring facility to view the exception and alert reports and other position data against a display of the member country's defined geographical areas. It is also capable of securely transferring vessel positions to each FFA member country, as required, enabling individual FFA member countries to track the movements of vessels in their EEZs.

The FFA VMS is not currently capable of transmitting fish catch data, though it has been designed with the flexibility to handle catch data transmission as an enhancement to the baseline VMS. This is consistent with the FFA member countries' requirement to address the issue of illegal fishing in the first instance.

Advantages to FFA member countries and DWFN fishing vessel operators

The advantages of a VMS to cover the EEZs of all FFA member countries include:

- cost effective method of providing support to the region's compliance and monitoring programme;
- enables targeting of selected vessels by patrol boats and surveillance flights;
- fosters regional solidarity;
- improved communications within the western and central Pacific with both DWFNs and other FFA member countries; and
- increased safety at sea and improved response time to emergency calls by FFA member countries.

The main benefits of a VMS to fishing operators include:

- enables ship to shore communication at all times and is not dependent on radio frequencies being available;
- provides a communication method whereby a fleet of vessels can be contacted and directed to target aggregations of fish;
- provides increased safety at sea and any distress signal is transmitted over the entire VMS network; and
- increased and more timely weather information can be obtained more consistently than with existing systems.

Security and confidentiality

Confidentiality of VMS data is a major issue, both for the FFA member countries and the DWFNs. To ensure that the position data is held securely, the FFA Secretariat is implementing a comprehensive security system, based on a report prepared by independent security consultants in early 1998. In the passage of VMS information to and from the FFA VMS hub-site to FFA member countries, all incoming and outgoing information is encrypted by "Smart Crypt", an encryption system which is near military grade.

Training of VMS Officers

Under the VMS Project, comprehensive training programmes have been made available for FFA member country VMS Officers and FFA Secretariat personnel. The VMS Training Course for FFA member country VMS Officers took place at Canberra, Australia from 1-5 September 1997. Course materials specifically designed for the course were prepared by Aspect Computing Pty Ltd.

Legal issues

The legal basis for the FFA VMS as a compliance tool in the EEZs of FFA member countries derives from the sovereign rights and enforcement powers of coastal States in their EEZs, as granted by the United Nations Convention on the Law of the Sea. However, implementation of the FFA VMS is giving rise to a range of complex legal issues, including appropriate legal and policy strategies for implementation, intellectual property and data security questions, and evidentiary issues. Two VMS Legal Workshops involving Legal Officers and Surveillance Officers from FFA member countries have been convened by the FFA Secretariat to address these issues. The Legal Division at the FFA

Secretariat has been providing advice to FFA member countries, on request, as to how to most effectively implement the FFA VMS at the national level.

What is the cost of operating the FFA VMS?

The FFA member countries have agreed that the FFA VMS will be operated on the principle of "user pays" or cost recovery. The cost of approved ALCs to be fitted to fishing vessels will be the responsibility of individual vessel operators. The modest, on-going operational costs of the FFA VMS, estimated at USD845 per vessel, will be recovered annually from the tuna fisheries operating in the western and central Pacific.

Political support for the FFA VMS

All FFA member countries have expressed their support for the FFA VMS through the annual meetings of the Forum Fisheries Committee. Strong support has also been forthcoming from the Forum Leaders at the South Pacific Forum meetings held at Rarotonga, Cook Islands in 1997 and at Pohnpei, Federated States of Micronesia in 1998. In communiques issued following both meetings, the political leaders of the region have urged the DWFN operating in the western and central Pacific to support the VMS initiative of FFA member countries.

Definition of Maritime Jurisdictional Limits

The entry into force of the United Nations Convention on the Law of the Sea (UNCLOS) on 16 November 1994 has placed additional pressure on FFA member countries to accurately define their various maritime limits. Under UNCLOS coastal States are required to provide the United Nations with either charts or a list of coordinates defining outer limits. Due to limited resources, in terms of funds and survey and cartographic expertise, and the fact that the production of charts is a long-term expensive option, most South Pacific States will opt, in the first instance, to produce a list of coordinates.

In recognition of the importance of accurate maritime jurisdictional limits information to fishermen and surveillance personnel, the FFA supports a regional programme which has the objective of defining those limits for all member countries. Of the 48 common boundaries that need to be delimited between FFA member countries and neighbouring States, fourteen boundaries have formally been agreed in Treaty form (although not all have been ratified) and there are many others in either an advanced stage of negotiation or where all technical details are in place for negotiation. Nineteen boundaries still require further technical work before they can be completed.

The outstanding maritime boundaries, when coupled with the requirements under UNCLOS for countries to define and publish their jurisdictional limits for their various offshore zones, means that significantly more work is required before all maritime areas within the South Pacific region are described in such a way as to satisfy all future marine resource management and surveillance requirements.

In-country, inter-agency MCS co-ordination

The island States of the South Pacific are well placed to be able to generate significant economic benefits from the rational utilisation of their tuna resource. In order to realise this potential, the member countries of the FFA have worked harmoniously over a period of 20 years to gradually establish effective administrative controls for exploitation of the resource. This has been facilitated by working towards the implementation of effective means for MCS throughout the western and central Pacific, at both regional and national levels.

In the interests of strengthening the MCS capability of the FFA member countries, the FFA Secretariat is assisting the member countries to address their in-country co-ordination mechanisms for fisheries MCS matters. From 3 May to 4 June 1998, the Agency employed an MCS consultant, Mr Peter Flewwelling, to draft a model in-country, inter-agency mechanism for MCS co-ordination and to

assist in conducting a workshop for MCS personnel from FFA member countries to develop the final model.

The workshop identified the appropriate government agencies in each member country specifically involved with MCS activities for fisheries, and those maritime activities which impact on fisheries operations. Secondly, the parcticipants examined ways and means to provide incentives for, and to stimulate the various agencies involved, to share with one another their knowledge, information and intelligence in a timely manner. It was agreed that only through co-operation could countries best respond in a co-ordinated manner to fisheries issues, whether they are in planning, regular operations or under special circumstances.

Finally, the workshop put forward collective recommendations for the consideration of each FFA member country and for further discussion at the next meeting of the Forum Fisheries Committee, scheduled for early 1999. It was recommended that 3 groups be established in each country - one to address national maritime and fisheries policy issues, a second to discuss technical co-operation issues and a third to discuss operational issues or events.

Conclusion

Much remains to be done if FFA member countries are to secure full control over use of the valuable tuna resource of the region. However, building on existing co-operative arrangements through the adoption of new surveillance and monitoring tools, such as VMS, will provide a sound platform from which the island States of the region can become more directly involved in the management of the tuna fisheries in their EEZs. In order for FFA member countries to strengthen their capability to respond to fisheries management and conservation obligations at the national, regional and international levels, careful consideration will need to be given to adopting sound in-country co-ordinating mechanisms for fisheries MCS matters.

Local

Attachment 1

Overview of the tuna fisheries operating in the western and central Pacific in 1997

The Purse Seine Fishery

A preliminary estimate of the 1997 purse seine catch is 726,300 tonnes. This was a small increase of approximately 2.5 per cent compared to 1996 catch of 708,100 tonnes[2]. There were significant increases in the estimated catch of Korean and Japanese purse seine fleets of approximately 12,000 and 8,000 tonnes respectively. The overall US catch continued to decline, with the 1997 catch dropping by approximately 5,000 tonnes, due to the fact that several vessels operated only for a short time before leaving the fishery upon the winding up of the operations of a major Guam based operator. The Taiwanese catch was stable and complete estimates were not available at the time of writing for vessels from the Philippines.

Access to the zones of FFA member countries is crucial for the distant water purse seine fleet, with over 80 per cent of the catch taken in member country zones in the period between 1993 and 1996. The distant water fleet operating in the region is made up of 33 American, 42 Taiwanese, 35 Japanese, 26 Korean and 11 Filipino vessels, making a total fleet of 147 vessels.

The locally based FFA country fleets experienced an increase in catches of approximately 13,000 tonnes, largely as a result of an increase in the catch of the fleet based Solomon Islands and the basing of 8 purse seine vessels in Papua New Guinea in association with a cannery project based on the north coast of the mainland in Madang.

The locally based fleet increased in 1997 with the arrival of 8 vessels in Papua New Guinea licensed as part of the cannery agreement referred to above. Papua New Guinea also has two other vessels licensed under domestic arrangements, one a former Filipino seiner, while the other is a former Russian vessel, recently refitted in Singapore and expected to commence fishing shortly.

The remainder of the locally based fleet is made up of five vessels in the Federated States of Micronesia, five in Vanuatu (including three formerly based in Papua New Guinea), four in Solomon Islands (an increase of one), and one in Kiribati. Additionally, approximately 31 Korean, Taiwanese and Vanuatu flag vessels were licensed under joint venture arrangements in Solomon Islands. The Korean and Taiwanese vessels also form part of the Korean and Taiwanese bilateral fleet operating in other PNA countries. Past experience suggests that it is unlikely that the locally based fleet will grow rapidly, although one company in Papua New Guinea is reportedly planning the construction of additional vessels to supply a cannery to be established in the New Guinea islands region.

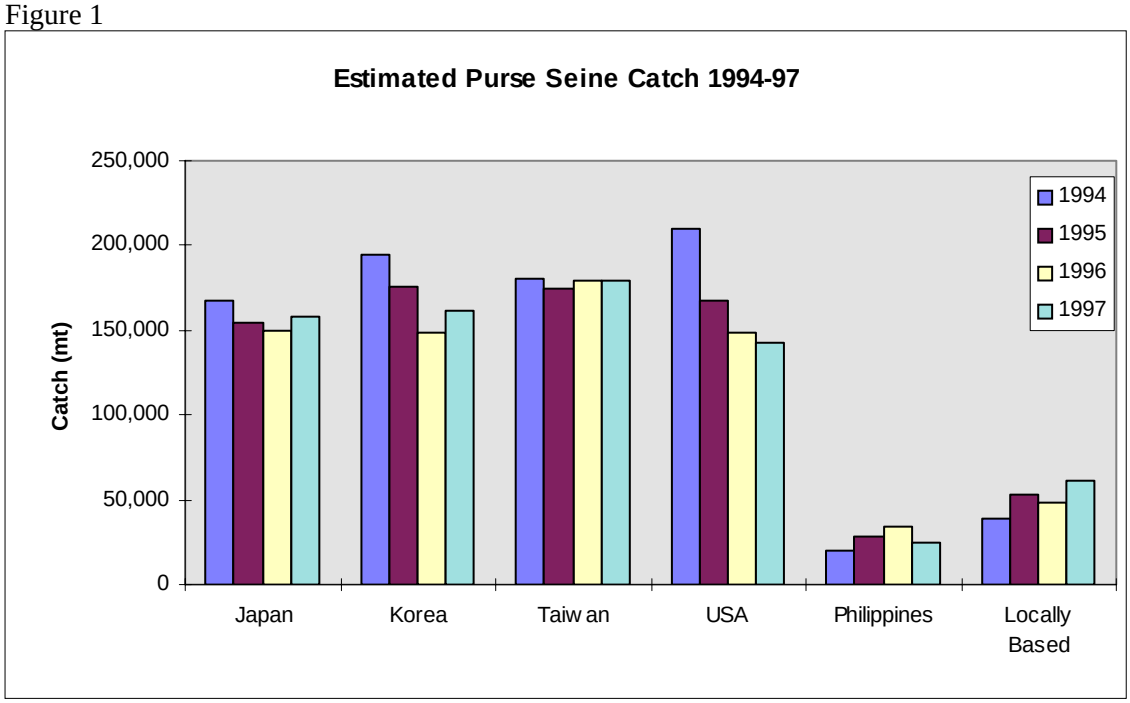
A possible emerging problem in the purse seine fishery is the catch of bigeye tuna. The pattern seen over recent years in the eastern Pacific of increased fishing on fish aggregation devices (FADs) by purse seiners, resulting in increased catches of smaller bigeye, is emerging in the western and central Pacific.

The estimated catch in the eastern Pacific of bigeye by purse seine in 1997 is 50,000 tonnes and the IATTC is moving to introduce restrictions on bigeye catches in the eastern Pacific. In the western and central Pacific the juvenile bigeye catch by purse seining is increasing, and in 1997 is likely to be in the order of 20,000mt, compared to the former average of around 6,000-8000mt.

There is a high degree of uncertainty regarding the current status of bigeye and, as a result, a similar degree of uncertainty regarding the impact, if any, that increased FAD fishing by purse seiners will have on both the status of the stock and future catches by both longline and purse seine fleets. However, it is apparent that the issue needs to be given close attention in 1998.

[2] A skipjack/yellowfin series breakup was not available, but historically the catch has comprised approximately 75% skipjack and 25% yellowfin and bigeye.

Figure 1



Canning Market

Skipjack

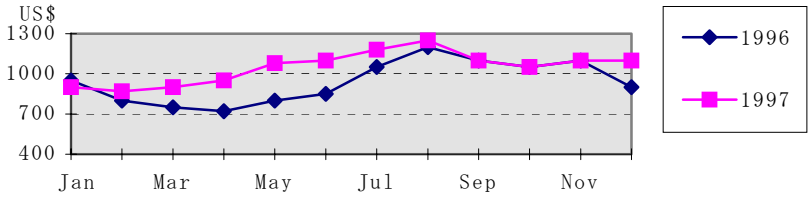
Cannery prices for purse seine-caught skipjack remained firm throughout the year because of a continued shortage of raw materials for skipjack canneries. Although the Philippine and Indonesian tuna canneries have expanded and developed in recent years, the benchmark price is still Thailand which is the world's largest processor of canned tuna. In Bangkok, raw material prices for skipjack had gradually increased from the end of first quarter and reached a peak of US$1250/mt in August before dropping slightly down but remaining at a high level of about US$ 1100/mt until the end of the year. It is reported that due to the economic problems in some Asian countries and the high prices of skipjack and yellowfin as raw materials for canning many small or middle scale canneries in Asia have suspended or scaled down their operations.

Although the United States is still the world's largest single market for canned tuna, demand has clearly stagnated in recent years. However, the level of canned tuna imports into the United States increased in 1997. In the first half of the year, almost 60,000 tonnes were imported, 27 per cent more than in the same period of 1996. Thailand managed to keep its top position among the suppliers, but the increase in imports is almost entirely coming from other countries. Mexico might become an important trading partner for canned tuna supply to the US market, now that the dolphin ban is over.

The restructuring of the US canned tuna industry continued with Bumble Bee and Van Camp being acquired by International Home Foods (IHF) and Chicken of the Sea respectively. Recent market share assessments show that Starkist remains the market leader with 42-44 per cent, IHF has 23-25 per cent, and Chicken of the Sea 14-16 per cent.

Figure 2:

Bangkok cannery prices for skipjack in 1996 and 1997

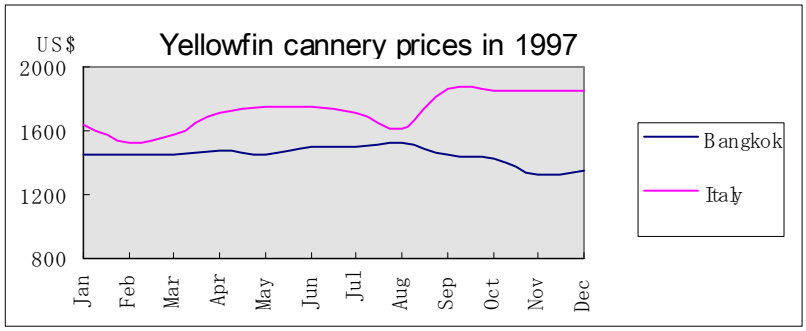


Yellowfin

The raw material price for yellowfin in 1997 started at a high level of US$1,450/ton in Bangkok and increased gradually in the second and third quarter reaching a peak of US$1,520/mt in the month of August, after which a decline occurred in the latter half of the year. Catches of yellowfin in all grounds except the eastern Pacific were poor in the first half of 1997.

Catches in the western and central Pacific improved in the last half of year but there remained an overall shortage of yellowfin for canning. Especially poor catches in the Atlantic Ocean and Indian Ocean, which supply yellowfin for canneries targeting the European market continued through the year and therefore the price of yellowfin for canneries in Europe was maintained at a very high level at end of 1997.

Figure 3:



The Longline Fishery

The total catch in the longline fishery in 1996 was approximately 108,100 tonnes[3]. This was down by approximately 5 per cent or 5,400 tonnes on the 1995 catch, which had declined by nearly 23,000 tonnes compared to the 1994 catch. The largest component of the tuna catch was yellowfin at 41 per cent while bigeye comprised 31 per cent and albacore 28 per cent. The Taiwanese, Chinese and Japanese catch all declined substantially with the Taiwanese catch falling by approximately 5,400 tonnes while for China and Japan the figures were 4,000 and 3,200 tonnes respectively.

Interest in the development of the fresh sashimi longline industry in Pacific island countries remains high, although the rate of growth remains fairly slow with no major new operations established in 1997. The smaller more easterly Pacific island countries are looking to follow the example of Samoa in developing small scale longlining using *alia* catamarans. Fishermen from Samoa are supplying mainly albacore to the canneries in American Samoa.

Efforts to establish a sub-regional arrangement between the Polymelan group and the Taiwanese albacore fleet were unfortunately unsuccessful, with the Taiwanese apparently not regarding access to the zones of FFA member countries to be of sufficient importance to warrant the cost associated with the agreement. Changes to the Taiwanese fleet are likely to confirm this trend, with larger vessels capable of freezing bigeye and yellowfin for the sashimi market being brought in to replace older smaller freezer vessels that could only handle canning grade tuna.

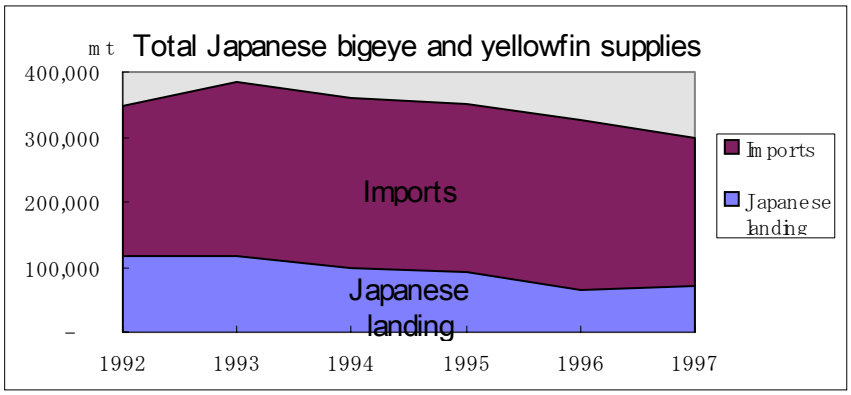
Conditions in the Japanese Sashimi Market

Overall, conditions in the Japanese sashimi market in 1997 were sluggish, particularly with respect to the frozen tuna market, which was affected by falling prices, and problems associated with the import of carbon monoxide treated fish from South East Asia and the depreciation of the Japanese yen.

Supplies of fresh and frozen yellowfin and bigeye tuna to Japan are estimated to have fallen by around 25,000mt during 1997 to around 300,000 tonnes. However, the decline in Japanese domestic landing during the last five years was reversed, with landings increasing by about 4,000 tonnes to approximately 69,500 tonnes. On the other hand, imports declined about 29,000 tonnes to 230,000 tonnes in 1997. The net decline in total landings of fresh and frozen tuna continues a trend evident since the 1993 peak of 384,100 tonnes. Imports comprised 77 per cent of supply in 1997.

[3] A reliable estimate of the 1997 catch was not available at the time of compiling this report.

Figure 4:



Fresh Tuna Market

Supplies of fresh/chilled bigeye and yellowfin onto the Japanese market decreased around 1,000mt to 31,452 tonnes and 3,000 tonnes to 40,648 tonnes respectively.

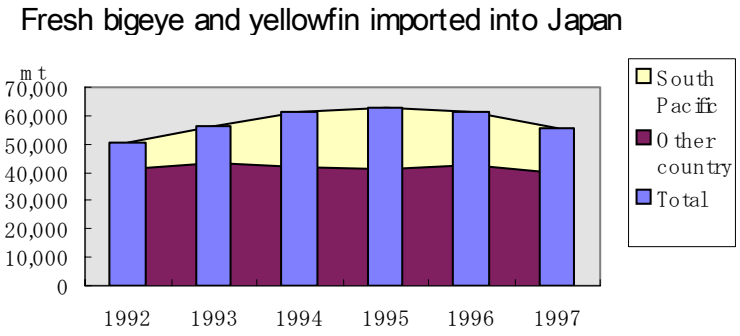
In spite of poor economic conditions in Japan in 1997, the price for domestic fresh yellowfin increased around 7 per cent to 792 yen/kg, the import price for fresh bigeye increased around 7 per cent to 926 yen/kg and the price for imported yellowfin increased around 19 per cent to 859 yen/kg. The exception was the price of domestic fresh bigeye which decreased by around 9 per cent to 1,446 yen/kg. It seems likely that because of stagnant economic conditions in Japan for the last few years, consumer demand for high quality tuna has fallen.

Imports from Pacific Island Countries

Total supply of fresh/chilled bigeye and yellowfin from South Pacific countries into the Japanese market peaked in 1995 at 21,049 tonnes which comprised 33.7 per cent of total imports of 62,536 tonnes. In 1997 South Pacific countries totaled 16,291 tonnes or 29.1 per cent of a total supply of 55,900 tonnes. Indonesia and Taiwan remain the main suppliers to the market. Of the South Pacific countries, the largest decline occurred in Guam and the Federated States of Micronesia due to the departure of many Taiwanese and Chinese small longline vessels which have moved into the Indonesian and Indian waters since 1996.

The devaluation of the yen has also been a contributing factor with the United States market becoming an increasingly attractive option. Increases in production from Solomon Islands and Papua New Guinea occurred but the volume in total was less than 3,000 tonnes.

Figure 5:



Frozen Tuna Market

There was a sharp decline in the import of frozen bigeye and yellowfin around 23,000 tonnes down to a total of 175,000 tonnes. Domestic production of frozen bigeye and yellowfin increased around 3,000 tonnes to 53,000 tonnes in the same period. Despite the decrease in supply, prices of imported and domestic yellowfin declined in 1997 when compared to the previous year. The price of domestic yellowfin declined by about 9 per cent to 544 yen/kg, while the price for domestic bigeye also fell by 9 per cent to 989 yen/kg. Imported yellowfin prices declined by around 7 per cent to 357 yen/kg, while imported bigeye prices fell by 12 per cent to 707 yen/kg. The weakness of the frozen market was further illustrated by a build up of end year inventories compared to 1996, with the inventory of frozen bigeye up 4 per cent to 13,782 tonnes while that for yellowfin was up by 10 per cent to 18,227 tonnes.

Exchange Rate Variations

The depreciation of the yen against US$ started in the middle of 1995 and has continued throughout 1996 and 1997. The main reason for the depreciation of the yen were poor economic conditions which are unlikely to change until later in 1998. Between 1995 and 1997 average yen rates to the US Dollar fell from 94 to 121 yen to one US dollar. The depreciation of the yen during this two year period has meant that importers are no longer protected against downward movements in prices on the Japanese market.

US Sashimi Market

The US market is emerging as an important alternative market to Japan for fresh bigeye, yellowfin and albacore, with Fiji being the largest supplier. The market is considered less demanding than Japan with respect to product characteristics and given the movement in exchange rates between the Yen and the US dollar it is becoming increasingly attractive in terms of market returns.

Pole and Line Fishery

The Japanese distant-water pole-and-line fishery in 1997 followed the usual seasonal cycle. From January to mid May the vessels operated in southern fishing grounds before moving into the “higashi-oki” fishing ground (an area east of Japan in and adjacent to the 200 mile EEZ) catching mainly albacore up to September, and then mainly skipjack in October. The fleet then moved back to the southern fishing grounds in early November. Overall, catches improved by about three thousand tonnes compared to the previous year, with catches totalling about 75,000 tonnes. The average price of the total catch was 246 yen/kg which is very close to the previous year’s price.

Solomon Islands pole-and-line vessels catch of approximately 23,200 tonnes was little changed from 1996. This fleet is the only domestic pole and line fleet still operating in the region.

Attachment 2

Domestic Industry Development

FFA member countries continue to place a high priority on the development of their domestic tuna industries. Progress continues to be made in this regard although the volatile nature of the tuna industry has led to some setbacks along the way. As part of the domestic industry development process, many FFA member countries are reviewing policy, recognising the need to improve domestic policies, in order to improve the national investment environment and to attract increased domestic and foreign investment into the industry. The Asian Development Bank (ADB) and the World Bank are playing an active role as donors in this process.

Purse Seine

Given the capital intensive nature of the purse seine fishery, investment in this fishery in the Pacific islands is expected to occur at a slow pace. As discussed earlier, the locally based fleet was increased with the commencement of the RD cannery in Papua New Guinea. The major purse fishing company in Solomon Islands, National Fisheries Development Limited, formerly owned by BC Packers of Canada was taken over by Tri-Marine, a joint Singaporean, US and Thai venture, in June 1997. The company purchased a second hand vessel in October 1997 at a cost of US$5 million, to bring their fleet up to a total of three vessels.

In the latter half of 1997 a newly established Papua New Guinea company, Sokimona Fisheries purchased and fitted out in Singapore an ex Russian vessel at a reported cost of US12-13 million. The company also plans the construction of additional vessels, possibly up to 20 over the next five years as well as the establishment of shore based processing facilities.

The number of active eligible vessels under the Federated States of Micronesia Arrangement has increased with one additional vessel registering from Papua New Guinea and three from the Federated States of Micronesia. The total number of active vessels now stands at seven. However, it should be noted that these additional vessels were either part of the existing locally based fleet that had not previously registered, or came from outside the region. In other words, the Arrangement has not acted as an incentive for existing distant water operators in the region to base their operations locally.

Longline

Domestic industry developments in the longline fishery have been largely confined to the fresh tuna sector. Local operators in Papua New Guinea continue to bring new vessels into the country and the opening of air links between Port Moresby and Osaka in Japan has improved marketing opportunities into the Japanese market. However, the risk associated with the industry is reflected in the fact that although approximately five additional vessels commenced operations in 1997, five existing vessels ceased operating. The level of fishing effort is likely to increase however as the new entrants are expected to more active than those which departed.

The number of active vessels in Fiji has declined with only 34 operating in 1997 compared to 42 the previous year. However, the estimated total catch fell by less than 10 per cent suggesting that, as was the case in Papua New Guinea, most of the vessels departing were not full time participants in the fishery.

The number of vessels operating in the Federated States of Micronesia declined with the departure of a large number of Taiwanese and Chinese boats that reportedly relocated in Guam. The industry is concentrated in Pohnpei State, with a small number of boats also operating in Chuuk and Kosrae. Since the departure of Polar International from Yap, there has been very little longline activity there.

A recent development of importance in the longline fishery has been the reemergence of the *alia* catamaran fleet in Samoa. These vessels were first promoted in Samoa in the 1980s when the fleet

reached a peak of around 400 vessels, fishing mainly for deepwater snapper. When the results from this fishery proved disappointing the fleet declined until by 1990 it was only approximately 40 vessels. The fleet has since grown, particularly in the last twelve months. In 1996 it was estimated at 140 vessels with a production of 1,100 tonnes, and current estimates suggest the fleet has grown further to 200 vessels and the catch may be in excess of 2,000 tonnes. Much of the catch is albacore, which is frozen and shipped in containers to the canneries in American Samoa.

Some of the other Polynesian countries, such as Niue which lack the necessary infrastructure to handle even fairly small longliners, are looking at the alia catamarans as a way of developing their longline fishery.

Processing Industry

The commencement of production of the Philippines owned RD tuna cannery in Madang in the second half of 1997, means that there are now three canneries operating in the region, the other two being in Fiji and Solomon Islands. Infrastructure and logistical constraints are limiting the production of the RD operation to about one third of planned production. Officials in Papua New Guinea are also considering a major cannery project submitted by European interests.

The PAFCO cannery in Fiji has experienced some problems in maintaining an adequate supply of fish and is reported to have substantially scaled down it canning activities. The Government is in the process of winding up the government owned pole and line operation and the cannery has largely switched across to loining activities based on an arrangement between Pafco, Bumble Bee and the Taiwanese company FCF. Other countries that are considering loining projects are Papua New Guinea and Marshall Islands.

Attachment 3