

Regional Arrangements for Management and Development of Tuna in the Pacific Islands: the case study of Palau Arrangement and the Federated States of Micronesia Arrangement

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Abstract: Tuna fisheries provides an important source of income, foreign exchange and employment for many Pacific Island States. It is also seen as a major avenue for industrial development by most Pacific Island States. The Law of the Sea Convention, while recognising the rights of coastal States to manage and develop tuna resources within their EEZs also obligates these States to co-operate with other States in the management and development of the resources. The Forum Fisheries Agency (FFA) and its sub-regional group, the PNA (Parties to the Nauru Agreement) provide an interesting case study of regional co-operation on tuna. Through the Palau Arrangement and the FSM Arrangement, the PNA group illustrate attempts to manage and develop their purse seine fisheries. This paper provides a brief background to these arrangements and their implementation. It shows the Group's motivation to cooperate to develop uniform strategies to help each other and also points out the hurdles the Island States encounter when participating in a highly sophisticated industrial fishery. The paper states that the Arrangements if modified in light of the Western Central Pacific Fisheries Convention have the potential to strengthen these States position to better negotiate with Fishing Nations to achieve their objectives. The case study highlights three important and interrelated components of sustainable regional fisheries development: management objectives to be based on sound scientific principles using a precautionary approach, the need for institutional mechanisms for co-operation within the core group and the wider group, and a more defined rights-based fisheries management framework.

Key words: Regional Co-operation, tuna fisheries management, and domestic industry development.

1. INTRODUCTION

1.1 The Setting

The Western and Central Pacific Ocean (WCPO) contains the world's largest and most valuable tuna resources. Catches which are in excess of one million tonnes per year represent around one third of all tuna landed worldwide (Gillett, et al, 2001). The region supplies 60% of tuna for canning and 30% of sashimi grade tuna for the Japanese market (Cartwright & Willock, 2000). About 50% of the WCPO waters fall within the EEZ of the Pacific Island States and territories (Muller & van Santen, 2000). The EEZs of the Forum Fishery Agency (FFA) member States comprise close to 75% of the productive equatorial belt situated 10° either side of the equator and from which 90% of the catch of the tuna in the WCP is taken (Cartwright & Willock, 2000:182).

Tuna represents an important economic resource in terms of providing foreign exchange, employment and income and is also of cultural significance in a number of island States (Gillett, et al, 2001). For some smaller island States, tuna is the only means of their economic development. Studies by the Secretariat of the Pacific Community (SPC) indicate that stocks are generally in a healthy state except for the bigeye tuna (Hampton et al, 1999). Pacific Islands tuna is one of the few underexploited tuna stocks in the world (Gillett, 1997), and therefore it is a resource not only of regional economic importance but of global importance as well.

1.2 Context of the paper

This paper is part of a research study that looks at the development challenges and opportunities for Pacific Island States from the extended maritime zones of jurisdiction under the Law of the Sea Convention and its subsequent developments. The study shows that development of domestic tuna industry has been and continues to be a major aspiration for these island States. The study reviews the national and regional strategies used to domesticate the tuna industries and analyses the progress achieved to date and some likely policy considerations arising from developments in international trade and sustainable resource use issues.

As part of the above study, the focus of this paper is specifically to look at regional strategies implemented and the challenges and opportunities presented particularly in light of the new Convention on the Conservation and

Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, 2000 (WCP Tuna Convention).

Efforts by a sub-regional fisheries management organisation towards management and development of the tuna resources of the Parties through two regional agreements are discussed. The Palau Arrangement¹ illustrates a case of the application of a limited entry management where restrictions on effort had limited success as it could not solve the underlying incentives of individual members to continue issuing licenses. The problem was further compounded because there was no sound basis for achieving the management objectives of limiting effort and increasing access revenue. The FSM Arrangement provides an example of an incentive mechanism to develop sustainable domestic fisheries industry.

The WCP Tuna Convention provides a comprehensive framework for management and conservation of resources by including provisions that provide for determining a total allowable catch and a basis for formulating the criteria for its allocation. The WCP Tuna Convention provides a means for strengthening the Palau and FSM Arrangements which could be used as a tool for future bargaining and securing of rights under such allocation. The case study presents an example of the limited entry system as an imperfect right that now has the potential to be transformed into a more secure rights under a new institutional legal framework, making it more effective in achieving its aims and objectives. The paper will firstly provide a brief background to the Palau and FSM Arrangements and their implementation. It will then point out some key provisions of the WCP Fisheries Convention and review these Arrangements in light of the WCP Tuna Convention to show that the Palau and FSM Arrangements if modified can strengthen Pacific Islands position to derive greater long term economic benefits from their tuna resources.

2. FORUM FISHERIES AGENCY (FFA) AND THE PARTIES TO THE NAURU AGREEMENT (PNA)

Regional co-operation has been a key strategy adopted by the Pacific island States to overcome their economic, social, political and environmental problems resulting from their smallness, isolation from major world markets, and limited resources and capabilities. During the late 1970s when the islands States gained extended jurisdiction over marine resources through the EEZ concept, many of these States had just gained independence or were in the process getting their political independence and therefore had a strong desire to become self-reliant. The FFA was established in 1979 by the South Pacific Forum as a regional institution to deal with regional fisheries issues.² The objectives of the FFA are to assist and facilitate efforts by member States to conserve and optimally utilise their fisheries resources; to promote and facilitate coordination, consultation, and cooperation among members and to facilitate data collection, analysis and dissemination of statistical, scientific and economic information about the fisheries resources (FFA Convention, 1979). The functions of the FFA include providing technical advice on a range of issues from legal, to marketing and prices, management and statistics. One of the key reasons for the formation of FFA and its membership structure reflects the need for Pacific Islands States to band together as a united front to deal with the powerful distant water fishing nations (DWFNs). A number of FFA member countries heavily reliant on tuna fisheries were concerned in the manner which the DWFNs vessels were exploiting their tuna resources and over the nature of their access negotiations. For example they were unhappy over the inaccurate reporting of catch that undermined the true economic benefits. A number of FFA member countries realised that they would benefit more if they closely coordinated their approaches to DWFNs. These States agreed to conclude a memorandum of understanding between themselves which would outline their shared objectives on cooperative measures to control foreign fishing vessel (FFV) operations in their respective EEZs and fishing zones. These States that share a common stock of tuna (particularly skipjack) near the equatorial zone formed a sub-regional group within the FFA known as the Parties to the Nauru Agreement (PNA) Group under the Nauru Agreement³.

The Nauru Agreement is an umbrella framework that provides a broad range of areas which Parties can effect by concluding Implementing Agreements. The First Implementing Agreement (adopted in 1983) provides for the establishment of a Regional Register for FFVs to be maintained by the FFA. It also includes provisions relating

¹ Palau Arrangement for the Management of the Management for the Western Pacific Purse Seine Fishery

² For more details on FFA and its role and functions, see: Herr, R (ed). 1990. *The FFA: achievements, challenges and prospects*. Institute of Pacific Studies, Suva. 446pp.

³ Nauru Agreement Concerning Co-operation in the Management of Fisheries of Common Interest (1982). The PNA Group consists of Federated States of Micronesia (FSM), Marshall Islands, Nauru, Palau, Papua New Guinea (PNG) and Solomon Islands.

to Minimum Terms and Conditions (MTCs) for licensing such as licensing procedures and requirements for data⁴. The Second Implementing Agreement (adapted in 1990) incorporates additional terms and conditions for FFVs that include the prohibition of transshipment at sea, placing of observers on board and requirements to provide high seas catch data.

One of the major concerns of the PNA Group was the increase in purse seine activities by FFVs in their zones. The EEZs of the PNA States and the adjacent high sea areas have been the primary purse seine fishing grounds in the WCPO. In 1980, there were 19 vessels which contributed to 19,286 mt of catch; by 1985, vessel numbers increased to 78 contributing to 137,904 mt and by 1989, there were 126 vessels with a total catch of 306, 437 mt (FFA, 1990). The purse seine catch in 1980 represented 16% of the total catch of the FFA region and in 1985 it represented 58%. By 1989, the catch accounted for 74% of the total tuna catch (Lodge, 1998; FFA, 1990).

The rapid expansion of the purse seine fishery raised concerns over the status of the yellowfin stock and also concern over the lack of control of foreign fleets that posed a threat to overcapitalization of the purse seine fishery. It was felt that increased production would not only depress the world tuna prices and cause the market to collapse but also it would have a flow on effect on the value of access revenue. Restricting vessel numbers was seen as a way to improve the productivity of the resources and increase the profitability of vessels and their willingness to pay a higher access fee.

At the Ninth Annual Meeting of the PNA in 1990, the members agreed as an interim measure, to limit the number of purse seine licenses under bilateral agreements by placing a cap on each fleet operating in the region and find measures to implement the PNA objectives. This finally led to the establishment of the Palau Arrangement which was signed in 1992 and entered into force in November 1995. The biological and economic concerns of the purse seine fishery therefore underpin the establishment of the Palau Arrangement.

3.THE PALAU ARRANGEMENT

The Palau Arrangement operates within the administrative framework of the FFA where FFA provides the Secretariat and the FFA Director is the Administrator. The Arrangement applies to the purse seine fisheries management area which includes the EEZs or fishing zones of Parties including adjacent high sea areas in the western Pacific within which the purse seine vessels operate⁵. The management meetings are to review annually the status of stocks and establish necessary measures for its management and conservation (Article 3.1). The Palau Arrangement outlines an agreed licensing criteria which includes compliance with national laws and regulations and the MTCs outlined in the Implementing Agreements I and II (Article 6., Annex 2). There are limits on the number of purse seine vessels that may be licensed with caps on the number of licenses for each fleet (Annex 1). Article 5 specifies the allocation of licenses with the highest priority to domestic vessels, followed by domestic vessels of another Party, then to foreign vessels that base their operations locally, followed by foreign vessels that fished in the area provided they have good compliance record and lastly to new foreign fishing entrants. Table I details the various caps for the vessel categories outlined in Annex I of the Agreement that is annually reviewed. The cap of 205 vessels has remained since 1993.

Table 1. Purse Seine Licence Numbers (revised 30 April 2002)

Category	Agreed April 1999	Agreed April 2002	Reported March 2002
1. Multilateral Access US Treaty	50	40	29
2. Bilateral Foreign Access:			
- Japan	35	35	35
- Taiwan	40 (+2)	41	41
- South Korea	29	27	27
- Philippines	10	10	10
Sub-total of (1+2)	166	153	142
3. Domestic/ Locally-based			
All parties	41(-2)	45	40
4. New Bilateral Access*			
China		3	1

⁴ The MTCs and the Regional Register are now adopted by FFA members as a whole regional initiative including no-PNA members.

⁵ Article 1.1a – The Palau Arrangement. This provision has been strongly opposed by DWFNs.

European Union		4	
Total ((1+2)+3+4)	205	205	194

*Special Arrangements: (This category will remain in force as long as the number of US vessels is below its maximum).
Source: Forum Fisheries Agency, 2002

3.1 Implementation of the Palau Arrangement

A review of the Palau Arrangement was carried out in 1993 which pointed out the failure to limit purse seine effort as Parties continued issuing licenses. Some PNA States only partially applied the procedures for Regional Register and issued licenses in excess of individual fleet allocation. For example in 1992, a member requested increase to the Taiwanese cap from 30 to 44⁶. Furthermore, there was no requirement for a “domestic vessel” to be on the Regional Register to qualify for a license⁷. Secondly, licensing of other Parties vessels by Pacific Island States was limited because most of these States did not own large purse seine vessels. There was some reluctance to forego revenue from bilateral access because locally based vessels meant giving up part of the access revenue. To overcome these problems, further changes to the Agreement that would provide greater incentives for domestic industry development was facilitated by reducing the number of license to the Korean fleet from 36 to 32, non issue of license to FFV flying flags of convenience and by treating domestic fishing vessels, locally based FFVs and vessels of other FFA member States on an equal basis as one category with a single allocation of 24 licenses (Aqorau & Lili, 1993). As part of this domestication strategy, the Parties also agreed to increase the number of domestic and locally based licenses and reduce the number of licenses allocated to bilateral foreign access by 10% from 1997. This resulted in an increase in purse seine joint ventures but the number of foreign licenses were not correspondingly reduced. Foreign vessels that relocated were marginal vessels that tried to reduce their operating costs and so contributed little towards domestic industry development.

While there was concern over the status of stocks, there was no biological assessment done to determine the optimal level of harvest and effort needed to achieve it⁸.

The purse seine fishery has stabilised since 1995 with decrease in canned tuna prices and fishing interests also being diverted to more high value sashimi longlining. The number of purse seine vessels registered under the Palau Arrangement in March 2002 stood at 194, which is 9 below the cap as shown in Table 1. The structure of the Arrangement is such that in principle it does not allow new entrants and any increase in the domestic category will require reduction of bilateral access. In more recent years, a number of licenses under domestic category have been allocated to one FFA member flagged vessels⁹. Secondly, a member has also issued 14 licenses under bilateral access to Spanish vessels since 1999¹⁰. These developments have allowed some degree of contention among members towards their co-operative efforts. Both cases argue that their actions are within the broad interpretations of the Agreement. Since the establishment of the Arrangement, access fee has remained on average at 5% of the value of catch and foreign purse seine fishery under bilateral access agreements continue to dominate the fishery. The Pacific Island domestic purse seine fleet contributed to only 12% of the total purse seine catch in 1999 (Hampton, et al, 1999:iv).

The objectives of the Palau Arrangement to derive greater economic benefits have therefore not fully materialised. With the recent international development following the UN Fish Stocks Agreement and the new WCP Fisheries Convention raising issues on sustainability and the changes in the global tuna markets, a review of the Palau Arrangement has been carried out. The review highlight several modifications to the Arrangement among which the most significant is the allocation of effort based on number of fishing days.

⁶ This request was approved on the view that Taiwan had agreed to supply high seas catch data.

⁷ Often national legislation defined what was a “foreign fishing vessel” and what constituted a “domestic vessel”, these were often inconsistent and led to confusion when a vessel operating under the “domestic” arrangements fished in another members fishing zones.

⁸ The cap of 205 vessels was placed as it was the level at which the fishery operated during the establishment of the Arrangement, thus the cap was seen as the cut-off point with no further increase in vessel numbers. Note that this limitation is on vessel numbers and not size and catching capacity.

⁹ These are foreign vessels with domestic flag that operate under an open International Vessel Registry, and according to records these vessels so far have not contributed to any shore based activity.

¹⁰ One member issued 14 bilateral licenses since 1999 to Spanish purse seine vessels. Parties have recently agreed that EU vessels would be allowed under the new bilateral access and the number would only increase provided US vessels under licenses are below their allocated number.

3.2 Analysis of Palau Arrangement

The preamble of the Palau Arrangement states “that fisheries management regimes must effectively maintain the ecological relationship between dependent and associated populations, prevent any decrease in size of the harvested populations below those necessary to ensure their stable recruitment, and avoid adverse impacts upon the marine environment and further recognize that in order to ensure conservation and promote optimum utilization of living resources, fishing must be carried out only on the basis of ecologically sound practices, effectively monitored and enforced”. According to the Arrangement, this objective is to be achieved by having vessels of good standing on the Regional Register, including the number of vessels by size and class, carrying capacity, operation type, fishing power and technological capability. (Article 3 (2) [i]). In practice, the implementation of the Palau Arrangement has been by placing a cap on the total number of vessels. This determination of effort is not derived from sound biological assessment of stock and fishing capacity or even market assessment. The revisions to Annex I of the Palau Arrangement on licensing criteria also do not reflect any scientific assessment and have been largely driven by national interest. This limited entry strategy also did not take into account the vessel size and its fishing capacity, as other important components of effort even though it acknowledges the importance of such factors. The conditions for access by vessels were more focussed on compliance and monitoring of reporting and licensing procedures rather than on issues affecting the fishing capacity. An analysis of the purse seine vessels by GRT since 1991 shows that more than half the purse seine vessels have been above 500 GRT and between 1991 and 2000, only 16 purse seine vessels were recorded on the Regional Register as below 300 GRT. The size of the vessels used have also generally increased. In regards to resource sustainability, SPC assessments indicate that there are concerns over the status of bigeye stock. The use of deeper nets and free floating FADs have possibly contributed to catching of smaller fish (Hampton, et al, 1999). Studies also indicate that standardised longline catch for bigeye in the WCPO have fallen continuously. There are also scientific concerns about the possible overfishing and decline of adult biomass of bigeye (Bertingnac et al, 2000). Thus the growth in purse seine catch of juvenile bigeye does not aim at management of the resources or its long term sustainability.

The Palau Arrangement aimed to increase economic benefits by firstly, reducing effort which consequently would reduce supply that will push the price upwards. This in turn was assumed to improve the profitability of the fishery and therefore increase access fees. With fewer licences, the value of access was assumed to increase by creating more competition. Looking at the production patterns, purse seine catch continuously increased and only stabilised after 1995. Overall there was a global oversupply of tuna which depressed prices. Prices thereafter began to fluctuate widely which did not lead to any increase in access revenue.

The second strategy to increase economic benefits was by giving preference to domestic and foreign vessels that based their operations locally with the understanding that it would create linkages to domestic economies and generate employment and industry development. The Palau Arrangement does not specifically identify strategies that directly address these in terms of conditions for access. The increase in domestic vessels is also attributed to re-flagging of foreign vessels to a member and allocating of licenses to Spanish vessels as new entrants. The use of domestic flags depends on the national legislation on ownership and foreign investment. In most instances, foreign vessels will re-locate only if their costs are going to decrease or alternatively if they want to secure a license to fish. There was no real competition for licenses for foreign vessels and access fee was relatively low, thus providing little incentive for foreign purse seiners to re-locate.

The aim of the Palau Arrangement to manage the Western Pacific purse seine fishery can be achieved by limiting fishing capacity at a level that will allow long term sustainable level of harvest and optimise the fishery rent. While the Palau Arrangement makes references to the importance of ecological principles, it has however not followed it when setting effort limits¹¹. In order for the Palau Arrangement to be an effective management tool and to be compatible with the WCP Fisheries Convention, its management and conservation obligations must be based on precautionary principles using best available scientific information including data on non-target and dependent species. Applying a total allowable catch as an output control determined by proper scientific stock assessment would also help to identify the optimum level of effort needed to maximize the returns from the fishery. Bioeconomic studies (using 1996 fishing effort levels), carried out by the Secretariat for the Pacific Community (SPC) and the University of Queensland concluded that fishery rent and profits can be maximised by reducing the effort levels by about the half (Bertingnac, et al, 2000). Mfodwo (2000) also argues that there is increase vulnerability of the big eye stock due to increase in use of FADs by purse seine vessels. These studies indicate that increase in purse seine effort have negative impact on the fresh tuna longline

¹¹ Among the reasons include the lack of scientific data and the lack of co-operation by DWFVs to provide accurate and reliable catch data for assessment purposes.

profitability because the purse seine catch also include juvenile yellowfin and bigeye which are target species of the longline as adult stock¹². Since longline is of equivalent economic importance and an important fishery for domestic industry development, interaction between longline and purse seine effort must be taken into account when determining the optimal level of harvest and effort for each fishery. Thus reducing the level of purse seine effort could increase the profitability of both the purse seine and longline fishing. There has also been an increase in use of drifting FADs by purse seine vessels. Drifting FAD sets accounted for close to 90% of all sets made by the US purse seine fleet in 1999 (Hampton, 2000:4). Japan and Taiwanese fleet have also increased the use of FADs. This strategy has led to the recent increases in skipjack and bigeye catch and raises questions on long term resource sustainability. Since many of the PNA members are currently heavily relying on access revenue, reducing effort would, in the short-term, mean foregoing access revenue in order to achieve long term increases in revenue by increase competition for access. There is increase interest by new entrants such as Spain and possibly France to gain access to WCPO. With limited commitment by some members who continue to grant bilateral access rights above those agreed is likely to exacerbate the overcapacity problem (in the context of the recent bioeconomic studies) that will continue to keep the overall average access fee still at low levels.

4. THE FEDERATED STATES OF MICRONESIA ARRANGEMENT FOR REGIONAL ACCESS (FSM ARRANGEMENT)

4.1 FSM Arrangement – aims and objectives

The FSM Arrangement is essentially linked to the Palau Arrangement. A review of the Palau Arrangement in 1993 indicated that the distant water purse seine effort continued to increase amidst high tuna prices but that there was no corresponding increase in access revenue. Vessels that re-located to domestic ports were marginal that contributed little to local industry development. Interest within some PNA members to develop their own purse seine fishery also increased. Further motivation was provided by the informal arrangements already between some PNA members to gain access to each other's EEZs¹³. To address these issues, amendments to the Palau Arrangement were agreed that aimed to enhance local industry development by reducing the foreign fishing license by 10% and allocating it to domestic vessels from 1997. A PNA task force carried out a study to identify the criteria for domestic vessels that would provide substantial long-term economic benefits to the Parties. This study on preferential access led to the adoption of an additional Arrangement(FSM Arrangement) aimed at increasing domestic benefits.

The FSM Arrangement¹⁴ is seen as a strategy to domesticate the purse seine fishery to derive greater economic benefits through increased local participation. The Arrangement aims to assist member States to develop their locally based purse seine industry by providing favourable treatment to purse seine fishing enterprises and vessels that base their operations in member States. It is a legal framework to stimulate the development of locally based purse seine operations including shore-based facilities. The main objectives of the Arrangement are:

- i. to co-operate to secure maximum sustainable economic benefits from the exploitation of the tuna resources in the WCP;
- ii. to promote greater participation of nationals of Parties and assist in the development of national fishing industries
- iii. to establish terms and conditions under which fishing vessels that provide long-term sustainable and quantifiable economic benefits be granted preferential access to EEZs of Parties.

4.2 Main Provisions of the FSM Arrangement

Part II of the FSM Arrangement outlines the registration and licensing procedures for vessels under the Arrangement. When a Party is satisfied that a fishing vessel fulfils the eligibility criteria, the Party can apply to enter the vessel on the Register of Eligible fishing vessels [Article 3 (2)]. The vessel must be on the Regional Register of Foreign Fishing Vessels and the Regional Register of Eligible Fishing Vessels before a regional access license is granted by the Administrator (Article 6.1). The eligibility criteria is set out in Annex III (3) of the FSM Arrangement against which fishing vessels are evaluated. Each vessel or enterprise must score a minimum of 25 points to qualify for a regional access license. The criteria have a number of activities that have

¹² Average catch distribution of purse seine fishery includes at least 30% of the catch of other species (FFA ,1990:9)

¹³ For example between Solomon Islands and the federated States of Micronesia.

¹⁴ The FSM Arrangement entered into force on 23 September 1995. Members include FSM, Kiribati, Papua New Guinea, Marshall Islands, Solomon Islands.

the potential to increase linkages to local economies. These include: amount of equity, number of nationals employed, level of local purchases extent of onshore investment, flag of the vessel, and level of skills and technology transfer including training. Vessels and fishing enterprises are reviewed annually against the criteria and if vessels do not meet the eligibility test, they can be deleted from the Register of Eligible Fishing Vessels (Article 6.4). Vessels that meet the criteria can, with a single license, gain access to the EEZ of the Parties. This provides an easy access to multiple fishing zones as opposed to seeking several bilateral arrangements that can otherwise result in high transaction cost.

Part IV of the FSM Arrangement deals with compliance and enforcement provisions. These are detailed in Annex V of the Arrangement which require vessels to install and use VMS, place observers on board, tranship only at designated ports, not to fish in closed areas; and to meet special regional and national reporting and data requirements and to be on a good standing on the Regional Register.

The Arrangement has a comprehensive compliance and enforcement mechanism that takes account of Flag State responsibilities and also requires Parties to develop regionally agreed procedures for surveillance and enforcement in the Arrangement area under the provisions of the Niue Treaty (Article 13 and 15). Annex IV of the FSM Arrangement outlines the procedures for calculating access fee which is based on 5 percent of the value of catch. Fees are paid to the Parties in whose waters the vessels are licensed to fish and apportioned according to where the fish is caught.

4.3 Implementation of the FSM Arrangement

The FSM Arrangement is viewed by the Pacific Island States as the main vehicle through which their aspirations on development of domestic tuna industries can be achieved (Aqorau and Bergin, 1998:44). Aqorau and Bergin argue that the criteria under the FSM Arrangement presents a framework to determine the eligibility of vessels and that it should be used by Parties as an investment guideline (Aqorau and Bergin, 1998:56). This is seen as a response by Pacific Islands on frustrations over the problem of bogus joint ventures set up by foreign enterprises which do not materialise into any local benefits. According to some sources the number of vessels on the Register of Eligible Fishing vessels during the seventh licensing period (2001) was just over 20 compared to 5 vessels during the first licensing period (1995). The low number of registrations in the initial years of the operation of FSM Arrangement led to a review of the criteria in May 1997. The review indicated that the criteria was too rigid as it had specified the range of value within which the local purchases and onshore development had to fall in order to qualify points for eligibility. Purse seiners often use bases and ports that offer the best compromise of distance, price and services. In a number of island States, availability of cheap vessel input supplies, port infrastructure, availability of land for shore-based activity, fresh water supply and availability of skilled labour are often limited. The criteria for licensing did not fully take into consideration the diversity of purse seine operations either, such as large seiners require access to multiple ports and fishing zones and high seas whereas smaller vessels fish closer to in-zone areas. Changes to the criteria were made to reflect the different vessel sizes and their effect on the pattern of vessel operations by having two categories of vessels: archipelagic purse seiners and large scale purse seiners, and placing a percentage value rather than an absolute value required for local fuel purchases and local offloading.

On shore investment in the Pacific Island in the purse seine fishery could be either in fish processing, net repairs or cold storage. The purse seine vessels that operate have been mostly vessels that largely supply fish to canneries outside the Pacific Islands region¹⁵. These vessels have little incentive to invest locally in shore-based development. Enterprises that operate one vessel particularly a small size seiner also have very limited interest on onshore investment compared to enterprises that employ multiple vessels that can provide greater economies of scale. Locally-based operations or domestic owned enterprises are often small, thus contribute to limited shore based activities. Most vessels on the Register of Eligible Fishing Vessels have been re-flagged to Parties or are locally based. The increase in vessel numbers on the Register is attributable to this re-flagging practice.

Employment of locals depends on the terms of the registration by the Home party. Purse seine vessels often require skilled and experienced labour, which has often been a constraint. According to some sources, only 30 percent of the vessels on the Register of Eligible fishing vessels in 2001, had Pacific Island equity. The low local equity and low employment of locals indicate that achieving maximum benefits has been somewhat limited.

¹⁵ Except in the case of supply of fish to the canneries in America Samoa

The evaluation of the criteria of the FSM Arrangement depends on the supply of data, its reliability and accuracy. More recently, changes to the criteria also include allowing new vessels to meet a qualifying period before they can operate under the FSM Arrangement.

One of the problems faced in the vessel review process has been the poor reporting and lack of supporting documents sent to the Administrator. Thus while the number of vessels have increased since 2000, there are still questions as to whether these vessels are providing the long-term sustainable and quantifiable economic benefits to the Parties. There are still some reservations about the application of the revised criteria in terms of determining the quantifiable benefits that accrue to local economies. A further review is being considered that will aim at making the criteria practical by having quantifiable indicators. For example, the review will look at measures such as putting more emphasis on vessel ownership and flag registration that can help to determine the flow of benefits to the home party. While foreign equity may be allowed under the FSM Arrangement, it will have a different fee structure, perhaps a higher fee than vessels with 100 percent local equity.

4.4 Evaluation of the domestication strategy under the FSM Arrangement

Several problems have constrained the FSM Arrangement so far in achieving its objectives. Firstly, the lack of understanding of the dynamics of purse seine operations that require large capital outlays, skilled labour and reliable supply of inputs and a flexible operational mode depending on the seasonality of catch and the market prices of fish to maintain viable operations. The criteria under the Arrangement initially set was too rigid to take into consideration these factors and so provided little incentive for vessels to base their operations in domestic ports. Secondly, the application of the criteria has largely depended on the home party's domestic legislation and its enforcement in terms of meeting the requirements of the criteria such as the need and level of local equity, employment and training, and sharing of facilities of other Parties. Another factor that contributed to low number of foreign vessel numbers opting to base their operations under the FSM Arrangement has been the low access fee levels under the bilateral arrangements which on average has been around 5% of the value of catch. In the case of the FSM Arrangement, access fees are also calculated on the 5% value of the catch and in addition vessels are required to contribute to shore based development and activities. The low numbers of local vessels and equity into purse seine fishery is partly contributed by the lack of capital and high risks associated with the purse seine operations that has been marked by erratic price changes since the mid 1990s. Moreover, local investors have opted for investments in a relatively more affordable longline fresh tuna fishery. However, with the recent rise in demand for canned tuna (FFA ,2002) and displacement of vessels from over-exploited fishing grounds, there is an upward trend in the purse seine market that is seeing an influx of new entrants whose operations may have implications for the domestication of the purse seine fishery.

5.THE CONVENTION ON THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN CENTRAL PACIFIC OCEAN 2000 (WCP Tuna Convention)

The WCP Fisheries Convention provides a more comprehensive framework for the management and conservation tuna resources in the WCPO. The objective of the Convention is to ensure the long term conservation and sustainable use of highly migratory fish stocks in the WCPO based on the principles outlined in the Law of the Sea Convention (1982) and the UN Fish Stocks Agreement (1995). The main focus is on the need for cooperation between coastal States and fishing States to ensure conservation and optimum utilization of the highly migratory fish stocks throughout their range. The WCP Fisheries Convention specifically emphasises the application of the precautionary approach and the use of best scientific information available to ensure effective conservation. Furthermore, it states that effective and binding conservation and management measures can be achieved only through cooperation between coastal States and fishing States in the region and that this can be achieved through establishment of a regional commission (Preamble).

The conservation and management measures apply throughout the range of the stocks including the in-zone and high sea areas. Therefore measures adopted by coastal States in areas under national jurisdiction and those adopted by the Commission should be compatible (Article 8.1). One of the functions of the Commission is to determine the TAC or the TAE within the Convention Area [Article 10.1 (a)]. The Commission is required to develop, where necessary, criteria for allocation of the TAC or TAE. In determining the criteria for allocation, Article 10(3) outlines a range of factors that need to be taken into consideration.

Article 5 states the principles and measures for the conservation and management while Article 6 outlines the application of the precautionary approach. It calls for an integrated ecosystems approach to the management of fisheries. Part III of the Convention describes the establishment of the Commission, its functions and its decision making procedures. The implementation of the Convention requires a comprehensive compliance and

enforcement mechanism including a more accurate and timely reporting and requirements for information on the status of the stocks and other scientific data. Members of the Commission are required to exercise Flag State responsibility over the vessels in the Convention area including areas under national jurisdiction and the high seas.

6. IMPLICATIONS OF THE WCP TUNA CONVENTION FOR THE PALAU ARRANGEMENT AND THE FSM ARRANGEMENT

6.1 Palau Arrangement in light of the WCP Fisheries Convention

Article 8.2 (a) of the WCP Fisheries Convention states that in establishing compatible conservation and management measures in the Convention area, the Commission shall take account of the biological characteristics of the stocks, the geography of the region, including the extent to which stocks occur and are fished in areas under national jurisdiction. Secondly, Article 8.2 (c) states that the Commission shall take into account previously agreed measures established and applied in accordance with the 1982 Law of the Sea Convention and the Fish Stocks Agreement in respect of the same stocks by a sub-regional arrangement. This is directly applicable to the Palau Arrangement and the FSM Arrangement if these are made compatible and comply with the principles and objectives of the Convention. The WCP Tuna Convention will strengthen the Parties position for their in-zone purse seine management because it reinforces the MTCs under the Implementing Agreements. As stipulated in the intentions of the Palau Arrangement, management measures will apply to fishing vessels in the in-zone areas and while fishing for the same stock in the adjacent high seas. This provides an opportunity for the Palau Arrangement to develop and implement comprehensive management arrangements that will not only set the standard but also influence the decisions of the Commission when making allocations of the Total Allowable Catch (TAC). The practical and political advantage provided by the Arrangement¹⁶ over DWFNs fishing activities in the high seas pockets is also important in this context (Geen, 2000:8). The stronger management measures in the in-zone areas will provide the base for the Commission to consider allocation on the high seas since a larger part of the WC Pacific purse seine fishery area falls within the EEZs of the Parties.

A review of the Palau Arrangement was conducted in 2000 in light of the recent developments in the international fisheries legal framework, particularly in light of the WCP Fisheries Convention and the UN Fish Stocks Agreement. The review recommends a change in the management method of limiting effort from vessels numbers to national purse seine vessels days. The main features of this management regime include:

- setting by PNA of a sub-regional total allowable number of purse seine days that controls the amount of in-zone effort;
- sub-regionally coordinated TAEs that are seen by Parties as fair and consistent with the WCP Fisheries Convention;
- countries would not be restricted in their choice of which vessels to license on a bilateral basis, or the number of vessels;
- national fishing days would be tradable with other Parties on a seasonal basis (Geen, 2001:22).

This system of allocation based on purse days fished is highly depended on an effective monitoring, control and surveillance mechanism including the implementation of a VMS system (Geen, 2001). The FFA and the PNA in particular already have in place most of the features of such a compliance system through the establishment of the Niue Treaty¹⁷ and incorporation of the provisions of the harmonized MTCs in their national legislation and Tuna Management Plans. An effective implementation of these measures will only complement and reinforce the management measures at the Commission level¹⁸.

Much now hinges on the Parties to agree on a regional limit to the number of fishing days and decide on a formula for allocating it between the members. An effective in-zone management strategy will have several advantages for the PNA group and the FFA region as a whole. For example, it will help to secure their interest for the sustainable development of their domestic industries and in the future bargaining for a share of allocation

¹⁶ Since majority of the purse seine catch is taken in the EEZs and fishing zones of members, it is possible to set uniform MTCs both in-zones and high seas as condition for access since purse seine in the high seas pockets is not economically feasible and DWFNs will require access to in-zone areas.

¹⁷ The Niue Treaty on Co-operation in Fisheries Surveillance and Law Enforcement in the South Pacific Region. The Treaty provides a framework for Parties to share their assets for fisheries surveillance and enforcement.

¹⁸ This will apply to all national vessels and DWFNs vessels both in-zone and in the high seas at part of the Convention area.

for the high seas. It will also trigger the urgency of implementing the WCP Tuna Convention through the Commission. There is also potential to integrate the management of other important fisheries such as the longline catch and thereby extend co-operation to other non-PNA FFA members. Cooperation to reach an agreement on the limitation on purse seine effort and the allocation of the given effort amongst the members is vital, otherwise it is likely that the DWFNs may introduce measures that may be less favorable to the Pacific Island States.

6.2 FSM Arrangement in light of the WCP Fisheries Convention

The WCP Fisheries Convention has both long term and short term implications for the FSM Arrangement. The short-term implications relate to strengthening the Arrangement to reflect Pacific Islanders aspirations to develop their purse seine fishery and to prepare them to the lead up to negotiations for setting the total allowable catch for the Convention area. The long-term implications reflect on the possible opportunities of the Arrangement to operate a regional tuna consortium.

First, the short-term implications are discussed. The determination of the TAC and its allocation will place limits on the amount of catch. This means that vessels can only operate under the Arrangement if they are allocated a share of national TACs. Article 10 (3) of the WCP Fisheries Convention outlines the factors that will be taken into consideration in determining the criteria for allocation. Among those include:

- the historical catch in the area
- record of compliance by participants
- dependence of small island economies on the resources
- fishing interests and aspirations of small coastal States in whose zone the fish stocks occur

These factors provide support for and strengthen the provisions of the FSM Arrangement. The type of data available will be an important determinant in the decision on the allocation process. For example, the need for catch data will be central to determining the history of fishing activities and fishing interests. Those Pacific Island States that have fishing vessels under the nationality of their flags will be able to claim a higher allocation than those that operate under bilateral access with foreign flags. Higher points are granted for vessels under the FSM Arrangement that use domestic flags. For example, foreign vessels that qualify for Regional Access License often do so by forming joint ventures with governments or local partners. Thus with high local equity partnership arrangement, the catch of domestic based vessels is recorded as national catch. Increasing use of charters and joint ventures encouraged under the FSM Arrangement can strengthen the position of Parties in building their catch history and interest in fishing operations.

Clark (2001) points out that catch data on the high seas and EEZs needs to be segregated to determine the allocation in the respective fishing zones. The more catch that is landed at Pacific Island ports, the better control they would have in recording of data. Therefore, transshipment of catch through domestic ports as required under the FSM Arrangement can assist towards the provision of more reliable catch estimates and also provide better provision of getting data for scientific purposes.

The Flag State responsibility under the FSM Arrangement is further enshrined in the WCP Fisheries Convention. Parties will be able to enforce greater control on the terms and conditions of access by exercising their Flag State responsibility. Therefore foreign vessels that re-locate to local ports under Party's flag will now have to comply with national laws and regulations. This will also mean that locally owned domestic vessels will also have to comply with the new regulations.

The long-term implications of the WCP Fisheries Convention for the FSM Arrangement relate to the application of a quota system. Vessels under the Arrangement will require an allocation of quota to be able to operate. A pooling of certain percentage or share of national quota may be necessary for the vessels to maintain viable operations under the FSM Arrangement for regional access. This also has the potential for the purse seine operations under the Arrangement to form a tuna consortium that is able to regulate the economics of the purse seine fishery in the WCP region and serve the interest of Pacific Island States and the foreign fishing nations.

7. CONCLUDING REMARKS

The international legal developments under the Law of the Sea Convention reflect the need to overcome the open access situation by establishing more comprehensive management and conservation measures for the long-term security of the highly migratory fisheries resources. In doing so, it establishes and defines a system of rights and

obligations under which fishing should take place. Obligations include the recognition of the biological and ecological characteristics of the stocks and the need for co-operative strategies for its optimum utilisation.

The Palau Arrangement and the FSM Arrangement provide evidence of such co-operative efforts to develop domestic purse seine fishery in the WCP. The Arrangements while providing some what limited benefits so far, nevertheless have enormous potential as the necessary institutional framework needed to pursue domestic industry development in the region.

REFERENCES

Aqorau, T and A. Bergin, The FSM Arrangement for Regional Fisheries Access, *The International Journal of Marine and Coastal Law*, 12(1), 37-80, 1997.

Aqorau, T. and A. Bergin, Ocean Governance in the Western Pacific Purse Seine Fishery – the Palau Arrangement, *Marine Policy*, 21(2), 173-186, 1997.

Aqorau, T. and P. Lili, A Review of the Aims and Achievements of the Parties to the Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest, 1982: The Nauru Agreement – the first decade, 1982-1992. A Report for FFA, CIDA Project, 1993.

Bertignac, M.; H.F. Campbell; J. Hampton and A. J. Hand, Maximising Resource Rent from the Western and Central Pacific Tuna Fisheries. *Marine Resource Economics*, 15(3), 151-177, 2000.

Campbell, H. F. and R. B. Nicholl, Allocating Yellowfin Tuna between the Multispecies Purse seine and Longline Fleets. *Marine Resource Economics*, 10:35-58, 1995.

Cartwright, I. and A. Willock, Oceania's Birthright: The Role of Rights-based Management in Tuna Fisheries of the Western and Central Pacific, in Shotton, R. (ed). , *Use of Property Rights in Fisheries Management*, FAO Fisheries Technical Paper, 404/1, 2000, 182-191.

Clark, L. The Convention and National Fisheries Management. A paper for the Workshop on the Implementation of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western Central Pacific Ocean, Apia Samoa, October, 2000.

Forum Fisheries Agency, A Review of Access Fee Arrangements and their Development in the FFA Member Countries. FFA Report 90/81. PNA Special Ministerial Level Meeting, 17-19 September, Republic of Palau, 1990.

Forum Fisheries Agency, *Tuna Market New. Quarterly Review*, Number 29, 23 July, 2002.

Forum Fisheries Agency, Preferential Access for FFA Member Countries, Paper presented at the Special Session of Ministerial Level Meeting, September, 1990, Palau. FFA Report 90/72.

Geen, G., Review of the Palau Arrangement for the Management of the Western Pacific Purse Seine Fishery, Fisheries Economics, Research and Management Pty, Ltd., 2000.

Gillett, R. , The Economic Importance of Tuna to the Pacific Island Countries. Report for the Forum Fisheries Agency, Gillett, Preston and Associates Inc., 1997.

Gillett, R. M. McCoy, L. Rodwell and J. Tamate, Tuna : A Key Economic Resource in the Pacific, Asian Development Bank, Pacific Studies Series, 2001.

Hampton, J., Lewis, A., and P. Williams, The Western and Central Pacific Tuna Fishery: Overview of the Fishery and Current Status of Tuna Stocks 1999, Secretariat of the Pacific Community, 2000.

Herr, R. (ed), The Forum Fisheries Agency: Achievements, Challenges and Prospects, Institute of Pacific Studies, 1996.

Lawson, T.A. , Estimates of Annual Catches of Target Species in the Western and Central Pacific Ocean. Working Paper SWG-2. 12th Standing Committee on Tuna and Billfish, French Polynesia, 16- 23 June, 1999.

Lodge, M.W. , The Development of the Palau Arrangement for the Management of the Western Pacific Purse Seine Fishery, *Marine Policy*, 22(1), 1-28,1998.

Mfodwo, K., An Assessment of the Vulnerability of the Fishery for Big-eye Tuna in the Western Central Pacific Ocean. Report for the David and Lucille Packard Foundation Project, October, 2000.

Scott, A. , Development of Economic Theory on Fisheries Regulation, *Journal of Fish Research Board*, Canada, (36), 725-741.

Van Santen,G and P.Muller, Working Apart or Together: The case for a Common Approach to Management of the Tuna Resources in Exclusive Economic Zones of Pacific Island Countries. Pacific Islands Discussion Paper Series, World Bank, 2000.