

Tuna and bottom fishery licence management: Tonga

Based on the work of

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Foreword

This document is a slightly revised version of a report prepared at the request of the Ministry of Fisheries, the Kingdom of Tonga, under the Responsible Fisheries for Small Island Developing States (SIDS) Project (GCP/INT/823/JPN) of the FAO FishCode Programme. It is based on a study by Mr W.S. Pintz, FAO Consultant, who conducted a mission to Tonga in June-July 2002. The study was carried out in collaboration with the Ministry of Fisheries under the supervision of the FAO Subregional Office for the Pacific Islands (SAPA) and the technical guidance of the FAO Fisheries Department.

The FishCode Review series publishes results of studies, missions, consultations, workshops, meetings and other project activities undertaken through the Programme, in furtherance of its objective of facilitating implementation of the 1995 FAO Code of Conduct for Responsible Fisheries and related international fisheries instruments and plans of action. Individual numbers in the series are distributed to appropriate governments, regional bodies, meeting participants and Programme partners. Further information on Programme background, publications and activities is available through www.fao.org/fi/fishcode.

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ABSTRACT

The evolving regulatory and management context of Tongan tuna and bottom fisheries has received relatively little attention with respect to licensing policies and implications. The Ministry of Fisheries of the Kingdom of Tonga is interested in developing a basis for pricing fishing licences, and requested FAO through its FishCode Programme to provide external assistance to address the question.

Tonga is approaching a crossroads in the development of its fisheries sector. A generous incentive and concession package by Government has created considerable momentum in tuna longline activity. Fish are now the largest single export from the Kingdom. However, expansion of the industry faces severe infrastructure constraints. Granting substantial numbers of new longlining licences without resolving these constraints could have serious negative effects on all commercial fisheries in Tonga.

The study reviews various options for dealing with near-term Government revenue needs. These include: (a) revising the basis for calculating Export Tax from an imputed price (in TOP) to actual invoiced prices (in US dollars); (b) increasing licence fees on foreign vessels from current levels by 10 or 20 percent; and (c) imposing a fee for the annual licence endorsement issued by the Secretary of Fisheries. The endorsement fee option would generate somewhat greater revenues than the other two and is relatively consistent with the notion of Government capturing an increased fraction of any resource rents from the longlining industry.

Vertical and horizontal diversification of local companies will bring new risks and opportunities that Government can either encourage or discourage. The development of a strategic vision for the sector may be the greatest long-term challenge facing fisheries management in Tonga.

Keywords: Fishery management; marine fisheries; small island States; South Pacific.

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1 OVERVIEW AND POLICY CONTEXT

This study addresses issues related to tuna and bottom fishery licence management in the Kingdom of Tonga. The mission on which it is based was conducted in July 2002 according to the Terms of Reference noted in Appendix 1.

1.1 General state of the Tongan economy

In recent years the Tongan economy has suffered a number of serious economic setbacks. These setbacks have put the Government under considerable financial pressure, and a major restructuring is underway in the public service. This restructuring will cause significant retrenchments/early retirements and will directly impact on the Ministry of Fisheries. At this time it appears that any personnel cutbacks will be absorbed by such non-core activities as boatbuilding and a few research activities.

As the Ministry's operating budget comes under increasing pressure the continued operation of the research and training vessel Takuo is under scrutiny. At the moment plans to put the Takuo under an external management contract are being considered. Ultimately, continued operation of Ministry vessels is linked to the degree to which the Ministry can find money to subsidize their operation. Vessel operating subsidies have historically been linked to a revolving fund from revenues generated by the export tax on fish. The future of this tax will be a factor in how the Ministry of Fisheries deals with shrinking operating budgets.

1.2 Importance of sector

In contrast to the Government's tightening fiscal situation the fishing sector is clearly gathering momentum. The most recently available official statistics (1999/2000) suggest that the sector is contributing nearly 35 percent of Tonga's export earnings.¹ Much of the momentum is the result of substantial growth in tuna longlining which has been achieved in recent years. Currently, there are 20 longlining vessels operating in Tonga and the tuna industry accounts for a very substantial fraction of the country's export earnings. While the tuna longlining industry has provided much of the growth in the fisheries sector, commercial bottom fishing for snapper and grouper has continued its solid export performance. In 2001 the export of bottom fish exceeded 210 metric tonnes. The contribution of the commercial fishing sector (both bottom and tuna) in recent years is set out in Table 1 below.

Table 1.
Contribution of fishing sector to
Tonga's export earnings

Year	Exports (%)
1996/97	14.7
1997/98	26.4
1998/99	24.2
1999/2000	34.8

Source: Tonga Reserve Bank Bulletin.

¹ Fisheries exports are expected to make an even greater contribution to total exports in 2001 due to the addition of new longliners to the fleet and generally good fishing conditions. In the first three quarters of 2001 fish exports exceeded TOP 9.8 million. This nine-month figure is a 27 percent increase over the entire year of 2000.

Beyond its direct financial contribution to the Tongan economy, the fishing sector provides a number of other benefits to the country. The industry is of considerable regional importance to Vava'u and Tongatapu and provides social benefits through employment and nutrition. With the recent growth in the sector these social benefits have significantly expanded. There currently is an acute shortage of experienced Tongan fishers and the industry, in combination with the Ministries of Fisheries and Education is aggressively seeking to expand formal and on-the job training opportunities for young Tongans. Fishing is one of Tonga's few expanding labour markets and is especially important since entry-level jobs do not require extensive formal education or degrees.

Tonga's population, like the populations of other Polynesian countries, suffers from obesity and nutritional problems. In Tonga these problems are associated with a fatty diet of imported animal products. Of particular concern to Tongan health authorities is the high intake of low-cost animal by-products such as turkey tails and mutton flaps. To the degree that consumption of fish and other marine products can be substituted for these imported meat by-products Tonga's public health (and foreign exchange situation) will improve. Although many Tongans would prefer more fish in their diet, high market prices have discouraged substitution. However, with the increasing availability of the by-catch from tuna longlining the market price of fish is expected to decline.

1.3 Changing nature of local commercial fishing sector

Accompanying the emergence of the tuna longlining fishery is a change in the character of the major local fishing companies. It is reasonably clear from the pattern of their intended investments that the major established companies are transforming themselves from a focus on fish harvesting to a new focus on shore processing and support activities. This reorientation may affect the interest of established companies in the new tuna fishing licences that Government is intending to issue (see below). Companies may be more interested in vertical integration investments which support the needs of entering foreign vessels. Target activities include ice production, cold storage, packing/air freight, bait supply etc. In addition to this vertical integration to support foreign fish harvesting there is also a tendency for local companies to increase horizontal diversification into other fisheries such as the emerging aquarium fishery. Clearly, this diversification strategy will substantially lower risks to the existing players and will enable them to exploit their natural "already established" advantages.

Industry diversification has significant policy and financial implications for Tongan fisheries policy. These implications are both positive and negative. First, Tonga's tuna harvesting will obviously become increasingly dominated by foreign (principally Chinese and Korean) vessels.² For Government, the increase in the number of foreign vessels means a substantial increase in licence fees paid by these foreign vessels. Foreign fees will increasingly become an important source of Government revenue. In addition, the catch provided by these vessels will increase export tax receipts and the availability of by-catch fish on the local market. Increasing the by-catch will potentially have health and nutritional benefits.

On the other hand, experience elsewhere in the Pacific suggests that the transient nature of foreign vessels can represent significant risks to the entire fisheries sector. These risks are associated with the necessary expansion of local infrastructure. To accommodate the foreign vessels major infrastructure investments will need to be made. Many of these investments

² Whether these vessels can be as successful as the local fleet in actually capturing high value tuna species remains to be established.

are, of necessity, long term investments in wharves, fuelling facilities and cold storage. But the foreign longline fleet is 'footloose' in its operations. An extreme El Niño occurrence or a foreign relation upheaval might easily cause the foreign vessels to abruptly abandon the Tongan longline fishery in favour of other fishing areas. This could literally happen overnight and leave private Tongan companies and the Government to service large debts for unused fishing infrastructure. While the rewards of an expanded foreign dominated fishing fleet are significant, there are also substantial risks.

It is important to understand that the diversification of local companies ultimately rests on the Tongan Government's policy that all fish caught in Tonga's EEZ must be landed in Tonga. The Tongan economy is well served by this policy but it seems inevitable that this policy will come under increasing pressure as foreign involvement in the tuna longlining increases. Since foreign fishing vessels will be making a significant (and growing) fiscal contribution to Government through the payment of fishing licence fees, the dilemma facing Government may come down to a difficult policy choice. Lifting the fish landing restrictions may increase short term licence revenues to Government, but probably undermine the expansion of downstream on-shore activities by local companies. On balance and considering the risks it seems likely that any changes in local-fish-landed-here policy could bring about a very rapid deterioration in the structure of the fisheries sector and a decline in the benefits that ultimately accrue to the Tonga economy from a growing private fishing sector.

1.4 Background to current study

1.4.1 AusAid Project

Following a successful joint project with UN/FAO in 1998-99, the Australian Government has committed to a three-year project in the Tonga Ministry of Fisheries. In addition to institutional strengthening activities there are several policy and social initiatives which are focused on increasing the management skills and analytical capacity of a number of young Tongans in the Ministry. This project commenced in the first quarter of 2002 and involves 124 man-months of external support by Hassalls Associates of Brisbane, Australia. Total cost of the project is in excess of A\$3 million.

1.4.2 Management plans

An early priority of the AusAid project has been the development of a series of management plans for various Tongan fisheries. A preliminary plan for tuna longlining has been endorsed by the Ministry of Fisheries and reviewed by the private sector. A draft management plan has also been developed for commercial line fishing (both deep water and inshore). The tuna and line fishing management plans will be reviewed in some detail below. Additionally, it is anticipated that management plans will eventually be developed for the aquarium fishery, recreational fishery, and for commercial harvesting of seaweeds such as limu. A management plan is also being contemplated for charter boats involved primarily in fishing. At this stage, many of the elements in the management plans are in preliminary form. In several cases unresolved issues remain on key policy questions. However, the basic framework and structure of the management plans has been successfully introduced and accepted by the Government, commercial fishing companies, and local fishers. Of necessity, the success of many of the measures and policies set out in the management plans will depend on voluntary compliance, enlightened self-interest, and industry self-enforcement.³

³ During the development of fisheries management plans a consultative framework has been set up for the deep water line fishery, charter and gamefishing fishery, seaweeds and aquarium fish fishery. Stakeholder meetings are held as part of the plan development process. Once the Plans are agreed to and signed off by the Minister then the new legislation provides for the establishment of Fisheries Management Committees.

A major difference between the Tuna and Line Fishing plans is the inclusion of performance measures for each objective in the latter. FFA has been asked to provide similar performance measures for the Tuna Plan. Since vessel licensing is the key management tool available for managing the longline fishery, the interaction of several factors need to be considered. The major licensing considerations are:

- a) number of licences;
- b) terms and conditions of licences;
- c) cost/price of licences.

2 CURRENT FISHERIES POLICIES AND MANAGEMENT PLANS

2.1 Tuna Fisheries Management Plan

2.1.1 Scope of the Tuna Plan

Initial work on a tuna management Plan was undertaken with support from the Forum Fisheries Agency (FFA) and the Oceanic Fisheries Programme of the Pacific Community. A draft document was provided to the Tongan Ministry of Fisheries in the first quarter of 2001. The comprehensive (25 page) draft dealt with the following policy issues:

- a) objectives and goals and strategies of the Plan;
- b) conservation and management of resources including both the sustainability of the tuna resources and suggestions for minimizing the adverse impact of tuna fishing on the marine environment and on bycatch species;
- c) administrative procedures to support Implementation of the Plan;
- d) strategic considerations in developing the tuna industry in Tonga.

2.1.2 Status of the Tuna Plan

A cabinet decision in September 2001 established the Tuna Management Advisory Committee, which met in October 2001 to consider the draft Tonga National Tuna Management and Development Plan. The meeting focused on three issues – namely:

- a) number of tuna fishing licences;
- b) current structure of shore facilities; and
- c) problems in securing adequate air freight capacity.

Of particular importance was a proposal to expand the number of tuna licences from 25 to 30. This was endorsed. Later, in June 2002, consideration was given to a Ministry of Fisheries proposal to further increase the number of tuna longline fishing licences to 50. Industry representatives pointed out that port and support infrastructure was already overstretched in meeting the needs of currently licensed vessels (tuna and bottom fishing) and could not accommodate a doubling of the number of longliners. Implicit in this infrastructure constraint discussion was the notion that addition of 30 new (longline) vessels must be predicated on the availability of adequate infrastructure.

Of particular concern was the availability of air freight capacity for exporting fresh tuna to overseas markets and the physical limitation of wharf space in the harbour. These constraints were accepted as fundamental problems in expanding the tuna fishing fleet. In other words, it was felt that issuance of new tuna licences should be linked to the expansion of port and air freight capacity.

2.1.3 Unresolved issues in the Tuna Plan

Measurement of goals and objectives

An issue that also arose in the preparation of the Line Fishing Management Plan (see below) is how achievement of goals and objectives might be monitored or evaluated. It is understood that FFA has been asked to suggest parameters for evaluating the goals and objectives proposed in the tuna management document.

Relationship between expansion to 50 vessel licences and Total Allowable Catch

Due to time constraints this topic did not specifically come up at the stakeholder consultative meeting. However, since it is likely to be major consideration in future discussions, a brief commentary on the 50 vessel expansion scheme has been included in Appendix 2.

Status of by-catch

The plan proposes:

- a) compilation of detailed records on by-catch species;
- b) release of marine mammals, seabirds and turtles;
- c) prohibition on shark finning.

Clearly, these proposals will require greater attention as management questions. In addition it is conceivable that due to the potential nutritional importance of by-catch species to Tonga, some regulatory requirement may ultimately be incorporated in the Plan.

Interaction with game and recreational fishers

There is no mention in the management plan of potential conflicts between longliners engaged in tuna fishing and vessels engaged in other fisheries. These conflicts were raised and extensively discussed at the consultative meetings. It seems likely that once work has begun on management plans for other fisheries with potential tuna conflicts, a general policy decision will be taken.

2.2 Line Fishery Management Plan

2.2.1 Scope of the Line Fishery Plan

An initial draft management plan for the "line fishery" has been prepared by staff of the Ministry of Fisheries (with assistance from the AusAID Team) and discussed at a meeting of stakeholders. This plan consists of several elements including:

- a) description of the fishery and management area;
- b) summary of the current status of the fishery including sustainable yield estimates;
- c) basis for Tongan sovereignty and M/Fisheries jurisdiction over the fishery;
- d) series of objectives and performance indicators;
- e) summary of potential control and management measures;
- f) research priorities;
- g) monitoring priorities;
- h) statement on current surveillance and enforcement issues for the fishery;
- i) development strategy for the fishery with particular attention to bottlenecks and needs for cross sectoral support including such issues as investment policies, infrastructure,

training/education, desired fleet characteristics, Government revenue and foreign exchange objectives;

j) obligations and responsibilities of stakeholders;

k) plan for consultation with stakeholders;

l) procedure for review and amendment of the management plan.

Although the organization and emphasis in this plan is different from the tuna management plan, the two documents have many common features. One significant difference between the tuna and line fishery plans is the inclusion of sections on “Objectives and performance indicators” and “Potential control and management measures”. It is understood that the format of the line fishery management plan will be followed in the future management plans for other Tongan fisheries.

2.2.2 Status of the Line Fishery Plan

Several important changes were made to The line fishery management Plan as a result of the stakeholder meeting. These included decisions to:

a) Close the bottom fishery to new entrants until such time as an up-to-date stock assessment and sustainable yield study can be undertaken.⁴ Closure will be accomplished by imposing a moratorium on the granting of new licences for the bottom fishery. However, it was decided that provision would be made for continuing the fishing rights of current licence holders who may be inactive for legitimate reasons such as cyclone damage to their vessels.

b) Separate inshore and bottom line-fisheries into different plans. It was felt that this distinction was necessary to reflect:

- the different areas;
- primary stakeholders; and
- stock characteristics in the two fisheries.

c) Deciding that the primary fishery management tool would be vessel size rather than fishing gear configuration or number of hooks.

d) Permit vessels licensed for the inshore fishery to fish in the bottom fishery but prohibit vessels licensed for the bottom fishery to fish in the inshore fishery.⁵

2.2.3 Unresolved issues in the Line Fishery Plan

In addition to these important issues there are a number of unresolved questions which remain in the Line Fishery Management Plan. These unresolved issues include:

a) protection mechanisms or fishing strategies for minimizing the catching of immature or undersized bottom fish;

b) physically defining the inshore area;

c) identifying areas such as breeding grounds which should be “protected” or “seasonally reserved” areas;

d) differentiating the minimal licensing conditions for inshore line fishing from the more extensive conditions which may be needed to regulate the deep water bottom fishery.

⁴ There was a feeling at the consultative meeting that previous sustainable yield estimates made in 1993 were too high and that recent fishing experience suggested that caution needed to be taken in increasing the number of licences for the snapper/grouper fishery.

⁵ Clearly there is a contradiction between permitting inshore fishers access to the bottom fishery and closing access to the bottom fishery. This policy conflict will need to be resolved.

- e) criteria for the continuation of the fishing rights for existing licence holders who are not currently active in the bottom fishery;
- e) development of a schedule for holding public consultation meeting in Ha'apai and Vava'u to explain the main features of the management Plan.

3 INFORMATION RELATING TO TUNA AND BOTTOM FISHERIES

3.1 Overview

The 2001 commercial catch was the highest recorded in Tongan history, recording a value in excess of TOP 12 million. This was due mainly to the rapid expansion of the export tuna fishery. Tuna exports generated slightly over 82 percent of the total value of the commercial catch. Commercial fish exports in 2001 contributed nearly US\$6 million to the country's balance of trade. In fact, there is evidence to suggest that the actual value of both local and exported fish was somewhat greater than the figures suggested by Table 2.

Table 2.
Weight and value of Tonga commercial fish catch in 2001
by vessel type and market

Characteristics	Tuna vessels	Bottom fishing vessels
Local Fish		
Value TOP	1 025 953	366 901
Value US\$*	482 197	172 443
Export Fish		
Value TOP	9 966 444	821 110
Value US\$*	4 684 228	385 921

Source: Ministry of Fisheries Statistics and Tonga Reserve Bank Bulletin.
Note: US\$ value estimated using June 2001 exchange rate of TOP 1 = US\$47.

3.2 Tuna

Table 3 presents (tentative) historical data on Tonga's longline catch obtained from SPC. Due to difficulties with the catch data for early years these estimates should be approached with considerable caution. Nevertheless they are indicative of the very rapid growth of the industry in recent years.

Table 3.
Catch estimates for the Tonga longline fleet, 1997–2001

Year	Boats	Albacore	Bigeye	Yellowfin	Black marlin	Blue marlin	Striped marlin	Swordfish	Shark	Total
1997	7	143	16	10	3	6	6	1	18	214
1998	7	122	15	19	2	1	8	2	8	193
1999	7	183	30	39	4	2	10	4	17	327
2000	16	475	97	150	8	14	40	20	18	931
2001	21	1 268	191	259	4	22	26	28	10	1 988

Source: SPC/Oceanic Fisheries Programme.

In 2001 there were 20 longline vessels licensed to fish for tuna in Tonga. During the first half of 2002 several foreign vessels joined the fleet although some of these vessels were only partially operational at the time of the consultant's visit. More importantly, the new foreign longliners were not experienced in Tongan conditions and their early catch rates were very modest. There is also speculation among local longline operators that their vessels may not be well suited for local conditions. Table 4 presents data on the size and species mix of Tonga's tuna catch in 2001. In addition the table estimates the catch composition if two major vessels (which target albacore) were excluded and comparative catch information from Fiji. Catch information by vessel is contained in Appendix 3.

The reported catch numbers for 2001 may not be representative of the eventual species mix of the tuna fishery for two reasons. First, there simply is not enough longline experience to make any sort of comparative judgement. Second, there is a considerable distortion in the species mix which results from the fact that two major Tongan vessels (Lofa and Takua) target lower value albacore. At least one local company speculated that vessels targeting high value export species will eventually achieve catch rates for bigeye/yellowfin that approach 35 percent of the total catch.

Table 4.
Size and species mix of Tonga's
Tuna catch in 2001 (in metric tonnes)

Species	Catch	Percent	Excluding vessels targeting albacore* (percent)	Species mix in Fiji (percent)**
Bigeye	191	9.6	10.5	16
Yellowfin	259	13	13.9	26
Albacore	1 268	63.8	60.1	39
Associated By-catch	270	13.6	13.5	19
Total	1 988	100	100	100

* Excludes Takua and Lofa.

**Reported in FFA Report 95/60 (p. 14).

The economics of the tuna fleet is closely related to the size of the longline vessel. The consensus of opinion among the local fishing companies is that vessels of 65-90 foot length are best suited to local conditions. For larger vessels crewing costs are a significant factor and smaller vessels lack the necessary range due to limitations on fuel and ice capacity. Interestingly, the foreign vessels which have just joined the longline fleet are generally larger than those considered optimal by the local companies.

3.3 The bottom fishery

There is a much longer history and experience in the Tongan bottom fishery than in tuna longlining. This fishery is dominated by the snapper and grouper catch from the slopes of deep seamounts. These species account for a high proportion of bottom fish exports. In 2001 the catch of snapper and grouper increased nearly 18 percent over 2000. However, export receipts reflected a more modest increase. Table 5 presents comparative data on the line fishery for the years 2000 and 2001. It should be noted that in addition to the major bottom (export) species, the table contains catch information on other smaller (inshore) line fisheries.

There are currently twenty vessels licensed for the bottom fishery. Of these vessels, seven licences have expired or are awaiting renewal. An additional four vessels are known to be regularly engaged in the bottom fishery but are unlicensed. A description of each vessel together with its physical characteristics is provided in Appendix 4.

Table 5.
Tonga's commercial line fishery
in 2000 and 2001 by species

Name of species	Total catch weight for 2000 (kg)	Total catch weight for 2001 (kg)
<i>Pr. flavipinnis</i> (golden eye jobfish – palu sio'ata)	4 890.00	5 984.30
<i>Et. coruscans</i> (longtail snapper – palu tavake)	82 125.10	111 994.30
<i>Etelis carbunculus</i> (short-tailed red snapper – palu malau)	21 245.60	17 772.70
Palu mutumutu – sea bream	10 017.60	20 938.10
<i>Pristipomoides filamentosus</i> (crimson jobfish – palu hina)	8 375.40	17 072.60
<i>Lethrinus chrysostomus</i> (sweetlip emperor – manga)	11 202.00	8 287.20
<i>Ep. septemfasciatus</i> (convict grouper – mohuafi)	16 862.10	14 462.30
<i>Aphareus rutilaus</i> (rusty jobfish – palu polosi)	12 801.10	15 066.70
<i>Epinethelus morrhua</i> (comet grouper – ngatala)	1 783.30	4 941.90
<i>Aprion virescens</i> (green jobfish – utu)	723.30	1 310.50
Koango – emperor	1 545.50	1 862.20
<i>Pr. operculatus</i> (ngungutoa)	707.30	503.00
Carangidae trevallies and jacks	85.00	477.40
Palu hafekasi – king fish	869.10	1 344.60
Palu moana/palu vai – emperjack	-	56.50
TOTAL	173 232.40	222 074.30

The characteristics of vessels in the bottom fishery fall into two distinct groups. Larger vessels are owned by the major exporting companies and generally exceed 12 meters in length. In contrast, smaller bottom fishing vessels tend to be owned by individuals. Many of the smaller vessels were originally built by the UN Boat Building Project that operated in Tonga from 1983 and constructed nearly 50 boats. The 1999 FAO Sector Review estimated that the most economically successful vessels in the bottom fishery would have a greater range than the vessels produced under the boat building project. Discussions with local exporters confirm that larger vessels remain better suited to the Tongan bottom fishery. However, with the fuel tax exemption it is possible for local fishers to operate smaller boats at a modest profit.

There are two major bottom fish exporters in Tonga. They both export to the same markets in Hawaii, Japan and the US West Coast. Since Tongan exports are relatively small compared to overall market demand for snapper and grouper, the companies tend to supply individual seafood markets or restaurant chains rather than sell their exports through auctions or wholesalers channels. Such boutique market practices mean that the Tongan exporters are quite sensitive about disclosing the actual price that they receive for a kg of snapper or

grouper. However, one exporter did provide information on the average price received for his catch over the past several years. Readers should understand that this information is for combined snapper and grouper sales receipts and is based on total revenues over an entire year for all markets. Nevertheless this information is quite interesting in that it reflect a strong upward movement in the value of bottom fish exports. These historical data are presented in Table 6, below.

Table 6.
Price indications for bottom fish exports

Year	Snapper (%)	Average FOB value (TOP)	Average CIF value (TOP)
1997	88	7.19	9.99
1998	94	9.21	11.82
1999	94	10.42	13.12
2000	85	11.21	14.55
2001	89	12.66	16.46

3.4 Interaction of fishing fleets

While the tuna and bottom fisheries are geographically distinct, there are occasionally gear conflicts between the two fleets. While such conflicts will inevitably increase with the number of licensed vessels, the successful introduction of the FAO Code of Conduct for Responsible Fisheries will tend to keep such problem to a minimum. Gear conflicts are not, nor are they expected to be, a major problem for the Tongan longline and bottom fishing fleets.⁶

A much more important interaction of the two fleets is there use of common port and air freight facilities at Tongatapu. A major concern expressed by operators within both the tuna and the bottom fisheries is that the operation of 50 licensed tuna vessels would seriously overtax the capacity of existing facilities. While the most visible infrastructure constraint is the availability of air freight space for fresh fish exports, removing this bottleneck would still leave substantial infrastructure problems for tuna, bottom fish and emerging aquarium exports. A too rapid granting of new tuna licences might easily undermine the current viability of existing tuna and bottom fish exports. This could set the Tonga's fishing sector back several years. In other words, irrespective of Government's fiscal needs, there must be a planned and measured link between new vessel licensing and expansion of existing infrastructure capacity.

4 LEGAL FRAMEWORK CONCERNING LICENSING OF TUNA AND BOTTOM FISHING VESSELS

4.1 New legislation

New fisheries legislation has been prepared and is awaiting submission at the next sitting of Parliament. The new legislation sets up a modern framework for the fisheries sector and establishes authority and streamlined responsibilities for the operations of the Ministry of Fisheries. The legal framework established in the new fisheries legislation leaves wide discretionary power to the Minister and Secretary. Most major policy questions are dealt with under implementing regulations rather than the legislation itself. Conditions relating to the issuance of fishing licences are found in Sections 19 (Applications for licences, permits and

⁶ Conflict between longliners and recreational fishers fishing on FAD's is more likely to pose significant problems.

authorizations) and 20 (Conditions of fishing licences), 22 (Fee and other charges), 26 (Local fishing licences), 27 (Commercial sport fishing licences), and 28 (Locally based foreign fishing licences). Appendix 6 contains the provisions which pertain to licensing of fishing vessels.

4.2 Period and transferability of licences⁷

Tuna fishing licences are granted to local companies for a five-year period subject to annual endorsement by the Secretary of Fisheries.⁸ Local licences are transferable (subject to certain conditions) for the term remaining on the original licence. These licences may be transferred to either local fishing vessels or to locally-based foreign fishing vessels.⁹ However, a foreign-owned, locally based Tongan fishing vessel can normally be nominated against a Tongan companies fishing licence for a maximum period of two fishing years.

Foreign-owned, locally based tuna¹⁰ fishing vessels are granted fishing licences for a period of three years-again, subject to annual Secretary of Fisheries endorsement. These foreign-owned, locally based licences are not transferable. While no specific condition exists for the renewal of either local or foreign licences beyond the initial term there is a presumption in the regulations that renewals are possible.

Since continuation of fishing rights under the licence are contingent on the annual endorsement of the Secretary of Fisheries, the conditions of endorsement are potentially as important as the licence (Appendix 7). A licence that has not been endorsed is subject to revocation or cancellation. The major consideration in the annual endorsement process is the degree to which the Secretary's decision-making powers are prescribed by policy or subject to the exercise of his subjective discretion. Fortunately, the Secretary's discretion on endorsements is fairly well circumscribed. Or conversely, the Secretary's discretion to withhold endorsements is limited to a few prescribed issues.

The current five-year period for a tuna fishing licence together with full-time-fishing for 12 months may conceivably be problematical for the financing of vessels by local fishers. The potential problem arises since the right to fish (e.g. the licence) is an integral part of the borrower's loan collateral and ability to repay the loan. Unless the lender accepts some sort of informal pledge from the Secretary of Fisheries that the licence will be issued once the vessel enters service, the collateral package cannot be closed prior to approval of the loan. Of course, such an informal pledge would lack formal legal standing under the Fisheries Act. Conversely, if a fishing licence is issued as part of the loan financing package it is highly unlikely that the entering vessel will be able to comply with the 12 months of full time fishing requirement or to qualify under one of the special circumstances.

Even with loan approval, the lender will want assurance that the fishing licence covers the loan repayment period. Given the developmental and cyclical nature of Tongan tuna fishing, a five-year repayment period for a large vessel loan may simply not be adequate. While such considerations may not be overly important for already established local fishing companies they may pose significant financial barriers to new entrants.

⁷ This Terms and Conditions section has been directly excerpted from Section D 1.1 of the Tuna Management Plan document.

⁸ The five-year terms of local licences are a potentially important question that will be addressed.

⁹ A locally based Tongan fishing vessel can be nominated against a Tongan companies fishing licence for a period of two fishing years.

¹⁰ There are no foreign vessels in the Tongan bottom fishery.

If the above financing considerations prove to be problematic for entering Tongan tuna fishers it may be necessary to reconsider the period of the licence and/or expand the special circumstances for the 12 month full time fishing requirement. In choosing a corrective course, it might be useful to involve a loan officer from one of the local commercial banks or from the Tonga Development Bank.

5 EXISTING GOVERNMENT CHARGES INCLUDING CHARGES FOR FISH EXPORTS

5.1 Export tax

As noted in the FAO Sector Report the current export tax is a tax without an economic or legal basis. The tax is extralegal in that there is no specific legal basis or cabinet authority for the levying of this tax. It is without an economic basis in that it is levied on an arbitrary and illogical base (an assumed local value of exported fish) and does not raise sufficient revenue to be of any real importance to the Tongan Treasury or to the Ministry of Fishery budget. Finally, insofar as the export tax accrues to a revolving fund which supports the Ministry of Fisheries vessels, it partially protects the idea of whether the Government should be in the fishing business from budgetary scrutiny and the discipline of the Government resource allocation process.

On the other hand, the concept of an export tax may make sense in the current development context of Tonga's fishing sector. The most compelling argument in favour of an export tax is that it is the only tax currently levied which could potentially reflect the value of fish caught in Tongan waters. In other words, it is the only current taxing vehicle that might be used to capture a greater fraction of the resources rents from the commercial fishing in the country. Since many of the resource rent issues will be explored in the context of a revised licensing fee system in the final section of this report they will not be examined here. Rather, we will focus here on what reforms to the current export tax scheme would improve its function as a viable fiscal instrument.

Historically, the export tax has survived mainly because it did not really raise much money. This has meant that the tax was tolerated by both the Treasury/Ministry of Finance and by fish exporters. It was, in fact, simply a nuisance tax which partially subsidized an uneconomic Government fishing operation. Such nuisance taxes are not uncommon nor are dedicated revolving fund arrangements that support special purpose projects. Unfortunately, an important and unintended consequence of the application of the export tax has been the undervaluing of fish exports from the Kingdom.

This undervaluation has meant that official statistics are distorted and often at considerable variance with true export values.¹¹ Of equal importance, this under valuation has had the effect of minimizing the importance of the fishing sector and the role (and budget) of the Ministry of Fisheries. The obvious irony in all this is that an extra budgetary device to protect one function of the Ministry of Fisheries (e.g. operation of Government fishing boats) may well have undermined its allocation of recurrent funds.

If the export tax is to assume a legitimate fiscal role it must be levied on a different basis. The current calculation of 0.5 percent of an imputed TOP 3.50/kg export price is unrealistic by

¹¹ The official statistics are widely recognized as underestimating true export values. For this reason, the fish exporters annually submit their own 'private' and 'unofficial' export numbers to Ministry of Fisheries and to the Ministry of Finance.

any measure. Even for economically marginal albacore exports, realized prices are normally better than the US\$1.75/kg price implied by this local reference price. Realized prices for bigeye and yellowfin are several times the imputed prices. Clearly, it is within the capacity of Government to obtain realistic prices for high value yellowfin and bigeye Tuna by simply tracking the prices reported on export invoices. Likewise, albacore prices are routinely posted by the American Samoa canneries and easily obtainable. If there is any suspicion that export invoices may not be representative, then checks can easily be made through overseas fish brokers, auctions, or internet services.

An additional problem arises because the current reference price is stated in Pa'anga. This creates an additional exchange rate distortion since export fish are never sold in local currency. As an example, the TOP 3.50/kg price which equated to a US\$ price of \$2.33 at the time of the FAO Sector Review in 1998 equates today to an imputed price of \$1.72 today. In other words, even if the imputed price had accurately reflected export prices in 1998 (which it did not!) the imputed price today would be 27 percent lower simply because of exchange rate fluctuations.

Without precise shipment by shipment price information it is not possible to estimate what a change to an invoice pricing basis might mean to export tax receipts. However, the aggregate impact would be substantial. As an example, the 2001 catch and export revenues for a single vessel were analyzed. During this year, fish exports from this vessel amounted to 63 730 kg with an invoiced value of TOP 949,699. The export tax on this catch using the current formula would be TOP 1115 ($[63,730 \text{ kg} \times \text{TOP } 3.50] \times 0.5\%$). Using invoiced prices the export tax would have been TOP 4 748. While it is not possible to say whether the species mix and prices received by this vessel are representative of all tuna exports for 2001. It is clear that basing the export tax on invoiced prices would generate substantial additional revenues at a time when the Government and Ministry of Fisheries are experiencing substantial budgetary shortfalls.

5.2 Miscellaneous and sundry charges

An often heard complaint of Tongan fish exporters is the cumbersome bureaucratic system that they face. Associated with this system are a system of petty charges and levies. The most frequently heard complaint from fishing companies is about the time and effort required by the current system rather than about the actual level of the fees. The problem is complicated since many of the charges are assessed on a pay-as-you-go basis. This system requires numerous small payments to several Government agencies including fisheries, customs, labour, ports, and other agencies. In the view of the exporters the current system of approvals/inspections and payments is neither efficient nor cost effective. In general, people in Government agree with this view.

Everyone seems to feel that bureaucratic reform should be implemented but it is easier to continue the existing system than to undertake comprehensive changes. Moreover, while everyone agrees that reform is needed, individual agencies seem reluctant to examine the necessity of their own activities. Even the exporting companies cannot provide a single comprehensive list of redundant or unnecessary steps or nuisance charges. Charges that are commonly mentioned include separate payments for export licence of TOP 20.00 from Ministry of Labour, TOP 0.70/carton wharfage fee, customs inspection, export tax, and annual boat registration. Everyone seems to want a "one-stop-shop" for approvals and payments but nobody seems able to describe exactly what such a unified approach might encompass.

It is difficult for someone from outside the Tongan Government to pass judgment on the necessity for a particular service or inspection without extensive research into why the service or requirement exists. Given the general dissatisfaction with the current system there is a sense that many requirements are simply historical holdovers and have little or no substantive role. However, what is necessary and what is simply historical is not obvious to the outsider. Ministries operate under one or more laws. The application of these laws is undertaken through enabling regulations which, of necessity, are generally stated. The implementation of the regulations on a more or less continuous (e.g. export shipment by export shipment) basis magnifies the burden of the approval process and could, in some cases, be relaxed in favour of a periodic auditing-type approach. This already seems to be the case with the health/sanitation certification in the Ministry of Fisheries and there appears to be willingness of the part of the Ministry of Labour to give approvals on a quarterly or semi-annual basis.

There would seem to be little reason to impose wharfage charges, the export tax, or even customs fees on a pay-as-you-go basis. It is recommended that exporters be billed for these fees on an annual (or at least six monthly) basis. Additional record keeping would be minimal since much of the necessary information is already being collected. Once the record system can produce accurate estimates of charges, the Ministry of Fisheries should consider abandoning piece-meal charging entirely and move to incorporate all the miscellaneous/sundry charges into a single annual payment.

The exact vehicle for such an annual charge may require some thought since none of the current charges seem ideally suited for this one-stop-shop purpose. There is a temptation to simply increase the cost of 'local' fishing licences but this approach suffers from a logic problem since the licence fee is for fish harvesting but the inclusive fee is really for fish exporting services. A more logical vehicle might be to increase the export tax. However, since revenue from this tax goes into a revolving fund whose only purpose is to support the operation of Ministry fishing vessels, other Departments and the Ministry of Finance are likely to object.¹² One possibility might be an administrative agreement with Ministry of Finance that one-half of the (increased) export tax would go to the Treasury while the other half would be credited to the Fisheries revolving fund.

Whatever is done with the payment system, bureaucratic problems will persist without a fundamental review of the approval/inspection/documentation system.¹³ These problems can only be resolved through a comprehensive review of the fish export system. As a first step, the Exporters Association should be asked to provide a single consolidated list of nuisance requirements/approvals and charges in prioritized order. Then, a fisheries officer should be assigned to research the legal or regulatory basis for each item on the list. This research should be accompanied by suggestions along three lines:

- a) Is the requirement necessary or simply historic (e.g. can it be eliminated)?
- b) Is there some way that this approval/inspection activity can be consolidated with another function or activity through cross training or delegation of authority?
- c) Are charges for the service significant, do they cover costs,¹⁴ and do they need to be assessed on a pay-as-you-go basis?

¹² Especially since this charge has no legal basis.

¹³ This sort of comprehensive review is beyond the time available in the current study.

¹⁴ It may be that costs are covered but the overall revenue collected is inconsequential.

6 ECONOMIC AND FINANCIAL PERFORMANCE OF FISHING VESSELS ENGAGED IN TUNA AND BOTTOM FISHERIES

During the course of the consultancy contact was made with a number of local exporters. These exporters provided information on the catch and economics of several vessels in 2001. The information was compiled into a database and used to estimate the impact of various policy options. The database includes information on eight vessels but does not include any foreign vessels.¹⁵ Although there is considerable (and understandable) variance from vessel to vessel, the database provides a broad picture of the cost and revenue performance of the Tongan longline fishery. Table 7 presents a composite estimate of revenue/cost/gross profits of vessels.¹⁶ Similar data were obtained from a bottom fish exporter. This bottom fish cost information is presented in Table 8.

Table 7.
Composite performance of
Tonga longliners in 2001

Parameter	Value
Total catch (kg x 1 000)	230-310
Export catch (% of total catch)	20-25%
Total revenues (thousands of TOP)	130-155
Operating costs (% of revenue)	37-46%
Fuel	23-35%
Bait	16-17%
Crew	34-39%
Rations/food	3-4%
Gear	4-10%
Gross profit (% of revenue)	55-63%

¹⁵ In 2001-2002, these vessels were new to the Tongan tuna fishery and their results were not representative of the cost/revenue/profit structure of tuna longlining in the country.

¹⁶ It will be noted that the information in Table 7 is not a comprehensive economic picture of longlining costs in Tonga. In particular, the data excluded any export costs for shore processing and shipping costs and annual vessel costs such as insurance and maintenance.

Table 8.
Composite trip performance of
Tonga bottom fishing vessel in 2001

Parameter	TOP	%
Total catch (kg)	821	----
Export catch (kg)	739	----
Total revenues (TOP)	11 125	----
Operating costs (% of revenue)		79.8
Fuel	740	15.6
Bait	366	7.7
Crew	1 380	29.2
Ice	351	7.4
Food & provisions	342	7.3
Fishing gear	389	8.2
Other equipment	207	4.4
Other costs*	957	20.2
Total vessel cost	4 732	100
Gross profit (% of revenue)	5 264	53

* 'Other costs' include: insurance (152), licence fees (30), repair & maintenance (711) and miscellaneous supplies (64).

7 RECOMMENDATIONS ON ADMINISTRATIVE AND LEGISLATIVE CHANGES

7.1 Background

Tonga currently is enjoying considerable interest in new tuna longline licences. Most of this interest is being generated by foreign fishing companies from China, Taiwan, and Korea. The recent decision to expand the number of tuna licences to 50 will make the entry of new local and foreign vessels possible. Given the diversification strategies of several of the established companies, it seems likely that a large fraction of these newly authorized licences will eventually be issued to foreign owned vessels based locally. These foreign vessels currently pay a substantial annual fee (currently set at US\$10 000/year) to fish in Tongan waters. In the recent Tuna Management Plan, FFA makes the following comments about this fee,

“This (US\$10 000) seems a reasonable bottom line as this has been the maximum fee paid by foreign longline vessels operating in countries neighbouring Tonga.” (p. 25)

“The standard access fee in the region is 5 percent of the value of the anticipated catch for each vessel, with the amount of catch being based on historical records.” (p. 25)

Based on the longline financial data compiled for this study the (foreign) licence fee would have represented about 1.2 percent of typical vessel revenues in 2001.¹⁷

¹⁷ See Table 9 below.

7.2 Considerations

In assessing the appropriateness of a licence fee several factors should be considered. First, as alluded to by FFA there is clearly the issue of international competitiveness and/or regional comparisons. Second, there is the issue of how foreign longline owners perceive the profitability of a fishery since a vessel would obviously be prepared to pay more for a licence to fish in a more profitable fishery. Third, there are issues concerning the terms and conditions which come with the licence ... e.g. the vessels' freedom to land or tranship his catch or re-supply its operating needs. Licence terms and conditions also indirectly reflect the impact of other taxes and duties which may apply in the host country.

From the point of view of the host Government there are other licensing issues to be considered. First, a country seeking to encourage longlining may feel that by having a low licence fee it is reducing barriers to the entry of foreign vessels. The converse of this lower barrier-to-entry argument is that high licence fees may protect and encourage local fishers or joint venture entrepreneurs. Second, the host country may want to generate as much revenue as possible in the shortest period possible. Third, the host country may see its primary interest in fishing lies in on-shore processing rather than in fish harvesting. Since the two activities are intrinsically linked, low licence fees may be seen as a mechanism for encouraging a growing processing industry.

A licence fee is a simple but crude fiscal device. As a lump sum, up-front cost it must be paid before the longliner even enters the fishery. Ironically, while licence fees should take into account the 'expected' profitability of the local fishery, the financial impact of a licence fee is largely independent of the profits that are eventually "realized" by the vessel.¹⁸ Nevertheless, the licence/access fee is the backbone of fiscal policy toward fishing throughout the Pacific Islands region. The chief reasons for this wide spread use are ease of administration and enforcement/collection.

7.3 Impact of increasing current fishing fee

Given the increasing interest in Tonga by foreign longline vessels we can safely conclude that the current licence fee of US\$10 000 is not currently a significant barrier to entry. If we assume that expected profitability is the major factor driving the increased foreign interest, then we should be able to say something about the impact of increasing fees by looking at the impact of higher fees on costs. Table 9 shows the cost impacts of higher licence fees expressed as a percentage of operating costs and as a percentage of revenues.

Table 9.
Impact of increases in foreign vessel licence fees
on costs and revenues of "typical vessel"

Licence fee (TOP/year)	Operating costs (%)	% of 2001 revenues
TOP 20 000	30-38	0.9-1.4
TOP 22 000 (+10%)	34-41	1.0-1.5
TOP 24 000 (+20%)	37-45	1.1-1.7

These figures suggest that annual licensing fees above US\$24 000 may become a major consideration in the operating costs (and consequential profit expectations) of foreign fishing vessels. Vessel operating costs are probably a more important measure than revenue for a

¹⁸ Even schemes which base licence fees on historical catch rates are subject to this problem.

cyclical industry like tuna, where fish prices (e.g. revenues) can vary substantially from year to year. The actual fiscal impact of increasing fee is, of course, a function of the number of foreign vessels which are licensed. In the unlikely case where all 30 licences were granted to foreign vessels a 10 percent increase in fees would bring in a modest additional TOP 60 000 per year. While it may be possible to increase the foreign fishing licence price to or beyond the 20 percent threshold, the current uncertainties of the longline fishery and regional comparisons suggest extreme caution. In fact, what is really needed is a licensing scheme which can recognize and adjust to these uncertainties.

The major uncertainty currently facing Tonga's longline fishery is the species mix which can ultimately be achieved by experienced crews and vessels. At this juncture there simply is no way to estimate this mix. Furthermore, even with a considerable catch history, substantial uncertainties will continue to exist due to the migratory nature of high export value bigeye and yellowfin. The capture rate of these high value species will ultimately determine whether there is, in fact, any resource rent in Tonga's tuna fishery.

8 RECOMMENDATIONS ON OTHER MEASURES

In the short term there are at least two possible strategies which the Government might take to increase vessel licensing revenues. These options involve the auctioning of new foreign vessel licences and revisions/modification to the present licence pricing regime. These options are not mutually exclusive but care must be taken that any new revenue schemes do not fundamentally affect the attractiveness of Tonga as base for tuna longlining. Since the attractiveness of tuna longlining in Tonga is primarily an issue of the potential profitability of the fishery it is important to understand the impact on vessel profits of any new licence scheme.

8.1 Auctioning of new longline licences

The auctioning of fishing licences has been considered and attempted before in other Pacific tuna fishing nations. These attempts have been largely unsuccessful and have often been abandoned in favour of negotiating licensing fees. To be successful an auction situation requires that there be more demand for new licences than there is the supply of new licences. Given that the Tuna Management Plan has now endorsed the doubling of longline fishing licences (to 50 licences) the potential supply of new licences would hardly seem to be a constraint. However, the practical reality of Tongan fishing infrastructure is that the authorized number of licences is largely illusory.

As suggested above, a doubling of tuna vessel numbers might, in the short term, place such strains on existing infrastructure that it could seriously undermine the viability of both new and existing vessels in both the tuna and bottom fisheries. Therefore, the actual pace of new foreign vessel licensing over the short term (2-3 years) will be predicated on two factors:

- infrastructure capacity;
- the demand for new licences by local companies.

In contrast, over the medium term (3-4 years) the demand for new licences is likely to turn largely on the achieved, or realized, profitability of the Tongan tuna fishery.¹⁹

The link between the short and medium term licensing is simply that too rapid an expansion of licensed vessels in the (infrastructure-constrained) short term is likely to undermine the demand for licences in the medium term by lowering the realized profitability in the longline fishery. In effect this means that there will probably be more demand for new licences than can rationally be met in the (infrastructure constrained) short term. Other things being equal, this situation favours the auctioning of new licences.

The detailed mechanics of conducting a licence auction are beyond the scope of this study. However, two critical factors need to be considered if the auction is to be successful. First, there is the obvious need to stimulate interest and competition through advance publicity. Since there may be collaboration among foreign bidders from the same nation, advance publicity should focus on encouraging competitive bids from owners in as many different Distant Water Fishing Nations as possible. Experience from elsewhere in the Pacific suggests that competition between the various national fleets can sometimes be intense.

The second consideration in conducting a vessel licence auction involves setting a minimum or reservation price. If the auction system is to achieve its goal of increasing licence revenues, the reservation price set for the auction should be the same as the current licensing fee of US\$10 000. Whether this reservation price is disclosed to bidders is a matter of auction strategy and there are arguments both for and against disclosure. Since the initial licence auction will be conducted under conditions of considerable uncertainty over vessel profitability, bidders should be given flexibility in structuring their bids – so long as the minimum/reservation price is met.²⁰ While this flexibility will increase the difficulty of evaluating the bids it might also provide insight into how Tonga's tuna is viewed by the international longline industry and into how future bids might be structured. If Tonga decides to pursue a licence auction strategy it may be necessary to seek the services of someone experienced in the mechanics of this sort of activity and in the evaluation of bids.

8.2 The licence endorsement fee notion

Any modification to Tonga's licensing fee system must be simple to manage and understand. Ideally the modification should fit easily within the established licensing framework. Finally, the modification should be easily administered and have minimal requirements for the collection or interpretation of new data.

Fishing licences in Tonga are currently issued with a requirement for annual endorsement by the Secretary of Fisheries. While a basic fee is assessed for the licence, no fee is charged for the annual endorsement. One possible change to this system might be to make provision for a separate fee for the annual Secretary's endorsement. If such a fee is levied on a flat rate basis there is no real advantage to separating it from the basic licensing charge. However, such a fee might be levied on a basis which is more consistent with the notion of Government capture of resource rents. A possible conceptual and practical basis for such a rent-based endorsement fee is set out below.

¹⁹ It is assumed that infrastructure constraints can be resolved in the next two to three years.

²⁰ For example, some bidders might decide to structure their licence bid on the basis of payment of a percent of revenue (or profit) with a minimum guaranteed payment, while other bidders might decide that a one time fixed payment is preferable.

8.2.1 Concept of resource rents

The concept of economic rents is based in the economic writing of the economic theoretician David Ricardo. While application of Ricardo's resource rent ideas have been in practical application for several decades in PNG's mining industry their application to the pricing of Pacific fishing resources is fairly recent and probably dates to a November 1999 paper by the Centre for International Economics in Canberra. While the notion of resource rents is theoretically attractive it is relatively difficult to apply in practice to a system where Government receives most, or all, of its fiscal receipts from fish harvesting through a flat rate annual licensing fee. Under annual licensing fee schemes there may or may not be resource rents which the fee may or may not capture. To understand this situation we need to make a brief digression to explain the notion of economic rent.

At the heart of the notion of resource rents is the idea of "opportunity costs". Opportunity costs are in addition to traditional fishing costs such as labour, bait, fuel, depreciation etc. and include "normal profitability". Normal profitability is considered an opportunity cost and is measured as the profit which would accrue if fishing capital were employed in other economic activities. Thus opportunity cost includes comparative measures of profitability. Industry profits that exceed the normal profits attainable in other economic activities reflect "economic rent". Resource rents might be thought of as "excess profits" although the implications of this idea are often repugnant to businessmen and entrepreneurs.

For the fishing sector there are a number of different fisheries. Each fishery has its own cost structure and its own profitability. Even within the tuna fishery there are a number of subfisheries based on species and eventual market. For example, there is the purse seine fishery and frozen albacore fishery for the canned tuna market as well as the chilled and frozen sashimi markets.²¹

8.2.2 Resource rents in tuna harvesting

A convenient place to start our search for resource rents is a 1997 study by the Forum Fisheries Agency/Asian Development Bank entitled Development opportunities in selected tuna fisheries for Pacific Island Countries. Not surprisingly, the FFA/ADB study concluded the most profitable fishery in the Pacific Islands region was the fresh sashimi fishery. The results of the FFA/ADB evaluation are presented in Table 10.

Table 10.
Results of FFA financial evaluation for different
pacific tuna fisheries

Species/fisheries	Profitability (%)
Fresh sashimi longline fishery	
Country #1	19.5
Country #2	19.1
Frozen sashimi longline fishery	4.4-15.6
Frozen albacore longline fishery	11.3

Source: Development opportunities in selected tuna fisheries for Pacific Island Countries: Forum Fisheries Agency/Asian Development Bank, 1998.

²¹ Arguably, there is a subfishery associated with the tuna by-catch of species such as marlin, swordfish.

One of the key determinants of profitability identified by the study was the catch of high value bigeye/yellowfin. Since the profitability in both Country #1 and Country#2 is high compared to other tuna fisheries we can assume that, to the degree that resource rents exist in tuna harvesting, they are associated with the harvesting of these species. This unremarkable conclusion has potential importance for establishing a basis for our endorsement fee proposal since it gives us a guide which will focus our fee only on those tuna fisheries where potential resource rents are likely to exist. In short, any revenue enhancing fee should focus on high value species but not be applied to low value species (like albacore or exportable by-catch).²² There are clearly conceptual problems with this approach²³ but compared with assessing fees on an up-front lump sum basis there are also clear advantages.

8.2.3 Implementing an endorsement fee scheme

If we consider an annual licence endorsement fee based on a vessels' bigeye and yellowfin catch, several questions arise. First, there is the obvious question of who should pay this endorsement charge. Second, there is the question of when the endorsement fee should be assessed. Third, of course, there is the question of level at which the charge should be set (e.g. how much/kg of yellowfin/bigeye should be paid).

To answer the "who" question we need to distinguish between the logic behind the basic licence fee and the logic behind an endorsement charge. It is generally accepted in Tonga and throughout the Pacific that a licensing fee is charged for access to a country's fish resources. This access "logic" is often used to defend policies that charge foreign vessels much higher licence fees than local vessels. The logic is also consistent with the notion of a front-end lump sum payment that is independent of whether the vessel ever catches a fish or makes a profit. In contrast, the proposed endorsement fee serves a different purpose. This fee is based on the ability of the vessel to catch certain high-value species and thus to achieve high profits from the national tuna resource base. Therefore, this fee should probably not distinguish between fishing vessels based on the flag that they fly or on their ownership. Once the access fee (e.g. Tonga's current licensing fee) has been paid, the only distinction should be whether the vessel has been successful at catching high profit species. There would be no distinction between local and foreign vessels in imposition of the endorsement fee.

The answer to the "when" question is dependent on the age of the licence. Obviously, since no catch history is available for the initial year of a new licence there is no basis for assessment of the fee. However, for each subsequent endorsement there is a catch history of bigeye and yellowfin that can be used in calculating the fee. Current policy is for foreign vessels to be issued with a three year licence while local longliners are granted a five year tuna licence. There is no explicit policy on the granting of licence renewals but it is assumed that existing licence holders are welcome to apply and be considered for a re-issuance of their fishing rights. There is no inherent reason why the first year of a second (renewal) licence should be exempt from the endorsement fee. Renewed licences should simply carry-on with the charge based on the prior year's catch of yellowfin and bigeye.

²² Early longline experience in Tonga focused on the frozen albacore fishery. This experience clearly demonstrated that the profitability of vessels targeting albacore was very marginal. Current practice by many vessels in the Tongan longline fleet is to target bigeye/yellowfin and use the albacore catch to offset vessel operating costs and risk exposure. Including albacore in the endorsement fee calculation could significantly change this strategy and result in increased fishing risks for vessels that are unsuccessful at capturing bigeye/yellowfin.

²³ Two conceptual problems are the fact that profitability is determined by the value of an entire catch rather than just the value of high-value species, and the fact that bigeye and yellowfin command different prices (and therefore have different resource rents) in the fresh and frozen sashimi markets.

There are several possible approaches to setting the fee. It might be set on the basis of sales revenues, typical operating costs or, if adequate data were available, even composite longline profitability. Each measure implies its own assessment mechanism, although at the end of the day the charge will be levied in TOP. In considering the various approaches, a primary consideration should be the ease of calculating and administering the fee. Given the range of fiscal arrangements (different development agreements, foreign licence fees, imputed export taxes etc.) already in place in Tonga and the complications of undertaking standardized vessel-by-vessel profitability assessments, there are strong administrative arguments in favour of a simple calculation based on a per kilogram charge.²⁴ This approach would draw on information already available to the Ministry of Fisheries, and administration would be straightforward. While there are advantages to setting the charge in US cents,²⁵ it seems somewhat inappropriate to levy Tongan fiscal charges in foreign currency. It should be recognized that the use of a foreign currency implies a foreign exchange risk, and is a complicating factor in making the fee calculation.

As with most fiscal levies, pragmatic considerations should be the ultimate basis for setting the endorsement fee. One such consideration might be the need to ensure that, for a typical longline vessel engaged in Tonga's chilled tuna fishery, the fee does not exceed a certain percentage of vessel operating costs. Using the composite data from Table 7, we can estimate the Sentini/kg charge associated with different operating cost percentages. These estimates and the implied endorsement charges and vessel costs are presented in Table 11 below.

Table 11.
Endorsement charges associated with different operating cost percentages

Operating costs (%)	Associated endorsement charge (sentini/kg)
2%	16-20
4%	32-40
5%	40-50
6%	48-60
8%	64-80

** Based on operating cost for typical vessel from Table 9.*

8.3 Revenue projection scenario

To project the impact of an endorsement fee on fiscal receipts it is necessary to construct a short term development scenario for the longline fishery. As previously mentioned longline development over the short term will be severely constrained by the infrastructure. Optimistically, the major infrastructure bottlenecks can be addressed over a three year period (e.g. by the end of 2005). In the immediate term, if air freight capacity were available, operational adjustments in port operations might make possible the licensing of a few additional boats in 2003, with more added in 2004 and 2005. Without a thorough study it is not possible to state how many vessels the current infrastructure might handle. However, local discussions suggest that the maximum number of new vessels that could be absorbed in 2003 probably no more than five or six. Assuming additional infrastructure can be

²⁴ A major shortcoming of this approach is that it does not capture any windfall profits from changing market conditions. Charges calculated as a "percent of sales" or on "vessel profitability" would capture windfall profits. Under the kilogram charge approach all windfall profits accrue to the fishing company.

²⁵ US dollars are the currency of bigeye/yellowfin sales and the currency already used in setting the licence fee for foreign longline vessels.

developed over the next few years we might consider a hypothetical longliner expansion scenario. The revenue implications of different endorsement fees under such as expansion strategy are suggested in Table 12.

Table 12.
Longline expansion scenario: Impact of different rates of endorsement fee charges on Government revenues

Description	Units	TOP/ kg	Year				
			2002	2003- (BaseYr)	2004	2005	2006
Existing fleet							
Local			17	17	20	22	24
Foreign				5	8	10	12
New Vessels							
Local					3	2	2
Foreign					3	6	8
Catch of YF+BET	Kgs			495 000	630 000	720 000	810 000
Licence Revenues	TOP x 1 000			100	160	200	240
Endorsement Revenues	TOP x 1 000	.40		198	252	288	324
		.60		297	378	432	486
		.80		396	504	576	648
Total Revenues	TOP x 1 000	.40		298	412	488	564
		.60		397	538	632	726
		.80		496	664	776	888

9 CONCLUSIONS AND RECOMMENDATIONS

Tonga is approaching a crossroads in the development of its fisheries sector. A generous incentive and concession package by Government has created considerable momentum in tuna longline activity, and fish are now the largest single export from the Kingdom. However, further expansion of the industry faces severe infrastructure constraints that must be addressed in an integrated and timely manner. The fishing industry is nearing an infrastructure crisis that needs to be solved in parallel with the granting of any new fishing licences. While airfreight capacity is the most visible infrastructure problem, there are significant bottlenecks in the port and with shore facilities.

The granting of substantial numbers of new longlining licences without resolving these bottlenecks could have serious negative effects on all commercial fisheries in Tonga.²⁶

Assuming that the infrastructure constraints can be overcome, there is another formidable task facing the Tongan Government. This challenge involves the near term revenue needs of

²⁶ Including new and existing longline fishers and the existing bottom fishing fleet.

Government. While the fisheries sector is thriving, the Government is starved for revenue. There are several revenue increasing options open to the Ministry of Fisheries. These options include:

- a) Changing the basis for calculating Export Tax from an imputed price (TOP 3.50) to actual invoiced prices in US dollars. There may other basis for calculating the export fee but any imputed price scheme in TOP would tend to be quickly out of date and undermine the notion of capturing resource rents from export sales.
- b) Increase licence fees on foreign vessels from current levels of US\$10 000 per year by 10 or 20 percent. Increases beyond 20 percent are not recommended as they are not internationally competitive and may create barriers to the entry of foreign vessels.
- c) Impose a fee for the annual licence endorsement issued by the Secretary of Fisheries. This fee might be calculated based on the annual catch of high value bigeye and yellowfin tuna. The recommended level of this fee would be TOP .40/kg (US\$20/kg). This figure would equate to an increase in vessel operating costs of ~4-5 percent and should not fundamentally alter the profitability of the tuna longlining. The catch of albacore and non-tuna species²⁷ would not be included in the calculation of the endorsement fee.

There are advantages and disadvantages to each option. Changing the export fee would generate about TOP 56 000/year²⁸ in near-term revenue for Government, but obtaining accurate invoice information could be an administrative and enforcement nightmare. An increase in the foreign vessel licence fee would be simple to administer, but as a lump sum payment, would tend to have a negative impact on the entry of foreign vessels.

If 30 licences were granted to foreign vessels, a 20 percent annual increase (to US\$12 000) would generate an additional ~TOP 120 000 in licence revenues. The endorsement fee option would generate somewhat greater revenues than the other two schemes and is relatively consistent with the notion of Government capturing an increased fraction of any resource rents from the longlining industry. Over a three year period this scheme would build up to generate an estimated ~TOP 324 000/year in additional Government revenues.

A third fisheries management challenge which is emerging in Tonga is less immediate than either the infrastructure or Government revenue problems. This challenge relates to development of a strategic framework between foreign fish harvesting activities and rapidly diversifying local companies whose investments are focused on shore and support activities. Within a few years it may not be possible to simply give preference to local companies in the granting of licences for fish harvesting, and assume that local fishing interests have been protected. The vertical and horizontal diversification of local companies will bring new risks and opportunities that Government can encourage or discourage. The development of a strategic vision for the sector may be the greatest long-term challenge facing fisheries management in Tonga.

²⁷ There is no inherent reason why the endorsement fee could not be applied to the bottom fishery for snapper and grouper. However, the small weight of this catch means that a Kg based fee would not raise much revenue. Additionally, the major bottom fish exporters will soon lose their development agreement tax concession and become subject to Tongan income tax.

²⁸ Based on 5 percent of 2001 exports of TOP 11.2 million.

APPENDIX 1. MISSION TERMS OF REFERENCE

International consultant: Fisheries economics and management expert

Under the supervision of the FAO Subregional Office for the Pacific Islands (SAPA), the technical guidance of the FishCode Programme Small Island Developing States Project (FishCode SIDS) of the FAO Fisheries Department and in collaboration with the Ministry of Fisheries in the Kingdom of Tonga, and taking account of the objectives of the 1995 FAO Code of Conduct for Responsible Fisheries and the need to promote sustainable fisheries management, the consultant will:

1. briefly review current national fisheries policy and fisheries management plan(s) together with programmes for their implementation;
2. briefly review and summarize information relating to the management of tuna and bottom fisheries and current fishing operations;
3. review the legal framework concerning the licensing of tuna and bottom fishing vessels;
4. review existing Government charges (e.g. fish export levy, export licence fee, Custom inspection fee, registration, seaworthiness inspection fee, etc.) involved in tuna and bottom fisheries, including charges for fish exports;
5. consult with industry and review the economic impact of current Government charges and regulatory requirements on the sector;
6. review the economic and financial performance of fishing vessels engaged in tuna and bottom fisheries, including the rents being generated and the distribution of these rents;
7. recommend administrative and legislative changes to implement simpler arrangements for the collection of Government charges and resources rent through fishing fees;
8. recommend other measures that might be taken by the Ministry of Fisheries to further improve tuna and bottom fisheries management, in particular improvements in the macro economic environment, based on the findings of this consultancy;
9. report preliminary findings to the Government prior to departure from Tonga, and submit to the FAO Subregional Office for the Pacific Islands (SAPA) and the FishCode SIDS Project (FI/Rome) a full report upon completion of the study, for formal submission to the Government of the Kingdom of Tonga.

APPENDIX 2. COMMENTARY ON SHORT TERM IMPLICATIONS OF 50 TUNA FISHING LICENCES ON TOTAL ALLOWABLE CATCH

As noted, the number of longline fishing licences has been substantially increased under the tuna management plan. At the time of preparation of the original (Draft) Plan, 16 vessels were active in the fishery. In 2000 these vessels harvested an estimated 1 200 to 1 500 tonnes of all tunas.²⁹ The Draft Plan suggested that a 4 000 tonnes (all species) limit should be set and that 25 tuna licences should be issued. To reach this conclusion the Plan assumed an average annual catch of 160 tonnes/vessel. However, preliminary data for 2001 estimate that the 21 vessels active in the 2001 tuna fishery harvested 1 718 tonnes. This implies that the average vessel catch was less than one half (81.8 tonnes/vessel) the level predicted in the plan. Based on the 2001 vessel catch, the newly proposed limit of 50 tuna licences would result a total fleet harvest of 4 070. This is generally consistent Total Allowable Catch (TAC) Proposed in the Plan. Such projections should be approached with considerable caution given the limited experience of the Tongan longliner fleet.

A footnote to the Draft Plan notes that in the future, a separate total allowable catch should be set for each species. Clearly, such 'species catch' targets are extremely important refinements to judging the potential impact of licensing additional tuna vessels. A 1997 Fisheries Assessment by the Oceanic Fisheries Program of the Pacific Community concludes that:

"Provisional harvest levels of 4 680 to 5 225 mt (of tuna) may be obtainable from both Tongan and international waters to the South. These estimates are largely based on the targeting of albacore tuna. If the fleet changes targeting practices towards yellowfin and bigeye for the sashimi market, then potential yield may be reduced but the economic unit value would be increased." (pp. 77-78)

In another section the report compares the Tongan fishery to Fiji. The report notes:

"Assuming that domestic Tongan vessels will continue to fish within international waters, and that the annual catch for Tonga is based on a proportional area basis is 5 225 mt. Assuming a similar catch composition as Fiji, the assumed catch composition is composed of 4 125 mt of tuna. (1 375 mt of yellowfin, 1 100 mt of bigeye, and 1 650 mt of albacore)." (p. 76)

This Fiji comparison equates to a species mix of 40 percent albacore, 33 percent yellowfin, and 27 percent bigeye. Of these species, the bigeye stock is clearly of the most scientific uncertainty and fisheries management concern.

As presented in Table 4 the 2001 Tonga tuna catch was dominated by albacore. The albacore catch accounted for 1 268 tonnes (~64%); yellowfin for 259 tonnes (~13%); and bigeye for 191 tonnes (~10%).³⁰ It seems unlikely that these fractions are indicative of future catch rates since the albacore fishery in Tonga has been shown to be of very marginal profitability. Established Tongan fishing companies (Friendly Isles, Alitini and Sea Star) believe that a mature longlining fleet with good knowledge of local conditions should be able to substantially increase the percentage of high-value yellowfin and bigeye tuna. One company uses a vessel catch 20 percent for yellowfin and 15 percent for bigeye in making its financial and budget projections.³¹ Both the current species mix and business expectations of local exporters are substantially lower than benchmark levels reported in the Fisheries Assessment for Fiji.

²⁹ Given the targeting practices of Tonga's largest longlining operation, Sea Star, a substantial fraction of this catch was albacore.

³⁰ Readers should note that the discussion and percentages that follow reflect the tuna management plan, and ignores the considerable bycatch that is harvested by the longline fleet.

³¹ Even though well managed vessels might achieve these rates it seems unlikely that the combined fleet catch will approach these levels for many years.

APPENDIX 3. TUNA CATCH BY SPECIES AND VESSEL, 2001

	Vessel name	Albacore mt	Bigeye mt	Yellowfin mt	Other mt
1	<i>Lady Rose</i>	7.2	0.9	6.8	3
2	<i>Laumau</i>	9.1	4.6	2.6	3
3	<i>Marine Princess</i>	48.9	10.6	17.3	7.7
4	<i>Paragon</i>	79.5	4.1	4.6	5
5	<i>Pareina</i>	74	12.8	10.9	17.9
6	<i>Rosalind</i>	80.2	8.7	10.7	7.5
7	<i>Sao Pedro</i>	2.0	1.0	1.4	5.3
8	<i>Southwind</i>	81.1	10.7	6.6	6
9	<i>Valiant</i>	28.6	5.8	6.1	3.9
10	<i>Wainui</i>	37.2	9.7	7.0	7.6
11	<i>Akina</i>	25.6	2.6	11.7	14.1
12	<i>Kylie</i>	52.5	6.5	32	33.7
13	<i>Scania</i>	22.7	5.4	13.5	10
14	<i>F. Shing 2</i>	19.6	0.4	1.5	0.4
15	<i>F. Shing 3</i>	21.8	0.8	0.8	3.1
16	<i>Lofa</i>	87.0	2.1	6.6	5.4
17	<i>Bold Contender</i>	35.5	17.5	11.4	12.7
18	<i>Takuo</i>	66.4	2.9	5.6	6.8
19	<i>Tavake</i>	84.6	20.3	17.6	22.2
20	<i>Toutai Mei Langi</i>	14.7	5.1	4.9	11.4

APPENDIX 4. VESSELS ENGAGED IN THE TONGAN LONGLINE FISHERY

	Vessel Name	Owner	G.R.T.	L.O.A.	Registered
			m/t	(m)	At
Local fishing vessels					
1	<i>Kylie</i>	Alatini Fisheries Co Ltd	68.00	18.30	Nuku'alofa
2	<i>Kerry Elle</i>	Alatini Fisheries Co Ltd	68.00	18.00	Nuku'alofa
3	<i>Southwind II</i>	Friendly Islands Fishing Co Ltd	86.00	21.24	Nuku'alofa
4	<i>Rosalind</i>	Friendly Islands Fishing Co Ltd	86.53	21.24	Nuku'alofa
5	<i>Valiant</i>	Friendly Islands Fishing Co Ltd	18.50	17.50	Nuku'alofa
6	<i>Marine Princess</i>	Friendly Islands Fishing Co Ltd	19.50	18.50	Nuku'alofa
7	<i>Paragon</i>	Friendly Islands Fishing Co Ltd	82.00	20.49	Nuku'alofa
8	<i>Wainui II</i>	Friendly Islands Fishing Co Ltd	22.50	19.69	Nuku'alofa
9	<i>Tavake</i>	Sea Star Fishing Co Ltd	144.00	29.00	Nuku'alofa
10	<i>Pakeina</i>	Sea Star Fishing Co Ltd	144.00	29.00	Nuku'alofa
11	<i>Laumanu</i>	Maui Pacific	65.00	18.00	Nuku'alofa
12	<i>Lofa</i>	Fung Shing Co Ltd	188.24	37.00	Nuku'alofa
13	<i>Fung Shing II</i>	Fung Shing Co Ltd	59.00	23.37	Nuku'alofa
14	<i>Fung Shing III</i>	Fung Shing Co Ltd	69.00	30.00	Nuku'alofa
15	<i>Lady Rose</i>	Atlantis Fisheries Co Ltd	45.00	17.70	Nuku'alofa
16	<i>Toutai mei Langi</i>	Tokaikolo Chris Chur Co Ltd	78.00	23.27	Nuku'alofa
Locally based foreign fishing vessels with fishing licence					
17	<i>Catherine II</i>	Friendly Is Fishing Co Ltd	160.00	22.30	FFA
18	<i>Tai Yuan Yu 001</i>	R.I.O.T Unifi Ltd,	141.00	33.00	FFA
19	<i>Tai Yuan Yu 002</i>	R.I.O.T Unifi Ltd,	131.00	32.00	FFA
20	<i>Tai Yuan Yu 003</i>	R.I.O.T Unifi Ltd,	142.00	32.70	FFA
21	<i>Tai Yuan Yu 005</i>	R.I.O.T Unifi Ltd,	157.00	35.70	FFA
22	<i>Tai Yuan Yu 006</i>	R.I.O.T Unifi Ltd,	215.00	39.25	FFA
23	<i>701 Chong Myong</i>	Southseas Fishing Co., Ltd	119.00	25.89	FFA
24	<i>703 Chong Myong</i>	Southseas Fishing Co., Ltd	122.00	27.75	FFA
25	<i>705 Chong Myong</i>	Southseas Fishing Co., Ltd	32.00	20.00	FFA
26	<i>707 Chong Myong</i>	Southseas Fishing Co., Ltd	33.00	19.50	FFA
Government fishing vessels					
27	<i>Takuo</i>	Ministry of Fisheries	337.00	39.39	Nuku'alofa
28	<i>Ekiaki</i>	Ministry of Fisheries	28.00	19.00	Nuku'alofa

APPENDIX 5. VESSELS ENGAGED IN THE TONGAN BOTTOM FISHERY

	Vessel Name	Owners	Fishing Type	G.R.T. (m/t)	L.O.A. (m)	Registered At
1	<i>Hope</i>	Maritime Projects (Tonga) Ltd	Bottom Fishing	23.93	14.48	Nuku'alofa
2	<i>Akina</i>	Alatini Fisheries Co Ltd	Bottom Fishing	22.00	13.69	Nuku'alofa
3	<i>Albacore</i>	Siosiu Finau	Multipurpose	14.12	12.80	Nuku'alofa
4	<i>Ngutulei</i>	Alatini Fisheries Co Ltd	Multipurpose	6.10	12.19	Nuku'alofa
5	<i>Haumoana</i>	Alatini Fisheries Co Ltd	Bottom Fishing	16.00	11.97	Nuku'alofa
6	<i>Utoo</i>	Ilaiasi Toli	Bottom Fishing	8.00	10.36	Nuku'alofa
7	<i>Odyssey</i>	Alatini Fisheries Co Ltd	Bottom Fishing	14.00	10.00	Nuku'alofa
8	<i>Langahengihengi</i>	Alatini Fisheries Co Ltd	Bottom Fishing	7.00	9.75	Nuku'alofa
9	<i>Atelaite</i>	Auhia Siu	Bottom Fishing	7.00	9.75	Nuku'alofa
10	<i>Stella Marris</i>	Faua Aquar Products	Bottom Fishing	7.00	9.73	Nuku'alofa
11	<i>Tekina-'I-Vahanoa</i>	Taani Fe'ao	Bottom Fishing	3.60	8.80	Nuku'alofa
12	<i>Vicky Anne</i>	Maritime Projects (Tonga) Ltd	Bottom Fishing	12.00	12.80	Nuku'alofa
13	<i>Avalon</i>	Maritime Projects (Tonga) Ltd	Bottom Fishing	19.00	12.10	Nuku'alofa
14	<i>Anamanusiu</i>	Feleti Hopoate	Bottom Fishing	3.60	8.80	Nuku'alofa
15	<i>Leisina I</i>	Pafilio Tangitau	Bottom Fishing	15.00	11.69	Nuku'alofa
16	<i>Hakula</i>	Jeff Le Strange	Bottom Fishing	7.00	11.00	Nuku'alofa
17	<i>Lutu He Palelei I</i>	Hola Blake	Bottom Fishing	5.00	9.11	Vava'u
18	<i>Lutu He Palelei II</i>	Hola Blake	Bottom Fishing	5.00	9.00	Vava'u
19	<i>Dora Maria</i>	Paul Mead	Bottom Fishing	7.00	9.70	Vava'u
20	<i>Maikolo H. Koli</i>	Taniela Kolo	Bottom Fishing	4.50	9.00	Vava'u
21	<i>Tavake</i>	Ulaiasi Vaisima	Bottom Fishing	3.50	8.53	Vava'u
22	<i>Anakea</i>	Vili Olive	Bottom Fishing	3.60	8.53	Vava'u
23	<i>Heilala</i>	SUTT Ovaka	Bottom Fishing	5.00	9.00	Vava'u
24	<i>Leisina II</i>	Pafilio Tangitau	Bottom Fishing	7.30	10.80	Nuku'alofa

APPENDIX 6. PROVISIONS OF NEW FISHING LEGISLATION DEALING WITH FISHING LICENCES

Section 19- Applications for licences, permits, and authorizations

19. Unless otherwise provided, an application for a licence, permit or authorisation under this Act shall be made in the Form prescribed in the Schedule to the Secretary.

Section 20- Conditions of fishing licences

20. (1) Every fishing licence shall be subject to such conditions as provided under this Act or as may be prescribed.

(2) The Minister may, by Order published in the Gazette, specify general or special conditions additional to those prescribed to which all fishing licences or any category of fishing licences shall be subject including conditions relating to open and closed seasons, prohibited fishing areas, minimum mesh sizes and minimum species sizes.

(3) The Secretary, or in the case of a foreign fishing vessel licence, the Minister may, at any time, where he is satisfied that it is expedient for the proper management of fisheries waters, vary or delete any special conditions attached to any fishing licence.

(4) Where the Minister or the Secretary varies or deletes any special conditions attached to any fishing licence it shall not take effect until the licence holder has been notified in writing.

Section 22- Fees and other charges

22. (1) There shall be payable in respect of every licence, permit or authorisation that may be issued under this Act such fees as may be prescribed in regulations and in the case of foreign fishing vessels such other charges as may be provided in any access agreement entered into under section 33 or as the Minister may otherwise determine in relation to an access agreement or arrangement.

Section 23- Validity of fishing licences, permits or authorization

23. (1) Unless otherwise provided under this Act, any licence, permit or authorisation issued, under this Act shall, unless earlier cancelled or suspended in accordance with section 24, be valid for the period stated on the licence, permit or authorisation.

(2) Except as may be prescribed in connection with any scheme for limiting fishing effort in any fishery or for the purposes of participatory rights, no licence issued in respect of any fishing vessel under this Act shall be transferable to any other vessel except with the written permission of the Secretary or, in the case of a foreign fishing licence the Minister.

Section 26- Local fishing vessel licences

26. (1) No local fishing vessel shall be used for fishing or related activity in the fisheries waters without a local fishing vessel licence unless used solely for subsistence fishing.

(2) A local fishing vessel licence shall be valid only for such areas, fisheries or methods of fishing and type and quantity of fishing gear as shall be endorsed on the licence.

(3) A local fishing vessel licence, unless earlier cancelled or suspended in accordance with section 24, shall be valid for the period stated thereon.

(4) Where a vessel licensed as a local fishing vessel becomes a foreign fishing vessel, the local fishing vessel licence shall be automatically terminated.

(5) Where a local fishing vessel is used in contravention of subsection (1) the master, owner and charterer of that vessel shall be guilty of an offence and shall each be liable upon conviction to a fine not exceeding \$250 000.

(6) Where a local fishing vessel is used in contravention of any condition of licence issued under this section the master, owner and charterer of that vessel each shall be guilty of an offence and shall each be liable upon conviction to a fine not exceeding \$100 000.

(7) The Minister may, by regulation, prescribe different classes of local fishing vessel, and the areas or distances from the shore within which each class of local fishing vessel shall fish or operate.

Section 27- Commercial sport fishing licence

27. (1) No fishing vessel shall be used for reward or hire for sport fishing in the fisheries waters without a commercial sport fishing vessel licence issued by the Secretary

(2) The Secretary may issue a commercial sport fishing vessel licence to any vessel described in subsection (1).

(3) A commercial sport fishing vessel licence shall be valid only for such areas, methods of sport fishing, and type and quantity of sport fishing gear as shall be endorsed on the licence.

(4) A commercial sport fishing vessel licence, unless earlier cancelled or suspended in accordance with section 24, shall be valid for the period stated thereon.

(5) Where a fishing vessel is used in contravention of subsection (1) the master, owner, and charterer of that vessel shall be guilty of an offence and shall each be liable upon conviction to a fine not exceeding \$100 000.

(6) Where a fishing vessel is used in contravention of any condition of licence issued under this section the master, owner and charterer of that vessel shall be guilty of an offence and shall each be liable upon conviction to a fine not exceeding \$50 000.

(7) The Minister may, by regulation, prescribe different classes of commercial sport fishing vessels, and the areas or distances from the shore within which each class of commercial sport fishing vessel shall fish or operate.

Section 28- Locally based foreign fishing vessel Licence

28. (1) No locally based foreign fishing vessel shall be used for fishing or related activities in the fisheries waters without a locally based foreign fishing vessel licence issued by the Secretary.

(2) An application for a locally based foreign fishing vessel licence shall be made only in respect of a foreign fishing vessel which has been registered on the fishing vessel register.

(3) The Secretary may issue a licence to any locally based foreign fishing vessel.

(4) A locally based foreign fishing vessel licence shall be valid only for such areas, fisheries or methods of fishing, and type and quantity of fishing gear as shall be endorsed on the licence.

(5) Where a vessel licensed as a locally based foreign fishing vessel becomes a foreign fishing vessel, the locally based foreign fishing vessel licence shall be automatically terminated.

(6) Where a locally based foreign fishing vessel is used in contravention of subsection (1) the master, owner, and charterer of that vessel shall be guilty of an offence and shall each be liable upon conviction to a fine not exceeding \$500 000.

(7) Where a locally based foreign fishing vessel is used in contravention of any condition of licence issued under this section the master, owner and charterer of that vessel shall be guilty of an offence and shall each be liable upon conviction to a fine not exceeding \$250 000.

(8) The Minister may, by regulation, prescribe different classes of locally based foreign fishing vessel, and the areas or distances from the shore within which each class of locally based foreign fishing vessel shall fish or operate.

APPENDIX 7. CONDITIONS OF ANNUAL ENDORSEMENT OF A FISHING LICENCE (EXCERPTS FROM TUNA MANAGEMENT PLAN)

Such a licence will require annual endorsement by the Secretary in order to be valid.

Endorsement will be based on:

- a) The licence holders continuing qualification as a Tongan Company.*
- b) The nominated vessel qualifying as either a local fishing vessel or a locally based foreign fishing vessel and, in the latter case, nominated on the licence for no more than two fishing years.*
- c) Correct payment of all relevant fees and levies.*
- d) Compliance with licence conditions in the previous 12 month period.*
- e) The nominated vessel being in marine survey.*
- f) The level of fishing activity undertaken in the previous 12 month period.³²*

³² A licence may not be endorsed if the vessel nominated against that licence for the previous 12 month period was not engaged in full time tuna fishing. In assessing this criterion, the Secretary will take into account whether any activity was due to circumstances beyond the control of the licence holder, such as vessel breakdown, refits, or unusually low abundance of tuna during all or part of the fishing year.