

**MINISTRY OF PRIMARY INDUSTRIES**

*FISHERIES DIVISION*

**ANNUAL REPORT  
1984**

**SUVA FIJI**

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2. RESOURCES2.1. Personnel

## 2.1.1. Permanent Established

No additional posts were created and the freeze on recruitment continued. Of the existing 110 positions, 105 were filled. Divisional distribution of staff is shown on Table 1 and appendix 1.

Table 1 Staff Distribution in 1984

Designation	Position Occupied			Positions Vacant	Total
	Central	Western	Northern		
Chief Fisheries Officer	1	-	-	-	1
Principal Fisheries Officer	3	-	-	-	3
Senior Fisheries Officer	2	1	1	1	5
Fisheries Officer	8	-	-	-	8
Technical Officer II	11	1	2	3	17
Senior Fisheries Asst.	44	12	13	1	70
Fisheries Assistant	4	1	1	-	6
<b>Total</b>	<b>73</b>	<b>15</b>	<b>17</b>	<b>5</b>	<b>110</b>

## 2.1.2. Aid Personnel

The JICA team of four experts and CNEXO Biologist continued to work at the Naduruloulou Aquaculture Station and Raviravi Prawn Farm respectively. A US Peace Corps Volunteer continued his work as graphics artist at the Fisheries Division, and during the year, a Japanese Volunteer joined the team as statistician. Numerous other consultants assisted the Division on short term contracts.

## 2.1.3. Training/Secondment/Seminar

During the year, a total of twelve officers attended training abroad, sixteen officers participated in local training, while one officer was on secondment to the INFOFISH UN project based in Malaysia. Additional details are shown on Appendix 2.



Appendix 2Staff Training

Course	No. of participants	Country
Coastal Fisheries Theory II	1	Japan
Aquaculture	4	"
SPO/Nelson Fisheries Officer	1	NZ
Course		
Seaweed/Algae	1	Aust.
Deep sea fishing	2	Korea
Coastal Fisheries extension I	1	Japan
Statistics	2	New Caledonia
Total	12	

Local Training

Mate Fiji	1	
2nd Mate Pl	1	
Driving	1	
Marine Engineering I	1	
Engineering Cadet	1	
Librarian	1	
Ordinary Diploma in Mechanical Engineering	1	
Management training	8	
Total	16	

## 2.2. Finance

### 2.2.1. Expenditure

The total expenditure in 1984 amounted to \$3.79 million as detailed in Table 2.

Table 2: Expenditure 1983 - 1984

<u>Year</u>	<u>1983</u>	<u>1984</u>
No. of staff	104	105
Salaries	982 985	1 127 675
Operational Costs	571 666	239 880
Capital Expenditure	187 319	2 420 533
<b>Total</b>	<b>1 441 970</b>	<b>3 788 088</b>

### 2.2.2. Revenue

Revenue for 1984 amounted to \$598 783, a rise of 38.1% over 1983. These are shown as follows:

Table 3: Revenue 1983 and 1984

<u>Source</u>	<u>1983</u>	<u>1984</u>
Service fees (use of freezer by NMA)	7 427	25 644
Commission (BDM)	909	45 135
Fish sales	8 198	2 301
Fishing vessels - trainee	2 329	114 350
- commercial	211 931	190 634
Fishing gear	24 462	34 428
Fishing licences - local	14 810	15 538
- foreign	59 819	38 363
Ice sales	103 795	132 390
<b>Total</b>	<b>\$433 680</b>	<b>598 783</b>

## 2.3. Vessels

A fleet of twelve vessels was used by the division. Six of these were based in Lami, two in Lautoka, one in Labasa, two in Savusavu and one in Levuka.

#### 2.4. Vehicles

The Division utilized a fleet of 21 vehicles and four motorbikes. Of these, seven vehicles and two motorbikes were based in the Western Division, four vehicles in the Northern, and ten vehicles and two motorbikes in the Central Divisions. Included in the fleet this year were five new vehicles and two motorbikes, while two vehicles were written off.

#### 2.5. Buildings, Plants and Other Facilities

1984 saw the completion of a new carp hatchery, an extension of pond area by 4.5ha bringing the total pond area to 8ha and an upgrading of other existing facilities at the Naduruloulou Station.

At the Raviravi Prawn Project, two new staff quarters were constructed, pond acreage was extended from 17ha to 24ha and additional facilities were installed at the hatchery thereby increasing post-larvae production capacity from 1.0 million to 8.0 million per year.

### 3. COMMERCIAL FISHERY

#### 3.1. Industrial Fisheries

##### 3.1.1. The Pole and Line Fishery

A total of eleven pole and line vessels were fishing in 1984; five of these were IKA owned, two chartered from Hokuku Marine Products of Japan and four were privately owned vessels. The fleet landed a total of 4572.86 tonnes of fish, sold to the Pacific Fishing Company for approx. \$3.90 million. Species composition of the total landings is shown on Table 4.

Table 4: Species Composition of Pole and Line Landings

<u>Species</u>	<u>MT</u>
Yellowfin (G/G)	1.599
Yellowfin (R)	578.519
Bigeye (R)	0.251
Skipjack	3 992.421
Misc.	0.072
<u>Total</u>	<u>4 572.862</u>

## 3.1.2. Purse Seine

During 1984, only one purse seiner was in operation landing approx. 577 tonnes of fish. The catch was landed and sold to PAFCO for \$436 806. Compared with 1983, catch was down by 42.6%.

Catch species composition are shown below:-

<u>Species</u>	<u>MT.</u>
Yellowfin (R)	238.138
Bigeye (R)	1.375
Skipjack	317.687
Albacore	0.063
<u>Total</u>	<u>577.263</u>

## 3.1.3. Longline Fishery

The fleet of six longline vessels landed 1432.49 tonnes of fish valued at \$2.2 million. Species composition is shown on Table 5.

Table 5. Longline Landings Species Composition

<u>Species</u>	<u>MT</u>
Albacore (R)	1161.988
Yellowfin (G/F)	113.790
Bigeye (G/G)	68.752
Skipjack	4.694
Misc.	83.272
<u>Total</u>	<u>1432.49</u>

## 3.1.4. Tuna Landings at PAFCO

PAFCO received a total of 8969.97 tonnes of tuna, approximately 7.7% more than 1983. The percentage share of the landings are as follows:

Tuna Percentage Landings at PAFCO - 1984

<u>Classification</u>	<u>%</u>
Pole and line	50.98
Purse seine	6.44
Longline	15.97
Imports	26.61
<u>Total</u>	<u>8969.97 MT</u>

3.2. Tuna Processing and Sales

3.2.1. Canned Tuna

431,095 cartons (48 x 7oz) of canned fish were produced in 1984. Production was down by 21.8%. 589,543, of these cartons valued at \$16.09 million were exported and 8678 cartons valued at \$116,816 were sold locally. Export volume was down by 23.58% while local sales volume increased by 23.4%. Export value for canned fish was down by 1.9% compared with 1983.

3.2.2. Fish Meal

About 682.18 tonnes of fish meal were produced and sold locally for \$336,839. Compared with 1983, production was down by 8.0% while sales value increased by 7.7%.

3.2.3. Frozen Fish

About 63,845 tonnes of unprocessed yellowfin, bigeye and miscellaneous fish valued at \$649,180 were exported. Sales volume increased by 29.6% while value increased by 23.2% over the previous year.

3.3. Local Sales of Fish Products

3.3.1. Municipal Markets

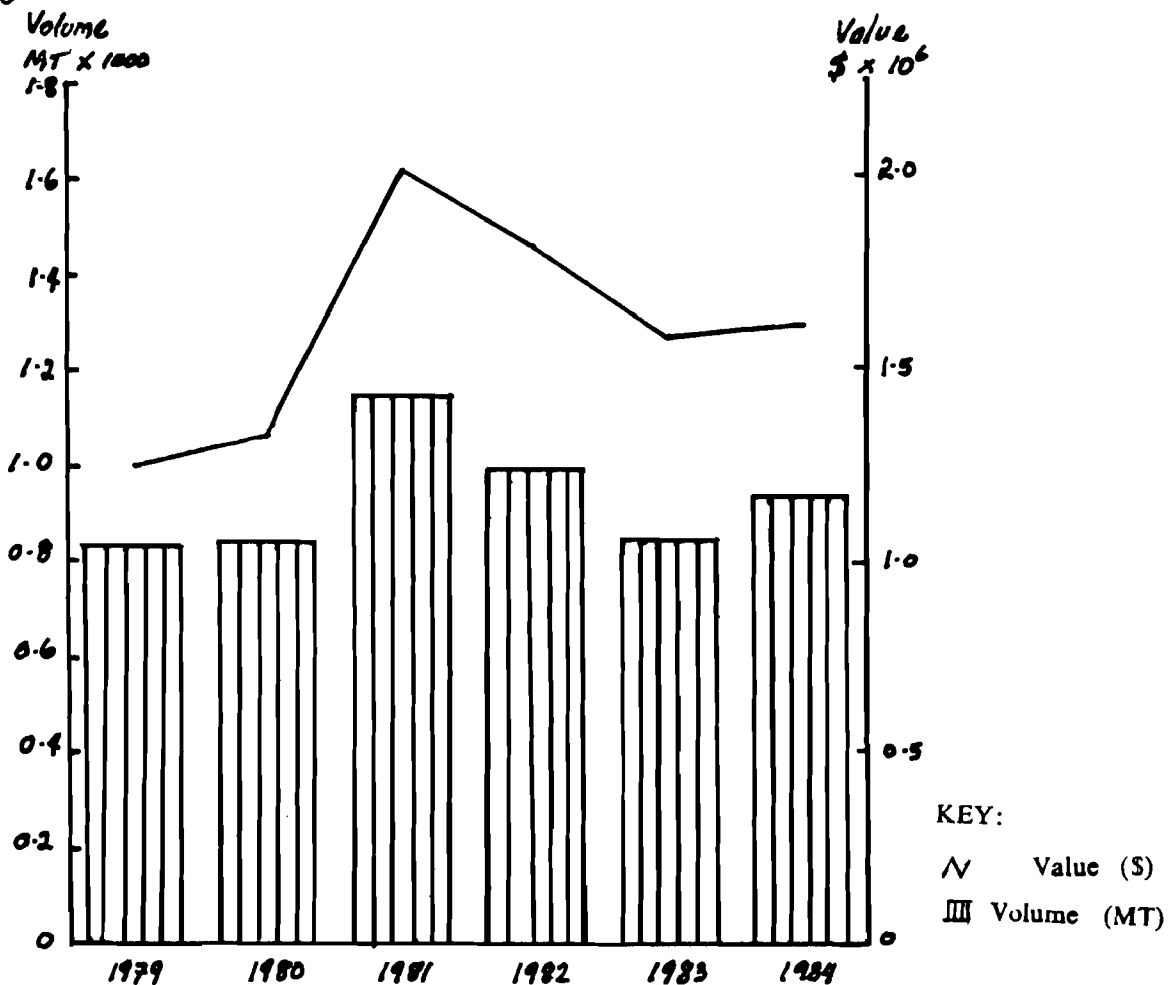
Market masters' reports, for 1984 showed that a total of 925.32 tonnes of fish valued at \$1.63 million were sold through municipal markets. Compared with the previous year's throughput, sales volume increased by 10% and value by 3.2%. Details of sales by individual markets are shown on Table 6.

Table 6.

Municipal Market Fish Sales

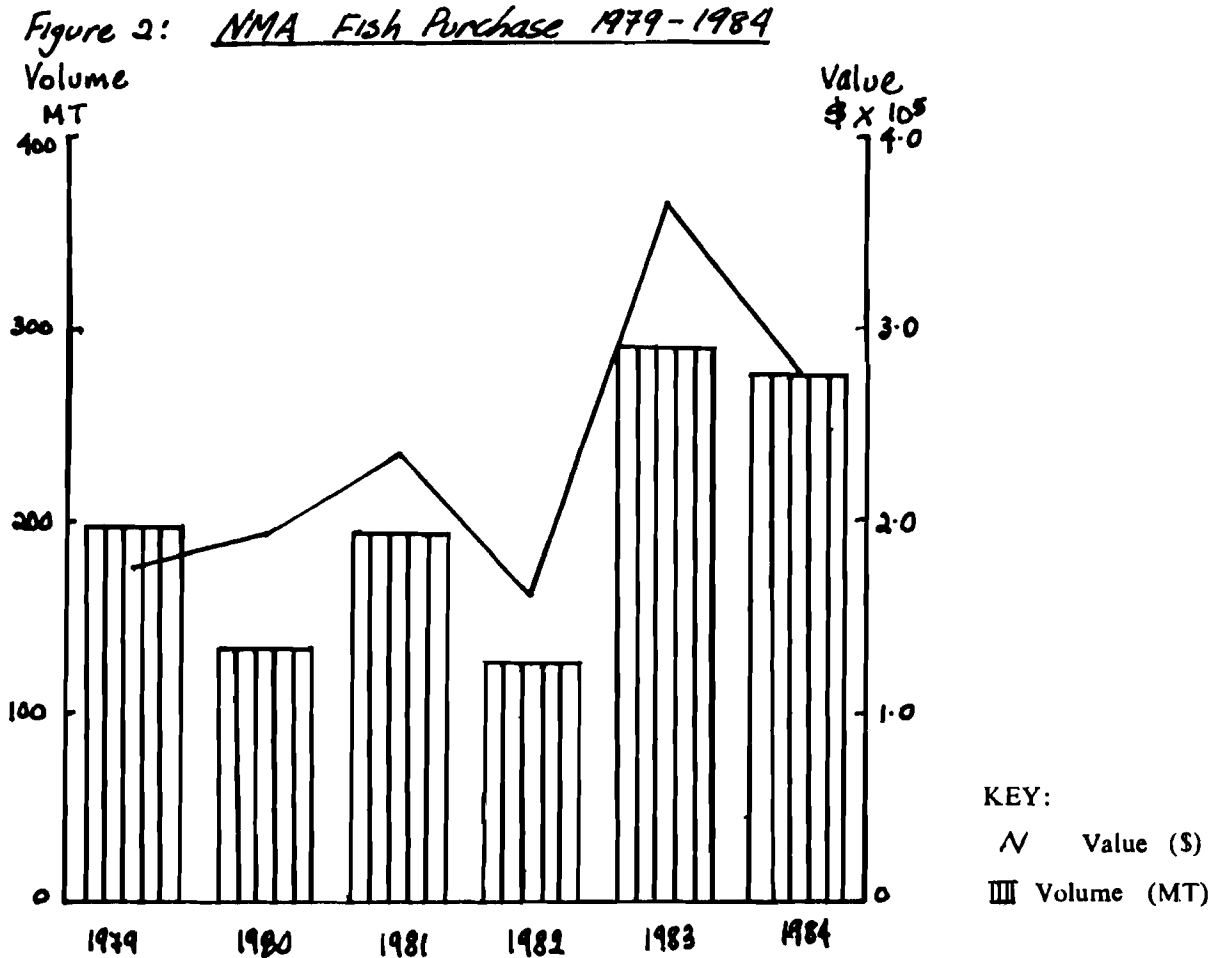
Market	Division	1983		1984		% Change	
		Weight	Value	Weight	Value	Weight	Value
Suva	C	89.25	206 168	47.81	119 525	-46.4	-42.0
Nausori	C	11.72	27 542	23.00	52 440	+96.2	+43.3
Navua	C	12.58	26 544	13.00	28 080	+ 3.3	+ 5.8
Korovou	C	4.88	8 101	5.50	9 130	+12.7	+12.7
Lautoka	W	260.13	509 855	252.91	553 844	- 2.8	+ 8.6
Ba	W	116.27	220 913	173.07	260 060	+48.9	+17.7
Nadi	W	80.63	186 256	83.44	148 032	+ 3.5	-20.5
Rakiraki	W	21.88	32 820	21.26	38 737	- 2.8	+18.0
Tavua	W	16.03	28 053	21.54	63 384	+34.4	+125.9
Sigatoka	W	17.52	35 916	22.09	39 232	+26.1	+ 9.2
Labasa	N	209.77	293 678	261.7	313 200	+24.8	+ 6.6
Total	-	840.66	1575 846	925.32	1625 664	+10.1	+ 3.2

Trends in fish sales through all municipal markets are shown in Figure 1.

Figure 1: Trends in Municipal Market Fish Sales

## 3.3.2. National Marketing Authority

Approximately 276.00 tonnes of fish valued at \$277 130 were purchased in 1984 as compared to 290.60 tonnes valued at \$365 557 in 1983. Details on fish purchases over the past six years are graphically shown on figure 2.

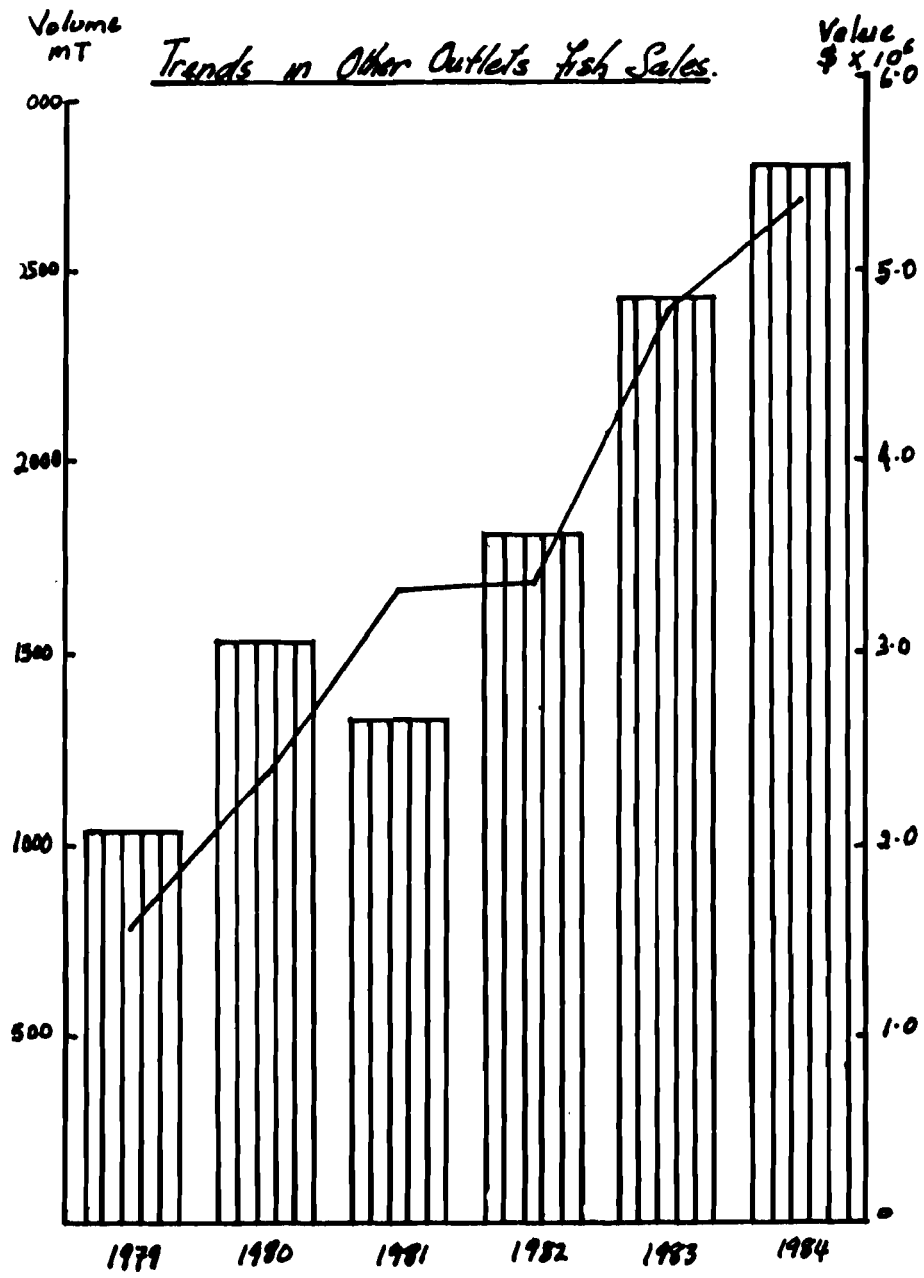


## 3.3.3. Other Outlets

As estimated 2759.00 tonnes of fish valued at \$5.44 million were channelled through the other outlets during 1984.

Sales were up by 15.5% by volume and 14.5% in value compared to 1983. Trends in throughput are shown on figure 3.

Figure 3:



KEY:

∨ Value (\$)

III Volume (MT)



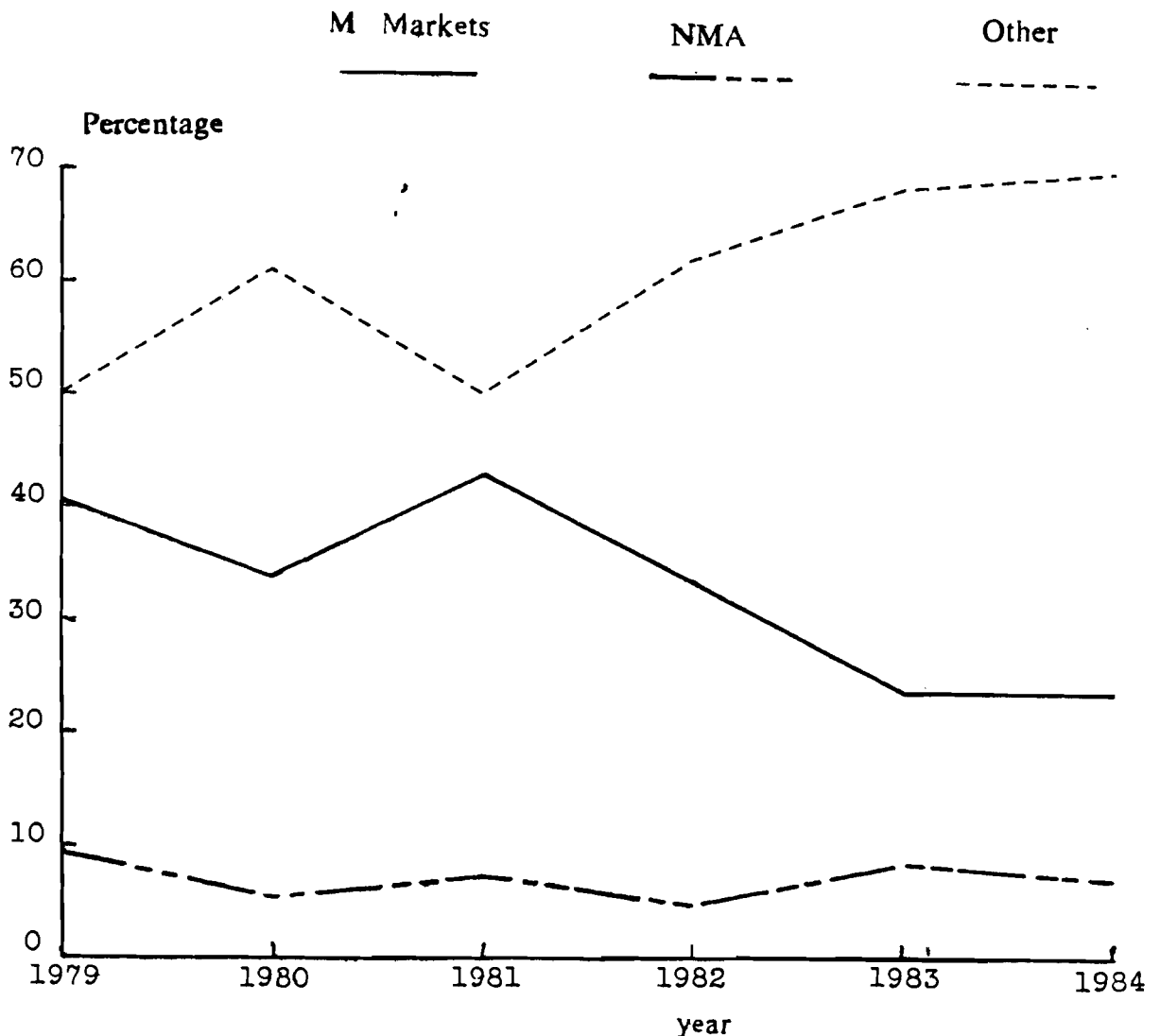
### 3.3.4. Trends in fish trade

Overall fish sold through our domestic distribution channels has almost doubled over the past six years from 2075.6 tonnes in 1979 to 3960.32 tonnes in 1980. With this upward swing in fish production, the trends in trade patterns has also changed. As can be seen in Figure 4, the general trends in fish trade showed the other outlets capturing an ever increasing share of the trade, from 50.1% in 1979 to 69.7% in 1984. In this six year period, their trade share has increased by 19.6%. The Municipal markets trade share has shown a general downward swing in favour of the other outlets, while NMA has never captured more than 10% of the trade per year for the past six years.

In the coming years, the trends for each of the groups are likely to continue with the other outlets capturing the bulk of the trade.

Figure 4:

## Percentage share in fish throughput 1979 - 1984



3.4. Sales of Aquatic non-fish Products

3.4.1. Municipal markets

An estimated 1588.0 tonnes of non-fish products valued at \$766,340 were sold through municipal markets. This showed an increase of 9.5% in volume and a 13.0% decrease in value. The decrease in sales value is due mainly to an increase in lower valued products.

3.4.2. Other Outlets

Approximately 233.40 tonnes of nonfish products valued at \$910,370 were sold through the other outlets. Compared to 1983, volume of throughput decreased by 53.6% while sales value increased by 24.3%.

3.4.3. Trends in non-fish trade

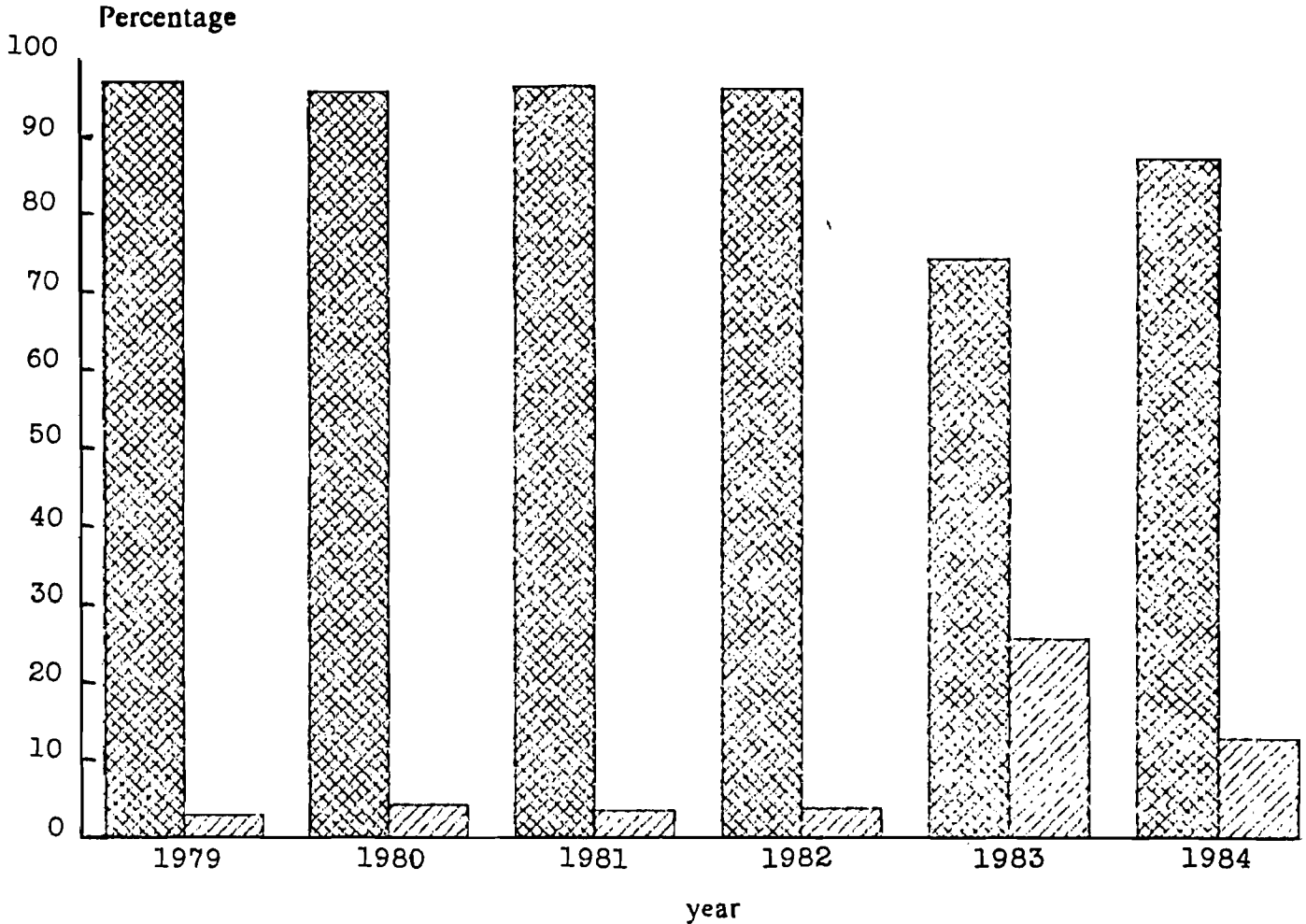
Non fish products sold through our domestic distribution channels has doubled over the past six years from 911.7 tonnes to 1821.4 tonnes between 1979 and 1984 respectively. From 1979, the Municipal markets' trade share has remained relatively stable until 1983 when its share dropped to 74.3% from 96.2% in 1982. In 1984, it again increased to 87.2%. The other outlets, including NMA have increase their trade shares over the past 2 years (see figure 5).

Figure 5:

## Trends in nonfish throughput 1979 – 1984

M Markets

Other



### 3.5. Other Fishery Products

#### 3.5.1. Trochus shell

About 340.10 tonnes of trochus shells valued at \$646,190 were exported in 1984 showing a slight increase of 1.8% in volume and 12.0% in value over 1983. Domestic first sales value realized by trochus shell collectors amounted to \$1000/tonne.

Over the past six years (1979-1984) trochus shell exports have more than doubled in volume and tripled in value. With the establishment of a button-blank factory in late 1984, the export of trochus shell is likely to decrease as raw material will be

utilized locally.

3.5.2. Mother of Pearl Shells

23.6 tonnes of mother of pearl shells worth \$84,960 were exported in 1984.

3.5.3. Smoked fish

21.30 tonnes of smoked fish were processed and sold locally for \$43,990. Compared with 1984, production was down by 40% in volume and 64.3% in value.

3.5.4. Beche-de-mer

1984 saw an increase in beche-de-mer production from 32.90 tonnes in 1983 to 53.10 tonnes. Volume was up by 61.4% while value increased by 14.3% when compared to the previous year.

3.5.5. Salted fish

Salted fish production decreased drastically from 33.8 tonnes in 1983 to 9.7 tonnes in 1984. Salted were sold locally for \$38,630.

3.5.6. Frozen fish

A total of 4.6 tonnes of frozen fish valued at \$46,000 were exported in 1984.

3.5.7. Aquarium fish

A total number of 12,866 tropical fish were exported in 1984 for an estimated value of \$24,000.

3.6 Total Fish Production

Total fish and nonfish production in 1984 amounted to 27,810.67 tonnes. Compared with the previous year, production was down by 2.9%. Further details can be found on Appendix 3 and Table 7 respectively.

Between 1979 and 1984 overall fishery production increased by an average of 15% annually with fluctuations occurring within this period.

Table 7.

Fishery Production in tonnes

Classification	1979	1980	1981	1982	1983	1984
fish	2075.60	2514.80	2649.57	2913.80	3561.67	3960.32
nonfish	911.70	998.40	1132.81	1500.26	1953.24	1821.40
rural schemes	-	14.00	79.04	99.40	143.82	121.76
subsistence	13800.00	4000.06	14200.00	14400.00	4600.00	14800.00
tuna	7070.85	8284.00	9769.81	7818.64	7859.16	6582.61
bait	84.12	47.60	110.59	144.57	114.56	95.18
Misc products	233.41	278.33	266.72	297.06	401.60	429.40
<b>Total</b>	<b>24175.68</b>	<b>26137.13</b>	<b>28208.54</b>	<b>27173.73</b>	<b>28634.05</b>	<b>27810.67</b>
% change	-	+8.1	+7.9	-3.7		-2.9

3.7. Import of Fishery Products

According to Bureau of Statistics, imports of fishery products totalled 8599.19 tonnes valued at \$10.42 million in 1984. Included in these import figures are longline tuna catches (1432.49 tonnes valued at \$1,594,310) for processing at the PAFCO cannery. Excluding longline landings, the fishery products import value amounted to 7166.70 tonnes valued at \$8.22 million. Imports were down by 8.9% by volume and 13.1% in value. Additional details can be found in Table 7(b) and Appendix 4 respectively.

Table 7(b).

Category	MT	Value (\$)
Fish Products	7115.90	7,798,872
Non-fish Products	50.80	419,430
<b>Total</b>	<b>7166.70</b>	<b>8,218,302</b>

## Summary of local fish production 1979-1984

Classification	1979		1980		1981		1982		1983		1984	
	Wgt (MT)	Value \$1000	Wgt (MT)	Value \$1000	Wgt (MT)	Value \$1000	Wgt (MT)	Value \$1000	Wgt (MT)	Value \$1000	Wgt (MT)	Value \$1000
<b>1. Fish and Fish Products</b>												
Municipal Markets	839.40	1281.00	843.90	1348.00	1122.91	2022.22	973.71	1832.67	818.34	1538.22	925.32	1625.46
NMA	195.90	177.50	133.30	172.00	192.00	234.67	136.13	160.78	270.60	365.56	276.00	277.13
Other Outlets	1040.80	1572.00	1537.60	2377.00	1305.16	2251.98	1955.76	3265.71	2360.61	4484.36	2778.00	5353.74
Smoked fish	-	-	-	-	9.85	36.85	21.50	64.50	25.82	123.13	21.30	13.97
Salted fish	-	-	-	-	9.65	41.74	26.70	80.10	33.80	141.73	9.70	32.63
Sub-total	2075.60	3020.50	2514.80	3918.00	2649.57	5586.96	2913.80	5403.76	3539.17	6652.94	3960.82	7337.15
<b>2. Nonfish Products</b>												
Municipal Markets	885.00	322.20	956.40	662.00	1093.51	714.04	1443.16	2877.10	1450.34	880.76	1547.16	766.39
NMA & other outlets	26.70	45.70	42.00	190.00	39.30	144.95	57.10	113.71	502.90	722.25	233.40	910.37
Sub-total	911.70	367.90	998.40	852.00	1132.81	862.99	1500.26	2993.01	1953.24	1613.21	1780.56	1676.71
<b>3. Rural Fishing Schemes</b>												
	-		14.00	150.00	79.04	104.99	99.40	133.32	143.82	192.03	121.76	167.00
Total	2987.30	3398.40	3527.20	4920.00	3797.27	6527.63	4505.80	8608.26	5636.23	8458.17	5862.64	9184.86
<b>4. Subsistence</b>	13800		14000		14200		14400		14600		14800	
<b>5. Cannery Production</b>												
Canned fish (ctn)	547656		339649		709622		635461		551321		592484	
Fishmeal	67615	228.98	357.25	156.88	640.15	279.33	717.50	329.67	741.40	312.84	682.18	
Fish oil	43.50	?										
<b>6. Industrial Fisheries - Tuna landings at PAFCO</b>												
Pole and Line	3445.70	167.60	2500.00		5828.27	4676.62	4444.36	3830.00	5468.92	3426.20	4572.86	3900.00
Purse Seine	-		47.00	1488.00	722.25	694.48	1006.75	812.60	1006.60	894.21	577.26	436.81
Longline	3575.15	?	5737.00		3249.29	?	2189.53	3371.00	1384.22	5581.87	1432.47	2200.00
Other (import)									(368.00)	(381.83)	(1987.35)	(1594.31)
Total	7070.85	?	8284.00	1488.00	9769.81		7818.64	8013.60	7857.14	9902.04	6582.61	6536.81
<b>7. Bait</b>	84.12		47.60		110.57		144.57		141.56		95.18	
<b>8. Exports</b>												
Shankfin	32.20	283.88	53.71	403.00	41.60	207.72	14.50	108.80	7.70	61.62	8.00	64.00
Trochus	166.49	165.13	180.00	104.00	182.73	109.64	219.10	328.65	334.10	576.77	340.10	696.19
MOP	22.79	50.22	29.40	66.00	17.05	26.42	17.10	51.10	22.30	80.28	23.60	84.96
Beche-de-mer	10.43	86.45	16.40	169.00	15.84	109.08	34.60	346.03	32.90	394.80	53.10	451.25
Frozen crab	-	-	-	-	4.10	20.41	4.26	34.08	1.50	12.00	-	-
Frozen fish - private	1.50	19.80	2.90	14.00	5.40	24.41	7.50	37.50	3.10	15.50	4.60	46.00
- PAFCO	1346.11	1162.23	3415.00	5365.44	1673.33	2870.11	543.79	773.71	492.57	574.78	633.85	674.98
Subtotal	1579.52	1761.71	3893.33	6121.44	1940.05	3307.77	840.85	1680.07	894.12	1667.75	1063.25	1962.48
Aquarium fish (no)	11436	10.33	-								12866	24.00
Canned fish (ctn)	496100	12241.75	346235	8615.58	66222	15468.10	574129	11310.00	771970	16416.06	589543	16088.54
Total		14013.79		14737.02		18775.98		12990.07		18084.44		18080.82
<b>9. Domestic canned fish sale (ctn)</b>	6063	80.483	5954	76.91	662	88.25	7691	108.86	7034	76.38	8678	116.82

Appendix 4Fish Import Statistics for 1984

	<u>Weight (MT)</u>	<u>Value (\$)</u>
1. live fish	110.487	23,161
2. fresh or chilled fish & fillet	75.697	74,883
3. fresh, frozen, chilled fish & fillet	2,231.920	2,217,862
4. fish meal for human consumption	0.087	629
5. smoked fish	1.740	10,181
6. dried, salted fish	10.523	45,672
7. crustacean & molluscs	0.076	3,071
8. chilled, frozen or salted molluscs	46.099	378,568
9. caviar & substitute	2.308	10,186
10. fish pastes	0.009	
11. other preserved fish	4,683.129	5,416,245
12. crustacean & mollusc paste	0.038	225
13. preserved crustacean or other paste	4.582	37,506
<b>Total</b>	<b>7,166.695</b>	<b>\$8,218,302</b>

3.8. Export of Fishery Products

Fishery products valued at approximately \$18.08 million were exported in 1984. About 89.0% of the revenue were sales of canned tuna while the remainder were from frozen and miscellaneous fishery products. Details on miscellaneous export products are shown on Appendix 3.

4. THE WORK OF THE FISHERIES DIVISION4.1. Market Survey

The collection of fishery trade statistics continued in the year. Data on fish and non fish volumes, species composition and prices were collected and compiled to monitor changes in patterns of supply and demand.

## 4.1.1. Municipal markets

During 1984, an estimated 930.12 tonnes of fish and 1547.17 tonnes of nonfish products were sold through the municipal outlets. Compared with the previous year, trade throughput increased by 10.1% and 6.7% for fish and nonfish products respectively.

#### 4.1.2. Other Outlets

Sales of fish through this sector were estimated at 2856.92 tonnes while nonfish products were estimated at 233.40 tonnes. Nonfish throughput was down by 53.6% while that of fish products increased by 7.8% compared with 1983.

#### 4.1.3. Species composition

The five major fish species sold through municipal markets were salala, saqa, kanace, kawakawa and kawago. These accounted for 43.6% of the total municipal market throughput.

For nonfish products, kai continued to be the most abundant commodity sold through municipal markets and accounted for 83.8% of the total throughput. Sale of this in the other outlets recorded only 14.95 tonnes.

#### 4.2. Baitfish and Tuna

Bait and Tuna data are continuously collected from pole and line vessels and compiled to monitor tuna fishing activities.

Bait catch in 1984 totalled 52,878 buckets, (approx 95.18 tonnes) from 1,092 sets in 794 nights. Lomaiviti (22.4%), Viti Levu (12.7%) Northern Vanua Levu (27.2%), and Northern Lau (15.5%), accounted for 78.0% of the total bait catch, while 22.0%, was caught in the other baiting locations.

A total of 4,355.50 tonnes of tuna were landed in 1984, using 95.18 tonnes of bait, or about 21.85 kgs of bait per tonne of tuna.

#### 4.3. EEZ Survey

A joint Fiji-Tuvalu-Japan survey of the offshore resources within the EEZ's of Fiji and Tuvalu was initiated in October 1984, using the Tuvalu pole and line vessel Te-Tautai. This work funded by the Japan International Cooperation Agency will continue for three years.

#### 4.4. Stock Assessment

Biological studies and market sampling of emperors (Lethrinidae), probably the most valuable fish family in the inshore fish catch, were concluded during 1984. Analysis of these data will provide much needed information on status of the exploited stocks.



#### 4.5. Fish Aggregation Devices

A total of 22 FADs were deployed around Fiji at water depths ranging from 64 - 1100m. The shallow water devices, deployed experimentally and at considerably lower cost, produced good catches in suitable areas. At the end of 1984, fifteen rafts were still in position. Trials around the devices by Fisheries Division staff and an SPC Masterfishermen are continuing.

#### 4.6. Deepwater Snappers

Work was confined to encouraging local fishermen to better exploit this resource and exploring the possibility of exporting snappers. Several shipments were made to Hawaii with encouraging results, and a local operator is now doing this routinely.

A three month survey of Vanua Levu was successfully carried out in conjunction with an SPC Masterfisherman.

#### 4.7. Mangrove Survey

In 1984, the Fisheries Division received 35 reclamation applications involving 526 ha. Reclamation was carried out mostly for industrial, hotel and jetty developments. Application by Division are as follows:

Division	No. of applications	Area (ha)
Central	18	207.00
Western	10	276.96
Northern	7	41.37
Total	35	525.33 ha

#### 4.8. Clam (Vasua) Survey

The Fiji module of the ACIAR Giant Clam project started in mid 1984. This international program was initiated to evaluate existing clam stocks in the region and investigate the feasibility of culture. Two major and 3 minor stock assessment surveys were made covering Vuata Ono, Vuata Vatoa and Navatu reefs, Bukatatanoa and Reid reefs, Bulia and Dravuni in the Astrolabe reef, Vanua Balavu barrier reef and Minerva reef. It was found that the abundance of clam

stock was generally low on reefs close to inhabited islands, as well as on some isolated reefs, the latter being the target areas for poachers. Work on population dynamics will be carried out over the next 2 years.

#### 4.9. Freshwater Fish

With funding from the Australian Small Grants Scheme, projects involving ika droka and eels (duna) were initiated. The former seeks to learn more of the life history of ika droka by tagging fish in the Navua and Rewa River systems. Ika droka is an important inland food fish in Fiji. Adult and particularly juvenile eels are being regularly sampled in the Rewa River to assess their potential as an export item.

Previous stockings of fish in the Monasavu and Vaturu Dams continued to be monitored; these have provided a significant new source of protein in those areas.

#### 4.10. Aquaculture Development Program

##### 4.10.1. Seaweed

The seaweed project, a joint venture between Coastal Biologicals Ltd and the Fiji Government, and funded by the Industrial Development Unit of the Commonwealth Fund for Technical Cooperation was initiated in April 1984. Of the 100kgs of seaweed stock imported from Tonga, 14 kg survived transshipment. Seaweed trials were carried out near Malake Island, (Ra) and Verata (Tailevu). Within an eight month-period, over 15tonnes of seaweed were grown from the initial stock.

During these trials it was found that seaweed was ready for harvest 11-15 weeks after planting and doubled its weight every two weeks.

##### 4.10.2. Raviravi Shrimp Project

1984 saw the expansion of the existing hatchery production capacity from 1 million to 8 million and the completion of two quarters. Three new ponds were constructed, bringing the total pond area to 24ha.

1.2 million post-larvae were produced at the hatchery in 1984. Fourteen harvests were carried out, and about 3.4 tonnes of shrimp valued at \$25,477.90 were marketed locally (\$7.50/tonne).

#### 4.10.3. Naduruloulou Station

A total of 4.5ha of pond area was added to those already existing at Naduruloulou in addition to the completion of the carp hatchery. In 1984 the station received about 110,000 grass and silver carp fingerlings from Japan. Nutrition and maturation trials were continued in an attempt to locally spawn grass carp.

Macrobrachium rosenbergii larval rearing trials continued, and in 1984, about 5,300 pLs were produced. Trials on plankton culture and artificial feed formulation were conducted. The latter were tested on M. rosenbergii and P. monodon under laboratory conditions.

#### 4.10.4. Aquaculture Extension

About 32,000 grass carp fingerlings from the batch received from Japan were released in the Rewa River and about 1,200 tilapia fingerlings were distributed to rural subsistence fish farmers.

### 4.11. Technical Services

#### 4.11.1. Boatbuilding Program

This program constructed a total of 37 twenty-eight foot vessels in 1984. Sixteen of these were allocated to students who participated in the rural fishermen training programme, while the remaining twenty one were sold to commercial licensed fishermen.

#### 4.11.2. FDB Loans

During 1984, 281 loan applications were processed and submitted. Of these 186 applications valued at \$365,691 were approved. Compared to 1983, approvals increased by 2.1% in number and 13.6% by value.

Table 8: Fishing Loans

Division	No Applications	Amount (\$)	No. Approved	Amount (\$)
Central	97	419 923	68	172 085
Western	158	305 737	101	158 243
Northern	20	45 979	12	21 933
Eastern	6	14 230	5	13 430
Total	281	\$785,869	186	\$365,691

## 4.11.3. Gear Sales

During the year, a total of \$34,428 worth of fishing gear was sold to fishermen through the Fisheries Division's five offices. Gear sales showed an increase of 40.7% over the previous year.

Table 9: Gear Sales

Station	Value (\$)
Lami	15 235
Lautoka	7 444
Rakiraki	450
Labasa	6 622
Savusavu	4 677
Total	\$34,428

Revenue from gear sales are placed on a revolving fund for further bulk purchasing of fishing gear.

## 4.11.4. Ice Sales

The division's six ice plants, including the newest installed at Taveuni produced 2,607.3 tonnes of ice in 1984. Of these, 2,528 tonnes valued at \$132,390 were used by commercial fishermen while the remaining 79.3 tonnes were issued free to Fisheries Division vessels. Overall production was up by 19.7% and revenue by 27.6% over 1983.

Table 10:

Ice Production and Sales in Tonnes

Station	Production	Free	Sales	Value (\$)
Lami	682.5	79.3	603.2	33 324
Wainibokasi	618.5	-	618.5	31 685
Lautoka	622.2	-	622.2	31 604
Labasa	527.1	-	527.1	27 855
Savusavu	87.6	-	87.6	4 512
Taveuni	69.4	-	69.4	3 410
Total	2607.3	79.3	2528	132 390

4.12. Training Information and Advisory Services

## 4.12.1. Rural Fishermen Training Program

During the year, 16 young fishermen participated in the Division's rural training program. It was found that those participants who had previous experience showed better performances. The participants were housed at the Fisheries hostel in Lami and were each allocated a 28 foot vessel at cost upon satisfactory completion of the program.

Also three one week training programs for rural fishermen were conducted in Sigatoka, Navuso and Tavua. Owing to financial constraints the Division was not able to conduct more of these short courses during the year.

4.13. Library and Information Services

Fishery related books and periodicals were made available to staff and members of the public through the Fisheries Division Library. Visuals and newspaper supplements were produced to enhance public awareness of development activities in the fisheries sector. Several extension booklets and a poster were also produced during the year.

4.14. Rural Fishing Community

## 4.14.1. Rural Fishing Schemes

By the end of 1984, the rural fishing groups produced a total of 121 tonnes of fish valued at \$169 003. Production dropped by 15.9% and revenue decreased by 12.0% compared with 1983.

4.15. Regulatory Activities

## 4.15.1. Licensed fishermen and Vessels

In 1984, 1,538 licensed fishermen and 3,816 licensed crew were involved in fishing activities utilizing 1,580 fishing vessels. The figures showed increases of 5.4% in licensed fishermen, and 4.8% in licensed crew, while the number of registered fishing vessels were about the same as in 1983. 33.7% of all the licenses issued were for outside demarcated areas.

Table 11: Licences and Vessels

Division	No. Licenses		Crew	Registered vessels
	IDA	ODA		
Central	315	262	1,739	745
Western	232	190	881	391
Northern	431	63	1,046	398
Eastern	41	4	150	46
Total	1,019	519	3,816	1,580

Apart from fishing vessels utilized by the small scale commercial fishermen, a fleet of eleven pole and line vessels, one purse seiner and six longliners exploited the tuna resources within the 200m EEZ.

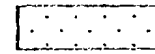
Surveillance for illegal fishing and undersized fish continued throughout the year.

# Trochus shell production 1979 – 1980

Production  
MT



Value  
\$ x 1000



(30)

