

## The Tuna Fishery of the Republic of South Africa

The Republic of South Africa has the continent's largest and most modern fishing industry. Resource problems, partly caused by extensive foreign fishing, have caused severe economic problems in the industry. The tuna fishery plays a minor role in that industry, but unlike most other fisheries it has recently undergone a dramatic expansion.

### Catch

South Africa's 1979 total tuna catch of 7,500 metric tons (t) represents only slightly more than 1 percent of South Africa's average annual fisheries catch of approximately 620,000 t. The country's small tuna fishery, however, is undergoing a rapid expansion. The catch total of 7,500 t in 1979 is a 1,350 percent increase over the 1978 catch of 500 t. Preliminary reports for 1980 suggested that the catch would be below that of 1979.

### Industry Expansion

The South African tuna industry began to expand over the last half of the 1970's. The expansion became dramatic in 1979, as prices for tuna rose and yellowfin tuna hit \$2,000 per ton in April 1979, well over the \$1,600 per ton which the South Africans consider to be the lowest price at which tuna fishing was viable.

Trawlers and purse seiners, idled by closures in other fisheries, as well as rock lobster vessels idled by falling prices for that species, were deployed in the tuna fishery. The fishermen at first chose pole-and-line fishing because the gear was inexpensive and no costly vessel modifications had to be made. The

vessels could thus easily be reconverted for use in their original fishery. Some vessels specifically designed for tuna fishing, however, were added to the fleet in 1980.

The South Africans have dramatically increased their total tuna catch since 1977. The total annual tuna catch surpassed 200 t only in 1977, when it reached 285 t. The catch doubled in 1978, reaching over 500 t. So many new entrants began fishing in 1979 that the catch increased a phenomenal 1,350 percent to almost 7,500 t (Table 1).

The species composition of the catch has changed as the South Africans have developed the fishery. The most important species caught was albacore until 1977. Albacore traditionally made up more than one-half of the total tuna catch, while skipjack and yellowfin tuna alternated as a distant second and third. The expansion of the industry has come mostly in yellowfin tuna, which jumped from a negligible catch of 6 t in 1976 to over 280 t in 1978 (Table 1). The 1978 yellowfin tuna total represented over 50 percent of that year's total tuna catch. Catch data by species is not available for 1979, but the NMFS Division of Foreign

Fisheries Analysis believes that much of the increased catch was yellowfin tuna.

South African fishermen are increasing their yellowfin catch by fishing in the region 150-200 miles south of Cape Agulhas, the southernmost point of South Africa. Large stocks of yellowfin tuna migrate to this area both in the summer and in the winter, and have traditionally been fished by Taiwanese and Japanese fishermen using longliners. South Africans first started fishing south of Cape Agulhas in 1977, but only since 1979 have they had large enough vessels and modern enough equipment to fish the winter schools. Approximately 40 vessels from South Africa, Japan, and Taiwan fished for tuna in this region in 1979 and the total tuna catch was between 1,500 and 2,000 t per month.

### Investments

South Africans have made considerable investments in the tuna fishery. In addition to the conversion of already existing vessels for use as tuna pole-and-line vessels, several new vessels have been purchased from abroad and others built in South Africa. Additional freezing equipment has been installed on the existing vessels. Processing companies have constructed ice plants, blast freezers, and cold stores on shore to support the expanding fishery. A major South African fishing publication estimated in October 1979 that approximately \$2.6 million had been invested in the tuna industry over the previous 6 months.

Table 1.—South Africa's tuna catch in metric tons, by year and species<sup>1</sup>.

Species	Catch (t)				
	1975	1976	1977	1978	1979
Atlantic bonito	5	—	4	16	NA <sup>2</sup>
Skipjack	1	—	40	90	NA
Albacore	154	35	74	126	NA
Yellowfin	18	6	167	281	NA
Total	178	41	285	513	7,483

<sup>1</sup>Source: FAO "Yearbook of Fishery Statistics," 1978, and preliminary 1979 figures.

<sup>2</sup>NA Not available.

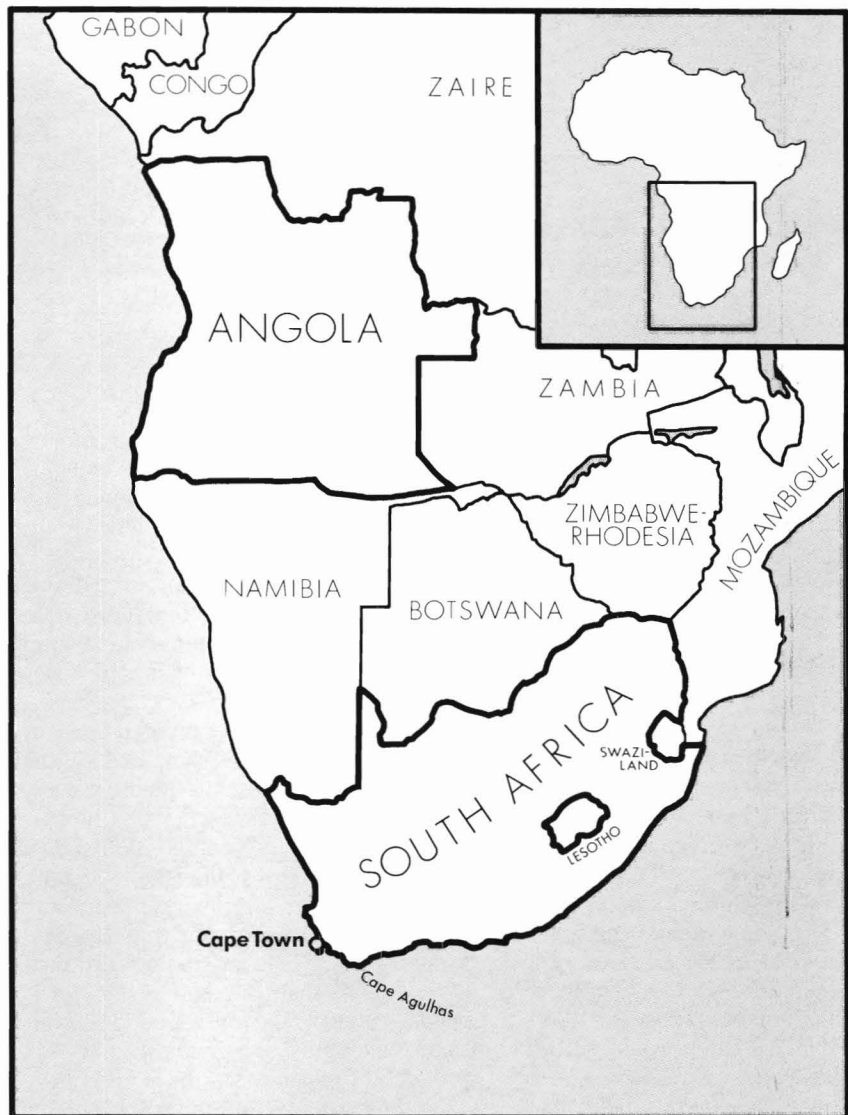
Note: Unless otherwise credited, material in this section is from either the Foreign Fishery Information Releases (FFIR) compiled by Sunee C. Sonu, Foreign Reporting Branch, Fishery Development Division, Southwest Region, National Marine Fisheries Service, NOAA, Terminal Island, CA 90731, or the International Fishery Releases (IFR) or Language Services Biweekly (LSB) reports produced by the Office of International Fisheries Affairs, National Marine Fisheries Service, NOAA, Washington, DC 20235.

Continued expansion of the South African tuna industry has implications for the country's international fishery relations. Taiwan and Japan, along with Israel, are the only countries to have signed fishing agreements with South Africa since it implemented its 200-mile Exclusive Economic Zone (EEZ) on 1 November 1977. The Taiwanese agreement, unlike the agreement with Japan and Israel, covers only tuna. Two hundred Taiwanese and Japanese vessels, many of which fished for tuna, were reported in 1979 to be fishing in South Africa's waters, but in early 1980 they were reported to be pulling out of their bases in Cape Town and other South African ports because of high fuel costs.

If the South African tuna industry continues to expand and prosper, South African fishermen can be expected to pressure their government not to renew Taiwanese and Japanese fishing licenses. The only factor which could offset this pressure is the fact that the South African Government signs fishery agreements in exchange for trade considerations in areas other than fisheries, and these considerations might be more important to the Government than the plans of South African fishermen to expand their activities.

### Prospects

Further expansion of the industry seems likely, unless 1979 proves to only represent an unusually high occurrence of tuna off South Africa. Certainly South Africa could rapidly increase its catch if stocks could sustain a significantly increased effort. South Africa's large and modern fishing industry has already demonstrated its ability to expand its activities over a short period of time, and has the capacity for considerable further expansion. In addition, South African fishing industry sources report that stocks of bigeye, albacore, and bluefin tuna are to be found in the waters west of the areas where yellowfin tuna is now being caught. These stocks, combined with those now being abandoned by the Taiwanese and Japanese fishermen, may enable South African tuna fishermen to continue the expansion of the country's tuna fishery. (Source: IFR-80/171.)



### Finland Imports and Exports More Fish

The quantity of fishery imports by Finland increased by 10 percent from 239,000 metric tons (t) in 1979 to 263,000 t in 1980. The value of these imports increased by 21 percent from US\$91 million in 1979 to US\$111 million in 1980. Imports of fish offal and fish meal increased by 9,000 t and 12,000 t, respectively.

Meanwhile, Finland's exports of fish-

ery products increased by more than 40 percent from 2,688 t in 1979 to 4,020 t in 1980, while their value increased by more than 150 percent from US\$2.7 million in 1979 to US\$6.7 million in 1980. This change was caused mainly by an increase in the exports of canned fishery products (mostly sardines) from 271 t to 881 t. Fresh fish exports more than doubled to 660 t. Eastern European nations were the largest importers of Finnish canned products. (Source: IFR-81/138.)

## The Tuna Fishery of Angola

Angola has one of Africa's most important tuna fisheries. The fishery has recovered from the economic dislocations of the civil disturbances which followed independence from Portugal in 1975 much more quickly than the other sectors of the fishing industry. It is now becoming an increasingly important part of the country's fishing industry.

### Catch

Angola's total fisheries catch dropped precipitously after independence, from a high of 470,000 metric tons (t) in 1973 to a low of 74,000 t in 1976 and had recovered to only 118,000 t in 1978. The tuna fishery, on the other hand, reached its low of 1,700 t in 1975, recovered quickly, and even expanded, so that the 1977 tuna catch of 8,600 t exceeded the preindependence record of 7,800 t reported in 1974 (Table 1). Thus, the Angolan tuna fishery rose from only 2 percent of the total fisheries catch in 1974 to 6 percent in 1978. No data is available for 1979 and 1980, but unconfirmed reports indicate that catches in October 1980 were very good.

### Vessels

Although little information on Angola is available, it seems that the resilience

of the tuna fishery is related to the fact that the tuna fleet was not as adversely affected by the 1975-76 civil disturbances as was the rest of the fishing fleet. Many of Angola's other fishing vessels were either destroyed in the 1975-76 disturbances or moved to other countries when the Portuguese left in 1975. ICCAT statistics indicate, however, that 45 Angolan tuna vessels were fishing off the country's coast in 1978, only two less than the number of vessels in the fleet during 1970 (data for the years immediately preceding the 1975-76 disturbances are not available). Thus, either the tuna fleet was not affected by the fighting or Angola has succeeded in replacing its tuna vessels.

### Foreign Fishing

The only foreign countries currently known to be catching tuna in Angolan waters are Cape Verde and Spain. An agreement with Cape Verde allows three of that country's tuna vessels to fish off Angola from October to May, when there is little tuna in Cape Verde's waters. The terms of the agreement with Cape Verde are not known, but it is believed that most of the catch is landed in Angolan ports.

Spain, whose fishermen operated off

Angola before independence, continued to fish off Angola after independence without an agreement. Some of the Spanish vessels were seized by Angolan authorities, and Spain finally concluded a fisheries agreement with Angola in June 1980. The 3-year agreement grants Spain an allocation of 12,000 t of tuna, 12,000 t of hake, and 18,000 t of shellfish off Angola, in exchange for license fees and technical assistance. The Spanish reported good 1980 catches.

Angola licensed Congo vessels to catch tuna in 1979. Apparently the Congo did not renew the licenses in 1980 and Angola seized the *Anzika*, an Italian-built vessel with a carrying capacity of 1,200 t. Angola confiscated the catch of about 100 t and the net.

### Prospects

Prospects for the Angolan tuna fishery are hard to determine. Although statistics indicate continued growth for the fishery, the dearth of information makes it difficult to determine what the future of the industry will be. At present, it can be said that the Angolan tuna fishery continues to be one of the most important in Africa, as well as an increasingly important sector of the country's fishing industry. (Source: IFR-80/178.)

## JAPAN AND FRANCE EXTEND FISH PACT

Japan and France have extended their earlier fisheries agreement on 3 July 1981 for another 13 months. The previous 15-month pact would have ended on 19 July 1981.

Thus, Japanese tuna longliners and skipjack pole-and-line vessels will be allowed to operate inside the 200-mile zone in five French overseas territories: New Caledonia, French Polynesia, Wallis Futuna, Tromelin and Glorieuses, and Clipperton. The maximum catch quota given to the Japanese for the duration of the agreement was set at 12,900 t; 490 Japanese vessels will be allowed to fish and their owners will have to pay a fishing fee of US\$541,000. (Source: IFR-81/138.)

Table 1.—Angola's catch of tuna and tuna-like species, 1973-78.

Species	Catch (t)					
	1973	1974	1975	1976	1977	1978
Skipjack tuna	1,443	3,474	652	1,514	4,036	3,501
Yellowfin tuna	603	839	55	1,005	2,085	2,296
Little tuna	970	1,287	449	10	1,326	826
Frigate and bullet tuna	1,119	1,536	535	27	198	357
Atlantic bonito	499	351	38	831	938	531
W. African Spanish mackerel	—	348	—	—	20	81
Total	4,634	7,835	1,729	3,387	8,603	7,592

Source: FAO "Yearbook of Fishery Statistics," 1978 and ICCAT "Statistical Bulletin," 1978

## The Tuna Fishery of Ghana

The fishing industry of Ghana is only Africa's eighth largest, but its tuna fishery is one of Africa's most important. Ghana's total 1978 fisheries catch was 260,000 metric tons (t), well behind Africa's two leading fishing nations, South Africa (628,000 t) and Nigeria (519,000 t). Ghanaian fishermen caught a record 20,900 t of tuna and tuna-like species in 1977, more than any other African country. Tuna seiners under construction in Norway and Italy will enable Ghana to significantly increase its tuna catch. The new vessels will also allow Ghana to shift fishing effort to the more valuable tuna species such as yellowfin and skipjack tuna.

### Fishermen

Ghana has both an artisanal and a commercial tuna fishery. Because of the importance of artisanal fishing, the Ghanaian tuna fishery is currently one of the least modern in Africa. Ghana's artisanal fishermen bring in approximately two-thirds of the country's total tuna catch. They generally fish within a few kilometers of the coast, using pirogues (small wooden canoes about 6-8 m long) and nets. These fishermen are thus dependent on finding tuna close to the coast. When climatic conditions affect the tuna's migratory patterns so they do not appear in such large numbers close to the coast, as apparently occurred in 1978, the artisanal catch can drop precipitously.

### Fishing Fleet

Ghana's small commercial fishing fleet is dominated by two companies, Mankoadze Fisheries Ltd. and the State Fishing Corporation (SFC). Mankoadze,

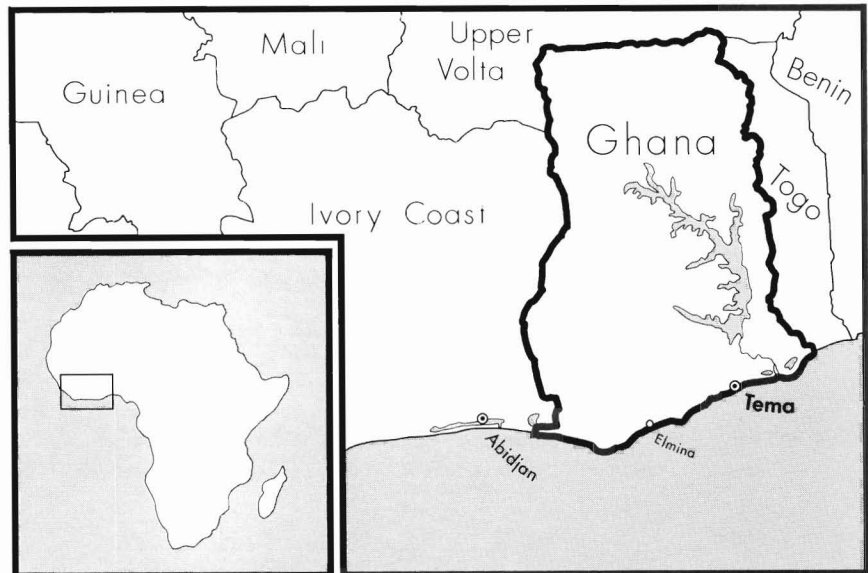
Ghana's largest fishing company, has three joint tuna ventures: One with a U.S. tuna company, one with a Japanese tuna company, and the third in conjunction with both companies.

Mankoadze's tuna fleet consists of pole-and-line vessels, tuna purse seiners, and refrigerated transports, and is currently being expanded by the addition of eight more purse seiners under construction in Norway which reportedly have carrying capacities of 800 t each. The first of these seiners<sup>1</sup>, the *Donna H*, was delivered to Mankoadze

<sup>1</sup>It is believed that these vessels are multipurpose vessels which can be employed in other fisheries.

in August 1980. The *Donna H* landed its first load of tuna, reportedly 220 t, during October and the owners were pleased with the vessel's operation. The new crew was then still being trained and it took over 12 days to unload the catch. The second Norwegian seiner, the *Stendel*, was delivered in December. Each succeeding vessel was scheduled to be delivered in 4-month intervals with all seven scheduled to be delivered before the end of 1981.

SFC, a state-owned company, has only a few tuna vessels (exact number unknown), but its tuna catching capacity was expected to be greatly expanded by the purchase of two 80 m tuna seiners with carrying capacities of 1,200 t which were constructed by the Italian shipyard Società Esercizio Cantieri. The first vessel, the *Bonsa*, was delivered in 1980 but had not then been deployed in the fishery. The second vessel, the *Via Reggio*, was also to be launched in late 1980. The Italian Government helped finance this and other projects in West Africa to assist Italian shipyards. The contract with the Italians stipulated that the design of the vessels had to conform to Lloyd's standards, so there were many expensive, sophisticated backup systems. This made the vessels expensive and also made key areas of the vessels,



such as the engine room, crowded and difficult to work in. The contract also required the Ghanaians to hire a knowledgeable firm to operate the vessels<sup>2</sup>. The Ghanaians were negotiating with a U.S. tuna company.

Ghana may have difficulties crewing such a large number of new vessels. The masters and more highly skilled positions in West African tuna seiners are frequently filled by Europeans. Foreign companies which manage West African fleets often like to employ fishermen from countries other than the country where the vessel is based. They find that the local fishermen do not like long voyages and often object to returning to sea with only a short port call. Oddly enough, crew members are often from Mali, Upper Volta, and other landlocked, but economically depressed countries. There also tend to be a lot of Malagasy crew members.

### Port

Tema, the main port of the Ghanaian fishing industry, is also the center of the country's tuna fishery. Tema's existing port, which was opened in 1960, includes 12 berths, one oil berth, a drydock, and a slipway. Ghana's two canneries are also located in Tema, and both primarily process tuna. There are several cold stores in the city which are used to hold frozen tuna for transshipment to other countries. Tema is Africa's third largest tuna transshipment center, after Abidjan and Dakar, and large amounts of frozen tuna caught by foreign fishermen pass through Tema each year.

### Catch

Ghana's tuna catch totaled 11,700 t in 1978 and consisted mainly of little, skipjack, and frigate tunas.<sup>3</sup> Catches of these species have fluctuated widely since

<sup>2</sup>The SFC has a fleet of stern trawlers, and the Italians were concerned about the number of vessels currently idled in Tema in need of repair.

<sup>3</sup>Frigate mackerel, *Auxis thazard*, and bullet mackerel, *A. rochei*, are sometimes referred to as "tunas." In this report, the FAO system has been followed, which groups the two species and West African Spanish mackerel, *Scomberomorus tritor*, with the tunas.

1976 (Table 1). Frigate and bullet tunas, traditionally the most important species caught, are taken mainly by artisanal fishermen. The catch of these species, however, was severely affected by changing migratory patterns in 1978. It is not known why the catch of little tuna increased so sharply in 1978. The increase could represent a change in reporting practices or possibly the incorrect identification of species.<sup>4</sup> No data is available for 1979 and 1980. Unconfirmed reports suggest, however, that catches have been below average in both years.

### Processing

The tuna processing industry in Ghana is small, consisting of only two canneries. Both canneries, located in Tema, are currently underutilized. One of the canneries is associated with a U.S. company which is extremely pleased with the quality of the canned product. A project to open a third cannery at Elmina, in central Ghana, was shelved

<sup>4</sup>U.S. tuna imports from Ghana increased sharply in 1978, but primarily because of increased skipjack imports, not little tuna.

by the Ghanaian Government because the existing canneries were not being fully utilized. The Government did take steps to improve the position of the canning industry by changing the country's foreign fishery regulations.

### Exports

No statistical data is available on Ghanaian exports. The NMFS Division of Foreign Fisheries Analysis believes, however, that most of the tuna canned in Ghana is exported, primarily to the European Economic Community countries. Frozen tuna is also exported or transshipped, although no Ghanaian data is available on these shipments. United States import data suggests that a large part of the Ghanaian skipjack catch is shipped frozen to the United States, although statistical analysis is complicated by the possibility that some tuna caught by foreign vessels and processed in Ghana may be included in the U.S. import data (Table 2).

### Foreign Fishing

Ghanaian Minister of Agriculture E. K. Andah has sought to change Ghanaian fishing regulations. Foreign fishermen were formerly requested to land 20

Table 1.—Ghana's catch of tuna and tuna-like species in metric tons, 1974-1978<sup>1</sup>.

Species	Catch (t)				
	1974	1975	1976	1977	1978
Little tuna	66	138	76	54	6,049
Skipjack tuna	701	5,937	8,167	4,661	2,866
Frigate and bullet tuna	6,295	5,997	4,284	14,605	1,287
West African Spanish mackerel	3,513	598	555	740	807
Yellowfin tuna	342	567	451	649	485
Bigeye tuna	—	280	664	230	185
Atlantic bonito	33	20	—	9	9
Total	10,950	13,537	14,197	20,948	11,688

<sup>1</sup>Source: FAO "Yearbook of Fishery Statistics," 1978.

Table 2.—Ghana's tuna shipments to the United States, product weight, 1977-1979<sup>1</sup>.

Item	Quantity (t)			Value (US \$1,000)		
	1977	1978	1979	1977	1978	1979
Frozen						
Albacore	2.6	59.2	—	1.2	26.1	—
Skipjack tuna	3,131.5	6,816.9	3,405.5	759.2	4,442.5	1,487.5
Yellowfin tuna	232.1	367.0	182.6	88.2	131.0	76.6
Other	426.0	745.9	146.5	140.9	564.2	123.7
Canned	—	76.2	89.5	—	182.0	246.8
Total <sup>2</sup>	3,792.2	8,065.2	3,824.0	989.4	5,345.8	1,934.6

<sup>1</sup>Source: U.S. Department of Commerce, Bureau of the Census.

<sup>2</sup>Totals may not agree due to rounding.

percent of their catch in Ghana, 10 percent as a fishing fee and 10 percent for sale to Ghanaian canneries. Government officials were negotiating new arrangements with foreign fishermen. The Government sought to impose a flat fee of \$150 per GRT, but would like the fishermen to continue selling at least 10 percent of this catch to local canneries. The Government also planned to charge foreign reefer and longline vessels \$2,000 per port call. These new regulations were expected to go into effect on 1 January 1981.

Foreign fishermen landed or transhipped 30,000 t of tuna in Ghana during 1977, the last year for which statistics are available. This level seems likely to decline in the future, if it has not already begun to do so. Ghana's new fisheries law, the Fisheries Decree of 1979, limits foreign fishing in Ghanaian waters and encourages foreign fishermen to form joint ventures with majority Ghanaian ownership. It is unclear what effect the decree has had on foreign tuna fishing activities thus far, as there were already several joint tuna ventures. It is possible, however, that the new regulations could lead to the eventual phasing out of foreign fishing in Ghanaian waters over the course of the next several years.

### Prospects

The NMFS Division of Foreign Fisheries Analysis believes that the Ghanaian tuna catch should show substantial increases by 1981 and 1982. The commercial fishery will surpass the artisanal fishery in importance as the new Norwegian and Italian seiners are added to the fleet. These new vessels will allow the Ghanaian fishermen to direct a substantially increased effort on yellowfin and skipjack tunas and become one of West Africa's leading tuna fishing nations. (Source: IFR-80/181.)

### RAFTS TESTED TO ATTRACT TUNAS

An experiment aiming to attract tuna schools with artificial drifting rafts by Japan Marine Resources Research Cen-

ter has reportedly achieved initial success. Four rafts, two made with specially designed metal tubes and two with mosho bamboo, were placed in the South Pacific last November, and fish began to congregate in February. So far, the Center-chartered purse seiner *Fukuichi Maru* (499 gross tons) caught 35 metric tons (t) in one setting, and another purse seiner, the *Nippon Maru* (999 gross tons), 123 t in three settings in the vicinity of the rafts.

The strength of the anchor line currently in use is said to limit the depth of placement of the raft to about 2,000 m, but the manufacturer reportedly claims that the depth of placement could be doubled with the use of a thicker line. The Center is reported to be planning to continue the experiment for the rest of the year.

Locations of the rafts are as follows: No. 1 raft (metal): lat. 2°S, long. 156°24'E, water depth 1,680 m; No. 2 raft (metal): lat. 2°S, long. 156°11'E, water depth 1,760 m; No. 3 raft (mosho bamboo): lat. 1°50'S, long. 156°12'E, water depth 1,700 m; No. 4 raft (mosho bamboo): lat. 1°50'S, long. 156°20'E, water depth 1,700 m. Announced catches are as follows: *Nippon Maru*, Feb. 22 (10 t), Feb. 24 (24 t), Feb. 26 (75 t); *Fukuichi Maru*, Feb. 4 (35 t). (Source: FFIR 81-5.)

Meanwhile, technicians of the Inter-

American Commission on Tropical Tuna plan to test a system based on balsa rafts for attracting tuna. The procedure is an adaptation of one the Philippine fishermen have used for many years with good results.

The rafts are made of wood and polyurethane and measure 3.6 m long by 1.2 m wide and 30 cm thick. From the bottom and sides hang old nets which, it seems, attract tuna with their undulations. On top of the raft, on a tripod, are position lights and a radar globe and reflector to prevent collisions with boats.

According to Philippine fishermen, the tuna congregate around floating objects of this type and are therefore much easier to catch. Commission technicians want to use this method to permit the capture of tuna without affecting the dolphins which usually accompany the schools.

According to the plan, five rafts will be experimentally positioned off the coasts of southern Mexico and Central America beyond the 200-mile limit and off navigational routes. The principal problem will be anchoring them in the projected areas of 2,000 fathoms (3,600 m) depth. For this, a combination of steel and synthetic cables will be attached to 200 liter drums full of concrete. (Source: LSB 81-8.)

## The Mexican Fish Meal Industry

The Mexican fisheries development policy is aimed at increasing the country's fisheries catch as quickly as possible to meet the domestic food needs of a rapidly growing population. The Department of Fisheries (DEPES), however, is becoming increasingly concerned about the effects of unrestricted fishing along the country's Pacific coast for species which will be reduced to fish meal. DEPES officials recognize that the fish meal industry has lessened the dependence of Mexico's important poultry industry on fish meal imports. Nevertheless, DEPES is concerned

about the increasing fishing effort and the utilization of such a large quantity of fish for animal feed instead of for human consumption.

Government officials and executives of the fish meal companies met under the auspices of the Comision Nacional Consultiva de Pesca (CNCP) to work out regulations for the Mexican fish meal industry. The meeting was chaired by Jose Gonzalez Pedrero (CNCP Executive Secretary) and coordinated by Narciso J. Sora Barragan (CNCP Assistant Secretary) and Adrian Roa Navarrete (Chief of the Office of Coordination

of the North Pacific). The Government and the companies reached agreement on several important matters:

1) The fish meal industry accepted the Government's policy of reserving the sardine and anchovy catch primarily for human consumption.

2) The fish meal industry agreed to gradually substitute the nonedible portion of the shrimp by-catch for the sar-

dine and anchovy that are now being reduced to fish meal.

3) The Government promised to restrict authorizations for the construction of new fish meal and oil reduction plants to protect the interests of existing fish meal and oil producing companies.

4) The Government will implement programs which will enable canners to increase production, thus making larger

quantities of offal available to the fish meal plants.

5) A study will be made concerning the feasibility of using vessels owned by the fish meal companies to supply canneries.

6) The fish meal companies will study the possibility of shifting some of their production into edible products (fish protein concentrate). (Source: IFR-81/111.)

## World Fish Meal and Oil Production

World fish meal production totaled 4.6 million metric tons (t) in 1980, a 5 percent decline from the 4.9 million t

produced in 1979 (Table 1). The decline was principally due to production shortfalls in Latin America where increased production by Chile and Ecuador did not make up for sharply reduced production in Peru. The new government in Peru is promoting the production of edible fishery products and has restricted reduction fishing. Projections for 1981 suggest that total world production will be close to 1980 levels.

World fish oil production totaled 1.1 million t (preliminary estimate) in 1980, a 10 percent decline from the 1.3 million t produced in 1979 (Table 1). Sharply reduced production in Peru, which actually had to import fish oil in 1980 for the first time in several years, was primarily responsible for the decline. Projections for 1981 suggest that world fish oil production will be near the 1980 level. (Source: IFR-81/72.)

Table 1.—World production of fish meal<sup>1</sup> and oil ( $\times 1,000$  t), 1977-81.

Continent and nation	Meal					Oil				
	1977	1978	1979	1980 <sup>2</sup>	1981 <sup>3</sup>	1977	1978	1979	1980 <sup>2</sup>	1981 <sup>3</sup>
<b>Africa</b>										
Angola	14	14	14	14	14	5	5	5	5	5
Morocco	12	21	17	16	15	6	9	4	3	3
S. Africa	176	191	170	160	160	26	47	48	50	50
Total	202	226	201	190	189	37	61	57	58	58
<b>Asia</b>										
Japan	805	845	890	850	850	180	297	317	260	275
Pakistan	17	20	20	20	20					
S. Korea	13	13	13	13	13	1	2	1	1	1
Thailand	138	145	180	200	200					
Total	973	1,023	1,103	1,083	1,083	181	299	318	261	276
<b>Europe</b>										
Denmark	337	333	334	370	350	96	79	84	80	75
Finland						4	3	4	4	4
France	18	18	20	20	20	3	3	3	3	3
Iceland	162	201	215	165	165	74	97	90	80	80
Norway	465	332	335	265	265	232	178	189	180	180
Poland	63	52	50	50	50					
Portugal	13	13	13	13	13	5	5	5	5	5
Spain	36	36	36	36	35	6	6	6	6	6
Sweden	8	7	7	7	7	5	5	5	5	5
United Kingdom	78	66	50	50	50	2	2	2	2	2
U.S.S.R.	579	580	580	580	580	76	82	82	82	82
W. Germany	49	45	45	45	45	11	13	13	13	13
Total	1,808	1,683	1,685	1,601	1,580	514	471	483	460	455
<b>North America</b>										
Bermuda	47	38	15	15	15					
Canada	50	74	62	57	57	13	8	11	10	10
Mexico	46	50	70	80	80	1	9	9	10	10
Panama	31	18	20	35	30	13	5	5	5	5
United States	303	395	387	375	360	60	134	121	141	135
Total	477	575	554	562	542	87	156	146	166	160
<b>South America</b>										
Argentina	23	23	25	25	25	5	5	5	5	5
Chile	249	369	450	480	500	58	76	109	95	95
Ecuador	83	101	76	100	100	6	10	15	21	21
Peru	497	670	683	475	500	106	129	132	60	65
Total	852	1,163	1,234	1,080	1,125	175	220	261	181	186
<b>Other nations</b>	113	110	110	105	106	10	9	3	9	10
<b>Grand total</b>	4,425	4,780	4,887	4,621	4,625	1,004	1,216	1,268	1,135	1,145

<sup>1</sup>Includes fish solubles, dry weight basis, where separately classified.

<sup>2</sup>Preliminary.

<sup>3</sup>Predicted.

<sup>4</sup>Includes South West Africa and production from factory ships.

## The EC Sets A Tariff-Free Eel Quota

The EC Council has established an eel quota of 6,800 t which may enter the EC market tariff-free. The move was made to alleviate the present shortage of supplies to European eel processors.

The primary reason for the decline in the West European eel catch is reported to be increased pollution, especially in the Federal Republic of Germany. Nearly one-third of the tariff-free quota has been allocated to German eel importers.

(Source: IFR-81/138.)