

The Tuna Fishery of the Ivory Coast

Except for tuna, the fishing industry of Ivory Coast has suffered from relative stagnation during the 1970's. The country's coast waters are heavily fished. The artisanal fisheries catch has remained stable at approximately 25,000 metric tons (t) over much of the decade. The commercial catch has also been stable, with an average annual trawl catch of about 16,000 t and an annual catch by sardine seiners of about 29,000 tons.

The only consistently expanding sector of the Ivory Coast's fishing industry has been the tuna fishery, which, despite a slight drop in 1978, has increased almost sevenfold since 1971. Not including tuna, the total annual fisheries catch of Ivory Coast has risen by only 1,200 t since 1975, from 62,000 t to 63,200 t, for an increase of less than 2 percent. When tuna is included in those figures, the industry grew by 15 percent, from 68,500 t in 1975 to 79,000 t in 1978.

Catch

Tuna fishing only began in Ivory Coast during 1971 when fishermen caught 2,000 t (Table 1). Over the course of the decade the catch had increased to 15,800 t by 1978. The biggest increase came during the 4-year period from 1973 to 1977, when the tuna catch rose by about 380 percent from 3,500 t to 16,800 t due to the addition of several new vessels to the fleet. Tuna made up nearly 75 percent of the increase in the total fisheries catch over the same period of time. No data is available for 1979 and 1980, but French and Spanish fishermen reported poor catches in 1979 off Ivory Coast. Catches in 1980 have reportedly been much better.

Species

The three main species of tuna caught by Ivorian fishermen are yellowfin, skip-

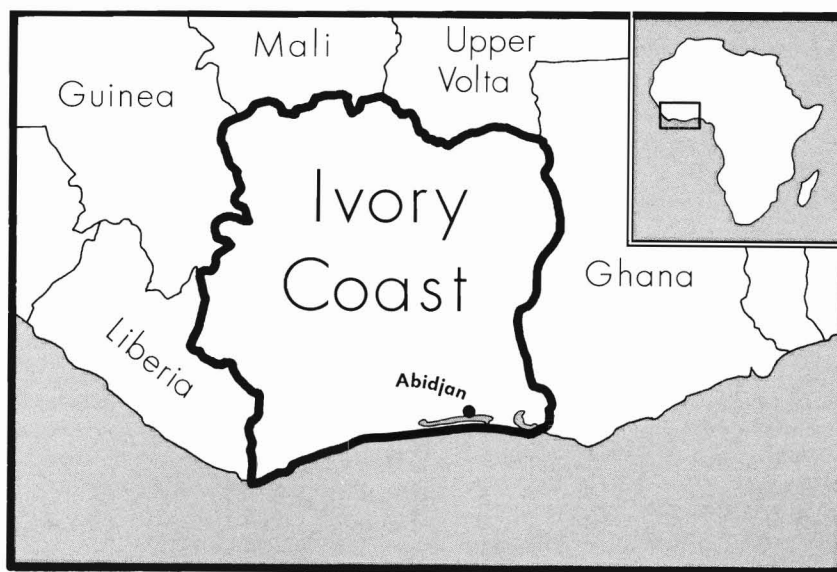
jack, and little tuna. Yellowfin tuna has consistently been the most important species caught, and catches have risen eightfold since 1971. Skipjack tuna catches have risen throughout the 1970's, but not as dramatically as yellowfin tuna; in addition, unlike yellowfin tuna, skipjack tuna catches fell in 1978, by 700 t. Little tuna, first caught in 1974, has fallen sharply since that year, and in 1978 reached a low of only 38 t (Table 1).

The Ivory Coast tuna fleet, while small, is the most modern of any African country and one of the most modern in the world. It consists of nine purse seiners with an average age of 6 years, all French-built and outfitted with onboard freezing equipment. The newest addition to the fleet, a 69 m purse seiner with a helicopter pad, was also constructed by a French shipyard. It is the sixth tuna vessel ordered by the Ivory Coast-French joint venture SIPAR (Societe Ivoirienne de Peche et d'Armement), of which the Ivory Coast Government is the majority shareholder. It was followed later in 1980 by another vessel of the same type constructed for SMGL (Scieries modernes de Grand Lahou), which had two tuna vessels. The ninth vessel in the Ivory Coast tuna fleet is operated by SCODI (Societe des Con-

Table 1.—The Ivory Coast catch of tuna and tuna-like species, 1971-78¹.

Species	Catch (t)							
	1971	1972	1973	1974	1975	1976	1977	1978
Yellowfin	1,200	2,200	2,500	3,015	4,83	7,420	10,026	10,138
Skipjack	800	1,200	1,000	2,350	3,500	3,110	6,327	5,602
Little tuna	—	0	0	1,583	860	400	413	38
Total	2,000	3,400	3,500	6,948	9,190	10,930	16,784	15,778

¹Source: FAO "Yearbook of Fishery Statistics, 1978," and preliminary 1978 data.



serves de Cote d'Ivoire), a catching and processing company.

All nine vessels in the tuna fleet are members of the French tuna fishing company, SOVETCO (Societe de Vente de Thon Congele). SOVETCO operates the Ivory Coast vessels in addition to 26 French and 3 Moroccan tuna vessels. The vessels are based in Abidjan, where most of their catch is landed or transshipped. Most of the rest is landed at Dakar, Senegal. SOVETCO markets the tuna for the Ivory Coast vessel owners, either selling it to Ivory Coast processing plants for transshipping it through Abidjan.

Processing

There are two canneries in Ivory Coast. One is operated by SCODI, the other by PFCI (Peche et Froid de Cote d'Ivoire). Both of these plants are located in Abidjan, within a few hundred meters of the fishing port facilities. The SCODI plant has a capacity of 16,000 t (live weight) per year and PFCI can process approximately 8,000 to 10,000 t per year. Almost all of the canned tuna produced by these plants is exported. The offal from the canneries is used locally for animal feed.

Fisheries Trade

Exports of Ivory Coast fishery products increased fivefold from 1970 to 1975, from \$2.6 million to \$13 million, and more than doubled from 1975 to 1978, reaching \$26 million in 1978. Tuna had, by 1978, become the most important Ivory Coast fishery export

commodity. Earlier, in the 1970's, tuna and shrimp were equally important, but tuna exports have since come to dwarf shrimp exports. Although the prices of both products rose over the 1970's, the total shrimp catch remained stable at approximately 1,100 t, while the tuna catch expanded dramatically. By 1978 tuna had come to totally dominate Ivory Coast fishery exports. Of the 16,800 t of fishery products exported in 1978, about 15,900 t (live weight) was tuna. Of the tuna, 2,600 t was exported frozen and 13,300 t was exported canned (Table 2). About 90 percent of the canned tuna exports go to France, and the rest goes to other European countries. The exports of frozen tuna are split fairly evenly between France, Italy, and the United States. United States imports of frozen tuna from Ivory Coast were, according to U.S. import data, 7,800 t in 1978, but declined to only 2,300 t in 1979. These figures do not agree with Ivory Coast export data. It is possible that the U.S. import statistics include tuna caught by non-Ivory Coast fishermen and landed in Abidjan for transshipment to the United States.

Exports of tuna are important to the Ivory Coast economy because they help offset the country's imports of cheaper frozen fish. The total annual fisheries catch of Ivory Coast satisfies only about one-half of the total demand for fish, and the rest must be supplied by imported fish. The value of these imports skyrocketed between 1970 and 1975, rising from only about \$3.5 million to \$33 million over that period. Since 1975, imports have peaked, rising by only \$2 million between 1975 and 1978 to a total of \$35 million. Adjusted for inflation, this total indicates that the level of imports has actually declined over that period. Much of the imports are ob-

tained from Soviet stern factory trawlers which operate off the coast of western and southern Africa.

Transshipment

The port of Abidjan is the most important transshipment center for tuna in Africa, and is among the most important in the world. Large cold stores and ship repair and maintenance facilities combine with a stable political situation and good weather to make Abidjan attractive to foreign fishermen. In 1975, about 76,000 t of tuna were landed in or transshipped through Abidjan. By 1978, the figure had risen to almost 100,000 t. Of that total, about 16,000 t were landed, and the other 84,000 t were transshipped. Ivory Coast officials estimate that tuna vessels make about 500 port calls annually in Abidjan. The largest fleet is that of SOVETCO, which transshipped over 40,000 t in 1978 in addition to the 16,400 t it landed in Abidjan¹. The Spanish fleet transshipped about 16,000 t through Abidjan in 1978. The remaining 28,000 t of transshipped tuna came from Korean (ROK), Taiwanese, Japanese, U.S., Senegalese, and other French vessels.

Conclusion

The Government of Ivory Coast would like to promote the continued expansion of the country's tuna industry. At least two more tuna purse seiners have been ordered, and industry sources have stated that the new vessels would enable Ivory Coast fishermen to catch 25,000 t of tuna this year. This expansion is necessary if Ivory Coast is ever to completely cover the cost of its imported fish. Expansion of other sectors of the fishing industry is unlikely. The fishery resources of Ivory Coast waters are already heavily exploited by both domestic and foreign fishermen. Attempts to expand the activities of the commercial fleet in the waters of other African countries is becoming more difficult as these countries try to expand the activities of their own domestic fleets. (Source: IFR-80-179.)

Note: Unless otherwise credited, material in this section is from either the Foreign Fishery Information Releases (FFIR) compiled by Suneo 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.

Table 2.—Quantity (t) and value (US\$1,000) of Ivory Coast exports of fishery products and canned tuna, 1976-78¹

Year	All fish		Canned tuna	
	Quantity	Value	Quantity ²	Value
1976	14,238	19,259	12,589	N/A
1977	17,193	24,341	15,860	N/A
1978	16,766	29,977	13,231	24,377

¹Source: *Bulletin de l'Afrique noire*, 2 July 1980. The data varies from export data reported by FAO but is used as it was the most recent available.

²Live weight equivalent.

¹Most of the tuna landed is the catch of the Ivory Coast vessels, but small amounts from the other vessels managed by SOVETCO are also landed for processing in local canneries.

FISHERIES AND FISH CULTURE IN ISRAEL

In 1979 the total production of Israeli fisheries increased by 398 t (2 percent) from 1978. This is the largest catch for the last 5 years, higher by 7.5, 0.9, 3.7, and 1.6 percent as compared with 1975, 1976, 1977, and 1978, respectively.

The main growth in catch was that of the pelagic fisheries (33 percent), Lake Kinneret (26 percent), and the Atlantic deep-sea fisheries (13 percent). There was a slight decline in the yields of the inshore fisheries (1 percent), trawl fisheries (8 percent), and fish ponds (5 percent). There was a fairly large drop in the quantity of pond fish marketed: 663 t (5 percent) compared with 1978. This was not due to any scarcity of fish source but rather to a lower demand for marketed pondfish species.

The per capita consumption rose from 10.3 kg in 1978 to 10.5 kg in 1979. Because the supply of fish from local sources increased only slightly, the additional demand was met by a greatly enlarged supply of imported fish: 3,163 t more than in 1978. The proportion of imported fish in the total consumption was more than 43 percent. The trend to increase imports was already evident as far back as 1975 when the ratio was 29 percent. In 1979, canned and processed fish composed almost 32 percent of the total consumption. The pondfish contribution to the total per-capita consumption dropped to 31.4 percent from 39 percent in 1978.

Marine Fisheries

The 1979 total marine catch rose by 612 t (7 percent) in comparison with 1978, though there were wide differences in the hauls of the various sources. The trawl fishery suffered a decrease of 8.5 percent (89 t) and the inshore fisheries, one of 8 percent (147 t). On the other hand, there was a marked rise in the haul of the pelagic fisheries (188 t or 33 percent) and in the deep-sea catch of the Atlantic (660 t or 12.6 percent), which together more than compensated for that of the other sources. Slightly more than 1,400 t of the total Atlantic deep-sea catch of nearly 6,000 t were sold abroad.

Fish Culture

As in the previous 2 years, the economic conditions of the fish industry continued to be critical, complicated, and frustrating for the producers. This was due to two contradictory trends. It is true that continuing advances in research, professional skill, and technology have brought about further increases in yield per unit of area. At the same time, however, the market demand for pond fish, especially common carp, has continued to drop and the cost of production, in particular the higher energy cost and water, has increased. As a result, the profitability of the fish culture industry has been severely affected and several farms (mainly small ones) have utilized their water for more profitable growth and closed down altogether.

Several farms have overcome the economic obstacles by revamping the ponds for use as irrigation reservoirs and integrating them into general farms water scheme. The water is used not only for growth of fish but also for irrigation, especially of surrounding cotton fields.

This year's yields show increased divergencies in the various farm productivity groups. The number of farms with low yields increased due to: low water supplies because of the 1979 drought; the drying-out of ponds in many farms for adaptation as large reservoirs for the integrated system; and because of the ponds in the process of liquidation.

Because of lack of statistical data relating to the pond area in 1978, it is only possible to compare 1979's results with those of 1977. The number of farms in 1979 remained 77 as in the previous year. However, two farms closed down during the year and were counterbalanced by two new farms joining the industry by adjusting their irrigation reservoirs to fish culture.

The total pond area (not including experimental stations, trout farms, and one large reservoir of 500 ha) dropped to 3,530 ha, i.e., 624 ha (5 percent) less than in 1977, and 27 percent less than in 1971, the year of maximum fish pond area. The total quantity of marketed fish decreased due to reasons mentioned above, to 12,322 t, i.e., 795 t (6 percent)

less than in 1978 and 1,132 t (8 percent) less than in 1977, the peak year for marketed pondfish.

The national average yield per ha increased by 7.8 percent from 1977 and reached 3,491 kg/ha, rising in spite of the 1979 drought and water shortage.

In reviewing the results of 1979, it is evident that the fish farming industry possesses a large and unutilized potential which could be harnessed if there were a market to absorb the production. In the meantime, there is a certain stagnation in the industry's development. (Source: LSB 81-12.)

Norway Eyes Seaweed Cultivation Prospects

The cultivation of seaweed and sea wrack can form the basis for a Norwegian industry with a range of products including gas, coal, concentrated cattle foods, food for human consumption, and a wide spectrum of chemical products, according to the Norwegian Information Service. Information on the possibilities for better utilization of seaweed is given in a report from the Foundation for Scientific and Industrial Research (SINTEF) in Trondheim. The report concludes that it would be advisable for Norway to grant resources for research and development into the exploitation of marine algae. The research workers behind the report point out that Norway has Europe's biggest resources of seaweed and sea wrack, an extensive and productive coastal area, very limited possibilities for agriculture along the coast, and long traditions within research into algae.

Seaweed is to some extent already being utilized in the production of seaweed flour and alginates which are used as thinning agents in, for example, the foodstuffs and textiles industry. Norway has 50 percent of the total world production of seaweed flour and 20 percent of alginate production. Nevertheless, this constitutes only a very modest utilization of the available resources. The report states that the reserves of seaweed are enough to provide a tenfold increase in the production of seaweed flour, and the seawrack found along the

coast can increase tenfold the worldwide production of alginates. Large-scale exploitation is, however, conditional upon the discovery of new areas of application for these products.

Despite the extensive natural resources, the researchers believe that it may be far more profitable to cultivate the algae instead of harvesting existing resources. This would make for a better control of raw materials supply and be an absolute condition for systematic processing of the plants.

Taiwan Fishes for Tuna Out of Uruguayan Port

The Taiwanese Company, China Marine Trading (CMT), manages a fleet of longliners out of the port of Montevideo, Uruguay. CMT deploys its vessels for tuna in the South Atlantic, outside Uruguay's 200-mile zone¹, though the Taiwanese have reduced their fleet in Montevideo in recent years. As many as 240 longliners were once based in Montevideo.

During 1979 and 1980 the number of CMT vessels varied from 40 to 100. CMT claimed in mid-1979 that they would have to terminate their operations in Montevideo, primarily because of increased diesel fuel prices. Uruguay reportedly increased fuel prices 240 percent between January and July 1979². CMT held talks with Venezuelan and Trinidadian officials during 1979, as low cost fuel is available in those two countries. No information is available, however, on the results of the talks.

CMT continued to operate vessels from Montevideo in 1980, however. It is believed that some arrangement was reached with Uruguayan officials to provide diesel fuel at prices near the international level, which is substantially less

¹Uruguay claims jurisdiction over tuna in its 200-mile zone and does not authorize the Taiwanese to fish within the 200-mile zone. There have been incidents, however, between the Uruguayan Navy and Taiwanese vessels attempting to fish within Uruguay's 200-mile zone. During August 1977, for example, the Uruguayan Navy seized the Taiwanese longliner *Chinan-3*. The master failed to stop when ordered to do so, and the Uruguayan Navy fired on the vessel to disable it.

²Uruguay has to import almost all of its petroleum products and has set domestic fuel prices at high levels to discourage consumption.

Table 1.—Albacore caught by Taiwanese and Korean (ROK) longliners and exported to the United States from Uruguay, 1971-October 1980.

Year	Quantity (t)	Value (\$US1,000)
1971	—	—
1972	62.5	66.5
1973	992.4	437.6
1974	585.2	258.0
1975	—	—
1976	1,585.7	699.2
1977	316.9	428.8
1978	2,654.2	4,434.0
1979	710.8	985.1
1980 ¹	1,240.7	2,904.0

¹Through October.

Source: U.S. Department of Commerce, Bureau of the Census.

than Uruguayan domestic prices. Uruguayan officials would reportedly like to keep the Taiwanese fleet in Montevideo as CMT purchases between \$5 and 7 million worth of goods and services annually.

The Taiwanese fishermen use Montevideo as a fishing base to obtain fuel and supplies, to store the catch, to exchange crews, etc. Business arrangements for CMT are taken care of by an Uruguayan company, Agentes Marítimos. CMT stations its longliners permanently in Montevideo. Crew members sign contracts for 2-year periods. The approximately 600 Taiwanese fishermen currently engaged in the fishery usually participate in 6 voyages of about 90 days during each 2-year contract period. Each vessel carries a crew of about 16 fishermen. The fishermen use longlines of about 60 km to which about 2,000 hooks are set by hand. The catch is maintained at about -35°C in the holds of the vessels.

The catch consists primarily of tuna, mostly albacore, but other tuna species such as bigeye, yellowfin, and bluefin are also taken. There is also a small incidental catch of shark, kingfish, black marlin, and various other species. The vessels usually do not return to port without a catch of at least 200 metric tons (t).

Data on the catch of the Taiwanese longline fleet³ based in Montevideo is not available. The catch is stored in private and state-owned cold stores in bond and is exported primarily to the United States. These shipments have been subject to significant annual variations. The record year was 1978 when almost

³Unconfirmed reports suggest that Japanese and Korean (ROK) longliners are also based in Montevideo.

2,700 t valued at \$4.4 million was shipped to the United States (Table 1). (Source: IFR-81/34.)

Norway Reports 1980 Fish Catch and Value

In 1980 the total catch of fish landed in the Norwegian fisheries was a good 2.5 million t round-weight, the Norwegian Information Service reports. This is 235,000 t less than in 1979 and 190,000 t less than in 1978. The total catch of pelagic fish (capelin, herring, mackerel, blue whiting, Norway pout, sandeel, etc.) constituted a little over 1.7 million t, while the cod fisheries and others resulted in a catch of about 0.8 million t round weight. Compared with 1979 this was a drop of about 10 percent for the pelagic fish and of 5 percent for cod.

The first-hand value of the total catch amounted to about 3,300 million NOK. This is about 200 million NOK more than in 1979, and more than 400 million NOK more than in 1978. The yield for the pelagic fisheries in 1980 was 985 million NOK and for cod fisheries a good 2,300 million NOK. The increase in the value of the catch was divided between 41 million NOK for the pelagic fisheries and 159 million NOK for the cod fisheries.

Russia and Japan Sign Seaweed Pact

A new agreement on the gathering of seaweed in Soviet territorial waters around Signalny Island by Japanese fishermen was signed at the Soviet Ministry of Fisheries on 25 August 1981.

Complying with the wishes of Hokkaido fishermen, the Soviets agreed to give them permission to collect tangle in the waters around Signalny Island. Under this agreement, 330 Japanese boats—the crew of each boat cannot exceed three—were allowed to gather tangle during daylight hours until 30 September 1981, beginning 25 August. The agreement also defined the area in which tangle gathering is permitted, waterways which Japan's fishing boats should use to enter the area, and other conditions. (Source: LSB 81-33.)