

Mexico's Fisheries and Their Development

The Mexican Government has proclaimed self-sufficiency in food production a primary national goal, and has made sizeable investments to achieve that objective. Serious problems in the agricultural sector, however, have forced Mexico to increase its food imports.

The rapidly growing fishing industry has been one of Mexico's few successes in expanding food production for its growing population. As a result, recent Mexican administrations have assigned a high priority to fisheries development and have made substantial investments in the fishing industry.

Catch

The Mexican Government reported a 1979 fisheries catch of 875,000 metric tons (t), a 25 percent increase over the 700,000 t caught in 1978. Preliminary statistics suggest that the 1980 catch may be about 1.0 million t (Table 1). While the actual statistics have to be treated with some skepticism, it is clear that the country's massive \$1.3 billion National Fishery Development Program (1977-82) has already resulted in a substantially increased catch of fish and shellfish. Mexico's important shrimp, anchovy, and tuna fisheries are all of particular interest to the United States.

Shrimp

Mexican shrimp fishermen caught a record 74,000 t in 1979, a 10 percent increase over the 67,300 t caught in 1978. Fishermen reported increases along both the Pacific and Gulf coasts. The Gulf increases were surprising because of the cooperative fishermen's strike in early 1979 and the Ixtoc oil spill. Some observers speculate that the

Mexican Gulf fishermen probably do not fully utilize stocks, although there is considerable debate by officials and biologists on that subject.

The Mexican Government has attempted to assist fishermen by promoting cooperatives. Many of these cooperatives are deeply in debt and have been unable to maintain payments on Government loans. The Mexican Government cancelled some debts and refinanced other debts in 1979, but told the cooperatives that in the future they would have to manage their affairs better. Some industry observers doubt that the Government will take any drastic action against the politically powerful cooperatives, but the Government fisheries development bank (Banpesca) recently did repossess several cooperative shrimp trawlers.

Many Mexican shrimp companies and cooperatives had serious economic problems during 1980 because of the weak international market for fishery products. The U.S. economic recession and high interest rates caused U.S. shrimp prices to decline in 1980. Ocean Gardens and Crest¹, the U.S.-based marketing companies of the state-owned fishing company, Productos Pesqueros Mexicanos (PPM), decided to stop selling in the U.S. market when the prices began to decline in early 1980. When the prices continued to drop through mid-1980, Ocean Gardens and Crest found themselves with large unsold inventories. As a result, PPM could not pay the cooperatives for their shrimp. Many cooperatives had great difficulty obtaining operating capital and when their shrimp was finally sold, some observers estimate that PPM's marketing practices may have cost Mexican fishermen millions of dollars. PPM has been sharply criticized by cooperative leaders and DEPES (Department of Fisheries) Director Rafful is reportedly reviewing the role PPM plays in marketing Mexican fishery products abroad. The Mexican press reports that Banpesca will in the future provide working capital to the cooperatives instead of PPM. The

Table 1.—Mexico's annual fish catch¹, 1970-80.

Year	Quantity (10 ³ t)	Percent change	Year	Quantity (10 ³ t)	Percent change
1970	351.3	+31	1976	526.3	+13
1971	399.8	+14	1977	610.8	+16
1972	426.8	+7	1978	702.6	+15
1973	449.1	+5	1979	874.9	+25
1974	401.7	-11	1980	² 1,000.0	+14
1975	467.5	+16			

¹Source: FAO "Yearbook of Fishery Statistics," 1979. The catch data cited in this table varies from previous reports issued by the NMFS Division of Foreign Fisheries Analysis because of revised FAO statistics which exclude seaweed production.

²NMFS Division of Foreign Fisheries Analysis estimate.

Ixtoc spill forced Mexican fishermen to shrimp in unfamiliar grounds not contaminated by the oil, where productive new shrimping grounds were discovered.

Data on the 1980 catch was not yet available, but preliminary reports suggested that it was about the same as the 1979 catch. The Gulf catch improved, but the Pacific catch declined. Mexico has a shrimp fleet of 3,000 trawlers and officials hope to have replaced about 300 of the oldest trawlers by 1982. Based on past experiences, however, it is likely that many of the older vessels will continue to remain active in the fishery.

Mexican officials claim that fishermen are currently harvesting the maximum sustainable yield of shrimp along both the Pacific and Gulf coasts. Mexican Pacific coast fishermen apparently are fully utilizing Pacific shrimp stocks. The Pacific fishery is Mexico's most important and accounts for about 60 percent of the country's total shrimp production. Fishermen based in Mazatlan, the most important Pacific shrimp port, reported an average annual shrimp catch of only 13 t per trawler during the 1979-80 sea-

¹Mention of trade names or commercial firms does not imply endorsement by the National Marine Fisheries Service, NOAA.

stronger 1981 market for shrimp, however, may reduce the pressure for further administrative changes in PPM.

Mexican officials have taken several shrimp management decisions which were expected to be implemented during 1981. A seasonal closure of the shrimp fishery was planned in the Gulf for the first time to allow juvenile shrimp to mature. From March to May the small juvenile shrimp can be caught migrating from coastal estuaries to deeper waters. DEPES hoped that restricting fishing during March, April, and May would allow fishermen to catch larger quantities of adult shrimp later in the year, thus increasing the yield of the fishery. DEPES is encouraging shrimp fishermen on both sides to fish for other species and PPM had raised prices for squid and finfish which were being caught by former shrimp fishermen. During January 1981, unconfirmed reports indicated that many Pacific coast cooperative shrimp fishermen decided to refit their trawlers for other species.

Tuna

The Mexican Government has given priority to the development of the country's tuna fishery which is now Latin America's most important. Catches of yellowfin and skipjack tuna totaled 30,600 t in 1980, a 13 percent increase over the 27,200 t caught in 1979. The NMFS Division of Foreign Fisheries Analysis anticipates a much larger catch increase in 1981 because Mexico almost doubled the fishing capacity of its fleet during 1980. Most of the new vessels were obtained by forming joint ventures with the owners of U.S. tuna seiners. Mexico plans to acquire eventually 66 tuna vessels of which 42 will be medium to large purse seiners with carrying capacities in excess of 750 t. DEPES officials originally projected a 1982 tuna catch of over 100,000 t and some observers are now anticipating a 125,000 t catch.

Most of Mexico's tuna fishery is currently conducted in the Pacific and landed at the port of Ensenada. The Pacific port of Mazatlan, however, is becoming increasingly important. The Mexican Government, through PPM, has decided to enter the tuna fishery. The PPM fleet of 18 vessels will be based in

Mazatlan where the company is also building a large processing complex. The Pacific will be Mexico's primary tuna ground, but a smaller fishery in the Gulf of Mexico has also been initiated. DEPES is carrying out tuna stock assessment studies in the Gulf and some private companies have already begun the fishery there. Plans call for introducing purse seiners and bait boats as well as shrimp trawlers which have been refitted for longlining. Officials believe that yellowfin, bluefin, blackfin, and skipjack tuna can be caught in commercial quantities.

The future of Mexico's tuna fishery is unclear, however, even with the planned expansion of its fleet and processing capacity. The industry will have to solve two major problems. One, Mexico will not be able to operate its growing fleet profitably if restricted to its own 200-mile zone. Tuna is a highly migratory species and there are great annual variations in tuna abundance off specific countries. In recent years tuna has been abundant off Mexico, but this situation may not be permanent. Unless Mexico is able to negotiate access to the coastal zones of other eastern Pacific nations, the Mexican tuna industry could encounter serious difficulties during the years when tuna is not abundant off Mexico.

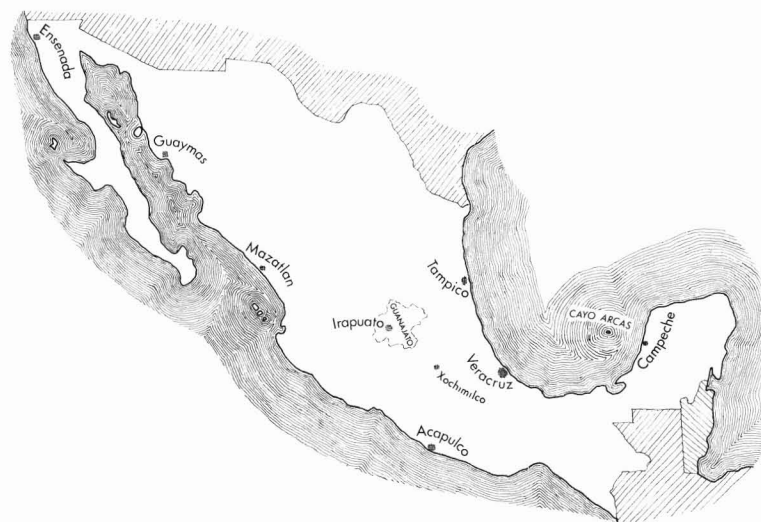
Two, the Mexican tuna industry has lost access to the world's major tuna market—the U.S. market. Until 1980, about half of Mexico's tuna catch was

imported by U.S. canneries. The United States, however, embargoed tuna imports in 14 July 1980 because Mexico seized and fined U.S. tuna purse seiners. Since the embargo, the Mexican Government has attempted to find alternate tuna markets in Western Europe. While precise details on its efforts are not available, unconfirmed reports suggest that Mexico has not been overly successful.

The loss of the U.S. market will require Mexican companies to review their expansion plans. A larger quantity of tuna could be marketed domestically and unconfirmed reports suggest that DEPES has decided to direct more of the catch to the domestic market. Domestic sales, however, are less profitable than export sales. Reliance on the domestic market would thus affect the profit margins of Mexican tuna companies.

Anchovy

Mexican Pacific coast anchovy fishermen reported a catch of 227,000 t in 1979, a 25 percent increase over the 181,000 t caught in 1978. Data on the 1980 catch were not yet available. Most of the catch is landed in Ensenada for reduction to fish meal. Mexico's northern anchovy stock is shared with the United States, but the two countries have not coordinated their management plans. Mexico has not established any catch restrictions even though U.S. fishermen based in California are strictly regulated. Many U.S. fishermen and



biologists are concerned about the current intensive Mexican fishing effort on the anchovy stocks.

Development Program

DEPES formulated an ambitious \$1.3 billion National Fisheries Development Program in 1977 whose major goal was to increase the fisheries catch to 2.4 million t by 1982. The program originally called for the construction of 8,000 vessels, but DEPES now hopes that about 13,000 new vessels will be added to the fleet by the end of 1982. Most of these vessels are small launches for artisanal fishermen, but a substantial number of larger vessels such as shrimp and finfish trawlers, tuna and anchovy seiners, snapper boats, and other fishing vessels are also being added to the fleet.

Many new vessels, especially the shrimp trawlers, are being built in Mexican shipyards, but others are imported. Fishing ports and new processing plants are being constructed all along the coast. DEPES has given considerable attention to education, and an impressive system of secondary and university education now exists for students interested in fishery careers. The program also gives considerable emphasis to aquaculture and DEPES administers aquaculture centers throughout the country where the culture of tilapia, carp, trout, and other species is promoted.

It is now clear that the ambitious 2.4 million t catch target will not be achieved by 1982. Some Congressional leaders have begun to criticize DEPES Director Fernando Rafful for the failure to meet program objectives. Rafful has had to appear before the Congressional fisheries committee twice during 1980 to answer questions about the program and respond to criticism about the growing DEPES annual budget. Even if Mexico does not achieve a 2.4 million t catch by 1982, DEPES will be able to report a significant catch increase. It is not unreasonable to anticipate a catch of about 1.3 million to 1.5 million t by 1982—an impressive achievement since it would amount to tripling the 1976 catch of only 0.5 million t.

The catch increases, however, have been primarily in small pelagic species which are used for fish meal production and in increased landings of finfish spe-

Table 2.—Mexico's fisheries catch increases projected by SAM for selected species, 1982¹. Data in 1,000 t.

Species	Catch in 1979	SAM goal for 1982
Anchovy and sardines	294.4	400.0
Tuna	27.2	125.0
Sharks	14.6	30.0
Squid	3.6	230.0
Cultured species	N/A ³	165.0
Total	N/A	950.0

¹Source: Mexican Department of Fisheries 1979 catch data are published in *Tecnica Pesquera*, January 1980. The 1982 goal data was reported by the U.S. Regional Fisheries Attache, U.S. Embassy, Mexico City.

²Excludes catch taken in U.S. Fisheries Conservation Zone.

³N/A = Not available.

cies caught incidentally by shrimp trawler fishermen. The economic viability of both fisheries is an unanswered question. Some observers believe that Mexico is currently overfishing small pelagics (especially anchovy) along its Pacific coast. While additional short-term catch increases are possible, in the long-run these stocks may not support the intensive Mexican fishing effort.

Other observers believe that the retention and marketing of the incidental catch of the shrimp trawler fishermen is not economically viable. Production of edible commodities from the incidental catch may require Government subsidies. The Government has been subsidizing PPM's multimillion dollar losses for the past several years. PPM's operating loss in 1980, for example, was about \$15 million from its existing operations. Subsidized production of edible products from the incidental catch could cause even larger deficits. The Mexican Government, however, may be willing to fund the deficit to ensure the availability of low-cost food for Mexican consumers.

Mexican Alimentary System

The fishing industry has been given an important role in the Mexican Alimentary System (SAM) which President Lopez Portillo announced in March 1980. SAM is designed to make Mexico self-sufficient in food and to improve the diet of low-income Mexicans. Government officials estimate that about 35 million Mexicans currently have substandard diets. Special attention will be given to 688 localities where the Gov-

Table 3.—Mexican fishery exports¹, 1975-78, in US\$ million. Data for 1979² and 1980 were not available.

Commodity	1975	1976	1977	1978
Edible				
Fish				
Fresh and frozen	\$ 5.8	\$ 7.9	\$ 14.5	\$ 9.6
Canned	1.1	3.0	1.1	5.3
Cured	0.3	0.3	0.3	0.5
Shellfish				
Fresh and frozen	146.4	182.6	168.8	224.3
Canned	7.0	11.4	12.3	11.0
Inedible				
Fish meal			0.2	
Fish oil	Negl.			
Total ³	160.6	205.2	197.1	250.7

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

²Mexican fishery exports to the United States totaled \$342 million in 1979. The Division of Foreign Fisheries Analysis estimates that total Mexican exports to all countries probably exceeded \$375 million in 1979.

³Totals may not agree due to rounding.

ernment has determined malnutrition to be a particularly serious problem.

SAM provides for increasing investments in the fishing industry by 25 percent annually, which is much higher than originally planned in the National Fisheries Development Program. Total investments projected by SAM are over \$6.9 billion for all food sectors. DEPES Director Rafful announced in August 1980 that SAM aims at significant catch increases of selected species by 1982 (Table 2). Some Mexican observers are skeptical that these goals can be met by 1982. DEPES is proceeding with the plans, however, and has signed cooperative agreements with 20 state governments to promote the fisheries production and consumption goals envisioned in SAM.

Trade

The value of Mexican fishery exports has increased rapidly in recent years and amounted to \$250 million in 1978, or 25 percent more than in 1977 (Table 3). Data for 1979 and 1980 are not yet available, but the NMFS Division of Foreign Fisheries Analysis believes that they will show sharp increases. (Mexico's 1979 seafood shipments to the United States alone totaled \$342 million.) Mexican seafood exports are dominated by shipments of frozen shrimp, which traditionally comprise about 80 percent or more of the value of all fishery exports. In 1977, the last year for which data by country is available, shrimp exports were 90 percent of Mexico's fishery exports.

The United States is the major market

Table 4.—Mexico's trade with the United States in edible fishery products¹, 1970-79, in metric tons².

Year	U.S. Imports	U.S. Exports
1970	42,911	4,624
1971	45,941	4,894
1972	60,639	5,215
1973	48,326	4,842
1974	47,376	5,775
1975	48,926	4,616
1976	55,407	4,164
1977	60,879	4,630
1978	65,258	5,302
1979	55,137	6,373
1980	46,156	3,881

¹Includes shrimp which is trucked across the border for processing in Mexico and then reexported back to the United States.

²Source: U.S. Department of Commerce, Bureau of the Census.

for Mexican fishery exports. The value of shipments has increased significantly in recent years and totaled \$340 million in 1979, a 50 percent increase over the \$220 million exported in 1978 (Table 3). The quantity of exports has fluctuated from a low of 43,000 t in 1970 to a high of 65,000 t in 1978 (Table 4). The most important commodity is frozen shrimp. Mexico supplied 13 percent of the value of all seafood products imported by the United States in 1979 and was the United States' second most important supplier.

Mexico would like to diversify its export markets to reduce dependence on the United States. Currently Japan is the only country besides the United States to which Mexico exports significant quantities of seafood. Mexico had hoped to increase shipments to Japan in 1980, but the weak Japanese markets for seafood made that impossible. Mexico markets from 10 to 25 percent of its seafood exports in Japan annually. Mexican officials, including DEPE Director Rafful and PPM President Jose Bellot Castro, have made several trips to Japan and Western Europe to promote fishery exports. No information on the result of these efforts is yet available.

Mexico has traditionally imported only cured fishery products (mostly dried cod) and fish meal (Table 5). Fish meal continues to be Mexico's primary fishery import commodity, even though its domestic production has increased dramatically since 1975. The Mexican Government has discouraged imports of dried cod and, since 1975, purchases of that commodity have declined sharply. Imports of frozen fish, however, have been increasing steadily and have re-

Table 5. — Mexican fishery imports¹, 1975-78, in US\$ million.

Commodity	1975	1976	1977	1978
Edible				
Fish				
Fresh and frozen	\$ 0.5	\$ 1.3	\$ 3.8	\$ 7.0
Canned	0.5	0.4	0.2	1.1
Cured	3.0	0.1	0.9	1.8
Shellfish				
Fresh and frozen	0.1	0.2	0.1	0.4
Canned	0.2	0.1	0.1	0.7
Inedible				
Fish meal	13.0	9.2	5.9	18.8
Fish oil	1.1	1.2	1.0	1.0
Total ²	18.3	12.5	12.0	30.8

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

²Totals may not agree due to rounding.

placed cured fish as Mexico's primary edible fishery import.

Mexico imports small quantities of fishery products from the United States. Shipments of edible products totaled \$35 million in 1979, but most of that total was shrimp which was trucked across the border for processing in Mexican plants and then shipped back to the United States. Actual imports are small quantities of a wide variety of products including fresh, frozen, and canned fish and shellfish. Some U.S. exporters have expressed interest in the Mexican market, but face the very restrictive Mexican import policies².

Mexican Fisheries Law

Mexico's existing fisheries law was enacted in 1972. The declaration of a 200-mile EEZ in 1976, the establishment of a cabinet-level Department of Fisheries, and the rapid growth of the fishing industry has necessitated modification of the existing law. The Mexican Congress has been studying a new law since 1977, but has yet to enact the bill drafted by DEPE. Some of the more significant subjects being studied by the Congress include the cooperatives, joint ventures, and shrimp aquaculture.

Joint Ventures

The Mexican Government has restricted foreign fishing along its coast and has encouraged foreign companies

²Additional details on Mexican import regulations prepared by FAO can be obtained from Hank McAvoy, Division of Fisheries Development, NMFS, 9450 Gandy Blvd., St. Petersburg, FL 33702.

to form joint fishing ventures with Mexican companies. Such ventures have been formed with French, Italian, Korean (ROK), Japanese, Spanish, and U.S. companies. The most important joint ventures have formed to catch and process tuna. One of these companies, Pescatun, established in 1980, acquired 10 tuna seiners which almost doubled the carrying capacity of the Mexican fleet. Other tuna ventures have been formed with French and Italian companies.

Japanese companies have formed several joint ventures which are harvesting a variety of species including black cod, sea urchins, and squid. Less successful have been joint ventures formed with Spanish and Korean companies to fish in the U.S. Fishery Conservation Zone (FCZ). The Mexican decision in December 1980 to terminate the Governing International Fisheries Agreement with the United States means that these companies will be denied access to U.S. fishing grounds. Several of the Mexican-Spanish joint ventures have already been dissolved, but others reportedly plan to fish experimentally for squid off the Yucatan Peninsula.

Shrimp By-Catch

Mexican shrimp fishermen currently report large incidental catches of finfish along with their shrimp catch estimated at 5-10 t of fish for every 1 t of shrimp. Most of this fish is currently being discarded at sea because they are either species unfamiliar to Mexican consumers or juveniles of species which could only be sold if harvested as adults. An estimated 0.4-0.7 million t of finfish is discarded annually, a quantity equal to about half of Mexico's total 1980 fisheries catch.

DEPE has been encouraging shrimp fishermen to retain more of their incidental finfish catch and has developed new products from these species. PPM has begun to market many of these new products. Unidentified fish fillets and a new minced-fish product, marketed as "Pepepez" (Joe fish), has been the most successful. PPM has been able to sell all of the Pepepez production (about 13 t per day) from its Xochimilco pilot plant and is currently building a larger plant at Irapuato in Guanajato state which

should open in 1981. PPM chose an inland site for the new plant because its location in the center of Mexico will allow easy distribution to the most heavily populated areas in the country while the plant's offal will be used for fertilizer in the agricultural state of Guanajato. If Mexico successfully utilizes even a portion of the now discarded incidental catch, it would significantly increase the quantity of low-cost fish available to Mexican consumers.

International Assistance

Mexico has received fisheries development aid from both the World Bank and the Inter-American Development Bank (IDB). The World Bank is currently considering a \$35 million fisheries development loan to the Mexican state-owned bank, Nacional Financiera and a much larger loan to Banpesca, PPM, and DEPES for various projects in Central Mexico. The IDB in December 1980 approved a \$80 million fishery development loan to Banpesca, PPM, and DEPES, which will provide \$120 million in local funding. The \$200-million project financed by this loan is earmarked for projects in southern Mexico to increase the catch of many of the species included in SAM and also includes the purchase of tuna seiners. The tuna seiners will be financed by the Banpesca funds, not by IDB funds. (Source: IFR-81/70.)

Mexican Research Vessel Needs Told

The United States conducts more marine scientific research within the claimed waters of Mexico than those of any other foreign country. Clearance requests to Mexico have averaged over 30 per year for the past few years. This research has occurred during a period when Mexico has been promoting the development of its coastal zone for both living and nonliving resources.

To protect its many interests, Mexico has developed a review procedure for all incoming clearance requests that gives each of its federal agencies the right to reject foreign research proposals, recommend changes, or attach conditions.

Mexico rarely denies a clearance request, but it does expect compliance with stated requirements and conditions. Experience shows that their clearance process requires considerable time.

The U.S. Department of State has recently consolidated and updated previous guidance and recommendations on obtaining research clearances from the Mexican Government. A copy of the 5-page Department of State report and related appendices can be obtained by requesting the attachments to IFR-81/82 ("Notice to Research Vessel Operators #63") from your local NMFS Statistics and Market News Office, enclosing a large (9 × 12 inch), self-addressed envelope with \$0.52 postage. (Source: IFR-81/82.)

The Peruvian Fish Meal Industry

The Peruvian Government has decided to end the state fish meal company's (PESCA PERU) 8-year monopoly on fish meal marketing. PESCA PERU has had the sole right to market and export all the fish meal and oil produced in Peru, both in its own reduction plants and in the plants of private companies. The change was opposed by the Ministry of Fisheries, but is required by the country's new constitution which prohibits all monopolies.

Private companies have been lobbying for some time to be allowed to market their own fish meal. As a result of the new decision, they will now be permitted to market their own fish meal and oil products once the government makes the necessary changes in the country's general fisheries law. Some companies are considering the establishment of an independent marketing channel, although they reportedly plan to coordinate their operations with PESCA PERU to avoid competitive bidding and other conflicts.

The Ministry of Fisheries is now studying the future of PESCA PERU. Some press reports indicate that it may be converted into a limited liability company, although the government would probably continue to hold a sub-

stantial interest in the company. The Ministry is also considering diversifying the company's operations.

PESCA PERU had a very difficult year in 1980. The Ministry of Fisheries restricted the use of the fish catch for reduction to promote the production of the more valuable edible products. As a result, PESCA PERU's fish meal production declined by 45 percent from 485,000 metric tons (t) in 1979 to only 270,000 t in 1980 (Table 1). The Ministry of Fisheries has strictly limited the catch of both anchovy and sardine. Anchovy stocks have been decimated by oceanographic changes and heavy fishing effort. The Marine Fisheries Institute (IMARPE) has recommended a ban on directed anchovy fishing which the Ministry has implemented. Sardine stocks have apparently also been overfished and IMARPE has recommended that fishing effort be reduced below 1980 levels.

The landings of both these species, which are the two major species processed by PESCA PERU, declined sharply in 1980 (Table 2). Continued restrictions on fishing in 1981 and the Ministry's policy of continuing to promote the production of edible products suggest that PESCA PERU's 1981 production will also be well below 1979 levels. (Source: IFR-81/73.)

Table 1.—PESCA PERU's production, 1978-80 (in 1,000 metric tons).

Commodity	1978	1979	1980
Fish meal	585.9	485.1	272.1
Fish oil			
Crude	118.3	101.5	39.7
Semirefined	74.5	110.0	76.1
Acid fats	5.6	8.0	6.2
Guano	30.0	29.1	26.3

Table 2.—Landings of species reduced to fish meal and oil by PESCA PERU, 1978-80 (in 1,000 t).

Species	1978	1979	1980
Anchovy	1,183.2	1,362.7	720.0
Sardine	883.4	664.8	430.7
Horse mackerel	274.0	18.0	56.6
Jack mackerel	36.3	2.2	6.5
Other	163.1	26.2	11.6
Total ¹	2,540.1	2,073.8	1,225.4

¹Totals may not agree due to rounding.