

Mexico Initiates New Sablefish Fishery

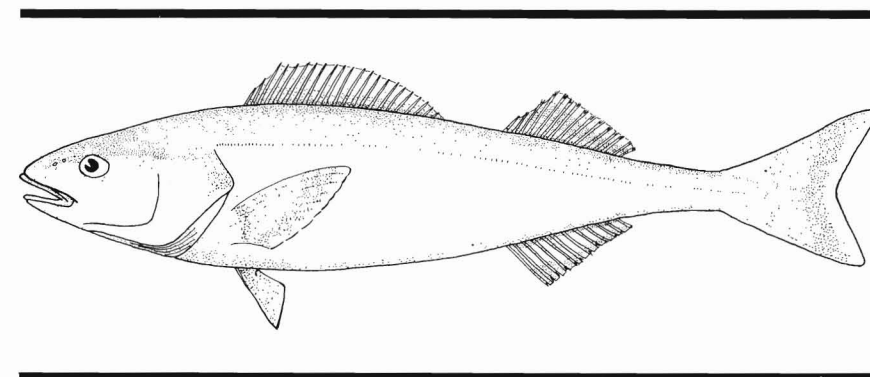
Sablefish, or black cod, *Anoplopoma fimbria*, has been discovered in commercial quantities off the coast of Baja California along Mexico's Pacific coast. The range of the species was previously known to extend from Alaska as far south as the Baja Peninsula, but it was not until 1977 that sablefish was found off the Baja coast in commercial quantities. Mexico has now initiated a new fishery for that species with the assistance of Korean and Japanese fishermen.

The Species

Sablefish is easily recognizable. It is distinguishable by its streamlined form, two dorsal fins, five teeth in patches, and more than 15 spines in each dorsal fin. The fish has black skin, white flesh, almost no bones, and only a few scales.

The behavioral pattern of sablefish is still not well understood. Fishermen, for example, report that traps on the same line, set very close to each other, frequently yield sharply different catch. Biologists cannot explain why some traps are brought up full of sablefish, while others remain empty. Biologists do know that the younger the fish, the nearer they stay to the surface. Larvae and eggs are often found in bays and inlets near the surface, 1-2-year olds dwell in depths to 150 m and adults are found from 150 to 1,200 m deep. Mature fish, however, are most commonly found in depths ranging from 400 to 800 m. Fishermen thus generally set their traps 400 to 800 m deep to obtain optimum catch.

Adult sablefish are about 55 cm long and weigh 2 kg. Juveniles and adults tend to school separately. The adults are also found in mixed schools with other species. Sablefish predators include



Sablefish, *Anoplopoma fimbria*.

halibut, other large predatory fish, and sea lions. Sablefish eat primarily wall-eye pollock, Pacific herring, grenadiers, and other small fish, as well as shrimp and squid.

In the western Pacific, sablefish range from the Gulf of Alaska south to Baja Peninsula. It was previously believed that stocks off the Baja were not adequate to support a commercial fishery. Even somewhat to the north, off southern California, the sablefish catch was only incidental to directed fisheries for other species. Full information on sablefish stocks off the Baja coast is still not available. Commercial fishing has so far been concentrated north of Cedros Island.

Migratory patterns of black cod are also not fully understood. Tagging studies by the United States, Japan, and the Republic of Korea (ROK) biologists, show that sablefish are essentially sedentary. More than 50 percent of the fish tagged during 1971-1975 were recovered near the area in which they were tagged.

Joint Ventures

The Mexican Government has promoted joint ventures with the ROK to initiate a fishery for sablefish. In 1978, the Mexican Propesca Corporation and the Korean Marine Industry Development Corporation (KMIDC) agreed on



a joint venture to deploy two vessels to fish for black cod within Mexico's 200-mile Exclusive Economic Zone. The agreement provided for 51 percent Mexican ownership and 49 percent ROK ownership. It also provided that the Korean officers and crew be gradually replaced by Mexicans upon completion of training with the ultimate end being Mexican officers and crew.

The catch must be landed and processed in Mexico. The two vessels caught 2,100 metric tons (t) worth about \$2 million in 1978. Fishing was so successful that two additional longliners were deployed by the joint venture in 1979, but information on the 1979 catch is not yet available.

Mexico has also entered into a joint venture with a Japanese company to fish for sablefish off the Baja Peninsula. The new company will be 60 percent owned by the Mexican partner and 40 percent by the Japanese partner. The joint venture is constructing 5 vessels in Japan at a cost of US\$0.8 million each.

Fishing Methods

The Mexican joint ventures apparently employ the same gear and methods as do the ROK and Japanese fishermen in the North Pacific. Each vessel carries three longlines of which two are deployed and one held in reserve. Each longline set consists of 500 concave wire baskets closely placed from 360 m to 1,250 m deep. These traps are cone-shaped and are about 60 cm high with a lower diameter of approximately 140 cm and an upper diameter of 85 centimeters. The framework is of reinforced wire rods, with 4-8 cm

mesh nylon webbing. A funnel on one side starts at full trap height, tapers to about a 10-inch opening, and extends one-half to three-fourths of the way into the trap. The floor of the trap is opened and closed by a pucker similar to that used on a purse seine.

Bait, primarily squids and anchovies, is placed in a 1-gallon plastic container. The container is perforated so that the fish can smell the bait without eating it once they enter the trap. The traps are attached to lines up to 15 km long. The lines are attached to radar-monitored buoys to assist recovery. A heavy duty winch is necessary to lift heavy wire baskets. It takes approximately 3 hours to set the longlines and the catch is recovered at the end of the day. A brine spray system is used to keep the fish chilled aboard the vessels.

Processing

The catch is landed in Mexican ports. At the dock, the fish is cleaned with wire brushes and deheaded. As soon as the fish have been cleaned, they are salted and graded by size, then frozen at -50°C . After 12-14 hours the frozen fish are transported to cold stores, where the temperature is maintained at -30°C . Sablefish is an excellent species for smoking because its flesh is oily. Mexican-caught sablefish is mostly exported for smoking. The joint venture company is experimenting with

processing sablefish in Mexico. The fish is sliced into thin fillets which are sprayed with soy sauce and frozen. Most of this product will be exported to Japan.

Developing a Market

The Mexican Government has attempted to develop a domestic market for sablefish. The Government attempted to sell the fish at greatly reduced prices (\$0.90/kg) hoping to lure potential customers. Results to date, however, have not been encouraging. Particularly popular species command high prices on Mexican markets, but so far Mexican consumers have shown no special preference for sablefish, even though it has white flesh and few scales and bones.

The joint venture is now studying the possibility of pickling the fish to make a product called "ceviche" which is popular in Mexico and would attract more Mexican consumers. The original agreement with the Koreans specified that at least 20 percent of the catch was to be marketed domestically. That percentage was to increase as the domestic demand grew. Lack of domestic demand has not allowed for an increased domestic quota. It is likely, therefore, that the primary market for sablefish will continue to be foreign countries, primarily Japan where this species is highly prized.

Sweden Gets More Baltic Sea Cod

Swedish fishermen are catching more cod in the Baltic Sea than ever before. A single fishing trip is reportedly often sufficient for catching the agreed upon amount of cod, 3,000 kg per person per week. This is a new development for the Swedish fishing industry which has been having problems for decades and has been suffering from the steady decline in the number of fishermen.

Today fishermen are earning good money and there is once again incentive for young people to enter the industry. The main problem which is now facing the Swedish fishing industry is the in-

ability of the processing plants to handle the increased volume of fish. Although the Swedish fishing quota for cod is 30,000 t annually, because of the inadequate size of the fishing fleet, fishermen won't be able to even approach this number.

The Swedish demand for cod is far exceeding the domestic supply. Only one-third of the cod consumed in Sweden is caught domestically. Thus although the Swedish fisherman earns less than 3 skr for one kilo of cod, the consumer must pay between 15 and 20 skr (US\$1 = 4.171 skr). (Source: LSD 80-14.)

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 Daily (LSD) reports produced by the Office of International Fisheries Affairs, National Marine Fisheries Service, NOAA, Washington, DC 20235.

Russia Tries Titanium in Fish Processing Machines

Soviet engineers have reportedly met with success in substituting titanium for rust-free steel in the construction of fish processing machines. The corrosion of metal caused by seawater reduces the life of machines made from steel and causes breakdowns and delays in their operation. The final product is also sometimes affected by the corrosion.

The Soviet Union's large factory ship fleet has suffered greatly from such corrosion and the use of titanium is viewed as a solution to this problem. Corrosion sensitivity of a metal can be determined by measuring the depth of the metal which undergoes change. It was found that after more than 480 days of submersion in standing water, the rust-free steel was affected up to a depth of 0.24 m, while titanium did not show any signs of corrosion whatsoever. These same results were obtained in tests of an even longer duration. The data needed to carry out a comparison between the initial cost of the titanium and the cost of repairs and maintenance which would be born by machines built from titanium have not yet been compiled, however. (Source: LSD 80-14.)

Canada Signs Fisheries Pact With Faroe Islands

An agreement on fisheries relations between Canada and the Kingdom of Denmark has been signed. The agreement was signed on behalf of Canada by Roméo LeBlanc, Minister of Fisheries and Oceans, and on behalf of the Kingdom of Denmark and the Faroe Islands by Danish Ambassador Vagen Korsbaek and Lagmand Atli Dam, Head of the Home Government of the Faroe Islands.

The agreement follows the standard form of previous agreements. It provides recognition of the Canadian 200-mile fishing zone, access to allocations of fish surplus to Canadian requirements, protection for Canadian salmon, undertakings regarding commercial cooperation concerning fish products and also recognizes the special interest of Canada in the stocks beyond

and immediately adjacent to the 200-mile limit off the Atlantic coast.

The Agreement is one of a series concluded with countries which have traditionally fished off the coasts of Canada. The Faroe Islands is a self-governing region of the Danish Kingdom which has traditionally sent fishing vessels to waters which now fall under Canadian jurisdiction.

On signing the Agreement, LeBlanc

referred to these traditional fisheries. "Faroese fishermen can be assured of a share in what is surplus to Canadian needs in our waters," he said, adding, "The Faroese have cooperated with us to establish conservation measures through NAFO, and our bilateral agreement provides a sound basis for continuing cooperation in the conservation of fish stocks in the northwest Atlantic Ocean."

Japan's 1979 Fisheries Production Down 2 Percent

Japan's annual landings of fisheries and fish culture products for 1979 totaled 10,632,000 metric tons (t) down 2 percent from the 1978 figure, according to the data released by the Ministry of Agriculture, Forestry, and Fishery. The landings by types of fishery are shown in Table 1.

The marine fisheries catch, representing some 90 percent of the total, amounted to 9.5 million t, a decline of about 10 percent from 1978. In previous years, the decreasing distant-water fisheries catch has been more than offset by increased landings from Japanese offshore fisheries. In 1979, however, this was not the case. Offshore landings decreased even more than distant-water landings, and a slight increase in the coastal catch did not compensate for the losses.

The decreasing distant-water catch reflects the continued effect of the es-

tablishment of 200-mile fishery zones by many countries where catch quotas for Japanese fishermen have been imposed. However, the rate of decline in the distant-water catch, which was as high as 20 percent in 1978, has decreased to only 3.6 percent in 1979. Significantly, the proportion of the distant-water catch taken in the U.S. fishery conservation zone decreased only marginally from 55.5 percent in 1978 to 53.9 percent in 1979, or by only 1.6 percent. It was the decline of 211,000 t in the 1979 Japanese offshore catch that contributed most to the overall decline in its marine fisheries catch.

Japan's inland fisheries catch, on the other hand, increased slightly (by 1 percent) over 1978 figures. A significant decline occurred in Japan's harvest of whales, which was 17 percent below that in 1978. (Source: NMFS Foreign Fisheries Analysis Division.)

Table 1.—Japan's fishery production by major fisheries for 1976-79 in 1,000 metric tons.

Fishery	Year				Percentage of change, 1978 to 1979
	1976	1977	1978	1979	
Marine					
Distant-water	2,949	2,657	2,132	2,056	-3.6
Offshore	4,656	4,924	5,559	5,348	-3.7
Coastal	2,000	2,107	1,990	2,116	+6.3
Aquaculture	850	861	917	880	-4.0
Total	10,445	10,549	10,599	9,521	-9.8
Inland					
Aquaculture	77	82	90	94	+4.4
Other	124	126	138	136	-1.4
Total	201	208	228	231	-1.3
Grand Total	10,656	10,757	10,827	10,632	-1.8
Whales	9,632	9,299	5,924	4,918	-16.9

Source: U.S. Regional Fisheries Attache American Embassy, Tokyo.