

Nova Scotia Studies Joint Fishery Ventures

Nova Scotia's Fisheries Minister, Dan Reid, led a 10-member fisheries trade delegation in June 1977 to West Germany, Poland, Czechoslovakia, the Soviet Union, and Finland to explore the possibilities of cooperative fishery arrangements with these countries. Nova Scotia's Department of Fisheries has called the trade mission a great success with regard to its two main aims: 1) assessing the degree of interest in cooperative fishing arrangements, and 2) examining the market potential for Canadian fishery exports to Europe.

Reid claims that cooperative fishing ventures are currently the only way for Nova Scotia to take advantage of the opportunities created by the extension of the 200-mile fisheries jurisdiction until Canada develops further its own harvesting and processing capacity. On the other hand, Federal Fisheries Minister Romeo LeBlanc viewed the activities of the trade mission with something less than unbridled enthusiasm. Noting that very few cooperative fishery arrangements have been approved so far, LeBlanc stressed that the first priority of the Government's fisheries policy should remain the recovery of stocks from years of overfishing by both domestic and foreign fishermen. He also said that he doubted that joint fishery ventures between Nova Scotia and European countries would be truly beneficial to the Province. (Source: IFR-77/125.)

According to the NMFS Office of International Fisheries, LeBlanc's policy of discouraging joint fishery ventures appears to be running into increasing resistance, especially in Canada's Atlantic provinces. Not long ago Newfoundland initiated a joint venture arrangement with the West Germans involving an allocation of 6,000 t of northern cod, to be caught off the coasts of Labrador and northern Newfoundland, which the West German trawlers would land in Canadian ports for processing before transporting them back to Europe.

In the case of Nova Scotia, there is no detailed information on the specific

grounds and species which would be involved in the proposed joint ventures. The Federal Government's overall fisheries policy emphasizes conservation of depleted resources even more in the waters off Nova Scotia and in the Gulf of St. Lawrence than off Newfoundland, especially in Nova Scotia's northern shelf, and, for this reason, LeBlanc's negative reaction to the Nova Scotian trade mission is not surprising.

The dangers of joint ventures, which are more evident to the Federal Government than to the Provincial Fishery Ministries and to the local fishery spokesmen, are twofold: 1) the possibility that the joint ventures would invalidate the Government's efforts to reduce dramatically foreign fishing in Canadian waters and delay, or even prevent, the rebuilding of depleted fishery stocks, and 2) the threat that, if the joint ventures are not set up carefully enough, it could be difficult to terminate them when they are no longer necessary.

This last consideration is crucial because, although everyone seems to agree that Canada will possess, in the distant future, the capacity to increase considerably its fisheries catch, there are sharp differences of opinion over priorities in the interim, or transitional, period. The Federal Government has placed strong emphasis on a stabilization of the fishing effort by greatly reducing foreign fishing to enable the depleted stocks to recover, while some people in the provinces feel that, with the introduction of the 200-mile zone, the problem of foreign fishing has been solved and that Canada should seek to take advantage of its jurisdiction over marine resources as quickly as possible. Since Canada's fishing fleet still consists, for the most part, of small and medium-sized vessels, the easiest and least expensive way to increase harvesting capacity over the short term is through joint ventures with foreign companies.

The willingness of fishery officials in Nova Scotia to explore opportunities

for joint fishery ventures with Europeans is all the more understandable when one considers the significance of the fishing industry in the economy of that Province. The fishing industry employs directly about 16,000 people and in 1975 contributed 6.6 percent of the total net value of the province's output. Even more important is the fact that Nova Scotian fishermen in 1975 landed 35 percent of Canada's total fisheries catch, assuming first place which was previously held by British Columbia. In 1976, Nova Scotia's fishery landings totaled 353,000 t, a decline of less than 1 percent from 1975.

Fishery officials in Canada's Atlantic provinces are extremely enthusiastic about the future of Nova Scotia's fishing industry. At a conference dealing with Canada and the 200-mile zone held at Mount Allison University in early March 1977, John Marsters, Director of Industrial Development for Nova Scotia's Fisheries Department, said that he expected Nova Scotia's fisheries catch to triple by 1985, reaching 900,000 t or more. At the same conference, H.D. Pyke, a former member of the International Commission for the Northwest Atlantic Fisheries (ICNAF) and a Canadian representative at the United Nations Law of the Sea Conference, stated that regulations designed to encourage joint ventures between Canadians and foreign fishing fleets should be enacted immediately. According to Pyke, joint fishery ventures would be a means of solving the basic problem in Canada's Atlantic coast fishing industry, namely, a lack of adequate investment capital.

Several other persons have supported the point of view that, since Canada now has control over its fishery resources, steps must be taken immediately to modernize the industry's harvesting and processing capacity. A common argument is that since Canada already imports most of its fishing gear, vessel engines, and electronic equipment from Europe, joint ventures would be little more than a means of importing large freezer trawlers as well. Reid told *World Fishing* in April, for example, that the Canadians ". . .

don't have . . . factory trawlers . . . that European nations have and we're very much looking forward to getting into that game."

It is still not entirely clear what, if anything, will come out of Nova Scotia's trade mission to Europe. In a more basic sense, it is not at all certain what Canada's policy toward joint ventures in the fishing industry will be. In spite of the evident differences of opinion between the Federal Government and the provinces over short-term priorities in fisheries policy, it appears that both have second thoughts on the question of joint fishery ventures. LeBlanc, who is basically opposed to them, admits that, if properly controlled, joint ventures could be useful tools for gathering information and exploring new fisheries. On the other hand, those in favor of cooperative arrangements with foreign fishing companies concede that Canada must proceed carefully. Pyke, for instance, stresses that in any joint fishery venture the foreign share of ownership should be something less than 49 percent. Reid, who led the Nova Scotian delegation to Europe, added in his interview with *World Fishing* that he would encourage foreign investment in fish processing plants and freezer trawlers on the condition that a percentage of the profits be reinvested in the Canadian fishing enterprises rather than repatriated.

Nova Scotia Ponders Swordfishery Opening

Nova Scotian fishery officials have been active in recent months trying to win the approval of the Federal Government in Ottawa for a reopening of the provincial swordfishery. According to press reports, Nova Scotia's Minister of Fisheries, Dan Reid, who is a physician, has persuaded Ottawa to support the marketing of swordfish in packages carrying warnings that continuous and heavy consumption could be harmful to one's health.

The Provincial Deputy Minister of Fisheries, John Mullally, has also indicated that Nova Scotian fishermen are irked by the presence of U.S. fishermen fishing for swordfish off the coast of

Canada. More recently, Mullally has stated that he expects the Canadian Government to decide on whether to permit a reopening of the swordfishery by the end of the summer.

Among health officials in the United States and Canada, the major issue is the hazard resulting from the high mercury content of swordfish meat. In 1970, the U.S. Food and Drug Administration and Canada's Food and Drug Department prohibited interstate and interprovincial marketing of swordfish, but in the United States, where individual states have a certain autonomy in health matters, some states (Massachusetts, Maine, New York, and New Hampshire) have allowed their own fishermen to land and market swordfish.

On the Canadian side, C. M. Blackwood, Director General of the Industry Services Directorate in the Fisheries and Environment Department, has stated that he was optimistic that his Government would soon approve the reopening of the swordfishery and mentioned that efforts had been made to win the permission of U.S. health authorities for Canadian exports of swordfish to the United States.

Attempts to raise the issue of reopening the Canadian swordfishery began at least as early as the end of 1974 when Fisheries Minister Romeo LeBlanc was questioned in Parliament about the possibility of reestablishing the swordfishery and was urged to begin talks with U.S. officials on a resumption of swordfish exports to the United States. In 1975, food technologists in Nova Scotia tried various means of lowering the mercury content of swordfish products to an acceptable level, or below 0.5 ppm.

One method was the production of a fish spread consisting of one part swordfish and three parts silver hake, while further experiments were planned for the use of swordfish meat in other products, for example, fish sausage. The major obstacle to commercial development now appears to be the high cost of fishing for swordfish rather than the health hazards caused by mercury contamination. (Sources: U.S. Consulate General Halifax; U.S. Embassy, Ottawa; "Report of the Department of

Fisheries" (Nova Scotia); IFR-77/131.)

Canadian Fish Vessel Subsidies Tightened

Federal subsidies for construction and changeover of fishing craft will be more selective in 1977-78 and will emphasize helping owners of older vessels, Roméo LeBlanc, Minister of Fisheries and the Environment, has announced.

This year's \$2.6 million program will subsidize replacement of only the oldest vessels in three fleet sectors: 1) Atlantic region vessels 30-45 feet overall length and 10 or more years old. (A high proportion of these are lobster boats and groundfish boats.) 2) Atlantic region vessels of 60-65 feet overall length and 16 or more years old. (This part of the program will apply particularly to the Gulf of St. Lawrence, where this fleet sector is older than elsewhere and has recently faced difficult times. Available funds permit construction subsidies for no more than eight vessels of this class, and will be allocated to replace six Gulf-based boats of the bordering provinces and two based outside the Gulf.) 3) In Ontario and the prairie provinces, vessels 16-45 feet overall length and 10 or more years old. (The minimum size is lowered from the previous 20 feet.)

"We have long discontinued the scatter-gun approach to boat subsidies," LeBlanc said. "Our funds are limited, especially in view of the amount we have spent on emergency assistance to many fisheries where fleet build-up accompanied stock declines. Now we concentrate available boat-building money where it will do the most good."

The Department of Fisheries and the Environment (DFE) handles subsidies only for vessels up to 75 feet; these subsidies assist conversion and modification of vessels as well as construction. The Department of Industry, Trade, and Commerce deals with subsidies for larger vessels.

Adjustments to the DFE program follow an analysis of the smaller-vessel fleet's age and adequacy. For most fish-

eries, this fleet has more than enough capacity. On the Pacific coast in particular, construction subsidies have already stopped entirely. The Federal Government's first intention is, by good use of the 200-mile limit and by other measures, to help the existing fleet make a profit.

Of the \$2.6 million in this year's program, vessels approved for assistance last year but uncompleted at the beginning of the new fiscal year will take a carry-over commitment of \$650,000. For subsidies from the remaining funds, major conditions are listed below.

For construction of replacement vessels (35 percent subsidy; available funds \$1.6 million), the proposed vessel must be: 1) no less than 60, no more than 65 feet, or 2) no less than 30, no more than 45 feet, or 3) in the freshwater fisheries, no less than 16, no more than 45 feet overall. The vessel plans and specifications must meet the requirements of the Department of Transport and the DFE. If the vessel is intended for use in a limited-entry fishery (such as salmon, lobster, herring (except gill-net), snow crab, scallops), it must also be employed in at least one open fishery. The vessel must be intended to replace an existing vessel of the minimum ages noted above, or to replace a total loss. The application for subsidy must be made and approved before construction of the vessel starts. The vessel must belong to a Canadian citizen or corporation. And, the vessel must be built in Canada.

For conversion or modification (available funds \$310,000), eligibility is determined by a set of conditions much like the above; these can, however, change as circumstances in the various fisheries change.

CANADA SUBSIDIZES SALT FISH INDUSTRY

A \$400,000 program to support the price of this year's trap-caught small codfish sold by fishermen for salting, has been announced by Fisheries Minister Roméo LeBlanc. The program, funded under the Fisheries Prices Support Act, applies to codfish landed in

Newfoundland or Quebec's Lower North Shore within the purchasing area of the Canadian Saltfish Corporation.

The need for the federal government's action has arisen due to the fact that this year the price for most codfish to be salted (i.e., those 16-24 inches long) has dropped by 2 cents. On the other hand, the price of cod for processing as fresh and frozen products has risen by more than 2 cents to record levels. Last year the prices for both salt and fresh and frozen categories were at competitive levels.

Faced with this situation, processors of salt cod encountered a season of drastically reduced production, with loss of the only alternative market to fishermen and loss of employment in dependent communities. To help maintain the 1976 price level, the government, through the Fisheries Prices Support Board, began making deficiency payments at the rate of 2 cents per pound on small trap-caught codfish sold by Newfoundland and Quebec Lower North Shore fishermen to processors of cured fish. Payments were to be made to fishermen through the Canadian Saltfish Corporation.

Krill Work Reported By Germany and Chile

The Federal Republic of Germany has invested nearly \$5 million in two vessels, the *Walter Herwig* and the *Weser*, for krill exploration in the Antarctic, according to a report in *Industria Conserva*. These vessels have reportedly caught up to 30 tons (t) of krill per hour. European scientists do not agree on the abundance of this species in the Antarctic. Estimates of the maximum sustainable yield range from 60 to 600 million t. The mission of the two German vessels is to determine the abundance, population dynamics, and the best method of catching krill.

Commercial processing of krill remains a problem. Soviet scientists have tried to solve the problem by producing an edible paste. However, their efforts have not been entirely successful. German experts have been experimenting with a machine to make a protein juice. The ideal solution reportedly

would be a technique for peeling krill without mashing it so its meat could be used. This has not yet happened.

The Government of Chile received from the Director of the Institute of Fishery Conservation a program for krill resource research 2 years ago. Following this, two research expeditions have been conducted: by PAM *Valparaiso* (15 Jan.-15 Apr. 1975); and by PAM *Arosa Septimo* (28 Apr.-22 June 1976). These expeditions, using technology developed by Chilean scientists, were reportedly quite successful. Their findings are summarized below.

1) In the 50,000 square miles searched, a great abundance of krill is easily accessible for fishing using available gear and methods.

2) Experimental fishing brought an average krill catch of 10 t per hour, with some catches ranging up to 30 t per hour.

3) Good results were achieved using mechanized methods of peeling the krill tails, both on board and ashore.

4) The process of obtaining krill meat (pulp) yielded 43 percent (of the ex-vessel weight of krill). The pulp can be used for minced-type products, such as croquettes and fish sticks.

5) A paste has been obtained which can be used as raw material for products such as spreads, cheeses, and soups of high nutritional value. Both the pulp as well as the paste can be used to produce a great variety of food products for the development of diets and meat substitutes of consumers.

6) Krill waste products present a basis for research in fish meal and powder production for animal feed.

Russia, Angola Sign Fisheries Protocol

A delegation from the People's Republic of Angola, headed by the Minister of Fisheries Victor de Carvalho, arrived in the Soviet Union on an official visit earlier this year, according to a report in *Vodnyi Transport*. The delegation visited the fishery enterprises of Leningrad, Tallin, Riga, Kaliningrad, and Moscow.

On 26 March a protocol was signed during the first session of a joint

Soviet-Angolan commission on fishery cooperation. The Soviet Union will aid in developing the fishing industry of Angola, in conducting scientific research, and in preparing qualified national specialists. Both sides agreed that the workers of the Moscow Fish Processing Combine will cooperate

with the workers of the Vivilar fish combine in Luanda.

V. Lipanov, head of the Directorate of Commercial Fisheries of the USSR Ministry of Fisheries, stated that the waters off Angola are abundant in fish, but that today half of the commercial fleet of the Republic is not operating,

and specialists are lacking. Soviet specialists will be sent to work on vessels, and at enterprises and institutes. Angolan personnel will be trained both in Angola and in the Soviet Union. The Soviet Union will continue to aid the People's Republic of Angola in restoring the fishing industry.

Poland's 1976 Fish Catch Off U.S. West Coast Drops

Polish fishermen caught 25,138 metric tons (t) of fish off the U.S. Pacific coast from June through October 1976, a considerable reduction from the 53,003 t caught in 1975. The Polish fishing area included waters off Washington, Oregon, and California; no Polish vessels were reported fishing off Alaska (see map, right).

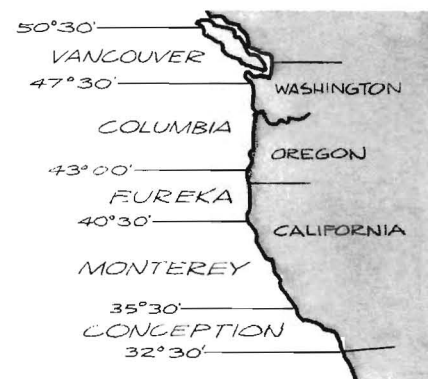
The Polish fleet operated until 1 January 1977 in these waters under the June 1975 U.S.-Polish Bilateral Agreement on Fisheries in the Northeastern Pacific. That Agreement prohibited the catching of Pacific halibut, Pacific herring, Pacific ocean perch, and certain other rockfishes, and for 1976 reduced the 1975 hake quota of 42,600 t to 26,000 t, or by 39 percent. The Agreement also prohibited the Poles from fishing off the U.S. Pacific coast from 1 January to 31 May and from 1 November to 31 December. The Polish and the United States Governments on 2 August 1976 signed a Governing International Fisheries Agreement (GIFA) which now regulates Polish fishing within the U.S. 200-mile fisheries jurisdiction.

Pacific hake and jack mackerel were the target species, with hake accounting for more than 94 percent of the total Polish catch (Table 1). Pacific rockfishes were caught incidentally. The largest catch occurred in August when 8,248 t of hake were caught (Table 2).

Of the total 1976 catch, 80 percent was taken from the waters off the Pacific Northwest (Washington-Oregon coasts). The largest catch off the California coast, 3,564 t of hake, was reported in the Eureka region, which is comprised of northern California and part of southern Oregon. Considerably smaller catches were reported for the southern California coast (Table 3).

The number of Polish vessels permitted by the 1975 Agreement to fish off the U.S. Pacific coast was limited to a maximum of 11 vessels at any one time. The Polish fleet consisted of four stern factory trawlers when it began to fish in June 1976 off the California coast. In late June the fleet moved northward to fish off the Pacific Northwest (the area referred to as "Columbia" in Figure 1). By July, five Polish stern trawlers were reported fishing for hake off California and a sixth trawler joined the fleet by the end of the month.

In August, the Polish fleet consisted of seven stern trawlers, one processing and transport vessel, and a cargo vessel of French registry under charter to the Polish government. A cargo vessel of Danish registry, also under Polish charter, arrived in September to accept the Polish catch (mostly frozen) for delivery to Poland.



The Polish fleet fished off the Pacific Northwest in August and September, except for a brief period of fishing off British Columbia. The fleet departed the fishing grounds off the United States on 30 September. According to surveillance reports compiled by the National Marine Fisheries Service (NMFS) and statistics reports submitted by the Poles, the fleet spent a total of 608 vessel days on the U.S. fishing grounds from June through October. The Polish fleet was on the coastal fishing grounds 601 vessel days from June through September, and was located at a considerable distance from shore for 7 days during October. The average catch rate per vessel per fishing day was 41.4 t.

Polish fishing off the U.S. Pacific coast began in 1973, when a small

Table 1.—Polish fisheries catch off the U.S. Pacific coast in 1976.

Species	Catch	
	t	%
Pacific hake	23,664	94.2
Jack mackerel	785	3.2
Rockfishes	427	1.6
Unspecified	262	1.0
Total	25,138	100.0

Table 2.—Polish hake catch by month, June-October 1976.

Month	Catch
	(t)
June	3,262
July	5,430
Aug.	8,248
Sept.	5,802
Oct.	922

Table 3.—Polish fisheries catch in metric tons off the U.S. Pacific coast, by species and fishing area, 1976.

Area	Pacific hake	Mackerel	Rockfishes	Unspecified	Total
Pacific Northwest					
Columbia	19,002	651	247	178	20,078
California					
Eureka	3,564	94	157	47	3,862
Monterey	1,070	35	23	35	1,163
Conception	28	5	0	2	35
Calif., total:	4,662	134	180	84	5,060
Grand Total	23,664	785	427	262	25,138

Table 4.—Polish fisheries catch in metric tons off the U.S. Pacific coast by fishing region, 1973-76.

Area	1973	1974	1975	1976	1973-76
Alaska	433	88	2,132	—	2,653
Pacific Northwest	2,000	38,576	11,950	20,078	64,476
Calif.	—	5,987	38,921	5,060	44,908
Total	2,433	44,651	53,003	25,138	112,037

exploratory fleet of three trawlers caught over 2,400 t in a few weeks. This exploratory research indicated the size of the resource and encouraged the Polish fishermen to return with many more vessels in 1974 when their catch amounted to more than 44,000 t. The Polish fishery expanded further in 1975, when 53,000 t were caught, and no doubt would have continued to grow had not a U.S.-Polish bilateral agreement been signed in June 1975 reducing the 1976 catch by 50 percent (Table 4).

The 1976 Polish fishery off the U.S. Pacific coast is limited by the Agreement to 26,000 t of hake or 936 vessel days, whichever occurs first. Polish catch and vessel day estimates are produced through the combined efforts of NMFS biologists, NMFS enforcement staff, the Coast Guard, and NMFS observers aboard Polish vessels, all of whom verify Polish reports and catch data. This reporting is coordinated by the Seattle, Wash., based Northwest and Alaska Fisheries Center of the NMFS.

The Director of the Northwest and Alaska Fisheries Center receives monthly telegrams from the Director of the Morski Instytut Rybacki (Polish Marine Fishery Research Institute) in Gdynia, providing preliminary Polish catches off the U.S. Pacific coast by species and by fishing area. This data is available approximately 40 days after the end of the fishing month. (Similar Soviet fisheries catch data is reported to the Northwest and Alaska Fisheries Center 70 days after the reported month.)

On 22 September, the Regional Director of the NMFS notified the Polish Fleet Commander, S. Bujniewicz, that the Polish hake quota would most likely be fulfilled by 30 September, at which time the Poles would be expected to leave the fishing grounds. The Poles, however, claimed to have caught less than the NMFS estimate and requested

permission to remain on the fishing grounds until 15 October. Permission was refused and the Regional Director suggested a review of the Polish log books. Faced with a review of the logs of all of his vessels, Bujniewicz acquiesced to the initial demand, and, by 1 October, the fleet had departed. The Polish fishing fleet then moved north to waters off British Columbia where the Canadians had granted Poland a hake quota of 14,000 t.

On 14 October, the Polish Fleet Commander sent a telegram to the Regional Director requesting permission

to fish for jack mackerel near Heceta Bank, an area approximately 30 miles off the coast of central Oregon. In reply, the Regional Director cited a section of the Bilateral Agreement which prohibits the Poles from fishing east of long. 125°40'W, and, therefore, only allows them to fish approximately 32 miles west of Heceta Bank. On 11 November, the Polish Fleet Commander repeated his request and the Regional Director again cited the Bilateral Agreement which also prohibits the Poles from fishing in that area after 1 November.

ICSEAF Examines Extra Fishing Rule Proposals

The Second Special Meeting of the International Commission for the Southeast Atlantic Fisheries (ICSEAF) which is headquartered in Madrid, was held in Malaga, Spain, 1-16 December 1976. Normally the Commission would have met in 1977.

This special meeting was called to examine additional limitations in the fishing of certain ICSEAF Convention Area species. The meetings were attended by more than 75 scientists, industry leaders, and government officials from the 14 member states, which are: Angola, Belgium¹, Bulgaria, Cuba, East Germany, France, Israel, Italy, Japan, Poland, Portugal, the Republic of South Africa, Spain, and the Soviet Union. Three nations (South Korea (ROK), the United States, and West Germany²) and five international bodies (FAO, ICCAT, The Joint Commission for Sea Fisheries of the Socialist Countries, the International Council for the Exploration of the Sea (ICES), and the Intergovernmental Oceanographic Commission (IOC)) were present as observers.

The ICSEAF Convention Area, established in Rome in 1969, covers the waters around southern Africa south of the Congo River on the Atlantic Ocean, to north of the Zambezi River in the Indian Ocean (see map). The area touches the shores of Angola, Namibia, the Republic of South Africa, and

Mozambique. Namibia and Mozambique are not ICSEAF members.

Preliminary ICSEAF catch statistics report that 2.6 million metric tons (t) of fish were harvested by more than 15 nations fishing in this convention area in 1975 (Table 1).

ICSEAF also considered the status of other species during their deliberations in Malaga. It was recommended that kingklip, *Genypterus capensis*, which

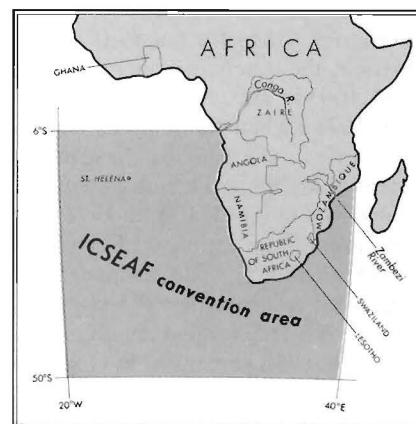
Table 1.—ICSEAF convention area total fisheries catch by country, 1975, in thousands of metric tons.

Country	Quantity	Country	Quantity
Angola	185.1	Portugal	8.7
Bulgaria	31.6	St. Helena ¹	0.2
Cuba	44.6	South Africa	1,395.8
France	0.4	Spain	200.3
Ghana ¹	35.7	USSR	420.7
Israel	6.4	Others ²	14.5
Italy	7.0		
Japan	131.5		
Poland	76.2	Total	2,558.7

¹Not ICSEAF members.

²Includes Mozambique and Zaire.

Source, ICSEAF, "Catch and Fishing Effort Statistics for 1975."



¹Expected to leave ICSEAF at end of meeting.

²Expected to join ICSEAF soon.

Table 2.—ICSEAF convention area catch of Cape and Benguela hake, 1970-75, in thousands of metric tons.

Year	Quantity	Year	Quantity
1970	762.0	1973	892.7
1971	798.3	1974	726.0
1972	1,111.4	1975	627.2

Source: FAO, "Yearbook of Fishery Statistics, 1975."

Table 3.—ICSEAF convention area total hake catch, by country, 1975, in metric tons.

Country	Quantity	Country	Quantity
Angola	100	Portugal	6,985
Bulgaria	9,802	South Africa	
Cuba	29,630	Africa	113,083
Ghana	925	Spain	168,580
Israel	5,900	USSR	209,125
Italy	6,500	Others	500
Japan	52,101		
Poland	37,126	Total ¹	640,357

¹Includes 498 t of *M. polli*, 168,065 t of *M. capensis*, 216,093 t of *M. paradoxus*, and 1,164 t of unidentified hake (*M. spp.*)
Source: ICSEAF, "Catch and Fishing Effort Statistics for 1975."

has not been fully harvested, be considered suitable for increased development along with Cunene and Cape horse mackerels, *Trachurus trachurus*, and Sardinella, *Sardinella* spp. The SAC also reported that stocks of anchovy, *Engraulis* spp, and South African pilchard, *Sardinops ocellata*, were being fished at near-optimum levels and that no increase in the fishing effort should be allowed. Finally, because of an 85 percent decline in catches of large-eyed dentex, *Dentex macrophthalmus*, from 555,400 t in 1968 to 8,300 t in 1974, it was recommended that fishing for this species, and for panga, *Pterogymnus laniarus*, be limited to 9,000 t per year each.

The species attracting the greatest attention at the Malaga ICSEAF meeting were Benguela hake, *Merluccius polli*, and Cape hake, *M. capensis* and *M. paradoxus*. In 1969, when ICSEAF was formally established, only nine countries fished for hake off southern Africa; the catch had increased from 111,100 t in 1960 to 676,000 t in 1969. By 1971, when the Convention went into effect, the catch of hake had increased to 798,300 t. Subsequently the catch rose to 1,111,400 t in 1972 before declining to an estimated 627,000 t in 1975 (Table 2). The estimated hake catch by country for 1975 is given in Table 3. The largest catch of over 200,000 t (32 percent of the total) was taken by the USSR. Spain took 168,000 t, or 26 percent of the total.

The large decrease in hake landings between 1972 and 1975 affected all nations fishing for that species in the ICSEAF Convention Area, but it particularly affected the Soviet Union. The USSR hake catch of 656,000 t in 1972 declined to 209,000 t in 1975. In 1974-75 the USSR, concerned about the decline in hake catches, switched to fishing horse mackerel to reduce fishing effort on the hake resource.

The precipitous decrease in the total hake catch since the 1972 record catch of 1.1 million t to the 640,000 t caught in 1975 has naturally spurred the ICSEAF Commission to take steps to manage this valuable fishery resource. One of the first steps taken in December 1974 by the newly formed Commission was the adoption of a minimum mesh size of 110 mm in the hake fishery. The

second step was the establishment of a joint inspection and enforcement program which came into force on 1 July 1975. Since that time over 160 inspections have been carried out by South African inspectors, and other nations are carrying out similar inspection on board their own vessels. Few infractions of the minimum mesh size regulation have been reported. In 1975, at the ICSEAF meeting in Madrid, the Commission accepted the recommendations of the Scientific Advisory Council (SAC) stating that hake catches should not exceed a maximum sustainable yield of 950,000 t annually. In 1976, the SAC recommended that the total allowable catch be reduced to between 630,000 t and 700,000 t annually. South Africa also proposed the establishment of a quota system for hake.

Mozambique Gets National Fishery Marketing Agency

The Government of Mozambique has established PESCO (Empresa Nacional de Comercialização de Produtos Pesqueiros), a state agency for marketing Mozambican fishery products. The enterprise, to be controlled by the Ministry of Industry and Commerce, will be headquartered in Maputo (formerly Loureno Marques), and is to have branches elsewhere in the country.

PESCO will have a declared capital of 100 million escudos (US\$3.3 million), entirely subscribed by the Mozambique Government. The capital can be increased by joint decision of the Ministry of Industry and Commerce and the Ministry of Finance.

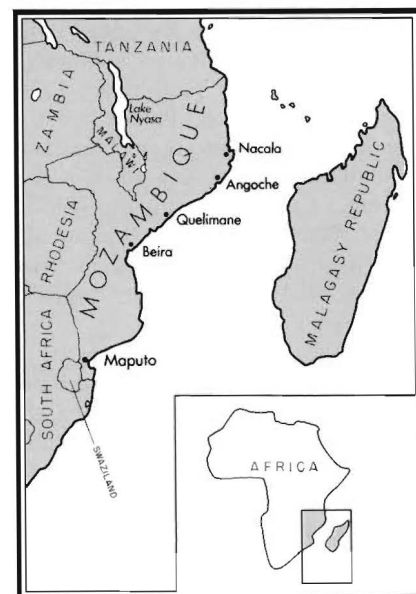
PESCO's main objectives are: 1) to buy, store, distribute, promote, and sell all Mozambique fishery products, processed or not; and 2) to import and export all fishery products, processed or not.

PESCO will be managed and controlled by the following five groups: General Council, Executive Committee, General Assembly of Workers, Audit Committee, and Executive Council.

The General Council (Conselho Geral) will represent the Government's interest in the firm. Its Chairman will be

designated by the Minister of Industry and Commerce. Four representatives will be chosen, one each from the National Directorate of Fisheries, the National Directorate of Foreign Commerce, the National Directorate of Domestic Commerce, and the Ministry of Finance.

An Executive Committee (Direcção) will direct the management operations. It will be made up of the Director-General and four Deputy Directors



(Administrative, Technical, Commercial, and Labor). The Director General and three Deputy Directors will be appointed by the Minister of Industry and Commerce (who may also increase the number of Deputy Directors). The Director for Labor will be elected by the General Assembly of Workers.

The General Assembly of Workers (Assembléia dos Trabalhadores), as the representative of labor, will have the dual function of participating in the control of PESCO and of working in close cooperation with the Executive Committee and the Executive Council.

The Audit Committee (Comissão de Fiscalização de Contas) will consist of three members to be appointed by joint decision of the Ministers of Industry and Commerce and of Finance.

The Executive Council (Conselho de Direcção), comprised of the Executive Committee, PESCO department chiefs, and FRELIMO Party representatives, will coordinate PESCO's activities.

PESCO must first of all prepare an operations investment plan for the next several years. In the future, PESCO will prepare annual operations plans and budgets. The enterprise is exempt from income tax.

According to the NMFS Office of International Fisheries, Mozambique press reports indicate that PESCO is building a cold storage plant in the port of Maputo, which will have five units capable of storing 500 metric tons (t) of shrimp and other fish. Similar plants are planned for the ports of Beira and Quelimane, and eventually for Nacala.

Mozambique recently took delivery of eight shrimp trawlers built by the Inconav shipyard of Brazil. These vessels will reportedly operate off Beira and Angoche. Of these vessels, six are owned by the IMPESCAL company, which will now come under the control of PESCO. IMPESCAL's fleet includes 28 vessels, making it the largest shrimp company in Mozambique. The remaining shrimp trawlers were reportedly purchased by private companies. A total of 17 more shrimp trawlers were to be delivered by Brazilian shipyards beginning in February 1977, but no information is available as to whether the

deliveries have begun. The Bank of Brazil provided \$38 million in financing to Inconav for the construction of vessels for both Mozambique and Angola.

Norway White Paper Says Modernize Fishing Fleet

The Norwegian Government has released a preliminary White Paper recommending the modernization of the country's fishing fleet to utilize more effectively Norway's new 200-mile fishery zone. The White Paper also delineated plans to reduce the number of Norwegian fishmeal plants, particularly those located in southern Norway.

The fleet modernization proposals would give Norwegian fishermen 10-year interest-free loans covering up to 25 percent of the cost of new vessels. During 1977, about US\$4.8 million would be available for such loans. This money would be taken from the \$55.3 million currently budgeted for the Norwegian fishing industry in 1977 to cover rising fuel and gear costs as well as to aid entrepreneurs to form fishing ventures. The White Paper reports the goal of replacing 50 fishing vessels each year to modernize a fleet which now consists of vessels whose average age is 20 years or older.

The White Paper also emphasized the need for Norway to adjust the capacity of its fishing fleet to the available resources. As a result, it recommended reducing the purse seiner fleet by 20 percent, the industrial trawler fleet by 24 percent, and the brisling fleet by 50 percent. The fleet reductions are projected to continue through 1980.

In addition, the White Paper proposed the modernization of Norway's 1,000 processing plants, currently employing more than 20,000 workers, by increasing automation. This recommendation has provoked widespread criticism as it presages increasing unemployment. The proposal to reduce the number of fishmeal plants from 46 to 36, particularly along the southern coast of Norway, has also caused controversy. (Source: IFR-77/128.)

According to the NMFS Office of International Fisheries, the White Paper is only a working document which was sent to various organizations for consideration and did not yet represent the official policy of the Norwegian Directorate of Fisheries. The Norwegian Parliament was expected to vote on the final proposals after the national elections in autumn 1977.

West German Herring Situation Reviewed

Statistics on West Germany's 1975 herring market reveal increasing pressure on supplies, due mainly to declining catches of the domestic long-distance fleet and West Germany's traditional major European suppliers, reports the NMFS Office of International Fisheries. Total imports show no particular trend, but imports of one category of herring products, frozen herring, have increased. Canada and the United States have a larger share of the frozen herring market and will probably increase that market in future years.

SUPPLY

The West German supply of fresh and frozen herring for human consumption was only 218,500 metric tons (t) in 1975, about 5,500 t less than in 1974 (Table 1). Landings by the Federal Republic of Germany's high-seas fishing fleet decreased from 44,700 t in 1974 to 38,700 t in 1975, while landings by the coastal and medium-range fleet showed a small increase. All domestic landings were frozen herring.

West Germany's supply of herring for human consumption in the 1972-75 period showed a heavy and increasing

Table 1.—West German supply of fresh and frozen herring, 1972-75, in metric tons.

Source	1972	1973	1974	1975
Distant-water fleet	36.8	56.4	44.7	38.7
Coastal fleet	9.0	7.2	8.2	9.7
Total domestic landings	45.8	63.6	52.9	48.4
Imports	153.1	203.7	171.2	170.1
Total supply	198.9	267.3	224.1	218.5
Imports as % of total supply	77.0	76.2	76.4	77.8

dependence on imports; domestic landings were only 22 percent of the total supply, compared with 24 percent in 1974. As recently as 1970, domestic landings were well over 100,000 t; by 1975 they had declined to under 50,000 t. Recent developments in the European herring fishery, especially the growing demand for a complete ban on herring fishing in the North Sea, leave little doubt that West Germany's domestic herring landings will continue to be depressed for some time.

EXPORTS

Exports of herring were understandably small in 1975, totalling only 9,900 t, and about 7,500 t of those went to Czechoslovakia. Prices for herring products tended to be firm in view of the tight supply situation, and, although frozen herring fillets declined on the average by 5 percent, prices for herring, with and without the head, increased 8 percent and 7 percent, respectively.

IMPORTS

West Germany's herring imports were relatively stable in 1974 and 1975, showing only a slight decline in the second year. Nevertheless, there have been some marked changes in recent years in the volume and share of different categories of herring imports. Imports of fresh herring decreased, for example, from 69,300 t in 1974 to 62,500 t in 1975. On the other hand, imports of frozen herring increased from 44,400 t to 50,500 t, or almost enough to compensate for the decreased landings of the domestic distant water fleet, which produces frozen herring exclusively.

Canada and the United States have moved into the frozen herring import market very strongly and, with 17,400 t and 7,300 t of frozen herring sales to West Germany, respectively, in 1975, they doubled their exports over 1974. Between 1970 (when frozen herring from the United States was first exported to West Germany) and 1975, U.S. sales increased from about 2,200 t to 7,300 t and showed promise of additional significant gains. These are still

modest quantities, but because imports from West Germany's traditional major herring supplier, Denmark, are likely to continue to decline, market prospects for U.S. and Canadian herring exporters seem favorable in the coming years. (Source: IFR-77/132.)

Surinam Receives Two New Training Vessels

On 20 June 1977, an official of the Japanese Embassy in Caracas presented the Government of Surinam with two modern vessels to be used in training fishermen. The 73-foot vessels were built in Mexico by the South American Marine Development Company with financing provided by a \$1 million grant from the Government of Japan. The grant was awarded in May 1976 and was part of a fisheries training project which Japan agreed to help fund in Surinam. Present at the ceremony were Surinam's Minister-President Henck A. Arron and top officials of the Ministry of Agriculture, Animal Husbandry, and Fisheries.

The two vessels, named the *Srefidensi I*¹ and *Srefidensi II*, carry crews of 15 and 12 fishermen, respectively. The *Srefidensi I*, a multipurpose vessel, is equipped with radar, a laboratory, and various gear. The *Srefidensi II* is designed for the shrimp fishery, currently the most important one off Surinam. Both vessels have 400 horsepower engines and freezing facilities on board.

Six Japanese fishery experts will spend 2 years in Surinam training Surinamers to operate the new boats. Several Surinamers will also travel to Japan and the Republic of Korea (ROK) for training. Funding for the training, which will cover fish catching as well as navigation and construction and repair of vessels and gear, is part of a 5-year project which, it is hoped, will be financed from Netherlands' development assistance funds. (Source: IFR-77/124.)

According to the NMFS Office of International Fisheries Japan is in-

¹Srefidensi means independence.

terested in what it generally perceived as a shrimp fishery with potential for expansion. The Japanese fishing industry is sensitive about ROK competition in distant-water fisheries. The Koreans reportedly have about 80 vessels currently deployed in the Surinam shrimp fishery and the Japanese appear worried about a possible reduction of their own position there.

The Japanese gift of the two boats was appreciated by the Government of Surinam, which is seeking to diversify its sources of economic development assistance. As a former colony of the Netherlands, Surinam largely has been dependent on that country for aid. Japan was expected to open an embassy in Paramaribo later this year or early in 1978 and it can be expected that Japanese economic and commercial interests in Surinam will expand accordingly.

SOVIETS REPORT AQUACULTURE WORK

In recent years fish farms have been more widely distributed in the Soviet Union, according to a report in *Vodnyi Transport*. The fish are reared from the larval stage (or fingerling stage) up to commercial weight in net ponds. The artificially reared aquatic organisms are protected from competitors and predators, their environment is protected against pollution, and they receive supplementary feeding.

The Dnepropetrovsk fish production combine has 1,300 hectares (3,211 acres) of rearing and foraging ponds. They have been built over a period of 8 years at a cost of 6 million rubles (\$7,920,000). Last year, more than 2,000 t of live fish were taken from this combine. However, the group has found that raising fish in tanks was most effective. This permitted raising 2.5 t of fish in an area of 2.5 hectares (6.17 acres) of water. Only about a year was needed and the cost was reportedly six times lower. In coming years, the combine plans to establish 2,500 tank sections for raising such species as white amur, trout, silver carp, buffalo, and other species.