INTERNATIONAL

FAO AIDS ARGENTINE FISHING INDUSTRY

An FAO/UNDP fishery research vessel, the 'Cruz Del Sur' (Southern Cross), is helping to improve fish production in a land where beef is king: Argentina. The 107-foot, Norwegian-built, steel-hulled vessel belongs to an FAO development project.

The 5-year, $3,133,350 project, financed jointly by Argentina and the UN Development Program, seeks to develop the fishing industry, including marketing and distribution. It aims at a better, more varied, diet for Argentinians--and at building fishery exports and reducing imports through resources survey and exploratory and experimental fishing.

Fish Consumption Low

In 1968, Argentinians consumed an average of only 2.7 kilograms of fish, compared with 83.5 kilograms of beef and varying amounts of other meat products. (A kilogram is 2.2 pounds.) Fish consumption in greater Buenos Aires was almost 5 kilograms per inhabitant; in Corrientes and elsewhere, it was as low as 50 grams. Fishery imports increased from 1,438 tons in 1964 to 3,095 tons in 1968.

Vessel's Mission

The Cruz Del Sur was designed and built to FAO specifications for experimental trawling and purse seining. "Her mission: to conduct exploratory surveys and scientific research in demersal (bottom) and pelagic (open water) species--such as bonito, mackerel and hake--along Argentina's 4,100-kilometer coast."

She was launched in 1968. By 1969, she had set high standards of performance for her class. In 11 months, she sailed 45,000 miles, logged 220 days at sea, and sold her total catch for almost $40,000 in Mar del Plata. The money was put back into the project to buy fishing gear and other equipment.

Finds Fish

"Even more important, the vessel identified large stocks of anchovy, hake, bonito, mackerel, and other commercially valuable fish." She reported her findings to local fishermen. The vessel is studying and evaluating fishery stocks and helping to locate new and more profitable fishing grounds.

She is introducing new fishing techniques and gear for pelagic and demersal fishing. The FAO project has helped local fishermen catch enough bonito to reduce substantially bonito imports. Studies aim at improving marketing and distribution facilities for fresh and processed fish. Housewives have been polled to determine their preferences for fish foods.

Project manager is A.E. Fernandez y Fernandez of Spain, who heads a multinational staff of master fishermen, technologists, biologists, and economists.

FAO Fleet

The Cruz Del Sur will be joined by another research vessel provided by Argentina. There are more than 30 FAO/UNDP fishery research vessels--large stern trawlers-purse seiners to fresh water catamarans--which operate in Latin America, Africa, and Asia.

Two sisterships of the Cruz Del Sur are attached to projects in Colombia and Peru.

SCANDINAVIANS REJECT BRITISH SALMON-BAN PROPOSAL

Fishery associations in Norway, Sweden, and Denmark have rejected a British proposal for a total ban on salmon fishing in North Atlantic international waters, reports the Danish Fisheries Association (vessel owners).

The associations stated that the proposal lacked scientific basis and countered the principle of using the seas' riches.

The associations were willing to discuss arrangements to avoid excessive expansion of the international salmon fishery. (Reg. Fisheries Attaché, U.S. Embassy, Copenhagen, Mar. 24.)

FISHERY EDUCATION & TRAINING VITAL TO DEVELOPING NATIONS

"Fishery development requires urgent action to promote education and training in developing countries," an FAO conference concluded on April 16. This is particularly true for those fishermen who live off their catch. And they comprise 80% of the world's fishermen.

This was one recommendation of the 34-nation FAO Committee on Fisheries after a six-day review of world fishery problems in Rome. Observers from 23 member states and the USSR and representatives of a dozen international groups attended. Klaus Sunnanaa, Norway's Director of Fisheries, was chairman.

Educational Tools Needed

The need to train fishermen in developing countries in new industrial techniques was highlighted. The Committee agreed that the plight of subsistence fishermen, who literally live on what they catch, must be recognized. Speakers emphasized the need for simple teaching manuals, more training and use of extension workers, and manpower surveys.

Subsistence Fishermen

This need is "a great human problem," said A.W.H. Needler, Canada's Deputy Minister for Fisheries and Forestry. Subsistence fishermen account for half his country's fish catch, noted Domingo D. Tapiador, Deputy Commissioner for Fisheries of the Philippines. Any improvement in their lot would mean more production. He emphasized the need for better marketing and distribution facilities. He recommended joint ventures between government and private industry to promote fisheries.

Tapiador's points were supported by Stephen A. Tolbert, president of Mesurado Group of Companies Ltd., Monrovia, Liberia, in his keynote address. He urged combined efforts by government, industry, and private institutions to help developing countries establish and operate modern fishing industries.

Studies Needed

The Committee also urged continued work by FAO's Department of Fisheries in development and management of fishery resources, including stock assessment.

NORDIC FISH-MEAL FACTORYSHIP OPERATES OFF AFRICA

A Swedish-Norwegian firm has started fishing off West and South Africa with the mothership 'Astra' and 11 Norwegian purse seiners. The Swedish medical-supply firm Astra A/S and Thor Dahl's whaling concern of Sandefjord, Norway, are the principal operators.

Whaling Firm Involved

Sandefjord has reconstructed the 19,168-GRT whaling ship 'Thorshavet' into a floating fish-meal factory. The firm is registered in Bermuda as Astra Overseas Fishing Ltd. It has made Las Palmas, Canary Islands, its home port for the expedition.

The vessel is designed to produce fish meal from fresh fish especially for fish protein concentrate (FPC). The Astra's move into FPC field requires that it insure sufficient supplies of high-grade raw materials.

The Crew

The crew aboard the purse seiners are Norwegians. They are paid a monthly salary of US$285--plus a bonus of two kroners (28 US¢) a ton on delivered catch. Their 9-month contract will be in force through 1970.

The Catch

The catch, mostly pilchards, is expected to reach 200,000 metric tons of raw material. This would produce about 25,000 tons of concentrate.

The fleet sailed from Norway in late March 1970 for a rendezvous in Las Palmas. The seiners had been fitted out in Norway with netting costing $428,000.

Bad Year for Norwegians

The large Norwegian purse-seine fleet has had problems in the past year. Herring and mackerel were scarce in the Norwegian Sea and in the North Sea. International regulations of these waters are under consideration. The only chance today for profitable fishing is for capelin off North Norway's coast. However, the present fleet is too large and seeks new fishing areas. ('Fiskaren,' Mar. 12.)

JAPAN-USSR 1967-69 SALMON CATCHES REPORTED

On March 2, 1970, the Japanese Fisheries Agency released data on the 1967-69 salmon catches of Japan and the USSR, then meeting in Moscow to set 1970 quota. ('Suisan Tsushin', Mar. 4.)

Japan-USSR Salmon Catches, 1967-69

Salmon Species	Japan 1967	Japan 1968	Japan 1969	USSR 1967	USSR 1968	USSR 1969
			(Metric Tons)			
Red	20,493	16,766	15,502	3,018	2,249	1,640
Chum	51,630	42,519	30,171	20,639	13,697	5,867
Pink	64,481	42,787	69,520	50,701	16,253	63,436
Others	4,904	7,039	11,127	4,523	3,992	4,525
Total	141,508	109,111	126,320	78,881	36,191	75,468

ECUADOR SEIZES 2 JAPANESE FISHING VESSELS

Since the beginning of 1970, two Japanese fishing vessels (presumably tuna longliners) were seized by Ecuador: 'Seiyu Maru No. 12' (403 gross tons), on Feb. 19 near 0.5° S. latitude and 94° W. longitude off Galapagos Islands; and 'Sanyo Maru No. 38' (494 gross tons), an Okinawan vessel, on Feb. 25.

All crew members of the Seiyu Maru were reported released on Mar. 2. ('Katsuo-maguro Tsushin,' Mar. 5.)

JAPANESE PLAN JOINT SHRIMP OPERATIONS

The Hokuyo Suisan Fishing Co. was planning joint shrimp-fishing ventures with Sierra Leone and Gambia around April 1970. In Sierra Leone, where there is no shrimp fishery, the operation will be set up at Freetown. The Japanese will put up 60% of capital; Sierra Leone 40%.

In Gambia, Bathurst will be the site. Investment will be 50-50.

Gambia Favors Hokuyo Suisan

In Gambia, U.S., British, French, and Spanish fishery firms also are seeking shrimp-fishing licenses. Reportedly, Gambia intends to grant permission first to Hokuyo Suisan. That firm plans to use two 100-gross-ton vessels to serve both ventures. ('Shin Suisan Shimbun,' Mar. 2.)

SAVE 'CLEAN' WATERS OF AFRICA, FAO URGES

Action to protect the "clean" waters of Africa and other areas from pollution was urged by FAO's 34-nation Committee on Fisheries meeting in Rome in April.

E. S. Kanyike, Uganda Fisheries Department, said pollution in Africa was less serious than in Europe, but action should start immediately to meet the threat. He warned that agricultural development in his own country had increased the problem of water and fish contamination from insecticides.

"We send out pamphlets urging people to eat more fish. Perhaps we are saying to them to eat more DDT," he remarked.

Domingo D. Tapiador of the Philippines endorsed the FAO proposal. He said 12 factories in his country had been closed because of their discharges, and lawsuits were pending over pollution. Fish culture is especially vulnerable to pollution, he warned.

Philip M. Roedel, Director of the Bureau of Commercial Fisheries, U.S. Department of the Interior, said the U.S. was very aware of the "urgent need" to safeguard the quality of the environment. He urged FAO to study the inland waters of Africa which may be threatened by pollution. He strongly endorsed FAO plans to hold a conference in December 1970 on the effects of marine pollution on fisheries and other living resources.

Cedric G. Setter, Assistant Secretary of Australia's Fisheries Division, said pollution was beginning to threaten the famed Great Barrier Reef. One major oil spill already had taken place. His government was studying the whole subject. He urged a study and evaluation of detergents used in combating oil spills on the sea.

CANADA

EARMARKS PRICE STABILIZATION FUNDS FOR LAKE ERIE PERCH

C$1 million has been earmarked for a price-stabilization program for Lake Erie perch in 1970-71. It will be made available to the Fisheries Prices Support Board to ensure minimum prices to fishermen during peak periods. This was reported by Dept. of Fisheries and Forestry on March 16.

Under the program, the Board will purchase frozen perch fillets from processors--provided fishermen have been paid a minimum of 10 cents per pound for spring perch (April 1 to May 31) and 12 cents a pound for fall perch (June 1 to March 31). These prices are based on whole fish packed and delivered to processing plants.

Much Like 1969 Program

The program is similar to 1969 program except there will be no blending of spring price. Last year, spring production surplus that could not be filleted immediately was sold at a lower price; fishermen received average of lower and higher prices.

In 1969, Lake Erie fishermen harvested a record catch of nearly 30 million pounds worth C$3.2 million.

The Fisheries Prices Support Board is expected to recover cost of program later in the year. Processors selling fillets to Board during peak production periods undertake to buy back at cost all products in the program.

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CONFERENCE ON CANADIAN SHRIMP FISHERY SLATED FOR OCT. 1970

The firm establishment of a prosperous shrimp fishery in Canada's Atlantic Coast provinces is the main objective of a conference to be held in Fredericton, N.B., Oct. 27-29, 1970. The three-day meeting will encourage development of a new fishery.

During past years, Federal and provincial explorations showed that commercial quantities of pink shrimp, Pandalus borealis, are present in the Gulf of St. Lawrence; comparatively small-scale fishing has supported prospects of profitable operations.

The Conference Agenda

At the conference, specialists from Canada and other countries will focus on successful catching and processing methods outside of Canada. Governmental and other experts will outline possibilities indicated by exploration work findings and discuss future plans. Quality control, storage, and marketing also will be discussed.

Pink Shrimp Fishery

The pink shrimp is smaller than Gulf of Mexico shrimp; it has a ready market in U.S. and Europe. There has been a limited fishery in Quebec in recent years and, for the past two years, in Bay of Fundy. There, 37 new Brunswick draggers landed about 2 million pounds in 1969. Most of catch was cooked before being landed for further processing at five shore-based plants.

Besides Gulf of St. Lawrence, good possibilities are reported from southwest coast of Nova Scotia, and off Newfoundland.

The Canadian Department of Fisheries and Forestry, in cooperation with the provinces, is continuing shrimp explorations.

ST. PIERRE ET MIQUELON

EXPANSION CONTINUES

Major construction is planned to begin this summer as part of St. Pierre's plan to expand facilities to attract more fishing vessels. A new 450-ft. wharf will be built. (U.S. Consul, St. Johns, Mar. 18.)

EUROPE

NORWAY

STUDIES COSTS AND EARNINGS OF FISHING VESSELS

Since 1950, the Norwegian Directorate of Fisheries has carried out annual costs and earnings investigations based on annual and seasonal accounts submitted by debtors of the State Fisheries Bank. This was reported on Feb. 12 by 'Fiskets Gang', a Directorate publication. The investigation covers fishing vessels 40 to 169 feet long (except trawlers more than 200 GRT) fishing for at least 30 weeks in 1967.

The Findings

The investigation shows increasing gross earnings with increasing size of vessels; on average, these range from about US$14,500 for vessels between 40 and 50 feet (South Norway) up to $246,000 for vessels above 120 feet (South Norway). Operating costs and depreciation increased correspondingly from $6,000 to $131,000.

Average Surplus

The average surplus on vessel and gear to the owner varied from minus $1,500 for vessels 80 to 100 feet (South Norway) to $19,700 in biggest size group (above 120 feet in South Norway). The three largest groups, IV, V, and VI in both South and North Norway, are dominated by herring purse seiners.

Wages

The average wage earning capacity per man-week varied from $47 to $139. This is gross earnings minus aggregate operating costs, depreciation, and calculated interest on capital. Except for vessels 40 to 50 feet, there was a covariation between wage-earning capacity per man-week and vessel size. But covariation was less clear than in 1966.

Fisherman's Annual Share

Also, fisherman's annual share increased with vessel size, except for vessels 40 to 50 feet. In 1967, fisherman's annual share varied on an average from $2,300 to $5,600. The fisherman's annual share is defined as share attained for a whole year's work. It is purely a work share; capital surplus is not included.

Rate of Capital Surplus

The rate of capital surplus, which is the amount of capital surplus as percentage of the market value of the capital employed, varied substantially--from minus 1 to plus 18% for vessels under 100 feet, and between plus 1 and 9 for vessels above 100 feet.

The vessels under study had been occupied in a variety of seasonal fisheries with highly varying economic results during the year. The average economic results of the vessels decreased considerably from 1966 to 1967 in majority of size groups.

For the most part, average wage-earning capacity too decreased from 1966 to 1967.

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SEES U.S. AS GROWING MARKET FOR FROZEN FISH

Frozen-fish exports from Norway to all markets was about 117,000 tons in 1969, a substantial rise above 1968. Sales were handled by Frionor, Findus, and the Nordic Group.

The U.S. is a growing market. During 1967, only 7,000 metric tons were exported; in 1969, 42,000 tons: 30,000 tons produced by Frionor, one of world's largest exporters of these products, and 12,000 tons by Nordic Group, also firmly established in this highly important market.

Nordic Uses Other Trademarks

The Nordic Group has not sold its products under its own trademark. In most cases, the trademark of First National Stores (Finast) is used, but the frozen fish fillets are also sold under other private labels.

Main Items Researched

The main products are skinless and boneless fillets of cod and haddock. The items result from intensive market research by Nordic Group experts. U.S. preferences in taste, appearance, and packaging were examined thoroughly. The products marketed through First National Stores have proved very successful.

NORWAY (Contd.):

Nordic Group is joint export organization for 21 freezing plants, headquartered in Trondheim. ('Norwegian American Commerce', Jan.-Feb. 1970.)

WEST GERMANY

HERRING FISHERY OFF U.S. & CANADA GROWS STRONGER

The manager of a Norwegian herring fishery off Canada (Carino Company, Ltd.) has described to his firm the operation of West German factory vessels in the Western Atlantic:

There are 24 large factory vessels, 84 meters long, 3,200 h.p., with daily freezing capacity of about 50 metric tons a day. The vessels have up-to-date equipment to fillet herring and other fish. They use both a bottom and pelagic trawl guided by latest electronic gear. Eight pelagic trawls are carried on board each vessel of 4 different types. The factory vessels use St. Pierre as home base for repairs and transfer of catch and crew. Aboard each vessel are 60-70 men serving 7-month hitches. They choose their vacation time on three months' notice.

Mostly Cod Fishing

The fleet goes to Greenland from February to May to fish mostly cod. It uses a bottom trawl. The 1969 fillet production was about 2,000 metric tons per vessel.

Herring Fillets

After reloading and repairs in St. Pierre, the vessels sail to the banks outside Nova Scotia and to Georges Bank in June to fish herring with a pelagic trawl. They fish in the Gulf of Maine and elsewhere up to U.S. 12-mile limit. About 1,500 tons of herring fillets were packed from June to August, in addition to herring meal and oil. From mid-September to Christmas, "Vollherring" (herring without heads, frozen in the round) is produced. The captains estimated they could produce easily 2,000 tons per boat, which would yield annually 5,500 tons of frozen products, plus meal and oil.

20% Herring Fillets Salted

The Germans long ago stopped salting round herring from Georges Bank because they were unable to obtain acceptable quality with methods used. They now salt about 20% of herring fillets and have no problem achieving excellent quality.

Double Trawler Size

From a very small start in North Sea and Iceland, where they used reconstructed fresh fish trawlers, they have doubled size of giant trawlers. During last three years, they have been in full operation with floating trawls for herring.

Germans Outfished Norwegians

In 1969, the Norwegian factoryships that fished during same period and area produced 100 tons of herring fillets; the Germans produced 750 tons. This may show that more gear and equipment experience is needed than that with which Norwegians began.

Compared to bottom trawling, it appears pelagic trawl requires more powerful motors and winches. The vessel must be capable of changing trawl type according to conditions and be manned by experienced crew knowing the techniques. (Reg. Fisheries Attaché, Copenhagen, Mar. 24.)

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MARKET FOR HERRING AND MACKEREL

The Norwegian Fisheries Attaché in Hamburg recently advised the Norwegian industry to pay more attention to W. German market for herring and mackerel. He reported:

West Germany is still the largest importer of fish and fishery products, after U.S. and Great Britain. In 1968, Germany's total consumption of fresh-frozen herring was about 250,000 metric tons (catch weight). Her own production reached top in 1965: catch weight of 774,000 tons, of which 40% was herring. Since then, however, North Sea fishery declined.

Herring Stock Decline

The decline in herring stocks produced large deficit in supply. Denmark took over

WEST GERMANY (Contd.):

more and more of market. To compensate for this, the German fleet looked for new herring grounds. During recent years, it succeeded in fishing herring on Georges Bank in Atlantic off U.S.

The 1967 production of frozen herring and herring fillets reached about 19,000 tons. In 1968, number of herring fillets 32,000 tons; round herring was 5,500 tons.

The number of W. German factory vessels in Georges Bank fishery was 18 during 1958, and more in 1969. W. German scientists fear that Georges Bank herring is being overexploited and that supplies from there will be reduced.

Denmark Is Main Supplier

It is questionable, however, whether German vessel owners will be able to cover expenses during 1970. Denmark has strengthened position as main supplier of herring to West Germany. Germany's imports from Denmark were 120,514 tons, or about 73% of herring imports.

Norway's share of German imports during 1968 was 11,385 tons, about 7.5%. Her exports of fresh round herring to Denmark in 1967 was considerable; the herring were filleted and reexported to West Germany.

Obtaining Enough Herring Difficult

West Germany's demand for raw material in catch weight (in addition to salted herring) is about 250,000 tons; of these 80,000 is used in canned products, 95,000 tons for marinated products, and remainder for smoking, fresh fish, and other purposes. The possibility of obtaining sufficient herring for all those purposes is limited.

If North Sea herring fishing declines further, unexpected possibilities might open for frozen mackerel fillets to W. German canning industry in future years. Mackerel consumption now is about 6,000 tons a year.

The Future

In 1968, German imports of fresh mackerel were about 2,500 tons: 280 tons from Norway and about 1,740 tons from Denmark. Expanded ferry connections in recent years between Norway and W. Germany should enable Norway to increase her share of fresh mackerel market.

Majority of mackerel is for smoking; a smaller part for canned products. Good possibilities exist to increase use of mackerel fillets for canning because several W. German canning factories fear insufficient herring supplies. They believe they must introduce new products from other fish. (Reg. Fish. Attaché, Copenhagen, Mar. 24.)

UNITED KINGDOM

TO ABANDON FATHOM MEASUREMENT

The British Government has asked Parliament to authorize use of the metric system aboard ships as part of a general move toward that system. The fathom, an ancient nautical measure for 6 feet (0.914 of a meter), will be replaced by the meter. ('New York Times,' Feb. 26.)

The tradition-weighed British Navy is last to bow to the inevitable. Bankers were first: British pounds were converted to the decimal system.

USSR

WORRY ABOUT LAKE BAIKAL FISHERY RESOURCES

Fifteen years of overfishing have so decreased the omul, or fresh-water whitefish ('Coregonus autumnalis migratorius'), resource on Lake Baikal that Soviet scientists believe it will take about 7 years to restore it to commercial level. Omul is one of the most important fisheries in Lake Baikal. To improve the situation, Soviet Fisheries Minister Ishkov, May 1969, banned commercial and sports fishing of omul, sig, a species of whitefish found only in Lake Baikal, 'C. lavaretus baicalensis', and sturgeon.

1970-75 Plans

According to chairman of Siberian Branch of Ministry's Ichthyological Commission, new omul hatcheries will be built and existing ones

USSR (Contd.):

expanded in Baikal area between 1970-1975. A "new" reproduction technique will be introduced: part of spawning omul will be allowed to spawn naturally; the rest will be harvested for artificial reproduction. After ban is lifted, omul will be caught only in the rivers where it migrates, but not in Lake Baikal. This will eliminate fishing fleets and save manpower and gear. ('Vostochno-Sibirskaia Pravda')

Controversy Over Baikal Pollution

Soviet concern about Lake Baikal was expressed too in a motion picture centering on 12-year-old controversy between conservationists and industry managers. The lake's fauna is threatened by pollution from wood pulp factories on its shores. The motion picture is pessimistic: there are no signs of improvement. ('New York Times,' Mar. 2.)

POLAND

ESTABLISHES EXCLUSIVE FISHING ZONE

Poland has established an exclusive fishing zone along her Baltic coast. It extends 12 nautical miles from the base line used to determine her 3-mile territorial waters.

Vessels of countries traditionally fishing in the 6-12 mile zone, and in the 3-6 mile zone, will be allowed to continue fishing; the latter on a temporary, transitional basis. In both cases, however, the countries must negotiate bilateral agreements with Poland in order to fish after January 1, 1971. (U.S. Embassy, Warsaw, Feb. 19.)

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PLANS INCREASED CATCHES OF BALTIC SALMON

Under the 1970-1985 fisheries development plan, Poland plans catches of salmon species in the Baltic of 740 tons a year. Several programs have been devised: (1) conversion of drift-net materials from hemp to synthetic fibers; (2) training fishermen in modern salmon-catching techniques; (3) equipping nets with floats having radar reflectors; and (4) construction of prototype salmon cutter to begin a series of salmon-fishing vessels. Until now, most Polish Baltic salmon fishing has been done with 7-meter-long beach-type boats. Future salmon fishing will be conducted mostly by cooperative fishermen; private fishermen may continue their traditional fishery but will not be supported by the government.

Catches Fluctuated

Catches by all countries fishing in the Baltic fluctuated between 2,000 (1958) and 3,700 metric tons (1964). The 1966 catch of 2,907 tons was made mostly by Danes (1,659 tons). Poland landed only 116 tons in 1966; her catches never exceeded 350 tons (1964).

Salmon & Salmon-Trout

Salmon ('Salmo salar') are fished in winter and spring by Danish, Swedish, and German fishermen in the Southern Baltic, to which they migrate from Swedish waters.

The Poles have stocked salmon trout ('Salmo trutta') extensively, the second most important Baltic salmon-like species; it originates in Polish rivers. Two salmon-trout hatcheries have been built. ('Polish Maritime News')

HUNGARY

EXPANDS FISH-POND PRODUCTION

Hungary plans to increase production of pond fish to make more animal protein available at relatively low cost. The aim is to increase annual fish consumption to 5 kg. (11 lbs.) per person by 1980, in 1968; it was 2.55 kg. (5.6 lbs.).

Asks UN Help

To achieve this, Hungary has asked the United Nations Development Program (Special Fund) to help her improve research and training facilities in fish culture.

Hungary also is increasing production of grains required for fish feeding. ('World Food Program News,' Jan.-Feb. 1970.)

CZECHOSLOVAKIA

FISH CULTURE TRENDS

The first Czechoslovak experiments on carp culture in ponds fed with warm-water effluents from power plants were conducted in 1968-1969. Breeding was hastened by one month compared with normal pond conditions.

At water temperature of 25-30° C. (77-86° F.) and fed granulated feeds, 1 to 1+ year-old common carp in cages gained about 1,500 kilograms/hectare in 3 months; the average weight per fish at harvesting was 1 kilogram.

The research is aimed at achieving mass production of carp fingerlings.

Ducks & Carp

The university raised ducks for a short period to see whether this intensive fertilization would increase production of carp fry. Carp larvae were released into ponds after duck rearing ended. After 25 days, fry production was considerably more than in control ponds.

The university is now trying to increase production of carp yearlings through optimum combination of fertilization, feeding, and population density. ('FAO Fish Culture Bulletin')

ICELAND

CAPELIN FISHING SEASON LOOKS GOOD

As of mid-March, the capelin catch totaled 110,000 metric tons. Already, 1970 is Iceland's third best capelin year (1969: 171,000 and 1966: 125,000 tons).

Several weeks of fishing remained before season ended (traditionally early April).

Capelin is used exclusively for fish meal and oil. (U.S. Embassy, Reykjavik, Mar. 17.)

EAST GERMANS & SOVIETS

COOPERATE IN APPLYING COMPUTER TECHNOLOGY TO FISHERIES

A conference between Soviet and East German computer specialists in Rostock (E. Germany) last year concerned problems of computer techniques applied to fisheries. Joint research is aimed at improving control of fishing-vessel operations and devising mathematical and arithmetical models for shipboard computers. Models for tactical and strategic fishing control also are being studied.

The Soviets and E. Germans would like to solve at sea: general economic data analysis (without computers); optimum correlation between catch, production, and processing capability of vessels; optimum deployment of vessels (by mathematical programming and games theory).

Marine Biological Research

The 2 countries also plan to apply mathematical methods and computers to marine biological research: devise mathematical models to forecast yields and catch, design experimental population dynamics models to determine stocks of individual species, and to forecast commercial fish concentrations from biotic and abiotic factors.

The 2 parties are developing a unified system of collecting, storing, and exchanging commercial fishery data according to a unified mathematical processing technique. They also are developing standard symbols for block diagrams and information processing, as well as a standard computer language. ('Rybnoe Khoziaistvo,' 1969.)

System to Control Whole Fleet

The Soviet Caspian Fisheries Administration installed data-processing computer in August 1969. The Soviet Fisheries Ministry is working on an automatic data-control system that will make it possible to control the operations of the entire Soviet fishing fleet.

LATIN AMERICA

PERU

FISH-MEAL PRODUCTION & EXPORTS DECLINED IN 1969

In 1969, fish meal supplies in Peru--world's major supplier and leading competitor for U.S. exports of soybean meal--declined 519,700 metric tons. This equaled crude protein content of 35.9 million bushels of soybeans. The decline produced sharp increase in prices and exports fell 427,600 tons--equal to 29.5 million bushels of soybeans.

In 1969, supplies were 2 million tons and exports 1.7 million tons.

Last 4 Months Crucial

In 1969, 257,700 tons (83% of decline in production) and 389,600 tons (91% of decline in exports) occurred in last 4 months of fishing season, which began Sept. 1, 1969; it reflected reduced catches of anchovy.

Stocks during 1969 dwindled from over 490,000 tons on May 1 to less than 50,000 tons on Sept. 1.

Prices Rose

In 1969, average monthly prices--cost, insurance, freight (c.i.f.) European ports--rose sharply from low of about $137 a metric ton in January to nearly $228 a ton in November. The 1969 annual average price of $177 a ton was markedly above 1968's $134 average, the highest since 1966.

Prices have declined significantly since Jan. 1970 as catch improved and stocks increased. On March 5, prices were $175 a ton.

.5 Million Metric Tons

Virtually all of Peru's fish meal is produced from anchovies, which are subject to seasonal catch limits. The 1969/70 fishing season quota is 8.5 million metric tons; last season's was 10 million tons. If achieved, it would produce 1.6 million tons of meal.

Exports to U.S. & Canada Fell

Exports to U.S. and Canada declined 51,400 tons in 1969; this is crude protein equivalent of 25 million bushels of soybeans. This decline and reduced exports to other Western Hemisphere nations accounted for 96% of total decline.

Peru's Fish Meal Exports

	1968		1969	
United States and Canada	550.9	26.4	189.5	11.4
South America	143.4	6.9	103.7	6.3
West Germany	396.9	19.1	384.2	23.2
Other Western Europe	556.0	26.7	595.5	36.0
Eastern Europe	278.1	13.3	267.5	16.2
Japan and all others	157.9	7.6	115.2	6.9
Total	2,083.2	100.0	1,655.6	100.0
Total exports excluding those to Western Hemisphere	1,388.9	66.7	1,362.4	82.3

Exports to Europe Up

Exports to Europe totaled 1.25 million tons, slightly above 1968. West Germany emerged as largest market: 384,200 tons, or over 23% of all Peruvian exports; in 1968, 396,900 tons (18%). West German imports are expected to decline significantly this year; her recent changes in mixed-feed regulations will accentuate import decline. ('Foreign Agriculture,' U.S. Dept. Agric., Mar. 30.)

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FISH MEAL FUTURES UP

Fish meal futures prices have increased sharply, said the 'Wall St. Journal' on April 21. New York fish meal futures prices rose $5 a metric ton, the daily limit. The May 1970 contract was quoted at $205.50. In Hamburg, Germany, fish meal prices rocketed $18 a ton. Supplies for April-June delivery were tagged there at $208, and for July-December shipment at $213.

Demand was sparked by reports that the Peruvian Government has prohibited all further sales of the high-protein livestock and animal feed. According to private sources in Peru, the Government will take over completely the marketing of fish meal.

Action Expected

Apparently, the Peruvian fishing industry and foreign buyers expected the action. As a result, about 750,000 tons were sold for export prior to the ban.

PERU (Contd.):

Some supplies sold for export already have been shipped. Some will be taken from reserve stocks; on April 1, these amounted to 444,000 tons. A year earlier, the stock was 450,000 tons.

Export orders call for shipments as far ahead as December 1970. It is understood Peru will allow shippers to take supplies from new production without any defaults.

MEXICO

FISH PRODUCTION WAS ONLY ECONOMIC SECTOR TO DECLINE IN 1969

Mexico's 1969 fish production was 232,701 metric tons, a drop of 3.1% from 1968. These were preliminary data from Secretary of Industry and Commerce.

Thus, for second consecutive year, fishing was only economic sector to decline.

Ups & Downs

Continuing the trend begun in 1967, shrimp production in 1969 of 32,056 metric tons was a drop of another 11.1%. Anchovy output fell 72.8%. There were gains in oysters (31.7%), grouper (30.4%), and spiny lobsters (up 116.7%).

In industrial products, fish-meal production gained 30.2%, continuing upward trend of recent years and moving toward goal of self-sufficiency in fish meal.

Shrimp No. 4 Export

Shrimp exports in 1969 were worth US$51.8 million, down 4.2%. This was a smaller decline than in 1968. It is explained by generally higher prices in the U.S., which took most of these exports.

Because of high prices, shrimp remained No. 4 in exports after cotton, sugar, and coffee. (Reg. Fish. Attaché, U.S. Embassy, Mex., Apr. 11.)

CUBA

BUYS ITALIAN-BUILT REFRIGERATED FISH CARRIER-MOTHERSHIPS

Cuba has acquired 2 sister carrier-motherships, 'Oceano Pacifico' and 'Oceano Indico'. Built in La Spezia, they are the largest, fastest, most modern and best-equipped vessels of Cuba's high-seas fishing fleet (Flota Cubana de Pesca). In November 1969, vessels were transporting catches from trawlers and tuna fishing vessels in Atlantic. Oceano Pacifico was deployed off Equatorial Africa.

The Vessels

The vessels are: 6,651 GRT; length overall 140.5 meters; breadth 17.8 meters; 10,500-hp. engine; cruising speed 20 knots an hour fully loaded. Eight have refrigerated holds and have a total capacity of 8,350 cubic meters. Temperatures of holds can be thermostatically controlled down to -20° C. (-4° F.).

Equipment

Equipment includes radar (48-mile range), automatic pilot, radiogoniometer (direction finder), echo-sounder (range to 300 fathoms), 1-kilowatt transmitter, and an automatic alarm system. Crew's quarters, with dining, living, study and recreation rooms, are said to "resemble hotel accommodations." ("Granma")

PANAMA

FISHERY PRODUCTS WERE 10.6% OF ALL EXPORTS

Panama's fishery exports (fish meal and shrimp) were 10.6% of total exports during Apr.-Sept. 1969.

Total shrimp exports were 2,440 metric tons worth US$5.6 million; fish meal exports were 1,569 metric tons worth US$202,000. (U.S. Embassy, Panama, Mar. 17.)

ASIA

JAPAN

TUNA FLEET SIZE DECLINES BUT GROSS TONNAGE RISES

In 1969, the gross tonnage of large Japanese tuna vessels over 300 tons, and of motherships, declined about 7,000 tons from 1968. The tonnage of vessels in the 210-300-ton category increased. ('Suisan Tsushin,' Mar. 10.)

Tuna Fleet 1968-69

Vessel Size	1969 No. Vessels	1969 Gross Tons	1968 No. Vessels	1968 Gross Tons
Vessels Engaged Exclusively in Tuna Fishery				
Under 120	240	24,435	318	31,865
120-210	285	53,197	263	48,450
210-300	435	115,950	381	100,464
Over 300	201	78,327	203	79,891
	1,161	271,909	1,165	260,670
Vessels Engaged Seasonally				
	122	11,023	125	11,002
Distant-water Motherships				
Motherships	35	34,633	37	39,898
Portable boats[1/]	70		86	
Vessels Engaged in Coastal Tuna Fishery				
	1,634	71,234	1,671	69,082
Grand Total[1/]	2,952	388,799	2,998	380,652

1/ Portable boats carried by motherships are not included in grand total.
Source: Second Ocean Section, Fisheries Agency.

* * *

ONLY YELLOWFIN TUNA SEINER IN E. PACIFIC FAILS AGAIN

After losing her skiff, the 500-gross-ton 'Hakuryu Maru No. 55', Japan's only seiner in the 1970 eastern Pacific yellowfin tuna fishery, sailed for home. She began fishing in early January and had landed a disappointing 100 tons of yellowfin. It was her second unsuccessful try in the eastern Pacific purse-seine fishery.

She'll Try Again in 1971

In 1969, she and 3 other Japanese seiners experienced a disastrous failure in that fishery. The Hakuryu Maru is scheduled to undergo extensive gear modifications in preparation for a third try next year. ('Suisan Tsushin,' Mar. 27.)

* * *

TUNA LONGLINE CATCH RATE IS DECLINING

The hook rate in the tuna longline fishery during 1969 generally declined from 1968. This was reported by the Japan National Federation of Tuna Fishery Cooperative Associations (NIKKATSUREN).

Its study was based on 100,000 sets, or about 6 months' longline fishing effort.

Catches in 3 Oceans

The catch per set in 1969 was 1.7 metric tons in the Pacific; 2.2 tons in Atlantic; and 1.6 tons in Indian Ocean. The 1969 catch per set in Pacific was about 1968 level, but in the Atlantic and Indian Oceans the rate was 20-30% below 1968.

The outlook for 1970 is that longline catch may decline further. It is believed that tuna landings have declined in proportion to increase in fishing effort of South Korean and Taiwanese fleets. ('Minato Shimbun,' Mar. 12.)

* * *

VESSEL COMPLETES TUNA SURVEY IN SOUTH ATLANTIC

The Japanese tuna longliner 'Azuma Maru No. 37' (314 gross tons) returned to Tokyo on Mar. 15, 1970, after an 11-month government-subsidized, tuna-resource survey in the South Atlantic.

The vessel caught 311 metric tons of fish: 37% albacore, 27% big-eyed, 24% swordfish, 15 tons southern bluefin (400 fish), and others.

Best Fishing Grounds

The best fishing grounds were near 35° S. latitude and 45° W. longitude, where good big-eyed catches were made. Swordfish were taken near 36° S.-37° S. latitudes and 50° W.-52° W. longitudes.

Blackfin Tuna Caught

The catch also included 2-3 tons of Atlantic blackfin tuna, which contain much oil and are likely to bring good price on Japanese fresh-fish market.

JAPAN (Contd.):

Another Cruise

In April, the Azuma Maru was scheduled to depart on another cruise, for which the Government budgeted about $177,800. ('Katsuo-maguro Tsushin,' Mar. 17.)

* * *

TO INCREASE SKIPJACK TUNA FISHING EFFORT

The Japanese Fisheries Agency is focusing on development of skipjack tuna resources. It is developing survey plans. Despite opinion of some scientists that there is an overabundance of skipjack, the annual catch is only around 200,000 metric tons.

1969 Catch 20.3 Billion Lbs.

The greater Japanese catch in 1969--20.3 billion pounds--was due primarily to increased landings of Alaska pollock. But the pollock catch cannot be expected to continue increasing, so the Agency is eyeing skipjack to boost production further. Exploratory purse-seine cruises are being scheduled for this year in the southwest Pacific north of New Zealand, and in the mid-eastern Pacific. About US$861,000 has been allocated for fiscal year 1970 (April 1970-March 1971).

The Agency is considering initial surveys off Palau (U.S. Trust Territory of the Pacific) and off northwest Australia. ('Shin Suisan Shimbun Sokuho,' Mar. 10.)

* * *

EXPECT IMPROVEMENT IN SHRIMP MARKET, IMPORTS DOWN

Japanese imports of frozen shrimp in 1969 reached a record of nearly 49,000 metric tons, although the domestic shrimp market continued sluggish. Since Jan. 1, 1970, the market has shown signs of recovering; cold-storage holdings have decreased gradually. However, since the shrimp situation in Japan has not yet stabilized, the trade journal 'Suisan Keizai Shimbun' polled about 30 major firms on the present state and outlook for the shrimp business.

Survey Results

The responses generally were:

(1) No sharp uptrend in market conditions during first 6 months but, in view of present firm movement, market should improve gradually; (2) the quantity of shrimp imports depends on price, among other factors, but optimum level is around 40,000-45,000 metric tons a year; (3) promising shrimp grounds are off southeast Asian countries (Philippines and Indonesia), and off west Africa; and (4) consumer pack is an effective way to increase demand, and packing product at source of supply is preferable to repacking in Japan.

Imports Down

Japanese imports of frozen shrimp during January 1970 totaled 3,113 metric tons valued at about US$7.94 million, down sharply from Dec. 1969 imports of 4,306 metric tons worth $11.1 million. Jan. 1970 imports were contracted during Nov. and Dec. 1969, when the Japanese market was weak. ('Suisancho Nippo,' Feb. 17 & 28.)

* * *

SALMON FISHING IN JAPAN SEA STARTED MARCH 1

Japanese salmon fishing in the Japan Sea started on March 1. This fishery and the North Pacific salmon fishery are controlled by the Japan-USSR Northwest Pacific Fisheries Convention. Vessels must report location and catch each day to patrol boats of Japanese Fisheries Agency.

Large Fleet Operates

About 760 vessels from eight Japanese prefectures were expected to operate. This leads to complications in radio communication. In 1970, at least three radio bands will be used to ease communications problems. ('Minato Shimbun,' Feb. 25.)

* * *

TRAWL FLEETS LEAVE FOR EASTERN BERING SEA

Three trawl fleets departed Japan in late February for the eastern Bering Sea to produce minced fish meat (surimi), fish meal, frozen fish, and fish oil and solubles. The fleet is expected to operate there until late September. ('Suisancho Nippo,' Feb. 23.)

Their production plans are:

Fleet	Surimi	Meal	Frozen Fish	Oil	Soluble
	(Metric Tons)				
'Gyokuei Maru'	7,000	22,000	1,500	2,000	0
'Mineshima Maru'	15,000	20,000	6,500	1,800	2,000
'Shikishima Maru'	15,000	15,000	3,000	1,400	0
Total	37,000	57,000	11,000	5,200	2,000

THAILAND

BANGKOK UNIVERSITY TRAINS
LAOTIAN FISH-CULTURE SPECIALISTS

Since 1967, the College of Fisheries of Kasetsart Unversity, Bangkok, Thailand, has been training Laotians in fish culture under a program sponsored by U.S. Operations Mission (USOM) in Thailand.

So far, 16 Laotians have received 4 weeks' training, and participated in study tours and field work under the guidance of Thailand's Department of Fisheries.

3 Fish-Culture Stations

Three fish-culture stations were established in Laos in 1966--in Vientiane, Luangpravang, and Pakse Provinces. They have successfully bred the common carp introduced from Thailand. Fingerlings are distributed to interested farmers. There is now considerable interest among farmers to culture fish.

By 1971, the 3 stations may produce annually 2.8 million fingerlings and 65 to 70 tons of edible fish. (FAO Fish Culture Bulletin')

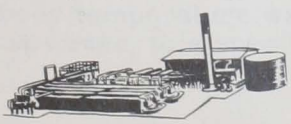
TAIWAN

MARINE FISH-CULTURE
LABORATORY BUILT

A marine fish-culture laboratory has been erected at Tungkang in southern Taiwan under a research project financed by the Rockefeller Foundation. The buildings include a research laboratory, storage building, and a dormitory. Concrete ponds with circulating sea water are under construction.

Shrimp & Grey Mullet

The work of the laboratory is directed mainly toward the biology and culture of shrimp, and the induced spawning of grey mullet, Mugil cephalus. ('FAO Fish Culture Bulletin')



SOUTH VIETNAM

SAIGON FISH MARKET IN OPERATION

The recently opened Saigon Fish Market is Vietnam's newest and largest wholesale fish-marketing facility. Built with U.S. funds, the modern US$2,360,000 structure will help reorganize South Vietnam's traditional fish-marketing system.

The Fish Market

The complex consists of a landing wharf, market building, offices, cold-storage rooms, and paved approach roads. About $65,000 additional funds were used for a parking area and supplementary facilities. (U.S. Embassy, Saigon, Feb. 14.)

SOUTH KOREA

DEEP-SEA FLEET SHOWS
STRONG GROWTH

The deep-sea fishing fleet of the Republic of Korea (South Korea), though increasing steadily over the past few years, suffered a small setback during second half of 1969. On July 1, 1969, it included 209 vessels (over 63,000 gross tons). By Jan. 1, 1970, only 1 vessel had been added, but total gross tonnage had decreased to 56,600 tons. Net gain for 1969 was 20 vessels (10,300 gross tons), a growth rate of 22%, one of the world's fastest.

1 Firm Liquidated

Much of the decrease between July and December 1969 was due to the liquidation of the Shin Hung Fisheries Company. The company had entered 17 vessels (13,560 tons) in Northeast Pacific high-seas fishing in summer 1969. Apparently operations were financially unsuccessful and the company, with no vessels in January 1970, merged with Sam Yang Company.

SOUTH PACIFIC

AUSTRALIA

SHRIMP CATCH ROSE IN 1969

The 1969 shrimp catch by trawlers in northern Australia has been estimated at 9.5 million lbs., live weight--more than double 1968's 4.5 million lbs. The official 1969 total could reach 10 million lbs. The record catch was made by 350 trawlers--100 more than in 1968.

Northern Territory

Production in Northern Territory is now emerging as one of Australia's major shrimp fishing areas; 3 trawlers took an estimated 7 million lbs., compared with only 200,000 lbs. in 1968.

Arafura Sea Most Productive

International waters in Arafura Sea, the most productive grounds, yielded 2.4 million lbs. of shrimp. Trawlers in Arnhemland-Gove area caught 2 million lbs.; in Melville Island grounds, 1.3 million lbs.

Queensland

Queensland grounds north of Townsville and in the Gulf of Carpentaria produced 2.5 million lbs. (1.5 million lbs. from Karumba-Weipa area in Gulf). In 1968, these eastern Gulf grounds produced 4.4 million lbs.

Species

Of 9.5 million lbs. of shrimp caught in northern Australia in 1969, 7.1 million lbs. were 'bananas', 1.4 million lbs. 'tigers', and 500,000 lbs. 'endeavours'.

Dec.-Jan. Fall Off

During December and January, catches by northern trawlers dropped off. Many boats were laid up for overhaul to prepare for 1970 season expected in March.

Above-average rain, particularly in Darwin-Cape York Peninsula coastal strip, has raised hopes of good 1970 season in Gulf of Carpentaria.

Northern Territory Activity

In Northern Territory, 60-70 trawlers were expected to operate. Three shore-based factories have been established--at Groote Eylandt, Katherine, and Darwin. Construction of a fourth new processing plant at Darwin, in advanced state, is for joint Australian-Japanese enterprise.

This company has four 70-ft. trawlers under construction in Australia and expected to be delivered in this season.

Seven fishing companies (three joint ventures) will be operating fleets in waters adjacent to Northern Territory and in international waters.

Queensland East Coast

On Queensland east coast, trawlers were waiting in late January for wet season to end before proceeding to shrimp grounds in north and in Gulf of Carpentaria. ('Australian Fisheries,' Feb. 1970.)