INTERNATIONAL

1967 World Fish Catch Sets Record

World fish catch set a record in 1967, according to the Food and Agriculture Organization of the United Nations (FAO). Marine and freshwater catch was 60.5 million metric tons, almost twice the 31.5 million caught a decade before, and more than three times the 1948 catch.

Peru, already the world's first fishing nation in quantity, became the first to take more than 10 million tons--almost all anchoveta used for fish meal. Japan was second with 7.8 million tons, trailed by the Soviet Union with 5.8 million. No information was available on Mainland China, whose 1960 catch was estimated at 5.8 million. FAO included this figure in the world catch, but assigned China no rank. Norway was 4th with 3.2 million; the U.S. placed 5th with 2.4. Canada, 1,289,800 tons, ranked 9th after South Africa, Spain, and India. Denmark broke the million-ton mark for the first time. Chile and the United Kingdom each caught over 1 million tons. Indonesia, which did not report data for 1967, had reported 1.2 million in 1966.

Nations Under 1 Million Tons

Iceland caught 1.2 million tons in 1966, but was down to 896,000 in 1967. Thailand, France, the Philippines, South Korea, and West Germany all caught over 600,000 tons. Taiwan, Pakistan, Malaysia, Mexico, Poland, Sweden, Italy, and the Netherlands each reported over 300,000.

Morocco, Angola, Argentina, the Faeroes, Senegal, Tanzania, Ceylon, Chad, Ghana, and Venezuela caught more than 100,000 tons each. Other countries that did not report 1967 data but were estimated to have caught over 100,000 tons were Brazil, Burma, Cambodia, South Viet-Nam, East Germany, Greece, Portugal, Turkey, North Korea, and North Viet-Nam. Countries with catches of less than 100,000 tons included Australia, Finland, Belgium, Romania, and Israel.

Major Species Fished

More marine herrings, sardines, anchovies, pilchards, and menhadens--19.7 million tons--were taken than any other group. The second most important species were cods, hakes, and haddocks, followed by redfishes, basses, mackerels, and billfishes.

Latin American and Soviet fishermen caught 675,000 tons of Patagonian hake in the Southwest Atlantic, compared with 183,000 in 1966. Most of the increase was due to the Soviets, whose catches leaped from 56,000 tons in 1966 to 513,000 in 1967.

Productive Areas

The Southeast Pacific was the most important fishing area in terms of weight. It provided 11.2 million tons. The western-central Pacific was next with 10.5 million, followed by the Northeast Atlantic's 10.2 million. In the North Pacific, the total was 6.4 million tons, and in the Indian Ocean, 2.1 million. Catch from inland waters was 7.2 million tons, including salmons, eels, and other migratory species.

North Pacific Fisheries Commission Holds 1968 Meeting

The International North Pacific Fisheries Commission (INPFC) ended its 15th annual meeting at Seattle, Wash., on Nov. 8, 1968. For 3 weeks, the participants discussed aspects of international cooperation to conserve high-seas fishery resources.

Preceding the meeting, scientists from Canada, Japan, and the U.S. reviewed results of their research in 1968 on salmon, halibut, king crab, and groundfish resources. They reported their findings for the Commission's guidance. They also exchanged information on high-seas fishing during 1968.

Halibut Fishing in Eastern Bering

A principal task on the Commission's agenda was to develop halibut fishing regulations for the eastern Bering Sea in 1969. The Commission has been doing this since 1963, when line fishing there was opened to all 3 countries.

The Commission recommended continuation of 1968 conservation measures. It suggested the complete closure to halibut fishing of an extensive area in the southeastern Bering Sea, a nursery ground for young halibut. The Commission was assisted by a scientific consultant from the International Pacific Halibut Commission.

Gulf of Alaska

In the Gulf of Alaska, the Commission focused on the effects on halibut stocks of expanding trawl fisheries for other species. Groundfish catch statistics were exchanged and studied. The Commission approved recommendations by its Gulf of Alaska Groundfish Committee for further research. The Commission's Canadian and U.S. sections urged greater efforts to get more data on the interrelationship of trawl and longline halibut fisheries.

Groundfish Other Than Halibut

Considering research on groundfish other than halibut in the northeastern Pacific, the Commission considered existing bilateral regulations inadequate. It agreed to forward its findings to the 3 governments.

Tanner Crab

The U.S. asked the Commission to study tanner crab resources of the eastern Bering Sea. The Commission agreed.

Scientific Reports

The Commissioners reviewed the progress of its program to publish scientific reports. Several major papers resulting from its research were published in English and Japanese versions in the INPFC Bulletin. These included the completion of a 9-part comprehensive report on North Pacific salmon.

The next annual meeting will be held in Vancouver, Canada, beginning Nov. 3, 1969.

Nordic Conference Held on Atlantic Salmon

Delegates to the Nordic Fishery Conference, held at Aarhus, Denmark, Aug. 29, 1968, were very concerned about high-seas fishing for Atlantic salmon. Salmon have been taken for many years in the Baltic. In recent years, more than half the catch was landed by Danish fishermen.

Another high-seas salmon fishery developed recently off West Greenland. These fish could not be of Greenlandic origin because Greenland has only one salmon-producing river. It has been supposed that salmon from both Europe and North America have one or more common feeding areas in the North Atlantic. This abrupt mass appearance may be the result of the formation or extension of such a foraging area--and the fish could disappear as suddenly as they appeared.

Norway Bitter

At the Conference, Norway was especially bitter about Danish high-seas salmon fishing. She believes the Danes are reaping the rewards of Norwegian and Swedish conservation practices. Sport-fisheries salmon catch in Norway, Sweden, England, and Scotland may be of equal or greater importance than the commercial catch. Denmark's rivers produce relatively few salmon. Gear improvement--synthetic fibers for long lines--has changed a previously seasonal fishery into a year-round one.

Danish Position

The Danes claim that increased oceanic salmon fishing has not resulted in decimation of stocks, and that catch per unit of gear has not declined. They feel that exploitation has not harmed the resource. They say many countries on both sides of the Atlantic set production records after all this supposedly harmful fishing took place. Denmark expressed willingness to regulate the fishery whenever overfishing is proved.

Eastern Pacific Tuna Catch Reported by IATTC

The total tuna catch in the convention zone, Jan. 1-Oct. 28, 1968, was 109,586 short tons of yellowfin and 64,512 short tons of skipjack, reports the Inter-American Tropical Tuna Commission (IATTC).

The annual bait-boat catch rate of 4.70 tons of yellowfin and skipjack per day was the lowest in 5 years. The catch rate by purse seiners on nonregulated trips remained high; the yellowfin rate, at 8.55 tons per day, was the highest in 5 years.

The skipjack catch rate of 3.24 tons per day was lower than 1967 but higher than 1964-1966. Purse seiners on regulated trips--after yellowfin quota had been reached--caught a daily average of 4.7 tons of skipjack and 0.74 ton of yellowfin.

Oil Pollution International Conference Held

A global pact to control the growing menace of all forms of marine pollution, including oil, dumping of pesticides, and radioactive wastes, industrial discharges of toxic chemicals, and normal sewage discharge has been urged by Roy Jackson, FAO's Assistant Director General. He spoke at the Third International Conference on Oil Pollution of the Sea in Rome, Italy, Oct. 7, 1968.

He said international legislation must forestall not only "accidental" pollution, as in the Torrey Canyon disaster, but all types, including release of "potential pollutants" and "deliberate use of ships to discharge pollutants into seas and coastal areas."

Calls for International Convention

He said it was time to consider a convention to report discharges, and to control, restrict, or prohibit deliberate discharging of specified noxious substances.

Such a pact, Jackson added, should provide for a permanent commission to monitor, enforce, and to identify "particularly noxious substances" and means to control them.

1958 Geneva Conventions

He noted that the United Nations Geneva Conventions of 1958 on the law of the sea cite pollution but do not provide for reporting or control. The oil pollution convention of the Inter-governmental Maritime Consultative Organization does not provide proper standards for pollution control.

FAO will call an International Conference in 1970 to discuss the effects of pollution on fishing.

Conference on Fish Meal

The 8th Annual Conference of the International Association of Fish Meal Manufactures (IAFMM) in Bremen, West Germany, Sept. 30-Oct. 4, 1968, was attended by fish meal industry representatives from 18 countries. They heard the latest information on current and potential production, consumption trends, and activities to aid marketing.

In the keynote speech, Dr. Gerhard Meseck, West German Ministry of Food, Agriculture, and Forestry, said his studies showed that the world's fish meal production could be raised to 7 to 8 million metric tons before the year 2000. Current problems of unbalanced supply and demand were attributed to the main producers' lack of market experience. The needs for business stability, and for a effective catch utilization in such products as fish protein concentrate for human consumption, were emphasized.

Variety of Specialists

Brokers and importers discussed quality and market problems. Scientists and nutritionists exchanged information on ways to process and market a high-quality product. Future prospects for production and marketing were outlined.

IAFMM members are Belgium, Canada, Chile, Denmark, France, W. Germany, Iceland, Morocco, the Netherlands, Norway, Peru, Portugal, South Africa, Sweden, the U.K., and the U.S.

The next meeting is scheduled for October 1969. An Executive Council meeting will be held in Madrid immediately after. The Scientific Committee meets in Amsterdam, April 9-10, 1969.

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Japan & Australia Agree on Fishing Inside 12-Mile Zone

Negotiations on Japanese fishing in Australia's 12-mile zone were concluded in mid-September 1968. The agreement, to take effect in spring 1969, covers a 7-year period (3 years for coastal areas of Papua and New Guinea, which become independent in 1971).

Japanese tuna vessels will be permitted in traditionally fished areas in the 12-mile zone, except in waters between Sydney and Brisbane, and a section off Tasmania's west coast. Fishing effort will be permitted at the present level of about 6,000 tons a year. Four ports will be open to Japanese vessels. Each vessel will be assessed about US$100 annually. ("Suisan Tsushin," Sept. 21, 1968.)

USSR Seizes Japanese Vessels

On Sept. 28, 1968, the USSR seized 2 Japanese fishing vessels with 17 crewmen near Etorofu (Iturup) Island in the southern Kurils. When the Japanese protested the seizures and inquired about the crewmen, the Soviet Foreign Office gave them a list showing 16 crewmen and denied that one had been injured during the incident. After Japan asked about the 17th man, the Soviets admitted they were holding 17.

In another incident, the USSR notified Japan on Oct. 12 that she would release 10 fishermen seized off Shikotan Island in late August 1968. What happened to their 2 vessels is not known.

Japan-USSR Meet to Assess Pacific Saury Stocks

In September 1968, biologists from Japan and the USSR held a 5-day study meeting aboard the Soviet factoryship 'Pavel Chebotnyagin' anchored off Japan. They discussed saury stocks and migration and agreed that saury abundance in coastal waters has declined.

Japan believes there are two groups of saury, one spawning in spring and the other in fall; Soviet biologists believe there is only one.

The next study meeting may be held in Japan. ("Shin Suisan Shimbun," Sept. 30, 1968.)

Japanese Explore for Tuna Off Chile

The 340-gross-ton long-liner 'Azuma Maru No. 31,' exploring for tuna off Chile, completed her second cruise in mid-September 1968 and called at Valparaiso to reprovision. Now on her third trip, she is seeking southern bluefin in the area bounded by 35°-45° S. latitudes and 80°-85° W. longitudes and has already taken four (total weight 792 lbs.).

In the first 2 surveys, good big-eyed tuna catches were made in the upper latitudes. Fishing by several long-liners has begun in that area. Azuma Maru's catch, late May to early October: 155 tons of tuna; big-eyed 106.9 tons, or 69%; albacore 23.3 tons, or 15%; and others, including six bluefin, 24.8 tons, or 16%.

South Koreans and Japanese Agree to Study Problems

A ministerial conference between South Korea and Japan was held in Seoul in late August 1968. The ministers agreed to establish an Agricultural and Fishery Technical Cooperation Committee to study technical exchange problems and to exchange fishery specialists.

South Korea wants Japan to liberalize fishery imports from Korea. The Japanese agreed to study the problem because of Korea's need to expand her fishery exports. Both nations are pleased with the surveys for development of fish-culture projects on and off the Korean coast, and the plans to develop shallow sea areas and tidal flats.

U.S.-USSR Groundfish Survey Conducted Off Mid-Atlantic Coast

In mid-November 1968, the Soviet research vessel 'Blesk' and BCF's 'Albatross IV' completed the first joint survey made under the Mid-Atlantic Fisheries Agreement from Cape Cod, Mass., to Cape Hatteras, N. C. The survey's purposes were to determine autumn distribution and relative abundance of groundfish, and to evaluate relative efficiencies of each country's standard survey trawls.

Blesk's Second Survey

The Blesk then was scheduled to study stocks and distribution of red and silver hake on Georges Bank and Nantucket Shoals and to return to Kalingrad on Dec. 18, 1968.

In late September 1968, Canada's research vessel 'Theta' joined the U.S. and Soviet vessels for a plankton survey in ICNAF subarea 5.

U.S.-Japan Fisheries Conference

On Nov. 13, 1968, in Washington, D. C., U.S. and Japanese officials began a review of 2 fishery agreements. The first agreement, signed in 1964, regulates king crab fisheries in the eastern Bering Sea. The other, signed in 1967, concerns fishery problems off the U.S. coast.

The 2 delegations examined operation of the agreements in the light of current problems and developments in the fisheries.

The U.S. delegation, including representatives from Alaska, Washington, Oregon, and California, was led by Ambassador Donald L. McKernan, Special Assistant to the Secretary of State. The Japanese delegation was headed by Minister Bunroku Yoshino of the Japanese Embassy.

U.S.-USSR Scientific Meeting

BCF scientists and representatives from Washington, Oregon, and Alaska met with Soviet scientists in Moscow in October 1968. They exchanged information on research on northeastern Pacific groundfish stocks--Pacific ocean perch, hake, and shrimp--and planned a coordinated research program. The meeting was held under the U.S.-USSR Feb. 1967 agreement on fishing in the northeastern Pacific off the U.S. coast.

Norwegian Canning Plant Slated for Shetlands

The Shetland County Council has agreed to back financially a Norwegian fish cannery on the Island of Yell. The decision sparked a major row over foreign interests getting preference over local and British companies. Norwegians have proposed a canning plant; local groups offered a freezing plant. Council felt a cannery would add more to the industry. The local company, Shetland Seafood's, still may proceed with its plans. Either proposal would provide possible employment for 30-40 people.

Much interest has been shown in developing the shellfish trade, particularly crab and lobster. ("Fishing News," Sept. 1968.)

Conference on Oceanology to be Held in U.K.

Oceanology '69, the first international conference and exhibition on oceanology in western Europe, will be held at Brighton, England, Feb. 17-21, 1969. A major international conference on ocean science and engineering will be held concurrently with the exhibition.

The National Council on Marine Resources and Engineering Development will direct U.S. participation in the conference. Plans have been made by a working committee of representatives from agencies having substantial interest in oceanology. Papers will be presented by leading U.S. oceanographers and government officials, including a U.S. Senator.

U.S. Exhibit Large

The U.K., Canada, Japan, France, Germany, and the Soviet Union are planning exhibits. Over 30 American firms prominent in oceanology will offer the following products and services of particular interest to the fishing industry: fish protein concentrate plants; research submarines; submersible motors; equipment; oceanographic and cargo winches; undersea habitats; and acoustic equipment.

FOREIGN

CANADA

WORLD'S LARGEST SALMON-REARING STATION OPENS

The world's largest Atlantic salmon rearing station was opened in October 1968. The C$3.5-million Mactaquac fish culture station, on the St. John River just below the site of the Mactaquac hydroelectric development, is the first of its type in North America.

Construction of a 600,000 kw. power dam will interfere with Atlantic salmon migration both ways on the St. John. The station will raise enough Atlantic salmon to perpetuate the runs. Total salmon run in the St. John has been estimated at 10,000 to 20,000. The fish will be trapped in collection facilities at the dam site, about 1,000 kept as brood stock, and the rest transferred by specially designed tank trucks to the waters above the dam to support angling and natural reproduction on the upper St. John. The station will also support a commercial salmon fishery in the lower regions of the river and in the Bay of Fundy.

Production Has Begun

Mactaquac began producing on a trial basis last fall. Hundreds of thousands of tiny salmon, which emerged from the egg stage last January, have been raised to the smolt or sea-going stage. They will start their downstream run soon. This is only the start of a large operation designed to produce 500,000 young salmon. (Canadian Dept. of Fisheries.)

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NEW RULES SET FOR B.C. SALMON FISHING

New regulations increasing the earning power of British Columbia salmon fishermen and permitting more effective management of the salmon resource will be effected in 1969. The size of the fishing fleet will be limited, which should reduce production costs. Vessels presently fishing for salmon will not be deprived of fishing rights. Anyone will still be able to buy and sell salmon vessels.

The new regulations place vessels in two categories, based on commercial landings either in 1967, or in this year up to Sept. 6. In both categories, transfer of vessel ownership will be allowed; and the salmon fishing license will accompany the vessel.

Vessels in the first category are those with a 10,000 pound or more production of pink or chum salmon or the equivalent in other species, based on the following formula: 1 lb. of sockeye or coho equals 3 lbs. of pinks or chums; 1 lb. of spring salmon equals 4 lbs. of pinks or chums. This would be equivalent to about C$1,250 landed value.

Licenses for "A" category vessels will be renewable annually. If a vessel is to be newly licensed, it must replace an A category vessel.

The "B" category includes vessels producing less than 10,000 lbs. of pink or chum salmon or the equivalent. They may renew licenses annually, but they cannot be replaced by a new vessel. Most vessels in this category are small and, in terms of commercial catch, they provide about 1% of total salmon production value.

Vessels licensed for salmon in 1967 or 1968 that did not record any commercial landings in 1967, or prior to September 6 in 1968, will not be licensed in 1969.

The salmon license of a vessel removed from the fishery by loss at sea will be cancelled and cannot be replaced.

To increase the value of the salmon fishing privilege, the license fee will be increased from C$5 to $10 in 1969. As the fishing privilege becomes more valuable because of fleet size reduction, license fees will be further increased. Current cost to salmon fishermen is $20--commercial fishing vessels registration, $10; validation for salmon fishing, $5; personal fishing license, $5.

The new measures supplement the conservation and research programs that are ensuring a continuing and increasing supply of salmon. (Fisheries News, Dept. of Fisheries of Canada, Vancouver.)

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Canada (Contd.):

TUNA CATCH IS UP

Tuna landings through September 1968 were 1,952,000 pounds; in the 1967 period, 122,000 pounds. Development of this industry has been difficult. Several disputes have occurred over labor matters and government policies.

In September, tuna were selling for C$350 a short ton in Vancouver. ("British Columbia Fish Marketing Report.")

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1968 MAY PROVE GOOD FISHING YEAR FOR ONTARIO

Production in first-half 1968 indicated a good year for Ontario commercial fishing: 22.5 million lbs. of fish yielded a gross return of C$2.3 million. By the end of June, landings were 3 million pounds more and C$89,000 above landings at mid-1967.

Species

Landings increased in all Great Lakes waters except Lake Huron proper. There were increases in 19 of the 25 species comprising the catch; these included the premium whitefish, walleye, lake trout, and sturgeon. Smelt landings showed the greatest change, increasing from 4.6 to 7.5 million lbs. Yellow perch was 7.8 million lbs., and walleye 1 million.

Lake Erie Perch

An 8% decline in the perch harvest from Lake Erie was due to new controls imposed to solve the problem of oversupply. A slight price decline, coincident with smaller landings, depressed the value of the perch catch for first-half 1968 by 11% from 1967.

Perch are abundant in Lake Erie and fishermen were not expected to have difficulty taking the quota for the second half. (Ontario Dept. of Lands and Forests.)

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EXPLORATORY FISHING IN LAKE ONTARIO

A 5-month program to determine if smelt and alewife stocks in Lake Ontario will support a commercial trawl fishery was completed in December 1968. The program investigated markets for the species and delineated grounds over which bottom trawling is physically feasible.

Methods & Results

Canadian waters of the lake were subdivided into sampling areas of about 50 sq. miles. These were searched with a fish-detection echo sounder. Radar was used to maintain the vessel on the search pattern's predetermined courses. Trawl tows were made where sizable schools were found to determine their sizes and species. A biologist was aboard to direct operations and to record and interpret results.

Findings suggest that the lake's eastern basin has the greatest concentrations of alewives and smelt. (Ontario Dept. of Lands and Forests.)

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MIDYEAR REPORT ON MARINE OILS & FISH MEAL

Marine oil production during first-half 1968 was 27.5 million pounds, 16% more than the 23.7 million produced in the 1967 period. Most of it was herring oil, the rest small quantities of seal, whale, and other marine oils. The greater part of herring oil is used to manufacture margarine; the remainder is used for shortening oil.

Marine Oil Exports & Imports

Marine oil exports declined 61.3% during the first 7 months; imports dropped 65.1%. As a result, Canada has a favorable trade balance of 975,000 pounds, compared with a favorable balance of 1.8 million for the same period in 1967.

Fish Meal Production

Fish meal production during first half was 94.8 million pounds, 21.5% more than the 78 million of first-half 1967. Total 1967 fish-meal production was about 196 million pounds.

Fish Meal Exports & Imports

From Jan.-July 1968, fish-meal exports increased 38.7% to 19.2 million pounds. The U.S. bought 63.8%, compared with 28.3% for the first 7 months of 1967. Imports during the same period were 2.6 million pounds;

Canada (Contd.):

none was imported in 1967. (Foreign Agricultural Service, Ottawa, Canada.)

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TESTS MIDWATER TRAWLING

Midwater trawl operations using a stern ramp vessel are being sponsored jointly by federal and provincial governments and industry.

In mid-September 1968, a 156-ft. stern ramp trawler, the "J. B. Nickerson," landed a record 427 short tons of herring at Pubnico, Nova Scotia. She made the catch in 30 hours and 12 tows on Orphan Bank in the Gulf of St. Lawrence. From Aug. 19 to Sept. 12, the vessel landed 1,652 tons of herring, amply demonstrating the method's economic potential for stern trawlers.

Large quantities of herring are taken by purse seiners operating over huge schools of fish. Midwater trawling is performed during daytime, when herring are dispersed and too deep for successful purse seining. (Canadian Dept. of Fisheries.)

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ACCEPTS NEW ICNAF REGULATIONS

Canada has accepted changes in regulations governing fisheries in the northwest Atlantic. She and the 13 other members of the International Commission for the Northwest Atlantic Fisheries (ICNAF) are concerned about the effects of heavy fishing on the fish stocks.

The new regulations will include additional species of fish under conservation measures establishing minimum mesh sizes for the nets used. Cod and haddock have been regulated for years. The minimum mesh sizes, ranging from $4\frac{1}{2}$ to 5 inches, depend on the area being fished and the type of gear used and are designed to permit the escapement of fish under commercial size.

Flounders, Halibuts, Redfish

Flounder will be regulated in all ICNAF fishing areas northeast of, but not including, Georges Bank off New England to the coast of Labrador, in the minimum mesh-size regulations. In the Grand Banks area which extends westward and southward more than 600 miles, halibut and Greenland halibut are included in the regulations. In the northern section of the Grand Banks, redfish come within the minimum mesh-size restrictions.

Nations Police Their Nationals

To administer the 200,000 square miles of ICNAF waters, there are 5 subareas. The present control system makes each nation responsible for enforcing ICNAF regulations for its own nationals. Canada, for instance, sends patrol vessels to the fishing banks with authority to board Canadian fishing craft. At the landing docks, officers of the federal Department of Fisheries Conservation and Protection Service board Canadian fishing vessels to check mesh sizes.

14 ICNAF Member Nations

Canada was an original signer of the international convention set up almost 20 years ago. There are now 14 member nations: Canada, Denmark, Germany (Federal Republic), Iceland, Italy, Norway, Portugal, Poland, Romania, Spain, the U. K., the U.S., and the USSR.

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DISCONTINUES FISHING GEAR INSURANCE

Canada's experimental low-cost federal insurance, covering fixed fishing gear such as weirs, fish traps, working and storage buildings (and the equipment stored in them) has been discontinued. Losses were greater than expected. The plan ran at a deficit because not enough fishermen participated.

During 1967-68, fishermen, mostly in Newfoundland and Nova Scotia, purchased 350 policies with an insured value of C$718,295. In the same period, claims amounted to $26,313, and premiums only $7,089.

Existing policies will be honored but not renewed.

EUROPE

Norway

CATCH DROPS 18%

Norway's catch from Jan.-June 1968 was 1.4 million tons, down 18% percent from the 1.7 million landed in the 1967 period. The decline was due to lower landings of herring, mackerel, and saithe. Capelin catches increased about 20%. Most of the catch--78% percent--was used for reduction. ("Fiskets Gang.")

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WHALING INDUSTRY FADES AWAY

Kosmos--the only Norwegian company that whaled in the Antarctic in 1967--called it quits in 1968. It marked the end of an industry which brought prosperity to the whaling center of Sandefjord, south of Oslo.

High costs, worn-out facilities, and poor markets were major reasons for the decision. The firm would have needed a US$4 million investment to meet competition from other countries, primarily Japan.

A company spokesman stated: "With the development that whaling in the Antarctic has undergone. . .limited catching periods and greatly reduced stocks. . .it would be indefensible to rebuild the large Norwegian whaling fleet." (U.S. Embassy, Copenhagen.)

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STOCKFISH SUBSIDIES

In September 1968, the Norwegian government proposed a US$8.4 million support for the stockfish industry. About half was to be used for state purchases of 5,000 metric tons of unsold stockfish from 1967 production, and the other half for interest-free loans to purchase 1968 production. Norway probably will offer the fish to the World Food Program and/or other humanitarian programs. She did this with the 4,000 tons purchased in spring 1968.

This appropriation is in addition to the US$16.8 million extraordinary support measures for the stockfish industry adopted during the past 12 months. The degree of state support extended to the stockfish industry is illustrated by the fact that the total export value in 1966, the last normal year, was US$21.8 million. Very little stockfish is sold for domestic consumption.

Marketing Conditions Abroad

Increasing competition and general deterioration of marketing conditions abroad for some of Norway's major fish products gained further momentum in 1968. The civil war in Nigeria, Norway's most important market, reduced deliveries to a fraction of normal levels; and Mexico banned klipfish imports. Prices abroad declined for several major fish products--frozen fish fillets, shrimp, and marine oils. Export statistics for first-half 1968 showed reduction in quantities and values of 3.6% and 19%, respectively, to 390,000 metric tons and $99 million, compared with the 1967 period.

Domestic Repercussions

The poor overseas market conditions, temporary stoppages of fishing for certain species in various districts, reduced incomes and profits and caused several bankruptcies among processors/exporters. The Fishermen's Union, several local unions, and fishermen's marketing organizations blamed the exporters for failing to exploit marketing opportunities, and for the price-depressing competition overseas. They all recommended that full centralization of fish exports be enforced under the 1955 Law on Fish Exports.

Conditions in Finnmark

The province of Finmark, in the far north, was particularly affected by marketing disruptions; its economy is almost completely geared to fishing. The province is the principal producer of so-called "African quality" stockfish, so the reduced deliveries to Nigeria aggravated her problems. Finnmark's crisis may be largely local, rather than coastwide. The communities particularly affected were the smaller ones, where landings are used for dried and salted products--stockfish and klipfish. The stockfish industry cut purchases of raw fish to 11,300 tons, about one-third the 1967 level, and the klipfish industry by 39% to 4,300 tons from Jan.-mid-Sept. 1968. The small size of most boats from

Norway (Contd.):

the smaller villages prevented fishermen from delivering catches to ports where there was still a market.

The picture was quite different in communities with frozen-fish filleting and reduction facilities, although 1968 prices both for fishermen and in export markets were lower than in 1967. Finnmark frozen-fish filleting plants bought a record 61,200 tons from Jan. through mid-Sept. 1968, 44% more than in the 1967 period. Fish used for filleting results in products bringing much higher prices per unit of raw fish used than fish processed into stockfish and klipfish. Deliveries to Finnmark's reduction industry have set a record in 1968. Capelin catches reached more than 520,000 tons, and 318,000 tons of fat herring had been landed by mid-September. This means that Finnmark's fish meal and oil industry must have been working at full capacity since early spring.

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EXPORTS FISH PROTEIN CONCENTRATE

Norway has shipped her first fish protein concentrate (FPC) for human consumption. The shipment, from Skude Fishkemelfabrikk near Haugesund, was 3 metric tons of fish meal (probably herring or mackerel meal) packed in 25-kg. paper sacks to be marketed in Cameroun.

There is some reason to believe that Skude Fishkemelfabrikk FPC is based on conventional gasoline extraction of fat using fresh fish raw material.

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MANY DOGFISH CAUGHT ON GEORGES BANK

The 'Arnfrid Leonora' returned to Bergen, Norway, in November 1968 with a 75-80-ton catch of dogfish taken on Georges Bank off the Massachusetts coast. The vessel, at sea for two months, found good stocks of "large, fine dogfish of the best quality" on the Bank. Fishing was most effective at 10 to 30 fathoms. She was the only vessel seeking dogfish, although large numbers of foreign vessels were fishing on the grounds.

Sales on European Market

Dogfish are taken on longlines fished near the bottom, and as incidental catch in bottom trawling. Norway takes about two-thirds of Europe's 30-40 thousand ton annual catch; U. K. takes most of the remainder. Fresh dogfish and smoked pieces of back and belly flesh go primarily to Germany and the U. K.

In Germany, the flesh is smoked and packed in gelatin as a semipreserved product, canned in oil, or sold as "seeaal" (ocean eel) and "schillerlocken."

In Denmark, fresh, skinned dogfish is sold as "kongeal" (king eel). Properly prepared, dogfish have a fine, delicate flavor.

U.S. Opportunities

U.S. fishermen might be able to sell the countless tons of dogfish they take as incidental catch. The market on the Continent was excellent, but heavy British landings were limiting sales possibilities there.

Denmark

RECORD YEAR IS LIKELY FOR FISHING INDUSTRY

It is likely that fisheries will set a record in 1968. Fishermen received 50 million kroner (US$6.7 million) more during the first half than in the same period of 1967. A record year was also expected for exports. If good weather held, they would exceed one billion kroner ($133 million), an increase attributable to excellent weather and heavy landings of industrial species.

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MORE SUBSIDIES RECOMMENDED IN GREENLAND

The fisheries, Greenland's major industry, are in trouble and local legislators say further subsidization is the only solution.

Cod usually provides about two-thirds of Greenland's landings; the catch for the first 7 months of 1968 was down about 35%. The

Denmark (Contd.):

catch failed catastrophically in the major ports; in Holsteinboborg, the hardest hit, it dropped more than 80% from 1967. Many fishermen fear they will be unable to meet payments and lose their vessels. Catches of seal also dropped.

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NORWAY DELIVERS VESSELS TO THE FAROES

Norwegian yards delivered 2 fishing vessels, a shelter-deck long-liner and a power-block purse seiner, to Faroese owners in September 1968.

The long-liner, 'Leivur Hepni,' is 160 ft. long, has a 1,200-hp. diesel main engine, and can cruise at 13.3 knots. The covered and heated work deck makes it easier for the 27-man crew to work distant grounds off Greenland and Newfoundland.

Another Faroese long-liner, the 'Isborg,' is being equipped with refrigerated seawater (RSW) tanks in Norway. The vessel will be used to supply the European market with fresh herring. She is 196 ft. long and has a covered and heated work deck.

The Purse Seiner

The purse seiner, "Solborg," is 138 ft. long and has a 1,200-hp., 4-cycle, V-type diesel main engine directly coupled to a variable-pitch propeller. She has 2 side-thruster propellers, a pair of 63 kw. motor generators for auxiliary power, and comfortable cabins for the 17-man crew. She is equipped with the most modern hydraulic deck gear, and electronic navigating and fish-finding equipment and dual sonar and radar. She also has 2 RSW tanks subdivided into 3 tanks each. The smaller sections can be used separately, or they can be connected by open hatches to simplify loading when catch is landed for industrial purposes. Solborg will catch herring for British and Continental fresh-fish markets.

Fresh Herring Not Fish Meal

The low prices Faroese fish-meal plants were paying for raw material spurred the interest in RSW-tanked purse seiners. RSW tanks make it possible to deliver herring suitable for human consumption to a number of North Sea ports, especially in Denmark, Germany, and Scotland. The conversion of big Faroese long-liners to power-block seining for industrial-quality herring may shortly be followed by conversion to fishing for food-quality herring using RSW tanks. Norway and Denmark also are interested in RSW-preserved herring, a development welcomed by those who consider herring too good for fish meal.

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LAUNCHES FIRST FLOATING FISH-MEAL PLANT

A 30-year-old Danish patrol and rescue vessel--renamed 'Helsing'--has been converted to a fish-meal factoryship capable of processing about 75 tons of fish every 24 hours. The owners have invested US$266,000 to produce high-quality fish meal for mink feed. Because this requires first-quality raw material, they are "taking the factory out to the fishing grounds."

The fish-meal plant is a fully automatic 'compact' model produced by Dan-Thor.

Spain

WINS 7TH PLACE IN WORLD CATCH

Fish production in Spain continued upward in 1967 and won her seventh place worldwide in volume of production, and fifth in value. The official fish catch was 1,428,780 metric tons, with a first-sale value of US$330.9 million. This was an increase of slightly more than 4% over 1966's 1,371,000 tons. The high value is explained by the relatively high percentage (16%) of shellfish in the total catch.

Fleet Grows

In 1961, Spain enacted the Law for the Renovation of the Fishing Fleet. From 1961 through March 1967, fleet tonnage increased from 270,000 to 484,000 gross registered tons. Credits for fishing vessels granted exceeded US$100 million.

This trend is continuing. During 1967, 288 new fishing boats entered service.

Spain (Contd.):

As of March 1968, 140 fishing vessels were on order in Spanish yards (most over 100 tons and steel-hulled), including 79 long-range, 31 freezers, and 30 cod vessels. The improvement has been concentrated in the long-range fleet, while the coastal fleet has deteriorated. Official efforts are underway to reverse this deterioration but are handicapped apparently by lack of sufficient official credit.

Long-Range Fleet

The shift to the long-range fleet has meant a shift in type of species landed, with important consequences for the domestic market. Offshore fish important to the packing industry, such as anchovies and tuna, have been declining, while frozen fish and cod from the long-range fleet increase.

Demand for frozen fish does not match increasing supply. The problems are consumer preferences and insufficiency of refrigerated storage facilities. The Ministry of Commerce is actively promoting the Refrigeration Expansion Plan for medium-sized warehouse and at retail level.

Per-Capita Consumption Up

Per-capita fish consumption increased from 38 lbs. in 1964 to 44 lbs. in 1967. Expansion of refrigeration facilities will tend to even out extreme differences in consumption rates between provinces. (U.S. Embassy, Madrid, Sept. 25, 1968.)

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FACES PROCESSING TROUBLES

Processed fish reached a record value of slightly over US$100 million in 1966, but it remained the only sector of the fishing industry that fell far short of planned goals. This was due mainly to failure to modernize and consolidate small and inefficient plants, and to insufficient supplies of the fish most in demand. During the last 2 years, landings for processing have declined, in absolute and relative terms.

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WEST AFRICAN FLEET IS REDUCED

White fish catches by Spanish trawlers off the coast of South-West Africa had dropped by Sept. 1968 from about 30 tons per-day per-vessel to 10. Seasonal scarcity of white fish, especially hake, caused the reduction.

Off South America

Fifteen Spanish vessels were fishing off Argentina, Chile, and Peru. Catches were reported good, although the fish were smaller than those in South-West Africa catches.

Markets

Meanwhile, the fish glut on the Spanish market had ended. Some frozen fish was sold to the U. K. and marketing prospects in Japan were being investigated.

Transshipments

The bigger trawlers off the South-West African coast returned to Spain after filling their holds, instead of transshipping to reefers. Only the smaller ones were transshipping at Walvis Bay. ("South African Shipping News and Fishing Industry Review," Sept. 1968.)

USSR

STUDIES COMMERCIAL DEEP-WATER TRAWLING

The 'Akademik Berg' of the Pacific Fisheries and Oceanographic Research Institute has been in the northeast Pacific since mid-August 1968 investigating pelagic fishery resources between 900 and 6,000 ft. (300-2,000 m.) and trawling to 6,000 ft. (2,000 m.). Earlier explorations indicated commercial concentrations of fish at these depths. In the Barents Sea, the Murmansk trawler fleet was reported trawling on a commercial scale as deep as 2,700 ft. (900 m.).

In the North Atlantic

In 1961, the Soviets began deep-sea fishing on Georges Bank and in the Norwegian Sea at 1,800-2,100 ft. (600-700 m.). In 1965,

USSR (Contd.):

the Latvian fleet made good catches while deep-water trawling off the Grand Banks; in 1966, Kaliningrad vessels also tried deep-water trawling there.

In 1968, in the North Atlantic, researchers aboard the 'Aisberg,' 'Okeanograf,' and 'Professor Vize' have been studying the dynamics and thermics of water masses to 3,000 ft. (1,000 m.). The Polar Fisheries and Oceanographic Research Institute, using data gathered during 3 years of hydrobathygraphic research, is preparing a map of North Atlantic deep-water regions having commercial concentrations of fish.

North Pacific and Bering Sea

In 1962, the exploratory research vessel 'Adler' trawled at 600-2,100 ft. (200-700 m.) for halibut, ocean perch, and sole in the Bering Sea, off the Aleutians; she caught 2.5 metric tons of halibut and 8 tons of perch in 1 hour. In 1963, catches by 'Ogon' at 1,200-2,100 ft. (400-700 m.) in the Bering Sea occasionally exceeded catch in shallower waters. Later that year, 3 large stern trawlers began commercial deep-water trawling in the North Pacific and the Bering Sea. In 1964, 'Akademik Berg,' trawling in the Bering Sea at 3,000 ft. (1,000 m.), reportedly caught 50 tons per fishing day; in 1966, she was back again, trawling at 1,200-4,500 ft. (400-1,500 m.) for halibut and sable fish.

Barents Sea

In 1964, the exploratory trawler 'Treska' found commercial concentrations of turbot at 2,850 ft. (950 m.) near Bear Island in the Barents.

Kuril Trench

In 1966, 'Vitiaz' explored the Kuril Trench and collected data on the fauna and biology to 27,000 ft. (9,000 m.). She reported large catches of fish to 10,500 ft. (3,500 m.).

Technical Problems

The Soviets can fish to about 2,700 ft. (900 m.), but they cannot fish much lower. Although all surveys since 1963 have indicated fish concentrations at lower depths, the problems caused by enormous pressure on the gear at lower depths are staggering.

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SHRIMP RESEARCH IN THE PERSIAN GULF

Kuwaiti shrimp fishermen in the Persian Gulf, using small vessels with double trawling gear, land 30-61 metric tons of shrimp tails per month per vessel. A try net is used to locate good areas. The average daily shrimp catch of a Soviet SRTM is 0.693 ton; the Kuwaiti vessel's is 0.669. This has prompted the Soviets to study shrimp biology and fishing techniques to find improved trawling methods.

Weather Conditions

The best Soviet hourly trawling catches, 0.3-0.4 ton, were obtained during westerly winds and the first 3 or 4 days of calm thereafter. Then, the shrimp moved into shallower waters, where they could not be fished. These observations were not double-checked in 1966/67 when southeasterlies prevailed.

Tidal Conditions

Tides and moon phases also affect catch size. In 1966/67, shrimp catches were highest during full moon and new moon periods, except in late December and early January, when molting shrimp prevailed. Daily catches also increased during the tide change.

Effect of Black Croakers

Black croakers, 'Sciaena,' cause shrimp to move away. During 1 hour, in 1966, a processing trawler caught 0.2-0.25 ton of shrimp; several days later, after sighting many black croakers in the area, catch per hour dropped to only 100 shrimp. Examination of 'Sciaena' stomachs revealed they had fed exclusively on shrimp.

Temperature Variations

Temperature variations can affect shrimp catches. The best catches occurred at bottom temperatures between 24 and 26° C. (75.2-78.8° F.) in December, and 23° C. (73.4° F.) in January. No shrimp were caught at temperatures below 20° C. (68.0° F.).

Results

The Soviets have decided that shrimp fishing in the Persian Gulf should be done with small vessels equipped with double trawls and a try net. Shrimp vessels should deliver catches to floating bases, like BMRTs, with

USSR (Contd.):

fish-meal producing facilities. Fish caught incidentally to shrimp fishing could be processed into meal. Trawling should be done during a full moon or new moon, during the daily change of the tide, with westerlies, and during the 3 or 4 days of calm that follow. Shrimp fleets should include an exploratory vessel to discover new commercial concentrations, to direct the fleet to them, and to make hydrometeorological observations. ("Rybnoe Khoziaistvo," No. 7, 1968.)

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FISHES MACKEREL OFF JAPAN

Soviet fishing for mackerel off eastern Hokkaido is expanding. In Sept. 1968, 33 fishing vessels, 4 factory motherships, and 1 refrigerated transport were sighted around 43° N., 147° E., catching and canning mackerel. The Soviets use purse seines on converted medium side trawlers. One source reported as many as 100 vessels divided into 6 fleets.

In 1967, 6 medium side trawlers and 4 seiners caught 9,000 metric tons in 2 months off the South Kurils and Hokkaido.

At last report, the Soviets were investigating sonar tracking of mackerel schools and the use of lights for night fishing.

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AIDS DEVELOPING COUNTRIES

In early 1968, the Soviet Union was helping 18 countries to develop marine fisheries--Burma, Iran, Uganda, Guinea, Somalia, Kenya, Cameroon, Cuba, the United Arab Republic, and others. There were 450 foreign fishery students in the USSR at that time: in university and technical institute postgraduate programs, training with fishery firms, and on board fishing vessels.

In 1966-67, about 150 foreign students graduated from Soviet fishery schools. Several years before, Kaliningrad fishery firms had trained 200 Cuban students. In 1967, the Soviets hosted 3 FAO Fishery Seminars. One was held aboard a large research vessel and gave participants practical and theoretical experience.

United Kingdom

DEVELOPS ON-BOARD GUTTING MACHINE

The White Fish Authority has developed a gutting machine for use on deck. It works well on cod, haddock, and whiting, cleanly gutting over 80% of the fish without damaging the fillet.

The machine is 44" x 30" x 36" high and weighs 860 lbs. and can be operated electrically or hydraulically. One worker can feed thirty to forty-five $10\frac{1}{2}$-inch fish a minute. The throat is cut if the fish is to be frozen--but it is not if fish is to be landed fresh. The head is left on and the liver is removed with the guts. ("The Irish Skipper," Sept. 1968.)

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NEW FISHERIES POLICY PROPOSED

The U. K. proposed a 5-year export plan for the deep-sea fishing industry with principal benefits going to companies making the most productive use of the resources.

The U. K. recognizes fluctuations in the industry's profitability and the need to preserve efficiency incentives. So a US$4.8 million basic subsidy will be adjusted by reference to operating profits in the preceding year. If these are less than US$9.6 million, the basic subsidy will be increased by half the difference; if more than $9.6 million, the basic subsidy will be reduced by half the excess. The total annual subsidy, limited to US$9.6 million, will not be allowed to rise above a profit-plus-subsidy level of $16.8 million. Subsidy distribution will be related to a vessel's operating efficiency and not to its classification. ("Fisheries Council of Canada Bulletin.")

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GRANTS PRICE GUARANTEE TO SHETLANDS

On Oct. 1, 1968, Shetland fishermen began to receive, for one year, higher minimum guaranteed prices for haddock, whiting, and cod. The Shetland Fishermen's Association members and buyers had agreed on prices".

New minimums (in U.S. measurements): haddock under 14 inches, 4.7¢ a lb.; over 14 inches, 5.8¢ a lb.; cod, unselected, 4.3¢ a lb.; whiting under 13 inches, 4.1¢ a lb., over 13 inches, 5.4¢ a lb. ("Fishing News," Sept. 27, 1968.)

LATIN AMERICA

Mexico

THE FISHERIES OF CAMPECHE

Campeche, the capital city of Campeche state, is one of Mexico's leading fishing ports. It is on the shores of the Bay of Campeche in the southeastern part of the Gulf of Mexico. It lies almost exactly halfway between the other two important fishing towns of the Yucatan Peninsula--Progreso to the northeast, and Ciudad del Carmen to the southwest.

Founded in the 16th Century, Campeche has experienced several economic booms. Over a long period, it was sacked at intervals by pirates. Its old fortifications, colonial churches, and nearby Mayan ruins have attracted some tourists. Agriculture still flourishes in the hinterland, but the city was slipping into deep slumber when development of a shrimp industry injected new life into the old town 20 years ago.

U.S. Demand for Shrimp

As the U.S. demand for frozen shrimp grew, adventuresome American and Mexican operators set up plants and brought boats to the sleepy seaport. Soon local families invested money they had made in hardwood, dyewood, chicle, and agriculture in freezing plants and trawlers. One family is said to own more than 50 shrimp boats. Campeche does not depend as heavily for its existence on shrimp as its neighbor, Ciudad del Carmen--but local people agree that Campeche would be hurt fatally if either the market or the resource disappeared.

Differs from Neighbors

As a fishing port, Campeche differs sharply from its neighbors. Progreso is strictly for fin fish; hook-and-line boats take groupers and snappers. Ciudad del Carmen is strictly a shrimp port. Shrimp is by far the most important species at Campeche, but there is a flourishing fishery for octopus, as well as beach seining for corbina (sea trout) and deep lining for groupers and snappers. Campeche boats fish regularly much farther from home than their neighbors. The name "Campeche" can be seen on the transoms of shrimp trawlers from Texas to Nicaragua. All the freezing plants pack fin fish as well as shrimp.

Campeche's Industry

The Campeche fishing industry is located along 5 miles of beach road between the city and the suburb of Lerma. Five freezing plants, a dozen boatyards, ship chandlers, ice plants, customs dock, fishermen's school, marine laboratory, oil dock, and tank farm combine to create a picturesque and efficient fishery complex.

Campeche's 5 operating freezing plants are, largest first: Booth Fisheries de Mexico, Congeladora del Golfo de Campeche, Congeladora y Empacadora de Mariscos de Campeche, Mariscos del Golfo, and Isla Camaronera. Booth is a subsidiary of a U.S. company. All other plants are owned locally or by residents of Mexico City. Booth is the pioneer plant and Congeladora y Empacadora the newest. The latter is a fine example of the latest in construction and equipment. Some plants have their own unloading docks; others use the customs pier and haul the shrimp to the plant by truck.

The combined rated capacity of the 5 freezing plants is 93,000 pounds of heads-off, shells-on, shrimp per day. Because most of the pack is peeled and deveined shrimp, which is a time-consuming process, actual operating capacity is probably not much over half this figure. A 6th plant is under construction on "Shrimp Row" for a group of local owners. It was scheduled to be placed in operation about the end of 1968 and would add considerable first-class production capacity to the industry.

A fleet of 170 to 200 shrimp trawlers serves the plants. The fleet is supplemented by a small but growing fleet of snapper (huachinangero) and grouper (merero) handline boats, and a host of canoes fishing for octopus and beach seining.

Shrimp Fleet

The shrimp fleet consists entirely of wooden hulled, "Gulf of Mexico" type double-rigged trawlers, most built in Campeche. Although manned by members of fishermen's cooperatives, in accordance with Mexican law, most are owned by private, usually local individuals. Nearly all the boats are powered by U.S.-built diesel engines (mostly Caterpillars). Recently, a West German engine

Mexico (Contd.):

manufacturer contracted to install up to 50 German engines (MWM) by offering a "package" financing proposal. Under this, the purchaser of a new boat could borrow money not only for the engine but for the hull and all equipment. The offer was attractive, and 12 or 15 engines have been installed so far (plus 2 or 3 in Carmen). Some fishermen are pleased, others reportedly have been plagued by breakdowns and lack of parts. Most new boats continue to have U.S. engines installed. The trawl winches, patterned on popular U.S. models, are made by foundries in Merida and Campeche.

The fleet is being upgraded all the time. The vessels fish far from home and owners have learned that large, efficient trawlers are essential. So, many smaller boats are being sold in Carmen, where trawling is in shallower water close to port, and are being replaced by larger craft. The local shipyards are kept busy on replacements and additions to the fleet. Each shipyard is no more than a space on the beach where 1 to 4 boats can be built at a time. On June 21, 1968, no fewer than 41 trawlers were in various stages of construction--from keel laying to outfitting. As each is finished, another is started. It requires about 6 months from keel laying until new trawler is ready to put to sea.

Offshore Fishing

The nearby waters are shallow and non-productive, so the trawlers fish offshore. The best grounds are around the keys--Cayos Arcas and Arrecifes Triangulos, and on the

The fishermen of Patzcuaro Lake, west of Mexico City, operating their unusual fishing gear. (FAO: Patrick Morin)

Mexico (Contd.):

flats a short distance inside these keys. Seasonally, some boats fish the newly developed banks in the Caribbean near Cabo Catoche and Isla Contoy. In all these areas, shrimp trips are 15 to 18 days. Local ice plants supply the vessels.

When fishing is poor around the keys, sometimes in May, June, and July, many Campeche shrimpers fish north of Tampico. They fish about 15 days after the 3-day run to the banks, and deliver the catches to Tampico freezing plants. Then they fish for another 15 days and return with the catches to Campeche. They deliver about half their production at each place. During the last year or so, a few Campeche trawlers have fished off Texas. Others fish for plants in Nicaragua during the local off season.

The Shrimps

Most of the catch is pink shrimp, often up to 90%. Because fishing is in fairly deep water, where larger shrimp are found, the pinks are larger than those taken by shallow-water fishermen at Carmen. A large proportion runs 15-20 to the pound (heads off) and some are under 15. The bulk of the production is peeled and deveined, then individually quick frozen (IQF). The plants are U.S.-made peeler-deveiners. The IQF shrimp are packed in 40-pound-capacity polyethylene bags and placed in cartons (also 40 pounds) for storage and shipment. The IQF are repackaged in the U.S.

The white shrimp and the largest pinks are packed heads off, shells on, in 5-pound boxes. Some plants pack only for export, others also ship to the domestic market, mostly to Mexico City. But some are sent to hotels in Merida and other cities. Most export shipments are made by refrigerated truck and trailer to Brownsville, Texas, a 72-hour trip. Some go by refrigerated ship to Brownsville and Miami. All freezers have sales arrangements with U.S. importers; most freezers sell exclusively to one buyer.

Fin Fish Fillets

Freezing and packaging of fin fish fillets for export are an important and growing part of the shrimp-plant business at Campeche. The principal product is sea trout fillets packed in 5-pound boxes. Groupers and snappers are also processed. The favorite fish locally is the pompano (pampano). It is in good demand in Mexico City, and often appears on the menu at the higher-class seafood restaurants as "pampano de Campeche."

Octopus

Campeche is the site of a flourishing fishery for octopus, a popular seafood in Mexico, particularly in the capital. Most is purchased and shipped by truck to the Government's pilot fishing port at Alvarado, Veracruz, for packaging and freezing. Some is exported to Argentina.

Fishermen's Training School

The Department of Fisheries has recognized Campeche's importance as a fishing center. With the National Consultive Fishery Commission, it has established a Practical Fishermen's Training School and a Marine Biological Station on "Shrimp Row." The school teaches commercial fishing subjects. It operates a standard shrimp trawler with a regular crew, plus students. This vessel fishes exactly like a commercial trawler. It sells its catches to one of the freezing plants, so the students can learn the industry.

The marine station is staffed by 2 full-time biologists, several technicians, and support personnel. Advanced students work part time; visiting scientists, including some from the U.S., are often working on special projects.

U.S. Shrimpers

U.S. shrimp trawlers fishing on the Campeche Banks and around the keys often anchor off the city for a few days of rest during their long trips. About a dozen can nearly always be seen from the city, lashed together in groups as they transfer catches to vessels about to depart for home ports. When storms hit, the U.S. boats take shelter on the calm "flats" in even greater numbers.

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CATCH ROSE IN FIRST-HALF 1968

Mexico's fishery production rose during the first 6 months of 1968: to 125,448 metric tons, 14.6% above the 1967 period.

The catch of shrimp, the most valuable fishery product, and the sixth most valuable

Mexico (Contd.):

export, declined 9.4% from first-half 1967. Exports in Jan.-July were 296.6 metric tons, off 17.8% from 1967 period; exports for first-half 1967 were 33.6% over the 1966 period.

Fish meal production increased 7%, but was still far short of national needs. (U.S. Embassy, Mexico.)

Peru

THE ANCHOVETA FLEET

On July 21, 1968, 1,411 vessels were registered in the Peruvian anchoveta fleet. Processors own 71%, and independent operators 23%. About 60% are 5 years old; 1,178 were built between 1962 and 1966. Six hundred and forty-six are 65 to 69 ft. long; 821 are steel, 590 wood. Seventy-nine percent have power blocks, echo sounders, and fish pumps; engines average about 279 hp. Only 21% of the seine skiffs have engines. Fleet fish-carrying capacity is estimated at 180,406 tons; average vessel capacity is 128.

Callao and Chimbote lead in numbers registered, 363 and 349, respectively. ("Pesca," Sept. 1968.)

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FISHERMEN WIN BENEFITS

In late October 1968, the National Federation of Fishermen (FPP), 18,000 strong, was preparing for a strike when its leaders issued a postponement order. It followed an agreement with the Labor Ministry and industry officials.

Industry will provide medical benefits to fishermen and their families, and construct one or more medical clinics, probably in Chimbote or Callao. The only disagreement was over FPP refusal to accept a 10-sole (US$.26) increase in the price paid fishermen per ton of anchovies over the present 102 soles (US$2.60) granted by the Ministry a week earlier. FPP was asking a 68-sole (US$1.74) increase. Final agreement was expected soon; the new rate should be approximately 115 soles (US$2.95).

Uruguay

GRANTS TUNA CONCESSION TO ITALIAN FIRM

The state fishing monopoly (SOYP) has agreed to permit Finanzaria Brada S.P.A., an Italian firm, to conduct exploratory tuna fishing. The Italians, investing about US$200,000, will send 1 or 2 vessels.

A final agreement will not be signed until the survey is completed in about 8 months. This agreement will require the Italians to form an Uruguayan corporation with 51% Italian capital and up to 49% public and private Uruguayan capital. SOYP will have priority in acquiring shares, and Uruguayan capital must be represented in the firm's directorate.

The Corporation Outline

The corporation will export the tuna as a Uruguayan product; Finanzaria Breda must provide the foreign market. Immediate goals are annual exports of 10,000 metric tons of tuna to Italy, and yearly export earnings of at least $5 million. Finanzaria Breda will commit $13 million--$6,750,000 for fishing vessels and the rest for processing plants. The corporation must reinvest at least 50% of the profits in the Uruguayan fishing industry.

The vessels may fly the Italian flag but, after 5 years, the Uruguayan flag must be flown. Italian crews must be replaced by local crews within 5 years.

Opportunity for SOYP

SOYP has only 5 trawlers and small processing plant, and lacks the capital to exploit coastal waters. Fish has never been a popular food in Uruguay, and SOYP has had few opportunities to expand. The agreement makes it possible to earn money from nontraditional exports. Also, it offers the prospect of large investments in the small fishing industry. (U.S. Embassy, Montevideo.)

ASIA

Japan

INDUSTRY SUFFERS DECLINE

Since second-half 1967, a decline in the fishing industry has been apparent. Though the Tokyo Stock Exchange was active, maintaining a high Dow-Jones index of 1,500 yen, stocks of 4 out of 6 fishing companies were listed below face value.

Never before has the industry had the many domestic & foreign problems of the end-1967 through mid-1968 period. In December 1967, Britain suddenly devalued the pound by 14.3%. The U.S. intensified its defense of the dollar under pressure from Vietnam outlays. As a result, Japanese exports of frozen tuna, pearls, whale oil, and canned salmon have dropped. Exports of marine products will be less than US$300 million in fiscal year 1968. Pelagic trawl-fishery operators have gone into debt because they are being eliminated gradually from rich areas by other countries extending their exclusive fishing zones or territorial waters. Rising costs are making it difficult to fish distant grounds. Quotas for Antarctic whaling, and North Pacific whaling, salmon, and crab continue to decline. The number of active shrimp ventures abroad is so small that maximum annual sales of only one billion yen (US$2.8 million) cannot cover deficits in the salmon and trawl fisheries. Factoryship processing of frozen surimi (mince meat and meal) will contribute something, but companies are suffering rising costs for vessels, fishing equipment, and labor. Shore bases, too, have problems.

Suggestions for Government

The basic position of the Agriculture and Forestry Ministry toward fishing vessels of the large companies must be revised. The Ministry is using the same approval system as was used in the Tokugawa Era (feudal era) and has made few decisions. It was easy to adopt regulations for coastal fisheries because of pressure from the Diet. For example, construction of large fish reefs, which the Ministry has been sponsoring in recent years, will increase fish locally--but will not contribute much to Japan as a whole. Some say they might as well throw money into the sea as contribute to the manufacture of concrete blocks.

Distant-Water Fishing Problems

There is no guidance for pelagic trawl fisheries. They have lost their right to purse seine and trawl fish near Japan; they have been forced to fish in distant waters. Restrictions have been imposed that block distant-water operations. The fishing industry will be badly placed in the future, when compared with foreign vessels. The industry does not want complete freedom, but it does want the present approval system eased. The large companies contribute 50% of Japan's total fish supply, so the government should finance and administer it.

Japanese pelagic trawl and tuna fisheries must pay a fee to fish in Australia's and New Zealand's expanded fishing zones; a similar position may be taken by African and South American countries. The Japanese government could pay half of fee. ("Suisan Keizai.")

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IMPORTERS FORM INSPECTION ASSOCIATION

The Fishery Products Importers Association, whose members imported 70% of all fishery imports in 1967, has established an Inspection Association to handle the growing volume of imported shrimp, fish roe, agar-agar, and other fishery products.

What It Will Do

The new organization will: (1) inspect and certify imported fishery products by Importers Association quality standards; (2) certify conformance with contracts; (3) travel abroad, when requested, to inspect and certify volume purchases; (4) sample entire shipment to assure uniform quality; and (5) perform inspection for nonmembers when possible. ("Suisancho Nippo," Oct. 4, 1968.)

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TRADE MISSION RETURNS FROM ITALY

The government-industry fishery trade mission sent to study Italy's frozen-fish import situation has returned. The group found that Italy, the second biggest buyer of Japanese tuna after the U.S., requires 40,000-45,000

Japan (Contd.):

metric tons (MT) of raw tuna annually for the packing industry. Because Italy's domestic catch is only around 2,000 tons a year, packers depend heavily on imports. During Jan.-June 1968, Italy imported 17,000 tons of raw tuna; Japan supplied 75%. Imports during Jan.-Sept. were 26,000 tons.

Import Duties and Restrictions

Italy probably will not impose more import restrictions on Japanese tuna because the European Common Market may remove quantitative restrictions on fish imports from nonmember countries. At present, Italy admits up to 30,000 MT of frozen tuna duty free; imports from 30,000-45,000 tons are dutiable at the rate of 0.5%, and over 45,000 tons at 23.8%. A price standard of c.i.f. $350 per MT for yellowfin tuna imports was established in July 1968. Yellowfin imported at lower prices is taxed to cover the difference. ("Nihon Suisan Shimbun," Nov. 1, 1968.)

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PROMOTES CARIBBEAN MARKET FOR MARINE ENGINES

To promote export of marine engines to Caribbean countries, the Japan Marine Engine Export Promotion Assoc. will send a team of experts to conduct market studies in January 1969. They will study the market structure, use of foreign equipment, and volume and value of marine engine trade. Since about 3,000 vessels, mostly powered with U.S.-made main engines, fish in the Caribbean, the Association believes there is market for Japanese engines.

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PLANS LARGER VESSELS FOR DISTANT WATERS

Owners of one-boat purse seiners presently operating off west Africa feel that larger vessels, like the U.S. seiners that fished there in summer and fall 1968, are essential for successful operations in distant waters. For example, 'Hakuryu Maru,' 500 GT, 250-ton carrying capacity, will be replaced by a 1,000-ton carrying capacity seiner to be built in 1969. The new seiner is likely to be sent first to the eastern Pacific for trials. Hakuryu Maru spent several months test fishing in the eastern Pacific before going to the Atlantic.

Year-Round Fishing Desired

Owners of 'Gempuku Maru,' another 500-GT seiner fishing off west Africa, are planning to replace her with a larger vessel. The Japanese would like to fish tuna year-round, alternating between the eastern Atlantic and eastern Pacific during the good yellowfin season.

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TUNA SEINERS IN SOUTH & EAST PACIFIC

Two one-boat purse seiners, 'Nissho Maru,' 253 gross tons (GT) and 'Taikei Maru No. 21,' 210 GT, were scheduled to depart Japan in November 1968 to fish tuna in the South Pacific north of New Guinea. Nissho Maru made money in the same area in 1967. She landed yellowfin and skipjack worth US$36,111 on a 40-day trip. She had trouble with gear, transportation, and finding fish. In the 1968 trip, she was carrying a larger, improved seine, 1,143 fathoms long and 189 deep--about 100 fathoms longer and 10 deeper than the 1967 seine. The new net's sinking rate is much faster, around 18 m. (59 ft.) a minute, compared with 16.5 m. (54 ft.) for the previous one. A carrier vessel was accompanying the seiner to receive the catch. Visual methods still might have to be used to locate fish schools. Taikei Maru was alone.

4th Year of Experimental Seining

The 1968 trip was the fourth year of Japanese experimental purse seining in the South Pacific. In 1967, four seiners operated there. In 1968, two, 'Hayabusa Maru No. 3,' 280 GT, and 'Tokiwa Maru No. 53' changed plans. The former was scheduled to go to the eastern Pacific off Central and South America where Japanese long-liners were fishing. The vessel's first experimental operation in the eastern Pacific will put her in competition with U.S. tuna seiners. This region is in the yellowfin regulatory area of the Inter-American Tropical Tuna Commission. Tokiwa Maru No. 53 will operate off southern Taiwan, seeking mackerel and skipjack tuna. The owners applied for a Taiwanese fishing permit because that area was being explored by the Taiwan-chartered 'Haiho Maru No. 1,' 90 GT. ("Minato Shimbun," Oct. 31, 1968.)

* * *

Japan (Contd.):

TUNA FLEETS FISH
SOUTH PACIFIC & ATLANTIC

In October 1968, more than 120 Japanese tuna long-liners were operating off Australia in the high latitudes of the South Pacific and Indian Oceans. About 90 were fishing bluefin between 100° E.-110° E., and 35° N.-40° S., off Freemantle, on Australia's west coast, landing 1.5 to 4 tons a day. About 30 vessels on Australia's southeastern coast, off Tasmania, were landing less than a ton a day each, though a few were taking over 1.5 tons.

In Atlantic

There were more than 60 vessels in the Atlantic. After the albacore fishery off Angola tapered off, they shifted to the more northerly albacore grounds and to the central Atlantic yellowfin grounds. The combined Taiwanese, South Korean, and Japanese fleet in the Atlantic exceeded 140 vessels. This was close to previous peak Japanese operations. ("Suisan Tsushin," Oct. 1, 1968.)

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U.S. PACKERS REJECT
YELLOWFIN SHIPMENTS

In October 1968, U.S. west coast packers were rejecting more than 20-30% of Japanese frozen yellowfin shipments because of improper freezing and green or dark meat.

The shipments were mostly summer catches from the Indian Ocean, where good yellowfin catches had averaged as much as 5-7 tons per operating day. Fishing vessels there could not freeze all of the catch.

Many vessels were South Korean and Taiwanese. Some of their shipments, too, were being rejected. ("Suisan Tsushin," Oct. 1968.)

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EXPORTS MORE CANNED MACKEREL

Canned Pacific mackerel exports increased to about 3.6 million cases in Jan.-Aug. 1968, up 800,000 from 1967. If the trend continues, 6.5 million cases will be exported in 1968, exceeding by far the 5.07 million in 1967.

The Philippines, the leading buyer, took about two-thirds. Shipments to South Vietnam, negligible in the past, rose suddenly because the Vietnamese government removed import restrictions on food. The principal variety exported to Vietnam was the No. 1 Small (5-oz. tall 100s) in tomato sauce, priced at c.&f. US$6.60-6.70 a case. By the end of 1968, exports to Vietnam may reach 300-400,000 cases. ("Suisan Tsushin," Oct. 3, 1968.)

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SAURY FISHING STEADY, PRICES UP

The saury catch, by Sept. 30, 1968, was 79,320 metric tons worth about US$9.69 million. Compared with 1967, the catch was down about 10% in quantity but was up 28% in value. Average exvessel price was $111 a short ton; it was $77 in 1967. The increase was due to brisk demand for medium and large saury in the fresh-fish market, where virtually all the larger fish are sent. In the fishing ports of Sanriku, northeastern Honshu (the island on which Tokyo is located), large saury were bringing $375 to $958 a short ton, higher than the high-priced tuna. Normally, saury prices are high early in the season and drop sharply around September. Newspaper and television advertising and promotion held prices up in 1968.

Scarcity of Tuna Bait

Vigorous demand for saury in the fresh-fish market created a scarcity for tuna-bait dealers, volume buyers of medium-sized fish (11-13 fish per kg. or 2.2 lbs.). The tuna fishery's annual bait saury requirements are around 60,000 tons for domestic fishermen, and 20,000 for the South Koreans and Taiwanese. By mid-September 1967, bait dealers already had bought about half their supply; in 1968 they had purchased practically none. The tuna fishing industry was worried about a bait saury shortage and the resulting price increase. Bait saury were quoted at $252-353 a short ton, exvessel, more than double the $126 a ton in 1967. ("Suisan Tsushin," Sept. 28; Oct. 7, 1968.)

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RAISE PRICES OF CANNED KING CRAB

After Nichiro Gyogyo's price increase for canned king crab meat in early July 1968,

Japan (Contd.):

Taiyo Gyogyo also raised its price, and Nihon Suisan was expected to follow. Increased demand, decreased production, limited quantity, and increased costs have raised export and domestic prices. The major export type of canned king crab (48 No. 2 cans, fancy/case) became US$40.00 f.o.b.--up $4 a case. Nichiro Gyogyo's domestic wholesale price for No. 2 cans has been raised 50 yen (14 U.S. cents) at retail. Nihon Suisan's new retail prices also increased 50 yen for No. 2 cans. As in the past, the margin is higher for domestic sales than for exports.

Lower Prices for Tanner Crab

Because of declining canned king crab production, leading fishing companies were expected to promote consumption of canned (zuwai-gani) tanner crabs by lowering wholesale and retail prices for tanner by 20 yen (6 cents) a can. Almost all canned hairy crab will be exported. ("Suisan Tsushin.")

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SHRIMP IMPORTS & PRICES, AUG.-SEPT. 1968

Frozen shrimp imports during August 1968 were 2,233 metric tons worth about US$4,677,028, down 416 tons from July. Leading suppliers in August were Hong Kong, India, Mexico, Thailand, and Australia. ("Suisancho Nippo," Sept. 21, 1968.)

Sept. 1968 imports were 2,022 metric tons valued at approximately US$4,113,900, lowest quantity in the past 23 months. The decline was attributed to the closure of the shrimp season in Mexico and other Central American countries, and the slowdown in mid-East shrimping. Japanese supplies were low in view of the approaching year-end and New Year holiday season when shrimp demand peaks. Mexico was the leading supplier with 329 tons, followed by Hong Kong with 261, Thailand with 236, and India with 222. ("Suisan Keizai Shimbun," Oct. 23, 1968.)

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TUNA-IN-BRINE EXPORTS TO U.S. STEADY

In mid-Sept., canned tuna-in-brine exports to the U.S. were continuing steady at about the same pace as in normal years. By Sept. 14, 1,121,010 cases had been validated for export; 620,819 cases of large cans ($55\frac{1}{2}$-oz. 6's and 13-oz. 24's), and 500,191 cases of small cans ($6\frac{1}{2}$, $3\frac{1}{2}$, and 7-oz. 48's). The large can pack is close to 35% of the 1.8-million-case annual export quota for that size. The total for the smaller sizes is nearly 42% of the 1.2-million-case annual quota. ("Suisan Tsushin," Sept. 20, 1968.)

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CANNED TUNA-IN-BRINE EXPORT PRICE INCREASED

On Sept. 24, 1968, the Tokyo Canned Tuna Sales Co. increased by 20-50 cents a case its price for canned tuna-in-brine exports to the U.S. The new prices affected all can sizes except the $66\frac{1}{2}$-oz. 6's.

Trading firms anticipated the price hike and bought about 300,000 cases from the company the week before. The rash of speculative buying raised sales to a record 500,000 cases; it exhausted holdings of 7-oz. 48's and reduced sharply the stock of 13-oz. 24's. Movement of the $66\frac{1}{2}$-oz. 6's was slow, and unsold stocks on Sept. 24 were about 380,000 cases of white meat and 160,000 cases of light meat. ("Nihon Suisan Shimbun," Sept. 30, 1968.)

May Buy Canned Tuna From U.S.

The price increase may force trading firms to buy U.S.-packed tuna. They claim that the 50-cent-per-case price hike on the 7-oz. 48's makes it more advantageous to buy the U.S. pack. If U.S. tuna packers do not raise their prices, more Japanese firms will start selling the U.S. product packed under their own brand labels. They did this once before when the Sales Company increased export prices. ("Suisan Tsushin," Oct. 3, 1968.)

日本

Mauritius

TUNA PRICES STEADY

The October 1968 prices for tuna delivered to Port Louis, set by the Japanese Overseas Fisheries Co., at Penang, Malaysia, were: small yellowfin, US$156 a short ton, an $18

Mauritius (Contd.):

reduction; all other prices remained at July levels. Large and medium yellowfin were $315; big-eyed and bluefin, $202.

Since September 1968, albacore have been grouped into 3 size categories: large--over 33 lbs.; small--22-33 lbs.; extra small--under 22 lbs. Prices ranged from $252 for extra small to $371 for large.

Taiwan

AIDS INDONESIA

In September 1968, a 7-member Indonesian delegation went to Keelung, Taiwan's largest fishing port, to discuss plans for a Chinese firm to supply and crew 120 fishing vessels. The vessels, to operate in "3 areas inside Indonesia's territorial waters," will sell their catches in nearby Indonesian markets.

Indonesia claims an inland sea of 100 miles under archipelago doctrine, in addition to 12-mile territorial limits.

North Korea

BUYS FACTORYSHIPS
IN THE NETHERLANDS

'Keumgang San,' a factoryship built for North Korea at Verolme's shipyard in the Netherlands, launched on Oct. 12, 1968, will be completed by the end of Dec. 1968.

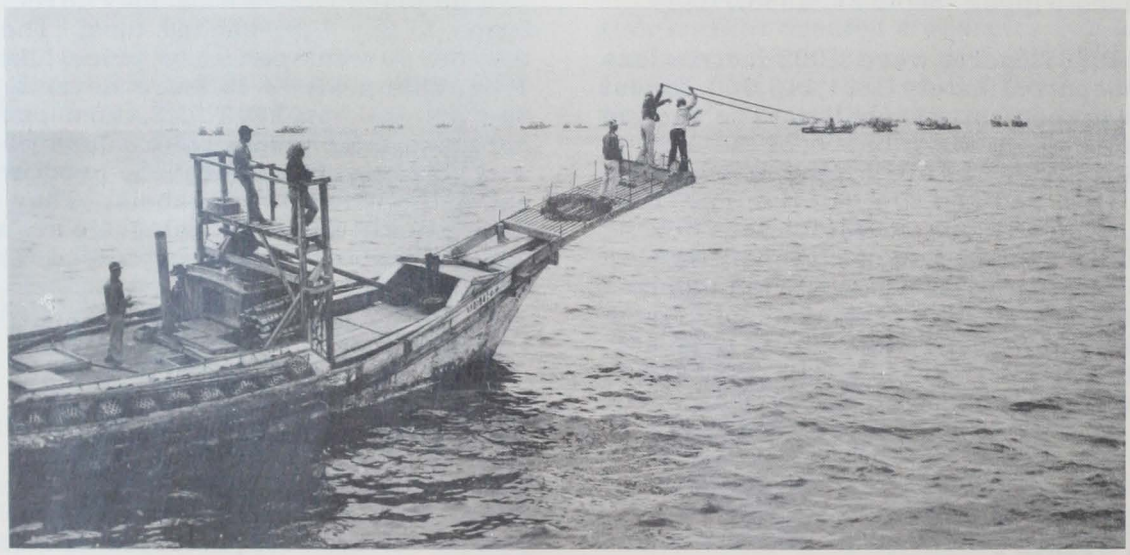
Keumgang San is equipped with a complete fish-meal plant, two holds for frozen fish blocks, and fish oil tanks. She has a total hold capacity of about 9,400 cubic meters, a carrying capacity of 7,050 dead-weight tons, accommodations for a crew of 256, and a 5,500-hp diesel engine.

Immediately after the launching, a keel was laid for a sistership, also destined for North Korea.

Singapore

SUPPLIES SOVIETS

Singapore is an important supply port for Soviet fleets fishing in the Indian Ocean and whaling in the Antarctic. About 70 vessels were expected to obtain water, fuel, and other supplies in late 1968.



Along Taiwan's east coast, from October through March, small boats seek spearfish, sharks, and other large fish. The fish are harpooned from spearing platform.

(Commission on Rural Reconstruction)

SOUTH PACIFIC

American Samoa

SET TUNA PRICES

Japanese suppliers and U.S. packers in American Samoa agreed to a US$5-per-ton price increase for albacore and yellowfin tuna deliveries in November 1968. The new prices were, per short ton: round albacore--frozen $390, iced $375; gilled-and-gutted yellowfin--frozen $375.50, iced $370.50. ("Suisan Keizai Shimbun," Nov. 1.)

Tuna Delivery Prices at American Samoa
July-October 1968

Species	Oct.	Sept.	Aug.	July
	..... ($/Short Ton)			
Albacore (round):				
Frozen.....	385	382.50	380	377.50
Iced	370	367.50	365	362.50
Yellowfin (gilled & gutted):				
Frozen.....	322.50	320	317.50	317.50
Iced	302.50	300	297.50	297.50

Packers and suppliers had previously agreed to a US$2.50-per-ton increase in September and a similar increase in October. The Japanese had pressed for a $10 increase, while the U.S. packers wanted to maintain August prices. ("Suisan Tsushin," Sept. 11.)

Australia

PLASTIC FISH CRATES REPLACE WOOD

The New South Wales Fish Authority has banned the use of wooden fish crates in favor of plastic. The new crates are economical, hygienic, durable, and easy to handle and store.

Made of a special "crate grade" high-density polyethylene, the new crate ensures that fish arrives at market in first-class condition. It was designed to handle about 65 lbs. of fish, 25 to 30 lbs. of ice, and to be stacked at least 5 high when full. Empty crates nest neatly and gain valuable backloading space on the trucks returning them to the cooperatives. A method of outside draining was devised that diverts water down the outside of the crate. This eliminates possible ammoniation damage to the fish stacked below.

In New South Wales, the distance from point of catch to market ranges from 50 to 550 miles. Since the plastic rate was introduced, fish quality has improved appreciably. The fish are bringing a higher price per pound.

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AIRLIFTING LIVE ABALONE TO JAPAN

Australia has been experimenting with airlifting live abalone from Tasmania to Japan for gourmets who like their shellfish fresh. The trial shipments, which began in July, were so successful that Australia may start commercial shipments within the next few months. ("Shin Suisan Shimbun," Sept. 16.)

POWER FROM WAVES

Harbor buoys have been developed and tested in Japan which utilize motion of waves to generate electricity for their lights and fog horns instead of standard or solar batteries. The buoys work on two principles: a turbine-type buoy generates electricity through the vertical movement caused by waves acting on a long stem attached to its bottom; and a pendulum type converts the rocking motion of the buoy into a horizontal force that generates electricity. They are reportedly less expensive to operate and less troublesome to service--requiring a battery check only once or twice a year and general repair every two years. (Reprinted, with permission from "Science News", weekly summary of current science, copyrighted 1966 by Science Service, Inc.)

Dahomean fishermen point their pirogue seaward. In Dahomey, fish is an important source of protein. In recent years, FAO has worked to put the fisheries on a modern course: to introduce up-to-date gear and equipment (outboard motors, nylon nets) and to improve structure and management of fishermen's coops. (UN Photo)

AFRICA

Senegal

THE FISHING INDUSTRY

Senegal claims territorial waters up to 12 nautical miles from shore and exercises fishing rights over 6 more. In 1967, her marine fishery yielded 132,985 metric tons of fish and shellfish worth $18,300,000.

About 105,423 tons were landed by pirogues (canoes); 22,182 by sardine and tuna vessels; 4,236 by trawlers and cordiers (line vessels); and 1,174 by beach seines and cast nets. Sardine and sardinelike fish landings were around 45,000 tons; groupers, bluefish, sea bass, croaker, and horse mackerel exceeded 4,000 tons. Shrimp catch was 1,675 tons; oyster, shell on, slightly over 400. About 50% of the catch was sold fresh, 32% dried, 7% canned, and 10% was exported.

Shrimp Fishery

The most exciting developments are in the shrimp fishery. In 1967, half the catch came from trawlers and half from small-boat fishermen; 1968 sea production was expected to double, while river production should stay at the 1967 level.

River shrimp, primarily small and medium-size Penaeus duroarum, are caught during their seasonal migration to the sea. About three-fourths come from the Casamance River in southern Senegal, the rest from around Kaolack in the Sine-Saloum region. On the Casamance, pirogues anchored in the river fish with 2 small nets at right angles to the flow of water. The tops are kept slightly above or below the surface, depending on the amount of debris floating down river. After landing, the shrimp are trucked to Ziguinchor for processing. Peak season on the Casamance is May to August. In the Sine-Saloum fishery, shrimp are taken by drag seines in shallow estuarine areas.

The largest shrimp enterprise in Ziguinchor is Amerger-Casamance. One process used at the plant is brine-freezing of cooked whole shrimp; the management claims this adds 3% to the weight, compared to weight loss with other freezing methods. Shrimp are sent to Dakar and Europe by air or sea. SOSECHAL also operates a shrimp-processing plant in Ziguinchor.

The most spectacular development is in offshore shrimp, Penaeus duorarum. In July 1968, predictions were that the 1968 catch would be 100% greater than in 1967. Around 25 Dakar-based old side trawlers fish shrimp. Early in 1968, about 20 of them were rigged for U.S.-style twin-trawling. Results have been outstanding.

There are 2 main fishing grounds--one on the continental shelf in the north, towards the Mauritanian border, and one in the south. Production is heaviest during November to August. SOSECHAL, SURGEL, SPAC-AMERGER, and CRUSTAVIF are among the more important companies involved.

Spanish and other foreign trawlers take deepwater shrimp, P. longirontris, on the continental slope.

In 1967, 849 metric tons were exported; preliminary data put the Jan.-June 1968 figure at 1,380. France is the most important market, Belgium is next, and Spain takes much of the large size. Whole cooked shrimp are the largest exports, but sizable quantities of fresh whole, tails, and peeled are sold. Both air and sea transport are used. Shrimp exports are taxed.

Tuna Fishery

The 1967 season catch was 9,392 metric tons--yellowfin, 7,522 tons, and skipjack, 1,870--landed by 43 French and 5 Senegalese vessels. The French fish out of Dakar from November to June; the Senegalese fish all year. During July-Oct., they fish as far south as the coasts of the Congo and Angola. The vessels are owned by the Societe Senegalaise d'Armement de Peche (SOSAP), a government unit. The first of 14 new tuna vessels ordered by SOSAP from French and Soviet yards was expected to arrive around the end of 1968.

Tuna landings were divided among local canners: SAPAL, 4,995 tons; Conserverie du Senegal, 2,672; and SCAF, 1,735. Some tuna, canned in oil or natural, is consumed locally, but most is exported to France under a special duty-free quota.

Senegal (Contd.):

SOSAP is building a large cannery in the port area. It will be operated by Pecheurs de France, owners of Conserverie du Senegal, and financed by Senegal. The plant has 15,000 square meters of floor space and 2,403 cubic meters of cold storage at -20° C. Initially, there will be 2 production lines with an annual capacity of 12 to 14,000 tons. Space is available for 2 more lines, which would bring capacity up to 30,000 tons. The plant will process tuna and sardines; other species will be added.

The main problems will be to secure an adequate supply of raw tuna and to find new markets. When the SOSAP plant is completed, processing capacity will exceed 35,000 metric tons of raw tuna annually; only 9,372 tons were landed in 1967. Officials are counting on the 14 new vessels to provide supplies. The French import quota is only 10,000 tons so markets will have to be found for the anticipated increase of 200%. Senegalese producers may be forced to enter the highly competitive U.S., Italian, and West German markets.

Sardine Fishery

The 4-vessel sardine fleet--3 Senegalese and 1 French--has increased production much more rapidly than planned. In 1967, 12,364 tons were landed; half was marketed fresh, 485 tons were canned, 2,821 frozen, and the rest used for fish meal. Oversupply might disturb the small-boat fishery because the Senegalese do not like to use fish suitable for human food as raw material for fish meal--the only outlet for any sudden large increase in landings.

Fish Meal

Afric-Azote, the only fish-meal producer in Senegal, is building a larger plant. It will be able to handle 120 tons of raw fish and waste per day. As the building permit emphasizes odor control, and the plant will use cannery waste and spoiled fish, the owner has devised a refrigerated holding tank to store them. Nearly all meat is exported to France and the Ivory Coast.

Trawler Fleet

In 1967, the trawler fleet produced 3,121 metric tons worth $1,623,000. Most landings were shrimp, sea breams, sole, spiny lobster, and mullet. The catches brought good prices on the fresh-fish market in Dakar, but a large amount was processed for export.

Cordier Cooperatives

Cordiers are small line vessels built locally from FAO designs. They are 13 meters long, 6 to 8 tons, and powered by a 65-70 horsepower diesel engine. Vessel ownership is shared by the 10 fishermen who man the vessel. Twenty-five percent of each catch is sold to pay off the Senegalese Development Bank loan on the vessel. The cordiers are squeezed between high operating costs and low prices. Government officials are considering a large cooperative to overcome these problems. The success of any cooperative will hinge, in great part, on securing strong management, keeping overhead low, and educating the fishermen on their responsibilities--a formidable challenge under the best of circumstances.