# FERRO-CEMENT FISHING BOATS DELIVERED TO FAO

Two ferro-cement fishing boats have been delivered to FAO for work in the United Arab Republic (Egypt).

The boats will be used in Lake Nasser to demonstrate new fishing techniques, and as prototypes for similar craft. The 5-year, $2,684,000 project is being financed under the UN Development Program with matching contributions by Egypt.

A Nervi Production

The vessels, designed specially for use in Egypt, were built in Rome to FAO specifications by Nervi and Bartoli. Pier Luigi Nervi is a pioneer in reinforced concrete. His firm built sports stadia and arenas in Rome for the 1960 Olympics, and a bus terminal in New York.

Ferro-Cement

Except for wooden flooring inside the hulls, the boats are entirely of ferro-cement, a process developed by Prof. Nervi over 25 years ago. Steel rods and wire mesh are shaped into the form of a hull and plastered over with fresh cement. When dry, the whole is as sturdy and seaworthy as wood or steel.

Ferro-cement differs from reinforced concrete in making greater proportional use of steel over cement. It produces suprisingly thin and light hulls. The hull of the smaller FAO boat is only 2.2 centimeters ($\frac{7}{8}$ inch) thick, the larger 2.5 centimeters (1 inch).

The boats underwent preliminary tests by FAO technicians at Fiumicino, near Rome, and were pronounced ready. They will be shipped by freighter from Naples to Alexandria, UAR, cradled one within the other, then transshipped to Aswan on Lake Nasser, created by damming the Nile.

The Craft

The two craft are completely open and undecked. The larger is 10 meters by 3.06 meters (32 feet, 8 inches by 10 feet), weighs 5.1 tons and has 5-ton carrying capacity. It is powered by a 15-HP Petter inboard air-cooled Diesel engine for a rated speed of 6.5 knots.

The smaller craft measures 7.50 by 2.38 meters (24 feet, 7 inches by 7 feet, 10 inches), weighs 2.8 tons, and has a 2-ton carrying capacity. It is powered by a 7.5 HP Petter inboard air-cooled Diesel for a rated speed of 6 knots.

The two boats were designed by Øvind Gulbrandsen and Arne Fredrik Haug of Norway, naval architects in FAO's Fishing Vessel Section.

Nervi Cites Advantages

Prof. Nervi foresees a growing future for cement that floats. The 80-year-old architect and engineer said the process was especially suited to fishing because of its extreme strength and imperviousness to water.

He noted: "There is no danger of warping, rotting, rusting or water-logging. A hundred years from now these boats will be as dry as they are today. As for sturdiness, the hulls are a complete, monolithic whole. If you strike them they resound like a bell would. Stresses and strains are spread evenly throughout. And they are resistant to fire and marine growths."

Prof. Nervi added that a yawl he built in 1948 was afloat and well at Anzio, south of Rome.

Watzinger Agrees

Herman Watzinger of Norway, Director of the Fishery Industries Division, said ferro-cement is competitive with other materials, especially in wood-scarce countries like Egypt. He emphasized:

"Ferro-cement boats are quite simple to build and maintain, and repairs are easy to make. They are not prey to marine borers, which makes them ideal for use in tropical climates. Hulls can be perfectly finished so that they are virtually indistinguishable from other materials."

Teaching at Lake Nasser

At Lake Nasser, an FAO boat-builder, Michael A. Shawyer of the United Kingdom, will teach local builders how to construct boats in ferro-cement. He was trained in ferro-cement by Nervi earlier this year. Another Nervi-trained FAO boat-builder, Richard G. Lefebre of Canada, now is teaching ferro-cement construction in Dahomey under FAO Freedom from Hunger Campaign.

Fig. 1 - The two ferro-cement boats at Fiumicino, Rome.

Fig. 2 - Plastering a ferro-cement boat hull. To assure good penetration, the mortar is applied from inside, forced through reinforcement, and smoothed on outside. (FAO photos)

## CANADA & SCANDINAVIA DISCUSS FROZEN GROUNDFISH BLOCKS

Representatives of the 4 principal suppliers of frozen cod blocks to the U.S. (Canada, Iceland, Denmark, Norway) met in Copenhagen Oct. 2 to discuss the market and outlook. They noted substantial market improvement and reaffirmed domestic policies for maintaining a stable world market.

1970 Production Steady

They also noted that present stocks remain low and demand continues to increase. The 1970 production has remained nearly constant compared to 1969, so the market has firmed. Seasonal factors normally contribute to market strengthening at this time of year. A Canadian stabilization program has been in use during 1970, but market conditions have required no price support purchases. (Reg. Fish. Att., U.S. Embassy, Copenhagen, Oct. 6.)

## CANADA-USSR DRAFT AGREEMENT ON PACIFIC COAST FISHERIES

Under a proposed 2-year agreement, the Soviet fishing fleet will move off the Big Bank area of the continental shelf on Vancouver Island's west coast in return for port privileges and a fishing area inside the territorial boundary off Queen Charlotte Islands, but outside the continental shelf.

Canadian Fisheries and Forestry Minister Jack Davis said on Oct. 21, 1970, that draft versions of the proposed 2-year agreement would be completed in Moscow at an early date.

The agreement followed 4 weeks of negotiations in Ottawa. Representatives of all west coast fishing groups were present as advisers and observers. They approved draft agreement.

Main Provisions of Agreement

Davis said the Soviet fleet voluntarily will give up fishing on Big Bank, where heavy runs of salmon and herring occur. In return, they will be permitted to fish in an area of comparable size within the 12-mile limit off Queen Charlotte Islands. Canadians have never fished this area to any extent.

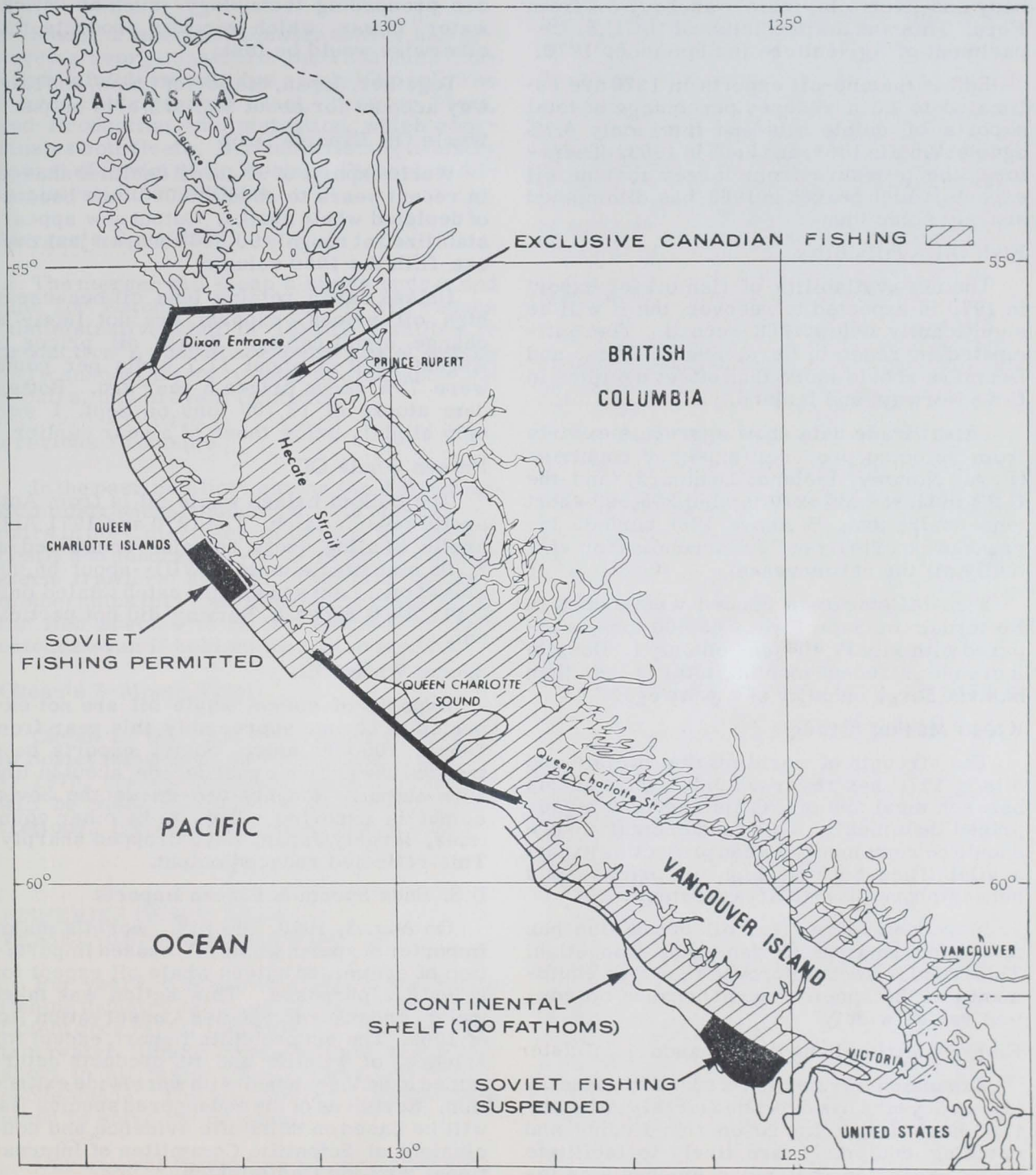
The most important advantage given to the Soviet fleet is the reopening of Vancouver port to their supply ships. This privilege was removed in March 1970. The USSR later asked for a conference to discuss this point.

Exchange of Research Information

Mr. Davis said the Soviet delegation was interested in exchanging research information. This will be done under the proposed agreement. Studies of stocks that range beyond British Columbia coastal waters will be emphasized.

After a series of collisions between Soviet trawlers and Canadian salmon trollers in July 1970, Canada protested sharply to Soviet authorities. They agreed to add this subject to their discussions.

(See following page for map.)


130°
125°
ALASKA
EXCLUSIVE CANADIAN FISHING
55°
Dixon Entrance
PRINCE RUPERT
BRITISH
COLUMBIA
Hecate Strait
QUEEN
CHARLOTTE ISLANDS
SOVIET
FISHING PERMITTED
QUEEN CHARLOTTE
SOUND
PACIFIC
OCEAN
60°
VANCOUVER ISLAND
VANCOUVER
CONTINENTAL
SHELF (100 FATHOMS)
VICTORIA
SOVIET FISHING
SUSPENDED
UNITED STATES

# WORLD OIL EXPORTS EXPECTED TO RECOVER

Marine oil exports were expected to recover slightly in last-quarter 1970. The increase would reflect larger exports of fish body and liver oils, mainly anchovy oil from Peru. This was the prediction of the U.S. Department of Agriculture in September 1970.

Edible marine-oil exports in 1970 are estimated to be a reduced percentage of total exports of edible oils and fats--only 6.7% against 7.5% in 1969, and 8.4% in 1968. Therefore, the pressure from larger marine oil exports, which peaked in 1968, has diminished sharply since then.

Fish Oil Availability

The net availability of fish oil for export in 1970 is expected to recover, but it will be significantly below 1968 record. The anticipated increase in Peru, South Africa, and Denmark should more than offset declines in U.S., Norway, and Iceland.

Latest trade data show aggregate exports from selected producer-exporter countries (Peru, Norway, Iceland, Denmark, and the U.S.) in first-half 1970 totaled 275,000 short tons--more than 3% above 1969 period. Increased exports from Peru accounted for virtually all the net increase.

Fish-oil stocks in bonded warehouses in Rotterdam on Sept. 1 were 45,400 tons, compared with only 17,400 tons on July 1. Despite increase in recent months, total is less than half the large quantity of a year ago.

World Market Strong

The strength of world market for fats and oils in 1970 has reversed price relationship between meal and oil. Oil has become higher priced than meal. This fundamental change should be remembered when projecting export availabilities because high oil prices could help improve oil-extraction rates.

In recent years, fish-oil production has increased relative to fish-meal production. This trend reflects improved recovery equipment and the species caught because oil content varies widely.

Fish-Reduction Industry Expands

Expansion in the fish-reduction industry in recent years has depended largely on catching more fish. Improved fish-finding and catching equipment are likely to facilitate more expansion, but more emphasis on increasing efficiency and productivity is expected. Reportedly, many reduction plants in Peru are not yet equipped to utilize fully modern processing technology--such as "stick-water" plants, which recover products that otherwise would be lost.

Together, Japan, the Soviet Union, and Norway account for about 90% of world output.

Whale Oil Exports Drop

World exports of whale oil declined sharply in recent years to about 30,000 tons because of depleted whale stocks. Output now appears stabilized at roughly 90,000 tons, or just over one-fifth the 1960 volume.

Unless Japan retains less oil because of high oil prices, exports are not likely to change significantly. Whale oil prices in August 1970 of about 11.7 cents per pound were 72% above prices a year ago. Rotterdam stocks of 13,700 tons on Sept. 1 were only slightly below those of a year earlier.

Baleen Whale Oil

The bulk of baleen whale oil is from Antarctic pelagic catch. The 1970 and 1971 Antarctic whaling quota remains unchanged at 2,700 blue-whale units (BWU)--about 56,000 tons of oil. Last season, the catch totaled only 2,471 BWU because Norway did not participate.

Sperm Whale Oil

Exports of sperm whale oil are not expected to change appreciably this year from 1969's 105,000 tons. Soviet exports have trended upward over past decade, about in line with output. Roughly two-thirds the Soviet output is exported. Exports by other countries, largely Japan, have dropped sharply. This reflected reduced output.

U.S. Ends Sperm & Baleen Imports

On Aug. 3, 1970, the U.S., world's major importer of sperm whale oil, ceased importation of sperm and baleen whale oil except for scientific purposes. This action was taken under Endangered Species Conservation Act of 1969. The act prohibits import, except for science, of wildlife and its products determined to be threatened with worldwide extinction. Revisions of the endangered species list will be based on scientific evidence and conclusions of Scientific Committee of International Whaling Commission.

# EUROPE

## USSR

### STREAMLINES FISHERIES ADMINISTRATION

Soviet Fisheries Minister Ishkov has ordered a reorganization of the 3 Estonian fishery administrations into a single 'Okean'. The 3 are: Refrigerated Fleet, Trawler Fleet, and Production Administration, which coordinates both fleets. Estonia's fishing industry is part of Soviet Main Western Fisheries Administration, ZAPRYBA.

#### Merger's Benefits

The merger will mean a single budget and plan for Estonian fisheries. It will reduce administrative staff by 15-20% ("shifted to production"), coordinate operations of fishing and transport fleets, vessel maintenance and repairs, and prevent frictions.

#### Previous Problems

In the past, conflicts among the 3 Estonian Administrations interfered with vessel repairs in port, disrupted unloading, and caused costly and unnecessary demurrage of factory stern trawlers at sea. This was because motherships that had fulfilled their load plan for fish species to be transshipped refused catches even if hold space was available.

#### Okean's 3-Month Trial

Okean is the first experiment of its kind in Soviet fisheries. After 3 months, by Dec. 1, 1970, recommendations based on results will be made to extend it to other administrations. ('Vodnyi Transport', Sept. 22.)

* * *

### FISHERIES BESET WITH VESSEL-REPAIR PROBLEMS

For years, a major problem of the Soviet fishing industry has been organization of efficient dock repair facilities for its huge distant-water fishing fleet. Repair yards are short in all major fishing ports, and bottlenecks ensue. The Ministry of Fisheries has acted to solve the problem.

One way was to institute a 2-year operation cycle without docking for overhauls; current vessel repairs were to be performed by the crews at sea.

Another measure included repairing large-tonnage vessels (mainly 2,300-GRT factory stern trawlers) in docks normally used for smaller vessels.

#### Problem Unsolved

These measures have not solved the problem. Fleet is still in repair docks for over 100 days a year; and 70 large stern factory trawlers do not sail at all. This is an annual loss of 400,000 metric tons of catch. Repairs of medium trawlers take even longer. Delays lose hundreds of millions of rubles.

#### Why Delays?

Delays are caused by: (a) shortage of vessel-repair facilities in shipyards; (b) existing facilities are not fully used. Many have 25% of their capacity occupied by "unrelated work."

This "paradoxical" situation is due to fact that vessel repair is not coordinated under single administration. The port of Arkhangel'sk (White Sea), for example, has 4 ship-repair yards; these are under 3 different ministries (one the Fisheries Ministry). This is the case in almost every port. If the vessels to be repaired are from the Ministry running the repair yard, they are placed in dock; if there are no such vessels, the yard does unrelated work rather than repair another Ministry's vessels (though these may be waiting at their "own" overloaded facility).

In the Fisheries Ministry, one-third the repair yards are administered by Central Administration for Fishing Fleet Repairs, and two-thirds by the 5 Main Fishery Administrations.

#### Centralization Suggested

The Soviet State Planning Commission (GOSPLAN) suggests that all vessel repairs (including fishing vessels) be centralized under the Federal Production Association. GOSPLAN believes this would make possible maximum use of facilities, and application of a unified national repair policy; permit mechanization and automation of repair, drastic reduction of manual labor, elimination of conflicts, and cooperation among yards; and reduce repair time and costs.

* * *

USSR (Contd.):

## SCIENTIST DISCOVERS NEW WAY TO IDENTIFY SALMON

A Soviet scientist has discovered a new method of identifying salmon populations during their migration in the ocean.

The scientist, S. Konovalov, works for the Soviet Institute of Marine Biology, Far-Eastern Section of Siberian Branch of Soviet Academy of Sciences.

### Scales' Shape & Design Vary

He found that the shape and design of scales of various Pacific salmon species vary greatly under the microscope. He compared the scale design of salmon fished in the ocean with that of salmon in rivers of Kamchatka, Sakhalin, and Maritime Provinces. He determined the population of salmon fished thousands of miles from their "home" river. The characteristic shape and design of scales are retained for life.

The new method of determining salmon migration routes is claimed to be simpler and more efficient than the one based on genetic characteristics. (TASS, Sept. 22.)

* * *

## BUILDS 'DOLPHINARIUM' ON BLACK SEA

The Soviets are building an aquarium for dolphins--a 'dolphinarium'--in Batumi on the Black Sea, the USSR's first. It is 30 meters long, 6 meters deep, has a water-filtering system and 2 separate pools where dolphins can be isolated for experiments.

Objectives are to keep dolphins under nearly natural conditions to study their behavior, reactions to various stimuli, and to record and study their "voices" in an attempt to determine how they communicate.

### Useful to Commercial Fishing

The studies are important to commercial fishing because many fish are very sensitive to the sounds of dolphins. Using such sounds, fish could be "corralled" into nets or, once inside, could be scared from trawl mouth or purse-seine opening. This would increase gear efficiency and catches.

### 'Sonar Organ' Study

Most important is the study of a "sonar organ" in dolphins by which they locate their prey. The organ is less sensitive than the seal's, which can locate fish as small as 1 meter at depths to 600 meters, but the dolphin's is likely to have similar wave length.

The 'dolphinarium' will be operative in early 1971. ('Vodnyi Transport')

* * *

## SCIENTIST PREDICTS USE OF SPACE STATIONS IN FISHERIES & OCEANOGRAPHY

A Soviet authority on atmospheric research has predicted the use of space stations to measure ocean temperatures, observe the wanderings of the Gulf Stream, watch the movements of large fish concentrations, and to detect evidence that pollution destroys plant life in the oceans. Dr. K. Y. Kondrat'ev, formerly rector of Leningrad University, made these predictions. (N.Y. Times, Oct. 6, 1970.)

### Noted It in 1968

Back in Oct. 1968, Kondrat'ev had mentioned in a 'Pravda' article the possibility of using satellites for oceanographic and fishery research. Soviet satellites 'Soyuz' 6, 7, 8, and 9 reportedly studied marine and oceanographic resources.

* * *

## "BLACK MARKET" IN FISH PRODUCTS PROSPERS

In Sevastopol and Kerch, on Black Sea, private "merchants" run a prosperous trade in frozen or processed mackerel, herring, silver hake, horse mackerel, even spiny lobster.

Tons of fish are stolen by port workers unloading fishing vessels. Thefts are made easy by lax or nonexistent surveillance and by the absence of a fence in Kerch. The stolen fish are sold by private speculators in local market.

### Situation Accepted

This was reported to Deputy Director, Azov-Black Sea Fisheries Administration, and

USSR (Contd.):

director of Kerch Oblast Fisheries Administration. Both accepted facts, voiced concern, but implied that little, if anything, could be done. They conceded that the system of fish delivery and acceptance was defective, but they failed to propose improvements. ('Vodnyi Transport')

In the Soviet Union, all trade is controlled and operated exclusively by the State. So operations of private "merchants" are illegal.

## DENMARK

### DANES SEEK CONTINUED FISHING PRIVILEGES IN POLISH 12-MILE ZONE

A Danish delegation is negotiating with Polish authorities to obtain permission for Bornholm fishermen to continue fishing up to 3 nautical miles from the Polish coast. In April 1970, Poland established a 3- to 12-mile fishery limit effective January 1971. Denmark is attempting to document the existence of a small Danish fishery for several years.

Sweden Won Privileges

A Swedish delegation recently acquired transitional fishing privileges from Poland. Swedes who fish salmon most of the year off Poland can fish 3 to 6 nautical miles from Polish coast during salmon season. Then they can fish 6 to 12 nautical miles from coast. (Reg. Fish. Att., U.S. Embassy, Copenhagen, Oct. 13.)

## NORWAY

### CAPELIN FISHERY OFF LABRADOR FOUND UNPROFITABLE

The Norwegian research vessel 'Selvag Senior', which conducted exploratory fishing for capelin off Labrador, returned recently to Bergen with 175 metric tons of capelin. The vessel then delivered the fish to a herring meal factory.

Capelin schools were found on the outside banks, but the catch was so small that the crew had no desire to fish. Tests revealed very small capelin; some went through meshes, while others clung to net walls. The remaining few were 20 large capelin. This raw material is of little use because it contains less oil than large capelin.

The vessel also investigated nearby areas but found considerably smaller schools. She made three tests and caught about 78 tons--considered far from a profitable fishery. (Reg. Fish. Att., Copenhagen, Oct. 8.)

* * *

### REPORT ON HERRING & SARDINE PRODUCTION

In recent years, the Iceland herring season opened July 1-10. This year, no date was fixed because no Norwegian vessel planned to fish this herring.

For many years, the fishery was important to the fishing industry. The run has changed. The schools started to move away from Iceland's coastal waters. The fishing moved to waters around Bear Island. In 1969, the herring schools disappeared. Norwegian expeditions filled only about 1% of the planned 250,000 barrels. The complete failure of last year's Iceland herring season discouraged fishing this year.

Substitutes Needed

Faced with complete disappearance of this traditional raw-material source, the canning industry had to look for other types of suitable herring. This work has been successful, but the new herring supplies are much more scattered in time and place.

Summer 1970

In summer, the interest focuses normally on brisling fishery. This past season was characterized by small and scattered catches. The July production was reduced due to summer holidays. The catches barely kept freezing vessels supplied.

The canneries hoped for increased supplies from newly reopened fishing areas. These areas were closed by Norway until brisling met requirements of size and fat content. Up to July 27, the industry had received many fewer brisling than last year. ('Norwegian Canners Export Journal'.)

o o ● o o

# ASIA

## JAPAN

### FISHERIES AGENCY WILL INCREASE SKIPJACK TUNA PROGRAM

The Japanese Fisheries Agency is asking 117 million yen (US$325,000) for its skipjack tuna development program for fiscal year 1971 (Apr. 1971-Mar. 1972). The agency is accelerating its effort to increase production because of growing Japanese demand for higher-priced fish. Skipjack is considered best suited to meet that demand.

#### Present & Possible Catch

Japan catches annually around 200,000 metric tons of skipjack. The Pacific catch could be increased to 1.5 million tons without creating resource problem. However, a large increase in landings must be based on solving three problems: (1) getting live bait, (2) labor shortage, and (3) expanding markets.

#### Live Bait Indispensable

(1) Live bait is indispensable in pole-and-line skipjack fishery. One metric ton is needed to catch 7 tons of skipjack. Live anchovy can be held only about 20 days; this restricts range of operation.

By using South Pacific islands as supply points, the operating radius could be increased greatly. Under a 2-year program starting in 1971, the Agency plans to commission a 284-ton commercial vessel to assess bait-fish abundance around Palau, Truk, Espiritu Santo (New Hebrides), and Noumea (New Caledonia); the vessel's crew will determine whether the fish can be kept in bait wells for extended period. The vessel will test-fish with bait fish it catches.

#### Acute Labor Shortage

(2) Another basic problem is how to reduce manpower aboard skipjack vessels, which require about 40 men. The acute labor shortage makes it difficult for owners to keep crewmen. So fishing operations must be mechanized to reduce labor.

Four types of mechanical fishing poles have been developed recently by private firms. They perform well and will be ready soon for commercial exploitation.

The agency is developing a labor-saving skipjack fishing device. This uses a rotating system similar to reel-type mechanical squid-fishing gear. Much time and expense will be required to perfect the system, but the gear will be capable of catching several times more fish than mechanical poling device.

#### Market Expansion Necessary

(3) Market expansion is another problem. Without it, the increase in catch would have no economic value. Basically, it would be necessary to promote consumption of frozen skipjack and development of domestic and export markets for canned skipjack, particularly for chunk-style pack. An effort to do this is being made by the Federation of Japan Tuna Fisheries Cooperative Associations. This year, it started selling tuna direct to the retailers. ('Suisan Tsushin')

* * *

### AUTOMATED SKIPJACK TUNA FISHING GEAR DEVELOPED

A Japanese fishing-gear manufacturer, Suzuki Tekkosho, has almost perfected a mechanical pole-and-line skipjack-tuna fishing gear. The firm plans to manufacture it in 1971.

The gear is a hydraulic device that lowers and lifts the poles. One hydraulic unit operates 4 poles. There is still problem of uneven tensile strength of bamboo poles, which causes some fish to fall off hook. The use of glass rods is being studied to obtain uniform strength.

#### Nichiro Also Developing It

The Nichiro Fishing Company is also developing mechanical skipjack fishing gear. Described as rotating-type skipjack poling gear, it consists of ten 19.7-inch long glass rods mounted on upper part of electrically rotated belt.

The second series of tests aboard Nichiro's skipjack vessel 'Kuroshio Maru No. 73' (239 gross tons) in mid-August was partially successful. The problem of fish slipping off the hook again was encountered. With modifications, the gear is expected to perform well. It is attracting wide attention. ('Katsuo-maguro Tsushin', Sept. 4.)

* * *

JAPAN (Contd.):

## TUNA LONGLINE FLEET NUMBERS 700

In early September 1970, Japan's distant-water tuna longliners (over 190 gross tons) numbered about 700 vessels. About 580 were fishing, 60 were traveling to fishing grounds, and 60 were en route home or in port.

### Bluefin & Other Tunas

Some 165 vessels were fishing southern bluefin (100 vessels off western Australia, 40 off New Zealand and Tasman Sea, and 25 off Cape Town). The rest were fishing other tunas, mostly in Pacific but also in Indian and Atlantic oceans.

Between 20 and 30 longliners were reported fishing Atlantic albacore. ('Suisancho Nippo', Sept. 7.)

* * *

## YAIZU TUNA FISHERMEN GET WAGE INCREASES & OTHER BENEFITS

The Yaizu chapter of the Japan Seamen's Union and the Yaizu Tuna Vessel Owners Assoc. signed a new contract on Sept. 12, 1970.

Main points: An increase in base pay, additional leave with pay, and payment of survivor annuity.

### New Wage Scales

Wages are increased by monthly average of 5,300 yen (US$14.40). The monthly base pay is: skipper serving also as fishing captain, 92,350 yen ($256.53); fishing captain, 83,850 yen ($232.92); captain, chief engineer, and chief radio operator 76,600 yen ($212.78); first mate, first engineer, 64,300 yen ($178.61); deckhand, 44,900 yen ($124.72).

Production bonuses will be paid at same rate as before if prices of landings fall below exvessel 350 yen a kilogram ($882 a short ton); the bonuses will be adjusted if prices rise above that level.

### Death Benefits

After one year's continuous service aboard the vessel, the crewmen become eligible for 18 days of paid leave (previously, 17 days). Where death occurs on duty, 1-million yen ($2,778) consolation money will be paid (same as before) plus 4 million yen ($11,111) as survivor annuity. ('Suisan Keizai Shimbun', Sept. 18.)

* * *

## FROZEN-SHRIMP IMPORTS PREDICTED FOR NEXT 20 YEARS

Japanese frozen-shrimp imports may reach an estimated 87,000 metric tons by 1975, and 120,000 tons by 1980--compared with 1969's 48,886 tons. These estimates are based on a study by the Industrial Structure Deliberative Council's Import Trend Subcommittee. They reflect the anticipated increase in shrimp production in regions supplying frozen shrimp.

| Imported From | Actual Imports 1969 | Estimated Imports 1975 | 1980 |
|---|---|---|---|
| | | (Metric Ton) | |
| Southeast Asia | 22,441 | 35,000 | 42,000 |
| Middle and Near East | 10,620 | 18,000 | 25,000 |
| Latin America | 8,388 | 13,000 | 20,000 |
| Australia | 3,383 | 5,000 | 8,000 |
| USSR | 2,320 | 9,000 | 10,000 |
| Africa | 1,734 | 7,000 | 15,000 |
| Total | 48,886 | 87,000 | 120,000 |

In southeast Asia, Indonesia's shrimp production in Kalimantan and West Irian will increase by about 10,000 tons when the joint Japanese-Indonesian shrimp ventures are fully operational.

By 1975, the Philippines and Thailand are expected to increase output by about 2,000 tons; Vietnam by 2,000-3,000 tons, and Malaysia by 3,000-4,000 tons.

In the Middle and Near East, there is no indication that Persian Gulf production will increase. In East Pakistan, West Pakistan, and India, production is expected to increase 5,000 tons by 1980.

In Latin America, Mexico likely will maintain present production level. In other Central American countries, shrimp exports to Japan can be expected to increase to 3,000-4,000 tons by 1980.

Imports from northern countries of South America are also likely to increase despite competition with U.S.

In Africa, there are still many undeveloped shrimp resources. If harvested, these can increase production sufficiently to supply Japan with 15,000 tons by 1980.

In Australia, availability of more supplies will depend on extent of development in northwest and south and in eastern New Guinea. Shrimp demand in Australia is growing, so a sharp increase in exports cannot be expected. Increased supply can be expected from New Zealand, which recently began exporting frozen shrimp to Japan. ('Suisancho Nippo', Sept. 18.)

* * *

JAPAN (Contd.):

## LONGLINE SALMON FISHING OFF JAPAN ENDS

Japanese salmon longline fishing off Japan (Zone B) reached quota of 11,150 metric tons on June 30, the season's final day. The important features were: (1) Runs appeared 10 to 15 days later than usual; (2) Catch at start was poor. It increased gradually until June 20, but declined after June 25; (3) Catch at first was mainly red salmon, with some chums but no pinks.

In previous off-year (1968), quota was not reached because runs disappeared in early June. The catch and development of fishery in areas for longline vessels in Zone B in 1970 was similar to 1966 off-year.

### Prices Stable

Catches differed depending on type of vessels. Values ranged from US$1,389 (poorest) to $4,167 (best) for two trips during season. The best catch in a single trip brought $2,222-2,778.

The shore price for fresh pink salmon, unlike that for other species, remained stable this year at 89¢-$1.00 per kilo. This was bright spot for fishermen. ('Shin Suisan Sokuho')

* * *

## NORTH PACIFIC WHALERS ATTAIN 1970 GOALS

The 1970 Japanese North Pacific whaling expedition ended Sept. 12 when the third of its 3 fleets attained the assigned catch.

The combined catch was 516 fin whales and 2,151 sei whales, or 798.16 blue-whale units (BWUs) and 2,700 sperm whales. The combined output was 49,270 metric tons of baleen-whale products and 31,755 tons of sperm-whale products. ('Nihon Suisan Shimbun', Sept. 18.)

* * *

## FISHERIES AGENCY WILL DEVELOP NEW FISHING GROUNDS

The Japanese Fisheries Agency will concentrate on exploring new fishing grounds in fiscal year 1971 (Apr. 1, 1971-Mar. 31, 1972). The Agency first began to explore world fishing grounds in FY 1968 for trawling, longlining, and purse seining.

In FY 1970 exploration continued, and 2 new projects were begun: (1) Two vessels surveyed the E. Pacific for saury, and (2) two 250-ton vessels searched for cuttlefish in Tasmanian Sea during Feb.-Mar. 1970, catching about 34 metric tons of cuttlefish larger than those found off Japan.

### FY 1971 Explorations

In FY 1971, explorations will include: (1) trawling off New Zealand and E. Africa; (2) purse seining in Tasmanian Sea; (3) tuna longlining in South Atlantic; (4) saury fishing in NE Pacific; and (5) fishing off Caroline Islands and New Caledonia for skipjack. Virgin fishing grounds will be explored for skipjack tuna and cuttlefish. The Agency has high hopes for a cuttlefish fishery in the Tasmanian Sea; 2 vessels (300 and 500 tons) will be sent there.

Also, the Agency will develop coastal trawling off Shikoku, Kyushu, and Hokkaido.

### Japan's 1969 Catch

Japan's 1969 catch was 8,620,000 metric tons, slightly below 1968's 8,670,000 tons. ('Mainichi')

* * *

## 4 TRAWLERS FISH NORTHWEST ATLANTIC

Four Japanese stern trawlers were fishing in September in NW Atlantic regulated by International Commission for the Northwest Atlantic Fisheries (ICNAF). They were: 'Zao Maru' (2,530 gross tons), 'Shirane Maru' (2,528 gross tons), 'Tokachi Maru' (2,501 gross tons), and 'Suzuka Maru' (2,500 gross tons). ('Suisan Tsushin', Sept. 14.)

Plans called for vessels to concentrate on herring in late September or early October.

* * *

JAPAN (Contd.):

## FISHERMEN FEAR SLUDGE DUMPING WILL RUIN FISHING

On Sept. 17, 1970, 19 Japanese fishery organizations petitioned the Fisheries Agency and the Liberal Democratic Party urging the Government to ban the planned open-sea dumping of sludge accumulating at Tagonoura port (Shizuoka Prefecture).

The government and the Prefecture plan to dump it off Chiba Prefecture, where fishermen claim it would ruin the good fishing grounds for skipjack and other tunas.

The sludge at Tagonoura, caused by the paper industry of nearby Fuji city, has seriously polluted the water.

### Fishermen Angry

Marine pollution off Japan is arousing fishermen's ire. ZENGYOREN and the National Water Pollution Control Measures Council planned a fishermen's protest march in Tokyo for Oct. 8. ('Suisan Tsushin', Sept. 19.)

### Pollution Serious

Water and air pollution have reached serious proportions in overcrowded Japan. The Japanese Government is acutely aware of environmental pollution problems. At present, various agencies deal with pollution control. But the solution will require a unified administrative approach.

* * *

## NEW PURSE SEINER WILL HAVE U.S. SKIPPER

The president of the Japanese Overseas Purse Seine Fishing Company was scheduled to visit San Diego, Calif., on Sept. 18 to hire a U.S. skipper for his company's purse seiner now being built in Japan. The Japanese hope to learn from skipper the U.S. purse-seining technique.

### 1,000-GT Seiner

The seiner is a 1,000-gross-ton vessel designed by a U.S. architect. It will be powered by a 3,500-hp. engine capable of 18 knots. Cost is about US$1.8 million. Completion is scheduled for Feb. 1971. ('Suisancho Nippo', Sept. 3 & 4.)

* * *

## TWO LARGE STERN TRAWLERS LAUNCHED

A 5,000-gross-ton stern trawler ordered by Nihon Suisan Company was launched July 17. The 'Yamato Maru' is the first 5,000-ton trawler to be built in Japan.

### Size & Capability

Main specifications are: overall length 108.94 meters (359.5 feet), width 17 meters (56.1 feet), depth 10.7 meters (35.3 feet), main engine 5,900 hp., cruising range 23,000 nautical miles, crew 130. Construction cost is about 1.6 billion yen (US$4.4 million). The Yamato was scheduled to be delivered to her owners on October 14.

### For Pacific & Atlantic

The Yamato Maru will be deployed in the North Pacific, Eastern Atlantic off West Africa, and in South Pacific off Australia.

Japan's second 5,000-ton stern trawler, 'Rikuzen Maru', ordered by Hokoku Suisan Company, was launched September 22. Both trawlers were built by Hitachi Shipyard in Hiroshima. Both have same main specifications. ('Minato Shimbun')

* * *

## NICHIRO WILL IMPORT FROZEN TUNA FROM NORWAY

Nichiro Fishing Co. plans to import frozen tuna (presumably bluefin) from Norway for sale on Japanese market. At first, it plans to buy 200 metric tons; if venture is successful, it hopes to build a cold storage in Bergen, Norway, for full-scale operations.

Nichiro's 'Kuroshio Maru No. 37' (470 gross tons) sailed in early June for Norway to pick up the tuna. Plans called for her to catch another 100 tons on her return trip.

### Adequate Freezing Needed

Earlier, Marubeni Iida imported tuna from Norway. Freezing during shipment was inadequate and quality of meat deteriorated. It could not be sold on Tokyo Wholesale Market.

That problem is not expected to occur with Kuroshio Maru. Her holds operate at a minimum temperature of -45° C. (-49° F.) ('Katsuo-maguro Tsushin')

* * *

JAPAN (Contd.):

## JOINT SHRIMP VENTURE IN GABON

The Pessing Co., a joint Japanese-Gabon shrimp venture, was established in Jan. 1969. It chartered a 315-ton shrimp trawler, 'Kohoku Maru No. 3', from Hokkaido Kosho Fishing Co.

This vessel has been exploring for shrimp off Gabon since Jan. 1969. Results reportedly were favorable. The Pessing Co. chartered the vessel on June 1, 1970, to begin commercial operations. Part of catch from the exploratory work was exported to Europe; the remainder was delivered to Japan.

### Buys 2nd Shrimp Trawler

The Pessing Co. also purchased the 'Gyofuku Maru No. 15' (314-ton shrimp trawler) from Hokkaido Kosha. The trawler left Japan on June 5, 1970, for Gabon. The trawler's name will be changed to 'Pessing No. 1.' It will catch bottomfish for local markets. The operation will receive technical assistance from Hokkaido Kosha Co. ('Suisancho Nippo')

### Started With $42,000

The capital needed to start joint venture was US$42,000. Two Japanese companies, Hokkaido Kosha and Kawakami International, each supplied $15,500. The Gabon Industrial Co. supplied $11,000.

* * *

## JOINT FISHING VENTURES OVERSEAS NUMBER 55

The Japanese Fisheries Agency has reported 55 joint ventures in foreign countries by Japanese fishery firms; 7 of these are related to tuna fishing.

The difficulty of conducting tuna fishing profitably abroad may account for the relatively few joint tuna ventures. ('Katusomaguro Tsushin', Aug. 27.)

* * *

## JOINT COLD-STORAGE OPERATIONS WILL BE ESTABLISHED IN KENYA

The Taiyo Fishing Co. will take part in a joint cold-storage venture in Kenya to be named Kenya Fishing Industries. The firm will be set up in Mombasa as a local corporation by Taiyo and Japan's Ataka Industries, and the British Maritime Fisheries.

### Capital & Capacity

The company will have capital of 60 million yen (US$167,000); Taiyo and Ataka each will put up $36,000.

An 1,800-ton-capacity cold storage is scheduled to be completed by the end of Mar. 1971, and operations to start in April.

### A Stabilizing Factor

The cold storage will help stabilize Taiyo's tuna-fishing-base operations at Mombasa; at present, the firm is using a moored refrigerated carrier to store tuna purchased from foreign vessels. ('Suisan Keizai Shimbun', Aug. 20.)

* * *

## SAURY FISHING WAS POOR IN NORTHEAST PACIFIC BUT GOOD OFF JAPAN

Fifteen Japanese vessels were fishing saury off U.S. west coast and Vancouver, Canada, on Sept. 11. Included were 1 mothership (1167 gross tons) accompanied by three 96-ton trawlers and 2 vessels on resource survey cruises (50% of cost subsidized by Govt.). The two survey cruises were organized by the Japan National Saury Association.

The 15 vessels were dispersed over a wide area, between 40°-48° N. latitudes, searching for large saury concentrations. About two-thirds of the vessels arrived in late Aug. or early Sept.; the rest began fishing in early August.

For about one week in late Aug. 1970, saury fishing off Vancouver Island had improved; daily catches ranged from 5 to 10 metric tons per vessel. Around Sept. 2-3,

JAPAN (Contd.):

the daily catch declined to about one ton per vessel. In 1969, however, saury fishing off Vancouver improved suddenly around second week in September. The Japanese hoped for a similar occurrence this year.

Off Japan

The saury fishing off Japan got into full swing on Sept. 1 when the fishery was opened to large vessels (over 40 gross tons). Fishing off Hokkaido and Sanriku (NE. Honshu) was reported generally good; there was increasing percentage of large fish in the catch.

Nationwide saury landings, as of Sept. 1, were 31,635 metric tons, roughly triple the comparable catch in 1969 (only 10,895 tons). The 1970 catch was about 60% of 1969 catch (52,000 tons). Saury fishermen hope that 1970 landings might approach 200,000 tons. At worst, they think catch will not fall below 100,000 tons, double 1969's.

Good Catches Stabilize Prices

The good catches are stabilizing saury prices in Japan. On Sept. 9, exvessel saury prices at Sanriku were 80-130 yen a kilogram (US$202-328 a short ton). Extra-small saury were bringing 30-35 yen a kilogram ($76-88 a short ton). Most fresh large and medium fish were being sold in the cities.

Particularly noticeable were active offers for medium saury by canneries, and no active buying by tuna-bait dealers. In 1969, the dealers were leading purchasers throughout season. ('Suisan Tsushin', Sept. 11.)

* * *

COASTAL SAURY CATCH
MAY REACH 90,000 TONS

As of Oct. 4, 1970, the saury catch off Japan totaled 54,000 metric tons. This surpassed the 1969 season's 52,000 tons (1969 was poorest recent year).

Landings were about 500 tons a day. At that rate, another 30,000 tons or more were expected to be landed in 1970.

Prices Vary

Exvessel saury prices at Hokkaido ports on Sept. 30 were 140-180 yen a kilogram (US$353-454 a short ton); at Kesennuma and Ofunato (northeastern Honshu), they were much higher: 245-324 yen a kilogram ($637-817 a short ton).

Average Value Lower

By Sept. 20, the value of landings (42,264 metric tons) was 3,390.2 million yen (US$9.4 million). This averaged 80 yen a kilogram ($202 a short ton); in same period 1969, average value was 98.6 yen a kilogram ($248 a short ton). ('Minato Shumbun', Oct. 6; 'Suisan Tsushin', Oct. 5, 1970.)

* * *

TRAWLERS FISH OFF MIDWAY ISLAND

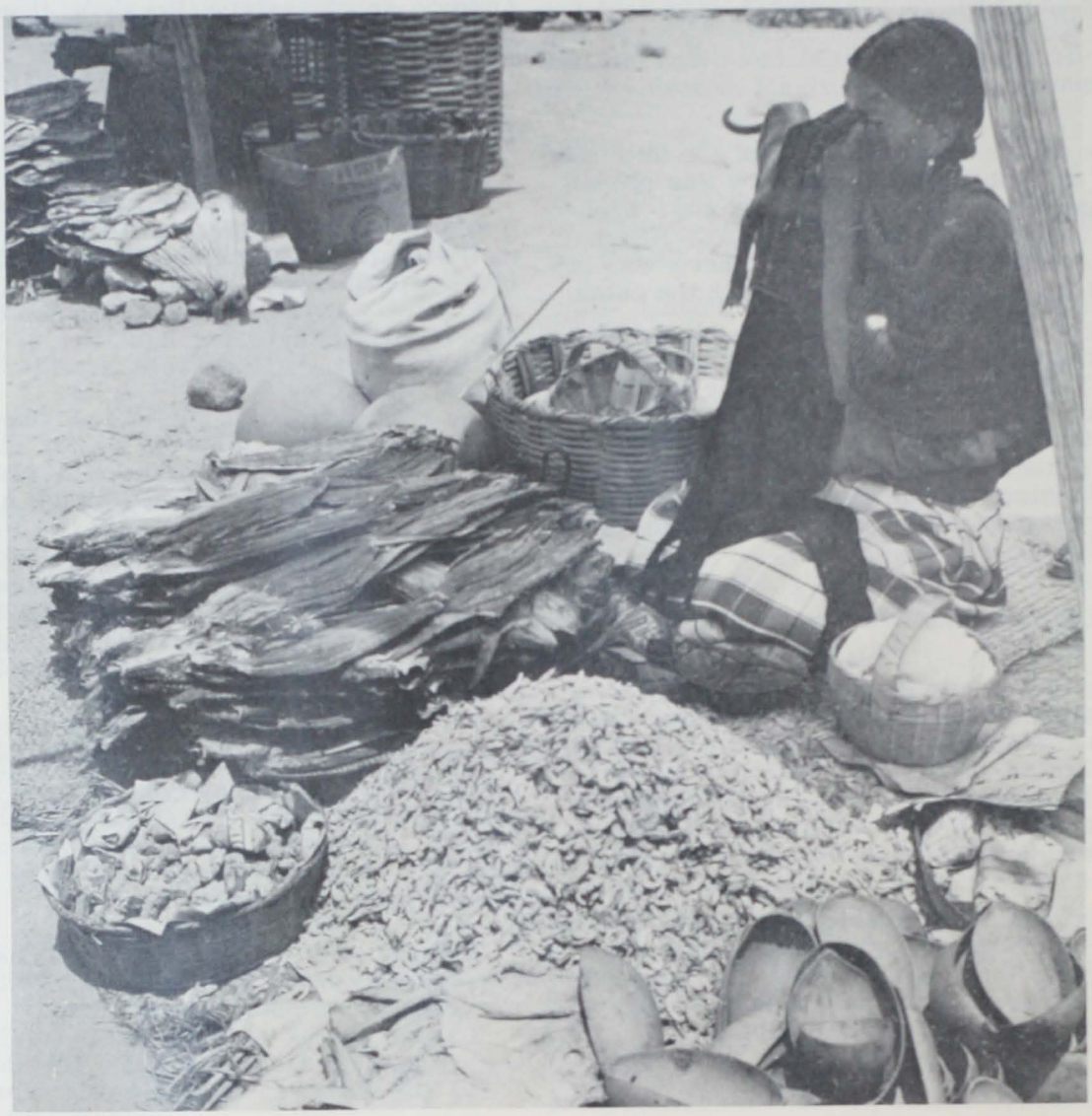
The Japanese trawler 'Akebono Maru No. 71" (3,500 gross tons), owned by Nichiro Fishing Co., began fishing on Aug. 30, 1970, for "Kinmedai" (beryx splendens) and "tsubodai" (quinguarius japonicus) off Midway Island in central Pacific.

The area also was being fished by 2 other Japanese firms: Nihon Suisan with one 2,500-ton trawler, and Tokushima Suisan with 'Orient Maru' (350 gross tons). Also, several Soviet trawlers were reported within visual range of Japanese vessels.

Fishing was reported slow. Akebono Maru's daily production was about 25 tons of processed fish, poor for her size.

The 'Tsubodai'

The 'tsubodai' was introduced into Japan by Nihon Suisan, which had been fishing it off Midway for one year. Because it has a dark skin, this species' marketability was doubted at first. But it is gaining acceptance due to its good flavor and texture. Its oil content is high. The waste is processed into fish meal and oil and produces a higher yield than other species. ('Minato Shimbun', Sept. 27, "Suisan Tsushin', Sept. 12, 1970.)



The rural population of southern Mexico's Oaxaca valley is nearly all Zapotec Indian. The market day in each village is held on a different day of the week.

Dried fish and dried small shrimps are sold in Tlacolula. (FAO photo)

# LATIN AMERICA

## MEXICO

### W. GERMANY MAKES GIFT OF RESEARCH VESSEL

Mexico's second fishery research vessel, 'Alejandro de Humboldt', arrived in Veracruz recently. She was offered to Mexico as a gift by W. German Pres. Luebke during a state visit in 1964. The vessel was built in Lauenberg for US$1.2 million.

The Humboldt

Mexico's first fishery research vessel was the 24-meter 'Antonio Alzate' commissioned in Nov. 1969. The Humboldt is 42.25 meters long, has a beam of 9.60 meters, and a draft of 3.35 meters. She is powered by an 8-cylinder diesel engine of 1,150 hp. turning 900 r.p.m. with a reduction gear to 300 r.p.m. for her reversible pitch propeller. Two smaller diesel auxiliaries provide power for air conditioning, lighting, and tunnel freezing and storage facilities at -35° C. (-31° F.).

Bottom & Midwater Trawling

The Humboldt is rigged primarily for bottom and midwater trawling. She has a hydraulic main winch and 1,000 meters of cable on each drum. An electric longline hauler is provided for possible longline fishing. A hydrographic and a fishery wet laboratory also are provided. Bridge equipment includes 3 echosounders, gyrocompass, automatic pilot, full bridge control of main engine and propeller, radar, and ample radio communication equipment. Accommodations are provided for 10 crewmen and scientific party of 8. All accommodations and both laboratories are air conditioned.

Mazatlan-Based Vessel

The Humboldt was scheduled to leave Veracruz about October 3 for Mazatlan, where the Alzate also will be based. A German captain and engineer will remain aboard for 6 months to help train their counterparts, already aboard, and other crew members.

When the training period is completed, the Humboldt will be assigned to the current FAO/UNDP fisheries project in Mexico for 4 years. In 1971, she will work in Gulf of California, in 1972 on west coast of Baja California from U.S. border to Cabo San Lucas, and in 1973 in Gulf of Tehuantepec on Pacific Coast. (U.S. Embassy, Mexico, Sept. 30.)

* * *

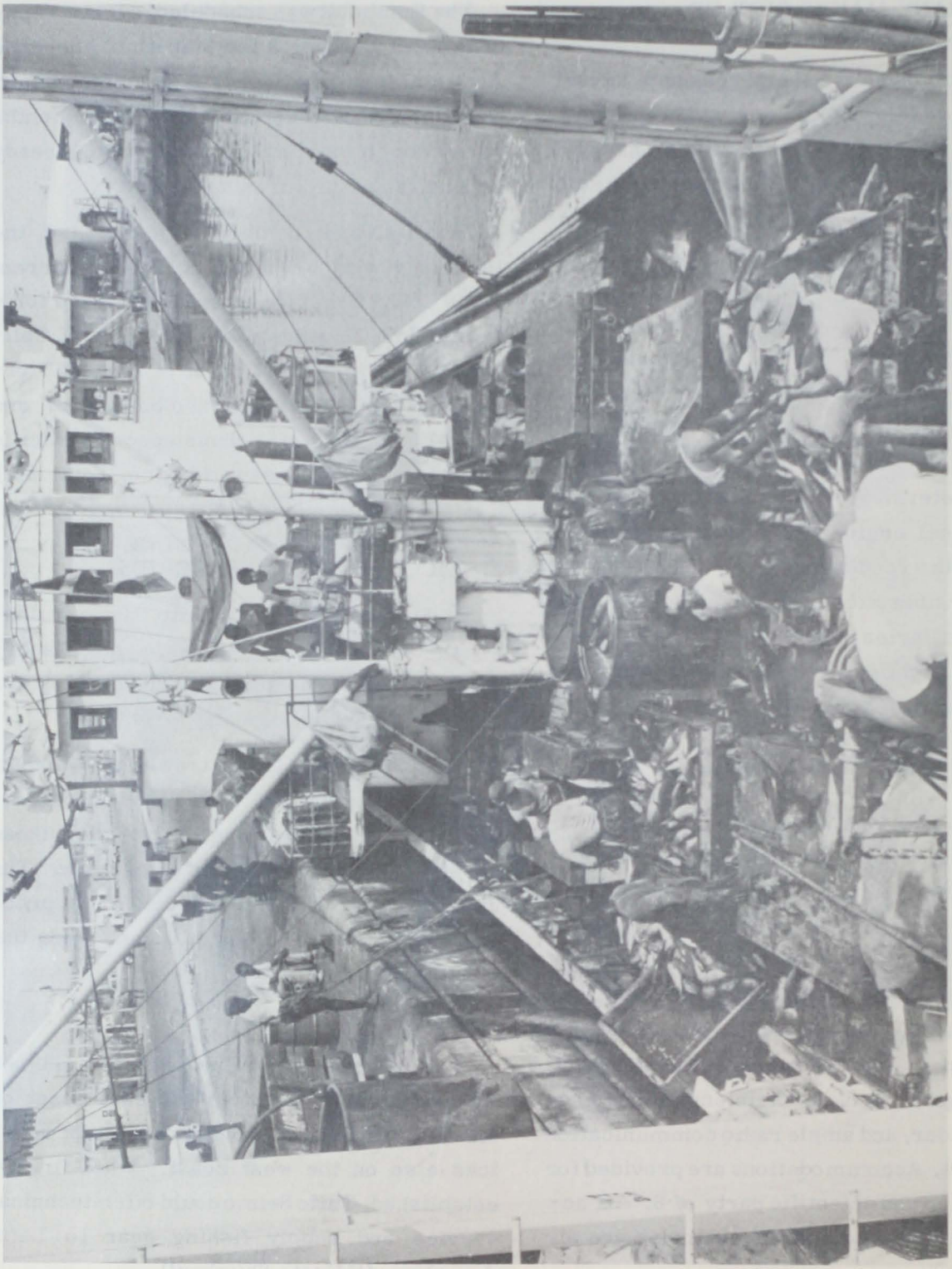
### JAPANESE TO HELP DEVELOP MEXICO'S COASTAL FISHERIES

At Mexico's request, Taito Seimo, a Japanese fish-net manufacturer, sent 2 fishery specialists to Mexico to help develop her coastal fisheries.

Mexico has the large trawlers and other vessels needed to develop her abundant coastal fishery resources but, reportedly, those vessels are not being used effectively. The Japanese specialists will work on this problem. Also, they will assist in surveying the coastal fisheries.

Mexico A Stepping Stone

Taito Seimo has helped set up a set-net fishery in Vera Cruz on the east coast of Mexico; it will now provide consultant services also on the west coast. When firmly established, Taito Seimo could offer technical service and supply fishing gear to Latin America. ('Minato Shimbun').



Japanese tuna boat unloading in Tema, Ghana. (FAO: A. Defever)

# AFRICA

## SOUTH AFRICA

### ANCHOVY NET ADAPTED FOR MACKEREL FISHING OFF WEST COAST

There was a short run of mackerel off South Africa's west coast from June 26 to July 27 this year. The fishery was 50 to 80 miles northwest of Cape Colombine. Factories in Saldanha Bay and St. Helena Bay reported record catches of 77,813 tons for July. It is estimated that the bulk was landed during first 2 weeks.

#### Netting Mackerel Difficult

Several boats used $1\frac{1}{8}$-inch pilchard nets; others used $\frac{1}{2}$-inch anchovy nets. Both groups found it difficult to net mackerel. They improved matters by inserting a length of 2-inch mesh and, in some cases, 3-inch mesh to the bottom of their anchovy nets.

The increased depth and the faster fall through water of these larger nets improved catch. But by the time the additional netting had been delivered and fitted, the mackerel run was almost ended. So the nets were not tested thoroughly.

Skippers were enthusiastic over performance. More use of this method will be made in 1971 to avoid spending vast sums on special nets for mackerel.

#### Adapting Anchovy Net

One of the most successful methods in enlarging and adapting an anchovy net is to match up meshes of the different-sized sections. The $\frac{1}{2}$-inch mesh anchovy net section is 25 to 30 fathoms deep. Below it are 20 rows of 3-in. mesh. This 3-in. mesh is cut--leaving one row attached to $\frac{1}{2}$-in. mesh.

The new section, 2-inch mesh ranging in depth between 10 and 20 fathoms, is rigged (loose stitched) on the single 3-in. mesh row; the latter remains attached to $\frac{1}{2}$-in. mesh section. Then, the original 19 rows of 3-in. mesh are rigged on to bottom of new section. During this process, the lead line remains attached to bottom of 3-in. mesh.

With this method, the removal or addition of the extra 2-in. mesh section can take as little as half a day. ('South African Shipping News & Fishing Industry Review', Sept. 1970.)

## SOUTH-WEST AFRICA

### PELAGIC FISH RESOURCES WILL BE SURVEYED

The South African Division of Sea Fisheries soon will begin a major research program into the distribution of South-West African pelagic fish resources.

The object is to assess the commercial potential of fish shoals north of Cape Cross--and to carry out extensive environmental studies in their vicinity. The region extends from Hollams Bird Island to the Kunene River; it covers much of the Walvis Bay fishing grounds.

#### Aircraft & Vessels for Survey

Two aircraft, a research vessel, and two fishing vessels will be used.

One aircraft will use an airborne infrared radiation thermometer to carry out surface temperature studies to delineate areas of special interest for fish-spotting by the second aircraft. Information from both aircraft will be collected, analyzed, and relayed immediately to the vessels. These will then conduct a special sampling program in specified areas.

The program was slated to run continuously from Sept. until Dec. 1970. Then it will be reviewed before beginning further studies. ('The South African Shipping News and Fishing Industry Review', Sept. 1970.)