

INTERNATIONAL

International Herring-Tagging Experiment Begins

A large-scale herring-tagging joint experiment was scheduled to begin in July 1969 in the North Sea. Conducted by European countries, it is designed to estimate proportion of juvenile herring taken by commercial fisheries on Bløden ground and in northeastern North Sea and Skagerrak. In recent years, an increasing proportion of the catch there has been small herring.

The estimate is needed to assess effect of industrial fishing on recruitment to North Sea's adult herring stocks. The experiment also should provide useful information on movements of juvenile herring and pattern of migration.

Number Tagged Important

Success depends, among other things, on possibility of tagging sufficient number. To achieve this, tagging will continue from mid-July 1969 till mid-March 1970. It is hoped 50,000 to 100,000 fish will be tagged.

All tagging will be carried out by a 3-man team from Norwegian purse-seiner 'Gerda Marie' chartered for this purpose. All fish will be tagged with internal metal tags inserted into belly. Recoveries will take place in fish-reduction plants handling commercial catches. Throughout tagging, research vessels will assist Gerda Marie to locate good concentrations and by experiments aimed at assessing tagging-produced mortalities.

Analysis in Spring 1971

The researchers hope that there will be enough tags returned by spring 1971 to permit analysis. The results will be made known. (ICES, June.)



Development of Fishing Systems for Distant-Water Fisheries Is Discussed

In April 1969, FAO's Department of Fisheries described the rapid improvement in the ways fish are found, caught, and handled as an "explosive growth in new technologies." At the 10-day International Marine and Shipping Conference in London in June, Dr. D. Bogucki, a Polish fishing-vessel design engineer, and Gordon Eddie, technical director of the British White Fish Authority (WFA), discussed the implications of this growth for distant water fisheries. They said the increasing sophistication of the distant-water fishing vessel inevitably will make demands on engineer's skill and ingenuity.

Engineer's Role

Eddie strongly advocates engineer's role in research into vessel design and methods of fish catching and handling. Dr. Bogucki and his organization, the Ship Design and Research Centre (COKB) in Gdansk, are moving in same direction. ('Fishing News,' London July 4.)

Evolution of a Vessel

Only 16 years ago (and in some distant water fleets still operating) the typical ocean-going vessel was a very simple, single-decked trawler, usually less than 200 feet long overall. It bore unmistakable signs of sailing smack ancestry. It could be built by a small specialist yard for about US\$240,000. It had evolved in ways "familiar throughout the history of shipbuilding." The skipper's main tools in finding and catching fish were experience, radiotelephone, and trawl itself.

While traditionalists may argue for the slow accumulation of experience, the economics of fishing demands faster methods.

Instead of \$240,000 for a vessel of known performance and reliability, today's owner must risk a huge investment. He should know whether the vessel will do the job he expects.

Vessel of Future

Eddie and Bogucki mention the "far reaching concept" of a fleet whose nucleus would

depot ship, perhaps nuclear powered, able to stay on remote grounds for the 4-year period between surveys. Its special hull would enable it to serve as a port and repair base for catchers that would stay with it on the grounds. Preliminary studies by Polish naval architects show it is practicable and can be justified economically.

Marketing's Role

A correct choice of a fishing system cannot be made without an overall systems analysis from sea bed to consumer's plate. Marketing may help by influencing demand to ensure that the main capital equipment, the vessels, are fully utilized. Marketing "may have a noticeable influence on the choice of size, type, and layout of the deep-sea fishing vessel of the future."



Antarctic Whaling Quotas Set for 1969/70 Season

Representatives of the Antarctic pelagic whaling countries--Japan, Norway, USSR--met in London June 20 to July 1. They agreed to submit a draft of an "Arrangement for the Regulation of Antarctic Pelagic Whaling" for the 1969/70 season to their governments.

The Quotas

The draft provides these allocations of the global quota of 2,700 blue-whale units fixed by the International Whaling Commission for the 1969/70 season: Japan 1,493 units; Norway 1,100; the USSR 976 units.

If the governments approved, the Arrangement would be signed on July 10 in Moscow. (International Whaling Commission, July 1.)



European Communities Council Adopts Zero-Duty Fishery Quota

The European Communities (EC) Council has adopted a regulation for the opening and distribution of a zero-duty import quota of 10,000 tons for fresh, refrigerated, or frozen herring from third countries. The quota is

valid from June 16, 1969, to February 14, 1970.

The Council explains that because some members import considerable quantities it would be inadvisable to levy a customs duty on them; also, the EC Communities have certain commitments within GATT. However, the herring imported within the quota must be in line with the Community reference price.

How Quota Divided

The 46,000-ton quota is divided into regular and reserve parts. The first part of 40,200 tons is: Germany 31,600 tons; Netherlands 5,600 tons; Belgium-Luxembourg 1,800 tons; France 1,000 tons; and Italy 200 tons. The 5,800-ton reserve may be distributed to members that exhaust their quota shares. (U.S. EC Mission, Brussels, July 7.)



Japanese-Brazilian Firm to Start Fishing Shrimp Off Brazil

The Japanese firm Nihon Reizo has transferred about US\$333,000 to its Brazilian subsidiary COPESBRA to build and operate three 100-ton shrimp vessels. Nihon Reizo owns 40% of COPESBRA's total shares.

COPESBRA (Companhia de Pesca Norte do Brazil) is whaling with one killer boat based at Recife. It is trawling for bottomfish with 3 vessels. So far, whaling has shown a profit of US\$83,000, but bottomfish has lost the same amount. Therefore, Nihon Reizo decided to change from bottomfish to shrimp.

Shrimping at Amazon's Mouth

The 3 shrimp vessels to be built will be chartered under a joint venture for one year. Then they will become part of the joint venture under Brazilian laws. Shrimp fishing will be based at Belem and conducted at the mouth of the Amazon River. ('Suisancho Nippo,' May 12.)



Japan Sends Fishery Team to Peru

Japan will send a 10-man fishery survey team to Peru in October in response to a request for Japanese cooperation in developing Peru's fishery resources. The survey will study the fish meal industry and develop proposals regarding future Japanese assistance.

The decision to send a mission to Peru was based on the fact that Peru claims a 200-mile territorial sea. Since Japan must cope with that problem, she needs to establish closer relations with Peru. ('Suisancho Nippo,' June 21.)



Spanish-Moroccan Fishing Convention Published

A reciprocal fishing rights convention between Morocco and Spain was signed in January 1969. It divides the territorial waters of both countries into three zones and specifies the types of boats and equipment that may be used in each.

Three Zones

In zone A, from low-tide line to three miles offshore, only lines may be used, except for fishing anchovies, where appropriate purse seines and boats will be allowed.

In zone B, from 3 to 6 miles, trawling nets and purse seines may be used, provided that local fishing laws are observed and gross catch is limited to 50,000 metric tons. The exercise of mutual fishing rights in zones A and B will expire 10 years from the effective date of the convention.

In zone C, from 6 to 12 miles offshore, "historic rights" with respect to fishing are in effect. All types of equipment are permitted. Local regulations will apply equally to nationals of both countries.

Joint Ventures

An annex to the convention provides for Moroccan-Spanish cooperation in joint fishing companies (boats furnished by Spanish shipyards), and processing and marketing of fish products. (U.S. Embassy, Rabat, July 4.)



Draft Treaty on Southeast Atlantic Fisheries

An international treaty to safeguard fish grounds in the Southeast Atlantic Ocean off southern Africa will be discussed in Rome Oct. 14-23. The conference is being convened by FAO, which has invited 18 governments most immediately concerned, FAO member and associate member nations, and interested international organizations.

After its scheduled adoption, the Convention for the Conservation of the Living Resources of the Southeast Atlantic will be open for signature by all UN members and specialized agencies. It will enter into force after formal ratification by a prescribed number of governments.

Creates Commission

The convention provides for creation of an international commission to study and recommend to member states the regulation of fisheries in the area. This lies off Africa's western coast, between the mouth of the Congo River and the continent's southern tip at 50° latitude. The commission will be assisted by a scientific advisory committee.

Fishing in the area has more than doubled in the past decade, largely because long-distance fleets from other parts of the world have moved into it. Certain stocks, particularly hake and pilchard, have been exploited heavily.



50 Nations Discuss Fishery Investment Opportunities

More than 100 representatives of government, industry, financial institutions, and universities from 50 nations will meet at FAO headquarters in Rome, Sept. 18-24, to discuss ways of promoting fishery investments in developing countries.

The International Conference on Investment in Fisheries will encourage and facilitate investments by providing needed information on investment opportunities, and sources and methods of financing.

Day & Information Needed

FAO said that difficulty in obtaining investment capital is hindering the efforts of developing countries to promote fisheries as a source of protein food and of foreign exchange earnings. Information is being sought on sources and methods of obtaining investment capital. In the developed countries, information is needed on opportunities for investment and fishery development. The conference will try to bridge the information gap and indicate where opportunities exist for investment and sources of money.

Speakers & Subjects

A special feature will be a panel discussion on prospects for fishery development in some developing countries. Participants from companies with overseas interests--and from international, regional, and bilateral assistance and financial agencies--will examine capital requirements. Methodology and international coordination of investment planning also will be covered. The aim will be to solve the problems of some segments of the industry that resulted from overinvestment.

Some 50 background papers have been prepared for consideration by the meeting. They include briefs on investment opportunities prepared by developing countries, lending agency statements by banks, discussions of project evaluation methods, analyses of bilateral support programs, specifications of criteria applied by private firms in making investment decisions, etc.

For information: Mr. R. Hamlich, Secretary of the Conference, FAO Fisheries Department Rome, Italy.



Fish Farming Combats Pollution

Fish farming, a growing source of protein foods, is receiving increasing attention as a means of water pollution control. This is reported in FAO's 'Fish Culture Bulletin' (Vol. 3, No. 3). The Bulletin highlights fish-culture developments around the world.

Polish scientists are experimenting with ways to convert nontoxic industrial waste, such as in organic compounds, into fertilizer for enriching fish-culture ponds. At the Academy

of Sciences' Krakow Laboratory of Water Biology, sugar industry wastes have been used successfully to fertilize carp ponds. Such wastes increased fish production 5 times in test ponds in Golysz.

Polish Research

Almost similar results were obtained at the Research Institute of Fisheries and Hydrobiology in Vodnany. There, effluents from starch factories and waste water from poultryeries were used. Both substances, particularly the latter, produced life-sustaining plankton in ponds. There were encouraging increases in fish production and no residual effects.

Other Research

Researchers in India's Delhi University are using light to stimulate the breeding cycle of fish. The magazine states: "By exposing catfish to longer day lengths in the nonbreeding season by means of artificial light, it was found that the gonads attained maturity three months ahead of the normal season."

A "spectacular increase" in trout production is reported in France and Italy, which threatens Denmark's position as Europe's major trout exporter. Yugoslavia and Poland have begun to export trout to Germany. The Soviet Union also is becoming a major producer. Meanwhile, experiments are underway to grow rainbow trout in saline water. This would help reduce costs.

In Hamburg, Germany, common carp are being bred within the narrow confines of aquariums simply by maintaining a constant flow of water.



Man-Made Lakes: Opportunities for Development

Man-made lakes for municipal and industrial purposes require farsighted planning to ensure maximum benefits. This is the theme of a new booklet, "Man-Made Lakes, Planning and Development," published by FAO and other international agencies. It is a guide to planners in developing countries especially.

The 71-page illustrated booklet notes that man-made lakes and reservoirs generally are planned to meet primary needs--hydroelectric power, irrigation, water for human and industrial consumption, flood control, or navigation. However, "their construction generates innumerable secondary problems, many of which have proved to be very serious." Most of these may not have been evaluated in advance.

Ecologic Effects

These problems acquire primary urgency in time. They flow from the grave changes in a region's environment and ecology during and after construction of the lake. Populations must be displaced and resettled. Farm and pasture lands and forests are "drowned" by the rising waters. Fisheries may be destroyed by dams that hinder fish movements. Wildlife may be driven out. The entire economy and social organization are affected, even disrupted.

Poorly planned lake construction also may trigger explosive outbreaks of disease. In the Soviet Union, deforestation because of inundation led to increase in tick-borne encephalitis. In Asia, increased rice growing brought about epidemics of mosquito-borne encephalitis. The displaced peoples may carry their diseases as they migrate. Spreading waters also will transmit disease.

Proper Planning Needed

Proper planning would ease or eliminate such problems, enhance the lake's value, and open up prospects for wider social and economic development. Science and education also could be enhanced, especially in developing countries, because trained technicians would be needed. Unequalled opportunities would be offered for commercial and sport fishery development and for local recreation and tourism. Conservation and esthetic beauty could be advanced, and forests and crops grown in ecological affinity with the lake. Transportation might be improved by a new water link. This would promote boat-building and inland port industries.

Anticipate Problems

The booklet states: "Anticipation is the first key to the solution of the secondary problems that may arise when reservoirs are

built." The second key is the "timely engagement" of the necessary experts to study all aspects of the project. "Dam engineering with all its complexities, is a much more straightforward operation than the solution of all the ancillary social, economic, and ecological problems that arise before, during, and after the dam is built and the reservoir fills with water."

The publication carries a foreword by C. Clay, FAO Coordinator of Lake Projects. It was prepared with the aid of K. F. Lagler, School of Natural Resources, University of Michigan, U.S.A. It describes 4 African lake projects--Lakes Kainju, Kariba, Nasser, and Volta--in which FAO and other agencies assisted with planning and coordination of the type of studies described in the booklet.



Japan & Indonesia Sign Fishery Agreement

On July 18, Japan and Indonesia signed a 3-year fishery technical cooperation agreement at Jakarta. Japan will assist Indonesia in research and education programs. Japan will provide gear and equipment costing about US\$278,000 and send 4 specialists.

Indonesia will provide land, building personnel, and pay administrative costs.

Japanese Aid Sought

Fishery assistance is one form of technical cooperation sought by Indonesia from Japan. Japan hopes the agreement will smooth negotiations with Indonesia on pending fishery problems. These include extension of agreement for safe fishing of Japanese vessels, which expired July 26.

Negotiations at Jakarta

The negotiations underway at Jakarta have produced temporary agreement to extend payment for one month pending further discussion. Since conclusion of the 1968 agreement, Japan has paid Indonesia about \$30,000 in fishing fees for 96 vessels. ('Suisan Keizai Shimbu' July 22, and 'Suisancho Nippo,' July 25.)



FOREIGN

CANADA

FISHERIES CEILING ON FISHERIES IMPROVEMENT LOANS ACT

Canadian fishermen now will be able to borrow up to C\$25,000 under amendment to Fisheries Improvement Loans Act raising ceiling from original \$10,000. The Act has been amended further to let fishermen borrow up to 90% of a project cost instead of the former 65%. There is one exception: a loan for a vehicle can be only 66 $\frac{2}{3}$ % of purchase price.

A previous amendment freed interest rate on improvement loans. Now the maximum rate payable on the principal outstanding will be reset twice annually. This will be 1% above rate of intermediate term money borrowed from the federal government.

What Act Provides

Some important points in the Act are: loans may be made to buy or build a new boat; a used boat; repairs to boats; purchase of fishing equipment of all kinds and electronic navigational aids; construction of buildings ashore and installations; and purchase of vehicles necessary for the fishing business.

Approved Lending Institutions

The Act also extended list of institutions that can make loans. Now included are chartered banks, trust companies, loan companies, credit unions, and insurance companies. Loans must be secured. Details for Fisheries Improvement Loan are worked out between fisherman and banker. The government is guarantor. ('Canadian Fishermen's News,' July 15.)

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MARITIME PROVINCES LANDINGS CATCH IN MAY

In May 1969, 81.2 million pounds worth C\$1.1 million exvessel were landed in the Maritime Provinces--Nova Scotia, New Brunswick, and Prince Edward Island. This

included 37.5 million pounds of groundfish (C\$1.9 million), 30.5 million pounds of pelagic and estuarial species (C\$600,000), and 13.2 million pounds of shellfish (C\$6.6 million).

Species Involved

Catch and value for each species group were lower than in May last year. The landings were substantially below the 1966-1968 average by about 7 million pounds, but the value was C\$582,000 greater. Cod, herring, lobster, and scallop landings dropped slightly below the 1966-1968 average. Haddock, halibut, and flatfish decreased significantly (haddock dropped by 5 million pounds). Landings of ocean perch or redfish were almost 1 million pounds above the 3-year average.

Trawler Landings

Trawlers and draggers over 70 feet landed 28.4 million pounds during the month. This catch represented 75.7% of the groundfish landings and 88.5% of the scallop landings.

Total Landings

Total Maritime Provinces' landings for first 5 months of 1969 were 286 million pounds worth C\$22.9 million. Total was 318 million pounds valued at C\$24.1 million in 1968, and 200 million worth C\$15.5 million in 1967.

Individual Provinces

The May catch, on an individual province basis, was substantially lower in all 3 provinces than in 1968. The catch in Nova Scotia was 41.2 million pounds (C\$5.8 million), the New Brunswick catch was 34.2 million (C\$1.4 million), and Prince Edward Island 5.8 million (C\$1.9 million). This compares unfavorably with May 1968 when Nova Scotia landed 60.6 million pounds (C\$7.3 million), New Brunswick landed 43.7 million (C\$1.6 million), and Prince Edward Island, 8.5 million (C\$2.9 million). (Economics Branch, Dept. of Fisheries and Forestry, Halifax, N.S.)

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Canada (Contd.):

PAIR SEINE-NETTING TRIALS
ARE SUCCESSFUL

An entirely new fishing technique, pair seine-netting, has been demonstrated successfully in a program to diversify small-boat operations on the Atlantic coast, Canada's Fisheries and Forestry Minister Jack Davis said recently. The method will benefit lobstermen in particular.

High Catch Per Effort

Two Prince Edward Island (P.E.I.) lobster boats, towing a single net between them, caught 7,000 pounds of sole and cod in 3 hours. They fished in 20 fathoms off Souris, P.E.I. The boats were adapted for pair seine-netting under the direction of a Scottish fishing skipper, who also supervised the first fishing trial. He estimated that the new technique would allow 10 tows in a normal working day. The 7,000-pound catch was made in 3 short tows.

Conversion Inexpensive

The machinery and gear needed to adapt the boats are relatively inexpensive, and the power requirement low, in comparison to regular draggers. Lobster fishermen should be able to work during the off-season months when normally their boats are tied up. Other types of low-powered inshore vessels also can be used, Davis said.

Gear and Methods

The trial boats made the bumper catches with a small Scottish seine net. The Scottish captain intends to replace this with a high vertical opening Vinge trawl as soon as hake start to appear on the Souris grounds; he expects equally good results. The net used is funnel-shaped, similar to a regular otter trawl in principle. The lobster boat skippers hauled the net by using a small winch on each boat and coordinated operations by radio-telephone.

The new technique is similar to the pareja (pair) trawling done by Spanish deep-sea trawlers in the Atlantic. Further extensive trials and demonstrations will follow and the results made public. (Dept. of Fisheries and Forestry of Canada, Ottawa, June 23.)

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WINNIPEG TO GET NEW
FRESHWATER RESEARCH INSTITUTE

An ultramodern C\$7.5 million institute to be built on the University of Manitoba campus at Winnipeg. The building, a federal-financed structure, will house all of the Fisheries Minister's freshwater development staff.

Central Location

The University of Manitoba campus was chosen because 80% of Canada's freshwater lakes lie within a 1,500 mile radius of Winnipeg. The new Freshwater Fish Marketing Agency also is being located there because Winnipeg is the capital of Canada's freshwater fishing industry.

Research Projects

The Institute, with an initial staff of more than 340, will be concerned primarily with the future of freshwater fishing and the quality of the water in lakes, rivers, and streams from coast to coast. The accent will be on development and directed towards fish farming and improvement of existing fish stocks in northern waters. The staff also will be responsible for studies on eutrophication of river systems as far apart as the Okanagan in British Columbia and the St. John River in New Brunswick.

Renewable Resource Complex

The Institute buildings are the first of a series in what is expected to become "a renewable resource complex." It will include research laboratories, a working library, seminar facilities, fish-holding tanks, and pilot-plant facilities. It will be "second none in North America," treble in size over the next decade, and attract some of the best biologists in the world.

Other Activities

The new 188,000-square-foot building also will provide space for the Association of Universities and Colleges of Canada, the Department of Energy, Mines and Resources Inland Waters Branch, and the Department of National Health and Welfare's Public Engineering Division. (Fisheries Research Board Canada, June 27.)



EUROPE

USSR

MAY FISH ATLANTIC SAURY
WITH ELECTRIC LIGHTS

In late autumn 1968, Soviet research vessels discovered large concentrations of Atlantic saury off Nova Scotia and on Georges Bank. Fishing with electric lights, exploratory vessels of the Atlantic Fisheries and Oceanography Research Institute (ATLANTNIRO) made good catches. The species reacts positively to electric light. It schools under blue light about 20 meters; when blue flood lights are switched off and red lights are switched on, the school condenses and rises swiftly to the surface. This creates a "boiling" effect.

The Atlantic Saury

The Atlantic saury belongs to the same family as the Pacific saury (Scomberosocidae). It is distributed widely in the temperate and subtropical waters of the north and south Atlantic. It feeds on plankton and inhabits the surface layers of the open ocean. Its average length is 25-35 centimeters (maximum 45-46), and its average weight is 70-140 grams (maximum over 200). Migrations to the coastal waters of the U.S., Canada, Great Britain, and Spain have been observed.

Research Began in 1967

Soviet research on the stocks and biology of Atlantic saury began in 1967. Research and exploratory vessels of the Polar Fisheries and Oceanography Research Institute (PINRO) and ATLANTNIRO established that the life cycle of the Atlantic saury is associated closely with the Gulf Stream and the North Atlantic and Canary Currents. Commercial concentrations were observed where the Gulf Stream converges with the cold Labrador current.

In Oct. 1967-Apr. 1968, ATLANTNIRO vessels discovered widespread saury concentrations in 2 areas (total of about 40,000 square miles) in the Gulf Stream off Newfoundland, and in the Newfoundland Basin.

When They Spawn

Apparently, saury spawn from Sept. to June. They reach their peak during winter-

spring, when water temperatures range from 17 to 19°C. (62.6-66.2°F.). Spawning grounds in the North Atlantic are widespread, ranging from 46°30' to 28° N. lat.

May Be 2 Populations

Soviet scientists believe there are no less than 2 distinct saury populations in the North Atlantic--a west Atlantic (between 45 and 70° W. long.) and an east Atlantic one (between 13 and 38° W. long.).

In the South Atlantic, the convergence zones of the cold Falkland current with the warm Brazil Current, and the cold Benguela Current with the warm South-Equatorial Current, have the greatest potential for abundant, commercially exploitable concentrations of Atlantic saury. ('Rybnoe Khoziaistvo,' No. 5.)

Present Research

The Soviets are continuing exploratory research on Atlantic saury. At least one ATLANTNIRO research vessel is scouting the North Atlantic--from Georges Bank, along the Gulf Stream to the Newfoundland Basin--to determine the economic and operational conditions for a large-scale saury fishery using electric lights.

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FAR EASTERN FLEET
FACES REPAIR PROBLEMS

The Soviet Far-Eastern Fisheries Administration (DAL'RYBA) is facing serious repair problems for its fleet of 'Maiak'-class medium trawlers (SRTM). The reason is the shortage of floating docks capable of handling those vessels.

DAL'RYBA is well equipped to repair small SRT-300-class trawlers (260 gross tons). However, SRTMs (about 700 gross tons) have to be put in large floating docks designed to repair larger vessels such as stern factory trawlers (BMRTs) and factoryships. The smaller floating docks cannot hoist SRTMs. This has delayed considerably repair of BMRTs and large factoryships. The number of 'Maiak'-class medium trawlers of the Far Eastern fishing fleet has increased considerably over the last few years. Their

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condition has deteriorated greatly because of maintenance deficiencies.

New Docking Technique

In 1967, 2 scientists at Kaliningrad Higher Navigational School devised a way to dock larger vessels in a floating dock designed for smaller vessels. The undisclosed technique is being introduced gradually only now because it had met with considerable skepticism.

After thorough and extensive testing, the method was approved by Soviet Fisheries Minister Ishkov and his DAL'RYBA Chief, Drozdov. Several SRTMs of that fleet have been repaired at Nevelsk shipyard on Sakhalin with the new technique. But Kamchatka and Primor'e shipyards continue to repair SRTMs in docks for large vessels. This is a bottleneck for entire Far-Eastern fishing fleet.

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FAR EASTERN SEALING FLEET IS AGING

The Far Eastern Fisheries Administration is concerned about the Sakhalin sealing fleet. Many of the catcher boats are close to 16 years old and in bad need of repairs.

Several boats were withdrawn from service in 1967. In November 1968, the Fisheries Ministry ordered 3 sealing vessels to be repaired at Nakhodka shipyards. By mid-May 1969, only 20% of the required repairs had been completed, and none of the 3 vessels was operational. ('Vodnyi Transport,' May 17.)

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RAISE FRESHWATER FISH
IN SEA WATER

The All-Union Fisheries and Oceanography Research Institute is rearing carp and silver carp fry in Taganrog Bay of the Azov Sea. This is the first experiment in the Soviet Union in breeding fresh-water fish in the sea. The fry are held in pots at a depth of 3 meters. They feed on plankton and minced Azov sprat ("kilka"). The experiments are to last until late autumn 1969 and include zander, grass carp, and sunfish (centrarchid).

The purpose is to determine how fresh water fish acclimatize in marine conditions, how fast they grow, how much food they consume, etc. When tests have been completed the Institute will issue recommendations for the culture of freshwater fish in marine waters.

Plans for Sunfish

The Soviets plan to release acclimatized sunfish in the Azov Sea hoping it will develop into a commercially exploitable species after a few years. ('Vodnyi Transport,' July 1.)

The source gives no indication of plans for the commercial introduction of the other species.

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UNDERWATER LABORATORY
IS PLANNED

Soviet news media report that Moscow University's Marine Geology Laboratory plans to build an unmanned underwater "observatory" to hover above the ocean bottom and record the environment continuously. The first "observatory" is to be assembled in the Black Sea not far from the city of Evpatoria.

The Lab

Access to the laboratory will be both manual (divers) and automatic (acoustic command). Data will be recorded and transmitted frequently (4-6 times a day). In addition, the marine seabed will be photographed, and the photos synchronized with surface oceanographic observations.

The "observatory" will not be on the seabed but above it. Divers apparently will be able to use the laboratory by floating it to the surface and descending with it. The idea has wide support in Soviet academic circles. Several professors, including Chairman Zenkevich of the Oceanographic Committee of the USSR Academy of Sciences, were interviewed about the project.

Lag in Making Instruments

While praising the project, the news media also pointed out that the making of oceanographic instruments is in a messy state. Instruments designed for similar functions are

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...ult in 3 or 4 laboratories separately, causing great loss of time and money. To avoid this, a Center for the Production of Oceanographic Instruments is advocated.

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REVISE NEW METHOD FOR SEALING FISH BARRELS

Specialists at the port of Klajpeda, Western Fisheries Administration, have suggested that fish barrels transhipped from medium trawlers to factoryships be topped with synthetic fabric held in place with a hoop. The conventional method is to seal barrels with a wooden top pressed into the barrel.

Method's Advantages

The new method increases barrel capacity and prevents squashing the top layers of fish, thus conserving quality. It also simplifies refilling barrels with ocean water. ('Rybnoe Khoziaistvo,' No. 4.)

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ROLES OF EFFICIENCY EXPERTS AND INVENTORS ARE EMPHASIZED

A conference of fishing-industry efficiency experts and inventors has reviewed proposals and issued recommendations for speeding up technical progress in the fishing industry. The conference, held in Leningrad at Inrybprom-68," was attended by 250 experts and inventors from the 5 Fishery Administrations.

Savings in 1967

"Technical creativity programs" (suggestions and inventions) involve some 25,000 fishery workers all over USSR. In 1967, adoption of the 26,000 technical suggestions and inventions saved 20.8 million rubles (US\$22.8 million). The Western Fisheries Administration used 7,068 suggestions, saving 7 million rubles (US\$7.7 million). The Far Eastern Fisheries Administration adopted 6,760, saving 6.6 million rubles (US\$7.2 million).

Areas of Future Effort

The conference directed the efficiency experts and inventors to concentrate on: (1)

devising new and more effective fishing methods with electric light, electric fields, and pumps; (2) designing new equipment to mechanize and automate fish-catching processes; (3) designing new navigational, exploratory, and gear-control devices; (4) improving fish processing and packing machinery to reduce waste; (5) increasing variety of edible fishery products; (6) improving ship-repair technology and reducing demurrage due to repairs. ('Rybnoe Khoziaistvo,' No. 3.)

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CONDUCTS MIDWATER TRAWLING EXPLORATIONS OFF NW AFRICA

Exploratory midwater trawling was conducted by the Atlantic Research Institute for Fisheries and Oceanography (ATLANTNIRO) off northwest Africa, January-March 1968. Results were excellent. The research vessel 'Gizhiga' and the commercial freezer trawler 'Petr Liziukov' tested a newly designed 38.5-meter (126.3-foot) pelagic trawl. Various Soviet-made fish-locating devices for midwater trawling also were tested successfully. Explorations were conducted at varying depths in 3 areas: at 60 to 120 meters off Dakar; at 25 to 40 meters off Cap Blanc (Mauritania); and at 30 to 50 meters off Rio de Oro (Spanish Sahara). The Soviets have only bottom-trawled on a commercial scale in the area. The successful tests may induce them to develop a midwater trawl fishery.

Pelagic Trawling

Soviet interest in pelagic trawling mainly stems from the fact that the species they fish off northwest Africa (horse mackerel, mackerel, herring, Sparidae, and Scianenidae) school near the bottom only during certain periods of the year and at certain times of the day (mostly daylight). This has made the fishery strictly seasonal. However, these species are pelagic and frequently form huge midwater schools covering several hundreds of miles. 'Gizhiga' fished with bottom trawls in the daytime and with pelagic trawls at night. Best catches were at night. The operation proved the feasibility of a year-round commercial fishery using both pelagic and bottom trawls. ('Rybnoe Khoziaistvo,' Jan. 1969.)

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FILM INDUSTRY USES DRIED KING CRAB SHELLS

A movie film factory in Kazan has requested the Far Eastern Fisheries Administration to supply it with dried king-crab shells. The factory will use them to produce color film. The Administration instructed 3 king crab factory vessels in the western Bering Sea of Kamchatka to fill the order. The shells will be shipped to Kazan from Vladivostok by Trans-Siberian Railroad.



United Kingdom

FROZEN FISH PRODUCTION BREAKS RECORD

Britain's domestic production of frozen fish rose by more than 13% in 1968 to 94,111 long tons (from 82,660 tons in 1967). Home sales of frozen fish, supplemented by imports, increased by over 5,000 tons to 114,000 tons. Overseas sales increased by more than a third to 16,000 tons.

The White Fish Authority has estimated that nearly 218,000 tons of white fish--23.4% of the landings--were used for freezing in 1968. In 1967, 189,000 tons had been used. ('Fishing News,' June 27.)

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WHITE FISH AUTHORITY NEEDS LOAN FUNDS

An increase in loans for vessels and removal of restrictions on growth of the inshore fleet, announced by the government last year, have turned out to be paper promises that 'meant little in practice,' according to a White Fish Authority (WFA) report.

Loan Rates

Although the maximum loan rate was increased, loan funds available to WFA was limited to US\$900,000. As a result, the higher maximum meant so little in practice that, in November last year, it was announced that no further loans could be approved until the government allocation for the following year was known. A much higher provision of \$2,040,000

for 1969/70 will make it possible for 50% loans to be approved in some cases.

Trawlers

Removal of the trawler scrapping condition had very little effect on application for building new vessels over 80 feet. Only one application was approved in 1968/69. But the WFA, aware that one-fifth the trawler fleet is more than 15 years old, hopes that improved profitability, assisted by the new subsidy scheme, will encourage new building during the coming year.

Inshore Fleet

The inshore fleet provided most of the new orders. During 1968/69, there were 170 applications for inshore vessels; 120 were approved--70 for England and Wales and 50 for Scotland--and 45 were being considered at the end of March 1969. In the previous year, 95 applications had been approved.

In the last 5 years, WFA has approved 384 new inshore vessels--228 in England and Wales and 156 in Scotland. But the larger Scottish boats got assistance of \$4,437,600, compared with \$3,084,000 for English and Welsh boats. Improvement grants rose from 1,449 in 1967/68 to 1,543 in 1968/69; 1,044 were for inshore vessels.

Landing & Price Patterns

The year fell into two distinct phases. The first half was marked by heavy landings from Scotland and inshore ports in England and Wales, and by massive surpluses at Humber ports. This pattern of landings reversed in the second half. With less pressure from cheaper supplies from elsewhere, and helped by their minimum price structure mechanism, the English ports benefited from their increased landings. WFA sees this pattern of price movements as "a classic demonstration of the need for a statutory minimum price scheme for the UK, with a system of reserve prices to support it."

Rising Costs

The report is ample evidence of WFA's own struggle against rising costs. Total income rose from \$1,382,278 to \$1,405,015 due to an increase of \$38,400 from technical charges. However, costs jumped from \$1,485,761 to \$1,591,778, leaving WFA with a \$186,763 deficit. ('Fishing News,' June 27.)

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United Kingdom (Contd.):

WHITE FISH AUTHORITY OFFERS NEW SERVICES

An almost unique management-and-design service now is being offered by the White Fish Authority (WFA) on a commercial basis to fishing companies and vessel owners. The staff of the Industrial Development Unit (IDU) in Aberdeen will give firms the opportunity to apply the results of IDU work to their own problems.

The IDU

The IDU was established by WFA in 1963 to implement its research and development program. For the first time, highly qualified engineers were brought in to investigate and develop improved vessels, methods of fishing, and handling and distribution. WFA's technical director said: "This practical engineering approach has given us an unrivalled knowledge of fishing equipment and the way it is used."

In its 6 years, IDU has worked closely with fishermen, ship builders, and manufacturers. It has advanced considerably the techniques of measuring the performance of vessels and equipment under operational conditions; introduced the warp tension meter, Shetland trawl, hydraulic winches and power blocks, and improved echo-sounding systems; and developed new products.

IDU's success has aroused wide interest outside the U.K. Some leading fishing countries have been attempting to set up similar organizations. None has yet matched IDU's expert team of naval architects, mechanical, marine and electronic engineers, and operational research scientists.

Needs More Money

According to the 1968/69 WFA report, the main restriction on IDU's work is the shortage of money. "It is difficult at our present level of expenditure," says the report, "to undertake projects requiring annual allocations of more than US\$48,000." To cover projects ranging from development of a telemetry system for trawlers to a winch brake, the research and development program spent US\$1,027,200.

One effect is that IDU is hampered increasingly by its own accomplishments. As

these reach the application stage, IDU has to spend more time disseminating the program results. IDU's head says this is part of the job, although it strains his resources.

WFA Report

The WFA report states: "It is not much use developing new techniques or equipment if the lessons do not get across to industry." It adds that the industry's appetite for information--which is provided in demonstrations, lectures, discussion groups--is "something we are not at present staffed to meet in full."

IDU Services

IDU's services will not include research and development for individual companies that are separate from all-industry programs. IDU will provide expert service, backed by digital computer and other data-processing machines, where "it is obvious that substantial staff effort will be required to provide an adequate answer to a particular enquiry or request."

It will try to build the most into the design of individual vessels by operational research methods, production control systems for processing plants, sales analysis, lorry routing, stock control, intership comparisons of costs and earnings, and economic and statistical services.

On the design side, IDU will provide designs and sketch plans for new vessels, designs to instal new equipment, advise on how instruments should be used, conduct trials and analysis of results, and prepare schemes for factory and factory-deck layouts.

IDU is not competing with naval architects or yards; both will do the detailed work on the suggestions. It will continue to advise and aid industry without charge. IDU says: "The new service is in no way intended to discourage the ad hoc consultation and discussion, which is a continuous and essential feature of the Authority's relationship with the industry."

The service will permit IDU to apply knowledge gained from broad industry projects to the more specific needs of fishing companies. ('Fishing News,' London, July 4.)

* * *

United Kingdom (Contd.):

PLASTIC FISH BOX DEVELOPED

An all-plastic fish container has been developed by Pye of Cambridge. The company claims these advantages for it over the wood box: "Greater cleanliness, longer life, less



(Photos: Dunne)

weight, greater flexibility and ease of stacking, and greater ease of handling."

The plastic box has been accepted by the Skagen Skipperforening, the Danish Fishing Skippers' Association. Deliveries have been made to Danish and Greenland fleets.

The plastic box measures 30" x 17½" x 8" and is designed to take 50 kilos of fish.



Poland

MAKES GOOD CATCHES IN NORTHWEST ATLANTIC

During first-quarter 1969, Polish fishermen made good catches in the Northwest Atlantic. Fishermen of the state-owned combine DALMOR caught over 50,000 metric tons of fish (species not known) during January 1 to March 18, 1969.

DALMOR is the largest Polish deep-sea fishing company. Most Polish vessels sighted off the U.S. mid-Atlantic coast early in 1969 belonged to it.

To Fish Shrimp

Another distant-water fishing combine, ODRA, is planning to fish Georges Bank shrimp for canning. The 1969 quota was set at 200 metric tons. ('Polish Maritime News', April.)

Earlier Catches

In 1968, the Poles caught 187,000 tons of fish from the entire ICNAF area (80,000 tons in subarea 5, Georges Bank). This was a sizable increase over the 120,000 tons (41,000 tons in subarea 5) caught in 1967.

Other Developments

In early 1969, the Poles began fishing southeast Atlantic hake off Angola. Daily catches averaged about 40 tons. In March 1969, 'Kwiska,' the first Polish trawler, was converted into a purse seiner.

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land (Contd.):

FIRST AUTOMATED STERN TRAWLER
BUILT FOR FRENCH

On June 2, 1969, the flag was raised on the automated stern trawler 'Shetland,' built by Gdynia Shipyards for French owners, Nord Pêcheries de Boulogne sur Mer. It was designed by Gdynia Branch Office of Shipbuilding Industry's Design and Research Centre.

The Shetland is the 14th trawler built by Gdynia Shipyards for French owners, and the first trawler built by Polish shipyards for France. Shetland's prominent feature is extensive automation of the propelling system, engine room arrangements, and fishing gear. The vessel will catch fish in the North Sea and North Atlantic grounds and ice them in holds refrigerated to -4°C . (24.8°F .)



Shetland. The prototype unit of the B411-type built at Gdynia Shipyard for French owners, Nord Pêcheries de Boulogne sur Mer.

Vessel's Particulars

The main particulars are: length o.a.--52 m. (196.8 ft.); length b.p.--52 m. (170.6 ft.); beam 11.60 m. (37.7 ft.); draught 4.25 m. (13.9 ft.); capacity 333 tons; speed at trials 14.2 knots; draught of 4.25 m. and engine power of 500 hp. on the propeller--14.2 knots; crew 26; no. of berths 26; capacity of reefer holds 289 cubic meters, of fuel tanks 289 cubic meters, of fresh-water tanks 49.80 cubic meters, and of salt-water tanks 52 cubic meters.

Electronic & Other Gear

Radio and electro-navigational aids are: radio transmitter and receiver, emergency

transmitter, VHF radio station, radio-goniometer, gyro-compass and gyro-pilot, Decca radar, Decca navigator and course recorder, horizontal and vertical navigation and head-line echo-sounders.

The main trawl winch is 3-drum, electrically driven, with a 12-ton hauling capacity. There also are 5 hydraulic winches: 2 can haul 6 tons and three 4 tons. This allows speedy and efficient heaving and shooting of nets and trawls. The fish are transferred through stern chute into storage compartment. Belt conveyors then move them to the processing compartment on bow. The fish are hand-gutted. After being rinsed in washing machines and separated, they are stored in loose ice in both refrigerated holds. ('Polish Maritime News,' June.)

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LED WORLD IN 1968
FISHING VESSEL CONSTRUCTION

Poland, Japan, and East Germany led the world in fishery vessel construction in 1968. Poland built 30 vessels (totaling 126,500 gross tons), Japan 347 (99,760 tons), and East Germany 68 (89,700 tons). Spain was in 4th place with 58 (54,400 tons). All were listed in "Lloyd's Shipping Register." (The Register does not list vessels of less than 100 gross tons.) ('Pêche Maritime,' Mar.)

Exports

Many of the new vessels are exported. Polish-built vessels go to the USSR, U.K., France, Ireland, and other countries. East Germany exports to the USSR, Cuba, and Iceland. Japanese-built vessels go to the Republic of Korea and other countries.

Soviet Construction

Soviets do not furnish statistics on fishery vessel construction, but just one of several shipyards builds about 24 large stern factory trawlers, 3,200 gross tons each, a year. The Soviets probably would be first, if they chose to publish data. Additions to the Soviet fishing fleet, including purchases from West and East European countries, exceed those of any other nation.



THE SPANISH SEAWEED INDUSTRY

Norman W. Durrant

[The author, a BCF chemist, attended the Sixth International Seaweed Symposium, Santiago de Compostela, Spain, Sept. 9-13, 1968. He also investigated the Spanish seaweed industry.]

The seaweed industry, principally the manufacture of agar-agar, began in 1940 when the lack of Japanese supplies induced Spanish bacteriologists to try to obtain this product from Spanish seaweeds. Small-scale investigations were started and imitated Japanese techniques.

Spain has centered its seaweed activities primarily on the manufacture of agar-agar. This industry has undergone such a rapid development during the past 28 years that now the search for raw material has become the primary concern.

There are 3 techniques for collecting seaweeds:

1. From May to October, at low tide, people who live near the coast tear the seaweed off the rocks to which they are fixed. They are then spread on the beach and exposed to air and sun. The dried material is then sold to seaweed processors.

This system is used principally along the Galician coast and the coast of Spanish Sahara. This selective picking of seaweed offers a product of very high quality because only the species desired is collected.

2. Another harvesting technique involves frogmen. They operate from specially fitted ships from May to October. Although this technique is rather expensive, it results in the collection of higher quality seaweed.

This system has only been used during the past 10 years. During this period, extensive training and equipping of ships have been emphasized. Normally, ships 30 to 50 feet long are used, with 4 frogmen, a skipper, and one mechanic. By Spanish standards, the frogmen are extremely well paid. At the present time, over 100 ships of the above type are being used to collect seaweeds, almost exclusively the Gelidium species.

3. Finally, the most important procedure for gathering seaweeds is to pick them up on the beaches after they have been deposited by the autumn and winter storms.

The primary drawback to gathering storm-cast seaweeds is the necessity to sort out the undesirable species that collect on the beaches. Another drawback is the irregularity with which the storm-cast seaweeds are available. In one year, many tons may be washed ashore; in the next year, there may be nothing. This makes it difficult to maintain a labor force. In addition, storm-cast seaweeds are usually predominant in areas of high rainfall and humidity, and this makes drying difficult. To overcome this problem, the seaweed is usually transported to dry areas, such as the Castilian plateau in the interior. Of all seaweed collected in Spain, 70 to 80 percent is obtained through the storm-cast route.

Types of Seaweed Gathered

The industrial raw materials of the Spanish coast are represented by Gelidium, raw material for the manufacture of agar-agar, Lichen carrageen for carrageenan, and Laminaria for alginates. Other seaweed species are also collected, though in small quantities for instance, Fucus for the manufacture of animal fodder.

Almost all available seaweeds are located along the north and northwest coasts. There is an appreciable amount in the Spanish Sahara and a small amount around the Canary Islands.

Processing Facilities

During 1940-1945, two small plants manufacturing agar-agar for their own use were constructed. These were Instituto IBYS and Instituto Lorente. The latter was later converted to Productos Naturales Y Sinteticos S.A., Prona.

During 1945-1950, two plants were erected and began production on a commercial scale. Explotacion De Algas, S.A., and La Technica Quimica Hispana, S.A.

From 1950 to 1955, two additional agar-agar companies were founded: Productos Quimicos Drovecol and Elaboracion De Productos Alimenticias Basicos, S.A.

From 1955 to 1960, another pair of commercial processing plants emerged on the scene: Productos Quimicos Navis, S.A., and Productos Y Derivados Marinos, S.A. During 1955 to 1965, the largest increase in production of agar-agar was obtained, 800 tons per year. Since 1965, six new companies have been formed for the commercial production of agar-agar. These are Sanval, Juste, Consa, Movogel, Gummagar, and Roko.

In 1966, eight agar-agar processing firms formed a group under the name Hispanagar, S.A., which is now erecting a new plant in Logos. Production capability is 1,250 tons of agar. This plant initiated production at the end of 1968.

The primary problem the seaweed industry now faces is obtaining enough raw material to keep the plants in operation. The total capacity of all plants is now 1,800-2,000 tons annually; actual production was 890 tons in 1966, 600 tons in 1966, and 925 tons in 1967. This means that Spanish agar-agar plants have been operating at only about 42 percent of total capacity.

CARRAGEENAN--The processing of carrageenan from Carrageen lichen is insignificant. Almost all of the 300 to 600 tons of seaweed have been exported. In view of the increasing consumption of products derived from lichen in Spain, as well as in international markets, two companies are now constructing plants for commercial production of carrageenan. These plants are being constructed in Vigo and Burgos; proposed annual production is 400 and 180 tons, respectively. It is expected that these plants will absorb all lichen seaweeds that can be gathered.

ALGINATES--The alginate industry is relatively new. The first efforts to produce this valuable material was tried in 1950, when an agar-agar manufacturer began a study of the possibility of extracting alginates from the Laminaria species, flexicaulis, claustroni, and sacorriza. He found the first two suitable for alginate production. In 1954, a small plant was installed, and he began producing sodium alginate. Even though the quantities produced were small, they were sufficient to supply the local market. One principal difficulty is obtaining sufficient raw material because Laminaria is collected by hand on rocky coasts. This contrasts with the massive mechanical harvesting techniques used by the U.S.

In 1959, the first independent alginate industry was developed. This industry, situated at Ribadeo, Province of Lugo, has an annual capacity of 120 tons of alginic acid. It produces primarily sodium, calcium, and ammonium alginates. The products are sold on the local market, but meet with difficulty on the international market due to the high cost of the raw material.

Marketing Seaweed Products

Spain is the second largest producer of agar-agar in the world, exceeded only by Japan. However, the domestic use of agar-agar in Spain is not significant. Therefore, 85 to 90 percent of the agar-agar produced is exported to the U.S., England, Germany, Czechoslovakia, USSR, Italy, and Poland. Spain is the largest exporter of agar-agar in the world.

The collection of seaweeds is regulated by a decree of the Ministry of Commerce. It grants permits to manufacturers of seaweed derivatives for collection and acquisition of seaweeds in each area of the Spanish coast during a specified period.



France

BUYS JAPANESE LONGLINER FOR INDIAN OCEAN TUNA BASE

The French CIAP Corporation placed a 200-million-yen (US\$556,000) order in July with the Japanese fish net and gear manufacturer Nippon Gyomo Sengu Co. for a 400-gross-ton double-deck longliner. The vessel is scheduled to be used in the Indian Ocean from the tuna base at Réunion Island. The island is a French possession about 400 miles east of Madagascar, and near Japanese tuna base at Port Louis, Mauritius Island.

CIAP Corp.

CIAP is a semigovernment corporation established in Saint Denis, Réunion Island, in late June 1969 with capital of about 100 million CFA franc (about \$400,000). It was formed to develop a tuna base in the Indian Ocean in line with EEC common fishery policy of promoting the tuna fisheries.

Growth Plans

Initially, experimental fishing will be conducted with one longliner manned by natives and, eventually, fleet will be increased to 10 vessels. The catches will be delivered to tuna packers in France. At present, 30 Japanese longliners and about 80 Taiwanese and 20 South Korean tuna vessels are fishing in the Indian Ocean. ('Suisancho Nippo,' July 10 & 11.)

FISHERY IMPORTS FROM COMMUNIST COUNTRIES DECREASE

French fishery imports from Communist countries decreased considerably during first 3 months 1969 from last 3 months 1968. Imports of canned crustaceans from the Soviet Union decreased to 556 metric tons in first-quarter 1969 from 1,125 tons in last quarter 1968. The 1969 value was 5.8 million francs against 15.5 million (about US\$1 million against \$3 million). Average value of one ton of Soviet crustacean imports decreased from 13,800 to 10,450 francs. Imports of "fresh and frozen crustaceans" from Cuba decreased from 540 tons in 1968 to 320 tons in 1969. The unit price was stable at 13,500 francs a ton in both quarters. (U.S. Embassy, Paris, June 4.)

TUNA LANDINGS FOR PACKERS DECLINED IN 1968

In 1968, yellowfin tuna landed in French ports, for delivery to packers, totaled 9,100 metric tons--compared with 11,500 tons in 1967. Imports were 2,100 tons (1,000 tons in 1967). This information is provided by the representatives of the Japan External Trade Organization stationed in Paris from the report on fish canning by the French Fisheries Section of the National Canning Industries Professional Committee.

Landings & Imports

Domestic landings and imports of 11,200 tons (12,500 tons in 1967) represented 9,700 tons (10,900 tons) of canned product. Tuna shipments from Africa to French canneries totaled 27,500 tons (19,900 tons) in landed weight and 20,000 (14,200 tons) in equivalent canned tonnage. In addition, 11,000 tons of canned tuna were packed in Senegal during 1967-68, compared with 8,900 tons during 1966-67. ('Suisan Tsushin,' July 11.)



Denmark

FAROESE FRESH FISH DELIVERIES TO BRITAIN DECLINE

Faroese fishery exports to Great Britain have declined appreciably. During the first four months of 1969, total deliveries were 758 tons valued at US\$168,000, less than half the value of a few years ago. During March 1969, one vessel's catch of about 22 metric tons of iced fish was delivered to Aberdeen, Scotland. It was valued at less than US\$3,500.

Causes of Decline

Causes of the decline include: (1) reorganization of fishing operations for herring, and (2) fish are being filleted and frozen for sale to the U.S. The prices obtained in the U.S. are higher than those paid for fresh fish in Great Britain.

The Faroe Islands are beginning to create a profitable frozen fish market in Sweden ('Dansk Fiskeritidende,' June 6.)

Sweden

SHRIMP IMPORT REGULATIONS AFFECTED BY KENNEDY ROUND

Fresh, chilled, frozen, dried, or salted shrimp, whether peeled or not, and unpeeled shrimp boiled in water are duty free. The duty on other shrimp is $5\frac{1}{2}$ U.S. cents a lb. This rate is affected by the Kennedy Round. According to customs authorities, it will change on Jan. 1, 1970, to: 1970-- $4\frac{1}{2}$ cents; 1971--4 cents; and 1972-- $3\frac{1}{2}$ cents.

Shrimp Imports Licensed

Imports of unpeeled shrimp boiled in water were licensed Mar. 1, 1969. The licensing requirement does not now involve automatic quantitative restrictions; all license applications have been granted. Possible reasons for denials include unreasonable quantities or unrealistic pricing. The National Agriculture Board continues to study the question of shrimp imports. Controls on this trade are not contemplated soon. Imports of licensed shrimp, Mar. 1-July 1, 1969, were US\$2.9 million, compared with normal annual imports of US\$1.9 million.

Color Additives

No special sanitation requirements concern imports of U.S. or other shrimp; they are not subject to inspection procedure. Some color additives are approved for preserved shrimp and boiled peeled shrimp to be frozen. In the latter, provided it is sold to ultimate purchaser in original container clearly showing color additives were used.) Only Ponceau 4R (Color Index No. 16255) is presently permitted for other boiled shrimp. U.S. preserved shrimp will, in other respects, meet Swedish requirements.

Icelandic Fish Imported

The distribution of Icelandic fresh (not frozen) shrimp, air shipped to Stockholm, has just started. The high-quality shrimp will be about same as U.S. shrimp. Due to poor spring catches, Icelandic fishermen have become more interested in shrimp fishing, which has not been tried to any great extent. The fishing is convenient to western Iceland.

Longer U.S. Season Possible

Swedes are surprised that U.S. shrimp fishing ends during warm season. It seems

U.S. summer catches yield poor-quality shrimp with high water content. However, experience in Sweden and Canada indicates high-quality U.S. shrimp could be found during warm season in deeper and cooler water. (U.S. Consulate, Goteborg, July 7.)



Norway

EXPEDITION TO TAKE PART IN ANTARCTIC WHALING

Two small Norwegian whaling expeditions are planned for the coming (1969/70) season's Antarctic whale hunt. Experienced whale gunners in the Sandefjord area plan to equip a 2,500-GRT factory ship and one whale catcher. Another vessel, a 175-foot-stern trawler (900 GRT), is expected to be finished before the fall. It is financed partly by a US\$250,000 loan from the District Development Fund. Its owner has been promised a concession for Antarctic whaling. This would indicate government interest in resuming whaling in those waters.

To Hunt Finbacks & Sei

The 2 expeditions plan to hunt finbacks (*Balaenoptera physalus*) and sei whale (*Balaenoptera borealis*). Both species are covered by international quota. There are plans to hunt also the smaller bay whale (*Balaenoptera acutorostrata*) and market its main product, whale meat, in the U.K., Japan, and possibly Norway.

Approves Whaling Commission Action

The Ministries of Foreign Affairs and Fisheries are satisfied with outcome of recent meeting of the International Whaling Commission (IWC) in London. The reduction in the Norwegian Antarctic whaling quota by 500 units to 231 blue-whale units reflects the current status of Norwegian whaling; nevertheless, it maintains basis for possible new (small-scale) development of Norwegian whaling in the Antarctic. An official asserted that unilateral reduction of Norwegian Antarctic blue-whale quota for 1969/70 season will not prejudice future Norwegian quotas. (U.S. Embassy, Oslo, July 15.)

Norway (Contd.):

SALMON CATCHES DROP

Norway's catch of salmon and sea trout decreased 21% from 1967 to 1,618 metric tons in 1968, according to preliminary data of the Central Bureau of Statistics. As in previous years, nearly all of the 1968 catch was in Norwegian waters: 276 tons in rivers, 1,342 tons along coast.

The good catches of salmon in the last few years by foreign vessels in international coastal waters attracted about 100 Norwegian longliners this spring. This offshore fishery ended in late June. It yielded a Norwegian catch officially estimated at about 400 tons. About 40% of the fish were small (2-6 lbs.); the quality was generally fair.

Inland Waters

No data are available for the current fishing season in inland waters. The season is limited by law to May 1-Aug. 4. Reportedly, salmon fishing has been extremely poor. The large salmon--the angler's trophy and bearer of highest market price--has failed to appear. The large salmon normally enters Norwegian rivers in its mating run before midsummer.

Overfishing Charged

The reduced 1968 catches and the poor ones so far this year have provided ammunition to proponents of banning salmon fishing in international waters. One government fishery specialist believes that the complete failure of the 1969 salmon fishery in Norwegian rivers undoubtedly reflects overfishing in international waters. There is no reason to assume salmon fishing will improve, he said. From now on, only smaller salmon can be expected to enter the rivers.

Union Disagrees

This conclusion may be premature. According to 'Fiskaren,' organ of the Fishermen's Union, June 23, exceptionally large schools of salmon, including large ones, had been observed in the fjords of Sunnmøre on west coast. If this is correct, and similar developments are pending, perhaps the salmon have only been delayed in their mating run up the rivers. (U.S. Embassy, Oslo, June 28.)

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INTEREST IN GEORGES BANK
HERRING FISHERY GROWS

Norway's largest factoryship, 'Gadus' owned by a major Oslo shipping company, is scheduled to leave Norway in August for Georges Bank. The expedition is supported by the Fisheries Directorate in Bergen. It will explore those waters for possible exploitation. The Gadus has a production capacity of about 800 tons of frozen fillets.

Reportedly, frozen herring fillets are in short supply in European markets. Norwegian interest in exploiting the Georges Bank herring resources has been evident in the last few months.

Possible Fishery

A successful expedition to Georges Bank could lead to limited direct Norwegian participation. Large-scale operations, involving purse-seining for reduction purposes, appear unlikely. This is because of the distance from Europe and the questionable profitability of floating fish-reduction plants.

Canadian Interest

Indirect participation in fishing for reduction purposes seems more likely. Canadian fishing interests are negotiating the charter of 30 to 40 Norwegian purse seiners. A substantial part of the Norwegian purse-seining fleet is now idle or engaged in other fishing operations due to reduced shoal fish stocks (compared with last year).

Also, 'Fiskaren,' July 3, reports that the largest Canadian fish-reduction company has ordered a complete factory from Stord Ba Industri A/S. The plant will be erected in Newfoundland. It will have daily capacity of 1,000 metric tons of raw fish. This reduction plant will be the 14th delivered by Stord Ba Industri A/S to Canada in the last 4-5 years. (U.S. Embassy, Oslo, July 22.)



Hungary

FISH PONDS YIELD MORE FISH

Farmers in Hungary have found a new way of producing more fish, fowl and grain. They use fish ponds. The practice began as an experiment about a decade ago. It is being carried out on a growing scale by farm and fishery cooperatives in various parts of the country, especially where the land is poor.

Locked With Carp & Duck

The farmers build large ponds and stock them with several varieties of carp (a popular fish in Eastern Europe), eel, and Long Island duck. The ponds vary in area from several acres to several hundred acres. They average four feet in depth.

The carp help satisfy consumer demand in their land-locked country. Hungary now derives 80% of her 30,000 ton annual fish production from ponds. Much of the duck, and almost all the eel, are exported.

Planted With Grain

The carp and duck are carefully tended, harvested, and sent to market. Then the ponds are drained, and rice, maize, and other crops are planted. Resulting harvests are up to 20% higher than for similar crops grown elsewhere in the country. The high sodium soil has been improved by the action of the water and fertilized by the carp and duck droppings.

Continuous Production

After each harvest, the ponds are reflooded and the process repeated, generally on a 3-5-year cycle. This establishes a continuous chain enabling the same plot of normally unproductive land to yield fish, fowl, and crops. The system is efficient and economical, and requires few attendants.

Ancient Principle

The principle is an ancient one. It was known to Chinese farmers who achieved "balanced" ponds, harvesting the grass and weeds to feed the pigs and cattle that fertilized the ponds. ('FAO News.')



Switzerland

IMPORTS FISH MEAL

Despite her small size and relatively small population, Switzerland imports significant quantities of fish meal. Peru retained her position as chief supplier during the first quarter of 1969, followed by Chile, Norway and Denmark. Whether advantages to be gained by Denmark and Norway through their European Free Trade Association status will change this balance remains to be seen. (Agricultural Attaché, U.S. Embassy, Bern, June 20.)

	Jan.-Mar.		12 mos.
	1969	1968	1968
	(Metric Tons)		
Peru	8,423	4,519	14,361
Norway	2,008	1,492	5,040
Denmark	1,888	2,720	12,264
Chile	1,785	3,387	11,892
Ethiopia	-	-	30
W. Germany	120	3	23
South Africa	-	-	373
Iceland	-	370	857
France	-	60	340
Total	14,224	12,551	45,180



West Germany

INTERNATIONAL SYMPOSIUM ON CULTIVATION OF MARINE ORGANISMS

"International Helgoland Symposium, 1969" on "cultivation of marine organisms and its importance for marine biology" will be held at Helgoland, West Germany, Sept. 8-12, 1969.

The symposium sponsors hope it will help to assess the present status of knowledge on cultivation of marine organisms, point out important problems to be solved and neglected areas of cultivation research, and provide solutions to difficult methodological problems. Papers will be presented on micro-organisms and plants, animals, and ecosystems. Informal sessions on fish-farming and cultivation of plankton populations will be held.

For further information: contact the Director, Biologische Anstalt Helgoland, 2 Hamburg 50, Palmaille 9, Federal Republic of Germany. ("International Marine Science," April.)



LATIN AMERICA

Cuba

ELECTED TO UNDP GOVERNING COUNCIL

Cuba was elected to the UN Development Program (UNDP) Governing Council in early June 1969 by secret ballot of the 27-member UN Economic and Social Council (ECOSOC). Cuba is not a member.

UNDP Governing Council was formed in 1965 to coordinate and consolidate all UN technical aid and development programs. Its 37 members exercise direct policy control over the programs.

Only 3 (ECOSOC) members are from Communist countries: USSR, Bulgaria, and Yugoslavia. Since all 5 members from South America (Argentina, Guatemala, Jamaica, Mexico, and Uruguay) had opposed Cuban election, votes must have come from Asian and African delegates.

Edges Out Argentina

Cuba was elected by a vote of 14 to 13 over Argentina, the South American candidate preferred by other Latin American nations. Mexico, favored by the U.S. and Latin Americans, also was elected.

Fishing Industry Expands

In the world of fishing, Cuba's election may be more significant than in the political world. Cubans are rapidly expanding their fishing industry. In the past they received considerable aid from UN. They may apply for more.



CORRECTION

Dr. J. W. DeWitt, author of "Pacific Salmon Introduced into Southern Streams" (of Chile), CFR July 1969, p. 58, has asked that end of next-to-last paragraph be changed to read: ". . . to spawn in the Chilean fall of 1971."

SOUTH PACIFIC

American Samoa

TUNA PRICE IS UNCHANGED

Tuna delivery prices at American Samoa for July 1969 were the same as June's, according to an agreement reached between Japanese suppliers and U.S. packers.

The July delivery prices per short ton were: round albacore: frozen US\$425, iced \$410; gilled and gutted yellowfin: frozen \$342.50, iced \$322.50.

The Japanese had asked for a \$5-a-ton increase for albacore. ('Suisan Tsushin,' July 12.)



Western Samoa

SEEKS JAPANESE FISHERY AID

Western Samoa's Prime Minister Mata'afa visited Japan June 15-30 at the invitation of the Japanese Pacific Ocean Society. He indicated his wish to receive technical fishery assistance. Western Samoa, with a round 145,000 people, wants to build her fishing industry on the Japanese pattern and is looking to Japan for capital investments.

Japanese Investments

Prime Minister Mata'afa also requested that Japan approve the investment planned in Western Samoa by Taisho Shamitsu Industries, Ltd. In February 1969, that firm was licensed by Samoa to establish a corporation.

The Japanese firm plans to invest 100 million yen (US\$278,000) to build a 100-ton cold storage--and to operate two 20-30-ton fishing vessels for pole-and-line and gill-net fishing, primarily for lizardfish. Japan's Fisheries Agency plans to send a survey mission to Western Samoa. ('Shin Suisan Shirinbun,' July 7.)



SIA

Japan

SALMON MOTHERSHIP FLEETS END FISHING

The 11 Japanese salmon mothership fleets (11 motherships and 369 catcher vessels) fishing in Area A (north of 45° N. latitude) in the North Pacific were scheduled to end operations between July 21 and 23. They were expected to have caught their quotas. The end would come about 8 days later than in 1967, the previous good pink salmon year, due to the unexpectedly light run of reds and greens. These caused the fleets to shift frequently.

Runs Near Shore Heavier

The salmon runs closer to shore were heavy compared with high-seas runs. So the land-based gill-net and longline fleets, which operated in Area B (south of 45° N. latitude), fished well. Fishing in Area B ended June 15 for longliners, and on June 23 for gill-netters. ('Suisan Keizai Shimbun,' July 16.)

* * *

SUMMER ALBACORE FISHERY NEARS END

As of June 30, the Japanese summer pole-line albacore tuna catch was 27,500 metric tons. The fishery was near the season's peak. Catches after that date were averaging around 50 tons a day of albacore mixed with jack.

As of June 30, landings of pole-caught albacore at principal ports were about: central Japan: 16,100 tons Yaizu; 5,800 tons Shimizu; 500 tons Misaki; 500 tons each Numazu and Shizuoka; southern Japan: 400 tons Kogoshima; northern Japan: 1,700 tons Nakaminato; 800 tons Onagawa; 250 tons Kesenuma; and 200 tons Ishinomaki.

Landings Above 1968's

Landings this year are substantially above the 1968 season's 17,300 tons--but are not likely to reach the 30,000 tons of 1967. ('Suisan Tsushin,' July 12.)

* * *

EXPLORATORY TRAWLING IS DISAPPOINTING IN NORTHEAST ATLANTIC

The stern trawler 'Akebono Maru No. 51' (1,454 gross tons) is in the northeast Atlantic on a government-subsidized resource survey cruise. She recently completed fishing tests in the Bay of Biscay with little success. The vessel reported that the Bay has an abundance of cod and herring, but practically none of the species sought by Japan--octopus, squid, and red sea bream.

Akebono Maru is scheduled to extend operations northward toward the west coast of England for the second part of her cruise. However, the trawler's operators do not anticipate promising results. ('Minato Shimbun,' June 12.)

* * *

TRAWLERS FACE CANADIAN RESTRICTIONS

The Japanese Fisheries Agency says Canada intends to declare as internal waters the landward side of the baseline connecting Vancouver Island and the Queen Charlotte Islands immediately after legislation is enacted around September. On June 11, Canada announced straight baselines. She defined her territorial sea and fishing limits along the coast of Vancouver Island and Queen Charlotte Islands on the west coast, and Nova Scotia on the east coast.

Negotiations May Be Necessary

Japan points out that Canada's claims will shut out Japanese trawl operations; already, these have been adversely affected by adoption of straight baselines. It might be necessary to negotiate with Canada for a fishery agreement similar to the one with the U.S.

The area to be affected by Canada's declaration is used now by Japanese trawlers primarily to load, although 1 or 2 trawlers also fish between the 2 islands.

Japanese Position

Japan has ratified the Convention on the Territorial Sea and the Contiguous Zone. She cannot protest the straight baseline system

Japan (Contd.):

recognized by that Convention. But she considers exclusion of foreign fishing vessels in the internal waters defined in connection with the straight baseline system as internationally illegal. Therefore, she plans to contact the Canadian Embassy in Tokyo about the matter. ('Minato Shimbun,' July 6.)

* * *

TUNA PURSE SEINING FAILS COMPLETELY IN EASTERN PACIFIC

Japanese purse-seine operators were shocked to learn that the 4 tuna purse seiners that sailed in early January for the first time to the Eastern Pacific took only 340-350 tons. All 4 left the grounds between late April and early May. One Taiyo vessel and one Kinkai arrived in Japan at the end of May; the remaining two were en route to purse seine off Africa.

Last Year's Method Fails

Last year, a Kawajiri Gyogyo vessel took nearly 1,000 tons of yellowfin from the same area. This year's plans of the 4 purse seiners were based on the same method. The result, however, was complete failure.

Only Japanese Failed

Each U.S. purse seiner uses 3 or 4 speed boats to herd dolphin-chasing yellowfin into a net. Japanese purse seiners have no speed boats and cannot keep up with yellowfin. The Japanese failure, while catches by other countries were high, shocked Japanese fishermen. ('Shin Suisan Sokuho,' May 10.)

* * *

TO SURVEY SKIPJACK TUNA IN SOUTHWEST PACIFIC

Japan is planning an extensive skipjack resource survey in the southwest Pacific, from Palau Island (U.S. Trust Territory) to south of New Guinea. The survey is to determine the potential for a pole-and-line skipjack fishery in the southern region, and to develop ways of keeping baitfish alive in the wells. The latter is a problem previously considered impossible to overcome.

Chartered Survey Ship

The modern skipjack vessel 'Seishu Maru No. 7' (345 gross tons) will be chartered to conduct the survey from September or October until March 1970. The trip will be subsidized by the Mie prefectural government and supported by the Federation of Japanese Tuna Fisheries Cooperative Association ('Katsuo-maguro Tsushin,' May 22 & 26.)

* * *

FROZEN TUNA EXPORTS TO U.S. DROP

Owing to short supply, and U.S. rejection since late 1968, direct exports of frozen tuna to the U.S. during Jan.-May 1969 were down to 8,376 short tons worth US\$3,666,236. Exports during same period 1968 were 21,200 tons worth \$9,786,554.

Quantity and value of Atlantic transshipments to the U.S. -- 9,442 tons worth \$3,418,000, Jan.-May 1969 -- were about the same as 1968 transshipments: 9,519 tons and \$3,065,600 (Figures include tuna loin exports.)

Domestic Packers Bought Much

May albacore exports to the U.S. amounted to 1,357 tons of direct shipments and 1,357 tons of Atlantic transshipments. Normally June is the peak month for albacore exports but this year's June shipments, as of the 15th, were only about 1,000 tons. Practically all the summer albacore taken off Japan was bought by domestic packers at high prices. There may not have been much left for export. ('Suisancho Nippo,' June 17.)

* * *

HIGHER PRICES FIXED FOR CANNED TUNA EXPORTS TO U.S.

On July 8, the Tokyo Canned Tuna Sales Co. resumed sales of canned tuna-in-brines for export to the U.S. after a temporary suspension. It announced that a premium would be added to the present price for all sizes.

The Sales Company will not apply the "force majeure clause" (contract provision to adjust price in case of price decline) to the premium.

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ad. The quantity for sale was not announced, but it was speculated that about half the stock of about 200,000 cases (mostly lightmeat tuna packed in 7-oz. cans) would be offered during a one-week period. The price and premium are shown below. ('Suisan Tsushin,' July 10.)

Form of Pack	Can and Case Size	Present Price ^{1/} Per Case	Premium Per Case
. (US\$)			
Lightmeat whitemeat tuna in brine:			
Solid:	7-oz. 48's	11.11	0.28
	13-oz. 24's	10.33	0.28
	3½-oz. 48's	6.66	0.17
	66½-oz. 6's	12.33	0.42
	6.6-lb. 6's	21.17	0.83
Flake:	6½-oz. 48's	8.11	0.20
Chunk:	6.6-lb. 6's	18.94	0.56
Lightmeat lightmeat tuna in brine:			
Solid:	7-oz. 48's	8.49	0.14
	13-oz. 24's	7.86	0.19
	3½-oz. 48's	5.11	0.08
	66½-oz. 6's	9.30	0.28
	6.6-lb. 6's	15.98	0.55
Flake:	6½-oz. 48's	6.13	0.10
Chunk:	6.6-lb. 6's	14.29	0.35

Ex-warehouse, Shimizu, Japan.

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ANNOUNCED TANNER CRAB EXPORT PRICES UP

The Japan Canned Salmon and Crab Sales Company announced 1969 export prices for tanned tanner crab. The company also conducted its first tanner crab sales. About 100 cases were sold to trading firms for delivery in June and July. ('Suisan Tsushin,' June 5.)

Export Prices, 1969 and 1968				
Can Size	Choice		Standard	
	1969	1968 ^{1/}	1969	1968 ^{1/}
. (US\$/Case)				
7-oz. 24's	12.65	9.95	12.40	9.70
7-oz. 48's	25.00	19.60	24.50	19.10
7-oz. 48's	13.50	11.80	13.25	11.55

In 1968, promotion allowances also were offered to trading firms.

* * *

FROZEN SHRIMP IMPORTS HIT HIGH IN MAY

In May 1969, Japan imported 4,232 metric tons of frozen shrimp worth about US\$10.5 million. Although below April purchases of 4,817 tons worth \$11.6 million, May imports exceeded 4,000 tons for the second time this year. India, Mexico, Thailand, Hong Kong, Pakistan, and Taiwan were the leading suppliers. ('Suisancho Nippo,' June 19.)

Frozen Shrimp Imports, May 1969				
Origin	May 1969		Jan.-May 1969	
	Quantity	Value	Quantity	Value
	Metric Tons	US\$ 1,000	Metric Tons	US\$ 1,000
India	640	1,353	1,776	3,608
Mexico	618	1,842	2,662	7,247
Thailand	519	1,203	2,678	6,050
Hong Kong	442	1,331	1,267	3,644
Pakistan	304	764	953	2,275
Indonesia	298	739	841	1,936
Taiwan	215	358	643	1,067
Australia	158	478	309	894
Kuwait	132	350	386	858
Sabah (ex-North Borneo)	114	250	598	1,250
Malaysia	111	236	468	1,042
Others	681	1,554	5,087	12,501
Total	4,232	10,458	17,668	42,372

* * *

GEAR LOST OFF MEXICO

Data collected by the Federation of Japanese Fisheries Cooperative Associations (NIKKATSUREN) show that, since July 1968, 8 longliners lost 13 cases of gear while fishing off Mexico. Some 178 baskets of longlines (1 basket is 650-1,300 feet of line), 249 glass floats, 19 lamps, and one radio buoy were lost or damaged. Most of the longlines were severed by sharp instruments; 41 glass floats were damaged by rifle bullets. The vessels reported that the offenses were committed by small 40-50 ton purse seiners which fled into territorial waters when pursued.

To Tell Mexico

NIKKATSUREN plans to submit the data to the government, requesting that Mexico be reminded of these incidents at the forthcoming meeting on the Japan-Mexico fisheries agreement.

During April-July 1968, 13 Japanese longliners fishing off Mexico suffered 13 cases of gear theft. They lost 418 baskets of long

Japan (Contd.):

lines, and 443 pieces of radio buoys, glass floats, banners, and lamps. ('Katsuo-maguro Tsushin,' June 18.)



Taiwan

TUNA FISHERIES ARE IN TROUBLE

Taiwan's tuna fisheries are beset with difficulties--despite a record 1968 tuna catch of 79,000 metric tons (nearly 3 times the 1965 catch) and tuna exports to the U.S. worth US\$25 million (only \$2 million in 1965). Over half the vessel owners are unable to repay loans or modernize fishing gear and equipment.

The situation is expected to worsen with delivery of twenty 250-ton tuna vessels built in South Korea and financed from a \$14.4 million loan granted Taiwan by the World Bank in 1967. Forty similar vessels will be built in Taiwan with a \$10 million loan recently approved by the Asian Development Bank.

While production costs are rising, world market prices for tuna have stabilized in recent years.

What Taiwan Needs

The tuna fishery also lacks well-trained and experienced skippers and crews. It has poor marketing facilities. It depends almost entirely on Japan for bait and fishing gear.

Because of these problems, the Chief of the Fisheries Division of Taiwan's Joint Commission on Rural Reconstruction has recommended postponement for a few years of the planned expansion. (U.S. Embassy, Taipei, June 13.)

* * *

EXPORTS AND IMPORTS FISHING VESSELS

The Nantai Shipbuilding Co. of Taiwan has won a contract to build fishing vessels for a Chinese firm in Indonesia.

Prices were: (1) US\$175,000 for a 200 gross-ton, distant-water, vessel with main engine, freezer compartment, communication devices, and radar; (2) \$30,000 for a 30 gross-ton coastal fishing vessel with engine, navigation instruments, and fishing gear.

Hong Kong Intermediary

The contract was negotiated through a Chinese merchant in Hong Kong because Indonesia does not have diplomatic relations with Taiwan. The Chinese firm in Indonesia learned that Taiwan builds as well and more cheaply than other countries. Before, large Indonesian fishing vessels were imported from Japan.

Buys from S. Korea

The S. Korean Commerce and Industry Ministry reportedly has concluded a US\$60 million contract with the Taiwan Central Trust Bureau to export twenty 250-gross-ton tuna vessels to Taiwan. The vessels, now being built at S. Korean shipyards, were scheduled for delivery by the end of August 1969. S. Korea hopes contract will lead to vessel orders from other countries. ('Suis Keizai Shimbun,' June 6 & 16.)

According to information from the U.S. Embassy in Taipei, the 20 tuna vessels are financed by a World Bank loan to Taiwan in 1967. The contract with S. Korea was concluded then.

* * *

REQUESTS OBSERVER STATUS AT IPFC MEETINGS

The Republic of China (Taiwan) has asked to participate as an observer at meetings of the FAO Indo-Pacific Fisheries Council (IPFC). The Council voted 14 to 10, with abstentions, in favor of the request. Taiwan withdrew from FAO membership in 1950.

The IPFC was started in 1948 and has 100 members. Taiwan accounts for about 10% of total annual catch in Indo-Pacific area (FAO, June 19.)



South Korea

VALUE OF FISHERIES INCREASING RAPIDLY

In first-half 1968, the value of South Korea's fishery output was 9.3 billion won (\$33.2 million), or 2.1 percent of her gross national product (GNP). ('Korean Business Review,' Dec. 1968.)

The fishery contribution to the GNP remained the same in 1968 as in 1967 because the entire economy grew as fast as the fisheries. In first-half 1968, fishery output increased 16.4% compared to 1967 production value of 8 billion won (\$28.6 million). The GNP in the first half of 1968 grew at a rate of 17.2%. Both rates are practically unmatched in world economies.

Latest estimates by the Ministry of Agriculture indicate value of 1968 fisheries exceeded 18.5 billion won (US\$66 million) in constant 1965 prices.

* * *

EXPORT TUNA LONGLINERS TO EL SALVADOR

S. Korea plans to build and export in 1969 tuna vessels (235 gross tons each) to El Salvador on a deferred-payment basis. The

terms are US\$338,738 per vessel payable in installments over 4 years. This includes a 1-year grace period. Interest rate is 7.75% a year. S. Korea will send 33 senior crew members (captains, radio operators, and engineers) to El Salvador to man vessels. ('Suisan Keizai,' Apr. 1.)

Sale Follows Survey

The sale follows the October 1968 agreement between Korean Office of Fisheries and El Salvador. The Korean Fisheries Mission visited El Salvador in March 1969. It recommended reorganization of fisheries programs, increase in staff and budgets, a Ministry of Fisheries to include research training and statistical collection, drafting of development plan, and organization of fishermen's training center.

Mission Recommendations

The Korean Mission recommended that all longliner tuna catches be frozen and sold on world markets because it could not find markets for tuna and allied fish in Central America. Also, it recommended establishment of a longline fishery rather than purse-seine or bait-boat fishery for tuna. The standard longline boat of 240 gross tons recommended agrees with reported tonnage of the 11 longliners ordered.



ARE THERE REALLY SEA MONSTERS?

Although we discount the fabled sea monsters, such as the kraken which could swallow vessels whole, we have not yet explored the ocean thoroughly enough to say with absolute certainty that there are no monsters in the deep.

Scientific observations and records note that giant squids with tentacles 40 feet long live at 1,500 feet and that sizable objects have been detected by explosive echo sounding at greater depths.

Oarfish 40 to 50 feet long also have been observed by scientists. Either the oarfish or the giant squid with its long tentacles may have given rise to the sea serpent stories told by sailors of old.

In recent years, Danish scientists have studied large eel larvae that would grow to 90 feet if their growth rate is the same as eels of other species. ("Questions About The Oceans," U.S. Naval Oceanographic Office.)

MID EAST

Israel

BROADENS OCEANOGRAPHIC WORK

Prof. Moshe Shilo has summarized Israeli oceanography and limnology. He is associated with the National Council of Research and Development.

The limnological laboratory at the Sea of Galilee now has adequate equipment and staff. The laboratory is nearly ready to study the lake's ecology, geology, microbiology, biology, and physical and chemical limnology.

Red Sea Station

The Marine Biological Research Station at Eilat is a going concern. Prof. Heinz Steinitz, Professor of Zoology, Hebrew University of Jerusalem, is slated to be named director.

Haifa Institute

Construction of the Institute of Oceanography and Limnology at Tel Shikmona, on the outskirts of Haifa, will begin in a few months. Scheduled for completion in 3 years, it will be the center for all major oceanographic research. It will include the Sea Fisheries Research Station.

Vessels

The sea-going oceanographic vessel 'Shikmona' is being outfitted for more extensive and sophisticated research. A catamaran has been purchased for in-shore investigations. Also, propeller-driven boats of the Florida Everglades type are on order to broaden investigations at Bardawil Lagoon, near El Arish, in Sinai.

A hydrographic, geologic, and oceanographic coast survey offshore to 100 kilometers, and from Lebanon to Port Said, has been completed. Although possible offshore deposits of petroleum were explored, its immediate purpose was to locate sand suitable for construction. Hydrographic maps are expected to be issued soon. (U.S. Embassy, Tel Aviv, July 5.)



Qatar

EXPORTS SHRIMP TO U.S. AND JAPAN

Qatar is a small, oil-producing sultanate on a Persian Gulf peninsula. Fishing is part of its economy. For the Qatar National Fishing Co., 1968 was an active year. (Its private investors hold 45%; government, 15%; Ros Group, 40%.) The company's modern refrigerated plant processed over 260 metric tons of shrimp. Processed shrimp now is being exported to the U.S. and Japan.

Progress in 1968

Significant strides were made in 1968 to improve Qatar's economy. The Doha Port Project awarded to the European consortium in 1967 was virtually complete at the end of the year. It includes a new 4-berth quay with an inner channel 1.5 miles long and 400 feet wide, and a maneuvering basin a half-mile square.

In April 1968, another contract estimated at US\$204,000 was awarded to a Canadian firm for construction of two 200-foot span warehouses to provide 160,000 square feet of storage space. (U.S. Consulate, Dhahran, July 9)

