

# FOREIGN

## CANADA

### COHO SALMON INVESTIGATIONS UNDERWAY

The 1968 coho salmon investigation program in Juan de Fuca Strait resumed on May 1. This program was started in 1967 by the Department of Fisheries to define migratory behavior relative to abundance and feeding habits of early season coho. Information also will be obtained on effort-distribution data for sport and commercial fisheries in the Victoria-Juan de Fuca region.

The 1968 program has 2 parts: During May 1-July 1 in Area 20, the chartered commercial vessel "K Charles" will be tagging "blueback" coho in Sooke and Pedder Bay region; May 1-July 15 in Becher Bay to Glacier Point, and from Sombrio Point to Port San Juan a troll sampling survey by the chartered commercial trollers "Valiant I" and "Tide-water III."

The Department will use weekly flights between May 15 and Sept. 30 to obtain information on distribution of sport and commercial gear.

#### Reward for Returned Tags

Much of the success in a tagging program depends on the return of recovered tags. A one-dollar reward is offered for all tags returned to a Fishery Officer, or mailed to Regional Headquarters, Department of Fisheries, 1155 Robson Street, Vancouver 5, B. C., Canada. (Department of Fisheries, Canada, Apr. 30, 1968.)

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### GOVERNMENT AND INDUSTRY SPONSOR MARKET STUDY

A detailed research study of the Canadian domestic market for fishery products will start soon. The 2-year \$200,000 study will be financed jointly by Federal and provincial governments and the fishing industry.

The Fisheries Council of Canada, which proposed the study on industry's behalf, will put up C\$50,000, the Federal Government C\$75,000, and the participating provinces the remaining C\$75,000. To date, 8 provinces are supporting the project, one is considering it, and one is delaying action to see the outcome of efforts to set up a prairie fish-marketing organization.

#### Study's Purpose

The purpose of the market study is to secure information on which the industry may base future promotional efforts to improve sales in Canada. A firm of consultants will conduct the study.

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### SUMMARY OF 1967 MARINE-OIL SITUATION

Canada's marine oil production in 1967 totaled 64.1 million pounds, 9.8 percent higher than in 1966. There was a sharp drop in herring oil production in British Columbia because herring were less abundant than in former years. However, production in the Atlantic Coast expanded more than enough to offset the decline in the west.

The United Kingdom, a major marine-oil market in earlier years, returned to the market in 1967. The U. K. took 4,189,200 pounds of herring oil.

Shipments of whale oil jumped from 1.4 to 12.5 million pounds in 1967. Major markets were the Netherlands, United Kingdom, and Italy.

#### Marine Oil Imports

Imports of marine oil declined from 10.2 million pounds in 1966 to 7.9 million in 1967. Shipments from the U. S. declined to 1.2 million pounds from 3.1 million in 1966. (U. S. Embassy, Ottawa, Apr. 19, 1968.)



## EUROPE

### USSR

#### TO BUILD OR BUY STERN FACTORY TRAWLERS INTO 1970s

In the early 1960s, the Soviet Union ordered 65 large stern factory trawlers of the "Tropik" class from East German shipyards. The Ministry of Fisheries, through state-owned import firm SUDOIMPORT, ordered 21 more Tropik vessels--while East German shipyards were finishing designs for an even more modern "Atlantik" class. The latter has more horsepower, greater fish processing capacity, and larger holds.

#### The Atlantik Class

The first Atlantik-class vessel was delivered to the Soviets July 7, 1966; the 86th and last Tropik on Nov. 7, 1966, for the anniversary of the October Revolution.

A delay in further delivery of Atlantiks was caused by a temporary Soviet refusal to accept this class because of technical problems. When these were solved, East Germany produced and delivered to the USSR about 25 Atlantiks during 1967. Rate of production will increase to 30 vessels per year by 1970, when the last, 103rd, Soviet-ordered Atlantik will be launched. ("Seeverkehr," May 1967.)

The first Soviet-bought, Atlantik-class vessel began fishing in the Northeast Pacific off U. S. coasts in November 1968; on Georges Bank in the Northwest Atlantic in January 1968. Other vessels of this class operate in the South Atlantic and off California.

#### E. Germans Build Own

There is some indication that the East Germans are beginning to construct more fishing vessels for themselves. The former's shipyards are achieving great capacity. After 1970, East Germany may launch a second wave of southward fisheries expansion. The first, launched in 1967, reached waters off the U. S. in mid-summer of that year.

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#### PROMOTES FISHERMEN TRAINING ON HIGH SEAS

The first fisheries training vessel was delivered to the Soviets by Burmeister and Wain (B & W) of Copenhagen, Denmark, in early March 1968. The vessel is 103 meters (337.8 feet) long and can accommodate 182 persons, including about 110 fishermen-trainees. A classroom for 25 pupils is located forward on the third deck.



The Soviet stern freezer trawler "Pelengator" was launched in March 1968. Built in a Copenhagen shipyard, she is the first Soviet vessel to be used in high-seas training of fishermen. Four similar vessels will be built. The Pelengator was assigned to the Murmansk Fisheries Administration.

(Photo: Burmeister & Wain, Copenhagen)

B & W is building 4 more similar vessels for the Soviet Ministry of Fisheries. These will bring the total educational capacity to about 550 pupils. (Fisheries Attaché, U. S. Embassy, Copenhagen, Apr. 9, 1968.)

#### 14 Delivered by April 1968

Essentially, the training vessels are large freezer stern trawlers, which the Soviets have been ordering from B & W for several years. Fourteen had been delivered by April 1968; 7 more are on order. It is assumed the Danish-made training vessels will emphasize fishing gear and techniques.

The training for fish processors will begin aboard a recently launched, diesel-powered, refrigerated fish carrier of 9,000-displacement tons built in a Soviet shipyard. The carrier is equipped with laboratories and classrooms to train fish-processors, vessel navigators, and engine mechanics. ("Moscow News," Apr. 13, 1968.)

USSR (Contd.):

### "Learning While Working"

The Soviets always have been strongly inclined toward "learning while working." Under Khrushchev, each student had to spend some time working as an industrial or agricultural laborer. Apparently, the Soviets have decided to go into high-seas fishermen's training on a large scale. This also may help the Soviets, conveniently and relatively inexpensively, to train the fishermen of foreign countries to which the USSR sells fishing vessels or extends technical assistance.

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### SPACE SATELLITES WILL BE USED TO AID FISHING AND STUDY OCEANS

On March 27, 1968, "Izvestiia," the Soviet Government's official organ, discussed the practical uses of Soviet spacecraft. It mentioned surveys of ice formations, warnings of coming storms, providing information for hydrometeorological services, and other uses.

The article mentions sputniks as being of use to the fishing fleets: "Kosmos-206" already has transmitted to earth data on severe cyclones in the Indian and Atlantic Oceans. Such information is used successfully in plotting a vessel's course. The sputniks also help to select the optimal course for many Soviet fishing and merchant vessels; this permits each vessel to save 5-7 percent of trip time. It affects substantially the economics of vessel operations.

### Spacecraft Oceanography Grows

The article was coauthored by the First Deputy of the Soviet Hydrometeorological Service and a Soviet professor. It added to information from another Soviet source that referred to the use of spacecraft oceanography: "Oceanographers help Soviet fishermen and others who exploit marine resources by using the latest equipment--earth satellites and aircraft. Much oceanographic research can be done from space. A plane carrying various instruments--a flying marine hydro-meteorological observatory--can do much research. It can take surface temperatures and compile a map of various marine environments; waves can be measured directly from the plane and entered into a map of wave pat-

terns, etc. The greatest advantage in doing this research is the speed with which it can be passed on to users--fishermen and merchant seamen."

### Research at Leningrad

The work on Soviet spacecraft oceanography is being done by the Leningrad Branch of the Soviet Institute of Oceanography. N. N. Makarenko heads the Laboratory of Aero-oceanography. Although some instruments of the Soviet marine hydrometeorological observatory have been in use for years, it will be another 2-3 years before all the instruments will be installed aboard the observatory and be operational.

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### PURSE SEINING OFF U. S. COAST BEGINS

During April 1968 surveillance flights, at least 9 Soviet medium trawlers were sighted south of Long Island (N. Y.) and Block Island (R. I.) in the Northwest Atlantic fully equipped for purse seining. Power blocks and huge seine nets were observed on the stern of each vessel.

In early April, BCF resources management agents aboard a Coast Guard patrol vessel reported sighting a Soviet seiner; this is the first time a seiner was sighted off the U. S. coast and indicates the Soviets are beginning purse seining (for herring) on a bigger scale. By the end of April, 7 Soviet vessels were sighted seining for herring.

### Conversions to Purse Seining

The Soviets have been converting medium trawlers for purse seining for more than 1 year. Most work was done in the Kaliningrad Region; ATLANTNIRO and other technical fishery institutes had a major part in developing gear techniques. In the Western Fisheries Administration, close to 100 medium trawlers already have been converted to purse seining--but most fish in the Norwegian Sea, North Sea, and other Northeast Atlantic fishing grounds. According to the Soviets, purse seining is twice as economical as pelagic trawling, mostly because of higher catches by the same number of fishermen.

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USSR (Contd.):

## PARTY PAPER CARRIES CRITICISM OF FISHERIES MINISTRY

The organ of the Central Committee of the Soviet Communist Party has published an attack on the Ministry of Fisheries and other ministries. The attack was made by I. Dudenko, the Party Secretary for the Astrakhan region. He accused several ministers of responsibility for the sad state of affairs in the Caspian fisheries.

Dudenko reported that catch plans for the famous "kilka" (Caspian sprat) had been set, on the basis of recommendations of scientific organizations, "at not over 300,000-20,000 metric tons annually. Despite this, the Ministry of Fisheries in July 1966 changed the 5-year plan. Without sufficient evidence, it increased the catch plan to 400,000 tons. Dudenko implied political expediency was responsible for the change.

### Volga Sturgeon Hurt

The article also accused the Ministry for Electric Power of having constructed the giant Volgograd (formerly Stalingrad) Hydroelectric Power Plant without regard for sturgeon-spawning areas in the Lower Volga. As a result, naturally spawning schools have shrunk to only about 20 percent of their former numbers. The shore line of the Caspian Sea has advanced up to 25-30 kilometers in the sea, and the level of water surface has decreased by 2.5 meters.

### Volga Pollution

Pollution of the Volga River is another gigantic problem. Dudenko quoted estimates of the annual dumping into the Volga of 200,000 metric tons of crude oil wastes--and about 400,000 tons of acid wastes and other chemicals. Apparently, this is being done despite stringent Soviet regulations against pollutants.

Finally, the Ministry of Fisheries was accused of being so partial to high-seas fisheries expansion that it neglects problems at home in inland fisheries. The Black, Caspian, and Aral Seas, and Baikal Lake form part of these fisheries. ("Ekonomicheskaya Gazeta," Mar. 1968.)

## Sholokhov Attacked Ishkov

During the 23rd Party Congress in 1966, Mikhail Sholokhov, Nobel prizewinner in literature, held Ishkov responsible for the destruction of Black Sea fishery resources.

Undoubtedly, the Ministry of Fisheries is under pressure by conservationists, some politically well connected, to begin paying attention to the severe problems in inland seas, lakes, and rivers.

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## KING CRAB FISHERY IN EASTERN BERING SEA ENDS

The second of the 2 Soviet king crab fleets departed the eastern Bering Sea on May 2, ending the 1968 crab season. The fleet commander aboard the shrimp mothership "Aleksandr Kosarev" notified U. S. authorities of the departure.

Originally, the Soviets intended to fish until June 1968. But, in early April, when a U.S. Bureau of Commercial Fisheries Resource Management Agent boarded 2 motherships, he was informed that fishing was poor and the 2 fleets might leave before June.

The Soviets fished king crab in the eastern Bering Sea from April to July during the 1960/1964 seasons; in 1965, from April to June; and in 1966/67, from March to June.

The 1968 season was the shortest Soviet Bering Sea king crab season--2 instead of the traditional 3 months. Also it was one with the least effort--2 instead of the usual 3 fleets.

### The 1967 Season

In 1967, the Soviets produced 68,590 cases of king crab (each case of 48  $\frac{1}{2}$ -lb. cans). This was only 68.6 percent of the annual quota of 100,000 cases allowed under the U. S.-USSR King Crab Agreement of 1967.

A greater number of tangle-nets was set in 1967: 657,000 against 617,000 in 1966. Despite this, the pack was 33.6 percent less than in 1966, when 104,654 cases were produced, about 12 percent below the year's quota of 118,600 cases.

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USSR (Contd.):

#### NEW TUNA EXPLORATORY VESSEL

To help its tuna fleets find fish, the Soviet Ministry of Fisheries has added to the Pacific fleet an exploratory and research vessel specifically equipped for tuna scouting.

This vessel, the "Matros," was built in Kiev Shipyard and belongs to the Far Eastern Fisheries Administration. Home port is Vladivostok. Her first voyage will be to the Indian Ocean.

Kiev Shipyard builds medium freezer trawlers of the 700-gross-ton "Maiak" class. Several of these vessels are used for exploratory and research work.

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#### NEW FISHERIES TRAINING VESSEL LAUNCHED

On April 30, the Burmeister & Wain's Shipyard in Copenhagen, Denmark, launched the "Kompas" sternfreezer trawler for Sudoimport of Moscow, the Soviet vessel-import firm.

The vessel is the 15th in a series of virtually identical vessels for the same owners. The Kompas is like its sistership, the "Pelenagator," launched in September 1967. It differs from other vessels of this class by having sleeping quarters and educational facilities for fishery trainees. The Kompas can accommodate 182 persons, including about 110 apprentices.

The vessel's main features are:

Length o.a.	102.7 meters
Length b.p.	91 "
Breadth	16 "
Depth to second deck	8.6 "
Deadweight	2,520 metric tons
Draught	5.6 meters
Speed on loaded trials	14 knots

#### Classrooms and Library

Two classrooms for navigation and radio instruction are on the boat deck. On the third deck, forward, a classroom for general instruction in fishery subjects will hold 25 apprentices. A library also will be provided.

The apprentices will be accommodated in common rooms, the largest having berths for 18 men.

#### The Rigging

The rigging consists of 2 pairs of self-supporting derrick posts. The foremost pair is provided with a top mast and a self-supporting, combined, signal and radar mast.

There are four 3-ton and two 7-ton derricks. These are served by four 3-ton and two 5-ton winches. The deck machinery includes one anchor winch, two 3-ton warping winches, and one 15-ton trawl winch. All winches are hydraulic.

The navigational equipment is the newest type. (Burmeister & Wain.)

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#### SCIENTISTS LINK SAURY MIGRATIONS TO CYCLONE ACTIVITY

TINRO scientists in Vladivostok are studying the relationship between saury migrations and the activity of cyclones in the North and South Pacific. They noticed that when summer cyclones are intense over the Sea of Okhotsk, saury appear early in the traditional schooling areas. When cyclone activity is intense over the South Pacific, they are "late." Saury also are believed to approach earlier when the ocean's surface layers are warmer; this is a phenomenon closely associated with cyclone activity over the Pacific.

On the basis of these findings, it was possible to forecast saury Pacific fishing 2 months in advance, particularly off the Kuril Islands. ("Tass," April 4, 1968.)

#### Study Herring in N. Atlantic

Similar studies involving herring are underway in the North Atlantic. There, a relationship between cyclones and the position of herring schools with respect to water surface has been found. With low atmospheric pressure, the herring dive to greater depths; with high pressure, they come closer to the surface. ("Rybnoe Khoziaistvo," April 1968.)

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#### RESEARCH VESSEL VISITS IVORY COAST

On April 21, the Soviet 6,829-displacement-ton oceanographic vessel "Akademik Kurchatov" visited Abidjan, Ivory Coast. The vessel is conducting complex oceanographic studies in the southeast Atlantic between 5° and 23° south latitude for 3½ months.

## USSR (Contd.):

During its 4-day stay in Abidjan, she was open to the public for 3 hours each day. Professors from Abidjan University and Ivory Coast Government officials also visited. ("Fraternité-Matin," Abidjan, Apr. 25, 1968.)



## United Kingdom

### SEEKS TO EXPORT FISHERY TECHNIQUES

The United Kingdom is seeking to export its technical fisheries knowledge in shipbuilding, engineering, and contracting industries. This means strictly business propositions to interested foreign firms or countries.

The White Fish Authority is embarking on a worldwide publicity program to stimulate business for U. K. firms in these and other aspects of the fishing industry by assisting in the fisheries development of other nations. (U. S. Embassy, London, Mar. 23, 1968.)

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### QUEEN SCALLOPS SHIPPED TO U. S.

A shellfish firm in the United Kingdom shipped 5 tons of queen scallops (*Chlamys opercularis*) to the U. S. early in April. Queen scallops are small scallops found over many areas of the west coast of the U. K. They were not commercialized previously.

The British firm believes that if quality can be maintained in the trans-Atlantic sea shipments, its sales of queen scallops could earn a half-million dollars. ("Fishing News," Apr. 5, 1968.)

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### WHITE FISH AUTHORITY RAISES INTEREST ON LOANS

The White Fish Authority announced higher interest rates starting April 1, 1968. The Authority explained that these rates resulted from higher interest rates charged it by the Treasury.

Fishing vessels, new engines, nets and gear:

On loans not over 5 years:  $8\frac{1}{8}$  percent, increase  $\frac{1}{8}$  percent.

On loans over 5 years, but not over 10 years: 8 percent, no change.

On loans over 10 years, but not more than 15 years:  $7\frac{7}{8}$  percent, decrease  $\frac{1}{8}$  percent.

On loans over 15 years, but not more than 20 years:  $7\frac{7}{8}$  percent, no change.

Processing plants: On loans not over 15 years:  $8\frac{1}{2}$  percent, increase  $\frac{1}{8}$  percent.

On loans over 15 years, but not over 20 years:  $8\frac{1}{2}$  percent, increase  $\frac{1}{4}$  percent.

The rates on advances made before April 1 remained the same. ("The Fish Trades Gazette," Apr. 13, 1968.)

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### FISHERMEN PRESS NEW FOREIGN LANDINGS BAN

Fishermen's organizations in Grimsby, England, are trying to counter the worst crisis ever faced by British fisheries. Some trawlers have been laid up for a long period; older trawlers are being sold for scrap. If present trends continue, 2,000 fishermen will be unemployed by the end of summer.

Grimsby organizations are preparing a proposal for government assistance and a ban on foreign landings. Support is expected from other fishing ports. Foreign landings are termed "dumping." Many believe that foreigners can land fish in Britain only because their governments subsidize them heavily.

### Danes Would Suffer

Danish fishermen would be among hardest hit by a ban--just as they were by unofficial landing restrictions imposed by British trawler-owners in Aug. and Sept. 1967. They protest that, contrary to British opinion, Danish fisheries receive no government subsidy. They contend that the high quality of their cod landed is responsible for excellent demand for cod in British markets.

## United Kingdom (Contd.):

Official restriction of foreign landings would run counter to current British policy. This favors free trade in fish products because the domestic industry cannot meet demand. The Danes speculate, however, that British trawler owners who control unloading at some ports are prepared to impose "private" restrictions as in 1967. (Regional Fisheries Attache, U. S. Embassy, Copenhagen, May 7.)

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SUMMARY OF 1967  
MARINE OIL SITUATION

Because of the comparative cheapness of marine oils in 1967, imports and use of these oils in the United Kingdom increased considerably. Total imports of marine oils rose almost 60 percent--to 281,900 long tons. However, disposals of marine oils during 1967 did not rise so much. These totaled 226,200 tons, or 13 percent above 1966. As a result of the heavy imports, stocks of marine oils at the end of 1967 reached the very high level of 67,300 tons; it was 28,200 tons a year earlier.

## Price Falls Steadily

During 1967, the price of fish oil declined steadily between June and December. It dropped from US\$142 per long ton for Peruvian fish oil in June to \$103 in December. At the same time in 1966, Peruvian fish oil was \$179. By April 1968, the price was way down to \$93. The latest quotations for July-August shipments to Rotterdam are \$92 a metric ton c.i.f.

U. K. Stocks, Supplies, and Disposals of Crude Marine Oils, 1966-67		
	1967	1966
	.. (1,000 Long Tons) ..	
Stocks, Jan. 1 . . . . .	28.2	53.3
Imports . . . . .	281.9	177.8
Total . . . . .	310.1	231.1
Disposals . . . . .	226.2	200.5
Stocks, Dec. 31 . . . . .	67.3	28.2
Total . . . . .	293.5	228.7
Balancing item . . . . .	+16.6	+2.4
(Ministry of Agriculture, "Monthly Digest of Statistics," "Overseas Trade Accounts of the United Kingdom.")		

It is reported that large U.K. consumers have bought 16,000 tons of whale oil from this season's catch at \$103.20 a ton c.i.f.--compared with \$144 per ton paid for 34,500 tons last year. The purchase was made up of 8,000 tons of Soviet and 8,000 tons of Japanese oil. (U. S. Embassy, London, April 19, 1968.)



## France

PLANT TO PRODUCE PROTEIN  
FROM PETROLEUM PRODUCTS

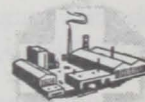
A commercial plant to extract protein concentrate from petroleum products is being built at the Lavera refinery in France. It will be operated by British Petroleum of France and is expected to produce 16,000 tons of protein a year by 1970.

Despite all efforts to produce animal protein, says the firm's French research director, the development of only present animal resources would leave a shortage of 10 million tons by 1980 and 22 million tons by the year 2000. Protein production from petroleum should be carefully considered, he suggests.

## World Crude Petroleum Output

World production of crude petroleum in 1966 was reported as 1.5 billion tons, about 90 percent paraffinic. Certain paraffins, combined with ammonia, phosphate, and trace metals, are used as a food for yeast. This grows by fermentation into a sufficient mass to be used as livestock feed.

According to the research director, this process represents a potential production of 20 million tons of protein from 40 to 50 million tons of paraffins. ("Science News," Apr. 1968.)



## Sweden

### TO BUILD MORE FISH CARRIERS FOR USSR

Several large orders were placed by Soviet import agencies in Sweden during March 1968. The largest was placed by SUDOIMPORT of Moscow with the Lindholmen shipyard in Gothenburg--for 2 refrigerated fish carriers worth \$11-13 million. The cost depends on type of auxiliary equipment to be selected later.

This contract was signed in Moscow on March 14. It supplements a Soviet contract for 6 similar ships awarded Lindholmen in December 1967. All 8 refrigerator vessels are scheduled for delivery before the end of 1970. They are worth almost \$50 million.

### Perhaps Largest Order

Reportedly, this is the largest order ever booked with Lindholmen. It is expected to secure full employment there at least through 1970. All 8 ships will be powered by "Pielstick" engines of advanced design and equipped with controllable pitch propellers. Some electronic appliances, deck machinery, and galley equipment will be supplied by the USSR.

The vessels will transport frozen fish from Soviet fishing fleets at sea to ports in the USSR. They will contain 12,500 cubic meters of refrigerated space. (U. S. Embassy, Stockholm, Mar. 25, 1968.)



## Norway

### FISH MEAL PRODUCTION TO BE LOWER IN 1968

The 1968 winter herring catch was only 25,600 metric tons--compared with 371,600 tons in 1967. Until a few years ago, the fishery had been No. 1 in volume.

This worst catch since 1889 was due partly to foul weather on the west coast of Norway and partly to sea temperatures that caused the herring shoals to stay below the reach of purse seines. At the end of March, the total catch of all herring species was 39,800 tons, 9.4 percent of the 1967 catch.

### Record Catches of Capelin

The failure of the herring fisheries was offset to some extent by record catches of capelin off the coast of Finnmark. The fishery, which ended shortly after Easter, yielded an estimated 485,000 tons, or 20 percent above 1967.

### Reduction Plant Output To Drop

There is reason to believe that the output of the reduction plants will be reduced substantially from 1967's record 470,000 tons of fish meal and 310,000 tons of fish oil. The small supplies of high-fat winter herring, combined with a lower-fat capelin this year than in 1967, further indicate that 1968 fish-oil production will decline proportionally more than fish meal.

### High Yields Needed

Norsildmel, the joint sales organization of the fish-reduction industry, has sold 300,000 tons of fish meal for 1968 delivery. The 1967 production had been sold before the end of 1967, partly for delivery during the first-quarter 1968. Norsildmel has met all commitments so far this year. But completion of outstanding orders will depend on successful fisheries--notably high yields of North Sea herring and/or mackerel during the rest of 1968.

A possible effect of the winter herring failure could be reduced Norwegian exports to Eastern Europe--where herring meal is preferred over fish meal made from other species. (U. S. Embassy, Oslo, April 17, 1968.)

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### EXPORTS IN FIRST-QUARTER 1968 REPORTED

Norway's fishery-product exports for January-March 1968 were reported on April 25 by "Fiskets Gang," published by the Fishery Directorate:

**Frozen Fillets:** Exports increased about 14 percent over the 1967 period. Shipments of herring and cod fillets increased significantly.

**Canned Fish:** Exports were 7,400 metric tons, slightly below comparable 1967 ship-



## Norway (Contd.):

ments. Exports of small sild sardines were up about 13 percent; brisling shipments fell 16 percent. The main canning season for brisling and sild sardines begins in spring.

Industrial Fish: Exports rose 15 percent from 1967 period. The large stocks at the start of 1967 contributed to the gain because herring meal production has been extremely low this year.

Product	Jan. -Mar.	
	1968	1967
	. . . (Metric Tons) . . .	
<b>Frozen fillets:</b>		
Haddock . . . . .	3,079	1,536
Cod . . . . .	8,520	5,146
Coalfish . . . . .	5,094	7,152
Herring . . . . .	1,284	1,956
Other . . . . .	1,518	1,278
Total frozen fillets . . . . .	19,495	17,068
Frozen herring . . . . .	1,682	3,997
<b>Canned fishery products:</b>		
Brisling . . . . .	1,325	1,584
Small sild sardines . . . . .	4,285	3,779
Kippers . . . . .	696	830
Shellfish . . . . .	131	149
Other . . . . .	967	1,111
Total canned fish . . . . .	7,404	7,453
Fish meal . . . . .	133,138	115,250
Herring oil, crude . . . . .	21,788	13,573

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FIRM PRODUCES LOW-FAT,  
HIGH-PROTEIN FISH MEAL

A/S Nimrod of Egersund, Norway, began production March 15 of low-fat, high-protein, fish meal. The production is based on gasoline extraction of the fat contents of fish meal. This yields a product with a minimum fat content of 0.3 percent and a maximum protein percentage of 88.

The company, situated in Norway's principal fishing port, should be assured ample supplies of raw fish for its planned annual output of 15,000 metric tons of pelletized meal.

## Acceptable for Humans

Most of the production will be marketed as feeding stuff for animals which cannot be fed conventional high-fat fish meal--mink and livestock in months prior to slaughtering. The almost tasteless and colorless Nimrod fish meal also has proved fully acceptable for human consumption. This indicates market-

ing possibilities in the food industry: low-cost protein enrichment of sausages and fish soups.

## Nimrod Is 2nd Plant

A/S Nimrod is the second Norwegian fat extraction plant for fish meal. The first, a 10,000- to 12,000-metric ton capacity plant, was installed at Kopervik Sildeoljefabrikk, Kopervik in 1967. (U.S. Embassy, Oslo, Mar. 22, 1968.)

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LATEST EQUIPMENT USED  
TO SPUR FISH INDUSTRY GROWTH

Norway's fishing industry has had 4 exceptionally good years. Record catches were landed each year after 1962, and the rate of increase in landings was greater than ever before. Landings totaled 1.4 million metric tons in 1962, 2.1 million tons in 1965, and 2.6 million tons in 1966. In 1967, a substantial boost occurred: fishermen supplied processing plants ashore with more than 3 million tons of fish. Norway won fifth place among the world's fishing nations.

The main factors in this achievement were the exceptional amount of fish on the traditional fishing grounds, the generally favorable conditions for fishing, and the use of efficient methods to find and catch fish.

## Efficiency Promoted

During the past few years, a great effort has been made in Norway to promote fishing efficiency. Modern methods have been developed and new gear introduced. A 2-way effect has been observed: The good fishing years have encouraged industry to concentrate talent and energy on developing and marketing new gear; this in turn has greatly increased catches--to the benefit of fishermen and the processing industry ashore.

Many companies have specialized in advanced equipment for the fleet. Norwegian electronic fish-finding devices have met with considerable approval abroad.

Many companies have realized the great importance of vessel maneuverability. They are manufacturing steering propellers--bow or stern thrusters, or the so-called active rudders. Such equipment is now mounted on a growing number of Norwegian and foreign vessels, either fore or astern, or both.

Norway (Contd.):

### Improved Fishing Operations

The whole purse-seining operation is aided from the vessel's deck. The power block does the rest; it hauls in far greater quantities in one operation and in less time than manpower did some years ago. Today's big steel purse seiners or trawlers, some even equipped with stabilizers, can fish in weather that was forbidding before.

Resulting directly from such efficient equipment have been North Sea herring and mackerel seasons that rightly were called stupendous adventures.

There are fishing techniques other than purse seining. Net fishing and jig fishing are important for their purposes.

Line fishing has experienced a near revolution after a line-fishing machine was introduced. The machine automatically performs the line's movements upwards and downwards to required depths and speed.

Fishermen also are very interested in trawling. (Export Council of Norway, Apr. 1968.)



### Denmark

#### HOLDS SUCCESSFUL INTERNATIONAL TRADE FAIR

The sixth International Fisheries Trade Fair was visited by 50,000 people during April 4-May 5. Billed as the largest fair ever held in Europe, it was synchronized with the 100-year jubilee of Esbjerg Harbor.

Products of 250 firms from 13 nations were set up in the new 9,000-square yard auction hall next to the fishing harbor. New vessels produced in East German, Norwegian, and Danish yards were displayed. The exhibit of the Polish import-export agency CENTRO-MIOR included models of their latest trawler designs. Also, the fair displayed processing, handling, and packaging equipment and supplies.

### New Fisheries Museum

A special feature was the grand opening of the US\$1.7 million Esbjerg fisheries museum. The main attraction was a fully restored 150-year-old fishing boat discovered a year ago beneath tons of beach sand north of Esbjerg. The boat is the type used along Denmark's North Sea coast for centuries. Besides historical displays, the museum shows the operation of modern fishing gear and electronic equipment and North Sea species. There is also laboratory and office space for the Danish Geographic Institute and Denmark's Fisheries and Marine Investigations. (U. S. Embassy, Copenhagen, May 7, 1968.)

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### GREENLAND'S FISHERIES ARE IN TROUBLE

The Director of the Royal Greenland Trade Department (RGTD) raised storm warnings for the future of the fisheries at RGTD's annual fisheries meeting in Copenhagen in April. Difficulties face virtually all areas of this major industry. However, there appears no alternative to development of the fisheries as the foundation of Greenland's economy. The Danish Government, he said, must continue to bear the greatest part of the initiative and the larger risks. But he hoped private industry also will continue to assist in the development.

The value of fish purchases during 1967 was almost unchanged from 1966: the RGTD bought raw material worth US\$2.6 million, and the private companies bought raw material worth US\$1 million.

#### Cod Fishery Down 6%

The cod fishery, concentrated in May through September, was down 6 percent. The year's smallest cod catches were taken in February, March, and April; results were even poorer than in the 1966 period. This trend continued into spring 1968. The strong seasonality of the cod fishery makes it impossible to secure satisfactory use of processing plant capacity.

Catches of sea catfish (wolffish) increased 9 percent, salmon 2 percent, and shrimp 5 percent. Landings of Greenland halibut declined.

## Denmark (Contd.):

## New Trawlers in 1969

Catches of the 4 large long-line vessels introduced into the Greenland fisheries by the Government during 1965 and 1966 were down 16 percent in 1967 from 1966. The first of a new series of stern trawlers will be introduced in 1969. It is hoped each new vessel will attain an annual catch of 4,000 to 5,000 metric tons. If this goal is reached, the overall operation of the Greenland fishing industry should become profitable.

## Private Firm Loses

The private company, Godthaab Fiskeindustri, lost US\$115,000 during 1967; it had earned US\$133,000 in 1966. Its raw material purchases were down 10 percent. Losses occurred on its fish meal plant designed primarily for industrial fish--which were in short supply. US\$40,000 now is being spent to modify the plant.

## Outlook Dim

The RGTD director described to Godthaab Fiskeindustri officials the dim outlook for Greenland fishing. He said the U.S. price of 23 cents a pound for cod blocks was slightly under the cost of production. The Greenland salmon fishery was threatened by overproduction and the resulting price declines. (Regional Fisheries Attache, U.S. Embassy, Copenhagen, Apr. 26, 1968.)

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## SALMON CAUGHT NEAR FAROE ISLANDS

The Faroese research vessel "Jens Christian Svabo" has found salmon 30 to 50 miles northeast of the Faroese Island of Fugloy. Salmon previously were not known to occur near the Faroes. Current prices are high.

Using a 600-hook longline, the research vessel took 150 salmon in 2 days. Newspaper reports of this success were quick to point out how profitable the Faroese salmon fishery off the west coast of Greenland has been in recent years. (Regional Fisheries Attache, U.S. Embassy, Copenhagen, Apr. 26, 1968.)



## Iceland

EXPORT LEVIES RAISED  
ON FISHERY PRODUCTS

The Althing (Parliament) approved during the week of Apr. 14, 1968, a bill to amend the 1966 Act on Export Levies on Fishery Products. It increases export levies on uncured salted fish, frozen lobster, capelin oil and meal, and salted herring.

The levy on salted herring was increased from 6 percent of f.o.b. value to 10 percent. Levies on the other fishery products were increased from 530 kronur (IKr. 57 = US\$1) per ton to 3.5 percent of f.o.b. value.

Although the increased levy also applies to capelin oil and meal, capelin products are being exempted temporarily from any export levy. Industry has protested the increased rate on salted herring.

The bulk of the increase in export revenue will be allocated to the fishing vessel insurance fund, which has experienced deficits in 1967 and 1968. (U.S. Embassy, Reykjavik, April, 25, 1968.)

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## TRIES TO DEPEND LESS ON HERRING

Iceland is trying to lessen its overreliance on herring in recent years. The migrations of herring are highly unpredictable, and the catch is less valuable than cod. So more attention is being paid to the more valuable cod. The cod catch declined by 18.7 percent in 1966 and 22.8 percent in 1967. In April 1968, white fish catches, including cod, were favorable. It is hoped that cod catches will recover to the 1966 level of about 339,000 metric tons.

## Weather Hinders Fishing

Very bad weather hindered the fishing industry early in 1968. The outlook for the herring catch will not be discernible until August; the winter season was poor. The herring catch in 1967 fell one-third from 1966.

## Government Helps

The fish-processing industry, with its high costs and overinvestment, is being helped by Government subsidies. These are designed to encourage structural rationalization of the

## Iceland (Contd.):

Industry. A price equalization fund is designed to offset fluctuations in export prices. A few inefficient plants have closed.

The supply of raw material to processing plants is uncertain. Another factor to watch will be the direction of demand for and export prices of processed products. In 1967, export prices for herring oil fell 20 percent, herring meal 15 percent, and frozen fish fillets 16 percent. Frozen fish prices have improved only slightly over their earlier lows of this year. Fish meal is still low. Fish oil is at an all-time low. (U.S. Embassy, Reykjavik, May 9, 1968.)



## Poland

## STRAWLER COLLIDES WITH U. S. TANKER

In late evening of May 18, 1968, during a storm, the Polish stern trawler "Barwena" (1,370 gross tons) collided with the U.S. tanker "Texaco, Illinois" 77 miles (39° N. and 73° W.) off Cape May, New Jersey. Barwena's hull was split by a 100-foot-long gash. Because her escaping fuel (capacity over 300 metric tons) made her lighter, she made it to Philadelphia. Three crew members were hospitalized with light injuries. The Barwena had left Halifax, Canada, on May 7. The U.S. tanker was not damaged seriously.

## Barwena's Catch

During a surveillance flight by the U.S. Bureau of Commercial Fisheries on May 17, 1968, the Barwena was sighted 55 miles south-east of Long Beach Island off New Jersey. This was not far from her position a day later when she collided. She was fishing for mackerel and herring. About 100 metric tons of processed products (frozen fillets and fish meal) were obtained in about 1 week. Two other Polish stern trawlers and 6 side trawlers, 1 East German, and 3 Soviet fishing vessels were sighted nearby.



## Yugoslavia

## DOCUMENTARY ON "FISHERMEN OF TACOMA" PLANNED

In cooperation with the U. S. Information Agency (USIA), the Yugoslav television system plans to make a documentary film on the fishermen of Washington State. The subject will be the Yugoslavs who migrated to the U. S. and are now Pacific fishermen.

The Yugoslav TV team will shoot scenes of fish-catching techniques, vessels, and distribution from ocean to markets.



## VORACIOUS IMPORTED SNAILS CLEAR U. S. LAKES

Two kinds of voracious fresh water snails from South American rivers are clearing United States lakes by devouring submerged weeds such as elodea, southern naiad, coontail, pondweed and certain algae. Marisa, a native of Colombia and Venezuela, can tolerate highly polluted water. It would have to be restricted in certain areas of the world, however, for it also devours rice, watercress and water chestnut. The other weed-eating snail, Pomacea australis, from Brazil, can survive colder climates than Marisa, and eats aquatic plants even more vigorously.

According to researchers of the U. S. Department of Agriculture's Research Station at Fort Lauderdale, Florida, three ponds in southern Florida were stocked in 1965 with hardy Marisa cornuarietis snails--8,000 snails per acre. One year later, the ponds were free of submerged weeds and continued clear. (Reprinted with permission from "Science News," weekly summary of current science, copyrighted 1966 by Science Service, Inc.)

## LATIN AMERICA

### Peru

#### FISH MEAL CONSORTIUM TO BEGIN BULK SHIPMENTS

Bulk shipments of fish meal were scheduled to begin in April 1968, according to the Peruvian fish meal Consortium. The first shipment by chartered vessel would be about 12,000 metric tons. Plans call for 120,000 tons to be shipped this year, with costs reduced by \$7 a ton.

The Consortium, together with California Pellet Meal Co. and Monsanto, began shipments of bulk pelletized meal in 1963. Shipments were stopped due to the critical industry situation at that time. Apparently, the Consortium was spurred by plans of Pesquera Delphin to begin pelletized fish meal shipments. It is beginning bulk shipments to stay in the running. Plans are for bulk meal to be transported in metal cylinders from factory to launches, ferried out, and dumped directly into the holds of transport vessels.

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#### REPORT ON FISH MEAL INDUSTRY

On April 24, 1968, the Peruvian Government set the anchovy catch limit for the 1967/68 season at 9.5 million metric tons. It announced the season's closing date as May 31. It was estimated that this catch might produce close to 1.7 million tons of fish meal.

Shipments in the first quarter were good but may have slowed in April. Stocks continue high. Fish oil production was good in the first quarter. Fishing generally has been good, although heavy fog in certain areas along coast has hampered fishing.

#### 1967/68 Anchovy Season

At the rate of fishing in early May, it was predicted that the 9.5-million-ton mark might be reached before May 31. The government did not state whether the tonnage limit or date was the crucial factor.

#### Production

Fish meal production from Sept. 1, 1967, to March 31, 1968, was 1,416,347 metric tons. The additional authorized catch of 1.5 million tons of catch could add roughly 270,000 tons of fish meal. This would bring season's total close to 1.7 million tons.

#### Shipments

In 1967, fish meal shipments were 1,560,900 metric tons. For the fishing season that opened Sept. 1, 1967, shipments reached 1,098,788 tons on March 31. Shipments, which were very good in first-quarter 1968, slowed during April.

#### Stocks

During the closed season (Feb. 17 to March 17, 1968) stocks were drawn down but began to rise when fishing resumed. Stocks on Jan. 30 were 688,943 tons; on Feb. 29, 689,039; on Mar. 31, 671,323. Stocks on May 31, 1968, were expected to be well over 700,000 tons. However, June, July, and August will be closed for fishing; September usually is a poor month for fishing; so even moderate shipments during this period should draw down stocks to comparatively low levels by the time fishing hits its stride about October 1.

#### Sales by Marketing Zones

Fish meal sales by marketing zones for first-quarter 1968 show a marked increase in sales and important changes in the percentage distribution of these sales by zones.

	1968		1967	
	1st Qtr.	%	1st Qtr.	%
U.S.A. & Canada . . .	132,645	24.1	112,564	33.8
Latin America . . . .	31,455	5.7	14,600	4.4
Far East . . . . .	52,040	9.4	10,827	3.2
Eastern Europe . . . .	87,820	16.0	66,077	19.8
Western Europe . . . .	134,186	24.4	76,483	23.0
West Germany . . . . .	112,239	20.4	52,685	15.8
Total . . . . .	550,385	100	333,236	100

#### Exports of Semirefined Fish Oil

In first-quarter 1968, 46,137 metric tons of semirefined fish oil were exported--to West Germany, 13%; Colombia, 11.1%; Denmark, 9.2%; Ecuador, 0.7%; The Netherlands, 63.4%; and Great Britain, 2.6%.

#### Exports of Crude Fish Oil

During the first three months of 1968, 40,817 metric tons of crude fish oil were exported. The Netherlands took 58.7 percent; Germany was second, 36.1 percent. (U. S. Embassy, Lima, May 2, 1968.)



## Brazil

### FISHING INDUSTRY PROTESTS SOVIET FISHING OFF BRAZIL

On April 9, two Brazilian shrimp trawlers fishing off Sao Francisco Island in southern Brazil, south of Sao Paulo, were "interfered with" by Soviet fishing vessels. Companhia Brasileira de Pesca, which owns the trawlers, protested to the Brazilian Air Force, Navy, and Ministry of Foreign Affairs.

At the same time, the company asked the Sao Paulo Federation of Industries to support its protest and request that the government organize better surveillance of "Brazilian territorial waters" to protect fishery resources. At an April 18 meeting of the Federation's Board of Directors, it was decided to bring "the gravity of the incident to the attention of competent Brazilian authorities." (U. S. Consulate, Sao Paulo, Apr. 23, 1968.)

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### PUSHES DEVELOPMENT OF FISHERIES

In the 10 months of its existence, the government has approved 42 projects involving US\$12 million. This was announced in Sao Paulo by Admiral Antonio Maria Nunes de Souza, head of the Brazilian Fisheries Development Agency, Superintendencia do Desenvolvimento da Pesca--SUDEPE.

SUDEPE is going to acquire 4 fishing vessels equipped with echo-sounding and other modern fish-finding equipment to carry out research and locate fish off Brazil. The Admiral predicted that Brazil shortly would increase her annual catch of 150,000 metric tons to 400,000 tons through SUDEPE's efforts. By 1972, the annual catch would be about 2 million tons. Fishing industry projects already approved call for adding 110 vessels to the fishing fleet.

#### Predicts Progress

He declared that within a few years fish would become the basic source of protein for Brazilians. He predicted that within 2 to 3 years annual per-capita consumption would increase from the present 9.9 lbs. to 26 lbs.

Some businessmen appear interested in investment possibilities. However, they are realistic and critical. One Sao Paulo busi-

nessman asked the Admiral what sort of research is being done to determine the fish potential of Brazilian waters. He replied that such research was projected--but that Brazilians knew there was a great potential because they could see foreign vessels working off the coast. (U. S. Consul, Sao Paulo, Apr. 30, 1968.)



## Chile

### SOVIETS AID CHILE'S FISHERIES

Three Soviet technical fishery experts left Santiago in March 1968 after a month's study of the Chilean fishing industry. The visit was arranged under the January 1967 Soviet-Chilean Agreement. The Chilean press says technicians will submit reports to their respective governments on the results. The Soviet team is expected to recommend negotiation of a technical and research assistance agreement under which the Soviets might help develop Chilean fisheries. This would include aid in electrical fishing, exchange of scientific information, feasibility studies on how to improve existing, or construct new, fishing ports, and exchanges of fishery experts.

#### Several Agencies Involved

The Soviet team arrived in Santiago Feb. 27. It was headed by Evgenii Grinko, Director of the Moscow All-Union (Federal) Institute for Design and Construction Projects in the Fishing Industry. The sponsoring agency was the Fisheries Division of the Ministry of Agriculture. Its director participated in the FAO-sponsored Seminar on Fish Behavior in the USSR in October 1967.

The Fisheries Division arranged for contacts with other government agencies, primarily the Government Development Corporation, or CORFO, and with the Fisheries Development Institute, a Chile/FAO organization.

After meetings at Santiago, the Soviet team visited ports and adjacent processing plants in northern Chile (Antofagasta, Arica, etc.); the Golfo de Ancud in Central Chile (visited Ancud, Castro, Chonchi, Calbuco, and Puerto Montt fishery ports and plants); and the southernmost part of Chile where, at Punta Arenas, the "centolla" (king crab) industry was visited.

## Chile (Contd.):



A rich catch of anchovies flows into hold of Iquique-based boat. The fish are abundant off Northern Chile and are converted into meal and oil for export. (Photo: R. Saunders/Scope)

## Soviets Used Chilean Ports

During the team's visit, a Soviet fishery research vessel ("SRTM-8459") from the Pacific Institute for Fisheries and Oceanography arrived at Valparaiso. It was open to the public. Often in the past, the Soviets have used Valparaiso and Puerto Montt to resupply their oceanography and fishery research vessels operating in the southeastern Pacific and Antarctic.

## 2 Views of Soviet Intentions

Government officials imply that the Soviets may put money and technical assistance into a "centolla" cannery--and assist in enlarging some existing fish-processing plants and ports. However, the Santiago fishery trade and industry circles have a different

opinion: They believe the main purpose of any Soviet aid would be to obtain permission to use Chilean ports as supply bases for Soviet fleets operating in southeastern Pacific; and, possibly, even to process and market catches (with Chilean permission) within the 200-mile fishing limits.

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## OUTPUT AND EXPORT OF FISH MEAL &amp; OIL, WHALE MEAL &amp; OIL

Chile's fish-meal production during 1967 was 163,369 metric tons, down 26.2 percent from 221,334 metric tons in 1966. About 123,752 metric tons of 1967 production, mainly anchovy meal, were produced in the north.

Production of fish oil in 1967 was 10,426 metric tons; 9,899 metric tons were produced in the north. Fish oil production decreased 53.9 percent from the 22,625 metric tons in 1966. Trade groups estimate whale and sperm oil production at about 7,200 metric tons, somewhat lower than 1966.

During 1967, 102,705 metric tons of fish meal worth US\$12,026,058 were exported. As usual, the principal importers were the U.S., West Germany, and the Netherlands.

Whale and sperm oil production in 1967 was somewhat lower than 1966. (U. S. Embassy, Santiago, Apr. 15, 1968.)



## Ecuador

## SEEKS FINANCING TO MODERNIZE FISHING INDUSTRY

Ecuador's Planning Board will seek World Bank financing for the first stage of a 10-year plan to expand and modernize the fishing industry.

The first stage (5 years) includes: (a) construction of 12 purse-seine-type tuna vessels, presumably equipped with refrigeration, (b) location and feasibility studies for 2 fishing ports, and (c) construction of port facilities in Manta fishing port. The cost of the 12 vessels is estimated at US\$3.3 million. Feasibility studies should cost \$300,000, and construction \$242,000. Also, technical assistance and training of crews will cost \$327,000.

## Ecuador (Contd.):

## The First Stage

During the first stage, the Planning Board intends to act as promoter of the project with necessary assistance from the National Financing Corporation and the Ministry of Public Works.

The Corporation already has sent a representative to the U. S. to discuss with spokesmen from the American tuna industry possible use of purse-seiners in Ecuador. The first step probably would involve bringing U. S. flag vessels to Ecuador on a temporary basis for training purposes; the resulting catches would be sold to local processing plants.

## The Second Stage

If the first stage proceeds successfully, the Planning Board intends to go ahead with an even more ambitious second stage. This calls for: (a) construction of another 12 purse-seiners, (b) acquisition of a fleet of trawlers and 2 lobster vessels, (c) renovation and modernization of existing fleet, (d) studies of planned fishing ports, and (e) construction of 2 fishing ports. The purse-seiners probably will cost the same as the first 12. Port construction will be \$11.3 million, improvement of existing fleet \$500,000, and purchase of 2 lobster boats \$10,000. Final studies for a trawler fleet are incomplete; cost estimates are not available.

According to the Planning Board, the application to the World Bank for financing the first stage is being handled expeditiously. Bank spokesmen have said a loan contract could be signed in July or August 1968.



## Argentina

SOVIET FLEET LEAVES  
ARGENTINE 200-MILE ZONE

On Apr. 1, 1968, the Soviet fishing fleets withdrew from the Patagonian Shelf waters claimed by Argentina -- up to "200 miles from low tide" -- in its Jan. 4, 1967, decree. On Nov. 24, 1967, Argentina made known her regulations for foreign fishing in the 200-mile zone: exorbitant fishing license fees (US\$10 per each net registered ton every 4 months) and other restrictions.

## Several Nations Negotiate

Japan, USSR, Brazil, Spain, and West Germany, which fished in the 200-mile zone, began to negotiate with Argentina about the new regulations. The latter delayed enforcement until April 1, 1968.

## USSR Refuses to Pay

The months-long negotiations with the Soviet Union broke down when the Soviets refused to pay license fees. When Argentina finally began to enforce regulations, all Soviet fishing and support vessels withdrew north and east of the 200-mile limit.



## Honduras

## THE SPINY LOBSTER FISHERY

Three firms constitute the spiny lobster industry in Honduras: Alimentos Marinos Hondureños, S.A. of Puerto Lempira, Department of Gracias a Dios; Industria Pesquera Hondureña of Guanaja, Bay Islands; and Caribbean Products Company, Santos Guardiola, Bay Islands.



Exports for 1963-67 were:

Year	Lbs.	Value US\$
1967 <sup>1/2</sup>	21,142	5,602
1966	180,797	63,798
1965	310,404	117,237
1964	35,426	17,352
1963	30,941	12,700

<sup>1/2</sup> 9 mos. only.



## Honduras (Contd.):

Catch data are unavailable, but it is estimated that over 90 percent is exported to the U. S., almost entirely frozen.

## Data Scarce

Little information is available on the number of fishermen or vessels employed. Alimentos Marinos Hondureños, S.A. reportedly has 11 vessels, 6 in operating condition.

Fishermen work the North Coast (Caribbean) regions of Honduras between Puerto Lempira, the Honduran Bay Islands, and the Swan Islands. The catch on the South Coast is insignificant.

The Tegucigalpa retail price for spiny lobster ranges from US\$1.85 to \$2.50 a pound. Prices are considerably lower in the North Coast-Bay Islands region. (U. S. Embassy, Tegucigalpa, May 9, 1968.)



## Nicaragua

## THE PACIFIC COAST FISHERIES

Shrimp fishing for export continues as the most important fishery on Nicaragua's Pacific Coast. Production has trebled since the principal shrimp packing company was reorganized about 2 years ago.

Alimentos Interamericanos, S.A. (ALINSA) of Corinto is an associate of Interamerican Foods, Inc., of Brownsville, Texas. Capital is 50 percent Nicaraguan, 50 percent U. S. Under new ownership and management, the plant, located on an excellent deep-water harbor, has been modernized and placed into full production. It has 2 docks, one for unloading and net repair, the other for icing, fueling, and servicing the boats. A conveyor carries the shrimp from dock to packing room, which is equipped with mechanical sorters. Peeling and deveining are done by hand. The modern freezer and cold storage are in the same building as the packing room and offices.

## ALINSA's Fleet

The fleet fishing for ALINSA consists of 30 U. S. trawlers, most from Brownsville, Texas. Eighteen are company-owned and 12 are private boats belonging to 3 owners. Twenty are ice boats and 10 are equipped with brine refrigeration. Another fleet of 10

Panamanian vessels plans to operate seasonally at Corinto. The fishing grounds are close; at times, the trawlers can start fishing within a half hour of port. Ten-day trips are usual.

## 5-Lb. Boxes

Most ALINSA production is in 5-pound boxes, heads-off, shells-on. However, sizes smaller than 15 to the pound are packed, peeled, and deveined, individually quick frozen, when the market demands it--on orders from Brownsville.

Formerly, most production was shipped by refrigerated steamer to Houston. Following the long-delayed permission to transit Mexico, early in 1968, most shipments now are direct to Brownsville via refrigerated truck-trailers in 5 days.

## Booth Builds Plant

Booth Nicaragua, S. A., which operates the largest shrimp plant on the Atlantic Coast, is beginning to build a modern prefabricated plant at San Juan del Sur. The fleet is being assembled; 4 boats were ordered in Mexico, 4 in the U. S., and more are to come.

Pacific Coast Shrimp Landings			
	1967	1966	1965
	.. (1,000 Lbs. heads-off weight) ..		
<b>Production:</b>			
White . . . . .	711	1,072	342
Brown . . . . .	102	5	139
Pink . . . . .	641	607	230
Sea-bobs, etc. . . . .	460	348	2
Total . . . . .	1,914	2,032	713
<b>Fishing Effort:</b>			
Avg. number boats fishing . . . . .	28	18	12
Total boat-days of fishing . . . . .	4,352	2,969	1,903

Pacific Coast shrimp production increased remarkably following the Corinto plant changes in 1966. Corinto has been noted for its large white shrimp; this high-priced product is the fishery's mainstay. Other species, however, account for a large part of the production. During 1967, the fishing for white shrimp was very poor all along the coast from southern Mexico to El Salvador. The scarcity was reflected in Nicaragua, where a great increase in fishing effort could not maintain the catch at anywhere near the record 1966 level. (Regional Fisheries Attaché, U. S. Embassy, May 5, 1968.)



## ASIA

## Japan

## 1967 FISHERY CATCH SET RECORD

Preliminary data compiled by the Ministry of Agriculture and Forestry indicate the Japanese fishery catch in 1967 reached a record 7.7 million metric tons (excluding whales). This was 8 percent more than 1966's record 7.1 million tons. The high output was attributed to the abundant catch of Alaska pollock and ocean perch in the Bering Sea, and to the increased yield of seaweed. In the tuna fishery, indications were that total 1967 landings would be about the same as, or slightly below, 1966 landings. ("Suisan Keizai Shim-bun," Apr. 15, 1968.)

	Landings	
	1967	1966
	(1,000 Metric Tons)	
Marine fisheries . . . . .	7,110	6,560
Culture in shallow water . . . . .	450	410
Inland water fisheries . . . . .	100	100
Culture in inland waters . . . . .	40	40
<b>Total . . . . .</b>	<b>7,700</b>	<b>7,110</b>

\* \* \*

CANNED FISH PRODUCT  
EXPORT TARGETS SET FOR FY 1968

On April 19, the government set export targets for fiscal year 1968 (April 1968-March 1969) of 23,946,000 cases worth US\$195 million.

Canned Product	Fiscal Year 1968		Fiscal Year 1967	
	Export Target		Actual Exports	
	Quantity	Value	Quantity	Value
	No. Cases	US\$ 1,000	No. Cases	US\$ 1,000
Tuna . . . . .	6,150,000	55,575	6,119,584	55,164
Salmon . . . . .	1,125,000	37,125	1,636,929	54,624
Crab . . . . .	401,000	9,845	458,748	11,979
Sardine . . . . .	200,000	1,560	149,847	1,148
Saury . . . . .	400,000	2,480	247,927	1,484
Mackerel . . . . .	550,000	3,660	437,196	3,257
Other fish . . . . .	7,310,000	41,640	6,887,520	39,198
Tangerines . . . . .	4,650,000	28,788	4,948,827	30,983
Other fruits . . . . .	400,000	2,355	506,051	2,998
Pet food . . . . .	1,600,000	5,440	1,541,666	5,227
Others . . . . .	1,160,000	6,259	1,112,362	5,445
<b>Total . . . . .</b>	<b>23,946,000</b>	<b>194,727</b>	<b>24,046,657</b>	<b>211,507</b>

The export target is almost the same as the amount actually exported in FY 1967. That totaled 24,046,657 cases worth \$211,507,000.

The canned salmon target was reduced 31 percent from last year's actual exports because of the uncertain pound sterling. ("Suisancho Nippo," Apr. 20, 1968.)

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EXPORTS OF FISHING VESSELS  
ROSE IN 1967

Japanese exports of fishing vessels in 1967 totaled 175--68 more than in 1966--according to the Fisheries Agency.

Destination	Trawlers		Purse Seiners		Long-liners		Others		Total	
	'67	'66	'67	'66	'67	'66	'67	'66	'67	'66
South Korea	43	35	4	3	6	9	38	4	91	51
Philippines	19	0	2	2	3	1	3	2	27	5
Formosa	3	0			14	13			17	13
Hong Kong	11	0					1	0	12	0
Okinawa	0	4			6	12			6	16
Panama					3	2	2	0	5	2
Others	5	8			7	9	5	3	17	20
<b>Total</b>	<b>81</b>	<b>47</b>	<b>6</b>	<b>5</b>	<b>39</b>	<b>46</b>	<b>49</b>	<b>9</b>	<b>175</b>	<b>107</b>

South Korea and the Philippines were the leading purchasers of trawlers.

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1968 NORTH PACIFIC  
WHALE CATCH QUOTA SET

The Japanese Fisheries Agency has announced a baleen whale catch quota of 1,001 blue-whale units (BWU) for the 3 fleets licensed for 1968 North Pacific whaling. The quota is the same as 1967's.

Name of Mothership	No. Catcher Vessels	Whale Catch Quota		Scheduled Departure Date
		Baleen	Sperm	
		BWUs		
"Kyokuyo Maru No. 2"	13	734		May 1, '68
"Tonan Maru"	3	267	1,000	May 13, '68
"Nisshin Maru No. 2"	8		2,000	May 12, '68

Also, a sperm whale quota of 3,000 whales was allocated. The catch limit for fin whales was reduced by 35 percent of the 1965 catch--to 951 whales. Therefore, the fleets will have to fish for sei whales to complete the remainder of the baleen whale quota. ("Minato Shim-bun," Apr. 23; "Shin Suisan Shim-bun Sokuho," Apr. 12, 1968.)

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## Japan (Contd.):

ANTARCTIC WHALING  
SEASON ENDS WELL

The 4 Japanese baleen Antarctic whaling fleets that participated in the 22nd (1967/68) Antarctic Whaling Expedition ended operations on March 20, 1968. All fleets attained assigned targets.

The International Whaling Commission had set an overall catch quota of 3,200 blue-whale units (BWUs). A national quota of 1,493 BWUs was allocated to Japan, 976 BWUs to the Soviet Union, and 731 BWUs to Norway. ("Minato Shimbun," Apr. 13, 1968.)

Production of the Japanese fleets was:

	"Nisshin Maru"	"Nisshin Maru #3"	"Tonan Maru #2"	"Kyokuyo Maru #3"	Total
	(No. of Whales) . . . . .				
Whales:					
Fin. . . . .	320	44	249	-	613
Sei. . . . .	1,518	1,248	1,803	2,550	7,119
BWUs . . . . .	413	230	425	425	1,493
	(Metric Ton) . . . . .				
Product:					
Fin whale oil .	8,521	4,163	8,110	8,010	28,804
Frozen products	24,080	13,609	25,639	25,232	88,560
Salted products	458	254	885	353	1,950
Meal . . . . .	372	235	-	780	1,387
Solubles & others	1,620	1,298	26	-	2,944
Total . . . . .	35,051	19,559	34,660	34,375	123,645
	(Percent) . . . . .				
Recovery rate:					
Fin whale oil .	20.63	18.11	19.08	18.85	
Frozen products	58.31	59.21	60.33	59.37	
Salted products	1.11	1.11	2.08	0.83	
Meal & others, .	4.82	6.78	0.06	1.84	
Total . . . . .	84.87	85.21	81.55	80.89	

\* \* \*

ALLOCATES IMPORT QUOTA  
FOR HERRING ROE ON KELP

The Japanese Government, which regulates import of herring roe on kelp, has adopted a new policy of allocating import quotas based on value rather than quantity. A quota value of about US\$800,000 (160-170 metric tons) will be allocated to trading firms.

The system was adopted to prevent undue competition among these firms and to stabilize the market price.

## First Imported in 1962

Herring roe on kelp, harvested only along the Alaskan coast, was first imported into Japan in 1962. Competition among about 30 trading firms forced up purchase prices.

The result was that Alaskan pickers, first paid only about 6 cents a pound, received up to \$1.20 a pound in 1967, a twentyfold increase. On the retail market, the price jumped from about US\$3.16 a pound in 1963 to about \$5.68 a pound in 1966. The Government hopes that importers will agree on setting a maximum import price of \$2-2.10 a pound c.i.f.

Fierce trader competition not only pushed prices up but created disorder in the harvest areas. In 1962, about 150 Alaskans were collecting the egg-laden kelp; by 1967, the number had swollen to 1,800-2,000. The supply and demand for this unique product are limited by 2 factors: the harvest is tightly controlled by Alaska, and the market is confined to high-class restaurants in Japan and to Japanese-American consumers on U.S. mainland and Hawaii. ("Suisan Keizai Shimbun," Apr. 16, 1968.)

\* \* \*

## INCREASE SHRIMP FISHING IN CARIBBEAN

Several Japanese fishing companies are increasing their investments in Caribbean shrimp fishing. Of 40 shrimp trawlers ordered from U. S. boatyards in 1967 by Japanese companies, 5 were delivered and operated from Surinam, Dutch Guiana, in Nov. 1967.

By mid-Jan. 1968, 6 were fishing from Guyana (formerly British Guiana) and 29 more will be by fall. Crews of vessels fishing from Guyana will be Japanese, with one Guyanese aboard each vessel. Processing will be done by Guyana merchants, although processing vessels may be brought in from Japan when the fleet is up to full strength.

\* \* \*

## TO LONG LINE TUNA OFF PERU

The Taiyo Fishing Co. plans to conduct exploratory tuna long-lining off Peru this year with its newly built, 345-gross-ton "Azuma Maru No. 31." The long-liner was scheduled to depart around the end of April 1968 on a one-year cruise.

One-half the expedition's cost, about US\$178,000, will be subsidized by the Government under its \$1.59-million fiscal year 1968 fishing-ground development program. ("Suisancho Nippo," Apr. 16, 1968, and other sources.)

\* \* \*

Japan (Contd.):

### SHRIMP FLEET OFF NORTHEAST SOUTH AMERICA

A fleet of 20 Japanese shrimp vessels is fishing off the coast of the Guianas, northeast South America. These 20 are part of the 35 vessels belonging to 7 fishing firms licensed in 1967 by the Japanese Fisheries Agency to explore for shrimp.

One firm, the South Pacific Fisheries Cooperative Association, has 3 U. S.-built double rigs in operation; 2 other vessels are scheduled to join the fleet shortly.

The shrimpers, based at Georgetown, Guyana, are fishing 20-30 miles off the coast. The shrimp resource is believed to be stable.

Nichiro Fishing Co. has five 99-ton double rigs reportedly producing an average 300-400 pounds of headless shrimp per vessel per day. Also, Nichiro is operating a shrimp mothership fleet: the 1,000-ton-class mothership "Kuroshio Maru No. 22," six 260-ton shrimp trawlers, and one 90-ton double rig. This fleet originally was licensed to operate at the mouth of the Amazon River, but it is also permitted to fish off the Guianan coast off season.

### Import Prices in Japan

Guianan shrimp is shipped to the U. S. and Japan. Import prices in Japan are generally similar to those paid for Mexican shrimp. Prices recently quoted on Japanese market were:

Count (Heads Off)	Wholesale Price Per 5-Lb. Block
	US\$
Under 12	9.03
12 - 15	8.89
16 - 20	7.92
21 - 25	7.44
26 - 30	6.39

("Suisan Tsushin," Apr. 22, 1968, and other sources.)

\* \* \*

### LARGE STERN TRAWLER TO FISH GULF OF ALASKA

The 4,200-gross-ton, 4,400-hp. diesel, stern trawler "Kashiwada Maru," built at Usuki Shipyard, was scheduled to be launched in late May 1968. Completion of construction is set for late July.

When delivered to its owners, the trawler will be assigned to the Gulf of Alaska. There it will fish primarily for Pacific ocean perch, but it will also trawl for Alaska pollock and other bottomfish suitable for producing minced fish meat. ("Suisan Keizai Shimbun," Apr. 17, 1968.)

\* \* \*

### RESEARCH VESSEL TO WORK IN SOUTH PACIFIC

The Japanese Government-owned research vessel "Kaiyo Maru" (3,200 gross tons) was scheduled to depart May 15, 1968, on a 90-day research cruise to the South Pacific Ocean. The vessel will survey skipjack and other resources in the South Pacific off New Caledonia and New Zealand. ("Shin Suisan Shimbun Sokuho," Apr. 20, 1968.)

\* \* \*

### SUMMER ALBACORE FISHERY REPORTED SLOW

The summer albacore fishery off the Japanese home islands, which normally begins to pick up in early May, continued slow in late April. This was due to the delay in the warming of waters in all fishing grounds.

Catches of large albacore by bait boats off northern Bonin Island were unusually poor. Some vessels fishing off Aogashima, Shizuoka Prefecture, were taking around 6 metric tons of small albacore per day. Bait boats fishing for skipjack off Japan also were encountering poor fishing. ("Katsuo-maguro Tsushin," May 1, 1968.)

\* \* \*

### TRAWLER TO FISH OFF U. S. EAST COAST

The 1,500-gross-ton stern trawler "Akebono Maru No. 51," owned by Nichiro Fishing Co., was scheduled to depart Japan May 7

## Japan (Contd.):

to explore off U. S. east coast. The vessel will proceed to the western Atlantic via the Panama Canal and survey the waters from New York to Florida for new trawling grounds.

## Second Vessel Off Virginia

A second exploratory vessel, "Kiso Maru" (2,500 gross tons), belonging to Nihon Suisan, arrived off the U. S. east coast in early April. It was reported fishing off Virginia. Its catch to late April was about 200 tons of bottomfish, primarily butterfish, with squid and other species mixed in. ("Suisan Tsushin," May 1, 1968; other sources.)

\* \* \*

## LARGE TUNA SEINER TO FISH OFF WEST AFRICA

The newly built 499-gross-ton Japanese purse seiner "Gempuku Maru No. 82" departed Nagasaki on May 2 for the tuna grounds off West Africa. The vessel, owned by Toyo Gyogyo Fishing Co., will proceed to Abidjan, Ivory Coast, via the Panama Canal. It will join Nichiro Fishing Co.'s purse seine fleet now fishing in the Gulf of Guinea.

## The Gempuku Maru

The Gempuku Maru is equipped with U. S.-type power block. It is one of the 2 largest one-boat seiners built in Japan; the other is the "Hakuryu Maru No. 55" (500 gross tons) built in 1967 for the West African purse-seine fishery. Its main specifications are: length, 157.8 feet; width, 32.1 feet; depth, 15.7 feet; main propulsion, 2,000-hp. deisel engine; refrigeration system--brine freezing with 60-ton daily freezing capacity and 300-ton storage capacity; maximum speed--14.5 knots; crew--25.

## A Second New Seiner

On April 27, another new one-boat seiner, "Shofuku Maru" (100 gross tons), left Japan to join Nichiro's fleet off West Africa. This brings to 7 (4 two-boat and 3 one-boat units) the fishing units in Nichiro's purse-seine operation off West Africa. ("Minato Shim-bun," Apr. 25, May 3; "Suisan Tsushin," May 1.)

日本

## South Korea

## FLEET OFF ALASKA

Despite technical problems off Japan, the Korean fishing fleet made it across the North Pacific in 11 days. On May 5, the master of the South Korean mothership "Sam Su No. 301" notified U. S. authorities that his fleet was off Rat Islands in the western Aleutians. He said it would operate in the Bering Sea "from May to August" 1968.

Less than 24 hours after arriving off Alaska, the South Koreans requested to enter U. S. territorial waters to make repairs. Request was granted to enter Nazan Bay (off Atka Island) from noon, May 7, through noon, May 9.

## Engine Troubles

According to Japanese sources, the 7 fishing and support vessels of South Korea, which sailed from Pusan on April 24 for Bering Sea fishing, had been reported earlier lying off Urukawa (east of Cape Erimo in southwestern Hokkaido) due to engine troubles.



## Malaysia

## SHRIMP FISHING OFF SARAWAK RESUMED

After unsuccessful attempts in 1962-63, commercial shrimp trawling has been resumed off Sarawak by Tropical Seafoods (Sarawak) Co. This is a joint venture of the Japanese Tokyo Shrimp Co., Ltd., and a local businessman (Ong Kee Hui). The company operates 7 trawlers, each equipped with modern equipment--fish locators, quick-freezing plants, cold-storage holds, and desalination plants.

## Largest Plant Built

Systematic studies of shrimp abundance were encouraging, so the company decided to build an up-to-date shore plant. It is the largest of its kind in Southeast Asia. It comprises 3 contact freezers for quick-freezing shrimp (capacity 1,800 lbs. every 3 hours); a semi-airblast freezer for deep-freezing fish (capacity 16,000 lbs. every 18 hours); a fish-meal plant (production 2 metric tons every 8

## Malaysia (Contd.):

ours); and a cold storage (capacity 360 metric tons). The fish-meal plant also will produce 8,000 liters of fish oil per hour as a by-product.

### Boost to Economy

The entire venture will give a much-needed stimulus to the local economy. It will help raise the per-capita income of Sarawak fishermen. It will enable Sarawak State to save considerable amounts of foreign currency--because her imports of fresh and frozen fish and fish meal will be greatly reduced, if not eliminated.

The plant is expected to be in full operation by 1970. Exports of frozen shrimp and fish are being considered for that date. (U. S. Consulate, Kuching, May 3, 1968.)



## Pakistan

### NEW FISHERY DEVELOPMENT PROJECTS APPROVED

Two new fishery-development projects were approved recently by the Executive Committee of Pakistan's National Economic Council. The projects are: sea exploratory



Small fish and prawns are carried in mat baskets onto beach 11 miles from Karachi, where they are sold. (FAO Photo)

fishery and oceanographic research in West Pakistan, and marine fisheries exploration and research in East Pakistan. (U. S. Embassy, Rawalpindi, May 13, 1968.)



## SOUTH PACIFIC

### Australia

#### APPROVES JAPANESE PART IN JOINT SHRIMP VENTURES

On April 25, the Australian Government licensed 7 Australian shrimp firms to fish for shrimp in the Gulf of Carpentaria off the Northern Territory. Three of the 7 involved joint ventures with Japanese interests. The Japanese firms are Taiyo Gyogyo, Kyokuyo Hoge, and Nampo Kaihatsu.

#### Foreign Vessels & Crews

Reportedly, the 3 joint ventures are permitted to employ foreign vessels and crews, provided they obtain prior approval from the Australian Government. They also are obligated to replace foreign nationals and vessels by Australian nationals and vessels within a prescribed period. ("Shin Suisan Shim-bun Sokuho," May 1, 1968.)



### 1967 U. S. Trust Territory Fishery Developments

The major exporter of fish was the tuna cannery, a subsidiary of a California tuna canner, which started fishery operations in Palau in 1964. This company continued to train Micronesian fishermen. Other Micronesians were being trained in long-line fishing in Hawaii.

Permission was given to this company and to a second, a subsidiary of another California tuna canner, to conduct feasibility surveys in Truk for the purpose of expanding commercial fishing operations.

#### Exports Increase

Exports of fish by small private fishermen increased due to better freezing and storage facilities. Reef fish were marketed in the territory and in Guam by the Palau and Ponape Fishermen's Cooperatives.

Total revenue from the fishermen's exports during 1967 was US\$93,510, not including commercial export. This was an increase of \$15,408 over 1966. ("1967 Annual Report, Trust Territory of the Pacific Islands.")



## AFRICA

### Malagasy

#### SHRIMP FISHING INCREASES

Malagasy has granted provisional rights to a Lebanese firm to fish for shrimp off the northwest coast. At present, 5 Japanese-made vessels operated by SOMAPECHE (Société Malagasy de Pêche) and one U. S.-made vessel run by SIPAM (Société Industrielle de Pêche à Madagascar) are fishing there.

Using 2 French-made fishing vessels, the Lebanese firm will seek shrimp sources; if successful, it will form a joint-ownership company with the Government of the Malagasy Republic. (U. S. Embassy, Tananarive, Apr. 13, 1968.)



### Dahomey

#### EXTENDS TERRITORIAL WATERS TO 12 MILES

On March 7, 1968, Dahomey's Council of Ministers extended the nation's territorial waters to 12 nautical miles from the low-water mark over which Dahomey claims exclusive rights to exploit minerals. (U. S. Embassy, Cotonou, Apr. 9, 1968.)



### Gulf of Guinea

#### REPORT ON GUINEAN TRAWLING SURVEY

"Report on the Guinean Trawling Survey," a 3-volume trawling survey of the Gulf of Guinea from Cape Roxo, Senegal, to the Congo River, was published recently. It was the result of Joint Project 19 of the Scientific, Technical and Research Commission of the Organization of African Unity (STRC/OAU), Lagos, Nigeria, and the Agency for International Development (A.I.D.), Washington, D. C.

#### Survey's Purposes

Joint Project 19 investigated the fish potential of the West African Continental Shelf

floor. Its purposes were to assess the composition of exploitable fish stocks, compare productivity in different fishing areas, and to locate areas most favorable to commercial trawling. The conclusion: "Provided that the local fishing fleets become more efficient, it is considered that both distant-water and local landings could develop in view of the enormous potential demand from the West African population for cheap animal protein."

#### To Purchase Report

The report, in English, is available at US\$35 a set from the Publications Office, OAU/STRC, Publications Branch, B.P. 878, Niamey, Republic of Niger. The price includes surface shipment. Air shipment can be arranged at additional cost. The set is not available in separate volumes.

- volume I - General Report, 828 pp.
- volume II - Environmental Charts, 530 pp./240 charts
- volume III - Data Report, 552 pp.



### Nigeria

#### BUYS FISH FROM USSR

Nigerian firms continue to buy frozen fish from East European and Soviet fleets that fish close to Nigerian shores. No official data are available on the amount and value of these imports. The reason is that Nigeria does not technically consider these as imports--apparently because their "place of origin" is the sea, not a foreign port.

#### About 20,000 Tons

It is estimated, however, that Lagos firms purchased, in 1967, about 20,000 metric tons of frozen fish from Soviet, Polish, and Bulgarian fleets. (U. S. Embassy, Lagos, May 11, 1968.)

Soviet trade statistics show that the USSR exported to Nigeria 3,100 metric tons of fish in 1963, 9,700 in 1964, and none in 1965 and 1966. The data for 1965 and 1966 show only fish meal exports of 400 tons and 600 tons respectively.

