

# CANADA

## VALUE OF 1970 LANDINGS IN MARITIME PROVINCES SETS RECORD

In 1970, the value of fishery landings in Canada's Maritime Provinces set a record, according to the Department of Fisheries and Forestry. The Maritimes are Nova Scotia, New Brunswick, and Prince Edward Island.

Preliminary data show that about 20,000 fishermen landed 1,129 million pounds of fish worth C\$80 million. These compare with 1,232 million pounds valued at C\$76.7 million in 1969, and 1,372 million pounds for C\$73.8 million in 1968.

### Strikes Play Big Role

The 1970 decrease in landings, compared to 1968 and 1969, was due mainly to a drop in herring landings. The subnormal groundfish landings were partially due to a fishermen's strike. No offshore fish were bought from late March until early fall by major processors in Canso, Mulgrave, and Petit de Grat because about 250 trawler fishermen were on strike.

Strikes by shore workers during 6 weeks in February and March at major fish plants in Louisbourg, Halifax, Lunenburg, and Lockeport also contributed to decline in groundfish landings.

Another factor was ICNAF closure of haddock fishery during March and April in two large areas (part of northeast Georges Bank, Browns Bank, and part of Emerald Bank).

Unfavorable December 1970 weather resulted in fewer lobsters landed in western Nova Scotia than during December 1969.

### Record Volume & Value

There were record catches and values of redfish or ocean perch and shrimp landed. Record values too were set for hake, flatfish, and clams.

Fishermen harvested 106 million pounds of Irish Moss, worth C\$2.9 million, a record.

### The Most Valuable

In order of rank, lobsters (31.6%), scallops (16.1%), herring (9.6%), cod (9.6%), haddock

(6.3%), and flatfish (5.6%) were 78.8% of total value.

### Leading Species

The leading species landed were herring (579.2 million pounds, C\$7.7 million), mostly in Nova Scotia (N.S.) and New Brunswick (N.B.); cod (142.6 million lbs., \$7.7 million) mostly in N.S.; ocean perch or redfish (88.9 million lbs., \$2.9 million) mostly in N.S. and N.B.; flatfish (88.4 million lbs., \$4.5 million) mostly in N.S.; mackerel (32.2 million, \$1.2 million) mostly in N.S.; lobsters (30.7 million, \$25.3 million); and scallops (11.8 million, \$12.9 million).

### Landings by Provinces

By provinces, the landings were: N.S. 590.7 million pounds (\$53.3 million), N.B. 438.4 million (\$17.2 million), and P.E.I. 100.4 million (\$9.6 million).

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## MARINE SPORTS-FISHING LICENSES TO SUBSIDIZE HATCHERIES

Nonresident sports fishermen in Canadian tidal waters will pay a license fee based on vessel size. All proceeds will go to build coho and spring-salmon hatcheries.

The license fee for privately owned vessels will range from C\$15 to \$75, depending on length. Charter and rental boats servicing nonresident sports fishermen will be classed commercial. These fishermen will pay the same license fees as fishermen in salmon fleet, \$100-\$400.

### Exceptions

Only charter or rental Canadian boats under 30 feet will not pay license fee. This will exempt most marinas renting small boats on a daily or hourly basis.

The new fees structure will go into effect in 1972. A \$400,000 return is expected during first year. Licenses will be available from any office of Department of Fisheries, and mail applications will be accepted. ('Fisheries News', Dept. of Fisheries of Canada, Jan. 29.)

## EUROPE

### NORTH SEA MACKEREL FISHERY OVEREXPLOITED

Until the mid-1960s, the mackerel stock in the northern North Sea and the Skagerrak was underfished. The annual catch of Danish, Norwegian, and Swedish fleets during the 1950s fluctuated between 10,000 and 20,000 metric tons.

In 1964, many new large purse-seine vessels with power blocks were introduced. The Norwegian catch doubled. It multiplied each year until it peaked at 868,000 tons in 1967. Thereafter, catches declined each year to 683,000 tons in 1969. The indications of excessive fishing were clear, and severe restrictions were imposed in 1970; the catch reached only 293,000 tons.

#### Fewer Fish

Now, scientists believe the stock has been overfished. Based on tagging research by Norwegian biologists, estimates of mackerel in the area showed fewer fish than would be caught in a good season. Like other species, the size of the year-classes entering the fisheries has fluctuated yearly and recruitment has not been good.

#### Outlook Poor

The present outlook for North Sea and Skagerrak mackerel fishery is poor, but biologists hope that the good 1969 year-class will remain plentiful until its productive age. They expect Norwegian catch regulations to be helpful.

If stock size can reach about one million tons, the annual catch might reach 400,000 tons. The stock can be utilized better in a controlled fishery. But with fishery at its maximum sustainable yield, there will be fewer larger fish. ('Fiskeribladet')



## ITALY

### IMPORTS 45,000 TONS OF FROZEN TUNA DESPITE HIGH PRICE

Of all Japanese products imported into Italy, frozen marine products, mostly tuna, account for about 20% of value. In 1970, Italian demand was greater than supply, and frozen tuna brought record prices. These high prices were expected to continue.

#### High Prices In 1970

In December 1970, the price of tuna (cost, insurance, freight Italy) reached US\$610-640 a metric ton for round yellowfin; \$880-930 for semidressed yellowfin; \$940-990 for dressed yellowfin; \$880-930 for semidressed big-eyed; and \$640-700 for dressed big-eyed.

Despite such high prices, total Italian imports of frozen tuna in 1970 were about 45,000 metric tons, down from 48,835 in 1969.

#### Italy's 45,000 MT Quota

Italy allocates an annual quota of about 45,000 metric tons of frozen tuna free of import duty. The imports are processed by Italian canneries into canned-tuna-in-olive-oil, almost all consumed domestically.

In 1970, Italy imported frozen tuna from Japan, S. Korea, Taiwan, U.S., Cuba, France, and South Africa.

#### No Sharp Price Decline

Price this year will not decline sharply so long as Italy imports a reasonable quantity to keep the monthly capacity of her canneries (about 4,000 metric tons) balanced. However, the current price of nearly \$1,000 is considered too high. About \$800 for dressed yellowfin will be break-even point for canneries. ('Suisancho Nippo', Jan. 11.)





## ICELAND

### TRAWLER FLEET EXPANDS

The failure of the herring fishery in recent years has renewed Icelandic interest in trawling. Greater effort increased landings of cod, haddock, and other groundfish. Favorable resource conditions, strengthened markets for frozen fish, and better export prices also influenced the catch.

In 1969, the groundfish catch was the largest since 1960. According to the Fisheries Directorate, the 1970 catch will show further large gains, with cod alone up 24,000 metric tons.

### Groundfish Fleet Encouraged

Good fishing by the groundfish fleet in 1969 strengthened vessel owner-operators sufficiently to encourage them to better equip their fleet.

Good catches continued in 1970. The favorable 1964-66 year-classes now promise good catches in 1971 and 1972.

The principal fishing grounds have been in Icelandic coastal waters, mainly along the south and west coasts.

### Cod Emphasized

Emphasis on cod is being encouraged for the smaller (up to 200 tons) and the larger trawlers. The government has approved bids for 8 new 1,000-GRT stern trawlers; also five 500-GRT stern trawlers will begin fishing soon.

### Year of Stern Trawler

Last year was the year of the stern trawler. At the beginning of 1970, Iceland owned 1 small stern trawler; by year's end, 5 others were built and fishing; and another was being built. Also, eight 1,000-GRT stern trawlers were under construction for government and private interests: 2 in Poland, 4 in Spain, 2 in Iceland.

Of the 500-ton trawlers, one 550-ton vessel purchased in W. Germany is fishing and another is being built.

The purchase of three 3-year-old French trawlers has been agreed on. (Reg. Fish. Attaché, Copenhagen, Jan. 26.)



## DENMARK

### 80% OF ANNUAL 1,000-MT AGAR PRODUCED FROM LOCAL SEAWEED

Denmark produces about 1,100 metric tons of agar annually; about 80% from locally harvested seaweed, the balance from imported gelidium. In 1969, production totaled 1,162 tons; about 90%, worth US\$1.7 million, was exported.

The raw material is called "Gaffeltare" (*Furcellaria Fastigiata*); the extract is "furcellan". Furcellan is sold in powder form and is known as Danish agar.

### A Barber's Brain Wave

Production began in 1943, when a barber trying to make a permanent-wave lotion from seaweed found the algae contained a mucilaginous substance that became gelatinelike on cooling. It was used during 1944/45 as a bacteriological gel, when Japanese agar supply was cut off. Most of present product is used to stabilize foods.

### Agar From Seaweed

Four Danish firms have produced agar from seaweed. Five or six vessels work continuously using a special trawl that collects the weed. Production of seaweed, from offshore waters 4 to 15 meters deep, is around 25,000 metric tons a year. The agar content varies from 2%-5% of raw-material weight.

The largest amounts have been taken in Kattegat north of Djursland, where concentrations of loose and drifted weed seem to gather. Large harvests in 1961-65 reduced the resource seriously. The industry was in critical shape in 1966 and 1967 until new resources were located that could be taken by trawl. Imports started in 1964.

### Exports Exceed Local Use

Since 1949, exports of agar have far surpassed domestic use. In 1969, the principal markets were W. Germany, France, Great Britain, Italy, Spain, Switzerland, Mexico, Argentina, and the Netherlands. Small quantities go to many other countries. (Reg. Fish. Att., Copenhagen, Jan. 19.)

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## DENMARK'S SHRIMP FISHERIES

Denmark's shrimp catch comes from 2 main sources: North Sea area and West Greenland. In 1969, the catch of deep-water shrimp (*Pandalus borealis*) from North Sea and Skagerrak was 5,434 metric tons. In Greenland waters, the catch totaled 5,982 tons. Also, about 347 tons of common shrimp (*Paelamen fabricii*) were caught mainly in Belt Sea and Baltic area.

### Fishery Began In 1931

The Danish shrimp fishery started in 1931. The catch rose steadily, peaked at 6,204 tons in 1968, and now seems to have leveled off. At first, main source was the Skagerrak and, later, mainly the North Sea. In 1960, fishing began on Fladen Ground, between Scotland and Norway; now the bulk of catch comes from there.

### Greenland Shrimp Fishery

The Greenland shrimp fishery started on a small scale for canning in 1935. It was dormant during World War II. In 1947, it resumed and, during 1949, good resources were found in Disko Bay area. Since then, output has risen steadily. Now, it equals and frequently exceeds Denmark's level.

Because overfishing threatens Greenland less, the potential there appears much better than in Denmark. Fishing can be carried out only in limited areas, where bottom conditions are favorable. So any temporary overfishing soon is compensated by entry of shrimp from outside areas. Catch rates are greater in Greenland: for the most part, over 50 kilograms per hour and, in some cases, 100 kilograms or more. In Denmark, average catches run under 50 kilograms an hour.

### Scandinavian Market

In Denmark and other Scandinavian countries, shrimp are sold fresh-cooked and

peeled, in light brine, for use in open-faced sandwiches or in salads. Quick-frozen shrimp packed in bags are increasing in importance. The shrimp are tender and mild in flavor. In Denmark, shrimp are cooked aboard vessel to preserve quality. In Greenland, most of catch is processed in shore plants, where a large part is canned for export.

Top export markets for frozen shrimp are Sweden, Germany, the United Kingdom, and Switzerland. Canned-shrimp markets are Germany, United Kingdom, Sweden, Switzerland, France, and U.S. (Reg. Fish. Att., Copenhagen, Jan. 21.)

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## OYSTERS REMOVED FROM RESTRICTED IMPORTS LIST

Effective Jan. 1971, oysters with or without shell, fresh, chilled, or frozen, can be imported into Denmark duty free. Until then, oysters were the only fishery product retained on Denmark's list of restricted imports.

Oysters are a festive food. The supply is small, the cost high. Limfjord oysters are in season usually from mid-Sept. until Christmas. In the past, when Limfjord oyster were not in season, limited quantities came from Holland.

Prices for smaller-size oysters, from 40-60 grams each, were about US\$0.30 each. Larger oysters were \$0.38-0.43 each.

### Spring 1970 Planting

During spring 1970, 1.5 million new oysters were planted in Limfjord at cost of US\$133,000. The harvest in the next few years will be about 200,000 oysters. Some die from winter temperatures, during transport, and for other reasons. (Reg. Fish. Att., Copenhagen, Jan. 29.)



## GOVERNMENT PAYS DAMAGES FOR POLLUTING RIVER

The following is a dispatch from The Times, London, which appeared in The New York Times, March 21, 1971:

A payment of £5,000 (\$12,000) with costs has been made by the Ministry of Defense as compensation for damage suffered by the Freshwater Biological Association at one of its research stations. The settlement was reached out of court after more than five years of litigation.

The damage was caused by paint dumped in the Frome River in Dorset from the military camp at Bovington. This took place a year after the association established a network of experimental channels to study the behavior of salmon, trout and coarse fish as part of an ecological study of the river.

### Camp Indicted

The main laboratory of the Freshwater Biological Association is on Windermere, where aquatic life in relatively calm waters is studied. The outstation in the Avon and Dorset River Authority area was an investigation into the environmental influences in fast-flowing hard water.

The contamination of the Frome has become one of the best-documented cases of the destruction caused by the dumping of pollu-

tants into a river. The Bovington camp was indicted after a careful study involving the association's scientists and the fisheries department of the river authority.

During the investigation, innocuous salts were released into the river and their pattern of distribution plotted along the stream. Introduction of the substances from the Government establishment showed a spread identical to that of the poisonous pollutant.

### Association Had to Sue

Usually a river authority can prosecute for this type of offense; but as a Government department was involved, it was left to the association to sue for damages to the value of the scientific information lost and of the disturbance caused to research.

It will probably take 14 years before it is possible to say whether the Frome has recovered completely or has fundamentally changed in character. Fourteen years was the age of the oldest fish taken from the river.

H.C. Gilson, director of the Freshwater Biological Association, expressed belief that the settlement established an important principle in making the Government pay for damage and disruption to amenities.





# NORWAY'S 1970 FISHERIES WERE PROFITABLE

Norway's 1970 fishing season was the second best ever in quantity and value. The results were unexpected because forecasts had not been optimistic, and because important pelagic species were overfished and depleted. The forecasts also indicated reduced landings of cod and haddock, but this happened only with haddock.

The following listing for 1966-70 includes data for the best 3 years:

	Quantity Metric Tons	Exvessel Value US\$1,000,000
1970	2,665,092	182.7
1969	2,206,452	144.9
1968	2,592,571	144.8
1967	3,036,866	166.5
1966	2,655,747	187.5

Rising prices, due to a lively export demand, produced the high gross value. The increase in quantity resulted mostly from abundant capelin landings--a record 1,307,281 metric tons, 49% of total. These were worth US\$31.3 million, almost twice the 678,935 tons landed in 1969. One new contributing factor was the 90,000 tons of fish taken (herring and mackerellike species) by purse seiners off west Africa and delivered to factory-ships.

## Pelagic Landings

Landings in Norway of pelagic species (herring, sprat, capelin, mackerel, Norway pout, sandeel, and polar cod) were 1,992,226 tons; the figure was 1,664,881 tons in 1969. The herring fisheries based on Atlantic-Scandinavian stocks and resources produced only a fraction of landings during years when this resource was still intact.

Until 1969, mackerel was the fish landed in greatest quantity in Norway. The record year was 1967 with 868,000 tons. In 1969, 683,000 tons were landed, but only 292,708 tons were produced in 1970. Mackerel is overfished. Therefore, Norway imposed strict regulations for 1970 and will apply even stricter ones in 1971. About 400,000 tons of mackerel appear permissible annual catch from North Sea--assuming resource level is normal.

## Capelin Fishery

Due mostly to capelin fishery, the fish meal and oil industry landed 1,892,000 tons from pelagic resources in 1970. This compared with 1,564,000 in 1969 and 1,947,000 tons in 1968.

The prospects of edible herring processing industry are curtailed indefinitely because raw material is lacking. In an agreement with Denmark, USSR, and Iceland, Norway has consented to limit her 1971 catch of adult Atlantic-Scandinavian herring to 1969 level of 15,000 tons, and the catch of juveniles to 70% of the same level, or 25,000 tons.

## Cod Set Record

Cod landings, though down in second-half 1970, set record: 303,855 tons. These surpassed 1969 catch by 30,389 tons. The landings were 101,329 tons of spawning cod, 49,054 tons of Finnmark spring cod, and 153,472 tons "other cod."

The 1970 landings of "other cod" were also a record. These surpassed 1969's by 17,944 tons, and outweighed for first time the aggregate spawning-cod and spring-cod catch. Total landings of codlike species other than cod for human food was 176,664 tons; they were up 7,372 tons from 1969.

## Other Consumer Species

The yield of other consumer species, including flatfishes, sharks, skate, ocean perch, catfish, and eel were 40,691 tons; in 1969, 45,460 tons. Landings of some of these species fell in recent years.

The reduced landings of dogfish and Greenland halibut resulted from difficulty of medium longline vessels in getting crews. There was a considerable reduction in cod catch per unit of effort in North Atlantic waters. This trend may improve gradually in 1974 or 1975, when some abundant year-classes probably will appear and influence the fishing.

## Export Demand & Price Higher

Export demand and prices of fish products increased during 1970. Norwegian fishery exports probably will reach records when final figures are in. An export value of about US\$280 was expected; it was US\$250 million in 1969. ('Norwegian Fishing and Maritime News')

# LATIN AMERICA

## PERU

### REPORT ON FISH MEAL PRODUCTION, EXPORTS, AND STOCKS

Peru is the world's leading producer and exporter of fish meal. The product is the largest competitor of U.S. exports of soybeans and meal.

Peru has been building stocks. On Jan. 1, 1970, these were estimated at about 725,000 short tons.

These stocks were the largest since March 31, 1968, and were expected to increase in Jan.-Mar. 1971 quarter if traditional trend prevailed.

#### Improved Catches

The increase reflected improved catches, which boosted estimated Oct.-Dec. 1970 fish-meal output to 725,000 short tons. This figure was 174,000 over 1969 period and largest since 1967 period.

#### Forecast

If Peru's 1970/71 catch continues unbroken 5-year increase, production should at least approximate preceding year's record. This could occur even with a possible decline in meal extraction.

Production could amount to 2.34 million tons, compared to 2.32 in 1969/70, if the following occurred: the estimated catch of 12 million short tons (11.7 million tons in 1969/70) and meal-extraction rate of 19.5% (19.8% in 1969/70).

This volume, plus 360,000 short tons carryover stocks on Sept. 30, 1970, would total 2.7 million tons; of total, only 40,000 would be used in Peru.

Fish Meal Exports by Quarters

Year beginning Oct. 1	Net exportable Exports Ending stocks			Exports share of exportable supply
	supply			
	1,000 short tons			%
1970/71	2,660	-	-	-
1969/70	2,393	2,033	360	85.0
1968/69	2,285	2,175	110	95.2
1967/68	2,561	2,111	450	82.4

Total exportable supplies of Peruvian fish meal in 1970/71 would approximate 2,660,000 tons, a rise of nearly 270,000 tons from 1969/70 level. The increase is expected to lead to larger exports in 1970/71, unless Peru decrees further substantial increases in stocks or production costs.



## MEXICO

### NAVY INTENSIFIES PATROL OF NATIONAL WATERS

On Feb. 19, Admiral Bravo Carrera, Mexico's Secretary of the Navy, ordered round-the-clock surveillance of Mexico's national waters in Gulf of Mexico, Caribbean Sea, and Pacific Ocean to prevent foreign-flag vessel from entering territorial seas illegally. Special efforts to achieve this will be made in fishery zones with large schools of fish and shellfish. (Reg. Fish. Att., U.S. Emb., Mexico, Feb. 24.)



## CARIBBEAN

### BAHAMA ISLANDS

#### BAHAMAS COMMISSION 4 NEW PATROL VESSELS

With considerable fanfare, the Bahamian Government commissioned on March 5 four new patrol vessels: 'Acklins', 'Eleuretha', 'Andros', and 'San Salvador'. The vessels are manned by 45 men of the new Police Marine Division and are armed with NATO light-machine guns.

The vessels will patrol Bahamian waters (3-mile territorial sea, 3-12 mile fisheries zone) for fishing violators. They are expected to be on the lookout for spiny lobster fishermen during the lobster closed season March 16-August 31.







In dawn light off Palawan Island, mackerel are lifted by scoop-net from purse seine over side of boat to deck. They will be showered with crushed ice and shoveled into tube.

The deep tropical waters off the 7,000 Philippine Islands are rich in fish. FAO experts have helped develop purse seining.  
(FAO/S. Bunnag)



# ASIA

## JAPAN

### 1970 EXPORTS OF FROZEN FISHERY PRODUCTS ROSE 10.6%

In 1970, the Japanese exported 179,000 metric tons of frozen fishery products, about 10.6% above 1969. Because of higher prices, the value of these exports increased 18.7%. The Japanese earned US\$95 million in foreign currencies, \$15 million more than in 1969.

#### Significant Changes

Most significant changes occurred in exports of tuna, swordfish, mackerel, saury, and squid. Frozen-tuna exports totaled 62,514 tons, about 3,000 tons (4%) below 1969; compared with 40% decline from 1968 to 1969, the decrease in 1970 was small.

Pacific mackerel exports of 11,386 tons were more than double the 1969 figure. Much was exported to overseas tuna bases for use as tuna bait.

Over half the 22,361 tons of frozen squid went to Italy. ('Suisan Tsushin', Feb. 27.)

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### FROZEN-TUNA IMPORTS ROSE SLIGHTLY IN 1970

In 1970, imports of tuna (mostly frozen) into Japan were about 35,000 metric tons, slightly above 1969 imports, according to Ministry of Finance. Compared with sharp gains in earlier years, this indicates that tuna imports are leveling off. Due to higher prices, the value of imports was up 27% from 1969. ('Suisan Tsushin', Feb. 24.)

Frozen Tuna & Billfish Imports

	Quantity Metric Ton	Value US\$	Average Price US\$/Metric Ton	Okinawa	Major Suppliers South Korea Metric Tons	Taiwan
Tuna:						
Albacore	3,232	1,863,250	577	781	316	1,760
Yellowfin	7,180	4,448,500	619	3,359	1,595	1,657
Bluefish	342	206,270	605	29	49	104
Skipjack	5,329	1,488,170	279	683	75	2
Others <sup>1/</sup>	19,110	9,484,130	496	4,951	4,730	7,309
Total 1970	35,193	17,490,320	Not available	9,803	6,765	10,832
Total 1969	34,970	13,782,050	Not available	8,803	7,773	11,898
Billfishes 1970	16,235	7,705,360	Not available	3,132	4,106	6,215

<sup>1/</sup>Mostly big-eyed tuna.

The low rate of decline in 1970 was due to sharp increase in skipjack sales. These almost tripled 1969's and made up most losses in albacore and yellowfin shipments.

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#### Saury & Pacific Mackerel

During 1970, saury catches were poor. Exports of frozen saury totaled 14,337 metric tons, down nearly 2,000 tons from 1969. However, value rose over US\$2.1 million due to higher prices. These averaged US\$667 a metric ton (US\$605 a short ton), or about US\$207 a ton higher than in 1969.

### 1971 CRAB FISHERY TO BEGIN IN BRISTOL BAY

Two Japanese crab fleets were scheduled to begin fishing in Bristol Bay in mid-March. The 'Keiko Maru' fleet (Nippon Suisan, Hokoku Suisan, and Hokuyo Suisan) consists of 14 trawlers and 2 "kawasaki" (deck-loaded, tangle-net, picking boats).

The fleet's quota is 19,200 cases (48 8-oz. cans) of king crab, and 7,460,000 tanner crabs.



## JAPAN (Contd.):

The fleet has reduced its crab canning lines to 1 (from 2 in 1970). It will operate its 3 vacuum-packing machines at full capacity to increase output of frozen crab.

## 'Koyo Maru' Fleet

The 'Koyo Maru' fleet (Taiyo, Nichiro, and Kyokuyo) has 18 trawlers (19 in 1970) and no "kawasaki" boats (in 1970 it had 3). It will test 150-200 crab pots to replace tangle nets in the future.

The fleet's canning lines will be phased out and replaced by 3 vacuum-packing machines (only 2 in 1970). Its 1971 production quota is 18,300 cases of king crab, and 7,140,000 tanner crabs.

## Tangle Nets to Pots

Although the number of Japanese crab motherships this year is the same as in the past, there is a sizable increase in trawlers, and a decrease in "kawasakis". This reveals a shift from tangle nets to pots.

Japan's crab quota for 1971 in the eastern Bering Sea is 37,500 cases of king crab (85,000 cases in 1970); tanner crab, 14.6 million (21 million in 1970). ('Suisan Keizai', Feb. 2.)

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READIES JOINT FISHING VENTURE  
IN NEW ZEALAND

Hokuyo Suisan, C. Itoh, and New Zealand firm Wonder Foods will establish a joint fishing and processing venture in Nelson, South Island (New Zealand) around June 1971. The company will harvest the abundant and unutilized Spanish mackerel (*Scomeromorus pineusis*). It will process the catch into "surimi" (minced fish meat) at a shore plant with a daily processing capacity of 3-4 tons.

Authorized capital is US\$100,000: the Japanese and New Zealanders 50-50. ('Suisan Tsushin', March 3.)

NMFS Comment: The Japanese established another joint venture in New Zealand: Taimoana Fisheries Ltd., in Nov. 1967. Taiyo Fisheries Co. joined A. G. Wicclams and 16 other New Zealand investors. Taiyo's share was US\$100,800 (36.3 million yen), 27.4% of total capital. Taimoana concentrates on trawling.

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MIDWATER TRAWLING FOR ALASKA  
POLLOCK IN BERING SEA CONSIDERED

Until 1969, Japanese "independent" trawlers fished Alaska pollock most of the year north of Unimak Island (Alaska). The peak season was July-mid-October. Frequent winter storms and spawning season between April and June caused low catches.

However, a comparison of 1970 catch with 1969's shows a decline: the same level for July; 30% less for August; and 50% less for Sept. 1970.

## What's Needed To Break Even

Large trawlers cannot break even unless 23-25 metric tons of surimi (minced meat) is produced each day. To achieve this, at least 100-110 tons must be caught.

Since Sept. 1, 1970, the catch has declined from 70-80 tons/day per trawler to 30-50. On Sept. 13, 1970, only about a month before season's end, the independents moved to northwest of Pribilof Islands. The catch again increased to 100 tons per day/trawler.

## Rocky Grounds

Rocky grounds pose new problems: Trawls are frequently damaged northwest of Pribilof Islands by rocky bottom (unknown on Unimak grounds), yet larger catch makes it profitable to fish there.

Alaska pollock is distributed along Aleutians and in the Gulf of Alaska, but daily catch is only 30-40 tons per trawler. Both independent trawlers and trawl fleets fish only during day. To make pollock fishing more efficient, it will be necessary to learn how to fish at night with midwater trawls. ('Minato Shimbu'))

NMFS Comment: Although 1970 Alaska pollock catch in Unimak area reportedly declined from 1969, total Japanese Bering Sea pollock catch increased from 678,000 metric tons in 1969 to 1,031,000 metric tons in 1970.

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## JAPAN (Contd.):

## EXPORT PRICE OF BALEEN WHALE OIL TO INCREASE 30% IN DEC. '71

The Japan Whale Oil Joint Sales Co. has informed European merchants that export price of baleen whale oil produced during 25th Antarctic whaling season (beginning Dec. 12, 1971) will be increased 30% over 24th-season prices. It will be US\$275 (99,000 yen) per metric ton--highest in 10 years.

The Sales Co. was established by 6 companies including Taiyo Gyogyo, Nippon Suisan, and Kyokuyo Hoge.

## World Prices Increasing

The international price of baleen whale oil has been increasing because of worldwide shortage of edible oil. Another increase will strengthen Japanese whaling industry which, the Japanese say, has been stifled by international restrictions.

## Baleen Whale Oil

Baleen whale oil is processed from Antarctic fin and sei whales. It differs from sperm whale oil. About 70% of Japan's baleen whale oil is exported to Europe as raw material for oils and fats, including margarine for human consumption.

## Rising Prices Encourage Industry

After a 3-year interruption, the whaling companies will resume commercial production of sperm-whale oil during 25th Antarctic season. This oil is used for lubrication oils and detergents. Demand for it also has increased. Its export price is expected to exceed present \$262/metric ton for North Pacific sperm-whale oil and exceed \$300. ('Nihon Keizai Shimbun')

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## EELS SPAWN ARTIFICIALLY

The Nawan Fisheries Experimental Station has successfully induced the artificial spawning of eels (*Anguilla japonica*) after other research groups had failed.

## About 5,000,000 Eggs

Five 7-, or 8-year-old females, 75-85 cm. long, and weighing 1,000-1,200 grams were used in the experiment. Since Sept. 25, 1970, they had been injected with three hormones and the pituitary extract of one rainbow trout. Three eels died one month after the injec-

tions began; of the remaining two females, one spawned about five million eggs, the other was about to spawn in Jan. 1971. ('Minato Shimbun', Jan. 10.)

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## SHRIMP FARMING VENTURE

The MBC Development Co., a subsidiary of Minami Nippon Broadcasting Co., is starting to farm shrimp. It has constructed two large tanks holding 2,000 metric tons of water and six 100-ton tanks close to northern edge of Kagoshima Bay.

The small tanks will be used to hatch eggs and grow young shrimp. After one month, the young shrimp will be transferred to the large tanks, each having capacity of 120,000-130,000 shrimp. Each large tank is expected to yield about 80,000 shrimp every 6 months.

## The Plan

The shrimp will be fed proteins made from petrochemicals, fortified with vitamins, and impregnated with a special odor. When harvested, each shrimp is expected to be 15 centimeters (almost 6 inches) long and weigh about 20 grams (0.7 ounce). To stimulate growth, sea water pumped from the bay will be heated. If feasible, heat from hot springs will be used. Otherwise, oil may be used to raise temperature of sea water.

## First Harvest Nov. 1971

MBC does not expect to know until Nov. 1971 whether the venture will succeed. The first harvest is scheduled then to be marketed at average price of 4,000 yen per kilogram (US\$5.05 per lb.). Production cost per kilogram is estimated to range between 2,300 and 2,500 yen (US\$2.90/lb.-\$3.15/lb.).

At present, control over shrimp egg-laying activity has not been perfected. Initially, at least, egg-laden shrimp will have to be obtained. For the future, the firm plans to have the shrimp lay eggs twice a year, in April and in August.

A student of Dr. Motosakii Fujinaga, a shrimp-culture expert, is technical adviser. Also assisting is the Fishery Experimental Station of Kagoshima Prefecture. (U.S. Consulate, Tukuoka, Feb. 23.)

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## JAPAN (Contd.):

## JAPAN'S PACIFIC SALMON CATCHES EXCEED QUOTAS, SOVIET LAGS

In 1970, in waters off Soviet Far East Coast, Japan caught 90,854 metric tons of Pacific salmon; the Soviet Union caught only 39,053 tons in her Far East rivers. This was reported by Japanese Fisheries Agency.

Japan's catch exceeded the 90,000-ton quota agreed on during Japan-Soviet Fisheries Commission negotiations in April 1970; the USSR catch fell below 40,000-ton quota. ('Yomiuri', Mar. 5, 1971.)

NMFS Comment: Table (below) shows that, except in 1968, Japanese Pacific salmon catches exceeded the quotas set at the yearly Fisheries Commission meetings. However, USSR Pacific catches fell substantially below quotas. At the 15th Annual Japan-USSR Fisheries Commission meetings in Tokyo, which began in early March 1971, the problem of the declining Pacific salmon resource was a subject of major discussion. The Soviets stressed conservation of the resource; the Japanese wanted a higher quota in 1971.

Salmon Catch in Area Regulated by Japanese-Soviet Fisheries Commission, 1966-70				
	Japan		USSR	
	Catch	Quota	Catch	Quota
	Metric Tons			
1966 <sup>1/</sup>	100,782	96,000	56,223	65,000
1967 <sup>1/</sup>	144,873	108,000	78,000	83,000
1968 <sup>2/</sup>	92,012	93,000	36,191 <sup>4/</sup>	60,000
1969 <sup>1/</sup>	109,757	105,000	75,469	80,000
1970 <sup>3/</sup>	90,854	90,000	39,053	40,000

<sup>1/</sup>'Suisan Tsushin', Apr. 2, 1969.  
<sup>2/</sup> Japanese press.  
<sup>3/</sup>'Yomiuri', Mar. 5, 1971.  
<sup>4/</sup>40,177 ('Suisan Tsushin')

日本

## SOUTH KOREA

## S. KOREANS INTERESTED IN N. PACIFIC ALASKA POLLOCK

South Korean fishermen have concentrated on high-seas tuna fishery in line with government's policy to increase earnings of foreign currencies. Now they appear to be focusing on trawl fishery in "northern waters" (Okhotsk Sea, Bering Sea, and North Pacific Ocean). They are especially interested in Alaska pollock, now in greater demand on market than salmon.

## Less Money In Tuna

The reason is that Koreans, like Japanese, are making less money in tuna fishery because of declining resource, recruitment difficulties, and mercury-in-tuna problem.

Japanese fishermen have reported 5-6 Korean trawlers fishing for pollock north of Kuriles.

## Trawlers for Northern Waters

Also, Japanese data show that in fiscal year 1970 (ends March 1971), about 10 small, used trawlers were sold to S. Korea for use in "northern waters." The Japanese Fisheries Agency foresees a rise in these exports. Korea already has around 20 multi-purpose vessels that could be deployed in North Pacific for bottom and midwater trawling.

## Japanese Uneasy

Pollock fishing by S. Korea and Soviet fleets are causing uneasiness among Japanese fishermen. They are talking about voluntarily regulating pollock fishing during summer in view of poor condition of the resource.

The Japanese also feel that the Soviets, who claim Japanese are overfishing egg-bearing pollock, will raise subject at annual meeting of Japan-USSR Fisheries Commission. ('Suisan Keizai Shimbun', Mar. 5.)





# TAIWAN'S TUNA FISHERY

Taiwanese fishing firms have been hurt by declining tuna catches in the Indian and Atlantic oceans. This was reported by Yang Yung-sung, Taiwan Ocean Research Laboratory, to annual tuna conference in Shimizu, Japan, Feb. 3-5, 1971. The conference was sponsored by the Far Seas Fisheries Research Laboratory.

Yang disclosed:

The range of Taiwanese tuna fishing expanded after World War II when larger vessels were added. In 1954, the Taiwanese fished as far as Banda Sea off Indonesia; in 1956, they sailed for Indian Ocean; in 1960, for Atlantic.

## The Fleet

In 1969, the tuna fleet totaled 1,039 vessels, including 396 distant-water vessels over 50 gross tons. In Taiwan, vessels under 50 tons are "inshore vessels". In 1969, 166 vessels fished in Indian Ocean, 128 in Atlantic, and 102 in Pacific. In 1970, additional vessels increased distant-water fleet to 420.

The inshore vessels, based mostly in Kaohsiung, fish primarily for yellowfin off Taiwan but also in Celebes and Banda Seas. In the latter they compete with Japanese longliners, which average  $1\frac{1}{2}$  times more catch.

## Peaked In 1969

Taiwan's high-seas tuna fishery peaked in 1969, then began to level off. Vessel owners are troubled by a sharp decline in Indian and Atlantic catches. They are considering switching to Pacific grounds closer to Taiwanese ports. The government reportedly agrees. The Taiwanese tuna fishery is said to be approaching its growth limits.

An economic reassessment is being made. The owners are considering cutting labor costs and installing refrigeration to improve management and reduce vessel-operating expenses.

## Tuna Exporters Association

In 1970, a Tuna Exporters Association was organized. It has over half the 230 vessel owners. It is similar to National Federation of Japan Tuna Fisheries Cooperative Associations (NIKKATSUREN).

The association's functions include: (1) study of tuna industry; (2) research on marketing and overseas fishing bases, including processing of documents for crewmen going ashore; (3) training; and (4) promoting exports.

## World Bank Loans

In 1963, three 1,000-ton and thirteen 300-ton vessels were built with a World Bank loan of US\$7.8 million. In 1968, a second loan of \$7 million was obtained to build twenty 250-ton vessels in South Korea. In 1970, a \$10-million loan was arranged with Asia Development Bank to build 40 vessels, but only 36 firms applied for loans. Over half the applications were approved. This indicates that many vessel owners, faced with management difficulties, are not building more vessels.

## Industry Enthusiasm Lacking

Eighteen 160-ton tuna vessels were built in 1967, and 18 in 1968, with loans from Central American Fund (CAF). In 1969, sixteen similar-sized vessels were scheduled for construction with CAF loans but, so far, only one has been built. The government plans to continue build-up program. But lack of industry enthusiasm makes it unlikely at this time.

