INTERNATIONAL

SOVIET WHALERS SAIL BEFORE OBSERVER PLAN IS READY

Three Soviet whaling fleets sailed from Vladivostok for the Antarctic in the first week of October. Their departure frustrated for yet another season the efforts by conservationists over two decades to protect threatened whale species by putting international observers aboard whalers. This was reported by James P. Sterba from Tokyo to The New York Times on Oct. 7.

In September, Soviet, Japanese, and Norwegian negotiators initialed an agreement to permit international observers to check this season's kill. However, a Japanese Foreign Ministry official said, the Soviet fleets departed before the agreement was ratified and the observers could board them.

The agreement was valid for only a year, so it will have to be renegotiated.

North Pacific Whaling

The Soviet and Japanese negotiators had agreed also to exchange observers for whaling operations in the North Pacific beginning in spring 1972.

Assuming the agreement is ratified by the USSR and Japan, the Foreign Ministry official noted, "the North Pacific will have to be the first test case."

The Antarctic Agreement

The Antarctic agreement would have permitted one observer aboard each of the 6 factory ships--3 Soviet, 3 Japanese. These ships are accompanied by killer boats, refrigerator ships, and tankers.

Most of today's whaling is in the Antarctic. It is done by the USSR and Japan.

Observers' Role

The observers would have made sure that the whalers respected the quotas set by the International Whaling Commission--and that protected whales, mothers with babies and undersized whales, were not killed. The major whaling nations resisted the international observer plan.

As the herds have decreased the international commission lowered quotas. But conservationists state that quotas are too high and, even so, some whalers ignore them.

U.S. AND POLAND EXTEND FISHERY AGREEMENT

The United States and Poland agreed on Oct. 1 to extend their agreement on fisheries off the U.S. middle Atlantic coast, the U.S. State Dept. reported on that date. The agreement was first concluded in June 1969, modified and extended in June 1970, then extended through June 30, 1972.

It protects species of direct concern to U.S. sport and commercial fishermen from North Carolina to New England.

What Agreement Covers

The species covered by the agreement are scup, flounder, hake, black sea bass, menhaden, river herring, and yellowtail flounder. Polish fishermen will not fish these species. They will take special precautions to avoid depleting resources throughout the year. Also, they will continue to refrain from fishing during $3\frac{1}{2}$ winter months in a large offshore area where bottom species concentrate early in the year.

U.S. Concessions

In return, the U.S. will continue to permit Polish fishermen to transfer their fish catch and supplies between vessels within three areas inside the U.S. contiguous fishery zone. Also, the U.S. will continue to facilitate calls of Polish fishing vessels to certain U.S. ports to obtain supplies.

Voluntary Enforcement

The U.S. and Poland also agreed to implement a voluntary enforcement scheme for the Agreement. Their inspectors will be able to board fishing vessels in the mid-Atlantic to check compliance with the agreement.

JAPAN EVALUATES EFFECTS OF U.S. 10% SURCHARGE

The U.S. is Japan's best market for fishery products. In 1970, the U.S. took roughly 30%, a record, of Japan's fishery exports worth US$128 million. The announcement of President Nixon's 10% import surcharge on August 15 and the following revaluation of the yen on August 28 shocked and confused the fishing industry.

The industry has had time to evaluate the effects on its markets. With the exception of canned tuna, it appears that the industry, although it will have some problems, will not be affected seriously.

Canned Tuna

This will not be a good year for firms dependent on exports of canned tuna-in-brine to the U.S. The discovery of excess mercury in tuna (over 0.5 part per million) in late 1970 hurt exports. Between January and July 1971, the U.S. Food and Drug Administration (FDA) seized about 35,000 cases of canned tuna-in-brine because of excess mercury.

The Japanese were able to offset this partially by switching to the packing of smaller-sized tuna considered less likely to contain excess mercury. However, while testing for mercury contamination, the FDA uncovered samples of "decomposed" canned tuna, and seized 92,231 cases, as of August 12.

The FDA testing procedures are based on the smell of "off odors". It has not been able to pinpoint the origin of the decomposition. So the Japanese are unable to correct this problem. It has caused much uncertainty and been extremely costly. Japanese traders not only lose a market, but they must also pay shipping costs of products recalled from the U.S. And then they must sell their products in an already-glutted domestic market.

10% Surcharge & Yen Revaluation

These problems were compounded by the U.S. 10% surcharge. This raised the duty on canned tuna-in-brine from 7% to 17%. Then, the yen revaluation1/ increased the cost of exporting canned tuna to the U.S. by another 6%. The results have been growing stockpiles of unsold tuna, uncertainty about market demand and production goals, and shutdowns and/or slowdowns by major canning firms. Smaller canners are said to be facing serious economic problem; some bankruptcies have been reported.

Frozen Tuna

The frozen-tuna export industry may benefit from the 10% surcharge. Unlike canned tuna, its exports to the U.S. ($42 million in 1970) are exempted from the U.S. surcharge.

In the past, this industry faced stiff competition from canners for tuna supplies. Now, because of 10% surcharge, the canning industry cannot pay as much as before, so the frozen tuna industry can buy frozen tuna at lower prices. As a result, the latter may be able to increase sales to the U.S., although it too will be affected by the yen revaluation and other problems facing tuna fishermen.

Canned Crab & Pink Salmon

Some sales of canned crab and pink salmon to the U.S. have been made since August 15. These industries generally are confident that they can continue to export to the U.S., or to find new markets in Europe, Australia, and elsewhere, with little, if any, loss.

Nevertheless, 650,000 cases of canned salmon and crab, worth $10 million, were stockpiled in Japan in early October. The Japan Central Cooperative Bank has made an emergency loan of $17 million to help processors with stockpiles of canned tuna, salmon, and crab to meet expenses. This suggests that this segment of industry also has problems.

Traders' Strategy

The Japanese traders' strategy appeared twofold: (1) wait for U.S. stockpiles of canned salmon and crab to decrease to point where price and demand for Japanese products will increase, or (2) wait until they know what value the yen will finally reach and how long surcharge will remain in effect before negotiating new sales contracts. If they can afford to maintain their stockpiles, then it is possible they will be able to reenter the U.S. market profitably. (U.S. Embassy Report, Tokyo, Oct. 8, 1971, and other sources.)

1/Prior to Aug. 28, 1971, the yen was valued at 360 to the dollar. On Oct. 8, it was trading at 339 to the dollar, or about 6% higher. Combined with 10% surcharge, the net effect is a 16% upward valuation on all Japanese exports of canned fishery products to the U.S.

JAPAN

FISHERY EXPORTS ARE AT VIRTUAL STANDSTILL

Japanese fishery exports, which fell abruptly after implementation of the new U.S. economic plan on Aug. 15, 1971, continue sluggish. Except for frozen tuna and canned mackerel, such exports as canned tuna, crab, and salmon have nearly stopped. There is no indication that sales will resume soon.

The prices of frozen-tuna exports to the United States are reported up 7-8% from earlier levels. In most cases, this has made up for price differences resulting from "devaluation" of the US dollar.

In mid-October 1971, price quotations for Atlantic-caught, frozen, round albacore exports to the U.S. were US$685-690 a short ton, f.o.b. Las Palmas. This is about $40-50 a ton above early-August prices. The Atlantic-caught, gilled-and-gutted yellowfin were being sold to Puerto Rican packers at about $630 a short ton, f.o.b. Las Palmas, up about $50, and nearly the same as yellowfin exports to Italy (around c.i.f. $790 a metric ton, including 3% broker commission).

U.S. Packers' Role

The rise in export prices was attributed primarily to active buying by U.S. packers with ties to major Japanese trading firms. The latter have witnessed sharp drops in canned-tuna supply for sales to the U.S. because shipments of decomposed tuna were detained. These firms are turning more and more to U.S. packers for the supply; at the same time, they are actively offering to sell tuna to those packers.

Canned-tuna-in-brine exports to the U.S. have been at a standstill since the Tokyo Canned Tuna Sales Co. suspended sales to trading firms following imposition of the U.S. surcharge. Canned-tuna-in-oil exports to Europe also are sluggish, but new sales of "dressing" canned tuna have been contracted with several European countries. ('Suisan Tsushin', Oct. 14.)

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JAPAN SKIPJACK FISHERY IS GAINING INTEREST

The fishing industry is showing more interest in the pole-and-line skipjack fishery. Skipjack-fishery operators in northeastern Honshu are building new vessels; longliner owners are considering switching to pole fishing for skipjack. Major firms also are entering the overseas skipjack fishery. Recent surveys and fishing-ground development cruises indicate that skipjack is very promising, particularly when competing tuna species are declining. Adding to fishery's attractiveness are the development of mechanical poling devices to reduce manpower aboard vessels and sharply rising prices.

Year-Round Fishing Vessels

New skipjack vessels and those being built in northern fishing ports are larger--ranging from 192 to 284 gross tons. They are intended for trips of around 30 days, but no longer than 40, because of fuel and bait considerations. They will be used for year-round fishing off northeastern Japan and in the southern areas extending to the Territory of the Pacific Islands. ('Suisan Keizai Shimbun', Sept. 22.)

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NO MERCURY-PRODUCED NERVOUS DISORDERS FOUND IN FISHERMEN

In early July 1971, newspapers reported that scientists had discovered an average of 20 parts per million (ppm) of mercury in a group of 99 fishermen. Old fishermen had the highest level: their hair contained 67 ppm of mercury, and 67 of methyl mercury.

Health Ministry Checks Fishermen

The Japanese Ministry of Health and Welfare intensively checked the health of fishermen who had eaten tuna daily aboard vessels, and whose hair showed a level of over 60 ppm of mercury. The Ministry found no symptoms of nervous disorders associated with mercury poisoning. ('Suisan Tsushin', Sept. 8.)

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JAPAN (Contd.):

VOLUNTARY REGULATIONS FOR SOUTHERN BLUEFIN TUNA IN EFFECT

On Sept. 30, 1971, the Federation of Japan Tuna Fisheries Cooperative Associations (NIKKATSUREN) announced that its voluntary regulatory measures to protect the southern bluefin tuna resource would be implemented from Oct. 1, 1971.

The measures provide for closure of the fishery to longline and handline fishing among member vessels in the area of the Great Australian Bight from Oct. 1 to March 31; in the Indian Ocean west of Australia from Dec. 1 to March 31; in Tasman Sea south of Sydney from May 1 to July 31; and off South Africa from Oct. 1 to Jan. 31.

Voluntary Cooperative Venture

Compliance with the regulatory measures will be based on mutual trust and exchange of communication among fishermen. When necessary, the assistance and cooperation of organizations will be solicited. (From W. L. Klawe, Inter-American Tropical Tuna Commission. Also, article in 'Foreign Fishery Information Release', No. 71-14, May 21, 1971.)

* * *

TRAWLERS FISH HERRING OFF U.S. EAST COAST

Six 2,500-gross-ton Nihon Suisan stern trawlers are fishing for herring in the western Atlantic off New York. In mid-September, they were landing 40 tons per day per vessel. The catches were around 80% spawn-bearing herring, of which about 70% were in ripe condition. The herring off the U.S. East Coast is drawing Japanese attention. In Japan, the fish is in short supply because of poor 1971 fishing in the North Pacific, and the ban imposed on egg-bearing herring in the Okhotsk Sea at this year's annual meeting of the Japan-USSR Fisheries Commission.

Help From W. Germany

To master technique of midwater trawling for herring and other species in the North Pacific, where Japanese have not been very successful, Nihon Suisan sent a trawl-gear specialist to West Germany. He is observing trawl operations aboard a large German stern trawler. ('Minato Shimbun', Sept. 12 & 21.)

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SAURY FISHING IS POOR IN NORTHEASTERN PACIFIC

Japanese saury vessels fishing off the U.S. West Coast and off Vancouver, Canada, began increasing this summer. In early September, about 10 vessels were operating there. The majority were fishing east of 125° W. longitude, between 37° N. and 47° N. latitudes. Because of rough weather and high sea-water temperatures of 17°-18°C., saury concentrations were difficult to locate. No vessels had made a good catch. The fish were small: 22-23 cm (8.7-9 inches), which have very little market value.

Hope for Improvement

The outlook was uncertain. But the owners were hoping for an improvement from late September until November, when the season peaks. In late August 1970, 15 saury vessels were fishing off U.S. West Coast. For about a week, they had good fishing, averaging around 5 tons per vessel per day. ('Suisancho Nippo', Sept. 20; 'Suisan Tsushin', Sept. 9.)

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SQUID FISHING OFF CALIFORNIA IS DISAPPOINTING

The 'Ryoun Maru' (300 gross tons), which departed Japan August 11 on a squid exploratory cruise to the eastern Pacific off California, experienced poor fishing. In early September, the vessel caught only 180 kilograms (396 pounds) of squid in one night's fishing. That was her only squid catch. ('Shin Suisan Shimbun Sokuho', Sept. 11.)

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STUDY WAYS TO GET BAITFISH FOR SKIPJACK FISHERY

In late August, NIKKATSUREN investigated the availability of S. Korean baitfish for the Japanese skipjack fishery. NIKKATSUREN is the Federation of Japan Tuna Fisheries Cooperatives Associations. The study revealed that anchovy--mainstay of the fishery in Chinhai Bay, south of Pusan--could be used as bait fish. The problem is how to

JAPAN (Contd.):

transport the live fish to Japan, and then to the southern fishing grounds. Because of the long distance and the sudden warming of tropical water, heavy die-off occurs. Sometimes, all of the live bait is lost.

In mid-September, NIKKATSUREN scheduled sending a baitfish survey team to Taiwan. Unlike S. Korea, Taiwan has dealers specializing in baitfish supply. ('Suisan Tsushin', Sept. 9 & 11.)

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PURSE SEINER REPORTS GOOD FISHING OFF WEST AFRICA

The 999-gross-ton purse seiner 'Nippon Maru' (Overseas Purse Seine Fishing Co.), which began fishing off west Africa in early August, is having more luck. On Sept. 17, the vessel caught 50 tons of yellowfin near 10° S. latitude and 12° W. longitude (off Luanda, Angola).

The vessel is scheduled to operate in that region until the end of November. Then it will undergo servicing before entry into the eastern Pacific yellowfin fishery on Jan. 1, 1972. ('Katsuo-maguro Tsushin', Sept. 22; 'Suisancho Nippo', Sept. 13.)

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RESEARCH VESSEL LEAVES FOR EASTERN ATLANTIC SURVEY

The Fisheries Agency's 'Kaiyo Maru' (2,539 gross tons) departed Japan Oct. 12, 1971, on a 5-month resource-survey cruise to the eastern Atlantic. She will trawl off west Africa and conduct mesh-size-selection study on bottomfish resources such as sea bream, cuttlefish, squid, and octopus.

The codends will have mesh sizes of 50, 70, 90, and 110 millimeters. The trawl-caught fish will be tagged and released to study their distribution and migration.

Two Women Aboard

Two female kitchen workers are aboard. This is the first time women have been employed aboard a government vessel. It is attracting attention because it may suggest a way to relieve the shortage of male workers for sea duty and to "create harmony within the vessel."

Port Calls

The 'Kaiyo Maru' is scheduled to call at Singapore, Durban (South Africa), Dakar (Senegal), Nouadhibou (Mauritania), Las Palmas (Canary Island), Balboa (Panama), and Honolulu. Return to Tokyo is scheduled for Feb. 22, 1972. ('Nihon Suisan Shimbun', Oct. 8; 'Suisancho Nippo', Oct. 13.)

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JAPANESE AND NEW ZEALAND FIRMS SHARE SURIMI VENTURE

Wonder Foods of New Zealand and two Japanese firms (Hokuyo Suisan and C. Itoh) have established a joint surimi (minced fish meat) venture in Nelson, New Zealand. The plant is using imported Japanese machinery. It is expected to process 400 metric tons of surimi during the first year, mostly for export to Japan.

Wonder Foods' fleet will catch the fish; 2 Japanese technicians, based in Nelson, will assist in processing it. Wonder Foods put up 50% of NZ$100,000 investment. (NZ$1.00 equals US$0.85.) Hokuyo Suisan contributed 35%; C. Itoh the remainder.

The firm hopes to try squid fishing later. ('Commercial Fishing', New Zealand.)

NORWAY's FISHING INDUSTRY

A new publication of the Royal Ministry of Foreign Affairs--"The Fishing Industry in Norway," by Håvard Angerman--provides a sharp picture of the world's sixth largest fishing nation.

The fisheries employ directly about 4% of the total work force. This percentage is considerably higher in the coastal districts and especially in the northernmost counties. There, and in Trondelag and West Norway, fishing is "the only economic basis for the maintenance of the population."

Norway is self-sufficient in fish. However, she does import modest amounts of raw materials for processing and reexport.

Norway has 2,175 miles of coastline. If fjords and other inlets are added, the figure becomes 12,420 miles. There are many deep fjords and 50,000 islands and skerries (rocky isles, reefs). A continuous belt of banks borders the entire coast.

Fish are abundant off Norway because the Gulf Stream's warm waters create favorable spawning and growth conditions. Although seasonal fisheries are predominant, much fishing also is done in more distant waters.

Annual catches of 2.6 to 3 million tons landed fish have been made in recent years. The main species are herring, mackerel, capelin, and cod. Coastal fisheries accounted for 57% of total catch in 1969; deep-sea fishing for 43%. The main catch off South Norway is herring and mackerel; off North Norway, the bulk is the cod family (cod, haddock, saithe), capelin, and herring.

Overfishing is endangering fish stocks, especially cod, haddock, herring, and mackerel. Norway imposes strict limits on the amounts of fish her own fishermen can catch.

Small Fishing Boats

The fishing fleet traditionally has been made up mostly of small boats. After 1945, however, the number of larger vessels has increased considerably. Concurrently, the number of fishermen has dropped.

For Fish Meal & Oil

Most fish is used to produce fish meal and fish oil. In 1969, 72% of the total catch went to meal and oil plants. The plants of the freezing industry are strung along Norway's entire coast. The industry and the plants' productive capacity have increased appreciably in recent years. The canning industry has been modernized.

Fishery Product Exports

Norway's main fishery export items are frozen fish, fish meal, klipfish, stockfish, and canned products. The value of frozen-fish-fillet exports soared from N. Kr. 71 million in 1960 to N. Kr. 392 million in 1969 (7.14 kroner to US$).

Exports of fishery products are 15% of Norway's total exports, a major factor in the economy. The economic and social importance of fish has inspired the development of efficient administration in the fisheries. Research wins increasing attention.

Cooperatives

Fishermen's cooperatives are an important part of the industry. The law specifies that all first-hand sales of fish must be handled by cooperative sales groups. Also well organized are marketing and distribution channels.

There have been considerable ups and downs in the amounts of different fish landed in recent years. The main fluctuations have been in catches of herring, capelin, and mackerel. In 1968, these 3 totaled 2 million tons, 77% of all saltwater fish.

THE SEASONAL FISHERIES

The large and diverse seasonal fishing in coastal waters is the most characteristic feature of Norway's fisheries. These fisheries are created by the drift of fish species to inshore waters looking for food or spawning grounds. Some of the main seasonal fisheries are:

Spawning Cod

As each year begins, the Arctic cod migrates to waters off Norway to spawn. From January to April, these spawning grounds off Northern Norway, and as far south as Möre county, witness frenzied fishing. The spawning cod favors shoals in certain areas; one of the best known is Lofoten in North Norway.

The catches vary greatly and have been declining since 1945. The high mark since World War II was 1947: 206,000 tons of spawning cod were landed; the worst year was 1965: about 45,000 tons. In 1969, the catch was 91,000 tons; in 1970, 101,000 tons.

Finnmark Young Cod

Each year, the younger Arctic cod migrate from the Arctic Ocean in spring to the inshore waters off Finnmark, the northernmost county. They have not attained spawning age. They migrate for food. The fishing season starts in March-April, about the time fishing for spawning cod further south is ending.

Catches of spring cod are much lower than those of spawning cod, still this cod is a major seasonal fishery. It is very important economically to Finnmark. After 1945, it peaked in 1958 at 69,000 tons. After that, it was about 40,000 tons a year; in 1970, 49,000 tons.

Capelin

In spring too, and in the same waters as spring cod fisheries, a third fishery starts--for capelin. This is a small fish sought by the spring cod in its food migration.

Capelin produces fish oil and meal. Very large amounts can be caught. In 1970, capelin was the largest fishery. Catches vary sharply: in 1962, 363 tons; in 1964, 19,626; in 1965, 217,000 tons; in 1969, 679,000 tons; in 1970, a new peak of about 1.3 million tons.

Winter Herring

As spawning cod season begins in North Norway, the herring fisheries begin in more southerly coastal waters. In February-March, the mature group of Atlanto-Scandian herring stock migrates to Norwegian coastal waters to spawn. Catches fluctuate widely: 1956 set a record of 1,146,000 tons; 1963, 62,000 tons; 1966, 461,000 tons. In 1969, it dropped disastrously to 15,000 tons--poorest in about 90 years.

Mackerel

From April-May to autumn, mackerel is fished off Norwegian part of Skagerack coast and western shores of South Norway. Years ago, all mackerel was human food, 15-20,000 tons a year. In mid-1960s, ring net and power block were introduced. Catches increased substantially. In 1967, a peak of 868,000 tons landed was reached; in 1969, 683,000 tons. Only a small part of these larger catches has gone for more food for people. The great bulk is raw material for oil and meal factories.

Coastal & Deep-Sea Fisheries

During the 1960s, there was a trend toward equality in the relative importance of coastal and deep-sea fisheries. In 1962, coastal and inshore banks provided 74% of the total catch; distant or deep sea, 26%. In 1969, the former was 57%, the latter 43%.

Starting in 1965, with the greater use of purse-seines with power blocks, distant-water catches increased sharply--mainly from North Sea's herring and mackerel fisheries.

"Due to overfishing and depletion of stocks, however, catches in the North Sea would seem likely to decline, in which case the coastal fisheries will regain their dominant position."

Regional Distribution of Landings

South Norway traditionally has yielded more fish than North Norway. It was due to the rich herring fisheries off South and West Norway. Later, it was logical to land in South Norway the North Sea herring and mackerel catches. Beginning in 1968, however, these catches declined, while capelin developed into No. 1 raw material for herring oil and herring meal production.

Winter and summer fishing for capelin is mainly off Finnmark, so supply to herring meal and oil plants in North Norway has improved appreciably. This has contributed to balancing the distribution of landings. In 1968, 1.6 millions tons of fish were landed in South Norway; in North, 1 million.

Stocks of Fish

There are very sharp short- and long-term changes in the rich seasonal fisheries in coastal waters. So catches fluctuate greatly. The heavy exploitation of fish stocks has had a major effect on the amount of catches in recent years. The yields give "disturbing evidence" that several species are "in danger of being overexploited." Herring and mackerel are two. And there is overfishing of cod and haddock, international investigations show.

There is a growing desire for international protection of the fish stocks of the northern Atlantic. The International Commission for the Northwest Atlantic Fisheries (ICNAF) and the Northeast Atlantic Fisheries Commission (NEAFC) have agreed on minimum measurements for the mesh of trawling nets and minimum fish sizes. In NEAFC area, international inspection began Jan. 1, 1970, to check these regulations.

Anticipating international regulations to further control intensive fishing, Norway introduced catch restrictions in 1970. These apply to her fishermen in small-herring and mackerel fisheries and, partly, to capelin.

The Fishing Fleet

The extensive fishing off Norway has influenced greatly the kind of fleet Norway has--many registered small vessels. In 1969, 36,402 vessels (383,559 gross tons) were registered for commercial fishing. Of these, 32,775 were under 40 feet; 27,521 were open boats.

Since 1945, there has been a sharp relative increase in larger vessels. Norway now has a sizable up-to-date fleet of them. This resulted from the expansion of seine-pursers and trawler fleets. Many deep-sea longliners were built.

The Fishermen

Norwegian fishermen have combined fishing with other work, especially farming. Since 1945, the number of commercial fishermen has declined steadily, but the rate has slowed somewhat in recent years. The number that are fishermen-only has remained stable; those for whom it is primary job have declined sharply.

In 1969, Norway had 47,779 commercial fishermen: the only occupation of 48% (22,912) was fishing; 52% (24,867) were about evenly divided between those listing fishing as main or secondary occupation.

Following 1945, there was a "disturbing development in the age composition of Norwegian fishermen." Ever-fewer youths chose to be fishermen. There are some recent signs of a better balance in recruitment to the industry, though the number of older fishermen still seems to be increasing. The improvement resulted mainly from the introduction of large modern vessels and the chances of earning more money.

In 1966, 41% of the fishermen were 50 or over; 31% of all fishermen-only were over 50; in fishing as primary occupation, 45% were over 50; in group fishing as a secondary job, those over 50 were 53%.

How Catch Utilized

In 1969, 73% of all fish landed was used as raw material for meal and oil; the remaining 27% went for human consumption. The figures, however, obscure wide differences in the use made of various species.

Salting and drying are most frequently used to preserve fish. These processing forms are vital to Norway's fisheries, especially to areas where much cod and cod species are landed--North Norway and Sunmore county.

In 1969, 208,000 tons of cod were landed: 48% was salted or dried (stockfish), 44% frozen. Only 6-7% was sold fresh.

About 25% of that part of the herring catch consumed as food was salted (as was cod). However, much larger amounts of herring than cod are eaten fresh, frozen, or canned. In 1969, catches of herring and brisling (sprat) were 204,630 tons; 24.2% consumed fresh; 11.6% converted into frozen products; 24.3% salted; and 39.9% went to canning factories.

Fish Products Industry

The great variety of fish off long coast explain the existence of many processing plants. Salting, drying, and freezing plants are mainly in the north, from Möre county northward. Canning, fishmeal plants, and oil plants are mostly south of Möre.

Since 1945, the composition of fish-processing plants has changed greatly. The major development has been expansion of the freezing industry along the entire coast. Plants for conventional drying and salting of fish have declined.

Since 1960, the number of meal and oil plants has remained constant. Although new plants were built, older units dropped out. Productive capacity has increased. The development of year-round fishing for herring, mackerel, capelin, and other species has led to continuous operation of the fish-processing plants.

Herring processing has been concentrated into fewer plants. New methods have been introduced into freezing of herring.

In recent years, the number of canning factories has fallen. Canning is being concentrated in selected central locations. This development, plus quick-freezing of fish for later processing, has enabled plants to move toward continuous operation. New and larger plants use up-to-date equipment.

EXPORTS

About 15% of the value of all exports is fish and fish products:

Norwegian Exports, Mill. N.Kr. (7.14 Kr. to US$)

	1965	1966	1967	1968	1969
Total Value All Exports	9,403	10,321	10,889	11,876	13,422
Value of Fish & Fish-Product Exports	1,434	1,544	1,727	1,533	1,786
Percent	14.2	15.0	15.9	12.9	13.3

In 1967, exports of meal and oil products were 42% of value of exported fish products. Klipfish and dried fish hold predominant positions.

Exports of frozen fillets have developed rapidly in volume and importance. In 1960, these totaled 26,110 tons, f.o.b. value of N. Kr. 71 million; by 1970, 125,000 tons with export value of N. Kr. 459 million.

The U. S. is an important buyer of canned products and frozen fillets. The United Kingdom takes mainly frozen fillets and fish meal. Sweden is an important customer. Other countries import mainly frozen products, dried fish, klipfish, and meal.

IMPORTS

Norway is "essentially self-sufficient" in fish and fish products. Imports are not restricted. So there always will be some raw materials imported for the fish-processing industry, especially klipfish and canning industry, and fish for direct human consumption. Most food-fish imports go to southeastern Norway, especially Oslo area.

Foreign fishing vessels cannot land fish without a special permit from Ministry of Fisheries.

In 1969, Norway imported fish and fish products worth N. Kr. 46 million; one third were raw materials to be processed for reexport. Imported fish for humans was only $1\frac{1}{2}$-2% of exports of fish and fish products.

Quality Control

Norway has long maintained high standards of quality control. These controls cover all species of fish and all products made from fish landed and processed in Norway for export or for domestic use.

Technical Training

There is a comprehensive technical training program for fishermen and fish processors. Five State-established fisheries colleges are distributed centrally. Here, men 17 to 30, with some commercial fishing experience, can receive more training. Students at these colleges have finished compulsory 9-year basic schooling. There are 3 programs: for skippers of fishing vessels, for marine engineers, and for cooks.

Also, a State school trains handlers and processors of fish; another school qualifies engineers for freezing and cooling plants; and a technical institute provides practical and theoretical training in canning fish and other food products.

Short courses concentrate on special fishery problems. In 1969, courses were begun

to qualify technicians and engineers graduated from technical colleges as specialized fisheries technicians and engineers.

Norway now is studying the value of instituting fishery education at the university level.

Marketing

All commercial sales by fishermen must be handled by legally protected sales units. This system, which began in the 1930s, is a monopoly designed to deal with firsthand sales. The cooperatives handle sales of all fish.

The prices fishermen receive are negotiated by their sales organizations, buyers' groups, fish processors, and exporters.

Exports

Exports of fish and fish products are regulated. The Ministry of Fisheries authorizes 15 special export committees to grant licenses. Each committee deals with a specific fish product. A committee includes representatives of the national exporter associations.

INDUSTRY's ECONOMIC IMPORTANCE

Per-capita consumption is estimated at about 40 kilos (90 lbs) per person per year.

In 1969, investments in fisheries totaled N. Kr. 431 million--about 1.8% of gross fixed capital in Norway that year. Domestic fishery products were worth 928 million--1.2% of gross domestic product.

Fishery employment is 4% of total employment, but the percentage is much higher in northernmost counties. In Finnmark, for example, about 24,000 people, one third the area's population, earn their living completely or partly from fisheries or related activities. They are important consumers of the area's farm produce and other goods and services. "The fisheries, directly and indirectly, provide the basis for employment and means of livelihood of more than half of the population of the county of Finnmark."

In the coastal regions, fishing is the mainstay of the population. It is often combined with other occupations, especially farming, to provide an adequate income. "There will in the foreseeable future continue to be great need of fishermen who can combine fishing with another occupation."

Income studies show that many fishermen earn less than they would in many fixed-salary jobs they could hold on land.

The report of the Royal Ministry of Foreign Affairs concludes: "These conditions along with the hard physical life which fishermen have to support, is causing a flight from the fisheries, in Norway, as in other fishing nations. The fisheries are however so important for the economy of the country that the authorities are taking action to make conditions as attractive as possible."

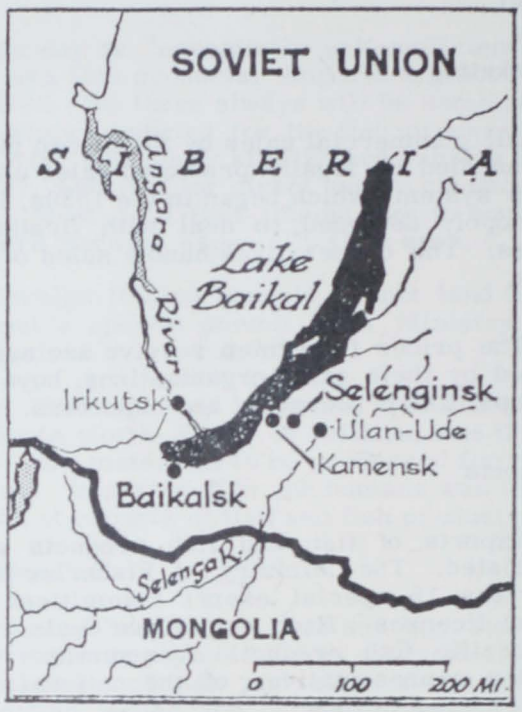
SOVIET DEMANDS EARLY HALT IN LAKE BAIKAL POLLUTION

Theodore Shabad

MOSCOW, Sept. 24--The Soviet leadership, displaying a renewed sense of urgency over the pollution issue, called today for prompt measures to protect the environment of Lake Baikal, the world's largest fresh water lake.

A decree by the Communist party's Central Committee and the Government, published in major newspapers, ordered new deadlines for the installation of improved treatment devices to purify wastes discharged by two pulp mills on the lake's picturesque shores.

The order, following up on a directive in February, 1969, appeared to reflect official interest in a renewed public discussion of environmental problems, which were muted in the controlled press for some time.



After several years of open debate, publication of articles exposing environmental pollution was apparently ordered suspended a year ago. Soviet ideologists were reported to be annoyed by the suggestion that Communist and capitalist societies faced similar environmental problems.

Judging from the renewed emphasis, the ban was apparently lifted some months ago. Now scarcely a day goes by without news articles about pollution and what is being done about it.

The tone of the decree on the Lake Baikal issue suggested some impatience over the fact that the 1969 directive had not yet been implemented. That order, issued only by the Government, declared the area a protected zone in which timber cutting and other industrial operations were to be strictly regulated.

The new order, which carried the additional weight of a party directive, called on Government agencies and the Academy of Sciences to "speed the drafting of plans for organization of the protected zone and for the rules of conservation of the waters of Lake Baikal and the natural resources of the lake's drainage basin."

The Baikalsk pulp mill, whose discharge of untreated wastes had stirred an outcry

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among conservationists, was ordered to complete waste-treatment facilities by the end of the year. A previous order, to finish the job by the end of 1969, evidently went unheeded.

The decree did not mention a more expensive project that would have diverted the mill wastes into a neighboring valley. That project had been urged by scientists on the ground that no existing waste-treatment system was adequate to protect the unusual purity of the lake and to preserve its distinctive plant and animal life.

A second pulp mill, at nearby Selenginsk, is to be complete next year, but the Ministry of the Pulp and Paper Industry was admonished not to begin operations until "appropriate treatment facilities" are ready. There had been reports that the plant would recycle its waste.

Other industries along the Seenga River, which empties into the lake, were given until the end of 1972 to install waste-treatment devices. The city of Ulan-Ude, with a population of 250,000, was ordered to build a sewage-treatment plant not later than 1973.

The Baikal directive appeared amid articles in the press that suggested growing official concern over pollution. Today, for example, it was reported that 200 factories that polluted the atmosphere had been closed or moved out of Moscow over the last 10 years. Similar actions elsewhere are being publicized.

A high official of the electric power industry said at a news conference today that Soviet electric stations were under rigid regulations to prevent air and water pollution.

The official, Anatoly I. Maksimov, a Deputy Minister of electric power, said plants were prevented from raising the temperature of streams with their waste waters by more than an acceptable standard--about 7 degrees Fahrenheit. He said an effort was being made to halt the discharge of hot water.