

EUROPE

SOVIETS BUILD MACHINES TO PRODUCE KRILL PASTE

The Soviet Federal Research Institute of Fisheries and Oceanography (VNIRO) has built machines for production of a protein-rich paste from krill. Six have been installed aboard factory stern trawlers and one has been set up ashore to produce protein paste from Black Sea shrimp.

Each machine, operated by 2 people, has a processing capacity of 1 ton of fresh krill an hour (yielding about 250-300 kilograms of paste). The krill is pressed, coagulated, and the liquid protein portion separated. The protein paste is packed into blocks of either 250 grams or 3 kilograms.

SOVIETS EXPAND INTO ANTARCTICA

Announcement of the production of these machines for stern factory trawlers coincides with reports of a major Soviet expansion into untapped fishing grounds of the Antarctic. Krill, a shrimp-like crustacean of minute size, is abundant in that area. The maximum sustainable yield is estimated variously at 60 to 100 million tons annually. In February 1972, the Soviets announced the establishment of a permanent expedition to explore and exploit the fishery stocks of the Antarctic. As many as 7 Soviet factoryships were operating in the area of the Kerguelen Islands in the sub-Antarctic waters of the Indian Ocean. Estimating that a factoryship can service 10-15 trawlers, there were probably 70-100 Soviet vessels fishing in the area.

NEW SOVIET ENTERPRISE

In mid-October 1972 it was announced that a Fishery Association, 'Antarktika', had been established in Odessa. Its fleet includes the giant 'Vostok', world's largest fishery vessel; the whaling mothership 'Sovetskaia Ukraina'; several 'Atlantik'-class stern trawlers; and the 'Grumant'-class stern trawler 'Van Gogh', which specializes in shrimp research and fishing. The value of the Association's 1972 gross output was planned to exceed 200 million rubles. The fleet's operation will be supported ashore by canneries, processing plants, and ship-repair yards in the Black Sea cities of Izmail, Kherison, Vilkovo, Il'ichevsk, and Odessa.

Species and Problems

Soviet sources do not indicate the species which will be the primary targets of the new fishery. In the past, they have been taking considerable amounts of notothenia, a cod-like species that does not inhabit waters warmer than 4 degrees centigrade. The huge krill resource, which literally can be scooped up, would appear to be the major object of the Soviet expedition.

Soviet sources say two major hurdles must be overcome before krill could be exploited on a large scale: processing and marketing. The first appears to be solved by the VNIRO machine. As for the other, various Soviet agencies (the Fisheries Ministry, VNIRO, the Ministry of Food Industry, among others) appear to be engaged in a major publicity and promotion campaign to sell krill paste and an allied product (cheese with krill paste). Recipes for the preparation of dishes with krill paste are being circulated in food stores. The Soviets are also examining the export potential.

NORTHWEST ATLANTIC FISHING OPERATIONS COMPUTERIZED

The Soviet Western Fisheries Administration (ZAPRYBA), headquartered in Riga, is setting up a data-processing center in which a Minsk-22 computer will process operational information from the 900-vessel fleet. Until now, data on catches, transshipments, processed products, fuel needs, supplies availability and requirements, sent daily by the captains of the ZAPRYBA vessels, have been handled manually by a large staff of specialists. The computer will cut down on time, and permit reduction of personnel. The Western Fisheries Administration hopes to save \$900,000 annually when the computer center becomes operational.

RESEARCH NEW PACKING MATERIALS

The Soviet output of canned fishery products almost doubled during the past decade. Nevertheless, it represented barely 10.7% of total output of edible and non-edible fishery products, down from 12.2% in 1960. In 1970, total output was 4,562,000 metric tons.

USSR (Contd.):

So various agencies of the Soviet Ministry of Fisheries are researching and testing new materials for canning fish. A method of electrolytically tin-plating sheet steel, using only 7.5 kilograms of tin for 1 metric ton of plated sheet steel, reduces the cost. Other research has resulted in successful tests with plastic containers, which are considerably less expensive than metal cans. Tests have shown fish canned in plastic cans was undeteriorated 4 months after sealing. The use of glass containers for certain types of fishery products also will be increased.

ICE-REPELLING PAINT DEVELOPED

Icing is a serious threat to the safety of vessels fishing in northern waters. In the mid-1960's it caused 4 or 5 Soviet medium size trawlers to capsize in the Bering Sea. Nearly 100 fishermen were drowned.

For many years, the Soviets have tried to find solutions to the problem with various de-icing techniques, including chemicals, electrical heating devices, etc. Now specialists at the State Design Institute of the Fishing Fleet (GIPRORYBFLOT) and the Leningrad Poly-technical Institute have reportedly developed a special paint which repels or prevents formation of ice on hull and superstructures of vessels. The new paint is the result of several years' studies and experiments at the laboratories of Arctic and Antarctic Research Institute and on vessels in the Barents Sea. Commercial production is expected to begin soon.

DANISH COD FILLETS & BLOCKS EXPORTS TO U.S. QUINTUPLED

During the first nine months of 1972, the quantity of Danish cod fillets and blocks exported to the United States increased fivefold over the comparable period in 1970. The U.S. Regional Fisheries Attache in Copenhagen reported it reached a total of 52 million pounds valued at more than \$23 million. This averaged 44 cents per pound, compared to 29 cents in 1970. Most of the increased exports

to the United States came from the greater production of cod fillets and blocks resulting from exceptional cod fishing in the Baltic, and more favorable U.S. prices. Danish export of cod fillets and blocks to all countries totaled nearly 77 million pounds, of which 68 percent was shipped to the U.S. In 1970, the United States took only 27 percent of a much smaller quantity.

SWEDISH FISHERIES DECLINE IN 1971

The total catch of the Swedish sea-fishery industry in 1971 was 227,629 metric tons (round fresh weight), a decline of 20 percent from 1970. This was mainly because of smaller catches of industrial fish (herring and other fish for reduction to fish meal and oil). The sea herring and Baltic herring catch for human consumption remained at about the same level as in 1970, approximately 39 percent of the entire catch. About 100,000 tons of the catch was landed in other countries (mainly Denmark). By far the bulk of the catch in 1971 was herring and cod.

Sweden ranks 13th among fishing nations in Europe. The catch has been trending downward since 1964, when it totaled 375,000 tons; so too have the numbers of fishermen and vessels. To counteract lower domestic landings, imports are rising.

Imports Increase

Swedish imports of fish products were about 5 percent greater than in 1970--reaching 199,000 metric tons valued at US\$ 109 million. Principal items imported were fish meal, fish oil, fresh, frozen and conserved fish. Norway, Denmark, and the United States were the leading suppliers. Swedish exports were small, when landings by Swedish fishermen abroad were excluded.

Fish consumption in Sweden is high compared to many other developed countries. Since 1965, consumption seems to have remained fairly constant. Use of frozen fish increased at the expense of fresh fish.

NORWAY'S FISH FARMING GROWS

A/S Mowi of Bergen, one of the leading commercial salmon breeders, marketed 60 tons of fresh (chilled) salmon in 1971. It hopes to increase its output to 1,500 metric tons and US\$4.6 million within a few years. Mowi has a hatching capacity for 2 million fry. There is a capacity for 300,000 smolt. Mowi's two salt-water plants have a combined capacity for 500 tons of salmon.

Salmon roe comes from Mowi's own stocks. Fry are raised in fresh-water tanks. They are fed to speed up growth. About 80 percent of Mowi's fry reach the smolt stage in 1 year. The normal time is 2-4 years. When the smolt stage is reached, the salmon are placed in salt-water plants, where they grow to 12-16 pounds.

Aquaculture Advances

Aquaculture is a growing industry in Norway. A fish farm on the island of Hitra has been successful in raising salmon in 3 years by using capelin for feed. Prices for salmon have reached as high as US\$9.21 per kilo, and average \$3.84 per kilo. Fish-breeding experiments aimed at developing marketable strains of salmon and trout are being conducted in Sunndalsora. The purpose of the experiments is to have fish from several generations on hand in order to have a wide selection for breeding of fish strains.

Fish farming began in the 1950's in Norway. The 1972 crop was expected to reach 1,500 tons, mostly salmon and trout. The projected annual growth rate for Norwegian fish farming is 15-20 percent, with an estimated 20,000-ton crop anticipated by 1990.

Fish farming may have increasing economic importance in Norway, where at present 70-80 fish farms are operating. Most of these are concentrated in the Sunnmøre area. It is expected that both the fish farmers, and the suppliers of feed to the fish farms, will profit. ('News of Norway'.)



COOPS FOSTER FISHING IN IRELAND'S COUNTY DONEGAL

A very positive, progressive attitude toward the fishing industry exists in County Donegal in northwestern Ireland. Strong cooperative movements are responsible for much of the progress in the three major ports, Killybegs, Burtonport, and Greencastle. These ports produce better than one-third of Ireland's total seafood landings. There has been large investment and reinvestment in both the primary and processing sectors of the fishing industry. Donegal fishermen are learning to employ modern fishing, navigating, and processing techniques.

Continued Growth in Killybegs

Killybegs, the largest port in County Donegal, continues to grow. The fleet has increased to more than 50 vessels, most of which are over 70 feet long. The value of landings has increased to more than US\$2 million annually. There are several operational fish-processing plants and a fish-meal plant. Salted and spiced herring worth US\$370,000 are exported to Scandinavia.

Burtonport, though less developed than Killybegs, has a US\$452,000 harbor improvement project and three processing plants which prepare the bulk of landings for export. Sixty-five vessels operate out of Burtonport. In 1971 they landed fish worth US\$760,000.

Greencastle, a much smaller port, cannot handle larger fishing boats without dredging and other harbor improvements. Its primary product is excellent-quality white fish, most of which is shipped to Britain. Landings are worth more than US\$370,000 per year.

Fishing Industry Quarter of Economy

The fishing industry accounts for about 25 percent of County Donegal's economy. The most important fish is herring, salmon is next. Almost all landed are exported. Haddock and whiting, both fresh and frozen, are sold on the Irish market.

Continuing rapid improvements and modernization of the fishing fleets and harbors bode extremely well for the future of this Donegal industry. Among the important developments is Irish entry into the European Community. Access to EC markets should prove profitable to Irish fishermen.

IRELAND (Contd) :

IRISH CRAB FISHING GAINS IMPORTANCE

Crab fishing in Ireland has increased steadily in importance, according to 'The Irish Skipper', January 1973. This growth is reflected in the annual landings, which have risen from 38 tons in 1967 to 900 tons in 1971.

Fluctuating landings from the crawfish and lobster fisheries in some areas, and an increasing demand for crabs by the processing factories, have contributed to a greater emphasis on fishing for crabs. Preliminary figures for the present season show that the high level of landings has been maintained and, in certain areas, the interest in crab fishing has expanded.

The Northern Region

The north and north-west coastal areas proved to be the most lucrative crabbing grounds during 1972. The landings from these regions were almost double those of the previous year. They accounted for over half the total landing in the country. The principal fishing grounds were off the Inishowen and Fanad Peninsulas in north Donegal, and along the north Mayo coastline.

The former region yielded almost 300 tons of crab, and the latter over 250 tons. Crabs were not landed in any quantity from north Donegal before mid-August, because of involvement in the salmon fishery, yet landings were three times greater than in the corresponding period in 1971. The majority of traps used in this fishery were creels, but bait often proved to be a problem. Potting time was reduced occasionally as fishermen were required to hand-line for sufficient quantities of fresh bait.

In north Mayo, the fishing effort for crabs also was intensified. Estimated landings were substantially higher than the previous year. The majority of traps used were French barrel pots which, in some areas, were shot and hauled up to five times a day. Again, supplies of fresh bait caused problems in certain ports with the use of trammel nets.

The demand for the landed catches from north Donegal increased towards the end of the season when a new processing plant com-

menced operating in Carndonagh, on the Inishowen Peninsula. Most of the crabs from the north and north-west were processed for export to the United States, Sweden, and also Great Britain.

The West Coast

Crab fishing on the west coast was less productive than in previous years, even though the scarcity of lobsters encouraged some fishermen to pot for crabs. The salmon fishery took preference over the shell fishery in most areas in mid-summer but, after this, several vessels fished full-time on the crab stocks.

Landings in the South

The crab fishery in the south-west also proved to be less lucrative than in former years. Total landings fell to an estimated 188 tons--less than half the previous year's landings. The increasing interest in salmon fishing in the area may have accounted for some reduction in the crab fishery.

In the south-east of Ireland, the landings were comparable with those recorded in 1971. In Kilmore Quay, however, a crawfish fishery using tangle nets was successfully introduced. It had the effect of reducing the number of pots in the crab and lobster fisheries.

Crabs Support Expanding Fishery

The crab fishery in Ireland appears to be well established. In some areas, it is taking precedence over other types of fishing. Full-time crabbing has been shown to be a viable proposition, and potential of the industry is considered good. Although the major fishery in the south-west proved disappointing this year, the poor catch rates are probably attributable more to biological and environmental fluctuations than to over-fishing.

Some coastal areas, for example in north-west and west Donegal, have as yet remained underexploited, even though the resource is believed to be present in commercial quantities. Any further increase in landings, either from the established fishing grounds or from new areas, would help maintain the expanding level of production achieved over the last five years.