Some Aspects of Fishery Development in the USSR

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IN 1913 the inland basins yielded 86.8% (1.05 million tons) of the total Russian catch, whereas the open sea basins of the north and Far East contributed only 13.2%. In 1968 the total catch of fish and marine products in the USSR was 6.73 million tons. Towards 1969 the total catch increased about 6.5 times, but the amount from the open areas of seas and oceans increased more than 40 times. At the present time more than 85% of the total USSR catch comes from the oceanic fishery. Over 700 thousand people work on the USSR fishing fleet and in the fishing industry. The fishing fleet in its present state represents the most responsible, complicated and respected branch of the fishing industry.

Material and technical resources of the fishing industry

The increased USSR catch in the world's oceans became possible because of the construction of modern industrial fishing bases, and the increase in number and power of fishing fleets. After World War II the process of technically equipping the fishing industry accelerated. During the first 15 post-years, 3,500 big and modern refrigerated fishing vessels and factory ships were built and put into service. The most important factor in the modernization of USSR fisheries was the combination of fishing with the processing of fish on the ship. This permitted offshore fishing and the delivery of the processed products to the port for sale. At the present time, more than 85% of the total sea catch is processed directly on board the ship.

Preservation of the catch has been an acute problem in the development of oceanic fisheries, and there are still many fishing boats working far off-shore which cannot produce a quality product. It has become necessary, therefore, to create specialized boats capable of processing fish which subsequently transfer the products to transport or carrier-ships. Hence, a dominant portion of the fishing fleet consists of large, sea-going vessels such as factory ships, mother ships, fish freezing and refrigerated transport vessels.

The efficiency of vessels of 300 or more horsepower has been satisfactorily proven from actual fishing operations. The catch of fish per crew member on the big vessels is four times higher than on the smaller craft, and 1.5 times higher if calculated on the basis of horsepower of the main engine.

The most effective fishing vessels of the USSR are the big fish freezing trawlers (BMRT) of the "Mayakovsky" class. They have a main engine of 2,000 h.p., a speed of 13 knots and a fish and fish-products capacity of 900 tons. These factory ships are equipped for stern trawling and purse seining. Fillets, canned fish, fish oil and fish meal are produced on board these vessels, and the products are carried directly to port. These vessels have excellent technical and economical indices. Their average catch is about 7.5-8.0 thousand tons per year, and ranges as high as 12-15 thousand tons. Fish freezing and

storage in the holds is at a temperature of -25°C to ensure the good quality of the products.

Trawlers of the "Tropic" class, smaller factory ship versions of the BMRT's, are especially designed and equipped for independent fishing operations in tropical sectors of the Atlantic and Pacific Oceans. This "Tropic" class of fish freezing trawler is powered with 1,300 h.p. engines, and has a hold capacity of 470 tons of frozen fish and fish products.

Among other vessels which are used for high sea fishing, the following are the most widespread:

Oceanic seiners — "PC-300" class: main engine 300 h.p. and hold capacity of 50 tons.

Medium trawlers — "Ocean" class: main engine 540-700 h.p. and hold capacity of 200 tons of chilled fish.

Medium freezing trawlers — "Mayak" class: main engine 800 h.p., frozen fish tonnage — 190 tons.

Mother ship carriers — "Severodvinsk" class: main engine 5,000 h.p., displacement — 17,000 tons, hold capacity — 5,000 tons.

Canning fish trawlers—"Nataliya Kovshava" class: main engine 7,500 h.p., displacement — 10,000 tons.

Refrigerator factory ships

(a) "Kaliningrad" class: diesel-electric engine 7,200 h.p., speed 17 knots, frozen fish and fish products capacity—2,700 tons.

(b) "Tavria" class: electric engine 4,000 h.p., speed 14 knots, frozen fish and fish products capacity — 1,600 tons.

Refrigerator transport vessels

(a) "Aktynbinsk" class: diesel-electric engine 7,200 h.p., frozen fish products capacity — 3,500 tons.

(b) "Svetlogorsk" class: main engine 2,400 h.p., frozen fish products capacity — 2,900 tons.

The modern crab-fish canning factory ships of the "Andey Zakharov" class have played a big role in improving the quality of the products and in making a wider variety available. The peculiarity of this type of boat is its modern processing machinery. In one season, this ship can produce tinned crab; in another, canned fish. This ship is also equipped with an electrical installation for light fishing.

From 1964 the fishing industry in the USSR started to receive tuna mother ships of the "Leninsky Lutch" class. This ship has six tuna-catching boats, each with 90 h.p. engines, which fish with long lines and return their catch to the mother ship. The mother ship can produce tins, frozen fish and fish meal.

Comparatively recently the Soviet scientists and designers have created a new type of commercial fishing vessel — "Katamaran". Continuous tests in ocean conditions of this type of boat have shown that its fishing and sea-worthy qualities are far better than those of the single hull vessels.

The philosophy of the USSR fishery

The main object of future USSR fishery policy is to advance into the world's oceans. The USSR movement to open sea fishing started before World War II, but developed mainly in the 1950's and 1960's. During that time the amount of fishing in open areas increased from 50.3% to 83.8%. By 1970, catches in

open areas will have increased to 86.6%. Such greater exploitation of the fisheries of the oceans depends on better utilization of the fleet. That is why USSR fishing philosophy emphasizes: (1) proportional distribution of the investments in fishing, manufacturing and carrier fleet, (2) coordinating more effectively the operations of the fishing and carrier boats, (3) determining the optimum solution to the problem of searching for fish, (4) scientifically determining the choice of fishing areas, (5) rational allocation of fleets in the fishing areas, (6) reduction of time spent in port and in shop repair works and (7) improving the type of vessels, fishing methods and gears. Expansion of ocean fishing requires constant maintenance proportionate to its development. It also means the very closest coordination between the operations of fishing and carrier boats. A shortage of carrier vessels leads to an unproductive waste of time of the fishing fleet and a limited assortment of products.

From 1958 to 1965, 750 large fishing, refrigerator and carrier vessels were built in the USSR. However, the building of carrier ships has lagged but it is hoped that by 1971 this will be rectified. During the period 1966-1970, the power of the USSR fishing fleet will have increased 1.7 times. The number of processing vessels will be about 5% of the total number to be built, but their total power will be 17.1%. VOSTOK is one of the fish processing vessels which has an engine of 26,000 h.p. and 43,000 tons displacement. Daily output of the quick-freezing apparatus of this ship is 180 tons, productive capacity of the canning line is 150 thousand tins and fish meal production is 100 tons. Floating fish canning vessels, refrigerator factory ships with a power of 7,000 h.p. and a new type of refrigerator transport will also be built.

The development of fish ports and repair facilities is also under way to keep in line with the growing fleets. The capacity of refrigerating plants on shore is being increased to 65,000 tons.

The development of the open sea fishery should faciliate development of the inland fishery. By 1971 the total catch from the inland fisheries will be increased 1.25 times, but at the same time the marine production of fish will almost double. Marine fisheries development will have overtaken the inland fisheries mainly because the inland fishery cannot fully satisfy the public's requirements for fish products. This is also the case for fisheries of the near seas, because intense fishing effort will have reduced fish stocks. The Barents Sea is an example of this. After World War II fishing was intensified leading at first to an increase in catch, but then to an abrupt decline. This could be due to a change in hydro-meteorological conditions, but was mainly due to over fishing.