

ARTICLES

"NO CONTEST" ON THE FISHING GROUNDS

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The Soviet Union has won the battle of the fishing grounds. Their boats are presently reaping rich harvests close to U. S. shores. Using task force operations and the latest fishing techniques, they are exploiting to the limit traditional American fisheries.

In ten years the Soviets have passed the United States in fish production and now occupy fourth place, exceeded only by Japan, Peru, and Communist China. In fishing fleet strength, the Soviets rank third behind Japan and Norway. Until the late 1950s, the United States ranked second only to Japan in size of catch. Now the United States is in fifth place and is in danger of being relegated to sixth by Norway.

Russia increased her fish production from 2.5 million metric tons in 1954 to more than 6 million tons in 1966. This is about 9.5 per cent of the world's catch. Soviet goals call for a yearly production of 8.5 million tons by 1970. It is conceivable that they could lead the world in fish production within the next decade.

Meanwhile, U. S. fish production remains static--about 3 million metric tons annually, or about 5 per cent of the world catch.

Under their present five-year program (1966-1970), the Soviets will invest about \$650 million per year in their fishing industry and fleets. This rate is two-thirds more than they spent in the previous five years (1960-1965). They will add 1,500 vessels to their fleets, presently estimated at more than 18,000 motor vessels. New acquisitions will include 250 large stern trawlers from Polish and East German shipyards, and 145 refrigerated fish carriers, factory ships, and floating factories from West Germany, Japan, and Holland.

Before 1948, the Soviet fishing industry was crude and confined to inland and coastal waters. The over-fished areas could not possibly support the need for protein at home.

Soviet agriculture fell far short of goals. Economic studies showed that fishery products could be produced with 25 to 30 per cent less capital investment than the same quantity of meat products. To produce one ton of catch costs more than twice as much as one ton of fish. Further incentives for expansion of offshore fisheries were the existence of Baltic ports and skilled fishermen which had been brought into the Soviet sphere as part of newly acquired Satellite countries.

Today, 90 per cent of Soviet deep sea fishing takes place too far from home for fresh fish operations. With few overseas bases they were forced into developing methods for processing the catches at the fishing grounds. This has resulted in a steady increase in the size and capability of Soviet trawlers and the development of auxiliary ships capable of supporting a large fleet thousands of miles from home for months at a time.

Soviet fishing operations need not be justified on an economic basis. Their objective is volume, but they try to get the fish to the consumer as cheaply as possible. Fish are generally delivered to the retailer in the container in which they were packed at sea. Frozen salted fish may be delivered in 200-pound barrels and frozen fish in 66-pound cartons. The consumer pays about 25 cents per pound for it.

Prices are established by a central price bureau after consultation with fishery experts. Labor, operating, maintenance, and amortization costs are used. If they are covered by the price received, the voyage is considered profitable. When a voyage is unprofitable, subsidies are paid by the state. This ensures an adequate protein supply for Soviet citizens.

Soviet fish production is controlled by the State Committee of Commercial Fisheries Production. Under the State Committee is the Main Fisheries Administration. It controls fleets at sea through five regional

divisions headquartered as follows: Western in Riga, Northern in Murmansk, Black Sea in Sevastopol, Caspian in Astrakhan, and Far East in Vladivostok.

A fishing fleet may consist of as many as 10 trawlers controlled by a base chief on board one of two base ships. He receives information twice daily from the trawlers concerning the number of trawls made and amount of fish caught by species. After correlating this data with that received from trawlers on scouting missions, he may direct vessels to more lucrative grounds. The information is also used to schedule the offloading of catches to transports.

The Soviets are constantly adding more sophisticated ships to their fleets and updating their fishing procedures. Vessels operating on our side of the ocean are new, having been built in the late 1950s and later.

Side-trawlers range in size from 125 feet to about 200 feet long. Smaller ones stow fish in a 30 per cent salt solution in barrels. When the catches are delivered to one of the base ships, the fish are sorted and repacked in a 10 per cent salt solution in barrels and stowed at a temperature of 18 degrees F. Many of the larger side-trawlers can process and refrigerate part of their catches prior to delivery.

Fish-factory-trawlers range in size from 250 to 300 feet long. The largest ones have a cargo capacity of approximately 1,400 tons. They carry crews of from 96 to 102, usually including about six women. Trawls are operated from a ramp in the stern. The ships are more efficient than side-trawlers in retrieving their catches and can make large hauls of more than 15 tons per set. Daily quotas range from 25 to 50 tons depending on the size of the vessel and the type of fish being caught. They process their own fish and deliver it to a transport with no further handling required. In addition to processing frozen and salted fish, they may also manufacture fish meal and oil. They are equipped with filleting machines for processing haddock, cod, and ocean perch.

Fish transports are refrigerated passenger-freighters about 500 feet long. They act as base ships when with the fleet. Their turn-around time is about 25 days, depending on how long it takes to be loaded. They are comfortable ships with pleasant accommodations and are manned by a crew of about 200, including 40 women. They have doctors, well-equipped medical and dental facilities, two 12-bed hospital wards, and an outpatient clinic.

Ocean-going tugs about 200 feet long usually accompany the fleets. They are equipped



The "Konstantin Sukhanov," a passenger-freighter, was converted to a fish factory ship for crab fishing in the Bering Sea.

to handle emergencies at sea such as towing, salvage, and repairs. Their doctors (usually women) render medical assistance.

Passenger ships and tankers may also be found from time to time bringing replacement crews and fuel.

A fishing vessel may be operated continuously for six months or more before being sent home for repairs and maintenance. The crews are rotated every three to four months. While at sea, they eat four meals a day, and entertainment includes motion pictures which are shown twice daily in the larger ships.

With most logistic operations taking place at sea, the Soviets have developed to a high degree the art of bringing ships alongside each other while one is at anchor. With clusters of very large pneumatic fenders, Soviet fishermen can conduct transfer operations in a gale-force wind.

Navigation is done with sextant, Fathometer, radio direction finder, and by dead reckoning. Larger vessels are equipped with Loran receivers. Smaller boats, when close enough to land, use radio direction finding on shore stations as a primary means of navigation. When too far from shore, DF bearings are taken on the base ships which anchor about 30 miles apart. The base ships fix their positions using Loran and celestial observations.

The base pay of a member of the fleet is the same as for an equivalent job of equal responsibility in the homeland. To compensate for the long periods away from home, he is entitled to a 150 per cent bonus for sea pay. Only 80 per cent of the bonus is guaranteed and the remaining 20 per cent depends on whether the fishing vessel catches her quota. The value of fish in excess of the annual quota is divided into shares, of which the captain gets two, other officers something less, and the crew gets one share each. On the average, Soviet fishermen earn about 300 rubles (\$333) per month.

Leave is accrued at the rate of 42 days per year for the captain and 36 days for a crew member per year, with pay. The rate of pay for leave is based on the average of the individual's pay and bonuses for the previous year. Each Sunday at sea counts for one more day of leave with pay. While on board ship, the fishermen are entitled to free food and medical services.

The Soviets are presently conducting their fisheries research on a world-wide basis. Their fleets are fishing in most of the major oceans of the world. Over the years their operations have progressed steadily southward.

In 1966, the Soviet Union established a fishing fleet command in Havana, Cuba. The base there includes ship repair yards, cold storage plants, canneries, and warehouses. Extensive docking facilities can service more than 100 Soviet and Cuban ships.

This new stepping-stone in the Caribbean facilitates exploitation of untapped marine resources in the Western Atlantic, particularly off the coasts of Central and South America. Under-fished species there are being harvested by the Soviets and by Cubans who are assisted by Soviet technicians. South American countries, whose only concern for their fishing grounds used to be the appearance of an occasional U. S. shrimper or tuna boat or a fleet of Japanese tuna boats, have had their complacency shattered as Soviet, Cuban, Yugoslav, and East German trawlers have moved into traditional fishing grounds.

The Northwest Atlantic fishing interests of the United States and Canada suffered the same trauma when, in 1961, a small number of medium-class Soviet trawlers began exploratory fishing on Georges Bank off New England. In 1962 and 1963, Soviet vessels there increased to 300-400 during peak summer months. During 1964 and 1965, the number declined to between 150 and 180 vessels during the peak season, but their catches continued to increase from 68,000 tons in 1962 to 300,000 tons in 1965. The size of the catch, then, is not proportional to the number of Soviet vessels fishing in the Northwest Atlantic. There has been a rapid increase in fish production due to advanced design and increased capacity of later model trawlers. Also, fisheries research has provided valuable data for improving equipment and techniques, and determining fish behavior and oceanography, thus allowing timely adjustments according to fish distribution and environmental changes.

Although the Northwest Atlantic region equals less than one per cent of the world's ocean area, it produces 11 per cent of the world's fish directly consumed by humans. Almost all of the catch is prime, high-grade fish in great demand as human food. Very little is reduced to meal and oil or other by-products. In the area, total landings by a

countries have increased from 1.8 million metric tons in 1955 to more than 3 million in 1966. However, U. S. fishermen have not shared in the increase; in fact, their tonnage has dropped during the past ten years from 580,000 metric tons to 326,000.

Alaskans have been upset since 1959 when the Soviet Union began operating large fishing fleets in the Bering Sea and in the Gulf of Alaska. In peak periods they have had 400 vessels in those waters catching herring, perch, flounder, sole, cod, pollock, king crab, shrimp, halibut, and whales. Fifty research ships and 300 Soviet scientists have probed the Pacific as far south as New Zealand and Australia. Fisheries research has been concentrated in the Japan, Okhotsk, and Bering Seas; the North Pacific Ocean off Canadian, U.S., and Mexican shores; the New Zealand Plateau and the Great Australian Bight; and the Indian Ocean. They have also conducted studies of the resources southeast of Latin America.

As a result of their discoveries, the Soviet Eastern fishing fleet expanded operations in the waters off British Columbia, Oregon, Washington, Baja California, and into the South Pacific and Indian Oceans. Off the Pacific Northwest Coast in 1966, they landed over 130,000 metric tons of an untouched Pacific hake resource.

As the Soviets move into new areas, their scientists must work hard to develop techniques for handling new species of fish they expect to catch. One Soviet innovation uses schools of predators to force fish to the bottom where they are easily caught by a bottom trawl. Soviet scientists claim that by forcing fish down, they can increase the effectiveness of their fishing gear between 300 and 500 percent. This is only a short step from herding fish into a net, trap, or fish pump.

In fact, by using cages, lights, and electric current, the Soviets in the Caspian Sea are herding fish into cages where they are pumped to a vessel. They say the cost of the fish pump operation is about one-third that of a trawl operation.

The Soviets have developed a series of techniques for improving trawl catches. The simplest is to hit the fish with an electric charge as they enter the mouth of the trawl. The fish are also prevented from escaping by a series of clever optical illusions woven into the net.

The Soviets claim that by using acoustical signatures, they can distinguish types of fish. For instance, they say they can distinguish between types of tuna by the sounds of their fins and tails as they move through the water.

Before 1950, Soviet fishing methods were considered crude when compared to ours. Now the situation is reversed, and present Soviet successes are only a prelude to greater activity close to our shores. Not only will Soviet activity increase, but the growing fishing industries of other nations, such as Poland, East and West Germany, Romania, Canada, Japan, and Cuba, will concentrate more and more of their efforts on North American fisheries resources.

Marine resources, fortunately, are renewable. But they are not inexhaustible. With any species there is a maximum level that can be harvested on a sustained basis. Fortunately, in some areas, the fishing nations are working together to prevent the depletion of fishery resources. They are concerned and in most cases honor conservation treaties. Many agreements are in effect in both the Atlantic and Pacific Oceans. Trade-offs are often required, as in recent agreement whereby the Soviets will limit their catch off the mid-Atlantic states. In return they obtained concessions enabling them to conduct at-sea transfer operations in sheltered loading zones off Long Island and New Jersey.

The consumption of fish products in the United States has increased from 7 billion pounds in 1955 to about 13 billion in 1966. This rate is expected to double in the next 20 years. The potential yield from waters adjacent to the United States is estimated at about 22 billion pounds annually, but the U. S. catch seems to be stagnated at about 5 billion pounds per year. The rest is imported.

Compared with the industrially organized Soviet fishing industry, our fishing activities are fragmented, and most are managed by small independent operators. There are about 130,000 U. S. fishermen operating 65,000 boats of less than five tons and 12,000 larger vessels. They supply fish for about 4,000 establishments employing about 57,000 workers.

The promotion of a vigorous fishing industry in this country requires public awareness of the country's needs and the desire to maintain a place among the leading fishing nations of the world. Presently the Bureau of Commercial Fisheries spends only \$28 million

annually on research. The National Academy of Sciences predicts that rational development of U. S. domestic fisheries could double our production in 15 years and the growth of U. S. overseas fisheries could be quadrupled by 1980. Scientists say that fisheries-oriented

science could add \$2 billion a year to the gross national product within ten years.

The U. S. fishing industry needs resuscitation. Only a radical change in the public attitude can revive it--something akin to the urge to get to the moon first is required.



Progress of Fishing Industry and Soviet World Role Outlined

Shortly after the opening of the International Exhibition, "Inrybprom-68," in Leningrad on August 6, Nikolai Uporov, Deputy Minister of Fishing of the USSR, released this statement on the progress of the Soviet fishing industry--and on Soviet cooperation with other nations in fishing matters:

"Last year the Soviet Union caught 6,500,000 tons of fish and marine animals. The Soviet Union occupies third place in the world for fish and marine animal catches, and is on the list of the five biggest fishing countries in the world. The rate of increase in the amount caught can be seen from the fact that the catch in the first six months of this year was approximately equal to the total taken in the whole of 1961.

"The Soviet fishing industry has a powerful modern fleet with an unlimited range of operation. It holds second place in the world as regards the number and power of the ships. The fleet has nearly 20,000 powered boats, including vessels for catching, processing, transporting and refrigerating. It has ships for research work and prospecting, and life-boats and other auxiliaries. The USSR has the biggest flotilla in the world of large-size refrigerator trawlers. These are unique

floating factories. They deliver finished products to the ports and this increases the profitability of the operation considerably. Three or four trawlers of this type can meet in one expedition, the demand for fish of a town with a population of a million.

"The modern Soviet fishing ships are equipped with radio-electronic instruments which enable the boats to keep strictly to the desired route, detect shoals of fish, and maintain ship-to-ship and ship-to-shore contact. The search equipment developed with the use of echo-sounders is widely used to detect deep-sea and surface fish, whales and crabs and to control the operation of trawl nets. Our fishing fleet has Soviet-made apparatus for horizontal and vertical prospecting, which gives the accurate position and density of fish shoals. Thanks to this, we achieved what was mastered, for the first time in world practice, varied depth target trawling. This was done in 1956.

"The manpower of our fishing industry includes 60,000 specialists with higher and secondary technical education, navigators, mechanics, electricians, specialists in fish catching and processing, and whalers. The Fishing Ministry runs five higher schools and 24 secondary schools.