



An Alaska fur seal family on St. Paul Island, Pribilof Group, Alaska. (Photo: V.B. Scheffe)

SEC. STANS REPORTS FAVORABLY ON SEAL HARVESTING IN PRIBILOF ISLANDS

Secretary of Commerce Maurice H. Stans reported, July 14, 1971, his conclusions on methods used to harvest seals after a visit to the Pribilof Islands off Alaska in the Bering Sea on July 8 and 9.

He went to observe fur-seal management, conservation practices, and to review harvesting methods because of recent criticisms.

He consulted with 6 veterinarians named by the American Veterinary Medical Association to study the harvest methods; the administration of St. Paul, the major Aleut community in Alaska, located on one Pribilof island; representatives of the American Humane Association, the International Society for the Protection of Animals, and the Humane Society of the United States, who were observing the harvesting; officials responsible for Canada's seal harvesting; the National Marine Fisheries Service, responsible for harvesting and preparing the seal skins.

The Secretary said: "The issue is not whether we will or will not continue to manage the fur seal herd. The issue is how we will manage the seal herds at their optimum levels most humanely."

The Secretary said present management practices were reached after the near extinction of the herd 60 years ago. If the internationally negotiated management program were stopped now, it would very likely result in the same catastrophic effects. These could include resumption of high-seas hunting with indiscriminate slaughter, and a very high mortality rate of the pups on shore.

STANS' CONCLUSIONS

"As a result of my meetings and my personal review of the situation," he said, "I can report the following conclusions:

"1. There is no molestation or harvesting of the female seals, the pups or the male bulls associated with the harems in the rookeries. The only harvesting that takes place is of male seals three or four years old who situate themselves at a distance from the breeding herds.

"2. Except for the fact that the operation takes place in the open, the method of harvesting is very similar to that which takes place in a meat-packing plant. The herd of male seals is removed about 100 yards from the beach, sorted into groups of from six to ten, and each animal in a group is then rendered unconscious by a quick blow to the head and immediately killed by bleeding. The entire process, including the skinning of the dead animal, takes about one minute.

"3. Investigations have been conducted over a period of years to determine whether or not there is a more efficient method of harvesting. None has been found. The six veterinarians on the spot have been asked by me to make any recommendations for a more humane method of harvesting, and their report will be made to me upon the completion of the assignment. If their scientific studies establish that a better method is practicable, it will be adopted.

"4. The annual period of harvesting and the number of seals harvested is determined carefully on a basis that will maintain the

population of the seal herd at its optimum level. As a result of this process, the number of seals on the Pribilofs is currently estimated at 1,300,000, compared to only 200,000 in 1911. There is no present danger whatsoever of extermination of the herd under these policies.

"5. The harvesting of the seals is the source of practically all of the income of the 700 Aleut residents of the Pribilof Islands. To deprive them of this income would make them dependent on the government. The local officials make it quite clear that they want the harvesting to continue so that the residents can earn a living and that under no circumstances do they want to move from the Islands.

"6. Any implications, such as those recently published, to the effect that baby seals are

harvested, that harvesting is depleting the herd, that harvesting methods are inefficient or inhumane, or indiscriminate, are totally unfounded. The crop of these animals is being managed and harvested under scientific practices just as domestic animals are raised and harvested.

"Ending the program would not be in the interest of a sustained seal population, the Aleut workers, or the federal government. I repeat, if and when more humane methods of harvesting are found and satisfactorily tested, they will be adopted."

Secretary Stans noted the fur-seal management program is one of the most effective wildlife conservation and management programs in history.



NMFS STUDIES HEAVY-METAL CONTAMINATION OF FISH

NMFS scientists are working to define the nature and extent of heavy-metal contamination in fish found in coastal and offshore waters. The program involves 6 NMFS laboratories and the cooperation of other Federal agencies and the fishing industry.

The scientists are concerned over the decline in sales in New England of tuna and lobster. During the recent mercury scare, the two were withdrawn from the market for testing by Federal and state governments.

Fish eaters in New England have received strong assurances that they can buy with safety any fish item--swordfish excepted--from the shelves or in restaurants.

Swordfish was not included because the U.S. Food and Drug Administration (FDA), citing the too-high mercury content, warned the public not to eat it.

The NMFS research program has 3 phases:

1. In April, research vessels began gathering offshore species. Inshore gathering of shellfish and fish already was underway. Specialists will be trained for analytical work, highly specialized equipment set up for testing heavy metals, and fish samples submitted by commercial and sport fishermen cooperating with NMFS.

2. As many marine and freshwater fish as possible are being surveyed and tested in the laboratory. In 1969, the FDA set a maximum permissible limit of 0.5 ppm in food in a daily diet. Most scientists believe this criterion provides a considerable safety margin.

Another aim of the testing is to pinpoint the body parts that store and carry the contaminants. Questions that have to be answered include: Are metals isolated, or evenly distributed in all body parts? What is the significance of flesh color? Are size and weight of fish important factors? How do heavy-metal levels in the whole fish relate to product consumed? To answer this last question, 30 fishery products will be analyzed--such as fish sticks, fish portions, fish cakes, and fish for frozen dinners. Earlier this year, frozen fish blocks (compressed fish) were tested with very favorable results. The blocks are made from the edible portion of cod, haddock, flatfish, and pollock that run the North Atlantic waters. The U.S. consumes annually 270 million pounds, 98% imported from about 50 countries and processed in Massachusetts, Maine, and New Hampshire.

3. This phase is more complex. Existing garbage-dumping stations were selected along the coast from Connecticut, Long Island, south to Delaware. Fish and shellfish taken shoreward from these ocean dumps--and those near the dumping areas are being tested in relation to current flows, water samples, natural and unnatural environmental living conditions of the fish, levels of comparative change, physiology, and mortality rates.

All NMFS lab test results are being sent to FDA.

Much fishing industry money that once went for market promotion now goes for research. A voluntary inspection program, a sampling

of the finished fish product, is financed by the industry, mostly processors and shrimp manufacturers. Inspection stamps provide a reasonable degree of assurance to the consumer. Private firms are running spot checks, re-checking, and then monitoring regularly.

The traditional FDA market-basket survey now includes fishery products. NMFS says this is "just another step to protect the consumer."

This is still a crisis period, NMFS scientists caution. The swordfish industry has been virtually destroyed; the industry was made eligible in May for "product disaster assistance" from the Small Business Administration in the form of low-interest loans.

Tuna has fared much better. Only a few lots have been condemned. "There is no health hazard involved in eating tuna now held on retail shelves or in the household," NMFS scientists emphasize.

MERCURY

Mercury, a metallic element known too as quicksilver, is the only heavy metal that remains liquid at ordinary temperatures. Since the start of the Industrial Revolution, it has been used in everything from barometers to pesticides and fungicides. It is found in three forms: metallic mercury; inorganic mercury (mercury chlorides, sulphides and nitrates); and the organic mercury compounds (phenyl mercury acetates, phenyl mercury nitrates,

methyl mercury and ethyl mercury). The last are the most toxic form.

In the biological chain, the two first forms convert into the methyl or ethyl mercury compounds, which are also very soluble. Normally, the effects of significant contamination by most mercury compounds are reversible, short lived, and excreted from the body over a period of time.

With methyl-ethyl mercury compounds, however, effects are not reversible. If the ingestion level is high, there can be irreversible damage to the brain and, possibly, death.

Mercury occurs in nature -- in the sea, soil, and all natural foods. It has always been there. The important thing now is to try to lessen and prevent increased pollution of the environment.

Dr. Fred Stare, Chairman, Department of Nutrition, Harvard Medical School, has said: "There really are no safe or unsafe substances, only safe or unsafe levels, and safe and unsafe ways of using any substance. This requires a certain amount of common sense as well as scientific sense and the two are not always the same."

[Information for parts of this NMFS story is based on an interview with Dr. J. Perry Lane, supervisory research food technologist, NMFS Technology Laboratory in Gloucester, Mass., conducted by Wanda Howard, assistant editor, monthly publication of New England Marine Resources Program.]



NMFS PROTECTS MORE 'CONTINENTAL SHELF CREATURES'

The National Marine Fisheries Service (NMFS) acted in June to prohibit foreign vessels from taking 10 more species of marine animals it classified "creatures of the Continental Shelf." An amended regulation became effective when published in the 'Federal Register' on June 23.

These creatures are defined in the 1958 Geneva Convention on the Continental Shelf; at the harvestable stage, they "are immobile or are unable to move except in constant physical contact with the seabed or subsoil of the Continental Shelf." The U.S. is party to the Convention.

This Convention is implemented by a 1964 U.S. law, the "Bartlett Act". Under it the U.S. can reserve to its own nationals the right to harvest certain marine resources determined to be creatures of its Continental Shelf--except if an international agreement provides otherwise.

Additions to List

The animals added in June include: precious red corals and black coral; surf clams and ocean quahog; and these crustacea: Dungeness crab, deep-sea red crab, northern stone crab, golden king crab, and two species of California king crab (*Paralithodes rathbunae* and *Paralithodes californiensis*).

Species previously listed included: tanner, king, and stone crabs; red and pink abalone; Japanese abalone; queen conch; and 4 kinds of sponges.

NMFS Director Philip M. Roedel said the list can be modified from time to time.



Dungeness Crab
(*Cancer magister*)

U.S.-SOVIET FISHERY SURVEY CONTINUES OFF U.S. WEST COAST

The 'Ogon,' of the Soviet Far Eastern Seas Fisheries Research Institute (TINRO), out of Vladivostok, docked in San Pedro, Calif., on June 30 to meet U.S. scientists and plan a 5-month series of cooperative survey cruises off the U.S. West Coast. This was disclosed June 23 in a joint announcement by Dr. D.L. Alverson, NMFS Biological Laboratory, Seattle, Wash., and Dr. A.R. Longhurst, Director, NMFS Fishery-Oceanography Center, La Jolla, Calif.

Moscow Meeting Nov. 1970

At a Moscow meeting in November 1970, attended by Drs. Alverson, Longhurst, and other U.S. fishery scientists, it was agreed: 1) Ogon would conduct a hydroacoustic survey and do biological sampling of Pacific hake population between 37° N and 50° N latitude; 2) also, a biological research program on ocean perch and feeding habit studies of hake and other fishes.

The Ogon displays a large sign, "NAUKA TINRO SSSR" (Science-TINRO-U.S.S.R.), to help identify her research status.

Interest in Hake Estimates

The NMFS laboratories in Seattle and La Jolla are interested particularly in estimates of hake abundance the Soviets will make using a hydroacoustic survey method, and in a plan to put U.S. scientists aboard vessel in July and August. The Soviets have agreed in principle that on all cruises designated for cooperative U.S.-USSR research, they would accommodate U.S. scientists.

The Ogon has worked off West Coast for the past two summers. It is part of a continuing research program on fish species of common interest. The program includes periodic meetings to exchange data and to review and plan research. In recent years, the Soviets fished hake heavily. Information is necessary to provide both nations with scientific bases for agreements to protect this resource.

The Ogon is captained by Alexander Bolsakov. It is a 190-foot, blue-gray, side trawler carrying 42 persons. It will work off west coast until November, then be replaced by a larger Soviet vessel.

NMFS WOODS HOLE AQUARIUM BEGINS SECOND DECADE

On June 12, the NMFS aquarium at its Woods Hole (Mass.) Biological Laboratory began its second decade of public service. During the first decade, 2½ million persons saw the fish and educational exhibits.

The aquarium is open year round. It is visited by student groups of all levels: from headstart and preschool to college and post-graduate scholars. More than 40,000 youngsters have come in these groups, mostly in spring and fall. Some students have been helped with science projects and thesis requirements.

Cooperation With Scientists

The aquarium also serves marine scientists and aquarists. Many times, it has provided living material and tank space for experiments in physiology, animal behavior, and other fields. Aquarium staff has kept daily records of seawater and air temperatures for nearly 10 years. These helped investigators.

A water-quality monitoring project to begin soon will increase the aquarium's value to the NMFS Woods Hole lab and the scientific community.



NMFS MIAMI LAB RELEASES MORE DRIFT BOTTLES

Contributions by the Miller Brewing Co. of 40,000 bottles in the past 4 years to NMFS Tropical Atlantic Biological Laboratory (TABL, Miami) have helped oceanographers study the currents in the Caribbean and Gulf of Mexico.

During July and August 1971, oceanographers again will "pepper" the Gulf and Caribbean area with thousands of bottles from 8 U.S. and Mexican research vessels participating in the "Cooperative Investigations of the Caribbean and Adjacent Regions."

Bottled Information

The bottles are ballasted with sand and contain a fluorescent orange card imprinted with a number and instructions in 4 languages. People who find the bottles washed up on beaches return them to TABL with information on time and locality of recovery. Returns have been received from nearly every country bordering the Caribbean, and from every state bordering the Gulf of Mexico and the U.S. South Atlantic coast. The oceanographers calculate the speeds and routes of currents from these widely scattered returns.

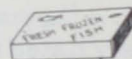


U.S. FISHERY PRODUCTS TO BE EXHIBITED AT COLOGNE FOOD FAIR

U.S. fishery products will be promoted at the world's largest food show in Cologne, Germany, Sept. 24-Oct. 1, 1971. The exhibition, attended primarily by food trade, is held every 2 years. U.S. fishery products have been promoted successfully since 1965.

In 1969, 46 nations sponsored exhibits. There were commercial exhibitions from 16 more countries. A total of 1,876 European exhibitors participated.

Germany is thriving and is an excellent market for U.S. foods. Consumption of frozen and convenience foods is growing rapidly as more housewives take jobs.



GULF & CARIBBEAN FISHERIES INST. MEETS NOV. 14-18 IN MIAMI

The annual meeting of the Gulf and Caribbean Fisheries Institute will be held at the Sheraton Four Ambassadors, 801 Bayshore Drive, Miami, Florida, Nov. 14-18, 1971.

Two sessions will be devoted to topics of specific interest to the fishing industry. Two sessions will emphasize current research in fisheries of Gulf of Mexico and Caribbean.

The International Game Fish Conference will hold its annual meeting Nov. 19 and 20.

For more information: Executive Secretary, Gulf & Caribbean Fisheries Institute, 10 Rickenbacker Causeway, Miami, Florida 33149.



COMMERCE DEPARTMENT BEGINS NEW STORM INFORMATION SERVICE

The Commerce Department's National Weather Service and National Bureau of Standards have established a new storm information service for deep-water sailors in the Atlantic and the Pacific. The service for the Atlantic is functioning; the Pacific operation is scheduled to begin August 1.

The new service consists of hourly broadcasts, up to 42 seconds each, providing information about major storms that might mean trouble for ships. The weather broadcasts are superimposed on Bureau of Standards time signals carried by stations WWV and WWVH.

Round the Clock

The broadcasts will be round the clock. Station WWV will carry information about storms in the western North Atlantic, 16 min-

utes after every hour, on radio frequencies 2.5, 5, 10, 15, 20 and 25 MegaHertz.

WWVH will list storms in the eastern and central North Pacific, 49 minutes after every hour, on 2.5, 5, 10, 15 and 20 MHz. The ocean areas covered are those for which the U.S. has warning responsibility under international agreements.

If there are no storm warnings in these areas, the broadcasts will indicate that. The brief messages will tell mariners if there are storm threats in their areas; they will not provide complete information. Mariners are expected to check with one of the regular marine broadcasts for details.

What Broadcast Covers

This is a hypothetical broadcast showing type of information mariners can expect to receive in the new service:

NORTH ATLANTIC WEATHER, WEST OF
35 DEGREES WEST, 1500 GMT. . . HURRI-
CANE DONNA, INTENSIFYING, 24 NORTH,
60 WEST. . . MOVING NORTHWEST, 20
KNOTS. . . WINDS 75 KNOTS. . . TROP-
ICAL STORM EVE, 17 NORTH, 50
WEST. . . MOVING EAST, 10 KNOTS. . .
WINDS 50 KNOTS. . . STORM, 65 NORTH,
35 WEST. . . MOVING EAST, 10 KNOTS. . .
WINDS 50 KNOTS. . . SEAS, 15 FEET.



(Photo: Robert K. Brigham)

FISHERY PRODUCTS SITUATION

Donald R. Whitaker
NMFS Current Economic Analysis Division

The market for fishery products in the United States has maintained strength during the first half of 1971. Sales of some major species are slightly below year-earlier figures but, in the first half of 1971, this has been attributable primarily to shorter supplies. Conditions indicate a "seller's" market in most sectors. Prices have advanced sharply in face of tighter supplies of both shellfish and finfish.

Supplies of most shellfish are running below a year ago. Imports, as well as domestic landings, are down; declines in imports of shrimp have particularly affected the market. To meet market requirements in face of a drop in imports and domestic production, inventories of frozen shellfish have dropped sharply since the first of the year. Thus, the availability of stored supplies has made it possible for shellfish consumption to hold at nearly the same level as a year ago.

Groundfish Industry

Supply shortages have similarly affected the groundfish industry this year. The U.S. market for groundfish products is 83 percent supplied by imports. Imports are off from a year ago but, unlike shellfish, the groundfish industry did not have relatively large inventories on hand at the start of 1971. Thus, prices have advanced significantly, and groundfish sales are down from a year ago.

The shortage has had a particularly heavy impact on the fortunes of the "fish and chips" restaurant chains. The fast growth in the

number of fish and chips outlets in the United States--from 500 or so in early 1969 to about 1,100 in early 1971--resulted in an unprecedented increase in demand for cod fillets. With supply shortages, prices began to skyrocket and adjustments in menu prices and portion sizes became necessary. The combination of short supplies and high prices may have temporarily halted the growth in fish and chips outlets. (See Canadian report page 9.)

Other Products

Halibut sales in the first half of 1971 have been consistent with last year. Prices changed little. Halibut production likely will be lower this year. Upward pressure on prices may build because of relatively lower supplies.

Canned salmon movements have been on a par with 1970. The 1971 pack will likely be below last year. So prices will gradually move up.

Frozen salmon sales have improved over a year ago, and prices have been firm. Inventories have dropped sharply since the first of the year but are still above normal.

Canned tuna movement has picked up considerably since the early months of 1971. Prices are expected to average higher than a year ago.

On balance, a slight decline in per-capita fish consumption is expected in 1971 after 3 consecutive years of increase. The major factors behind the decline will be higher prices accompanied by shorter supplies.

THE U.S. FOOD MARKET

How Trends Affect Outlook for Canadian Groundfish Products

There are important trends in the U.S. food market that affect the "future profitability and export opportunities of Canadian producers of groundfish products."^{1/} A new Canadian report evaluates these trends and opportunities.

It was prepared in the Agriculture, Fisheries, and Food Products Branch, Department of Industry, Trade and Commerce, by G. W. Raynes under the supervision of A. J. Hemming. It is titled: "Developments in the United States Food Market and Their Significance for Canadian Groundfish Products." The sponsors hope it will help Canadian industry adjust to the changing structure of U.S. market.

The report discusses the traditional retail sector--but focuses on the booming food-service market, particularly the dynamic fish-and-chip industry. After only 5 years, this industry exerts a "significant influence on the demand for cod."

The Canadian investigation of trends in the U.S. food market and their implications for groundfish products is based largely on 132 interviews in major geographic regions in 1970.

The investigation was directed toward major retail food chains, food-service operators, and the fish-and-chip franchises in particular. For the Canadian processing industry, these are primary sources of present and future demand for groundfish products.

The 34 retail chains surveyed operated 19,000 stores and accounted for over 35% of U.S. retail food sales. Eleven of the 12 leading chains were included. Dominant firms in major sectors of the expanding food-service market were surveyed; in fish-and-chip sector the companies interviewed accounted for an estimated 75% of the industry's total sales.

^{1/} Among major groundfish species are cod, haddock, flounder.--Ed.

THE UNITED STATES FOOD MARKET

Trends in Food Consumption

The proportion of the per-capita disposable income U.S. spent on food is declining steadily, but the absolute level of food spending continues to grow as population and disposable income grow. Between 1950 and 1968, U.S. population increased at annual rate of about 1.7%; disposable income expanded 185% to \$590 billion. These trends more than offset a 23% decline in the proportion of per-capita disposable income spent on food; total consumer spending on food and beverages increased 116%. In recent years, spending for food and beverages has been increasing about 5% a year.

Relative Importance of Food-Service Industry

Retail food stores are selling about \$62 billion of food, excluding beverages. The comparable figure for food-service^{2/} sector is about \$28 billion per year. The latter, however, is expanding more rapidly. Between 1960 and 1966, the average growth rate in food-service sales was about 10% per annum. By 1977, it is estimated, food sales by food-service industry will be about \$50 billion compared with \$87 billion in sales by retail sector. By 1980, the food-service market could achieve over 60% of all food sold in U.S.

There is a growing trend in the U.S. to "eat out." Many factors are responsible, including especially:

- (a) Higher disposable incomes and raising of median income. In 1967, the median family income was \$7,974, compared with \$4,611 in 1950. By 1980, 50% of U.S. households are expected to have incomes of at least \$10,000 per year and account for 75% of personal income.
- (b) More women are working. By 1980, their number will have increased by 4 million to about 20 million.

^{2/} Food-service sector included 370,000 establishments in 1966: table-service restaurants, cafeterias, counter service, drive-ins, drug and retail stores, etc.

Almost one of every three dollars spent on food in the U.S. is spent on food eaten outside the home.

More Demand for Convenience Foods

There has been a significant shift toward convenience foods. These are products ready to serve, or require only secondary heating or other preparation. Estimates are that retail sales of convenience foods alone reach \$36 billion a year. This places them in a dominant position in U.S. market. Sales of foods with built-in convenience are growing substantially faster than basic commodities. The trend favors heat-and-serve convenience foods in retail and food-service sectors, particularly in the latter.

The Frozen Food Market

Frozen food is the category most affected by boom in demand for convenience foods. It has been growing fastest. Between 1960 and 1968, the retail value of frozen food sales increased 115%; total food sales, up 28%. More significant, there are important shifts in relative importance of frozen-food categories and in food-service sales relative to retail.

Demand is shifting from relatively basic commodities to products with greater convenience. In 1967, per-capita spending on frozen foods increased just over 2%; spending on prepared foods rose almost 9%. This rate of per-capita increase exceeded greatly all frozen-food categories, except meats. Within the product class, frozen dinners attracted highest per-capita expenditures and grew faster than any other prepared food.

The food-service frozen-food market is growing in importance. In 1967, per-capita spending on food-service frozen foods increased over 4%, compared with under 1% for retail frozen foods. The food-service share of current annual market for frozen foods is \$2.6 billion, compared with \$7 billion in retail sector. Annual food-service sales of frozen prepared foods, such as entrées, are now \$249 million.

The minimum percentage growth in sales of prepared foods between 1968 and 1980 should be 84%; for all frozen foods, a 67% rate of growth is projected. Prepared foods are the major category of frozen foods. In 1968, sales were \$1.14 billion; projected min-

imum sales of \$2.37 billion in 1980 would retain this position.

The motivation for industry's increasing orientation to frozen convenience foods comes primarily from need to minimize labor costs and from problems connected with unskilled kitchen help. Industry views these as major problems. For the housewife today, the decision to buy convenience foods is largely a matter of preference and tastes; for food-service operators, the use of convenience foods is dollars and cents, the need to remain competitive.

The shift to convenience foods is more rapid in food-service sector than at retail level. In the home, any additional cost is not connected so closely with labor saving as for the food-service industry, where time saves money. Convenience foods offer other advantage to food-service operators: "they can provide the basis for expanded menus, improved cost and quality control, lower inventories, savings in space, reduced cooking time, more rapid service, and the efficient use of unskilled labor."

The Frozen Seafood Market

The trends in the food market apply with at least equal force to the seafood market. More than half the seafood marketed is now sold frozen; the conservative demand projection indicates sales of frozen seafood should expand by at least 107% between 1968 and 1980. Frozen convenience foods range from ready-to-serve seafood dinners, entrées and other precooked items to frozen portions and fillets, where major growth potential is concentrated. Between 1968 and 1969, estimated retail and food service sales, in pounds, of fish sticks rose by 24% and 20% respectively, while fillets expanded by 16% and 17%. Both retail and food-service sales of fish portions expanded by 21% in 1969. This contrasted sharply with trend between 1960 and 1968, when average annual growth in frozen seafood in dollar terms was minus 0.3%.

Whereas the United States retail sector is the major source of demand for food as well as for frozen foods in total, the food-service sector is already the major source of demand for frozen seafoods. In 1969, total food-service sales of frozen seafood--excluding seafood specialties or bulk fish shipped and sold fresh by dealers--were over \$862 million, compared with retail sales of \$464 million.

Food-service sales of specialty seafoods are now 48 million pounds a year; sales of entrées, which include seafood items, are about 50 million pounds.

The demand for frozen groundfish products is more evenly divided between retail and food service. Combined sales of fish portions, sticks, and fillets total estimated \$140.3 million in food-service sector and \$197.8 million in retail sector.

The Market for Groundfish Products

Like the market for frozen foods generally, the U.S. market for frozen seafoods, including groundfish products, is growing dynamically in area of convenience products. This is attributed to combined stimulus of changes in consumer attitudes and incomes, new markets in food-service sphere, and more emphasis on innovation by processors in this age of convenience foods.

While retail food chains foresee expansion in demand for frozen groundfish products, and

in breaded-and-battered items in particular at retail level, the food-service industry, especially the fast-food fish-and-chip franchises, will be the major source of future growth. This was confirmed by wholesalers and other distributive organizations: Some now concentrate on catering to requirements of food-service users of frozen fish; and also by the projected expansionary plans of the fish-and-chip franchises.

This optimistic view of future demand for maximum-convenience frozen groundfish products contrasts markedly with attitude of the great majority of retail food chains toward fresh fish. Although 80% of retail chains interviewed operated fresh-fish departments, these were not expected to grow rapidly because consumers, more and more, prefer frozen fishery products. Some fresh-fish departments are now unprofitable because of rising labor costs but are operated as convenience to buying public. One reason the fresh-fish department lacks growth potential is that it has remained outside mainstream of product innovation.

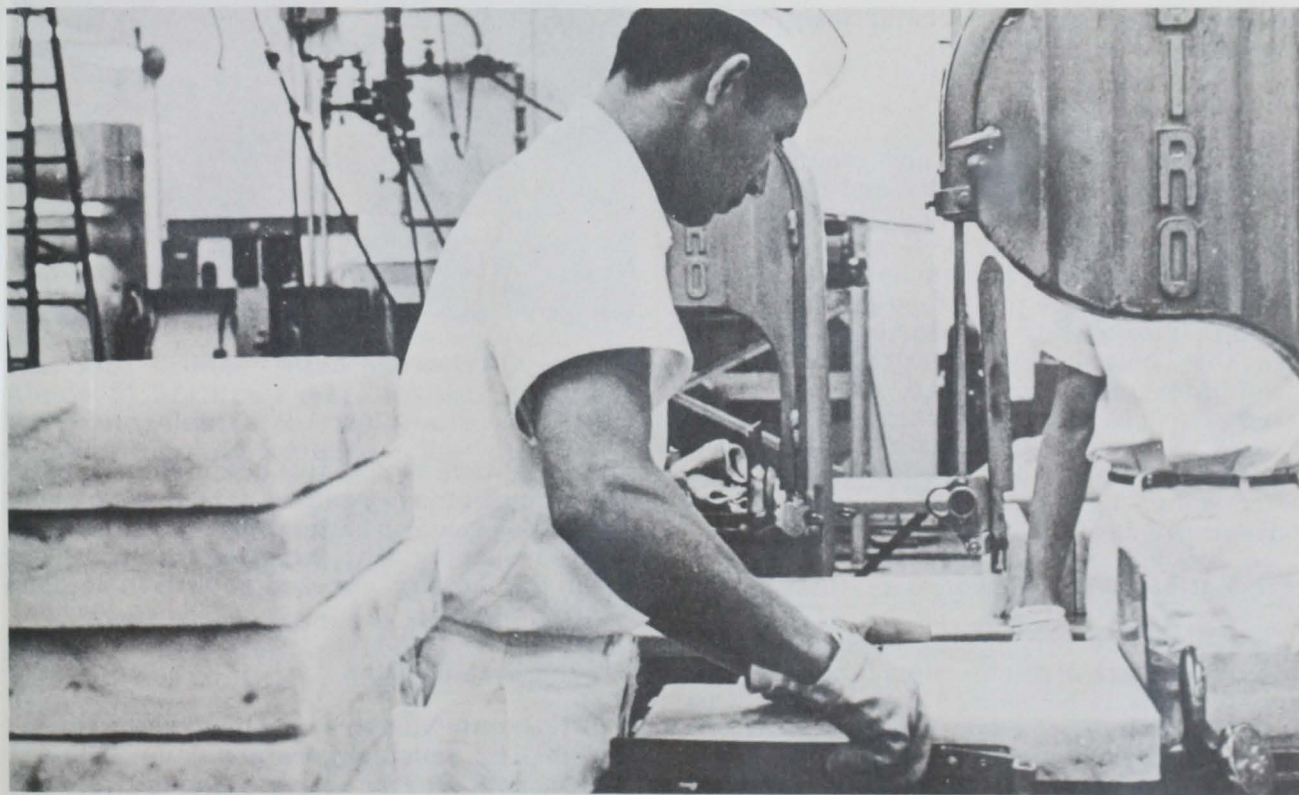


Fig. 1 - Production of Breaded Fish Portions. A series of cuts with high-speed saws turns blocks into uniform portions desired.

THE RETAIL FOOD MARKET

Frozen Foods

Frozen foods are the food category most affected by upsurge in demand for convenience foods. They have the greatest relevance for groundfish products. They now account for 5.2% of total food sales of U.S. supermarkets. It is estimated that this percentage will rise to 7% by 1975, and to 8.3% by 1980. A major impediment to growth of frozen foods at retail is lack of display space, together with insufficient zero-degree space in company warehouses.

Freezer space inhibits sale of fish products. The freezer space allocated to fish by First National Supermarkets ranges from 4 feet 2 inches by 7 feet, depending on total freezer capacity of the individual stores. The proportion of total space for fish products is 7%; fruit 3%; frozen meats 4%; potatoes 7%; dinners and meat pies 11%; concentrates 12%; bakery products 16%; frozen vegetables 27%.

The freezer space in new and remodelled stores is being expanded substantially, up to three times the old system.

Convenience Products

The retail food chains and other buyers have connected expanding demand for frozen groundfish products with the availability of convenience-type products. Nearly all supermarket buyers interviewed believe convenience foods will be the future growth center in retail frozen foods. Supporting this growth are: the continued introduction of new prepared, frozen-food products, more working women, and increasing income of U.S. consumers. The eventual introduction of rapid-heating equipment, such as microwave ovens in the home, will make it still easier to use convenience foods.

Introduction of New Products

About 18% of retail frozen-food sales did not exist or were of minor importance in 1965; this figure will be near 35% by 1980. One major supermarket chain introduced 26 new seafood products in 1970; consumers were extremely receptive. By 1980, the average supermarket will handle about 800 frozen food items, compared with 375 to 450 now. Also, there is a growing market for premium-quality frozen foods.

Growth Potential for Groundfish Products

Precooked breaded-and-battered items, especially portions, and dinners and entrées, hold the greatest potential for groundfish products. Retail sales of these products, with some exceptions, were "buoyant". New pre-cooked convenience items with much consumer appeal are largely responsible for sales growth. They are of primary importance to future of seafoods in U.S. market.



Fig. 2 - Fish Portions.

Quality

There were no negative comments on quality of convenience seafood products as such, except for some on batter content. This contrasted sharply with situation in late 1950s, when low quality checked growth in demand for fish sticks.

Frozen Diet Dinners

Frozen diet dinners, unsuccessful when introduced in 1950s, now are popular. This resulted from greater concern among U.S. consumers about coronary diseases and publicity about fish's nutritional advantages. These dinners use such groundfish species as had-dock, flounder, and cod.

Seasonal Fluctuations in Seafood Sales

The 6-week Lenten season remains the peak selling period for seafoods. On national basis, however, sales now are much more evenly distributed over the year. Combined Lenten sales of seafoods in 7 major markets have been about 10% of annual sales; monthly sales during rest of year ranged between 6.7% and 8%. There were secondary peaks during Thanksgiving and Christmas periods. Supermarket chains have spread their seafood promotion over the year to coincide with these trends.

However, within the U.S. pattern, monthly distribution varies markedly from market to market. In 1969, for instance, sales in Detroit, Mich., peaked during Christmas season; in Atlanta, Ga., annual sales were lowest then.

Supermarket sales used to peak on Fridays; now they are more evenly distributed throughout week.

Distribution of Seafood Products

Except for private label, the supermarkets do not carry anywhere near a full line of a seafood brand. No brand, except Mrs. Paul's, is distributed nationally. The chains with private labels tend to view other brands as complementary to theirs.

Impact of Food Service Sector

The retail sector is more concerned at the growing diversion of potential retail food sales to food-service industry, especially to fast-food sector. Take-out sales now total almost \$1.5 billion a year. To supermarkets, take-out sales in particular are purchases that traditionally would have been theirs.

As consumption of foods prepared away from the home grows, the supermarket chains are acting to get their share:

1. Some have established food-service divisions. The chains already have warehouses and delivery facilities and can offer one-stop distribution.

2. They offer hot, ready-to-serve, take-out foods. About 60% of supermarkets open last year had these sections. However, this trend is still in its infancy.

If the present trend continues, delicatessens will be the focus of supermarket expansion in take-out foods.

3. Competing directly with fast-food operators. Several supermarket chains have specialty restaurants.

Product Specifications

An important segment of buyers, the largest retail buyers, insists that processed groundfish products meet rigorous specifications, including packaging. All retail buyers place importance on high quality, at least equal to national brands, the advertising and promotion, and the reputation and consumer appeal of the brand. It is expected that product will meet usual standards on absence of bones and be covered by liability insurance.

A new product normally is tested. There are wide variations in thoroughness of testing procedures. The general tendency is for large retail buyers to test product thoroughly and for medium-sized chains to rely on brand reputation.

Criticism of Canadian Groundfish

Criticism by retail buyers of Canadian groundfish was not significant statistically. It was confined to bones and texture. The Canadian product was compared unfavorably to Icelandic commodity. On eastern seaboard, buyers for retail chains assume that products are boneless to a degree acceptable to the consumer. They merely require seller to have liability insurance to cover claims arising from sale of products containing bones. In western states, buyers expect products to be completely free of bones.

Purchasing Practices

Chains make little use of wholesale distributors. The major method of buying the frozen product is direct buying--from processors or through their broker representatives.

Merchandising

Eighteen retail outlets were inspected for merchandising of seafoods. No clear pattern emerged. In freezer space and in-store merchandising, the promotion of seafood could not

be rated "completely inadequate," simply dull. Generally, management still considers frozen seafoods low-interest items.

The expansion of retail demand for frozen groundfish products will depend heavily on product innovation.

Private Label

Over half the retail food chains had their own label in certain seafood items. While it was found that chains of similar size had differing philosophies on private labelling, there is a functional relationship between the size of the chain and the use of private label by major retail food organizations. Some 75% of chains with over 90 retail outlets carried their own private label; only 36% of smaller chains. When members of Topco Associates, a major group buying organization, are excluded, the latter percentage falls to 14%.

Selling Performance of Canadian Producers

Excluding the three largest chains, no major retailers stated that Canadian or other foreign producers of groundfish products had established direct and significant relationships with them. And none was critical of this.

Canadian processors of groundfish products concentrate sales function in the hands of brokers. This is how Iceland and other producers supply retail food market. The selling performance of Canadian producers is as good as their foreign competitors'.

As demand turns more to sophisticated processed products, volume sales are concentrating in hands of large food brokers, especially those who service food-service sector. These firms have specialized selling techniques necessary for high sales performance. So large brokers are becoming the major selling channel for Canadian processors. The small traditional brokers may be reduced to a marginal role.

THE FOOD SERVICE MARKET

Scope of Market

The food-service market, in 1966, had over 370,000 establishments: table service restaurants, cafeterias, counter service, drive-ins, drug and retail stores; industrial, hotel, motel, recreational and amusement places

for eating; hospitals, nursing homes, schools, colleges, universities, and military establishments.

Public eating places account for about two-thirds the total retail value of food sold by food-service industry. Sixty percent of these places are separate establishments; the remainder are part of other businesses--variety stores, hotels, motels. Nonpublic eating places account for about one-third the retail value of food sold by food-service industry: schools, hospitals, and homes for children, the aged and the mentally ill.

Fast-food service offers some convenience in eating. It accounts for 80% of U.S. food-service business; the value of annual food sales by service restaurants is only 20%. Service restaurants provide table service in a dining room, have extensive kitchen facilities, a professional chef, and offer full courses.

The food-service industry is growing about twice as fast as the retail food sector. The industry is substituting capital for labor, and production-line labor for skilled labor.

Average sales per employe in food-service sector is \$8,500; they are about \$18,000 for supermarket employe, and \$22,000 in average retail outlet. Wages are rising at 2.3% annual rate, considerably above growth in productivity. The upward trend in wages in the food-service industry is accelerating.

The evidence points to steadily increasing use of convenience foods, particularly frozen form. In long run, this probably will be produced in commercial processing plants instead of commissaries.

Demand for Seafood

The consumption of seafood, excluding seafood specialties, by food-service sector is estimated at 680 million pounds a year; of these, 250 million pounds are used by restaurants, 115 million pounds by school-feeding sector.

Frozen groundfish sticks, portions, fillets, entrees and other convenience products of the heat-and-serve variety are gaining increasing acceptance among food-service operators. However, the major growth in volume is concentrated (except for fish sticks) in uncooked breaded portions and fillets.

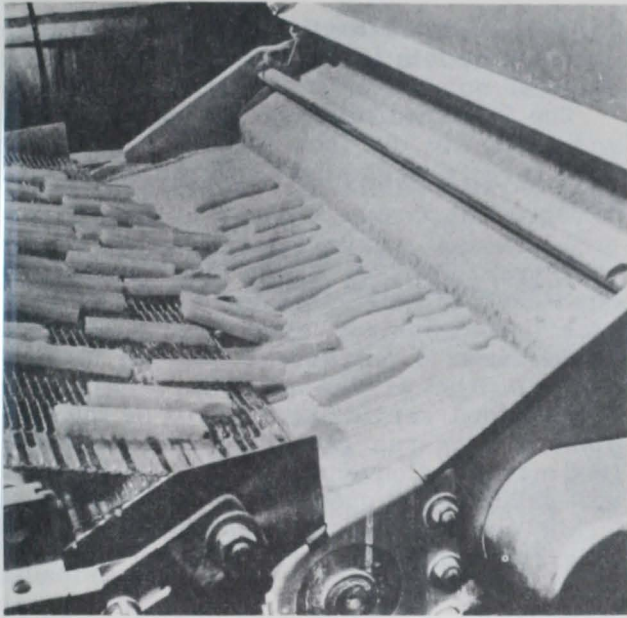


Fig. 3 - Fish sticks passing from batter to breading.

At present, the primary growth area for groundfish products is the fast-food sector of the industry: drive-in and take-out restaurants. The fish-and-chip sector of this industry uses only frozen fillets and uncooked unbreaded portions; other fast-food operators, much less oriented toward use of fish, primarily use breaded or battered portions, generally uncooked.

There has been growing demand for fish portions, now 15 times that for fish sticks in food-service sector. Major reasons are: popularity of fish sandwich, introduced in 1964; portions permit precise serving and cost control. The rise in U.S. consumption of fish portions closely parallels growth of drive-in restaurants.

The large chains in this category, McDonalds and Burger Chef, use substantial amounts of fish portions: each about 10 million pounds a year.

The demand for groundfish fillets and portions developed spectacularly with growth of fish-and-chip franchises in U.S. The story began in 1965, when Haddon Salt established his first outlet at Sausalito, near San Francisco. By the end of 1970, the industry had an estimated 1,150 outlets use groundfish at annual rate of 54 million pounds. Industry consumption in 1970 is estimated at 46 million pounds.



Fig. 4 - Broiled Breaded Shrimp.

The Fish-and-Chip Industry

Like other sections of the U.S. fast-food industry, the fish-and-chip firms are franchise operations. The franchise concept permits companies with limited capital to expand rapidly.

There is a trend toward company ownership of units because this offers the prospect of much greater net returns than royalties from independent franchise operations.

The largest concentration of fish-and-chip outlets is in the western United States; the lowest in the midwest.

The companies cater to sit-down and take-out trade.

Raw Material

The species of fish used almost everywhere by the fish-and-chip industry is cod, primarily because it is relatively low cost.

The Coldwater Seafood Corp. is the dominant supplier of cod to the industry because of the high quality of the Icelandic product and its "aggressive development of this market from its inception."

No firms were located within the fish-and-chip industry that knowingly use cod from Canada. The companies reported that Canadian suppliers had no interest in servicing the industry.

The feeling within the trade is that Canadian cod is inferior to Icelandic and Norwegian cod. Burger Chef, with over 1,000 outlets and annual use of over 10 million pounds of cod portions annually, will not knowingly buy Canadian cod.

"The defects cited range from the presence of parasites, pinbones, skin, black spots, belly-flaps and napes in fillets and blocks, to soft texture and unsatisfactory flavour."

The great majority of companies interviewed did not have first-hand experience with Canadian cod.

The Icelandic block of fillets is smooth. The Norwegian product contains fillets out of shape and difficult to portion. This impedes development of an efficient in-store portioning technique.

The industry believes Iceland can supply all requirements for the foreseeable future. The smaller companies have tended to accept this assurance at face value. Three major companies are very concerned about the future availability of cod; two of them have attempted to find more sources of supply. The industry is more receptive to the prospect of using Canadian cod--providing minimum specifications can be met.

It is estimated that by 1975 the annual raw material requirements of the industry will be 155 million pounds, over 3 times the estimated level of demand in 1970.

It is estimated that there will be 3,250 fish-and-chip outlets in the U.S. by 1975.

The fast-food industry, the major user of groundfish in the food-service sector, has been largely neglected by Canadian processors.

SURVEY FINDINGS AND RECOMMENDATIONS FOR ACTION

(1) Demand

The food-service sector will be the focal point of long-run growth in demand in U.S. food market. Convenience foods will be product group with greatest growth potential. "This conclusion is also applicable to the long-run demand for groundfish products."

The important factors in U.S. demand for groundfish products are:

- (a) The fresh-fish market is relatively static. Growth in demand for groundfish products is concentrated in frozen-food sector.
- (b) Retail and food-service demand for frozen groundfish is expanding, but growth potential is much greater in latter area. This results from growth of institutional catering and fast-food franchises based on the sale of battered-and-breaded fish products.
- (c) The products in growing demand are primarily those with high degree of convenience and product innovation. More consumers like them and they meet specialized requirements of food-service buyers. The major exception to the rapidly growing demand for pre-cooked breaded-and-battered groundfish products is the fast-food industry. But even this sector requires the convenience of pre-cut portions, breaded or raw, as well as standardized fillets.

Another convenience food, fish sticks, is experiencing a slower growth rate than portions. But it is second only to portions as groundfish product in greatest demand in dollar and volume terms on U.S. market. U.S. production of portions and fish sticks, based on supply of foreign raw material, rose from

60,061 tons and 69,903 tons in 1960 to 216,453 tons and 113,338 tons in 1969. Portions, stimulated by expansion in food-service demand, showed uninterrupted annual growth.

U.S. imports of fish sticks and portions from Canadian sources have been insignificant in terms of total market demand. The situation resulted primarily from tariff barriers. It may now be opportune for Canadians to examine thoroughly "the economic feasibility of greater processing of convenience groundfish products for sale in the U.S. market."

The bulk of the demand in the future may be for completely bone-free fish. This and demand for premium products suggest that Canadian producers should up-grade their standards.

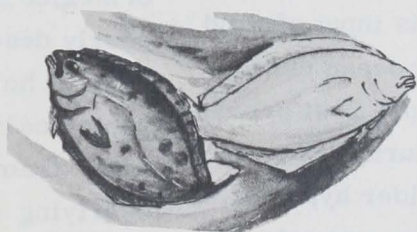
Product Innovation

Improved quality and product innovation to meet buyer desires for more convenience in food products are the "prerequisites for the expansion and maximization of the market

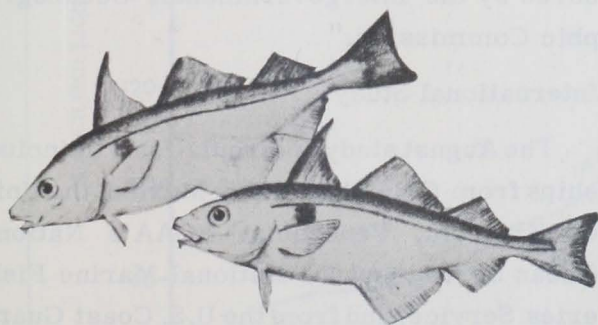
share of the Canadian groundfish industry in the U.S. market."

"The available statistical evidence suggests that the market importance of many high-value seafood products, such as flounder, sole and halibut, in their predominant retail forms can be expected to decline within the next decade. This long run trend can be expected to continue unless new and more popular products are developed, particularly frozen, highly processed convenience items."

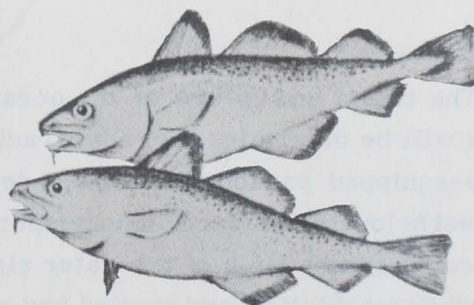
In the U.S., most of the companies that were engaged directly in the supply of fresh fish 20 years ago have gone out of business. Firms that relied on the markets for frozen fish and/or fillets have had trouble remaining solvent. But specialty companies that have used the basic raw material to produce the precooked fishery products have thrived. The largest seafood processors are product manufacturers rather than packers of commodities. "Such growth as the U.S. fishery industry has achieved over the past 20 years is directly attributable to the introduction of convenience type products."



Flounder



Haddock



Cod

OCEANOGRAPHY

INTERNATIONAL STUDY OF CARIBBEAN CURRENTS IN JULY & AUGUST

The 3-year, 15-nation oceanographic investigation of the Caribbean and Gulf of Mexico has a new phase scheduled for July and August. U.S. scientists and ships are participating. Its main objective is an intensive study of the circulation patterns to determine which processes cause them. The U.S. efforts, mainly by NOAA, will concentrate in the western Caribbean, Yucatan Channel, and southeastern Gulf of Mexico.

Trade Winds & Ocean Currents

Scientists think the trade winds over the tropical Atlantic and Caribbean are the prime movers of the ocean currents in the Caribbean, Gulf of Mexico, and the Florida Straits. It is unclear, however, how this input of wind momentum is organized into an ocean current. One assumption is that the input first drives a series of eddies which, in turn, drives the larger-scale currents. An older hypothesis is that the western Caribbean currents are driven directly by the winds to flow uphill against gravity. And there are other assumptions.

The Operation

"The extent and nature of the ocean currents will be determined by radar tracking of radio-equipped parachute drogues deployed 120 feet below the surface. The temperature, salt content, and depth of the water also will be measured, plotted, and studied and examinations made of the distribution of certain trace metals. The deep-water tides will be studied by current meters moored close to the ocean bottom. And the temperature,

speed, direction, and humidity of air currents and the nature of clouds will also be investigated to provide background for an understanding of the interaction between the sea and the atmosphere."

Dr. Harris B. Stewart Jr., of NOAA's Atlantic Oceanographic and Meteorological Laboratories in Miami, Fla., is U.S. National Coordinator for the project, known officially as the Cooperative Investigation of the Caribbean and Adjacent Regions (CICAR). He said that in previous efforts little more than one-ship scientific work had been done.

"The Caribbean Sea with its adjacent Gulf of Mexico is, oceanographically speaking, still poorly described and even less well understood," he stated. "Now, its dynamics, its contained life, its bottom topography and tectonic framework, its interactions with the overlying atmosphere, and the dynamics of the atmosphere above it are the subjects of a cooperative international investigation sponsored by the Intergovernmental Oceanographic Commission."

International Study

The August study of circulation will include ships from Colombia, Cuba, Mexico, the United Kingdom, Venezuela; NOAA's National Ocean Survey and the National Marine Fisheries Service; and from the U.S. Coast Guard.

About 15 NOAA scientists will work aboard two floating oceanographic laboratories of the National Ocean Survey, the 'Discoverer' and 'Researcher'.

CLAMS: Resources Are Healthy, Says J. P. Wise

[The April 1971 Commercial Fisheries Review (CFR) included: "Ocean Quahog Becomes More Important As Surf & Bay Clams Dwindle." The article was based on information from the New England Marine Resources Program. The program is supported by the Sea Grant College and Program Act, the State Technical Services Act and the University of Rhode Island. . . Ed.]

John P. Wise, NMFS Tropical Atlantic Biological Laboratory, Miami, disagrees with the statement that clam resources are dwindling. He writes: ". . . this is in fact

not the case. I have enclosed some tables and graphs on surf clams, hard clams, and soft-shell clams, extracted from official NMFS statistics, that seem to show that the fisheries are in healthy shape with increasing catches over the last several years. (The apparent decline in hard clam catches in the early 1950's was caused by a temporary upsurge in landings in the late 1940's and early 1950's.)

"A minor point is that Spisula soldissima is almost universally known as 'surf clam' not 'sea clam'."

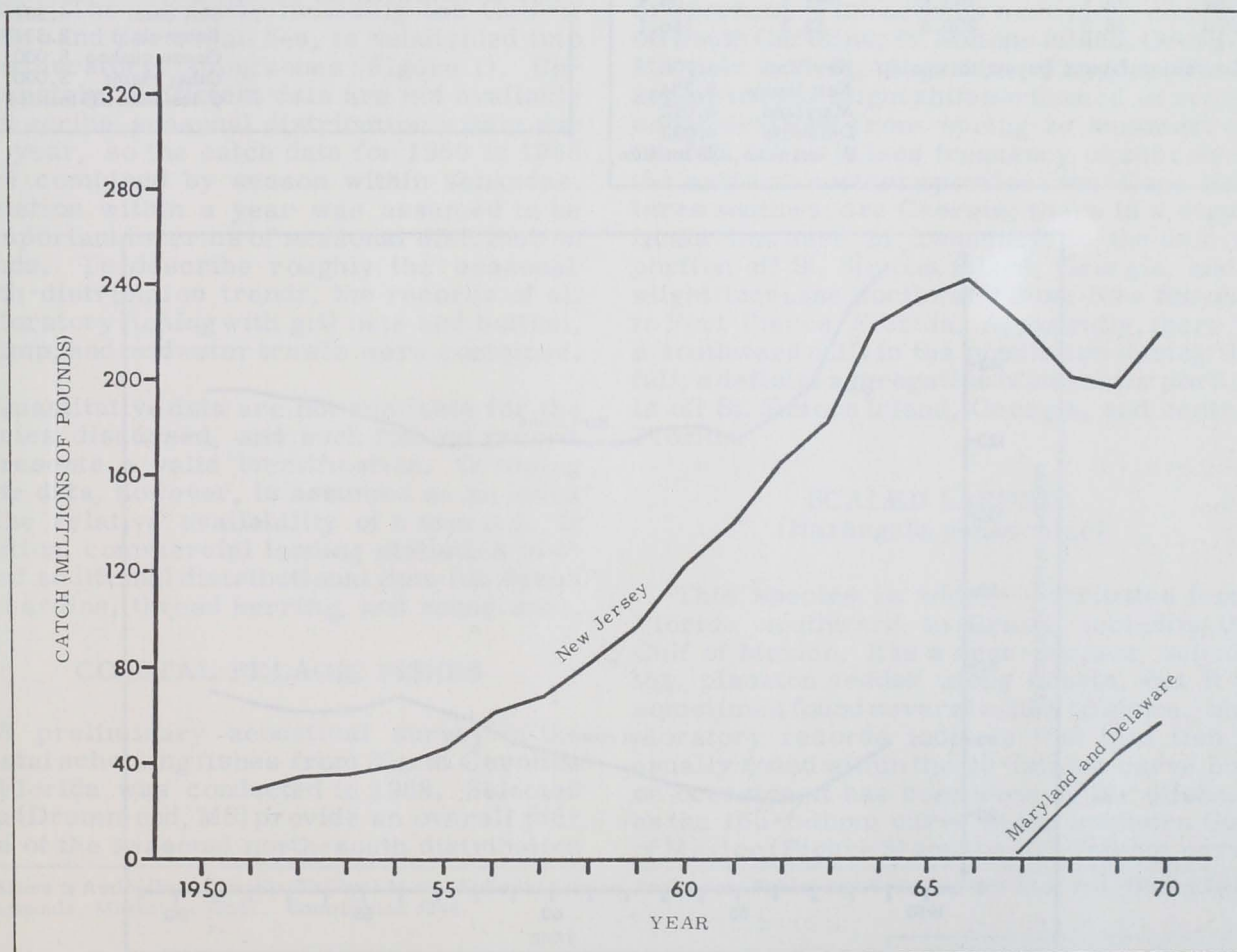


Fig. 28A.1 - Surf clam catches in certain states, 1951-70 (smoothed by moving average of 3).

Table 28A.1 - Catch of surf clams landed in various states, 1945-70

Year	New York	New Jersey	Delaware	Maryland
----- millions of pounds (whole) -----				
1945	18.7	2.8	-	-
1946	30.5	-	-	-
1947	14.8	.9	-	-
1948	16.9	.9	-	-
1949	23.1	2.2	-	-
1950	15.5	22.8	-	.5
1951	19.0	33.9	-	-
1952	19.5	94.0	-	8.5
1953	15.7	36.4	-	10.0
1954	15.8	36.4	-	5.5
1955	9.5	43.8	-	6.9
1956	11.1	61.3	∅	7.6
1957	7.5	80.6	.2	3.8
1958	2.0	66.0	.8	3.2
1959	2.4	106.7	1.7	3.5
1960	3.4	124.1	.5	1.7
1961	3.4	141.3	-	.3
1962	3.9	157.9	.4	.3
1963	4.6	199.8	-	.3
1964	5.7	195.2	-	.2
1965	7.0	224.0	-	1.1
1966	8.7	228.6	-	∅
1967	10.8	220.1	-	.1
1968	14.2	170.4	-	21.8
1969	16.1	190.8	11.3	29.2
1970	18.3	209.6	12.3	56.1

Conversion factors (meats to whole):
 New York 4.706
 New Jersey 5.294
 Maryland 4.092
 Delaware 4.092
 ∅ less than .05 million

Table 28B.1 - Catch of various clams, 1950-69

Year	Hard clam	Soft clam	Razor clam	Ocean quahog	Other
----- millions of pounds (whole) -----					
1950	177.9	42.7	5.9	1.8	
1951	175.9	41.1	6.5	1.6	
1952	148.6	33.4	4.1	3.9	
1953	143.5	25.8	4.5	2.2	
1954	114.3	23.3	3.8	1.6	
1955	125.4	23.3	5.7	3.6	
1956	124.2	27.8	2.3	3.1	
1957	124.8	26.0	2.4	3.1	
1958	120.7	30.0	1.8	2.1	
1959	114.6	32.5	2.3	.8	
1960	125.8	39.0	1.9	1.5	
1961	123.5	33.5	1.7	1.0	
1962	112.4	42.8	1.2	.5	.1
1963	122.8	44.4	1.0	.8	.1
1964	126.2	50.2	.6	.9	.1
1965	127.2	51.5	.7	.7	∅
1966	129.5	54.2	.6	.7	.3
1967	136.8	44.7	.7	.4	.5
1968	130.4	47.2	.5	1.8	2.3
1969	137.2	61.3	.6	5.1	3.4

Conversion factors (meats to whole):
 Hard clam 8.454
 Soft clam 4.551
 Razor clam 2.334
 Ocean quahog 8.000
 Other clams 5.000
 ∅ less than .05 million pounds

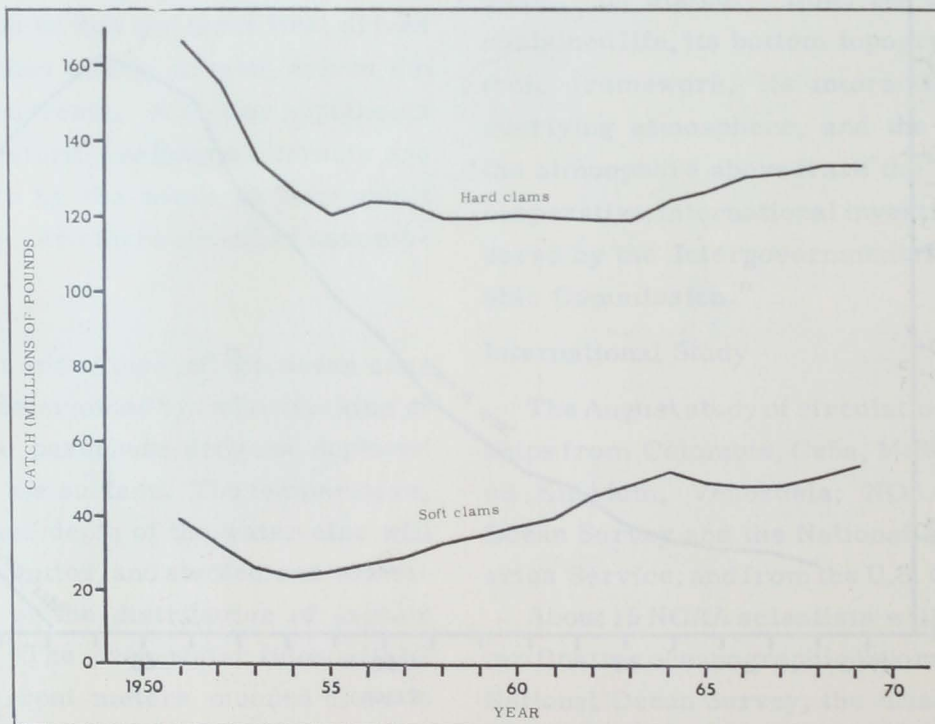


Fig. 28B.1 - Hard and soft clam catches, 1951-69 (smoothed by moving average of 3).