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PROGRAMS AND ACTIVITIES OF THE BUREAU OF COMMERCIAL FISHERIES

RESEARCH DEVELOPMENT SERVICE

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UNITED STATES DEPARTMENT OF THE INTERIOR, Stewart L. Udall, Secretary

FISH AND WILDLIFE SERVICE, Clarence F. Pautzke, Commissioner

BUREAU OF COMMERICAL FISHERIES, Donald L. McKernan, Director

CIRCULAR 135

JANUARY 1962

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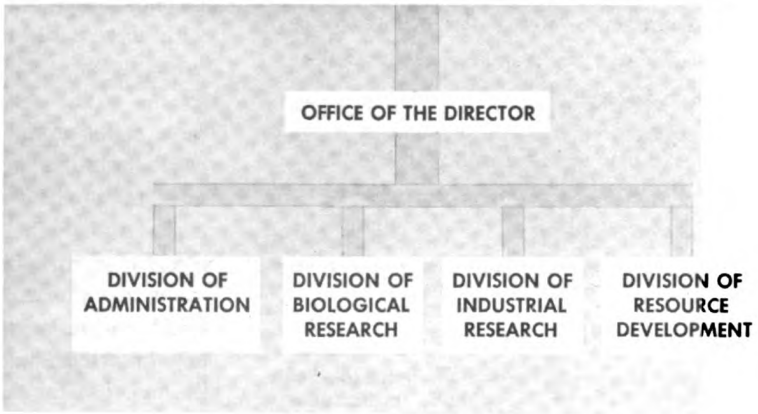
DONALD L. McKERNAN
Director
Bureau of Commercial Fisheries

HAROLD E. CROWTHER
Assistant Director
Bureau of Commercial Fisheries

BUREAU OF COMMERCIAL FISHERIES



The material used in this booklet reflects, in essence, an oral presentation, illustrated with slides, made by the Bureau of Commercial Fisheries before Secretary of the Interior Stewart L. Udall, Undersecretary James K. Carr, and their staffs. Director McKernan opened the presentation with a description of current programs and problems of the Bureau and of the commercial fishing industry. This was followed by individual presentations of Division activities. Mr. McKernan concluded the presentation with a look at the problems and possibilities of the future.

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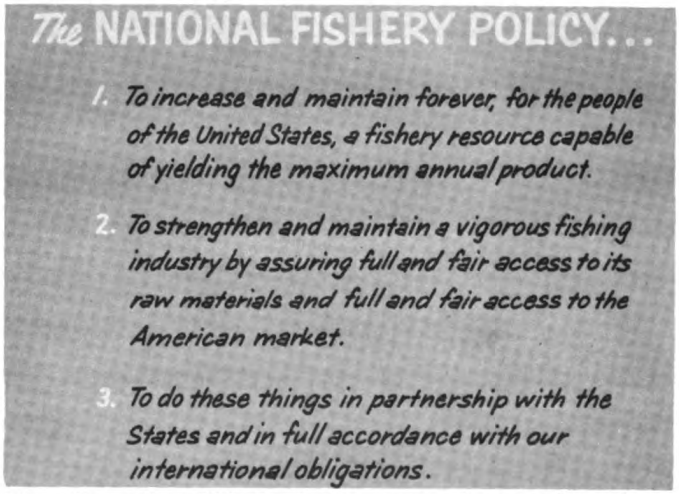
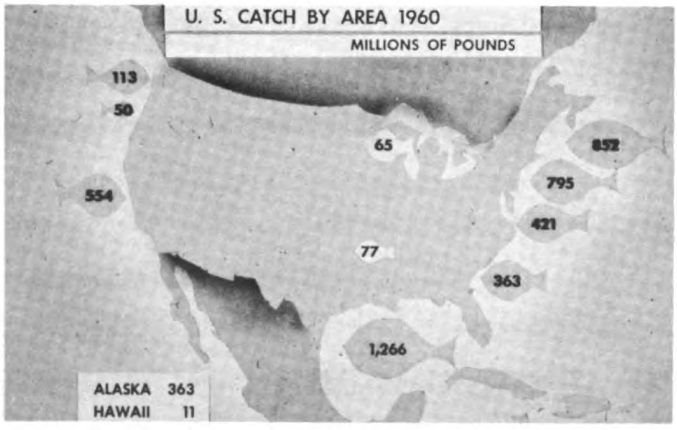
Bureau's responsibility involves commercial fisheries of the United States. This industry is not large when compared to some others but is still sizeable and is a significant contributor to the economy of the nation and to the nutritional well-being of its citizens.



The policy under which the Bureau operates is summed up above. The authority of the Bureau to operate in this area stems not only from the Fish and Wildlife Act of 1956, but from a number of other Acts as well.

Commercial fishing industry is not well known for it has no Swifts, Armours, or General Foods. Made up of scattered, smaller units, it handles over 200 species of fish and shellfish, each with a problem of its own.



A LOOK AT THE PRESENT

The area of responsibility of the Bureau of Commercial Fisheries involves the industry supporting the commercial fisheries of the United States. This industry is not large when compared to some of our industries, but still is sizable with a yield of some 2½ millions of tons of fisheries products each year, valued on the retail market at approximately $1 billion per year. The program of the Department is developing along the policies outlined by President Kennedy in his Natural Resources Message to the Congress of February 23, 1961. Speaking of the ocean resources, President Kennedy stressed the need by this Nation for an additional 3 billion pounds of fish and shellfish by 1980. He further indicated the need for increased Federal leadership in the rehabilitation of many of the important commercial fisheries resources harvested by United States fishermen. It is clear from the President's message, that the Administration intends to give concerted attention to the national effort in basic and applied research in oceanography. The Bureau is developing its program with these goals in mind to make certain that our fishermen have continuing access to the fisheries resources of the oceans of the world; that they harvest these resources in consonance with scientific conservation practices in order to insure continuing high rates of productivity; and that these resources are made available to the American public in the best palatable form with the highest quality. Bureau programs are primarily of a fundamental and applied research nature, using fundamental research to develop new knowledge and then applying this knowledge to the practical solution of fishery research problems.

In addition, the Bureau's programs involve supplying important services to the industry, consistent with services supplied by Government to other basic industries of our country. These include such things as gear development research, new product development, vessel loan programs, collection of statistics, harvest of fur seals, and other important service and management activities. Thus, the program of the Bureau is developed along policies laid down by the President, with the objective of maintaining for our country a healthy, prosperous commercial fishing industry, assuring maximum sustained harvest of the living resources of the sea for the peoples of the United States.

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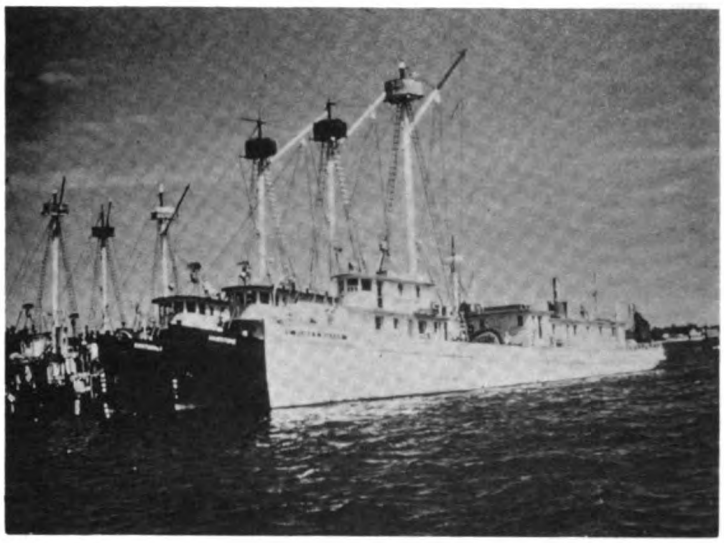
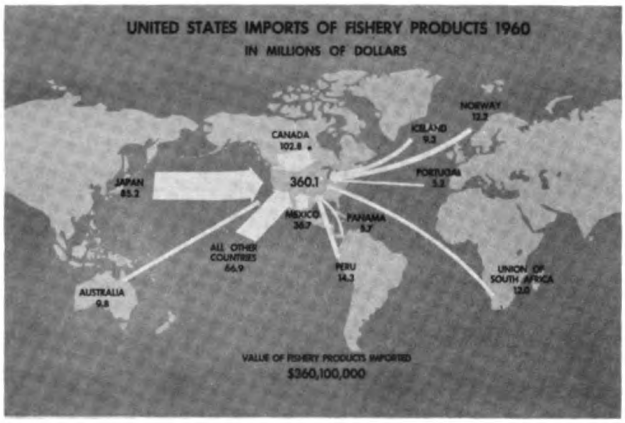
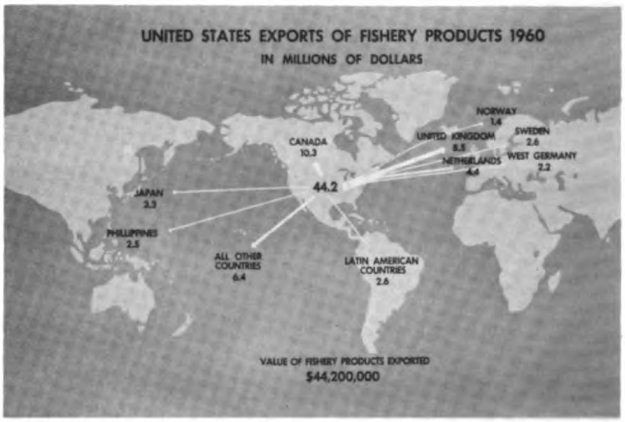
A LOOK AT THE PRESENT



These are typical menhaden vessels of the Middle Atlantic area. From 1.5 to 2 billion pounds of this industrial fish are landed yearly, No. 1 in volume in this country. Production of oil and meal by Peru, other countries is serious competition for U. S.



U.S. is an attractive market for fishery products. In 1960, $360 million worth of such products were imported. In many cases, because of our standard of living, U.S. producers can't compete successfully with foreign goods.



Imports of fishery products into this country far exceed exports. Last year only $44 million worth of fish products were exported from U.S. Of exports fish oil is most important with West Europe the principal market.

Competition from imports has taken toll in the New England groundfish industry. Construction differential subsidy and loan fund are among programs used by the Bureau to aid this distressed segment of industry.

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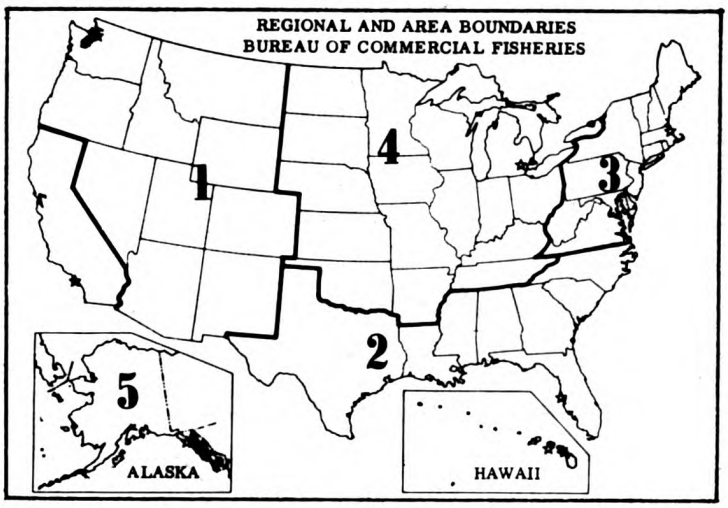
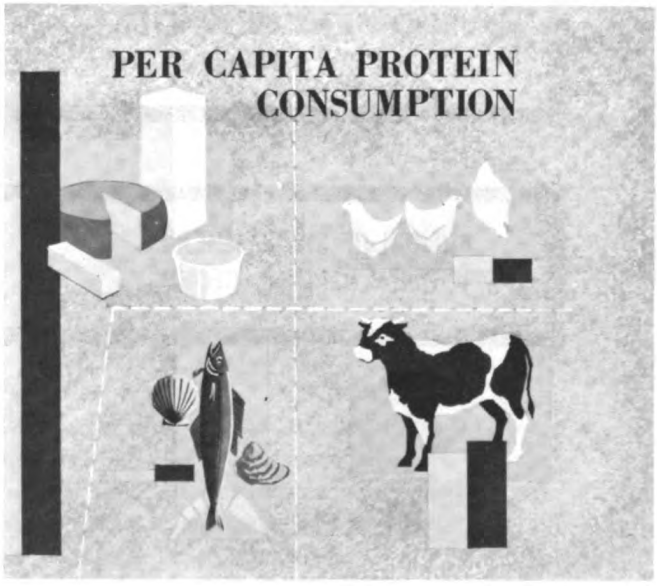
The world is shrinking with respect to important fishing grounds. As a result there has been a rapid growth of international fisheries conservation commissions. The U.S. presently is a member of nine of these commissions.



For immediate, on the spot, attention to local problems, the Bureau is regionalized. Region 1 office is located in Seattle, Samuel J. Hutchinson, Director; Region 2, St. Petersburg Beach, Fla., Seton H. Thompson, Director; Region 3, Gloucester, Mass., John T. Gharrett, Director; Region 4, Ann Arbor, Mich., William F. Carbine, Director; Region 5, Juneau, Alaska, Harry L. Rietze, Director; California Area Office, Terminal Island, Cal., Donald R. Johnson, Director; Hawaii Area Office, Honolulu, John C. Marr, Director.



Fish must compete with poultry, meat, and eggs. Some competitors, like poultry, have streamlined operations, attractive prices. Nevertheless, the demand for fishery products, as illustrated by the bar graphs, is expected to nearly double by year 2000.

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DIVISION OF BIOLOGICAL RESEARCH

J. LAURENCE McHUGH, CHIEF

BRANCH OF ANADROMOUS FISHERIES
RALPH P. SILLIMAN, CHIEF

BRANCH OF INLAND FISHERIES
PHILIP R. NELSON, CHIEF

BRANCH OF MARINE FISHERIES
H. E. ECKLES, CHIEF

BRANCH OF SHELLFISHERIES
JOHN B. GLUDE, CHIEF

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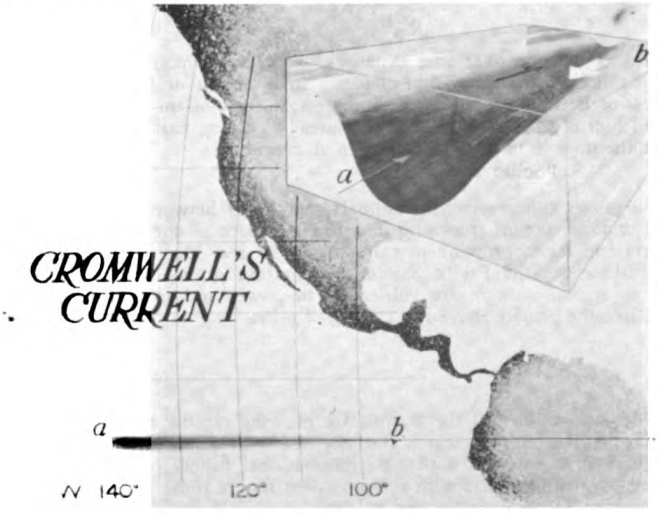
Any program of research, development, and services pertaining to a living natural resource must include investigations of the biology of the resource. This is necessary to understand the distribution, movements, and other habits of the animals, the effects of fishing upon the resource, the influence of natural environmental changes upon abundance and migrations, and the ways in which pollution, dams, and other man-made changes alter abundance and distribution. Application of these kinds of knowledge to problems of the commercial fishing industry can assist the industry in several ways. They can help fishermen to harvest the maximum sustainable yield from the resource, avoiding overfishing, yet guarding against wasteful underutilization. They can tell him which species will be abundant and which will be scarce, so that he can avoid wasted time and effort searching for resources temporarily in short supply. In short, they can reveal methods by which fishery products can be produced in quantity at a fair profit to the fishing industry, and can be made available to the consumers in prime condition, attractive in appearance, and at reasonable prices.

It is the staff responsibility of the Division of Biological Research to review programs and budgets of 18 Biological Laboratories and numerous field stations in Alaska, Honolulu, on the Great Lakes, and at numerous locations on the Pacific, Atlantic, and Gulf coasts of the United States. The Division develops and coordinates the national program of biological fishery research, and handles liaison activities with other Government bureaus and offices, State fishery organizations, universities and private institutions, and public groups in all matters relating to biology, oceanography, pollution by industrial, agricultural, domestic, and atomic wastes, and other matters relating to the welfare of the living resources of our natural waters. Prominent among the activities of the Division are research responsibilities pertaining to the work of several international fishery commissions, particularly the International North Pacific Fisheries Commission, the International Commission for the Northwest Atlantic Fisheries, the Great Lakes Fishery Commission, the International Fur Seal Commission, the International Whaling Commission, and the Inter-American Tropical Tuna Commission.

Of concern to the Bureau is the great change in the kinds of fish in the Great Lakes. Following the lamprey invasion the higher-value commercial fishes declined drastically and those of lesser value increased in abundance. With control of the lamprey, Bureau hopes to restore nature balance more favorable to man.

Some commercial animals of the estuarine and inshore environment, like oysters, are readily responsive to cultivation and Bureau is endeavoring to increase survival by controlling pests. Scientists of the Bureau have had striking success in control of starfish and oyster drills, pests which greatly damage oyster beds.

A scientist at the Honolulu Laboratory discovered, ten years ago, a major new ocean current in the Tropical Pacific, some 3000 miles long and flowing more than 1000 times the volume of the Mississippi River. It is named for its discoverer, Bureau Oceanographer Cromwell.



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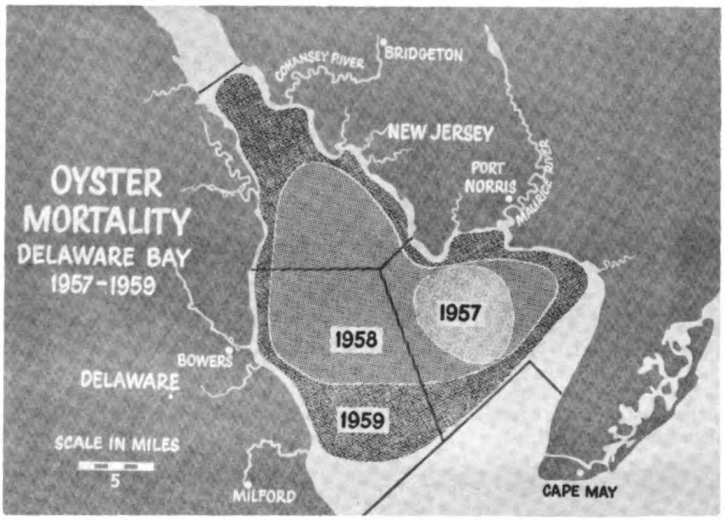
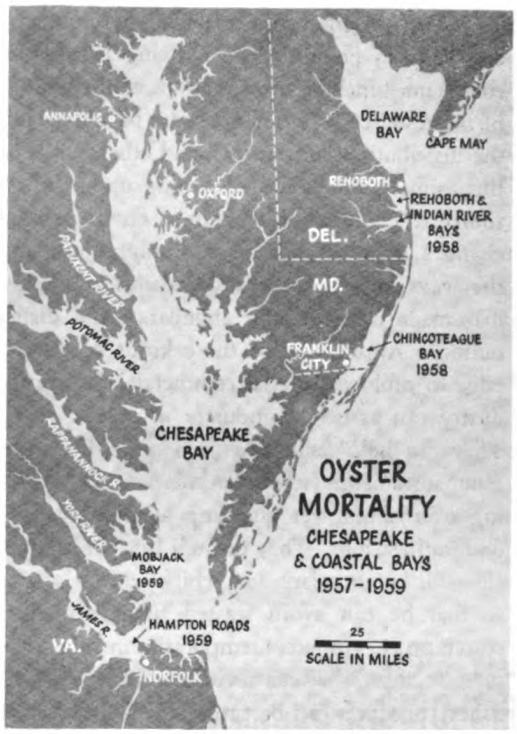
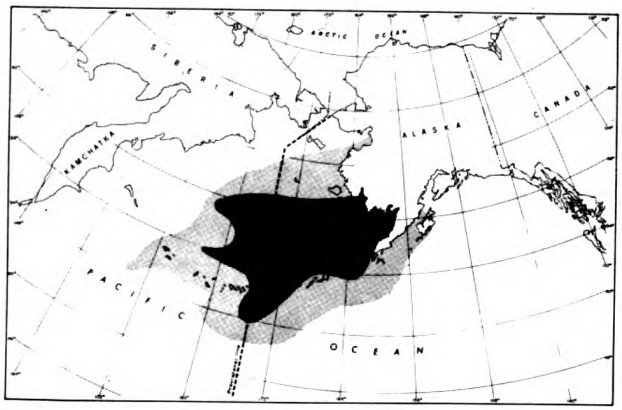
In addition to such predators as starfish and oyster drills, blight is another great scourge of the oyster grower. Such a blight struck the once-great oyster beds of Delaware Bay in 1957 and has now virtually wiped out the fishery in this area which once was a top producer. The same epidemic that struck Delaware Bay has moved down the coast to Virginia and Maryland, and has now caused serious mortalities in Chesapeake Bay. Bureau scientists believe a previously unknown microorganism is causing these mortalities. The Bureau has joined with the States in a concerted attack on this problem.



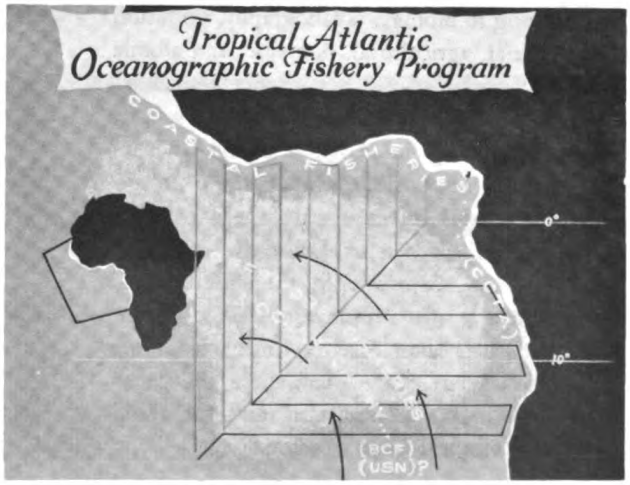




Ranging as they do over vast expanses of ocean, salmon attract high-seas fleets of nations like Japan. Red salmon originating in rivers of Bristol Bay, Alaska, dominate vast areas of the Bering Sea and North [redacted]Ocean. The Bureau is giving particularly urgent attention to problems of the salmon resource.

Pacific

The Bureau is concerned with animals that move between fresh waters and the ocean, spawning and living a part of their lives in rivers and lakes, growing to maturity in the sea. Most important of these are the Pacific Salmons. Migrating great distances inland to spawn, salmon are vulnerable to power and irrigation works, like the project above right, and pollution.



International activities of the Bureau are growing rapidly and the Division of Biological Research is concerned with certain aspects of research in connection with nine international fishery commissions. Among the contacts with foreign scientists are those dealing with tunas in Tropical Pacific and Atlantic.

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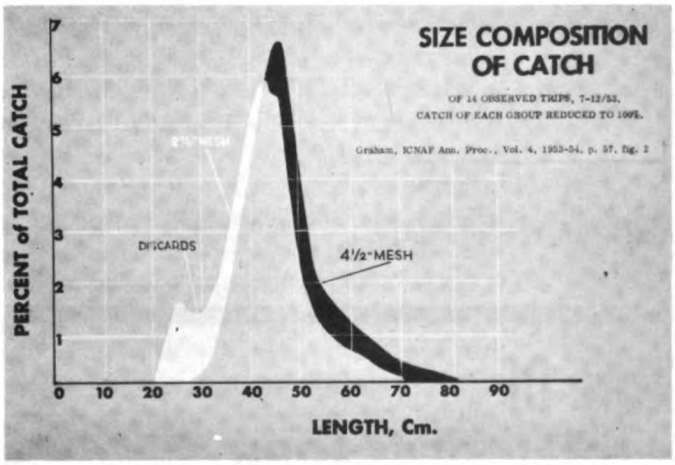
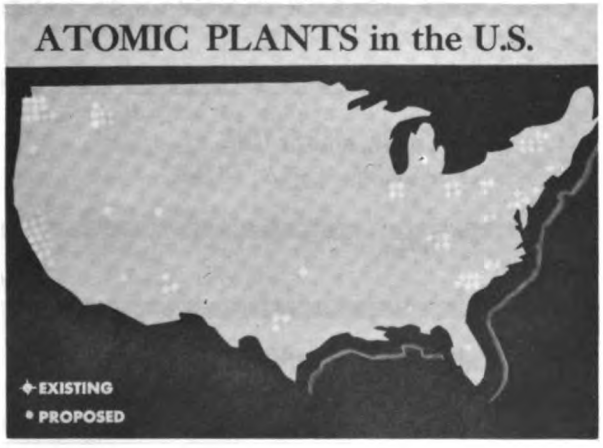


Bureau concluded some years ago that haddock yields in Northwest Atlantic could be increased by allowing fish to reach a greater age before capture. By increasing size of trawl mesh scientists showed how small fish were allowed to escape to grow to larger, more valuable size before capture, and greater numbers of large fish were caught.

DIVISION OF BIOLOGICAL RESEARCH

Studies have shown that trace amounts of some pesticides cause high mortalities of shrimp, crabs, and larvae of oysters and clams. Land drainage carries pesticides, weed killers, and other toxic chemicals from farmlands and marshes into lakes, rivers, estuaries, and the sea.

The Division's Branch of Marine Fisheries deals with purely high-seas resources, like tunas, sardines, and haddock. The Bureau's Biological Laboratory in Honolulu has a distinguished record of achievement, particularly with respect to movements and habits of tuna. Data have been of great value to science and to industry.



Studies of accumulation of radionuclides by marine plankton, fish and shellfish, and use of tracers in shellfish feeding studies have been carried on since 1948. Power developments and research installations using atomic energy are increasing in number. Each new plant threatens to contaminate our natural waters, unless adequate precautions are taken.

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The Division of Industrial Research supervises research, investigations, and studies aimed at maintaining the welfare of the commercial fisheries of the United States. Industrial Research is concerned with fish from the time they are found and captured to the final consumption of the product. Thus industrial research in fisheries involves engineering and technology of location, capture, preservation, manufacture or processing, and marketing. It involves economics and various techniques of trade and commerce. Chemical and bacteriological studies, research in nutrition and physiology, development and improvement of fish cookery, studies relating to foreign trade and tariff problems, and market development and promotion programs are examples of activities which the Division conducts on a nationwide basis.

The Division is composed of five Branches.

The Branch of Exploratory Fishing plans and conducts programs to locate and assess the extent of new fishing grounds. It uses specially equipped vessels to determine the size and character of the resource. This Branch also designs, tests, and develops new types of fishing gear and equipment.

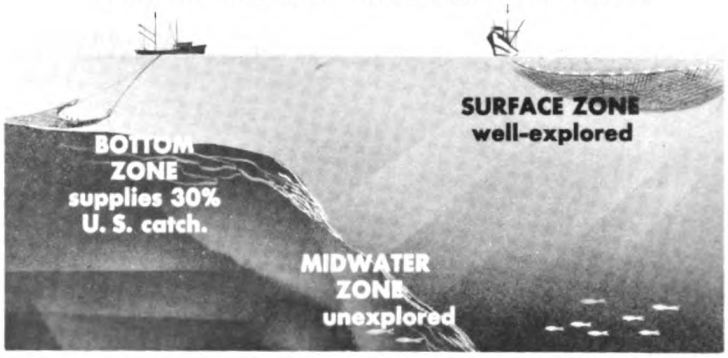
The Branch of Technology is concerned with scientific studies designed to improve and develop methods of handling, processing, preserving, and distributing fish and shellfish. This Branch also develops information on sanitation measures and requirements for voluntary U.S. standards of grade and condition of fishery products. It also conducts product inspection and certification services.

The Branch of Economics studies the economic position of the fishing industry in the national economy, and conducts economic studies on production, distribution and consumption of fishery products.

The Branch of Foreign Fisheries and Trade is concerned with the foreign and domestic fishery situations, the production and flow of fishery products from foreign producers which might affect domestic fisheries, and the relative competitive positions of domestic and foreign-produced fishery products.

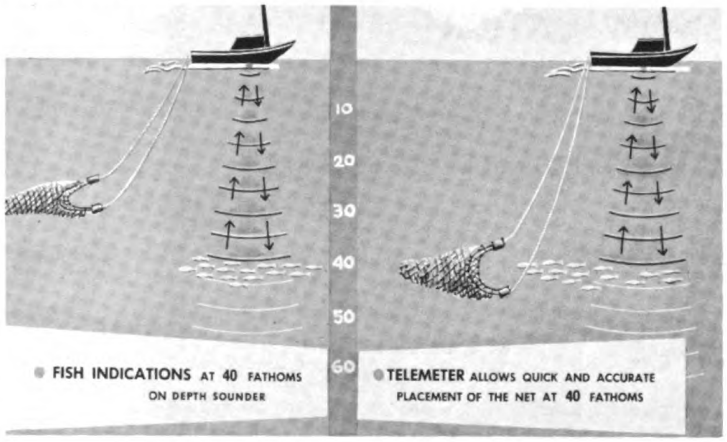
The Branch of Marketing develops markets for domestic fishery products through increasing the use of fishery products in school lunch and institutional menus and special programs of market promotion.

POTENTIAL AREAS FOR INCREASING PRODUCTION

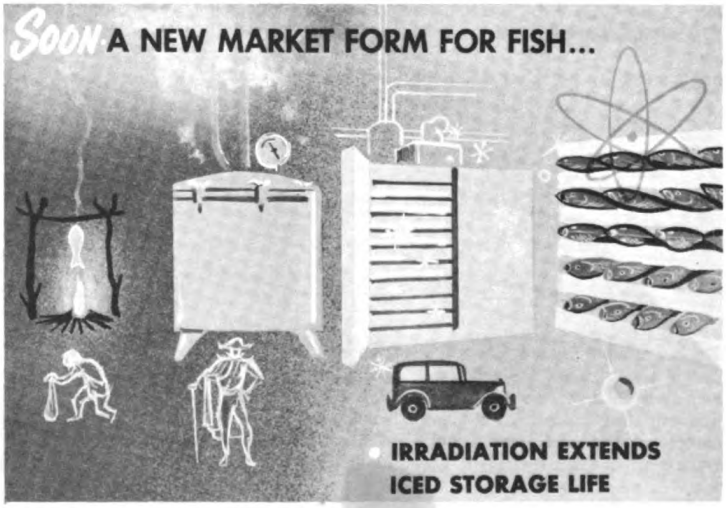


Fishing is a very old activity of man. Nevertheless man's harvest of the living resources of the sea is very limited. He has traditionally utilized only the upper 100 fathoms. More recently the trend has been to skim off animals in bottom and near-bottom of sea in depth accessible to gear such as this otter trawl.

Bureau's exploratory fishing experts developed telemeter to pinpoint depth at which otter trawl is operating. The depth sounder informs captain at what level school of fish is swimming. Combination of these two pieces of information enables him to put trawl on a course to intercept fish at any point **in mid-water area.**



The cave man utilized what he knew to heat and maybe smoke fish. Present research is aimed at peaceful use of the atom to so "pasteurize" fish and fishery products that, by subsequent refrigerated transport and storage, they may be used for up to 30 days from capture in a state em**phasizing the palatable nature of sea's bounty.**



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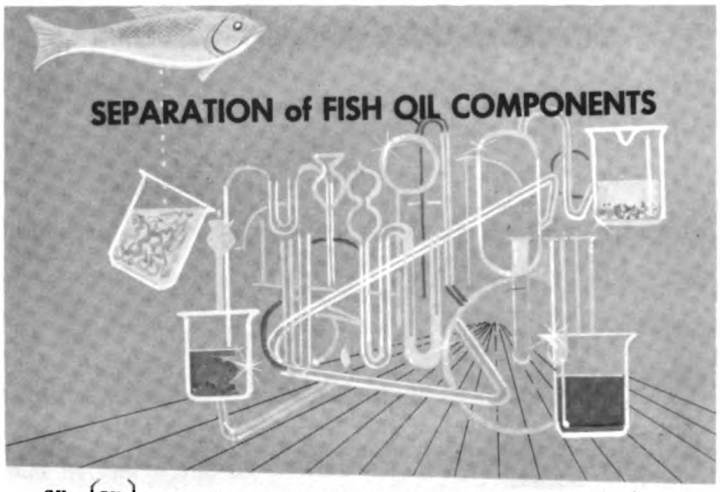
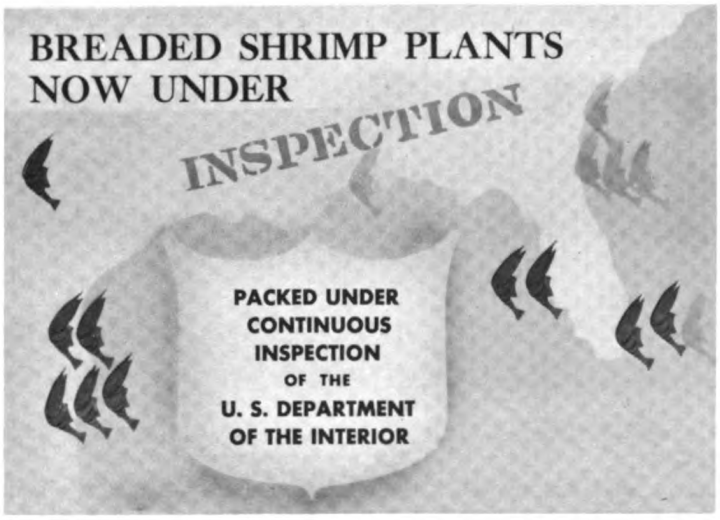


DIVISION OF INDUSTRIAL RESEARCH

Some fish, like menhaden, are better suited for non-human uses. For example, fish oil now is sold largely for use in margarine in West Europe at 5-7 cents per pound. Bureau scientists believe that fish oil could well follow the profitable path of industrial chemical raw material potential that petroleum has blazed.



One of the newest Bureau fishery programs is inspection of fish and fishery products upon request of the processor and at his expense. Nearly 180 million lbs. of fish and fish products were inspected during 1961. An increased flow of quality products from processor to consumer is a major goal of the inspection service.

Bureau economists strive to establish through studies facts essential to assessment of state of efficiency or effectiveness of industry. One such study might involve how to make crab plants (plant shown above) more efficient, thereby cutting overall costs and promoting maintenance of costs in a very rigidly competitive position.

Bureau marketing specialists use such free public service media as radio and television and free columns in newspapers, and fish cookery demonstrations to complement the industry's efforts in education of consumers about the nutritional and palate-satisfying aspects of a wide variety of fish and fishery products.

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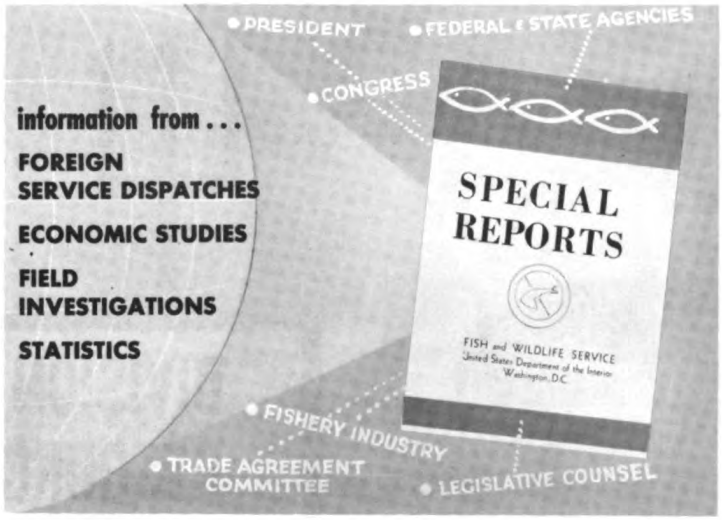
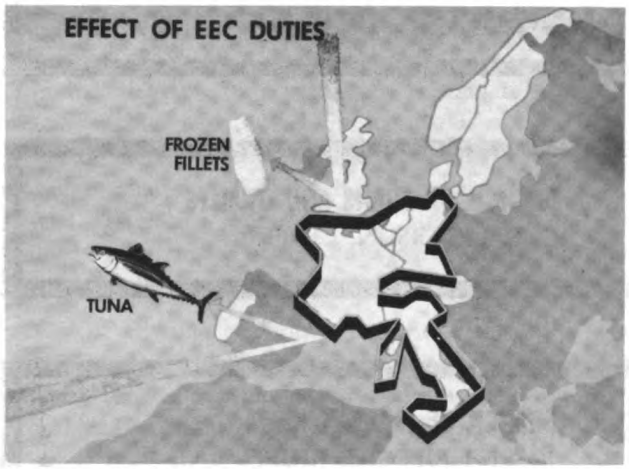
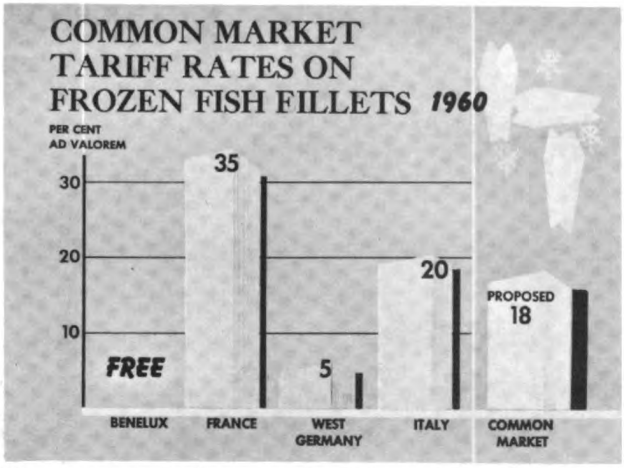


Foreign trade and tariff specialists seek, through all possible sources, to learn of any and all fisheries developments abroad—fishing, processing, marketing, government assistance—anything that could be of interest to U.S. Among the best sources of information are the fishery attaches now working in three foreign countries.

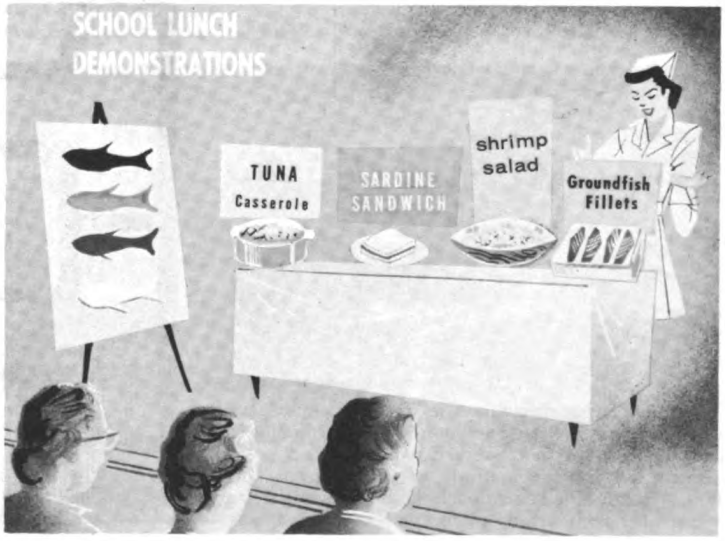


Specialists also follow such developments as European Economic Community (commonly called the Inner Six) because of the possible effect of tariffs established by such a union. For example, if rates were set high on imported raw tuna the U.S. could expect catching countries to select us as market of choice rather than EEC.



Bureau personnel also serve as advisors during international negotiations such as a review of the General Agreement on Tariffs and Trade. They seek to protect U.S. fishing industry's export opportunities and to establish a holding action against import reductions considered detrimental to the domestic fishing industry.

Bureau home economists present fish cookery demonstrations for school lunch and other institutional food personnel so as to stimulate fish use at the institutional level. Demonstrations are also presented for extension and educational groups—people in a position to extend information to consumers.



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DIVISION OF RESOURCE DEVELOPMENT

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The Division of Resource Development is responsible for a number of fishery resource management activities that are beyond the scope and jurisdiction of the individual States. These include: (1) Administration of the Pribilof Islands fur seal resource in Bering Sea, Alaska, which comprises about 80 percent of the world's fur seal population and yields from 60,000 to 70,000 pelts annually, having a net value of about $1,500,000; (2) Administration of the Columbia River fishery development program which is designed to mitigate damage to salmon and steelhead fisheries resulting from Federal water-use development projects in the Columbia Basin through artificial means of propagation, improvement of the remaining natural environment through the construction of fishways around natural obstructions, and screening of irrigation diversions; and (3) enforcement of laws and regulations relating to Pacific halibut, Northwest Atlantic cod and haddock, North Pacific salmon, Fraser River salmon, whales, and fur seals under international agreements. Surveillance is also maintained over extensive foreign fishing fleet activities along the coastline of the United States.

The Division performs a number of services for the fishing industry of the United States—services that the industry could not reasonably be expected to perform for itself. Among these are three financial assistance programs—fishery loan fund, fishing vessel mortgage insurance, and fishing vessel construction differential subsidy—all aimed to improve the general quality and competitive position of the United States fishing fleets through a type of financing not available from commercial institutions.

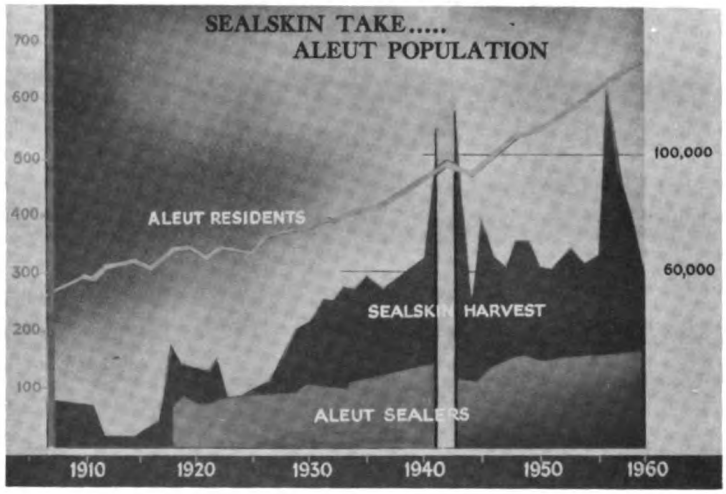
Another service performed by the Division is the collection, assembling, tabulation, publication, and dissemination of fishery statistical information on a nationwide basis.

The Division's national market news service, referred to as the eyes and ears of the fishing industry, provides all segments of that industry—from the fisherman to the consumer—with current, unbiased information on supplies, movement, distribution, demand, prices, and market conditions.

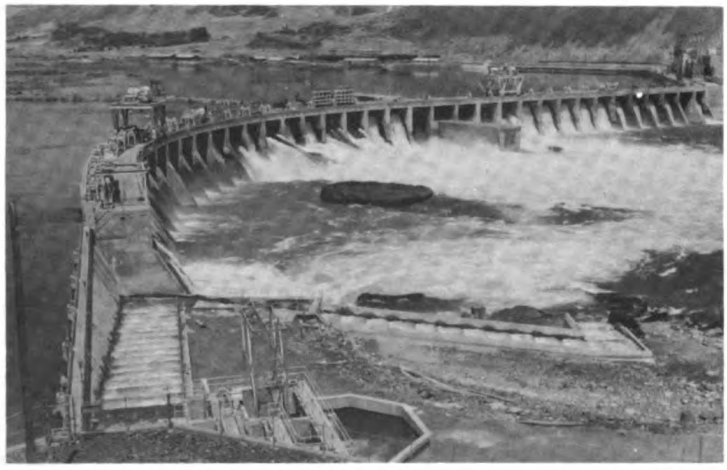
The review and publication of Bureau manuscripts and reports is also a responsibility of the Division of Resource Development.

Typical fur seal harem group of the Pribilof Islands contains single large bull, 5-50 smaller cows, each with single pup. Under protection of an international treaty and rational management program, Alaska herd has increased from about 130,000 seals in 1910 to approximately 1½ million at present. U.S. nets $1½ million yearly from sale of pelts.

Chart reflects both accomplishment and problem. Legend at right shows rise in annual harvest of sealskins, while legend at left indicates resident Aleuts have increased beyond point where they can be sustained by fur seal industry, their only means of livelihood on Islands. The Bureau has started training and relocation programs.



Development of Columbia River and its Tributaries has brought about detrimental changes in freshwater environment of salmon and steelhead. The Bureau since 1949 has sponsored a development program in cooperation with the Northwest States to mitigate the loss of fishery values due to construction of Federal projects.



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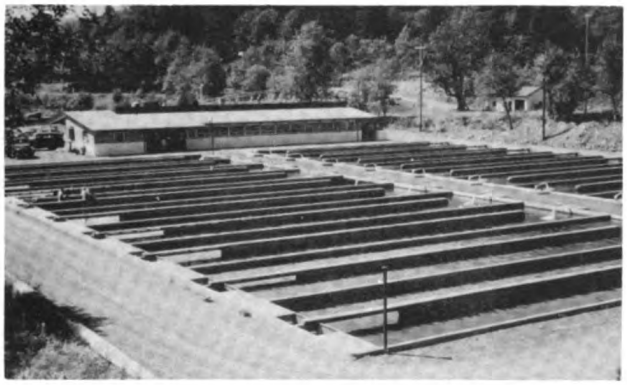
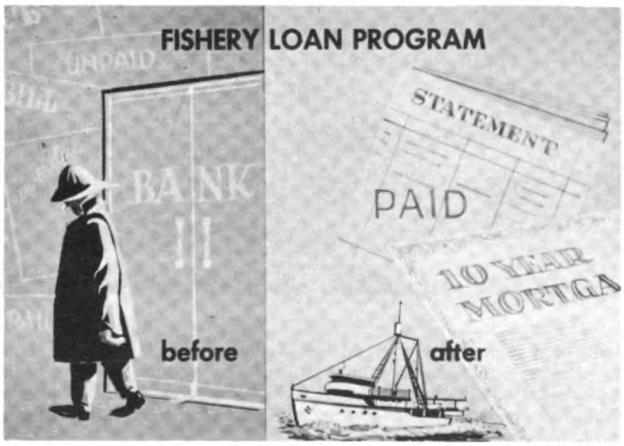
DIVISION OF RESOURCE DEVELOPMENT

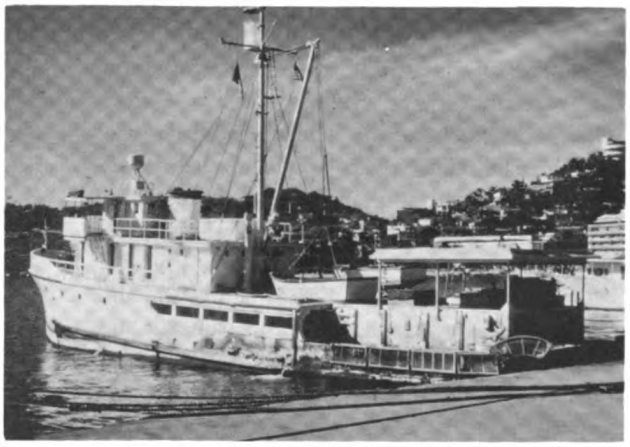
A typical fish ladder constructed under the Bureau's program to permit migrating salmon to move around natural obstructions in spawning streams. Ladder is located near the Washougal salmon hatchery in the State of Washington. Many similar ladders have been constructed on spawning streams of the Columbia River basin.



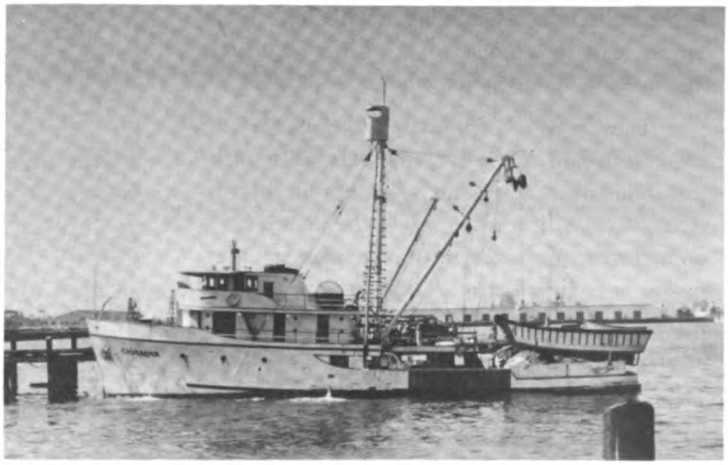
This salmon hatchery, at Elokomin, Washington, is one of 21 salmon and steelhead hatcheries constructed or rehabilitated in the Columbia River Basin under Bureau of Commercial Fisheries fishery development program. In addition, several hundred irrigation diversions have been screened to prevent the loss of migrant salmon.

The California tuna industry offers an excellent example of how the Bureau's loan program has assisted our fishermen. Below vessel is typical of the tuna fleet as it was equipped and operated 3 or 4 years ago—with live-bait tanks on the stern and with the low racks for the use of fishermen using pole, line.





Bureau's financial assistance services to industry are of type not available from commercial lending agencies. Services include a loan program for repair or replacement of boats and gear, a mortgage insurance program to encourage assistance by private agencies on a long-term basis and a vessel construction subsidy program.



The Bureau's loan program has been an important factor in industry's converting many bait boats to the more efficient purse seiners. Converted vessels can now obtain loads of tuna in half the time formerly required. There have been about 80 conversions completed, of which the Bureau financed about 25 percent.

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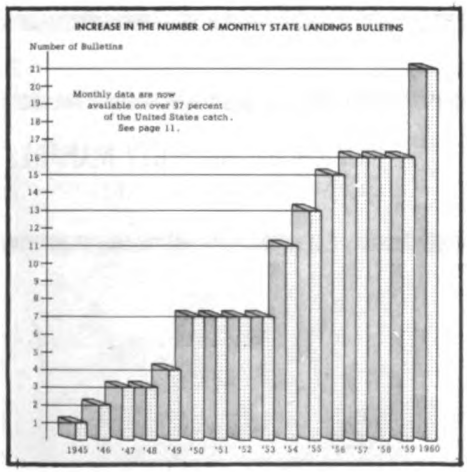
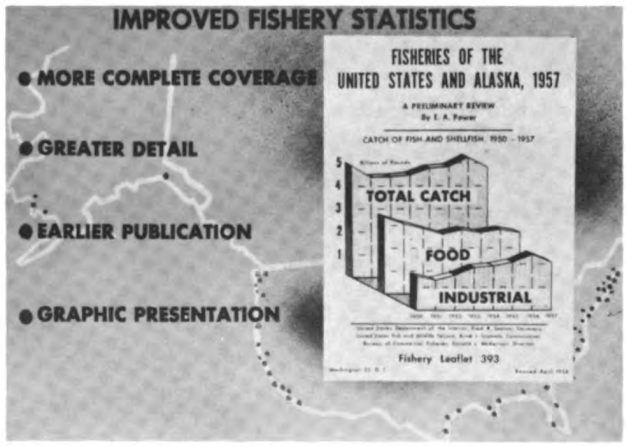
Bureau's patrol vessel *Manning* is based at Juneau, Alaska. The Bureau is responsible for treaty commitments of the U.S. under six international fishery treaties (halibut, cod and haddock, North Pacific salmon, Fraser River salmon, whales, and fur seals). Enforcement work is executed in close cooperation with Coast Guard.

Up to the minute market news information is used by fishermen in determining where their catches may be landed to bring the best prices. Market news data are used by processors and distributors in synchronizing supply with market demand. Daily, monthly, annual reports are distributed to 10,000 firms, individuals.



The Bureau's fishery market news service functions as eyes and ears of the fishing industry. Through seven market news offices located strategically in principal fish producing and consuming centers, daily information on the volume of landings and imports and prices is made available to many users throughout the country.



The collection, tabulation, and publication of comprehensive fishery statistical data is one of the oldest functions of the Bureau of Commercial Fisheries, dating back to 1881. This statistical information includes catch and value by species, units of fishing gear employed, products marketed, other pertinent data.

The Bureau's statistical information is used for two primary purposes—first, by State, Federal, and international fishery research organizations in achieving the maximum sustainable yield from fishery resources; and secondly, for use by the fishing industry and government as indices of economic and industrial activity.

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DIVISION OF ADMINISTRATION

C. F. LAYTON, CHIEF

The Division of Administration provides the administrative management for the Bureau and the Office of the Commissioner of Fish and Wildlife. These management activities, divided into the broad categories of functional-staff work and processing work, include budget formulation and execution, finance management, inspection, management analysis, personnel management, safety, and contract and property management.

The objectives of the Division include the facilitation of Bureau programs and the maintenance of a climate that encourages improved management. Accomplishment of this through functional-staff work includes advice to the directing head of the program and to his subordinate program managers on the administrative aspects of program decisions that they must make; development of policies, procedures and standards to guide and control the performance of administrative work at lower levels of organization, and to ensure that the administrative work makes the maximum contribution to the achievement of program objectives; and inspection of the performance of administrative work at lower levels of organization to ensure that the administrative policies, procedures and standards are being followed, and to evaluate their effectiveness in aiding program objectives and recommend improvements when needed.

BRANCH OF BUDGET AND FINANCE
HAROLD W. SORRILL, CHIEF

BRANCH OF MANAGEMENT ANALYSIS
DONALD D. CARRUTH, CHIEF

BRANCH OF PERSONNEL MANAGEMENT
C. DOYLE INNIS, CHIEF

BRANCH OF PROPERTY MANAGEMENT
KENNETH A. LAWRENCE, CHIEF

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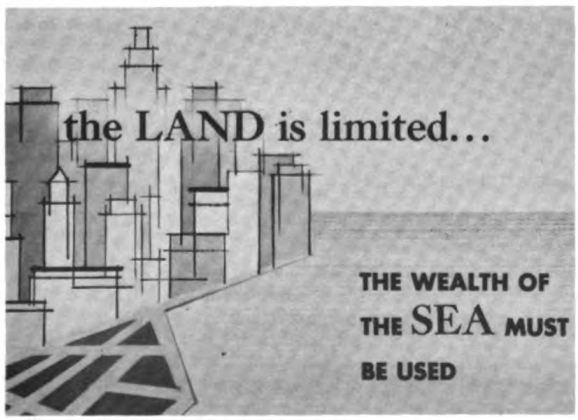
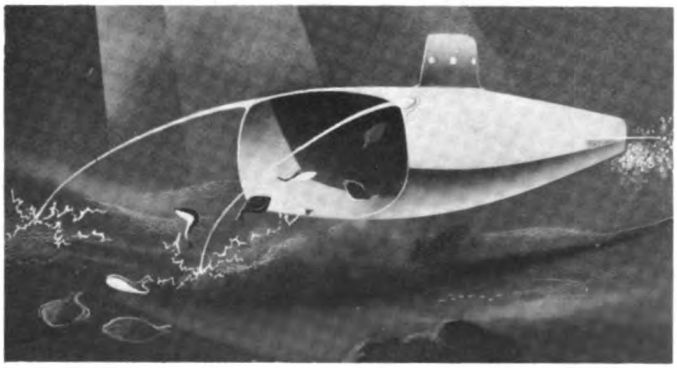
A LOOK AT THE FUTURE

A number of the programs of the Bureau and the organization which supports these programs have been examined. But what can be said for the future? There are tremendous problems facing our commercial fishing industry. Other countries are expanding their distant-water fishing fleets rapidly, improving their capabilities of harvesting fishery resources off the coast of any country on the high seas and in the depth of the ocean. It seems obvious that we must expand our efforts if we are to maintain our share of the catch of these resources. Our population is expanding at a terrific rate. It probably will double within the next 50 years, and we must look forward in order to provide food for this expanding population. Perhaps completely new research and commercial methods are necessary in order to bring us away from the essentially hunting economy by which fisheries are conducted currently to a period of intensive cultivation and harvest of the fishery resources. Such instruments as underwater remote-controlled submarines, processing plants at sea, and ultramodern plants at which fish and shellfish are grown and harvested almost by pushbutton control, are the kinds of developments which we envisage for the future. Only with aggressive, imaginative approaches can we hope to continue the commercial fisheries of the United States as an important contributor to the health and welfare of our country.



Russian mothership. Problems face the Bureau and industry in the future. Other countries are expanding their fleets rapidly, and their vessels are coming close to our shores. We must keep pace or lose out.

The population of the United States, and that of the rest of the earth, is exploding at a terrific rate. Already this country has passed the 185 million mark. We must look ahead to provide food for these people.



To harvest maximum sustained yields from the sea in the future it is likely that completely new research techniques and commercial methods will be necessary. Submarine, requiring special design, may be one of new tools.

The land is limited, and we cannot depend entirely on the land to feed the millions of new inhabitants who will populate the world in the near future. U.S. must be prepared to take its right share of food from sea.

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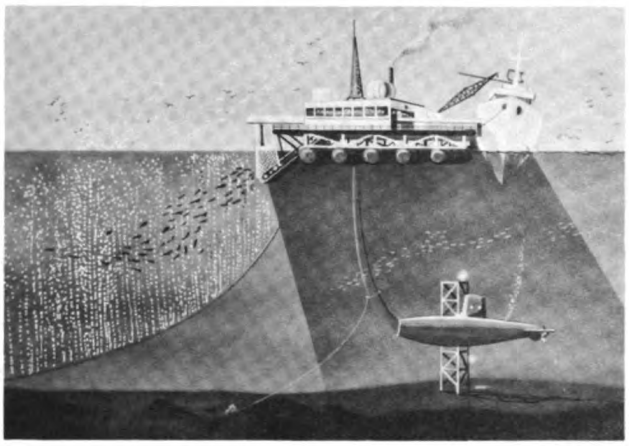
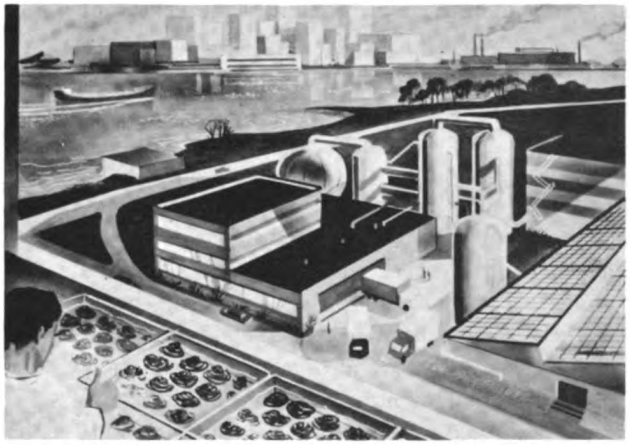
A LOOK AT THE FUTURE

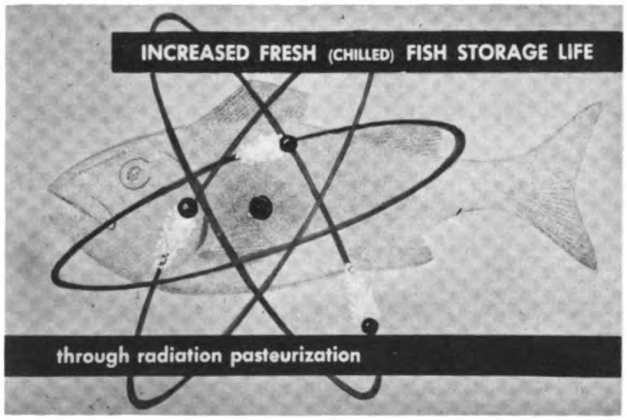


The future will bring many new developments in practically all phases of commercial fishing. Processing plants located at sea may be one of these developments. U.S. faces keen competition from others in this field.

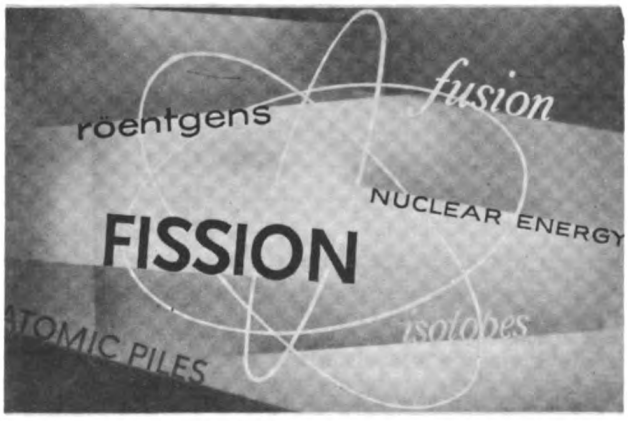


Push-button operations won't be limited to the more glamorous fields of science in the future. Ultramodern seafood plants, designed like this one, can grow and harvest fish and shellfish by push-button control.

Radiation preservation (pasteurization) is a developing technique that shows great promise. Through pasteurization fresh fish foods can be marketed in inland areas where only frozen products have been available before.



Space travel by astronauts of the future will require many new types of foods. High-protein fishery products which lend themselves to concentration and can be preserved through pasteurization may help fill this need.



What happens if the world should be unfortunate enough to be plunged into another war—a nuclear war? It is possible that because of contamination of land-grown products and animals food from the sea may be the basis of our survival.

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