

A UNITED STATES  
DEPARTMENT OF  
COMMERCE  
PUBLICATION



# THE NATION'S FISHERIES



U.S.  
DEPARTMENT  
OF  
COMMERCE

National  
Oceanic and  
Atmospheric  
Administration



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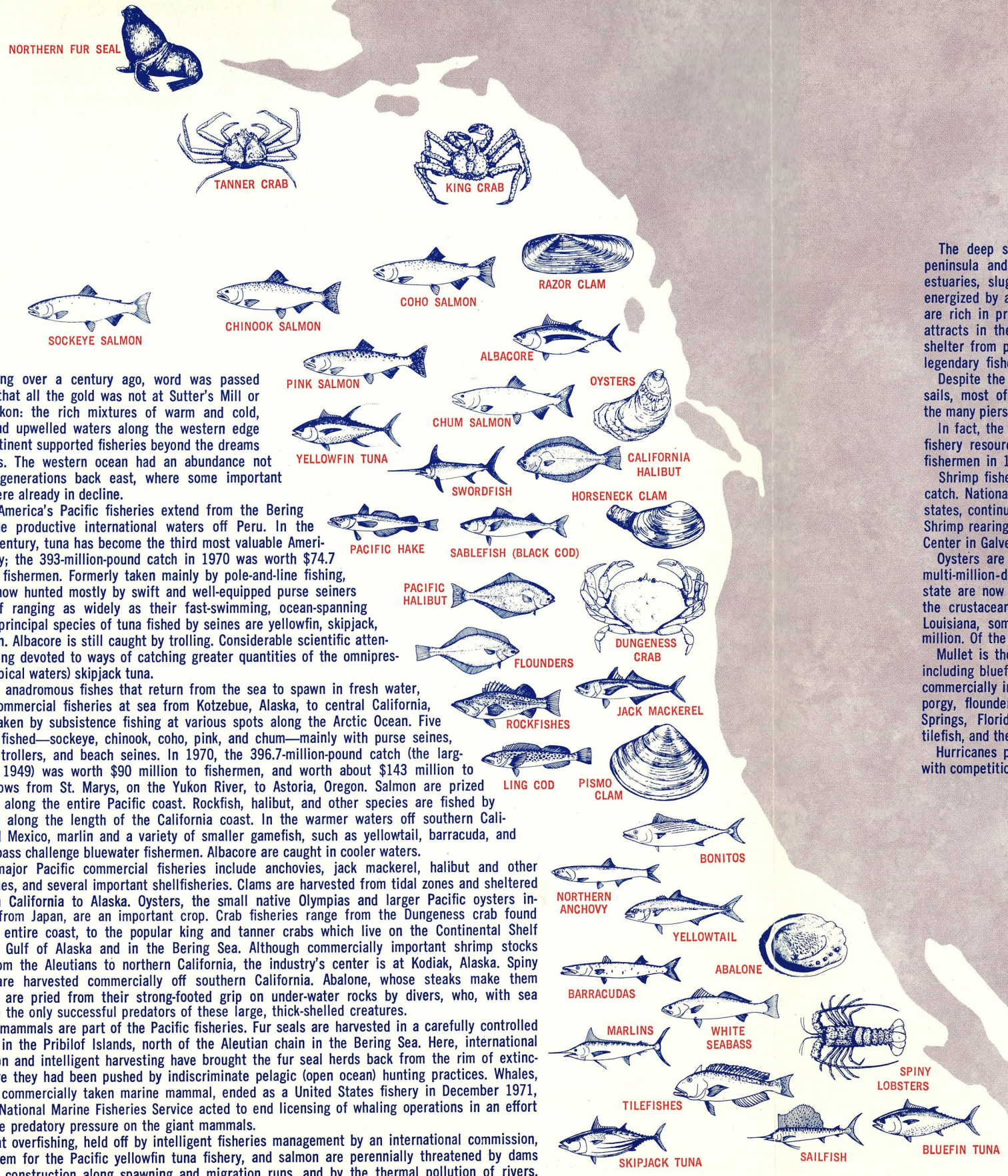
In the United States, coastal memories are often memories of fish and the taste of fish, of fishing nets strung out to dry, of fishermen and fishing boats, and clouds of hungry seabirds. We cannot visit the ocean shores without confronting America's fisheries; they are that pervasive — meals of shrimps and crowds of shrimp boats along the low Gulf shoreline, oysters and crabs on Chesapeake Bay, lobster pots on New England docks and dories out of "Captains Courageous," sleek tuna clippers hurrying from California ports to hunt the fertile Pacific, crab and salmon boats parting the Alaskan Gulf; marlin dancing on the warm waves off Baja, an adrenalin-producing battle with a giant bluefin tuna off Nova Scotia, surf fishing off the New Jersey shore. We are constantly reminded that fish and fishermen are part of our heritage.

Not so visible, perhaps, are the problems of these fisheries. For every fishery now producing there is one which has ceased to renew itself because of natural and poorly understood fluctuations in abundance, changes in consumer demand, ecological disturbances, or man's deliberate or accidental encroachments — pollution, excessive fishing, development of near-shore lands. The haddock fishery, once New England's most important, has nearly disappeared as a resource of commercial value. The Pacific sardine fishery, once the largest in the western hemisphere, declined after 1945 and has not come back. Despite the continuing high value of the salmon catch (second only to shrimp), quantities of some salmon runs have been disappointingly low. Constant attention must be given to monitoring of the salmon stocks and grounds to avoid adverse effects caused by pollution, diversion of streams, and overfishing. Eastern shellfisheries are contaminated, as well as fed, by rivers draining into the mid-Atlantic Bight. Traces of heavy metals in swordfish, creatures of the open ocean, indicate that we may have begun to pay the piper for our careless use of the sea.

A century ago the United States Government moved to confront the problems of its fisheries, an effort that now resides in NOAA, the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce, and its National Marine Fisheries Service. The service has the task of developing and conserving our fishery resources, of developing alternatives to past or impending failures, for the fish and for the fishermen.

This publication describes the resource and its value to fishermen, in Atlantic waters from Nova Scotia to the Southeast coast, around Florida into the teeming Gulf of Mexico and the Caribbean, from the Bering Sea to the offshore waters of South America, to the South Pacific and to Africa's west coast.





**NORTHERN FUR SEAL**

Something over a century ago, word was passed eastward that all the gold was not at Sutter's Mill or in the Yukon: the rich mixtures of warm and cold, surface and upwelled waters along the western edge of our continent supported fisheries beyond the dreams of settlers. The western ocean had an abundance not seen for generations back east, where some important species were already in decline.

Today, America's Pacific fisheries extend from the Bering Sea to the productive international waters off Peru. In the last half century, tuna has become the third most valuable American fishery; the 393-million-pound catch in 1970 was worth \$74.7 million to fishermen. Formerly taken mainly by pole-and-line fishing, tuna are now hunted mostly by swift and well-equipped purse seiners capable of ranging as widely as their fast-swimming, ocean-spanning prey. The principal species of tuna fished by seiners are yellowfin, skipjack, and bluefin. Albacore is still caught by trolling. Considerable scientific attention is being devoted to ways of catching greater quantities of the omnipresent (in tropical waters) skipjack tuna.

Salmon, anadromous fishes that return from the sea to spawn in fresh water, support commercial fisheries at sea from Kotzebue, Alaska, to central California, and are taken by subsistence fishing at various spots along the Arctic Ocean. Five kinds are fished—sockeye, chinook, coho, pink, and chum—mainly with purse seines, gill nets, trollers, and beach seines. In 1970, the 396.7-million-pound catch (the largest since 1949) was worth \$90 million to fishermen, and worth about \$143 million to cannery rows from St. Marys, on the Yukon River, to Astoria, Oregon. Salmon are prized sport fish along the entire Pacific coast. Rockfish, halibut, and other species are fished by sportsmen along the length of the California coast. In the warmer waters off southern California and Mexico, marlin and a variety of smaller gamefish, such as yellowtail, barracuda, and white seabass challenge bluewater fishermen. Albacore are caught in cooler waters.

Other major Pacific commercial fisheries include anchovies, jack mackerel, halibut and other groundfishes, and several important shellfisheries. Clams are harvested from tidal zones and sheltered bays from California to Alaska. Oysters, the small native Olympias and larger Pacific oysters introduced from Japan, are an important crop. Crab fisheries range from the Dungeness crab found along the entire coast, to the popular king and tanner crabs which live on the Continental Shelf along the Gulf of Alaska and in the Bering Sea. Although commercially important shrimp stocks extend from the Aleutians to northern California, the industry's center is at Kodiak, Alaska. Spiny lobsters are harvested commercially off southern California. Abalone, whose steaks make them desirable, are pried from their strong-footed grip on under-water rocks by divers, who, with sea otters, are the only successful predators of these large, thick-shelled creatures.

Marine mammals are part of the Pacific fisheries. Fur seals are harvested in a carefully controlled operation in the Pribilof Islands, north of the Aleutian chain in the Bering Sea. Here, international cooperation and intelligent harvesting have brought the fur seal herds back from the rim of extinction, where they had been pushed by indiscriminate pelagic (open ocean) hunting practices. Whales, the other commercially taken marine mammal, ended as a United States fishery in December 1971, after the National Marine Fisheries Service acted to end licensing of whaling operations in an effort to ease the predatory pressure on the giant mammals.

Incipient overfishing, held off by intelligent fisheries management by an international commission, is a problem for the Pacific yellowfin tuna fishery, and salmon are perennially threatened by dams and other construction along spawning and migration runs, and by the thermal pollution of rivers. The Pacific shares pollution and competing-use problems with our other coasts.

Fish sketches by Susan E. Smith, Tiburon Coastal Fisheries Research Laboratory

The deep south of the country's fisheries runs from North Carolina down around the Florida peninsula and along the wide-shelfed crescent of the Gulf of Mexico. It is a ragged band of estuaries, sluggish rivers seeping through saltwater swamps, and sand-duned barrier islands, all energized by a penetrating subtropical sun and nutrient-rich rivers. These protected shallow waters are rich in primary productivity and the grazers, predators, and prey that such nutritional wealth attracts in the sea. Thousands of small creatures, especially larval and juvenile marine life, find shelter from predators and abundant food in the rich estuarine vegetation, and support the area's legendary fisheries.

Despite the common image of Gulf fishing as luxury charter boats on the prowl for marlins and sails, most of the fishing is done by hardworking commercial fishermen, by sportfishermen from the many piers and jetties, and from party boats and small private craft.

In fact, the unprepossessing but delicious shrimp is king in the south. The nation's most valuable fishery resource—total U.S. shrimp production was 368.1 million pounds worth \$129.7 million to fishermen in 1970—the white, brown, and pink shrimp are big business, indeed.

Shrimp fisheries based in the Gulf account for about two-thirds of the total United States shrimp catch. National Marine Fisheries Service scientists and research vessels, working together with the states, continually monitor Gulf shrimp stocks and study their life cycles and seasonal distributions. Shrimp rearing and farming techniques are under investigation at the Gulf Coastal Fisheries Research Center in Galveston, Texas.

Oysters are harvested along the Gulf coast, as are blue and stone crabs. Spiny lobsters are a multi-million-dollar Florida fishery, and extensive beds of calico scallops off the east coast of that state are now under investigation and fished to some extent. Crawfish country is Louisiana, where the crustacean delicacy is caught in wild habitats and is farmed. In Mississippi, Arkansas, and Louisiana, some 50,000 acres of catfish farms bring in a "catch" estimated to be worth \$20 million. Of the nation's 1.8-billion-pound menhaden catch in 1970, 1.2 billion came from the Gulf.

Mullet is the biggest southern catch of edible fish in terms of poundage. The scombrid fishes—including bluefin and yellowfin tunas, and bonito, as well as Spanish and king mackerels—are taken commercially in the region, as are bluefish, croakers, snappers, sea trout, groupers, drums, pompano, porgy, flounder, striped bass, alewives, and shad. Sponges are harvested by divers near Tarpon Springs, Florida. Potentially important species are deepwater shrimp, rock shrimp, the tunas, tilefish, and the yellow-eyed snapper (a choice seafood).

Hurricanes pose a severe threat to fishing grounds at times. Other serious problems have to do with competition for coastal wetlands and the effects of estuarine pollution.



If there are portraits of New England without lighthouses they are probably portraits of fishermen, for that rugged northeastern corner of the land was settled by seafaring, fishing people. Indians taught the first European settlers how to trap lobsters, and how to fashion traps and weirs to catch nearshore fish. The high-seas cod fishery of the North Atlantic goes back to the 16th century, and was once to New England what baked beans are to Boston.

There would be more tradition than industry here had there not been certain critical technological changes. Longlines (lines carrying hundreds of baited hooks, which are strung through the water, sometimes for many miles, later to be hauled in by fishing vessels), gill nets, and the omnivorous otter trawls (large, sock-shaped nets held open by stabilizing "otter" doors, and towed along the seabed) made their appearance early in this century, and radically changed the yield of North Atlantic fishing craft.

Until World War I, catching and salting cod was the mainstay of this industry. Then Clarence Birdseye of Gloucester, and Harden F. Taylor of what was then the United States Bureau of Fisheries, developed quick-freezing processes that were adaptable to fish. This technological jump, along with the advent of new processes of mass-producing fish fillets, increased the market availability of certain fish—flounder and haddock, for example—and elevated other species, such as ocean perch and whiting, to important fisheries. In 1970, flounders were the second most valuable catch in the northeast, worth \$17.6 million. (Lobsters were the most valuable, at \$31.7 million.)

The problems of New England's fisheries are those of poor reproduction and survival of some species, coupled with heavy competition from foreign fleets for offshore resources. Estuarine pollution is also a serious problem for the area's coastal and sport fisheries.

From Cape Cod to Cape Hatteras, the Continental Shelf provides the broad, fertile plateau of the mid-Atlantic Bight, a 40,000-square-mile garden of nutrients fed by the Connecticut, Hudson, Delaware, Susquehanna, and Potomac Rivers, and a superb spawning, feeding, and nursery ground for many of the fishes that support the region's fisheries.

Native shellfish are important, especially oysters, the most valuable mid-Atlantic crop. Oysters grow and are cultured in Chesapeake and Delaware Bays, as well as in some coastal areas such as Chincoteague. The 1970 oyster harvest was worth \$14.5 million to area fishermen. Clams are also a major resource, most of them taken from the Chesapeake Bay, and from a surf-clam fishery established offshore; sea scallops constitute a profitable fishery, but the fishery has diminished seriously over the years. Calico scallops are abundant but still under-utilized off North Carolina. Lobsters are fished commercially with otter trawls and pots.

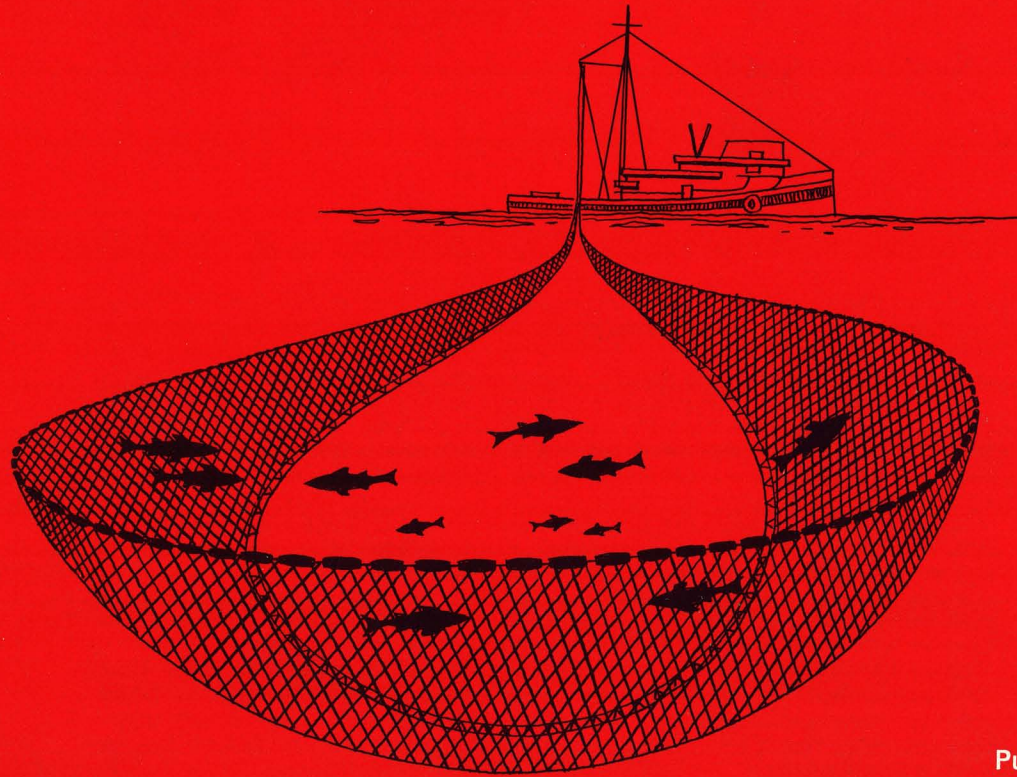
The menhaden fishery is the nation's largest in terms of volume. Of 1.8 billion pounds landed in 1970 nationwide, 582 million pounds were caught by purse seiners fishing out of ports in the Cape Cod to Cape Hatteras area. Menhaden are processed into meal and used as an ingredient of chicken feed (we tie the oceanic food web into our own food web ashore) and in some oil products. Food fishes taken along the mid-Atlantic Bight are tuna, bluefish, mackerel, haddock, pollock, sea herring, porgy (scup to New Englanders), flounders, butterfish, whiting, cod, sea bass, croaker, and sea trout. Such river-seeking sea fishes as alewives (called river herring on their spawning runs) and striped bass, and the inshore-spawning shad are taken commercially and for sport. Estuarine pollution, competition for coastal zone wetlands, and foreign fishing fleets are the chief fisheries problems in the mid-Atlantic region.



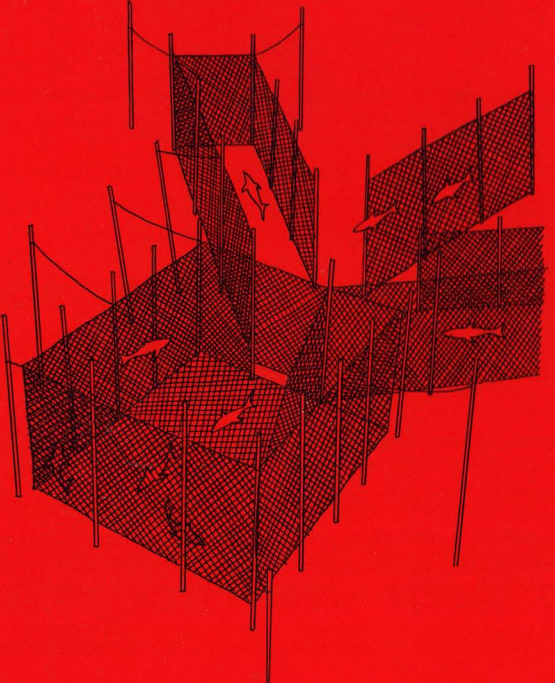
# Fishing Gear ...



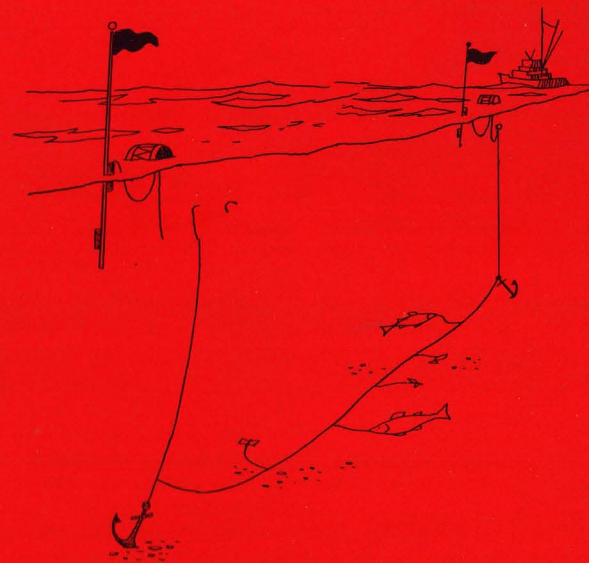
Fish Weir



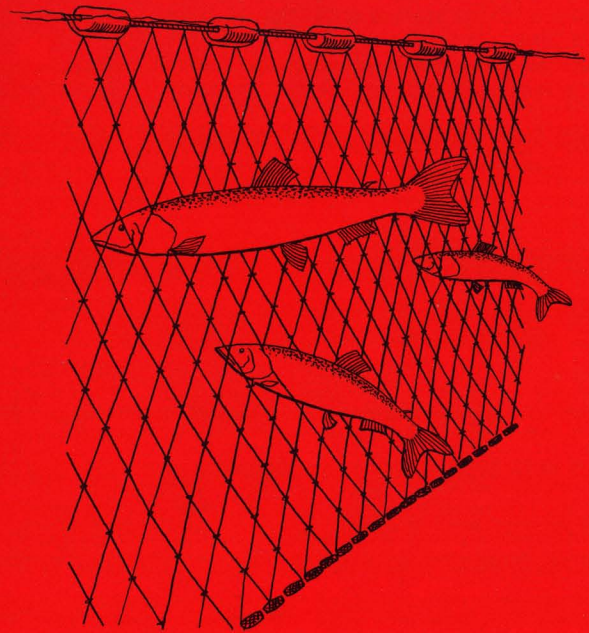
Purse Seine



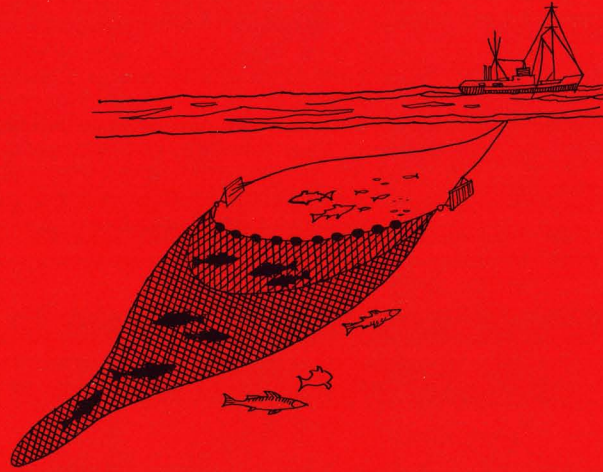
Pound Net



Longline Set



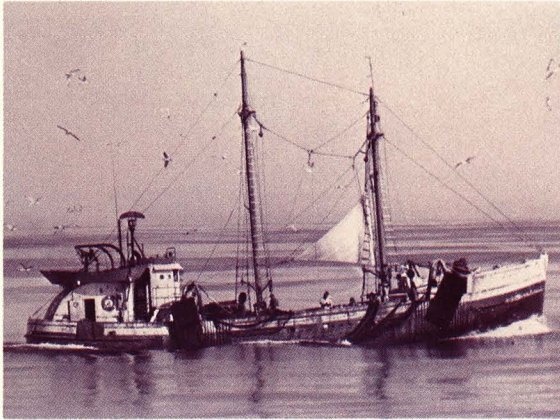
Gill Net



Otter Trawl



# ...and Fishing Vessels



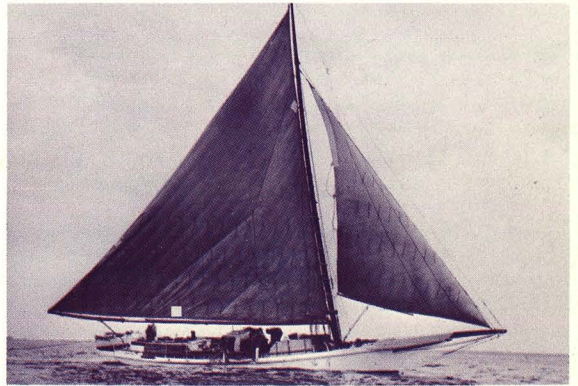
STEEL OTTER TRAWLER



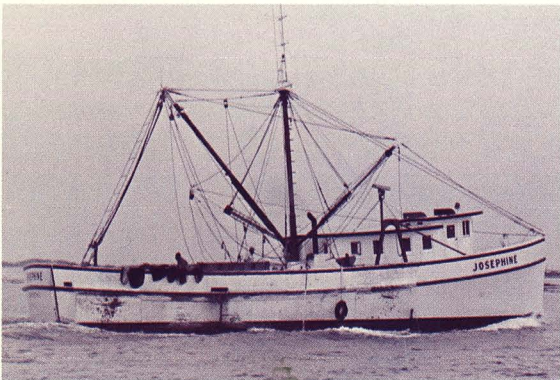
BOSTON TRAWLER



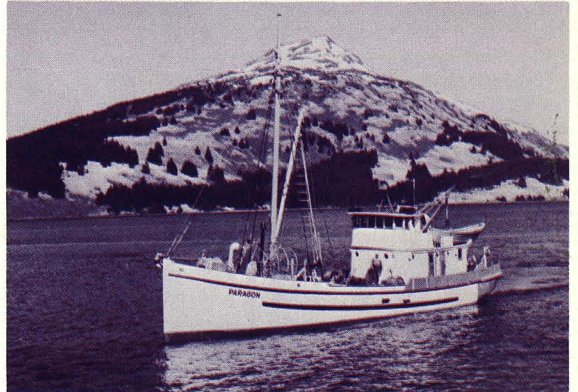
SALMON GILL NETTER



CHESAPEAKE BAY SKIPJACK



SHRIMP TRAWLER



PACIFIC DRAGGER



PURSE SEINER (TUNA)



NOAA PA 71043/1972