

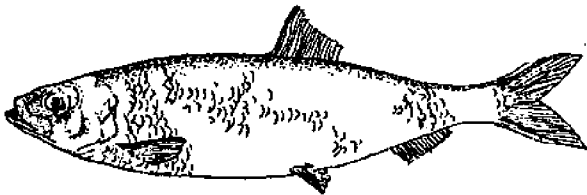


THE ATLANTIC HERRING

(Clupea harengus L.)

The Atlantic herring, Clupea harengus L., is one of the most important fishes in the North Atlantic, and historically, it has been one of the most abundant. Fishing for herring has been an important occupation for centuries in Europe. Many references to herring were made in the Norwegian sagas of Iceland. The Indians on the North American coast probably caught herring in bush weirs; they also used "torching", no longer legal, which is the use of light at night to attract the fish to the weir. During the 1960's the demand for herring grew greatly because of an international shortage of fish meal and a decline in the European fisheries. This demand precipitated the large offshore fisheries on the continental shelf which has led to the decline of the herring. The herring catch in the North Atlantic more than tripled during the 1960's, although the actual offshore U. S. catch declined. Most of Maine's fishermen do not fish in offshore waters but in coastal waters for the smaller juvenile fish used largely as canned sardines.

Offshore fishermen use trawlers when fishing for herring; closer to shore they use purse seines (the fish are circled with a net which is then pulled tight like a giant purse). Near the shore fishermen will also set up weirs; others will get out their nets and dories and "stop twine". The fish are found in big coves which are "stopped" or "shut off" with nets. The fishermen will let the fish stay in the weirs or stopped coves for a day or so to allow the fish to clean out their intestines. If the fish are full of feed, they tend to break down in the packing process, so "feedy" fish are usually sold cheaply to fish meal plants. Some of the



Maine purse seiners make use of spotter planes. When the pilot spots a school of fish, he will radio to his boats and tell them where the fish are and at about what depth. Sometimes the fishermen will see a rare red herring in their catch; traditionally, this fish is thought to be the leader of the school.

In the coastal areas of Maine herring spawn in autumn. Each female lays about 100,000 eggs on a gravelly or rocky bottom near the coastal headlands. The eggs are fertilized by the males and hatch in 15 or fewer days. The larvae live on the yolk sacs which develop with them in the egg. After this yolk is absorbed, the larvae must eat or starve. Probably only 1% of the larvae survive to become juveniles. The larvae move into the bays and the estuaries during the winter and by summer have changed into their adult form and are known as brit. They mature and spawn in their fourth year and may continue to spawn each summer for several years.

As brit, the canner can fit about 12 fish in one can. By the time they reach their second summer they are the right size economically for Maine sardines when about 6 fish will fit into one sardine can. If they reach their third, fourth and fifth years, they may be canned as steaks or are valuable as fish meal. Most of the herring caught in Maine waters are used as sardines. Herring are also used as lobster and cod bait. Pearl essence, from the guanin crystals found on herring scales, is used in the manufacture of artificial pearls, lacquers and plastics. At one time the scales were more valuable than the fish.

Herring can grow to a length of 17 inches (43 cm) and a weight of about 1½ pounds (.68 kg). They are a deep steel blue or greenish blue on the back with green reflections. The sides and belly are silvery. They are in the same family as alewives and shad but a quick means of identification is the placement of the dorsal (top) fin; it begins about midway on the length of the herring but begins further forward on the shad and the alewife.

Herring are plankton feeders. Because of their feeding habits, they rarely take a baited hook. They are preyed upon by all kinds of fish -- cod, pollock, haddock, silver hake, striped bass, mackerel, tuna, salmon, dogfish. The herring travel in large schools; generally, the school contains fish of the same size. When the fish are near the surface, the water has a fine ripple across it. They come to the surface more often at night, and their presence is often shown by their luminous trains called "firing".

Herring catches vary greatly from year to year. Maine's Department of Marine Resources is studying the herring in an effort to be able to predict the availability of the herring to the fishermen's coastal gear. They are studying larval mortality, abundance of food available and environmental conditions. The Maine Sardine Council has given a grant to the DMR to conduct a herring tagging project along the coast of Maine to determine the location and extent of the herring populations and to what extent they mix with the offshore populations.

Sardines are an inexpensive source of protein as they contain about the same amount as beef. They also contain many other nutrients -- about 50% of the adult daily requirement of calcium; 30%, iron; and iodine, phosphorus, riboflavin and niacin. They are packed in many different sauces -- mustard, hot green chili pepper, olive oil, cottonseed oil, etc. It's up to the individual; he has a big choice.

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