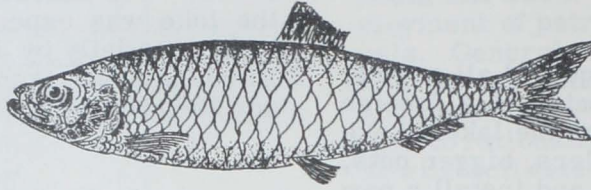


FOOD FISH FACTS



MAINE SARDINES
(Atlantic herring)

(*Clupea harengus*)

What is a sardine? The word sardine is not the name of just one species of fish but rather a collective name that represents a variety of tiny, soft-boned fish. The name sardine probably comes from the fact that similar, tiny fish, called French sardines, were first found and caught in great abundance around the island of Sardinia in the Mediterranean. The Maine sardine is a member of the Atlantic herring family. Caught and enjoyed by Atlantic coast Indians long before the first settlers arrived, these tasty little fish are still being caught in the same coves and inlets used by the Indians of long ago.

DESCRIPTION

Maine sardines are the immature young of the Atlantic herring which has an elongated body and are greenish blue in color with a silvery cast on the sides and belly. The tail of the herring is deeply forked and has a single dorsal fin which is directly over the small ventral fin. Scales of herring are large and loosely attached. Herring reach about 4 inches in length by the end of a year.

HABITAT

Atlantic herring are found from Virginia north to Labrador and Greenland. The large number of small herring or sardines caught by commercial fishermen of the United States are found north of Cape Cod with the Maine coastline the center of the industry.

SARDINE FISHING

Sardines are most easily caught in the dark of the moon during their feeding time. Sometimes their movements in the water disturb organisms that give off a phosphorescent light similar to the light of a firefly. This light makes the sardines easy to see. This phenomenon, however, occurs only during the mid and late summer months. Many methods have been used in catching sardines beginning with the brush weirs. This method is said to have originated with the early Indian tribes living along the east coast. This is still used by some fishermen especially when the tides are strong and the waters shallow. It consists of a stationary fish trap which blocks the course of the fish and funnels them into an enclosure. Another method is the stop seine which is a long net stretched across the mouth of the cove after the fish have entered. The purse seine is a more up-to-date method which enables the fishermen to fish in deeper water. The purse seine is circled around the school of fish and the bottom is closed keeping the fish trapped.

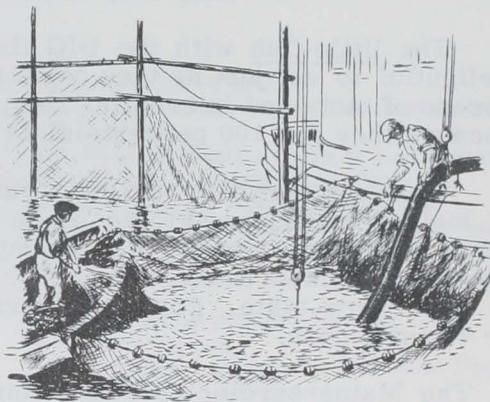
A method of harvesting developed by the Bureau of Commercial Fisheries has been of great help to Maine sardine fishermen. This air-bubble hose method consists of a hose pierced with holes along the upper surface and stretched along the ocean bottom around an area containing sardines. Compressed air pumped through the hose causes bubbles to rise to the surface and, since the small fish will not swim through the wall of bubbles, they are trapped.

(Continued following page)

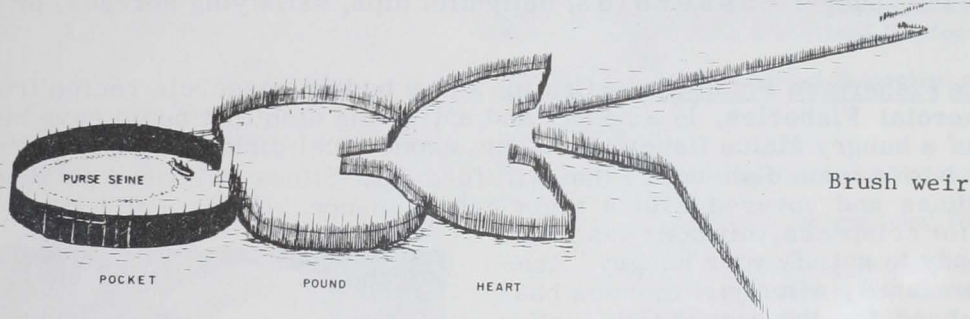
SARDINE FISHING in MAINE



SARDINE CARRIER



CARRIER LOADING BY PUMPING



POCKET

POUND

HEART

Brush weir

The use of otter trawls on bottom and midwater fishing areas is also being used. Methods used to find the schools of sardines include aerial spotters, depth recorders, and sound-
ing devices such as sonar.

CONSERVATION

Scientists of the BCF Biological Laboratory in Boothbay Harbor, Maine, have been doing research on herring for the past 20 years. Their research includes all stages of the life history of herring. This research is divided into three parts: (1) all phases from hatching through larval development and up to the time the fish completes its first year of life; (2) the juvenile program which concentrates on inshore fish from 1 to 3 years old; and (3) the adult herring program which studies coastal spawners as well as the offshore populations of Georges Bank. Through the third part of the research, scientists have shown that the offshore herring stocks are independent of those fished in coastal waters. This information is vitally important to the Maine sardine industry and may encourage greater exploitation of the offshore herring stocks by other segments of the United States fishing industry. All fishery research has as its goal to ensure the wise use of a renewable resource.

USES OF SARDINES

Sardines are a valuable source of high quality protein which is needed for building and repairing body tissues. They contain calcium and phosphorus needed for strong bones and iron and iron needed for healthy, red blood. Sardines provide useful amounts of thiamine, riboflavin, and riboflavin. Maine sardines are packed in various types of oil as well as mustard and tomato sauces. Packed in flat 4-ounce cans, they are ready to eat at the zip of a can opener, a pull tab, or a key. (Source: National Marketing Services Office, BCF, U.S. Dept. of the Interior, 100 East Ohio, Rm. 526, Chicago, Ill. 60611.)

(Recipe following page.)

LET THE MAINE SARDINE CREW ENTERTAIN YOU

The little fish with the BIG flavor, sardines from Maine, are in good supply again. Delightful to eat just as they come from the can, Maine sardines may also be prepared in dozens of tasty and interesting recipes. They are easy on the budget and time saving too because they are 100 percent edible and shelf ready whenever you want them.

The term sardine covers a wide variety of small fish. The ones caught off the coast of Maine and referred to as Maine sardines are really small, soft-boned herring. These tiny fish provide concentrated high-quality protein as well as other body-building nutrients. They are packed in several types of oil as well as mustard and tomato sauces--a variety to suit every taste. For consumers at the retail level, they are packed in handy, flat, 3 1/2 or 4-ounce cans.

The Maine sardine industry started with one little cannery over 80 years ago; now there are over 30 modern, up-to-date canneries dotting the coast. Over 60 different brands of Maine sardines are packed in these canneries. These tasty little fish can be used in super salads, budget casseroles, delightful dips, satisfying spreads, or as captivating canapes.

Maine Fisherman Potatoes Au Gratin, a new budget casserole recipe from the Bureau of Commercial Fisheries, is a hearty and satisfying dish that could have been created by the wife of a hungry Maine fisherman. This economical dish extends two cans of flavorful sardines into a main dish entree that will feed six. Slices of cooked potatoes are layered with sardines and covered with a tasty cheese sauce. Bakes with a covering of buttery croutons for crispness, this tasty casserole will be ready to satisfy your hungry "fisherman" or family after just minutes baking. So--head for the canned fish section of your market, buy a few cans of Maine sardines and try this satisfying casserole for supper tonight. Sardines from Maine have a way of becoming a Maine food wherever they are tried.

Maine Fisherman Potatoes Au Gratin

2 cans (3 3/4 or 4 ounces each)	1 cup shredded cheese
Maine sardines	2 teaspoons Worcestershire sauce
2 tablespoons chopped onion	5 cups sliced cooked potatoes
2 tablespoons melted fat or oil	3/4 cup soft bread cubes
2 tablespoons flour	2 tablespoons butter or margarine, melted
1 teaspoon salt	Paprika
Dash pepper	
2 cups milk	

Drain sardines. Cook onion in fat until tender. Blend in flour and seasonings. Add milk gradually and cook until thickened, stirring constantly. Add cheese and Worcestershire sauce. Stir until cheese melts. Arrange half the potatoes in a well-greased, 1 1/2 quart casserole. Cover with sardines and remaining potatoes. Pour sauce over potatoes. Toss bread cubes with butter and sprinkle over top of casserole. Sprinkle with paprika. Bake in a moderate oven, 350° F., for 25 to 30 minutes or until lightly browned. Makes 6 servings.



You can have a wide variety of Flavor of Maine recipes which utilize the tasty little Maine sardine. The Bureau of Commercial Fisheries has published a full-color book for your use. Send 35¢ to the Superintendent of Documents, United States Government Printing Office, Washington, D.C. 20402, and ask for Flavor of Maine, Fishery Marketing Development Series No. 11 (I 49.49/2:11). (Source: National Marketing Services Office, Bureau of Commercial Fisheries, U.S. Department of the Interior, 100 East Ohio Street, Rm. 526, Chicago, Illinois 60611.