

Sardines, Place, and Taste

Dave McDermott

The role of the sardine in the American diet has changed drastically over time. In the 1949 movie “A Kiss in the Dark,” the stylish model Polly Haines, played by Jane Wyman, serves the equally elegant concert pianist Eric Phillips, played by David Niven, a sandwich of sardines and peanut butter on rye bread.¹ In 2004, John Hassler, the Minnesota novelist, has Dusty, a learning-disabled garbage man describe the end of a meal with his wife with “I threw out the sardine tins and washed up the little plastic containers ready-made Jell-O comes in.”² How the canned sardine has fallen.

When “A Kiss in the Dark” was playing, Americans were catching and eating sardines at a rate of 3.8 million cases per year. Steinbeck’s *Cannery Row*, set among the sardine packers of California, had been published just four years earlier. By the time Hassler’s book was released, the American sardine industry had almost disappeared. The canneries that Steinbeck described had been gone for decades. In Washington and Hancock Counties in Maine, the last stronghold of domestic sardine industry, only one factory survived. Americans were consuming only one million cases of sardines per year.³

The history of sardines is tied to a history of places. The North American industry developed in the only place it could have developed, between the United States and Canada in the shared waters of Cobscook and Passamaquoddy Bays. On the United States side, the industry carried the bayside communities of Eastport and Lubec to prosperity. As the industry sank, it pulled coastal communities down with it. This is a story of fishing, of tastes, and of the places where free-swimming fish became canned food.

Geographers and others have explored the spatial qualities of food consumption and production,⁴ though without particular emphasis on fisheries. The decline of fisheries generally is well documented in the work of biologists and oceanographers, and plays a supporting role in Jared Diamond’s⁵ compendium of past and future environmental catastrophes. Some studies of specific foods have explored tastes and food industries at a global scale.⁶ The role of specific local communities in the transformation of a commonly-held natural resource into a commercial food product has been explored by Kevin St. Martin⁷ and, in great empirical detail, by James Acheson.⁸ This study attempts to build on earlier work by considering the extent to which a particular fish could become a food product in only one

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place, and on the impact of national changes in taste for food on that specific place.

Canned sardines provide a useful window on issues of food production and consumption. They are, by their very nature, an industrial food product, requiring the presence of specific cooking and canning technologies and infrastructure to come into being. Sardines have been traded in international commerce for well over a century, so they provide insights into global trade in food products and global creation of tastes. At the same time, they are caught and processed in very small and isolated communities, locations that are determined by physical characteristics of those places and by forces of global commerce.

From fish to food product

A sardine, in North America, is a small fish in a can. On the East Coast, that fish is typically a juvenile Atlantic herring (*Clupea harengus*), of the family *Clupeidae*, close kin of the alewife, shad, and menhaden (Figure 1). In Europe, the fish could be *Sardinia pilchardus*, or *Sardinia pseudohispanica*. Off the coast of California, the small fish that was captured for canning was *Sardinia caerulea*.⁹ If we look back to the 1850s, “sardine” might refer to any small fish packaged in earthenware crocks on the island of Sardinia. In Europe, and in some American restaurants, the nomenclature becomes even messier, in that “sardine” might refer either to a small canned fish of unspecified species or to a fresh fish of the genus *Sardinops*. This history will focus on the North American canned sardine industry, and specifically on the remnants of that industry in eastern Maine, so for us a sardine is a very small Atlantic herring in a can.

If being a sardine requires the presence of a can, we can date the origins of the industry to 1839 and the development of the tin-plated iron can with soldered seams. That technology, and a trial-and-error approach to sealing and sterilizing, was the first major improvement in preserving fish since the discovery of salt.¹⁰

In 1870, the Franco-Prussian War made it difficult for importers in the United States to obtain canned sardines from France. Julius Wolff, of the New York food importers Wolff and Reessing, knew that herring were abundant in the Passamaquoddy Bay area (Figure 3) and speculated that the fish might support a domestic sardine industry. He traveled to Eastport and was sufficiently impressed by the size of the herring harvest that he founded a cannery, the Eagle Preserved Fish Company, at Eastport in 1875 (Figure 2). Between 1875 and 1880, 19 canneries opened, primarily in Eastport. Between 1881 and 1898, 23 sardine canneries opened in neighboring Lubec.

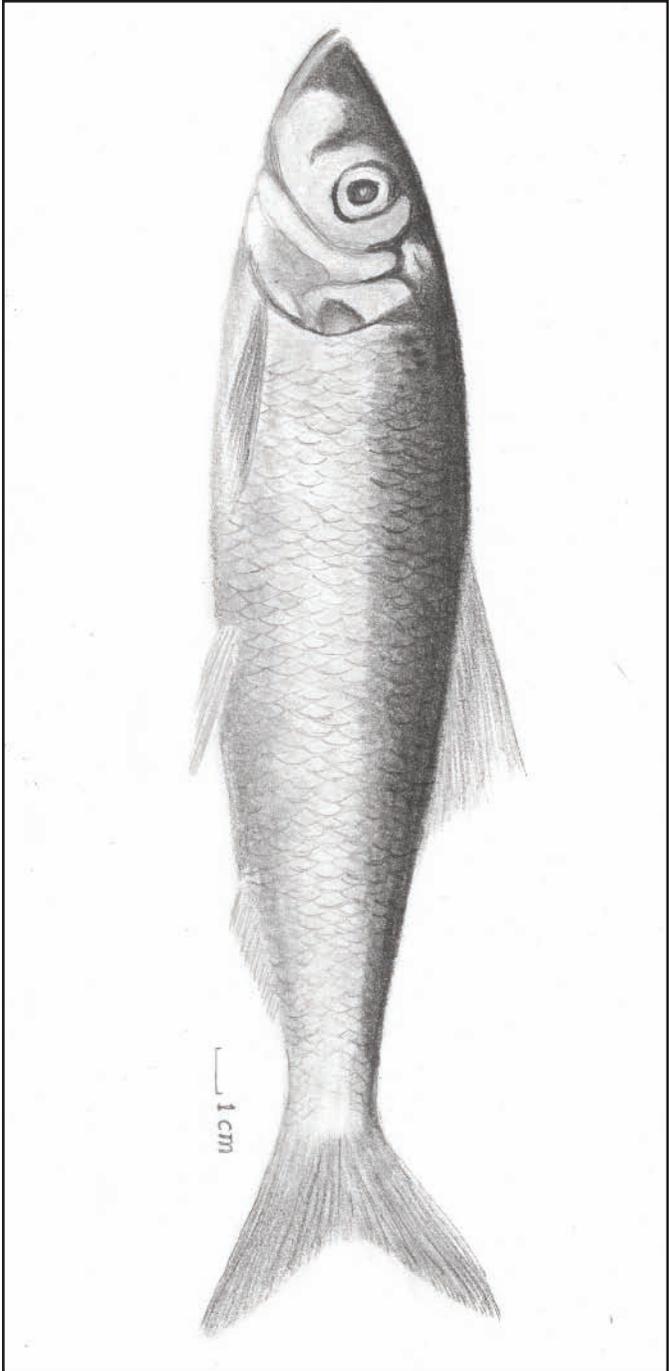


Figure 1. *Clupea harengus*. Illustration by the author.



Figure 2. Cannery at Eastport. Public domain image from NOAA.

While these new sardines were not members of the *Sardinops* genus, and were certainly not French, some packers were deceptive, using French on the packaging and, occasionally printing outright lies such as “Packed in Nantes, France,” to dupe customers into thinking the Maine product was, in fact, from France. The question of what species of fish was inside the can became a matter of international dispute. In 1929, the British Board of Trade ruled that the word “sardine” could not be used on packaging for canned fish unless those fish were, taxonomically, sardines. In so doing, they excluded the American and Canadian products from the British market.¹¹

American consumers were not universally taken in by these substitute sardines from Maine. An unnamed writer for the *New York Times*, in 1884, contrasted the Maine sardine with the “delicately flavored little fish preserved in olive oil and sent here from France.” The Maine sardine is “counterfeit,” packed in “inferior” cottonseed oil at a “factory,” but is made to imitate a French sardine, “exactly like the genuine sardine, and labeled with French inscriptions.”¹²

Before the Pure Food and Drug Act or the Federal Trade Commission, both the content and the packaging of prepared foods could be a bit shady. The USDA struggled to catch up, and finally approved labeling

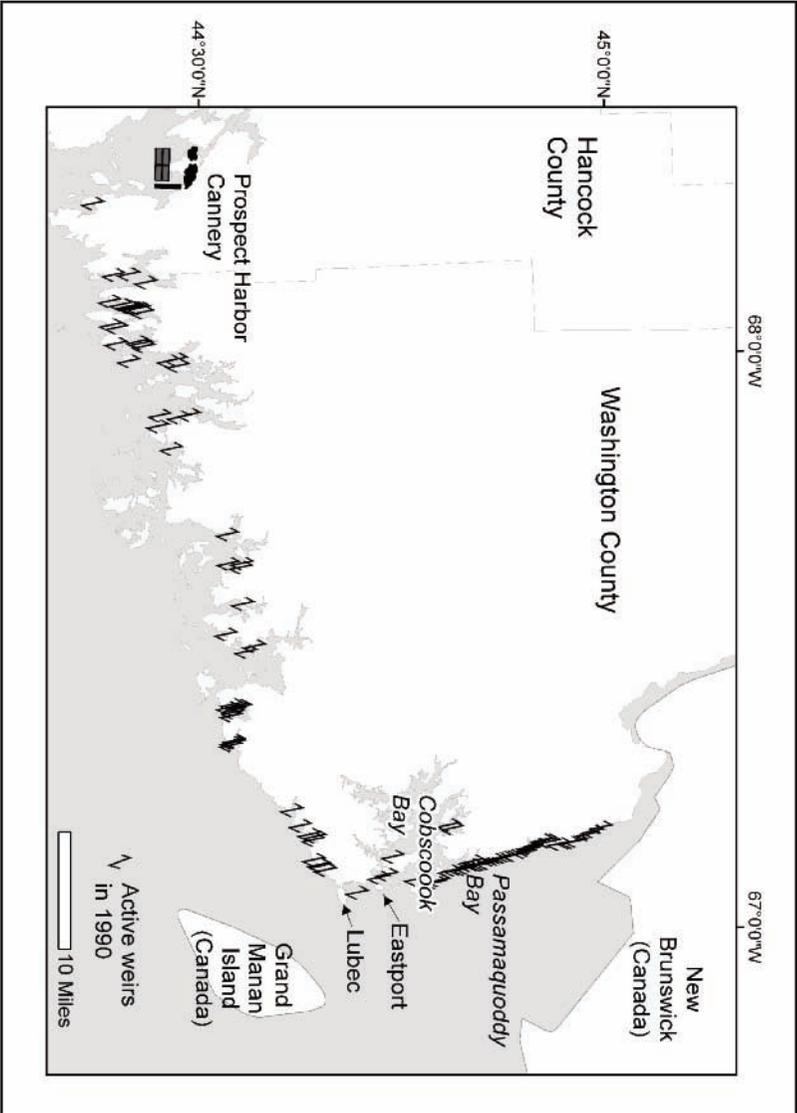


Figure 3. Sardine fishing and canning communities.

canned fish as sardines so long as the region in which they were caught was named. Language such as “Norway sardines packed in water” or “Maine sardines packed in oil” became the standard of identity. The regulations recommended, but did not require, that the species of fish be identified on the package. This ruling effectively precluded American canners from calling their product “French Sardines” and provided a mechanism by which only the extraordinarily astute customers with knowledge of global distribution of fish populations might be able to guess what kind of fish they were eating.¹³

Handling of the product was more worrisome than the name of the fish in the can. The industry grew quickly and competed ruthlessly, largely on price. In the days before the Sherman Anti-trust Act, when conspiracy in restraint of trade was a laudable business initiative rather than a crime, a sardine trust was one solution to the problem of quality. With an apparently straight face, the *New York Times* reported in 1898 that a trust would soon be formed to put all the Maine sardine canneries under common ownership. Individual proprietors would be reduced to plant managers. Once the nuisance of competition was removed and sparks of labor organization could be stamped out, prices could be increased, and, with those additional revenues, quality could be improved.¹⁴ Nothing in the tone of the article suggests the slightest hint of skepticism on the part of the reporter or editors.

By 1915, quality had apparently not increased sufficiently. The twentieth century solution was a government commission, to be convened at Eastport, to investigate problems such as canning of sardines that had consumed “red feed” (bacteria-tainted copepods),¹⁵ workers with infectious diseases, dirty equipment, and poor quality oil or mustard.¹⁶ In 1951, another quality-control body, the Maine Sardine Council, was created. A private organization chartered by the State, the council had legal authority to impose quality standards for the good of the industry.¹⁷ The council lasted almost as long as the industry did, and finally closed its doors in 2000 as the industry dwindled toward its single surviving factory.

In spite of concerns over the quality of its product, the sardine industry boomed with the wartime need for protein-rich foods that could tolerate long storage and rough handling. Both World Wars created surging demand for sardines, which dropped off quickly after World War II.¹⁸

Changes in consumer behavior

The sardine industry reached its peak in 1950. The catch of Atlantic herring in Maine, to supply both the sardine and the lobster bait industries, exceeded 84 million metric tons in 1950. It never again reached that level. Today, landings are barely 30 million metric tons (Figure 4).

The refrigerator is the enemy of canned fish, and the decline in taste for sardines coincided with the expansion of refrigeration. In the 1950s, American households were beginning to enjoy the postwar abundance of consumer goods. Between 1941 and 1951, the share of United States households with mechanical refrigerators rose from fifty-two percent to eighty percent. Suddenly, the ability to conveniently store fresh fish was commonplace. Freezers were small in many of those refrigerators, but grew as frozen food became an increasingly important part of American meals.¹⁹ At the same time that consumers were acquiring the means to store fresh or frozen fish in their homes, industrial refrigeration was revolutionizing the fish products industry.

In 1925 Clarence Birdseye had moved to Gloucester, Massachusetts and started work on techniques to freeze fish. In 1946 he introduced a freeze-drying method. Frozen cod began to displace that traditional staple of immigrant Portuguese and Italian families, salt cod. Automatic fish-filleting machinery had become available before the Second World War, but it was only when it was used in combination with freezing technology that a mass market for frozen fish fillets could develop. Finally, in 1950, the process for freezing fish into large blocks then cutting those blocks into fish sticks was developed.²⁰ The frozen fish stick was on its way to being a staple, and sardine output began to decline the next year. Birdseye's company went on to become Postum, which later became General Foods. Frozen fish joined the mainstream, and sardines languished.

In addition to being easy to handle and cook, fish sticks may have revealed something about American's attitude toward fish. A fish stick, let us admit, is not much like fish. Breaded and fried, it is free from the shape, texture, and much of the flavor of fish. Advertisements for Hunt's tomato sauce in the 1950s suggested that the best way to serve fish sticks was further flavored with tomato sauce, a culinary technique that treated the fish stick as a variation on the French fried potato.²¹

As new ways of consuming fish developed, sardines became a food of the World War II generation. As that generation was displaced by baby boomers, the taste for sardines was displaced as well. Jeff Kaelin of the Maine Sardine Council and later a consultant to one of the few remaining packers observed "our customers were dying. Sardines are something the new generation hasn't taken to."²²

The United States sardine industry itself accepted the notion that their product was meant for people who, for lack of money or lack of refrigerators, didn't have better alternatives. The *New York Daily News*, after quoting industry insiders, predicted a bright future for the industry in export sales to poor countries without access to refrigerators.²³

Globally, the industry is enormous and clearly stratified based on price and quality. The total global catch of herring, sardines, anchovies,

and related species—not all of which will end up in a can—averages about twenty million tons a year, more than four times the catch of tuna and more than twice the catch of cod, hake, haddock and related fish.²⁴ Among those fish that are eventually canned, products from countries such as Thailand, Morocco, and Poland dominate the market for low-priced sardines. Moroccan sardines sell for about \$1.50 for a fifteen-ounce can in groceries that serve Hispanic markets in the United States. Other imports sell for well under a dollar for the standard four-ounce can. The last production from the east coast of the United States, still available at retail as this article goes to press, costs about a dollar a can. At the same time, imports from Scotland and Norway, packaged to emphasize that they are wild-caught and healthful, sell for as much as four dollars for a four-ounce tin.

Elsewhere in the world, however, sardines remained unambiguously a luxury food. In France, sardines are often packed with a date stamp on the tin, not to encourage prompt consumption, but to make it easier for sardine connoisseurs to keep track of their sardine horde over the years, so they can be consumed at the appropriate age. Five years is a typical period for good sardines to age. Some aficionados argue that good *millésimées*, or sardines worthy of aging, will improve for as long as 25 years.²⁵

Before it is a food product, the sardine is a free-swimming fish. Specific fishing technologies, developed in response to the characteristics of the places where the fish are found, evolved to turn the free-swimming fish into private property that could be canned and marketed. It is to those fishing technologies that we now turn.

An evolving fishery

The Atlantic herring is a pelagic fish. It moves around, shuttling from deep tidal bays to nearshore shallows to the famous offshore fishing grounds of Georges Bank. They spawn on coastal banks—pockets of water only 60 to 300 feet deep surrounded by deeper ocean—along the coast of Maine and Canada. The spawning areas are famous names in the world of fishing: Georges Bank and Nantucket Shoals off Massachusetts, Jeffreys Ledge and Stellwagon Bank off Maine, the shoals around Grand Manan Island and Nova Scotia in Canada. Herring breed in the summer and fall, migrate to feeding grounds from Nova Scotia to the Chesapeake Bay, and return to their native spawning grounds to breed.

Herring feed close to the bottom of the food chain, consuming plankton, shrimp, and the larvae of crustaceans. Only rarely do they eat other fish.²⁶ As food for humans, this eating habit is a good sign, in that it makes sardines relatively immune from the problem of bioaccumulation

(the increase in concentration of toxins as one animal eats another) that has been a source of toxicity in fish such as walleye and lake trout.

The original fishery was conducted with weirs built in the tidal coves along the Bay of Fundy. Weir fishing comes from a Native American or First Nation technology, in which poles were driven into the floor of a shallow bay and brush was woven around the poles to create a barricade that would force passing fish into a circular trap.²⁷ The First Nation's technique was modified by Europeans who replaced the woven brush with a fabric net, but the method remained basically unchanged. Because they were set close to shore, weirs could be tended with very small boats or, along the bays with particularly high tides, on foot.²⁸ Weirs remained the dominant technology until the 1940s and are still in use along the coast of eastern Maine and around the Bay of Fundy. This low-tech method receives some regulatory protection in the form of exemptions from the ceiling on total herring catch imposed by the Canadian government. The New England Fisheries Management Council recently proposed a similar exemption for weir fishermen at the eastern end of the coast of Maine, between Cutler and the Canadian border.²⁹

Weir fishing gave rise to a particularly picturesque boat of downeast Maine, the sardine hauler. They were pointed at both ends, about eighty feet long, and built to be loaded until only a foot of freeboard remained. In the nineteenth century they were built as single-masted sailboats; in the twentieth century they were designed to use a single diesel engine. A "champagne system" circulated seawater and air through the hold to keep the catch fresh without the expense of refrigerators.

Purse seining began to displace weir fishing just before World War II, and blossomed in the 1940s. As the name suggests, purse seining involved dragging a large open net bag—shaped vaguely like a deep purse—behind a boat. Because herring swim in schools, and tend to bunch into an even tighter school when threatened, a seine can quickly capture an entire school of fish.

As demand for herring grew into the 1950s, and fishing technology continued to improve, the herring population seemed able to tolerate the additional fishing pressure. The fishery split into two distinct activities: fishing for sardines generally close to shore and fishing for adult herring in offshore waters. The adult herring were destined primarily for export or as bait for lobsters.

Signs of trouble began in the 1960s, when weir fishermen noticed the catch of juvenile fish—the ones destined to end up as sardines—had declined. As the 1960s wore on, more and larger fishing boats started pursuing herring. Large vessels from what was then the Soviet Union began fishing off Georges Bank. The herring harvest from the area peaked in 1968, then plummeted. Surveys found declining number of herring larvae

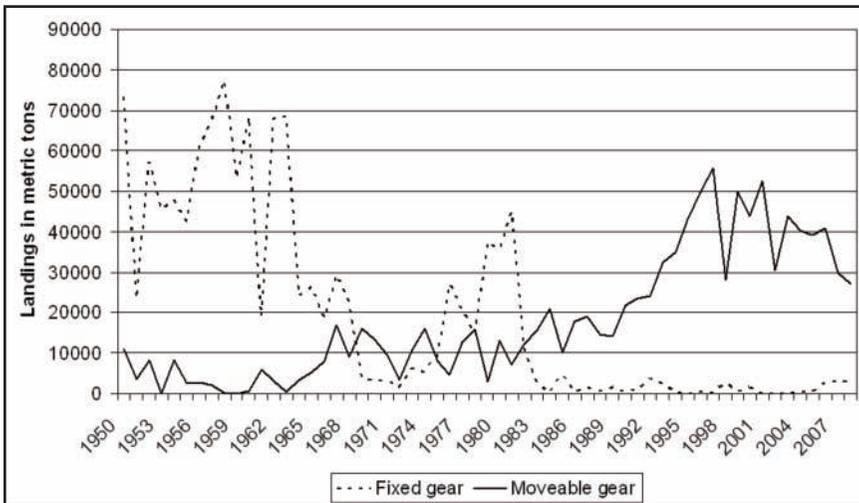


Figure 4. Herring landings in Maine, 1950 to 2008. Data from National Marine Fisheries Service.³⁰ Tabulations by the author.

during the late 1970s and absolutely no herring larvae on the Georges Bank from 1979 to 1984.

In retrospect, the decline of the Georges Bank herring stock can be attributed to three distinct factors. First, the limited effort at international regulation set the allowable harvest too high. Then, those limits were often violated. Finally, the fishery focused on concentrations of spawning fish. Remarkably, once fishing was abandoned following the collapse of the late 1960s, the populations recovered in about the same length of time it took to destroy them. The recovery began in the Gulf of Maine then spread down to the Nantucket Shoals and out to Georges Bank. By the mid-1990s, herring were six times more abundant than they had been in the early 1970s.³¹

As herring populations recovered, however, the methods of fishing changed (Figure 4). Before the collapse, most herring caught in Maine were captured by weirs and related techniques, generally known as “fixed gear” because they are deployed at one location. These technologies tend to be low in capital requirements and can be organized around family or community groups. The technologies that rose in their place generally use moveable equipment—nets of one sort or another towed behind boats—evolving from the purse seine to still more complex and capital-intensive methods. Perhaps the best examples of these new and expensive technologies are pair trawling, in which two boats pull a net through the water, and midwater trawling, in which the net is suspended well above the ocean floor.

Fishing enterprises are not limited to boats and nets, however. They demand support services from coastal communities and provide inputs to land-based enterprises. We turn next to the way the industry shaped coastal communities.

Sardines shaped the landscape

Eastport and Lubec, the twin centers of the American sardine canning industries, are distinctly gritty and worn-down towns on a Maine coast typified by tidy and prosperous tourist communities. Walk down the streets of either town and signs of the former sardine industry are everywhere. At Lubec, downtown redevelopment turns on a plan to restore the old herring smokehouses. McCurdy's Fish Company's smokehouses were built on wooden pilings over the bay. All but one are vacant and deteriorating, while a local foundation hurries to raise money for restoration.³² At Eastport, the dark and hulking former American Can Company factory, source of tins that were used by packers around Cobcook Bay, dominates Sea Street. Standing at the Eastport waterfront today, it is hard to imagine that Eastport, in 1883, was the second busiest port of entry in the United States. The customs statistics may be a bit misleading because of the number of ships arriving from Canada, just a couple miles across Passamaquoddy Bay, but they still showed 1,784 arrivals by foreign vessels.³³ Today there are only two active commercial piers in downtown Eastport; a century ago there were twenty-one (Figure 5).

At Eastport's main commercial wharf the primary modern cargo is wood pulp from the forests of interior Maine en route to European paper companies. In Lubec the downtown ends at a government-funded marina at which urchin fishermen gather in the evening to sell their catch to dealers who set up scales on the back of trucks. The highly polished tourist businesses that are so common both down the coast toward Portland or across the bay in St. Andrews, New Brunswick, are curiously scarce in Eastport and Lubec.

At Prospect Harbor, west along the coast from Passamaquoddy Bay — this part of the coast of Maine runs much more east-west than it does north-south — the last American industrial sardine factory closed in April 2010. It was a distinctly unromantic complex of buildings that would be at home at the back of any worn-out industrial park in the nation. Their sign was in the form of a man, forty feet high, wearing a fisherman's oilskins and holding a can of Beach Cliff sardines.

The sign was a bit deceptive. The contemporary sardine industry was only partially in the business of putting fish in cans for humans to eat. The herring that fed the cannery also found their way into fish meal, fish

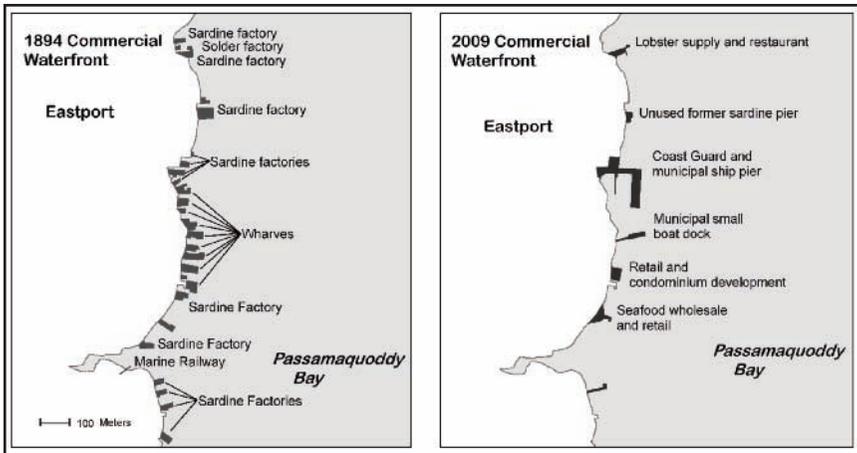


Figure 5. Shoreline industrial development in Eastport, 1894 and 2008. Data from J. H. Stuart & Co., USDA NAIP, author's fieldwork. Cartography by the author.

oil, and, perhaps most important to the economy and the landscape of Eastern Maine, lobster bait. In 1997, when the sardine industry was still strong enough to support an industry association, its executive director, Jeff Kaelin, testified to Congress that 40 percent of the herring purchased by Maine sardine canneries was ultimately sold as lobster bait. He argued that the local herring fishermen should be protected from competition from new and larger fishing vessels, not because of the sardine industry's \$50 million direct contribution to the coastal economy but because it provided an essential input to the larger \$100 million lobster industry.³⁴ It was a subtle argument, one that would give a chill to every tourist and bed-and-breakfast proprietor along the coastal highway, suggesting that the lucrative scenic appeal of lobster boats would vanish from the Maine coast if the sardine industry were not granted congressional protection.

The last surviving American factory was well located. Eastport and Lubec, the historic centers for the canning industry, are too far to the east to efficiently serve the market for lobster bait. Lobstermen fish the entire coast, even the trendy and prosperous section closer to Portland. Prospect Harbor's mid-coast location is more strategically located to serve that market than plants at Eastport or Lubec would be. (A small cannery has reopened on the California coast, but can safely be excluded from a discussion of the history of industrial-scale canning.)

At the same time, the Beach Cliff plant was far enough east, close enough to the economically depressed Washington County, that it has a steady supply of low-wage workers. Average weekly wages in neighboring Washington County were \$557 in December 2009, the lowest rate for

any county in Maine, and well under the statewide average of \$748 or the national average of \$942.³⁵

At the start of 2005, Maine had two surviving canneries, at Prospect Harbor and Bath. When the corporate parent of both plants, Connor Brothers, Limited, announced the closing of the Bath plant, one of the reasons offered was the difficulty of finding people to take the \$7 to \$10 per hour jobs. At the same time, real estate prices escalated sufficiently in the Bath area that people who might have been willing to work at those wages would have had a difficult time affording housing.³⁶

The possibility of high wages does not seem imminent for Prospect Harbor. The nearest concentration of wage and salary employment is in Ellsworth, the county seat and gateway city to Acadia National Park, about 40 minutes away by twisting highway or expensive ferry. Extending to the north and east are fishing, logging, and agricultural communities with few job opportunities. The real estate market remains starkly split, with waterfront property rapidly increasing in price but building lots or mobile home sites that are not on the water selling for the price of a well-used car.

Finally, as if to illustrate the evolution of the sardine industry from human food to lobster bait, the former Beach Cliff plant was sold to Live Lobster Co., a business that plans to buy lobsters, sell herring as bait to lobstermen and, eventually, produce processed lobster products.³⁷ Catching Atlantic Herring off the coast of Maine has become an input to the lobster fishery and no longer a food industry in its own right.

Conclusion

For over a century, the sardine brought a measure of prosperity to the communities of coastal Maine and New Brunswick. The industry grew out of technological change (the steel can and the purse seine) and changes in international trade. Decades later, it was destroyed by technological changes (refrigerators) and international trade. Along the way, it left a distinctive mark on the landscape that can be seen at Prospect Harbor, Eastport, and Lubec. Today the industry hangs on, playing a supporting role to an iconic part of the coastal economy, the lobster fishery.

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