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Lobstering and Common Pool Resource Management in Maine

By Monique Coombs

Introduction

Maine is the top lobster-producing state in the United States. Its lobstering industry brings almost \$300 million into the state each year. Record-breaking numbers over the past couple of years are indicative of its sustainable lobster fishing practices. The industry -- comprised of 5,400 small businesses (lobstermen and their boats are considered small businesses) and creating over 35,000 jobs on the working waterfront, from bait dealers to truck drivers - is one of the best examples of how Elinor Ostrom's collective action theories work in practice. The way the industry operates is a study in the way people with a common interest and the government work together to protect a resource through creating boundaries, working together to provide leadership and creating incentives that reward the practitioners with a bounty that defines and sustains a community.

First, I describe how lobstering in Maine works and what it means to the people there. Second, in the following section I show how Elinor Ostrom's work can be used to understand the industry's very complex grassroots structure.

The lobstering way of life in Maine

Bordered by the Atlantic Ocean to the east and south, Maine is both the northernmost and easternmost part of New England. Known as "vacationland," Maine has amazing scenery, lakes, forests and rocky shores. These rocky shores are often peppered with big lobster boats, small skiffs, lobster traps and colorful buoys. Fishermen look at lobster, not only as a food, but as a unique way of life - one that has been handed down through the generations. Mainers consider this lifestyle as "the way life should be" because of the sense of community and pride throughout the state, the heritage of our fishing villages, the captivating landscape and cultural traditions. Our biggest tradition being of course, lobster -- lobster bakes, lobster boat races and even lobster ice cream. Yes, lobster ice cream can be found at Ben and Bill's Chocolate Emporium in Bar Harbor, though it is made more for the intrigue than the taste.

Simply put, Maine lobster is delicious. The cold waters and rocky ocean floor of Maine are appealing to *Homarus Americanus* and the sweet, and the tender meat of this species' front claws and plentiful tail is quite appealing to *Homo sapiens*. The Maine lobster has two claws, a pincher with a serrated edge, and a crusher that is larger. Their claws are used for defeating prey, and each other. Lobsters swim backwards by flapping their tail and molt their shells up to three times a year until they reach maturity, around age five. Female lobsters can lay up to 100,000 eggs during a breeding cycle and carries the eggs for up to two years, half of the time internally and the other half externally. Female lobsters bearing eggs externally are "v-notched" by a lobsterman, which means a little triangular slice is cut from the tail flipper. This v-notch signifies that the lobster is still breeding and must be released back into the water. Most lobstermen abide by this regulation and are willing to mark a lobster with a harmless v-notch because it ensures a sustainable and healthy stock of lobsters.

Lobster boats are about 20-45 feet on average and usually employ one captain and one sternman, or helper. Some smaller boats are run solely by the captain and some larger boats may have two sternmen. The independence and the freedom of owning your own business and working on the water are what draw many lobstermen to their work. It is also what can make collective action in the industry difficult. By nature, many lobstermen are solitary, tenacious and concerned specifically with fishing, more so than they are involved in other matters such as regulations and marketing, just as a farmer is more concerned with his crops than he might be about attending farm policy meetings.



Mackerel Cove, Bailey Island, Maine is one of the most photographed places in Maine. It is quintessential Maine with lobster boats, buoys, skiffs, wharves and magnificent sunsets. Lobstermen are able to fuel their boats, buy bait and sell their lobsters on the wharves. The wharves are also a great meeting place for the fishermen to converse about the day's catch, problems with the boat and discuss the fishery. Many people who live on Mackerel Cove are comforted by the sounds of the lobster boats coming in and out of the cove.

The lobster season in Maine begins in May and runs through December. Larger boats that are able to travel further into deeper waters to follow the lobsters may continue fishing throughout the year. Lobster fishing, or "lobstering" as Mainers call it, is prohibited on Sundays during the summer months, and from June 1st to October 31st fishing is not allowed from a half-hour before sunset to a half-hour before sunrise. These rules regarding time are only a part of why Maine's lobstering industry is one of the most sustainable in the U.S. Other regulations such as the zone lines, size of lobsters that are allowed to be kept and sold, the use of trap vents and the amount of traps available to lobstermen keep this Maine fishery maintainable. A trap vent is a small opening in the trap that allows smaller lobsters to escape.

Once upon a time, lobster was so plentiful in Maine that they could be harvested from tidal pools and in shallow waters by hand. Native Americans used the shellfish as fertilizer and bait, and in Colonial times, they were so bountiful that they were served to prisoners and peasants. After 1850 lobster began to be caught by traps. Lobsters traps are usually constructed with bent wire and wood. An opening shaped like a funnel, called a "head," allows the lobsters to enter the trap but prevents them from backing out. The bait is kept in the part of the trap called the "kitchen" or "chamber." After the lobster reaches the bait it and attempts to back out hoping to exit, it gets caught in the "parlor." Lobster traps are weighted with bricks or cement runners so they land upright on the ocean's floor. Traps are tied together by rope in "strings" of 2-20 traps. Buoys mark the beginning and end of the string of traps.

As technology has progressed and demand has increased, so has the amount of lobsters that can be caught and hauled in one day. A lobsterman can catch upwards of a thousand pounds on a good day. He can also catch less than one hundred pounds on a bad day. The demand for this precious living Maine resource, improved technology and Mainer culture spurred a homegrown process of collective action and cooperation with government in order to preserve the lobster and the individually-focused industry that reflects many of Ostrom's theories.

The local and regional lobstering industry and Ostrom's eight design principles

Lobster fishing in Maine is managed within a three-mile boundary by the state Department of Marine Resources. The industry is also managed by the federal government; the National Marine Fisheries Service (Department of Commerce) and the Atlantic State Marine Fisheries Commission (a body of 15 coastal states with enforcement power), attempt to regulate and supplement the state's policies. One regulation that all agencies agree on is a minimum size for a lobster to be kept. Lobsters, federally, must be over 3 ¼ carapace-length from the eye socket to the beginning of the tail in order to be kept and sold. Maine, specifically, also mandates that a lobster over five inches be released. Maine is the only state that regulates this maximum length. This rule is not imposed as a congratulatory symbol to the lobster for making it so long, but rather because larger female lobsters can actually produce ten-times the amount of

eggs as its smaller companions. Other lobstering states, such as Massachusetts, have a larger, varying maximum size limitation, depending on the specific Lobster Council Management Area, which the federal government mandates in coastal states.

The restrictions of the zone lines were not supposed to extend outside of the state's three-mile boundary. Instead, in 2001, they were extended out to 200 miles. This restricts the lobstermen of five out of the seven zones from fishing more of their gear in federal waters and decreases the value of their federal permits. Recently, the DMR has stated that it is possible these restrictions will soon be extended to all seven zones. Many lobstermen are working to change this zone extension and are supporting efforts to limit the zone lines to three miles. This would still support Elinor Ostrom's collective action principles because they would apply up to the three-mile line. But, it would also allow some lobstermen to fish more of their traps in federal waters, where they were once able.

The varying size rules present a common pool management problem that is difficult to solve. Maine lobstermen must abide by Maine regulations regardless of how far off-shore the lobsters are caught. Massachusetts lobstermen do not have to abide by Maine regulations, even if the lobsters they catch are from Maine waters. Some Maine fishermen believe this is unfair - that a boat fishing from another state right next to them does not have to abide by the same regulations, especially since the regulations that Maine dictates are there to maintain a bountiful stock. As Ostrom indicates in her eighth design principle, there would have to be formal cooperation at an interstate level to solve this problem. This principle, if implemented, would further enhance management of the lobster industry.

Contributors from the Ostrom Workshop collaborated in creating supplementary information to assist readers with some of the technical language, basic tools, and key concepts they work with. They include the following three sections:

- [I. Basic Concepts](#) [0],
- [II. The Eight Design Principles](#) [0], and
- [III. Further Reading](#) [0]

Sixteen years ago Maine introduced a new type of management in the lobster industry, known as "co-management," or lobster zone councils. This 1995 co-management law determined that authority over the industry would lie with both the fishermen and government agencies. Lobster management policy councils, comprised of local lobstermen and their elected leaders, decide measures for their region which are divided by zone lines. Co-management has negotiated three major regulations in the industry: trap limits --the maximum number of traps a lobsterman is allowed to fish--time and day of fishing, and the number of traps per string and entry laws (how many lobstermen in a zone). By 1997 seven zones and boundaries were established (see chart) and zone councils were established. Ostrom says that in order for collective action to occur boundaries must be defined, and here Maine's lobster councils have done that.



Lobster fishing zone lines A-G^[1]

Ostrom's third design principle calls for broad participation so "that most of the individuals affected by a resource regime can participate in making and modifying their rules."^[2] Maine law addresses this call for broad participation by mandating that zone council meetings are open to all license-holding lobstermen. However only lobstermen licensed to fish within the specific zone that is being convened are allowed to vote.

The co-management structure of the lobster industry in Maine demonstrates what Ostrom calls polycentric organization: multiple layers of nested enterprises, with small local common pool resources (CPRs) at the base level. The state is a larger common-pool resource and, therefore, the zones are necessary, for the best governance arrangement.

In this principle Ostrom emphasizes critical local involvement and strongly "cautions against single governmental units at global level to solve the collective action problem of coordinating work against environmental destruction. Partly, this is due to their complexity and partly to the diversity of actors involved. Her proposal is that of a polycentric approach, where key management decisions should be made as close to the scene of events and the actors involved as much as possible."^[3]

During zone council meetings rules, which are restrictive, are proposed, discussed and voted on. Rules are passed by a vote of two-thirds of the lobstermen in a zone. The council then informs the Commissioner of Marine Resources of the results and if he deems them reasonable they will become regulations, which controls. Lobstermen know their zones best and are able to guide and vote in their zone's best interest. And this aligns perfectly with Ostrom's third design principle:

Rules regarding the appropriation and provision of common resources are adapted to local conditions.^[4]

What is good for Zone G may not be best for Zone E. For example, most zones are allowed up to 800 traps but only 600 traps are allowed in Zone E. This was decided by the Zone E council to work best for them. However, this decision is actually controversial. Many lobstermen believe zone E decided on 600 traps to dissuade other fishermen from trying to become a part of their zone because it is in prime fishing waters. Having to decrease traps from 800 to 600 could be discouraging.

Lobstering, or fishing, is not an industry that can be easily regulated by large government. Most of the individual lobster boats are family owned and operated small businesses. But, as aforementioned, many lobstermen are independent-thinking and operate their own boats because it is an appealing way of life. Collective action, in order to regulate and develop their industry as a whole, is not necessarily enticing for them. Co-management amongst the lobstermen (by their zones) and policy makers in the government makes cooperation and collective action more feasible because instead of looking at the industry as a whole they can work together in zones to regulate their areas. And, by amending their specific zones accordingly, they are in fact better managing and creating a more sustainable fishery.

The Maine Lobstermen's Association, the collective voice of Maine lobster fisherman, not only played an instrumental role in accomplishing the zones but they continue to support the co-management process as a mediator when needed. The Association mediates conflict within the zones and assist lobstermen with negotiation outside of the zones, being their voice at public hearings. Associations like the MLA are effective monitors and an easily accessible mechanism for conflict resolution, both necessary in successful collective action. Though they are mediators in the co-management process associations are not allowed votes in any of the lobster zone councils.

So Maine's co-management is an effective example of Elinor Ostrom's collective action principles. In addition to there being organization in the form of levels with smaller common pool resources at the base, there is also effective monitoring and conflict resolution that ensures that all parties are involved in the process. An example of this process is the limited entry system, which is explained on the [Maine Lobstermen's Association](#) [1] website:

"In 2000, the Legislature established a limited entry system for Lobster Zone Councils allowing each zone to vote to establish exit/entry ratios based on the number of licenses retiring each year. In 2005, the Legislature further granted the zones the authority to control entry through other methods: increase the length of time an apprentice must be enrolled in the Apprentice Program up to a max of five years, specify that a sponsor of an Apprentice must have held a Class I, II or III license for at least five years and require that a person who completed the apprenticeship program may enter lobster zone only if he apprenticed in that zone."^[5]

By having each zone to vote to establish exit/entry ratios, each zone and its lobstermen are involved in the process and efforts to protect the industry from overfishing.

Summary

Collective action, though difficult because of the independence of lobstermen, works well in Maine's lobstering industry and its co-management process for several reasons: the large resource pool of lobsters, boundaries in the water (zones), proper leadership, effective zone council meetings, good incentives, and common goals. The fishery is large enough to be divided into zone councils that can exclusively manage their areas, managing the fishery from the base, the lobstermen, up to the state and federal regulators. By each zone individually managing their areas the whole fishery is managed effectively and specifically to its zone, ensuring a sustainable fishery. The physical boundaries in the water divide the lobstermen into their councils and allow them to manage their areas and fish according to their specific regulations, such as the amount of traps and amount of lobstermen allowed in the zone. Associations such as the MLA encourage, support and competently mediate the council meetings and lobstermen so that they can lead and manage their areas efficiently and well. Co-management aids in the fishermen achieving their goals of a bountiful, yet sustainable fishery.

These practices - in line with Ostrom's theories -- also ensures that Maine, known for its lobster, can continue to be one of the most successful lobster industries in the world. It keeps the economy flourishing and the community happy, and reiterates that Maine truly is, "the way life should be."

The permanent link to this article is <http://geo.coop/node/654> [1]

About the author

Monique Coombs runs Lobsters on the Fly, a grassroots marketing initiative, supporting Maine's seafood and commercial fishermen. Coombs also facilitates the Maine Seafood Marketing Network, a collaboration of individuals and organizations in Maine's fishing industry working to support the marketing of Maine's seafood through common goals, collaboration and sharing of information. Coombs currently serves as vice president of the board for the Eat Local Foods Coalition and works as a co-leader for the markets transformation/food justice work group in the Fish Locally Collaborative. She lives with her husband, a lobsterman, and two children on Orr's Island. She can be contacted at lobstersonthefly@gmail.com.



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Endnotes

[1] Maine Lobstermen's Association. Web. 1 Aug. 2011. <<http://www.maine lobstermen.org/news.asp?page=0&sec=LZCLAC> [2]>.

[2] "Elinor Ostrom, United States of America." Sharing Power. Web. 1 Aug. 2011. <<http://www.sharingpower.org/about-the-conference/conference-patrons/66-elinor-ostrom-united-states-of-america.html> [3]>.

[3] Ibid.

[4] "Elinor Ostrom." Wikipedia. Web. 1 Aug. 2011. <http://en.wikipedia.org/wiki/Elinor_Ostrom [4]>.

[5] Maine Lobstermen's Association. Web. 1 Aug. 2011. <<http://www.maine lobstermen.org/news.asp?page=0&sec=LZCLAC> [5]>.

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Links:

[1] <http://www.maine lobstermen.org/>

[2] <http://www.maine lobstermen.org/news.asp?page=0&sec=LZCLAC>

[3] <http://www.sharingpower.org/about-the-conference/conference-patrons/66-elinor-ostrom-united-states-of-america.html>

[4] http://en.wikipedia.org/wiki/Elinor_Ostrom

[5] <http://www.mainelobstermen.org/news.asp?page=0&sec=LZCLAC>