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Let's Act Now, While Things Are Good! Social Change and the Need for Policy Action in Maine's Lobster Industry

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Introduction

I write this letter from a unique viewpoint bridging two distinct histories. I am a trained anthropologist with a focus on human-environment interactions in the context of climate change. I am a third generation lobsterman who has spent more than 22 years in Maine's iconic lobster industry. I like to think that my background provides me with a healthy mix of academic rigor as well as a real-world pragmatism. In reality, I often find myself and my opinions torn between my two worlds – wondering if my passion for the industry that helped raise me is clouding my academic judgment, or if my academic aloofness is separating me from the real world problems of, not in spite of, this dynamic background.

The motivation behind this letter was a remark by Maine Department of Marine Resources Lobster Biologist, Carl Wilson. While attending the Rockland Maine based Island Institute's annual *Climate Round Table* event, where fishermen, scientists, and others gather to talk about the past year in the Gulf of Maine, Wilson said, in reference to the lobster industry, "When the resource changes, everything changes." This comment, poetic in its simplicity, got me to start thinking. I began retracing the history of Maine's lobster industry to find examples of Wilson's statement, and I was surprised by how many instances supported this comment. What follows is my attempt to put to paper my thought process in a more academically rigorous manner. The goal of this letter is not to come to some grand conclusion that fisheries managers can use to craft a concrete plan for the future of Maine's lobster industry. Rather, it is to cast a light on the social circumstances behind where Maine's lobster industry is in 2014, how we got here – and what that means for the future. Ultimately, I hope to encourage people to look at potential actions that the fishery can take

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now, when things are looking good for the humble lobster, rather than later, when things may not be as positive.

The History of Maine Lobstering… Abridged

Flash back to Maine's coast in the 1920s and the lobster fishery was nearing collapse due to over exploitation of the resource. Acheson (1997) argues that the laws at the time should have precluded this near collapse and that the issue was not proper regulation but the "pirate" mentality of lobstermen who sought to evade the laws whenever and however possible. There was rampant poaching of illegal lobsters leading to a significant depletion of the breeding stock and a reduction in lobster populations (see: Acheson 1997). In response to this decline, the state legislature passed numerous laws and regulations, often at the behest of lobstermen. Many scholars argue that Maine lobstermen recognized the negative consequences of their actions and developed appropriate conservation measures (Acheson 1975*a*; Acheson 1975*b*; Acheson 1997; Acheson and Gardner 2010; Wilson and Acheson 1996). This development provides anecdotal support to Folke *et al.*'s (2005) assertion that "crisis, perceived or real, seems to trigger learning and knowledge generation and opens up space for new management trajectories of resources and ecosystems" (p. 446).

As lobster catches rebounded in the 1940s, lobstermen's attitudes began to change. Researchers argue that: "People became convinced that those violating the conservation laws were doing far more damage than they had previously though" (Acheson 1997, 14). This change in perception provided the basis for future successful management practices, including the implementation of the voluntary V-Notch law in 1947. This law allowed lobstermen to make a notch in the tail flippers of gravid, or egg-bearing, female lobster and outlawed the possession of such marked lobsters. This proved to be a very effective method of protecting lobster-breeding stock, a point to which we will return later.

The stable lobster catch over the preceding several decades would seem to contradict this fact. As a previous president of the Maine Lobsterman's Association is quoted as saying "the lobsters are making damn fools out of the scientists (Stecklow 1991), a sentiment shared by most lobstermen. What followed was an intense and contentious debate between Federal and local managers on what the appropriate strategies for management were going to be (Acheson 1997; Acheson and Gardener 2010). When it became clear that the suggested federal and state regulations were close to passing, the industry itself began creating its own management proposals. They made concessions regarding minimum size regulations and limits to entry into the fishery with the understanding that the practices of the double gauge and voluntary V-notching would be maintained (Acheson & Gardner 2011). The Botsford Report supported the industry's assertions, finding that traditional practices were effective in maintaining a population of breeding lobsters (Botsford *et al* 1986).

The end result of this debate was an incremental increase in the minimum size; the establishment of limited entry programs, and most importantly the establishment of the seven lobster fishing zones and associated Zone Management Councils. These councils are

the basis for the current co-management regime (Laws of Maine, Public Law 468 1995). These councils would have the authority to regulate entry into the zone's fishery. In addition they regulate the total number of traps that could be fished in the zone. As a result, the number of traps fished across the states fell from as high as 2,500 in some western Maine areas to a statewide limit of 1,200 traps (all zones are more restrictive with a maximum of 800 traps).

Thus began Maine lobstering's co-management era (see Acheson, Stockwell, and Wilson 2000). Co-management is predicated on the idea that by giving stakeholders more influence in the regulatory process, better, more enforceable regulations can be enacted reflecting the interaction between harvester and natural resource (Nadasdy 2003). Up until 2012, it seemed to work – catches increased from roughly 37 million pounds in 1995 to over 100 million pounds in 2011. Lobstermen believed that this success was a result of their management and regulatory strategies (Acheson and Gardner 2010). This mindset still predominates today, despite recent work that suggests there are other significant ecological factors at play (Steneck and Wilson 2010; Steneck 2006; Incze *et al* 2010; Boudreau and Worm 2010; Pershing *et al* 2010; Waddington and Meeuwig 2009), one of which was warming waters.

2012: Victims of Their Own Success

The role of climate change in the lobster fishery's success became evident during the 2012-2013 fishing season. An anomalously warm (1-2°C above 1982-2011 temperatures) winter and spring had dramatic effects on the timing and distribution of the lobster catch. Onshore migration from deeper, colder, waters began nearly one month earlier than in a 'normal' season. Warmer waters also increased molting rates and thus, the number of legal-sized lobsters. As a result, the catch rose sharply in June and peaked in July (over 26 million pounds were caught in Maine in July alone, a higher number of pounds than the pre-1990 yearly average). This record catch, and its occurrence early in the season, had dramatic economic and social impacts. The ex-vessel price-per-pound paid to lobstermen at the dock dropped to as low as $1.25 per pound. In some harbors, significantly lower than the 'normal' price. The overabundance caused many Canadian lobster-processing plants to pay significantly lower prices for Canadian lobsters, threatening the livelihoods of Canadian lobstermen and leading to demonstrations against plants processing U.S. lobster (Woodard 2012).

A total of roughly 254 million pounds of lobster were caught between 2012 and 2014, equivalent to the total pounds of lobster harvested in Maine between 1928 and 1951. Compared to the "lobster bust" of the 20th century, the second decade of the 21st century was shaping up to be a "lobster boom." Unfortunately, this boom had its own set of consequences. The low prices of 2012 provoked the threat of an industry wide shutdown, the formation of a lobster marketing initiative, the formation of the state's first lobstermen union, and many lobstermen to quit the fishery. While the total number of active lobster harvesters has remained relatively stable in recent years, it does show a downward trend (1.1

percent decrease between 2012 and 2013 and a greater than 50 percent decrease since the 1970's). While this decrease does not compare to the 32 percent decrease during the lobster bust (Acheson 1997), the following steps taken by the industry are similar. During the bust the commissioner of the fishery pushed forward what was ultimately a failed marketing campaign, even the brief shutdown was not enough to help the industry. A similar marketing initiative has recently been implemented in an attempt to raise the demand (and thus the price) for Maine lobster.

A change in perceptions and behavior of lobstermen, coupled with the development of the "conservation ethic," was required to deal with the bust experienced in the early 20th century. What has been the response in perception and behavior to the boom of the 21st century? Does the conservation ethic still exist, or do the high catch and low prices reflect what one lobstermen told me:

> We are victims of our success. Yeah we have a sustainable industry, but look at the prices we compared to the species that are nearly wiped out. I wish I could go back in time and say [expletive] it, catch 'em all! Maybe then we would get a price we could live on.
>
> - Pemaquid Peninsula Lobstermen and former member of Maine's Lobster Zone Management Council, July 2013

End of An Era

While the above quote was said with tongue placed firmly in check, it holds more than a modicum of truth and reflects a widespread sentiment amongst lobstermen. Over the last two years I have heard, in person and over various CB radio channels, more than one hundred iterations on a similar theme. In response to continuing low prices (summer prices for soft-shell lobsters have been depressed since the 2012 boom), lobstermen constantly say that they "guest we'll just need to make up for it in volume!" or "looks like we'll just need to fish 'em [their traps] harder."

For anyone aware of the economic concept of supply and demand, these statements are clearly counterintuitive. The appropriate response to low prices and low demand should be a reduction in effort, not an increase. Statements like these reflect something deeper regarding lobstering culture and practice, something indicative of many areas of New England and Maine coastal communities. Most lobstermen are taught from a young age that come what may, you wake up and go fishing. No matter what, you fish and you fish hard. This behavior is passed on, implicitly or explicitly, from generation to generation. This manifestation of social memory (Folke *et al* 2005) worked well in a fishery where low catches brought high premiums, but it is less adapted to a new situation in which high catches bring low premiums. Those who deal with lobsters throughout the state have begun to classify the industry as a volume industry rather than an industry dealing in what has traditionally been a

prestige food commodity. The fact that a large majority of the processed lobster from large industrial processers finds its way into non-prestige highly processed food, rather than onto the table of high-end restaurants, is telling. The once prestigious lobster has become a cheep source of marine protein.

Perhaps the most alarming change is the recent decrease in the amount of egg-bearing lobsters that are V-notched. In 2008 Maine's Sea Sampling program showed that 82 percent of egg-bearing lobster were notched. In 2013 this number dropped to 61 percent. Carl Wilson, the Maine State Lobster Biologist working for the Department of Marine resources, said he is not too concerned about this decrease, because 61 percent of lobsters in 2013 is, in absolute terms, probably more than 82 percent in 2008. Nevertheless, he does caution the industry that, "the population is volatile in some areas. I want us to prepare for the future and not forget our past" (CFN 2014:19). Wise words, should we choose to listen?

The fact that lobstermen are looking at the high catches and, in essence, doing their own stock assessment (a measure of the health and abundance of a living resource) is interesting but not surprising since this is the same behavior that led them to be so adamant that there were plenty of egg-bearing lobsters in the water and that scientists would realize this if only they would come out on the boat. What is surprising is that this behavior is directly impacting the one practice that almost every lobsterman will credit for the industry's sustainability. Lobstermen used to say that: "if you do away with the V-notch you do way with the industry. It's that simple" (Acheson 1997, 17). Yet this idea now seems to have fallen by the wayside in response to a resource that, in the eyes of some lobstermen, has become too plentiful.

Discussion

Both my academic pursuits and my life's experience regarding the history of Maine's lobster industry leave me with two burning questions. Assuming the conservation ethic once ascribed to Maine's lobster industry really existed, does it still? If not, what are the consequences for the industry? I suggest that the answer to the first question is "no" if we define conservation ethic as: The understanding of the ecological consequences of over fishing or inappropriate resource extraction, coupled with a change in attitude toward, and interaction with, the resource itself. The type of institutionalized, semi-adaptive co-management system (Folke *et al* 2005; Ostrom 2010*a*, 2010*b*) that had evolved since the late 1930's may be nothing more than a memory for the current industry (not to pigeon hole every fisherman; I have had the pleasure of getting to know many conservation minded fishermen). Evidence for this takes various forms, including the ever increasing effort lobstermen are using to catch more lobsters at the expense of quality, the refusal of many lobstermen to consider any type of effort reduction despite evidence of its positive impact, the further deterioration of the always tenuous relationship between lobstermen, scientists and managers in recent years, and most importantly the resurgence of a "pirate" mindset evident in the recent behavior of some lobstermen along the Maine coast.

This mindset manifests itself in several ways. First, in one particular area of Mid-coast Maine, a lobster cooperative had to check nearly every lobster as it exited the boat because, for the past several years, as many as 50 percent of the lobsters were below the legal limit (Anonymous 2013). Anecdotal stories from many lobstermen in the area indicate that this is not an isolated incident. This type of behavior is indicative of a shift away from an ethic of stewardship over the resource: as one lobstermen said, "This has been going on for a few years. They wonder why there aren't any lobsters. You can only get away with it for so long before it affects the lobsters." Second, as mentioned above, the percentage of people utilizing the self-described "effective" measure of V-notching is decreasing (Hall 2014). Third, areas that traditionally recognized the need for reduced effort, such as Swans Island, Maine (which has had both the lowest trap limits, 400, and the highest income-to-effort ratio) have recently increased their trap limits, and thus their fishing effort (Trotter 2013). Last, overexploitation is evidence in the increased total catches being landed in some areas. In recent years, some Downeast Maine lobstermen have been catching as many lobsters in a day as they had in a week or month prior to the boom. In these areas, lobstermen have been observed fishing as far as 1.5 hours away from their traditional fishing grounds, often displacing, through numbers and force, lobstermen from these areas.

While these types of territorial conflicts are not uncommon, the scale of recent events is concerning. What is perhaps more interesting is that these areas of aggressive fishing practices indicative of territorial expansion are also those that show the lowest percentage of V-notched lobsters (Hall 2014). While these behaviors in-and-of-themselves are not a smoking gun in terms of the death of the "conservation ethic," they do suggest that this is a period of significant change in Maine's lobster industry.

Conclusion

Despite the potentially dire consequences of a shift away from conservation practices, there exists the potential for some positive outcomes. As Folke *et al* (2005) suggest, it is during periods of abrupt change or rapid transition that new and more adaptive measures can be implemented to increase the resilience and adaptability of social-ecological systems. The evidence would seem to suggest that at least a segment of the lobster industry is coming full circle, with some lobstermen reacquiring the "pirate" mentality rampant in the industry prior to the bust of the early 20th century (Acheson 1997; Acheson and Gardener 2010). Time will tell if these individuals are an anomaly or represent a more significant change within the industry.

The fact remains that changed attitudes resulting from the 'lobster bust' led to better management practices, which were at least, partially, responsible for the long-term health of the industry and the increasing number of lobsters in the Gulf of Maine. Perhaps the most important lesson is that successful management practices are never complete. The complex nature of interactions between people and the Gulf of Maine ecosystem suggests that fishing practices and management strategies must continue to evolve if they are to maintain

relevance (Jacobson and Robertson 2012; Folke and Hahn 2005; Ostrom 2010*a*). As the Maine state lobster biologist, Carl Wilson said, "when the resource changes, everything changes" (Wilson 2014). This was clearly true when lobster numbers were low in the early 20th century, and it is no less true now with record landings being reported each year. The fact that we have the potential to establish new rules, regulations, and even more importantly norms and institutions, when the resource is robust, is important to note. We must recognize that proactive measures now, as distasteful as they may be, will be far more effective than reactive measures in a possible future when resources are in precipitous decline. To this end, I encourage fishermen and managers to examine the both the timing and amount of effort that is currently going into the lobster fishery. I know that this statement will alienate me from many fishermen, but that is a risk worth taking. Over recent years many scientists and fishermen have made compelling cases for examining potential changes to the structure of our iconic fishery. I do not envision Maine's fishery ever being as temporally restrictive or as equipment limiting as the Canadian lobster fishery. I do believe that minor changes to how and when we fish can potentially provide huge benefits to fishermen, the communities they support and the State as a whole.

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