

Fishing Community Vulnerability Profile: Lubec, Maine

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Introduction

Commercial fishing is an important economic and cultural element of Maine's coastal communities. Maine fishing communities are suffering from loss of access to fisheries and infrastructure, regulatory impacts and changing resource abundance. Although fisheries managers are required to assess impacts of fisheries regulations on fishing communities, this has proven difficult due to the lack of information regarding the current and historical importance of fishing in these communities and an understanding of how communities respond to change. Vulnerability profiles are a useful tool to gather the comprehensive information necessary to determine cumulative impacts of management decisions on specific communities.

We conducted one semi-structured (Bernard 2005) and seven oral history interviews (Ritchie 2003) with fishermen, other community members and government officials in Lubec, Maine from October 2010 to December 2011. In addition, we conducted 18 interviews with businesses and households in the area. These interviews focused on threats contributing to resilience and vulnerability in the fishing community of Lubec and the ways in which fishermen have responded to these threats. Initial interview informants were selected with the help of Maine Sea Grant Marine Extension Team members, the Cobscook Bay Resource Center, and other community leaders. Subsequent informants were selected using a snowball sampling approach (Bernard 2005). All interviews were recorded and all oral histories and a majority of semi-structured interviews were transcribed. Detailed notes were taken from other semi-structured interviews. We also held two focus groups with fishermen as part of our groundtruthing effort. Focus groups were recorded and detailed notes were taken from the recordings. All data were analyzed with multiple iterations of coding following a modified grounded theory approach (Glaser and Strauss 1967, Strauss and Corbin 1990) using QSR NVivo 9 data analysis software. This profile focuses on common themes from these interviews as well as information compiled from secondary research and analysis of quantitative socioeconomic indicators.

Geography and History

"This whole place is set up to get to by boat. We seem real rural and desolate, but there's a place I can park you out in the bay in a boat and you can see five different communities..."

Lubec is relatively isolated compared to many fishing communities in Maine. The easternmost town in the U.S., Lubec is located at the end of a peninsula in Washington County at the opening of Cobscook Bay, which has some of the most extreme tides in the U.S. Geographically, Lubec covers a large area, divided into the "village" to the east, North Lubec on a north-extending peninsula to the west of the village, and South Lubec. Lubec is situated about two miles across the bay from Eastport, but about 30 miles by car (one hour). A seasonal ferry operated by Downeast Windjammer Cruises makes trips between Lubec and Eastport four times a day. The Canadian province of New Brunswick is even closer: the Franklin Delano Roosevelt Bridge connects Lubec to Campobello Island and its International Park.



Map of Lubec, situated within Cobscook Bay.

The region was inhabited after the last ice age, some 12,000 years ago, by people who became known as the Passamaquoddy (pollock-fishing place/people). Their descendents live at one of three Passamaquoddy tribal reservations (with 749 residents) just north of Eastport at Pleasant Point (Sipayik) on Passamaquoddy Bay. Europeans settled in Lubec

prior to American Independence, initially as part of Eastport (incorporated in 1798) and later incorporated separately as “Lubeck” in 1811. The town’s economy has long centered on fishing and fish processing. In 1797, Daniel Ramsdell cured the first herring by smoke, a process of preserving fish he had learned in Nova Scotia. Lubec would become the national leader in smoked herring production (Multhopp 2012). In 1880, the first sardine and herring canning facility, the Lubec Packing Company, was built in Lubec (Hall-Arber et al. 2001).



Weir fishing in Lubec (photo courtesy Lubec Historical Society via Maine Memory Network).

The supply of herring for sardine canneries in Maine came from local weirs, fixed gear that corral schooling herring.¹ The herring were then processed in smokehouses. The herring industry grew rapidly and by 1850 there were 45 weirs, 75 smokehouses, and more than 500,000 boxes of herring produced annually. Herring and smokehouses were the major employers, and eventually Lubec had 23 sardine factories. Support businesses also grew: transporters, boat builders, and suppliers of condiments. Sawmills provided the shooks for wooden cases which held cans ready for shipment. Byproducts of the industry, like fertilizer, pearl essence (herring scales), and fish oil, also contributed to the local economy. During this time the smoked herring business prospered as well, with some sardine canneries operating their own herring smokehouses (Multhopp 2012). The herring industry was central to the community and a driver of activity, as stated by a fisherman:

¹ In 1980, Acheson et al. (1980) reported five herring processors in Lubec: R.J. Peacock Company, Booth Fisheries, the McCurdy Company, USA F.I.S.H., and Nordic Delight. There was only one other seafood buyer and processor, James Wallace and Sons. Some seafood was marketed locally. There were also large herring pumping stations operated by L. Ray Packing Company and Stinson Canning Company in Lubec, where substantial amounts of Canadian herring entered the U.S.

“Back then there was sardine plants going. There was a cat food place going. There was American Can going, smokesheds going, so there was plenty of activity. Lubec was actually like a beehive.”

Fish processing declined with the Depression, revived briefly during World War II, with the industry supplying healthy protein to the overseas troops, but then declined precipitously after that (Hall-Arber et al. 2001). By 1976, only two canneries remained and the last of these, the Connor Brothers, closed in 2001 (Multhopp 2012).

Economic and Demographic Profile²

“It’s funny, this place has always been in a depression, people don’t notice it, recessions depressions or whatever, it’s always been that way, people work hard clamming, and fishing, it’s all hard work mostly.”

A comparison to Maine shows that Lubec is poorer than the state average and also has a relatively high unemployment rate. While income is increasing and rates of poverty are decreasing, cost of living continues to increase and households are taking in fewer earnings from the local economy.

In 2010 median household income in Lubec was up from its 2000 level of \$20,565 to \$27,292, while median per capita income was \$21,857. Compared to the state averages of \$46,933 and \$25,386 respectively, income is lower but increasing. Meanwhile poverty is decreasing; in 2010, 11% of families and 15% of individuals fell below the poverty threshold, down from 28.8% of individuals in 2000 (U.S. Census Bureau). The current rate is significantly higher than the state, however, where 8.4% of families and 12.6% of individuals lived in poverty. Nearly a quarter of the households in Lubec received food stamp/SNAP benefits in the past 12 months, while more than half collected income from Social Security. Relative to Maine and the nation as a whole, the community has fewer households with income from earnings, but more with earnings from social security and retirement (Table 1). The previous census in 2000 found more households with income from earnings (62.5%) and fewer from Social Security and retirement, 39.8% and 18.5 % respectively. Lubec’s median household value has nearly doubled from \$58,000 in 2000 to \$102,900 in 2010.

² Economic and demographic data were obtained from the American Factfinder (factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml). Population and housing data are from the 2010 U.S. Census and economic data are from the 2006-2010 American Community Survey 5-Year Estimates.

Household income (%)	Earnings	Social Security	Retirement	SNAP
United States	79.7	27.5	17.5	9.3
Maine	76.5	31.6	18.8	13.6
Lubec	58.8	50.9	19.7	23.6

Table 1: Percentage of households with income from earning, social security, retirement and SNAP. Source: ACS 2010.

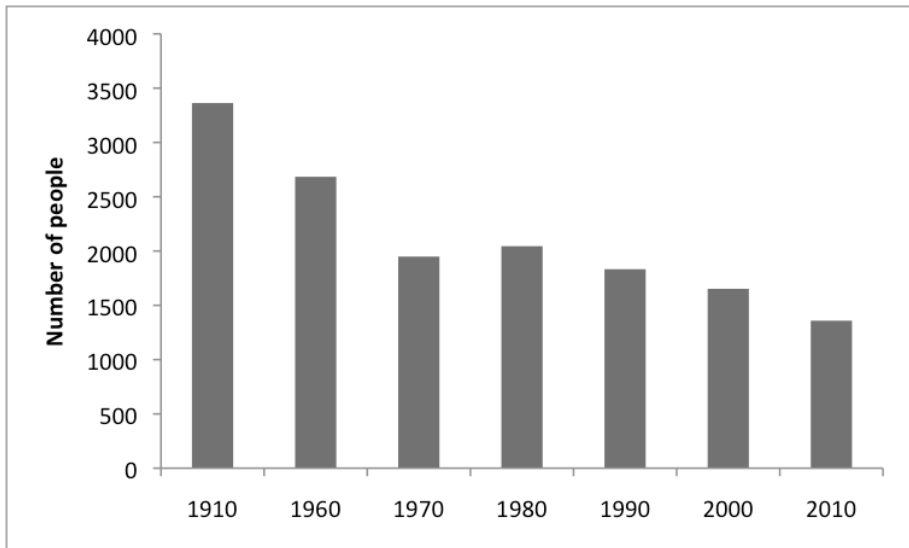
According to the American Community survey, 44.3% of the total population 16 years of age and older was in the labor force. Of the civilian workforce, 8.6% were unemployed, compared to 6.5% in the state. Self-employed workers, a category among the labor pool in which fishermen can be found, account for 21.9% of all workers. Top occupations were management, business, science, and arts occupations (31.5%), service occupations (21.1%), and natural resources, construction, and maintenance occupations (20.1%). As an industry sector providing employment, agriculture, forestry, fishing, hunting, and mining occupations are down from their 2000 levels of 16.1% to 9.5%, which is above the state average (Table 2). Other major industries providing employment: retail trade, amenities, and construction have increased in prominence from their 2000 levels of 9.5%, 6.6%, and 2.8%, respectively. As with many coastal towns, it is possible that the census does not associate fishermen living in surrounding municipalities with the fishing community they rely upon.

Employment (%)	Natural resources*	Retail trade	Amenities**	Education, health care, and social assistance	Construction
United States	1.9	11.5	8.9	22.1	7.1
Maine	2.5	13.6	8.1	26.1	7.7
Lubec	9.5	13.2	9.3	22.9	11.0

Table 2: Percentage of occupations in Lubec from agriculture, forestry, hunting, and mining;* retail trade; arts, entertainment, recreation, accommodation and food services; education, health care, and social assistance; and construction. Source: US Census, ACS 2010.**

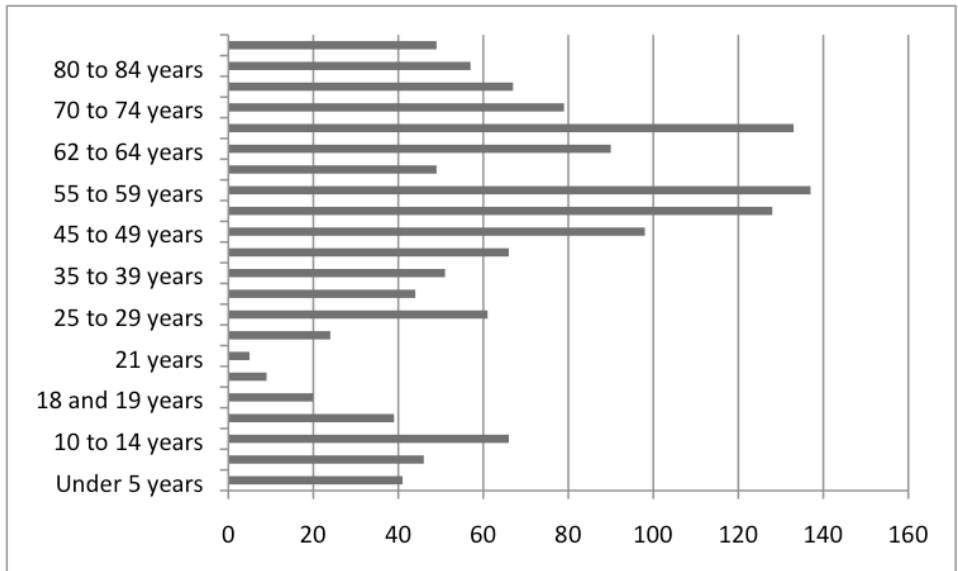
“Twenty years ago Lubec had a population over 5,000—lots of stores, multiple movie theaters. Now we’re down to about 1,400—if you go take a trip downtown you can see the landscape is still scarred from these former buildings.”

Lubec’s population has mirrored the rise and fall of the herring fishery and associated processing plants. The rise of herring smokehouses led to rapid population growth in the early 1900s, and a significant drop when the sardine factories closed.



Lubec population of at each decade, 1910-2010. Data source: U.S. Census.

In 2010, 97.7% of Lubec’s population self-identified as white. The population in Lubec is also aging and older than the state as a whole.² As in much of rural Maine, the older population structure is due in large part to out-migration of young people after high school. While no statistics are available on this process in Lubec, it is common in rural Maine and evident in the overall age structure of the city. Study participants frequently attributed the outmigration of youth to the lack of economic opportunity, and the need to leave for work and education. The recent closing of the local high school was partly due to lack of students; from the 2000 to 2010 census, overall school enrollment was down from 323 students to 200. High school students are now forced to commute to nearby school districts for education. The loss of the school may further increase the aging trend by discouraging families with children to stay in or move to the community.



Lubec population by age in 2010. Data source: U.S. Census.

Housing in Lubec is only 59.4% permanently occupied, down from 70.4% 10 years ago.² Much of the vacant housing can be accounted for by those used seasonally. Maine has a high rate of seasonally vacant houses and Lubec has a significantly higher percentage than the state. Over the last 10 years the amount of seasonal homes increased throughout the state, but much more so in Lubec, up nearly 13 percentage points (Table 3). Both demographic trends and interviews indicate that there has been an influx of retirees and other “people from away,” many of whom are seasonal residents. Meanwhile the population of year-round residents has been on a steady decline. The seasonality of Lubec is pervasive, with many businesses closing for the winter and the population decreasing.

Seasonal Housing (%)	2000	2010
United States	3.1	3.5
Maine	15.6	16.4
Lubec	15.9	28.6

Table 3. Percentage of seasonal households. Source: U.S. Census.

Tourism

“This has always been a fishing community. It’s always had a lot of manufacturing: sardine canneries, herring canneries and those have all gone so now we have to rely more on tourism.”

Tourism is increasingly becoming an important part of Lubec's economy, at least for the downtown portion of the community. The downtown strip includes the McCurdy Smokehouse museum, a number of restaurants and an ice cream parlor, and a few souvenir shops. The town also has two charter companies that offer sunset cruises, whale watching, and private charters. Vacation rentals and other forms of accommodation such as inns, campgrounds and bed & breakfasts can be found in Lubec as well. The Inn at the Wharf not only is a buying station, but also a restaurant, gift shop, and the departure site for whale watching cruises. Although highly seasonal, tourism is cited as an increasingly important sector in the local economy. As one resident put it: "And the tourism, it seemed to be booming the last two years. I barely recognize anybody in town anymore. But it’s definitely, definitely seasonal."

There are two lighthouses on the nearby Campobello islands: the Mulholland Point Light at the mouth of the Lubec Narrows, and East Quoddy Lightstation (also known at the

Head Harbour Lightstation). The nearby West Quoddy Head Lighthouse was built in 1809 and automated in 1988. It overlooks Sail Rock, the easternmost point of land in the continental United States, and is situated in the 481-acre Quoddy Head State Park.³ The five-level Lubec Channel Light, also known as “the Sparkplug,” was built in 1889 and automated in 1939. Discontinuation was planned in 1989, but Lubec residents mounted a “Save the Sparkplug” campaign and raised \$700,000 to save it. The lighthouse became privately owned in 2007.³

³ visitlubecmaine.com/outdoor-activities/lighthouses.php.

Gentrification

"...the change is twofold, the makeup of the voting population and moving from fishing to tourism... and it has winners and losers... the people from away come in and buy their houses, so the local people are giving up their heritage because of certain economic factors and this is a difficult time for some people...it's a whole change of a way of life a whole gentrification of Lubec..."

Lubec, like its neighbor Eastport, has experienced a significant restructuring of its economy. This change, epitomized by the loss of sardine plants and decline of fisheries, has been a driving force responsible for the transformation of the community. The lack of economic opportunity has forced many residents to leave the area, contributing to the population decline (Nelson 2001). Concurrent with this loss of productive activity and those who relied on it, has been a pattern of in-migrants purchasing property to take advantage of the relative affordability, natural amenities, and rural lifestyle. The demand for shorefront has led to an appreciation of property values throughout the coast and with these rising housing prices has come escalating taxes. The increasing cost of living has its effect on the local inhabitants as reported by study participants; the high cost of housing has resulted in "locals" being unable to purchase property in their community. Furthermore, if they happen to already own, or have inherited property, they may still be displaced due to high property taxes. Coping with these increasing costs, people have started moving outside the community and to back roads away from the water where housing and taxes are significantly cheaper. Adjacent to Lubec is the unincorporated territory of Trescott, which has far fewer municipal costs and thus lower taxes. This pattern of displacement is a clear indication of gentrification in these communities and a possible source of conflict for fishermen (Hamnett 1991). However, the municipal pier and working waterfront at the wharf provide some assurance that access will be maintained for the timebeing.

The influx of amenity migrants and tourists has led to the revitalization of Lubec's downtown and a new focus on services not previously provided. There are several new restaurants and stores catering to that clientele. However, these new businesses are primarily owned and operated by people who have recently moved to the area and are not always the primary source of income. It is often reported that those who are moving to the area for its amenities are relatively wealthy, bringing money from a previous home sale and purchasing relatively affordable properties with assets left over. Thus, they are not dependent on the local economy, but increase demand for local services (Robbins 2009). Many of these migrants visited the area as tourists and later decided to purchase a seasonal home with the intent to retire there in the future. The prospect of Lubec as a retirement or semi-retirement community may be restricted by the lack of adequate medical facilities in the immediate vicinity.

A creative economy stems from many people “from away” who have established several galleries and programs related to the arts. The SummerKeys program includes numerous music workshops and is often cited as an important attraction for many of the summer residents. Lubec's trend towards artistic aesthetic mimics the process of creating artistic neighborhoods in gentrified urban areas (Lees 2008). However, the isolation that may protect the city from tourism-focused commercialization also hinders the progression of economic development towards higher-paying service sector jobs (Jackson 2006).

Loss of Right-of-Way

“...they bought the property up and they decided that the fishermen weren't goin' down through there no more and it became a big conflict...”

Fishermen, particularly harvesters of clams and periwinkles, depend on traditional right-of-ways to reach the many tidal flats and rocky shores throughout Lubec. Although the state of Maine protects the rights of people to use the intertidal zone for fishing, fowling and navigation, many of the access points to it have been lost. Many of these right-of-ways are through private lands purchased by “amenity migrants” who have recently moved to the area seeking a coastal setting. When the activities of harvesters are perceived as a disturbance and an intrusion, property owners respond by prohibiting access.



Fishermen may be able to reach an agreement with the property owner to use the access points, otherwise they must seek an alternative. Some are able to use small boats to access their fishing ground, but this creates an added cost and safety hazard.

Fisheries profile

"There's no one fishery that people do and just do it. It might be very few handful of 'em but most people here, if you're a scallop dragger, you're also a clam digger, you're a wrinkle picker, you're a lobster fisherman, you're an urchin fisherman. You do whatever it takes to survive, you piecemeal a living together here."

Traditionally, fishermen of this area use a portfolio method of fishing, so heavy specialization in a single fishery is not common. Acheson et al. (1980) reported fishermen participating in the herring fishery, digging clams, tub-trawling and hand-lining for groundfish, dragging for scallops, and lobstering. With the exception of herring and groundfish, these species remain important to commercial fishermen today, as well as crabs, urchins, and whelks/periwinkles ("wrinkles").

Today, at least 50 lobster boats call Lubec their home port, and lobster is considered the most economically important fishery for the community, just above scallops and sea urchins. All boats are docked at moorings distributed from Johnson Bay to Boot Cove. Lobsters are harvested year-round, but fishing is difficult due to the strong tides. Lobstermen tie 100-pound weights to prevent tides from moving traps and they can only pull traps during about 45 minutes of slack water between tides.

Both divers and draggers harvest scallops from Cobscook Bay, although dragging is much more common. The large number of competing vessels, along with variable tidal currents and bottom types, makes this one of the more dangerous fisheries. A boat that catches its drag on hard bottom or on another larger boat's gear could be damaged or capsize. Local fishermen and managers are very concerned about the status of the scallop resource and have been successful in implementing conservation measures for the resource in their area, including a daily catch limit. As one of the last viable scallop grounds in the state, local fishermen express concern about the effects of a highly mobile fleet on the local resource. In some years, more than 100 boats travel to Cobscook Bay to fish for scallops. In 2011, boats were not able to meet the 135-pound daily catch limit, indicating a decline in the resource and prompting the state to implement an immediate closure about two weeks into the season. The president of the Cobscook Bay Fishermen's Association, who lives in Eastport, expressed the industry's concerns about boats from away in an article in the *Bangor Daily News* (Walsh 2012):

"This mobile fleet travels up and down the coast, and, when they find a bunch of scallops, they are on them like wolves. Three or four days later, there's nothing left. They rape this bay and then go home and finish up the season in their neighborhood, leaving us with nothing."

Scallop management may be changing again in the future, with the Maine Department of Marine Resources (DMR) proposing rotational closures to “make sure good scallop grounds are set aside for fishing” (French 2012).

The sea urchin fishery has gone through a boom-and-bust cycle. The sea urchin is harvested for its roe (uni), which is sold mainly to the Japanese market. Sea urchin harvesting began in the 1980s, peaked in the 1990s, and is much lower today, although many boats still fish for them during the fall and winter months.

The town’s only commercial wharf also has about a hundred people who pick periwinkles part-time, and The Wharf, as it is called by locals, sells about 10,000 pounds of periwinkles each week. Clams are another intertidal species harvested throughout Lubec, with 75 resident and eight non-resident commercial shellfish licenses registered in the municipality. One buyer and fisherman uses traps to collect dog whelks, but it is not a fishery people are heavily dependent on. Two or three fishermen drag for sea cucumbers, but only one is a local resident.⁴

Herring fishing traditionally occurred with the method of stop-seining from small boats with outboard motors. Herring weirs and stop-seines were made obsolete by the advent of purse-seining in the 1980s, as well as midwater trawlers (Molyneaux 1999). Herring are no longer landed at any community in Downeast Maine, though herring remain important as bait for the lobster fishery and must be shipped in.

Historically, finfish aquaculture occurred in Lubec. According to Hall-Arber et al. (2001), individuals built pens by hand and undertook the experimental phase of establishing aquaculture as a commercially viable marine enterprise. They were helped initially by the high prices pen-raised Atlantic salmon garnered in the marketplace. As farmed finfish flooded the market, the price dropped. Meanwhile costs increased as farmers invested more into pest and disease control, an epidemic of which decimated production and forced a closure in 2002.⁵ The economic conditions led to consolidation with the buyout of pens, aquaculture leases, and businesses by Canadian corporations who compensated for the small profit margin by handling large volumes (Hall-Arber et al. 2001). As of 2011, all the active salmon farms in Maine are owned by Cooke Aquaculture of Black’s Harbor, New Brunswick, which grows salmon in pens in Cobscook Bay, off Machias and near Mount Desert Island in eastern Maine (Trotter 2011).

Little recreational fishing takes place in Lubec. Occasionally tourists will drop a line from the town pier to catch a mackerel, pollock, or “whatever bites,” but it is not a common

⁴ Maine Department of Marine Resources (ME DMR). 2011. Marine Resources Licensing & Enforcement (MRLLEN) database. Retrieved by Keith Fougere, November 2010 and May 2012.

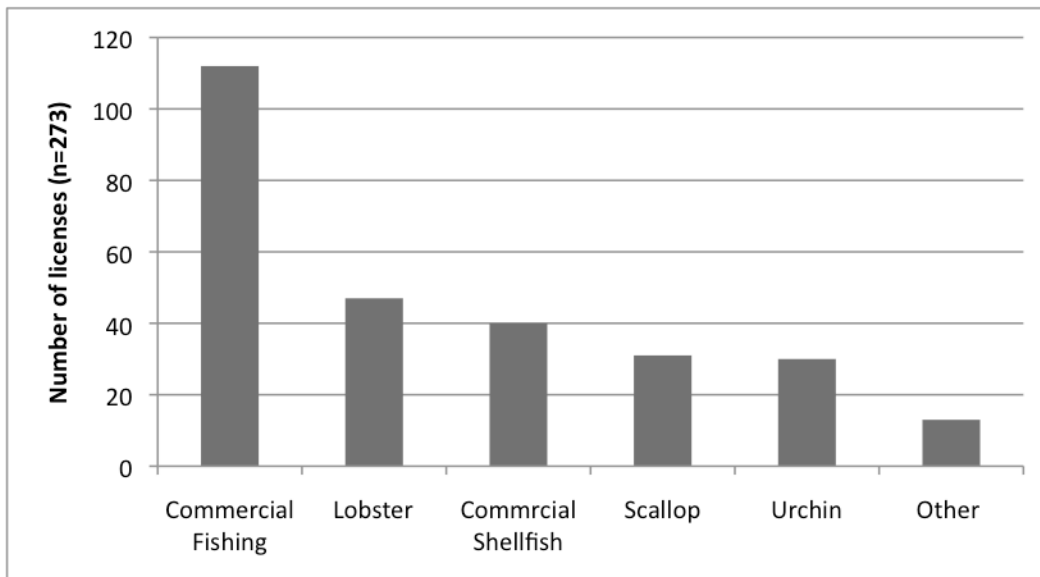
⁵ Maine Aquaculture Innovation Center, maineaquaculture.org; Governor’s Task Force on the Planning and Development of Marine Aquaculture in Maine. 2004. Report and Recommendations, maine.gov/dmr/aquaculture/aqtaskforce/aqtfhomepage.htm.

local pastime. There are no bait and tackle shops in town, so people who do fish recreationally typically use bare hooks which attract mackerel. There is little information on subsistence fishing in Lubec. However, given the economic situation of many residents, this likely occurs. There is also barter and informal trade of seafood locally.

Participation in the fisheries sector

Estimating employment in fisheries is challenging in a place like Lubec, where few are full-time fishermen and many fishermen may not live within the town limits. When asked how they define the fishing community of Lubec, many harvesters acknowledge that the area extends beyond the Lubec town limits and encompasses an area that begins at Bog Brook, includes Trescott township, and extends to the Canadian border. However, this is not a unanimous definition, as other fishermen exclude the southern extent and define the fishing community as “anything from the bridge up.”

Another way of illustrating the importance of commercial fisheries in Lubec is to look at the number of marine resource harvesting licenses issued by the state. In 2011, 163 individuals (up from 145 in 2010) held a total of 273 state licenses in Lubec. In addition to general commercial fishing (112) and shellfish licenses (40), 2011 licenses held by Lubec fishermen include lobster (47), scallops (31), urchins (30), as well as a few licenses for elvers, mussels, shrimp, and sea cucumber. However, many fishermen who fish out of Lubec live in neighboring towns, so this figure is an underestimate of the fishing activity in Lubec.



Number of state fishing licenses held in Lubec in 2011. Other includes elver, shrimp, sea cucumber, seaweed, mussel dragger, and commercial pelagic and anadromous fish. Source: Maine DMR.

Similarly, availability of federal licenses is another indicator of the fishing capacity in communities. The following data are reported in the Northeast Region Permit Database.⁶ Nine federal permits listed Lubec as either the vessel owner's address (8) or homeport (8) in 2011; of those, eight listed Lubec as their home address. One vessel listed Portland as their homeport, while one permit owner residing in Trescott listed Lubec as the homeport. All vessels held a federal American lobster license. In addition, the vessel based in Portland held a mix of permits, including multispecies groundfish, monkfish, herring, deep-sea crab, squid, mackerel, butterfish, skate, tilefish, scup, bluefish, black sea bass, fluke/summer flounder, and dogfish. The groundfish permit is an open-access permit that does not provide access to the more valuable, limited-access multispecies fishery (now within a catch share system). One vessel held a herring permit and an ocean quahog permit. The average length of these vessels with federal permits is 36.8 feet.⁷ There are no federal dealers in Lubec, although one federal dealer is located in nearby Trescott with a permit for dogfish, herring, lobsters, groundfish, and scallops.

Fisheries infrastructure

Lubec lacks many of the facilities common in a fishing-dependent community. The 50 lobster boats in town sell their catch to one commercial lobster buying station on the water, and another buyer is located inland in the town of Trescott. The Wharf is located about one quarter-mile up the road from the town pier and is based out of a former sardine cannery. The Wharf received a Working Waterfront Access Pilot Program grant that enabled them to renovate the property as long as they maintain a covenant with fishermen to ensure access. The large facility includes an inn, rental center for bikes and kayaks, and a whale watching boat. The Wharf has a large pier in good repair and one hoist. Several metal floats extend along one side and wrap around the front of the wharf. The Wharf provides bait and diesel fuel and currently buys lobster, crab, scallops, and periwinkles, with a tank room for lobster and crab and a large room for bait preparation. During the winter, some boats and trucks may be stored in a large warehouse on the property. A periwinkle-sorting station separates periwinkles into various size groupings, which are then stored in a walk-in refrigerator unit before they are shipped to New York. The Wharf currently buys from about a dozen lobstermen and ten scallop boats, and as many as 300 people pick periwinkles part-time. The facility is in the midst of a large renovation project that includes a new office, lobster and other processing facilities, and freezing capabilities for scallops. They also hope to get certified to buy clams. The Wharf also has deep-water access; there is about eight feet of water at low tide.

⁶ Northeast Region Permit Database, nero.noaa.gov/permits/data/.

⁷ Six federal permits listed Lubec as either the vessel owner's address (5) or homeport (6) in 2012 (Table 3). One permit owner residing in Trescott listed Lubec as their homeport. All vessels held a federal American lobster license and no other licenses. The average length of these three vessels with federal permits is 37 feet.

Fishing industry support institutions

The Cobscook Bay Fishermen's Association represents many of the fishermen in the Lubec area, as does the Downeast Fixed Gear Association, the Maine Lobstermen's Association and Downeast Lobstermen's Association.

The Cobscook Bay Resource Center, based in nearby Eastport, was founded in 1998 to encourage and strengthen community-based approaches to resource management. The Center assists local resource users, scientists, government agencies, educators, and others to monitor and understand the Cobscook Bay ecosystem, with an eye towards economic development based on the bay's renewable resources. The Center plans to develop a new site near the waterfront, including a marketing co-op and community kitchen.⁸

Another nonprofit, the Cobscook Community Learning Center, is located in the adjacent town of Trescott. Although their mission is directed more toward community education and outreach, they played a key role in forming the business plan and partnership that became the Maine Fresh project. Through a local buyer and processor, the Cobscook Bay Company produces frozen seafood pies, a value-added product that can be purchased in grocery stores (Bowman 2010).

The University of Maine Sea Grant and Cooperative Extension has an office at the Boat School in Eastport. The local Marine Extension Team member provides support to fishermen and other community members, including support to the Cobscook Bay Fishermen's Association.

Cultural attributes related to fisheries and the sea

The McCurdy Smokehouse is now a museum, although it is partly closed due to lack of funding. It was the last herring smokehouse in the U.S. and was placed on the National Register of Historic Places in 1993. Lubec Landmarks, Inc. is a nonprofit organization founded in 1995 to restore and maintain the smokehouse complex, and to preserve the region's maritime and fishing heritage to the benefit of the town and visitors seeking to understand the commercial and cultural significance of the herring smoking and sardine canning industry in Lubec.⁹

⁸ Cobscook Bay Resource Center, cobscook.org/.

⁹ mccurdyssmokehouse.org/



McCurdy's Smokehouse, the last herring smokehouse in the U.S.

A fishermen's memorial park is being created adjacent to the public landing in downtown Lubec, which will honor all fishermen lost at sea in the area, including those from nearby Canada. As of February 2010, 10 local fishermen were lost at sea; five died in 2009. This led to plans to build a memorial to honor all fishermen lost from the area, with more than 230 names of lost fishermen collected so far. The nonprofit Lost Fishermen's Memorial Association was created in 2010 and continues to raise funds for this effort.¹⁰ The artist's rendering of the memorial is not available, but a focal feature is an inscription from Virgil (c.29 BC): *"No day shall erase you from the memory of time."*



Future site of Lost Fishermen's Memorial

¹⁰ Information about the Lost Fishermen's Memorial Association can be found at their website, lostfishermensmemorial.com/index.html.

Vulnerability analysis

The level of vulnerability, defined as “susceptibility to harm from exposure to stresses associated with environmental and social change” (Acheson et al. 1980), in the fishing community of Lubec is **relatively high** due to many contributing factors and their cumulative effects. Here we report on two interrelated components of vulnerability: threats “to humans and the things they value” and responses “incidental or purposeful that occur after experience(ing) a threat” (Tuler et al. 2008).

Threats

The fishing community of Lubec faces a variety of interrelated socioeconomic, environmental, and regulatory changes. Below we describe those sources of change (threats) most relevant to Lubec as expressed in our interviews.

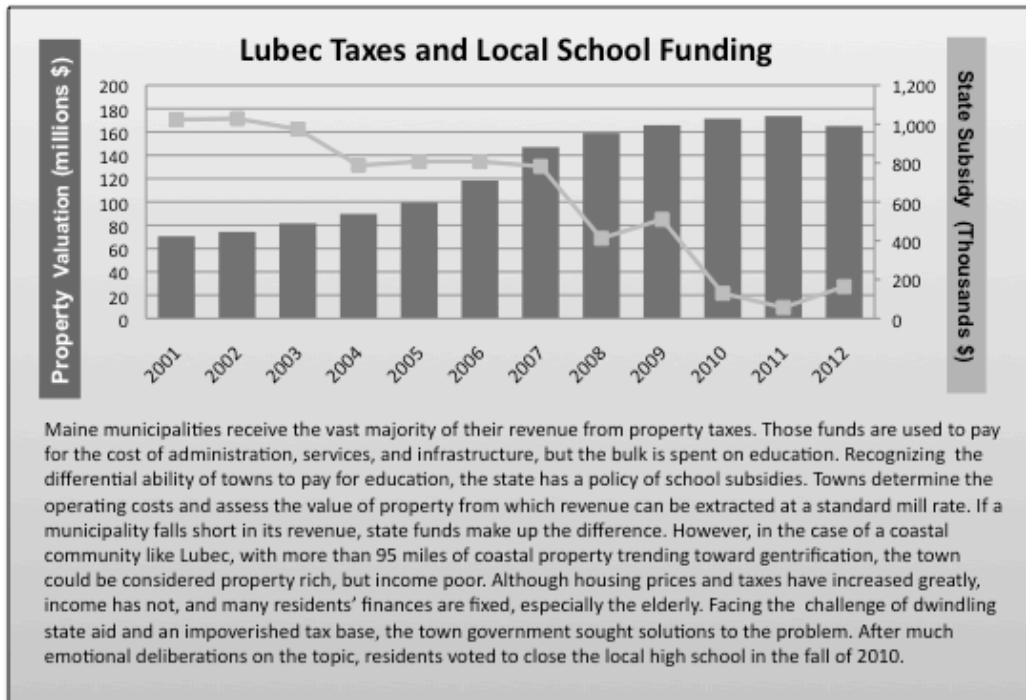
Socio-Economic

Lubec is in many ways poorer than the state and much poorer than the nation and has high levels of unemployment. The town was once more prosperous, but the decline of extractive industries in Maine as a whole, and the sardine and canning industries in Lubec particular, has caused a decline in population. This lack of economic opportunities has also led to an outmigration of youth.

“There’s really no jobs here. It’s almost becoming a retirement community here now. Because...all our youngest and brightest are going away to school, going away to so called make something of themselves...”

This aging of the population has been exacerbated by the closure of the local high school. In 2010, state land valuations of Lubec property increased drastically, resulting in a sizable reduction in state education aid. In an effort to make up for this gap and reduce expenditures, the school board voted to close Lubec High School due to reduced enrollment. High school-aged students in Lubec are now bussed to their choice of three schools in the surrounding area, the closest of which is 25 to 30 miles away (Box 2).

The lack of economic opportunities in Lubec has also created an increased dependence on fishing. Most interviewees indicated that the town remains dependent on fishing. For example, one fisherman explained, “I mean that’s what the town is, it’s mostly fishermen. You’re either a fishermen or a tourist, one of the two.” A local business owner stated, “It’s (fishing) definitely our largest industry. I’d say two-thirds of the men in town have some sort of fishing license.”



Box 2: Rising property valuation and decreased education subsidy.

Increasing prices of everything from houses, to bait, to fuel raises the financial burden on many fishermen. Fluctuations in prices they receive for their catch either offset or exacerbate these costs. One fisherman explains this relationship between fuel prices and catch prices of different species:

“I mean urchin and scalloping wasn’t too bad last year because they gave us a better price. So it helped out with the price of fuel. As far as trying to go down and dig a few clams means spending twenty dollars in gas to go clamming and you might make a hundred bucks right? That’s quite a chunk out of what you make.”

Like many coastal areas in Maine, Lubec has seen a transition of coastal property ownership from local families with historical ties to the area to new residents who have moved from other states. One adverse impact of this transition is a loss of access to waterfront areas as explained by a Lubec fisherman:

“A lot of the coastal land is being bought up by out-of-staters and they’re not as free and I guess as friendly as what the locals who’ve done it before were, so a lot of these paths that they had to the beach are now closed off to them.”

This is particularly difficult for shellfish harvesters, many of whom do not have boats and can only access mud flats from the land (see Box 1).

Those fishermen who do have boats face other threats because Lubec does not have a breakwater or pier docking boats. Lubec received federal and state funds to construct a marina with floating piers and a wave attenuator. The construction was completed in May of 1997 and was meant to serve fishermen, recreational boaters and the salmon aquaculture industry (Clancy 1998). The experimental project cost \$1.5 million to construct and another half million in repairs (Clancy 1998). The attenuator and design of the marina was meant to diminish the wave action and cope with the strong tides. However, a poor location combined with strong winter storms repeatedly damaged the marina, and the community became frustrated with the repair costs. In 2003, with the town unwilling to spend more money on the project, they fired the harbormaster and closed the marina (Clancy 2003). Now, most fishermen keep their boats tied up at moorings, which exposes them to dangerous conditions when traveling to and from their boat.

“It just amazes me this town doesn’t have a real community dock where the boats can tie up. Most of them are on moorings, which is no safe haven. They need to get out in a skiff to get to the boat, which is dangerous. You’re talking January and February here with the northeast wind, it’s dangerous.”

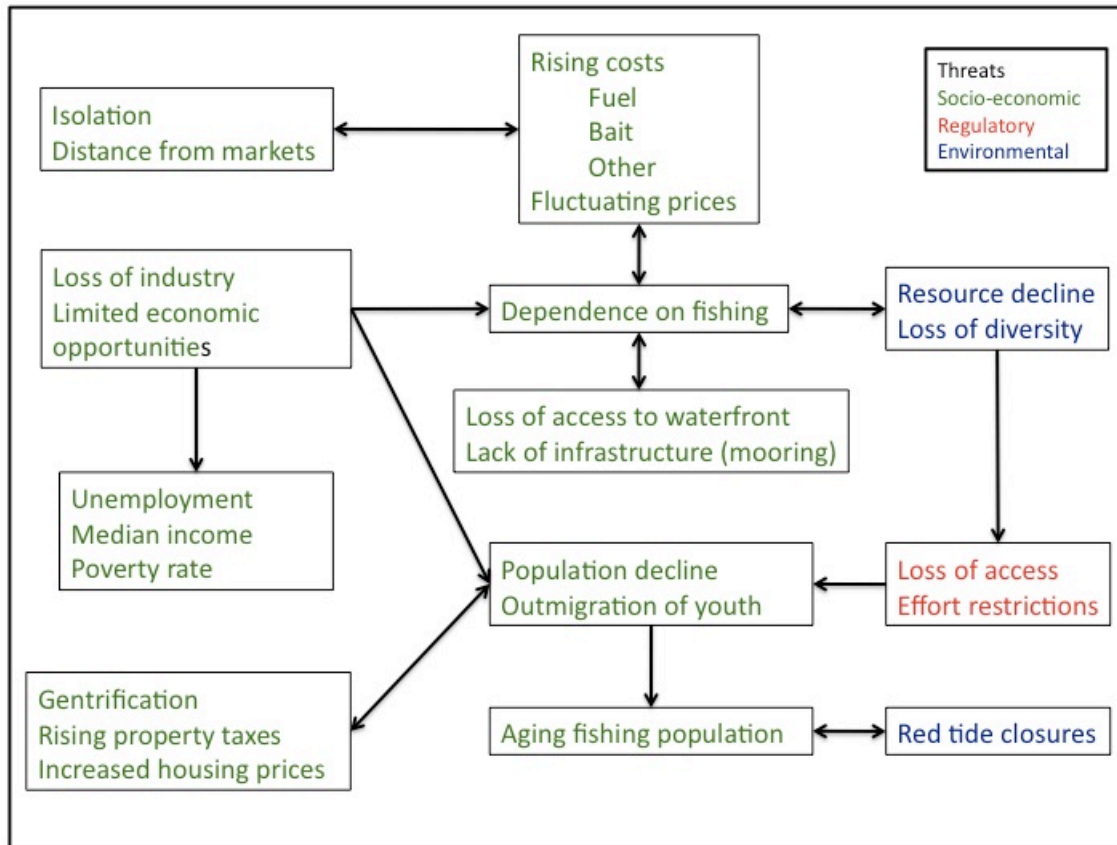
Not only are the fishermen exposed to the weather, but their boats are exposed as well and are more likely to break free and become damaged than if they were tied up at a protected breakwater. In anticipation of severe winter storms, many fishermen move their vessels to more sheltered coves within the bay.

Environmental

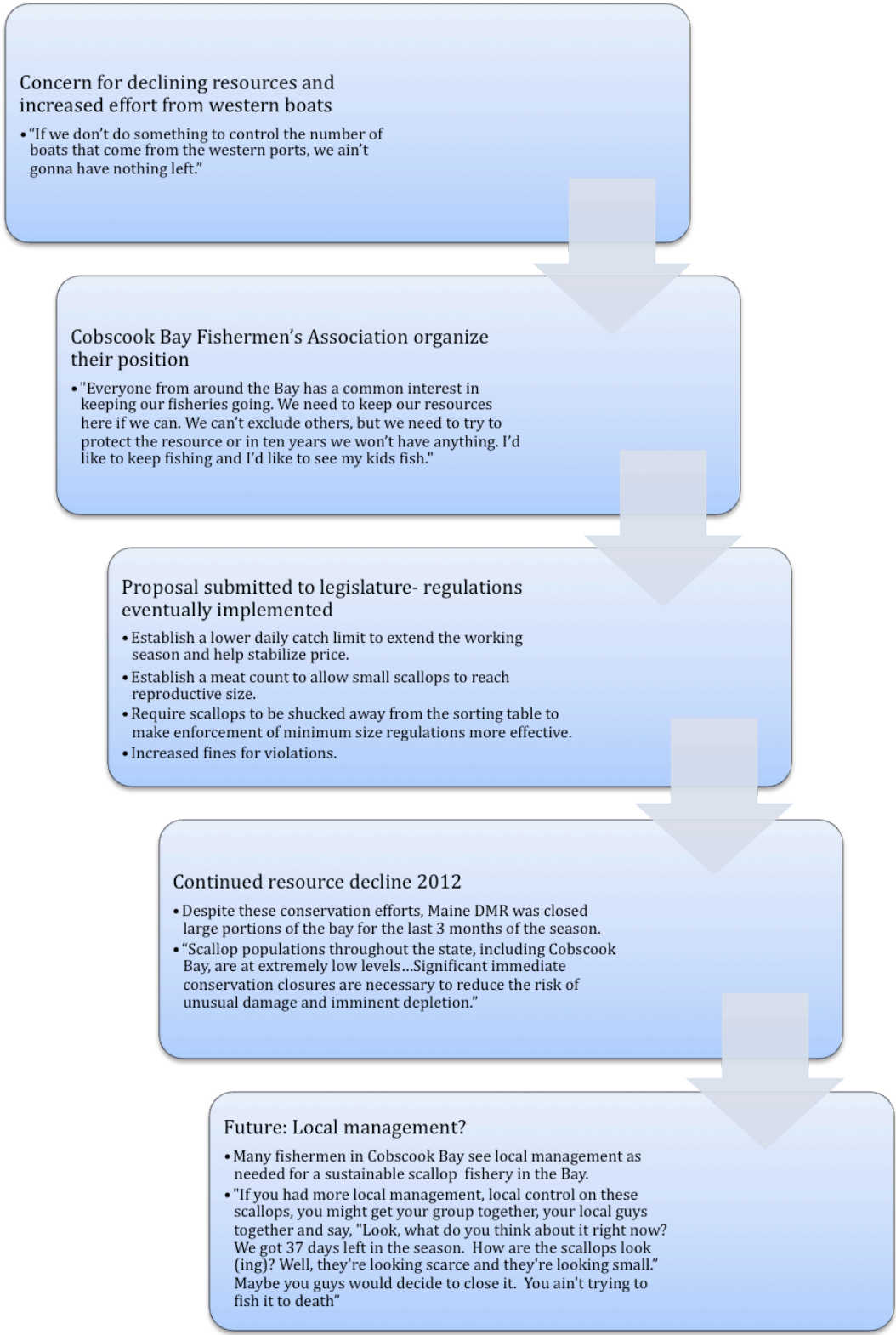
Decreased resources such as sea urchins, scallops, and groundfish have reduced fishermen’s ability to diversify and adapt to seasonal population fluctuations and price variation in other fisheries. Fishermen mainly attribute this to poor management, or conservation measures that were “too little, too late” and allowed overharvesting of the resources. This reduction in resources has led to an increased pressure and dependence on fewer fisheries. There is also concern regarding additional harvest pressure on the scallops in Cobscook Bay from non-local boats with less incentive to conserve the resource for future generations (Box 3). This is a contentious issue for many fishermen, as exemplified by this one: “...the western boats don’t care...they come up here and take what they can get and go home and fish down there.”

Red tide closures are also common in Lubec. They can be particularly devastating for the many people who rely on harvesting clams, particularly when other fisheries are closed.

“(Red tide’s) hurt a lot because it hits in a time when there’s nothing else to do unless you have a lobster license. I mean usually hits in midsummer and that’s really all there is to do. Most of like say the urchin fishery’s in the winter. The shrimping, the scalloping, it’s pretty much all in the winter. Summer time was clams so the red tide has really affected the area a lot.”



Socio-economic, regulatory and environmental threats facing Lubec.



Box 3: Fishermen's Response to Scallop Decline

Regulatory

A government response to resource decline, moratoriums on licenses and regulations to reduce fishing effort are a major threat to the future of the fishing community in Lubec. This concern was pervasive throughout the interviews. As an example:

“Back years ago, you used to be able to—if you wanted a lobster license, you just filled out the application, sent it in and got one. That doesn’t happen anymore. Same way with the scallop fishery and the urchin fishery, all— you know, moratorium on licenses. So you can’t get a license.”

These regulatory restrictions combined with the aging population structure of the community have many fishermen worried about the lack of young people entering the fishery. When asked about the future, several fishermen expressed pessimism about the next generation: “There ain’t no kids filling in. We’re all a certain age and the younger kids, I’d say in another ten, twenty years at the most the way it looks right now there ain’t gonna be no one.” Similarly, when one fisherman was asked if young people were entering the fishery, answered: “Well there’s no way for them - impossible to enter the fishery.”

At one time the fishing industry provided a livelihood for many young families, but with limited entry, few if any have the opportunity to enter the fishery. Combined with the general lack of economic opportunity in the area, many young people are forced to leave for a higher education and then find employment elsewhere. The aging demographics of Lubec, and in many of these fishing communities, reduce the prospect of another generation from the community entering the fishery.

Responses

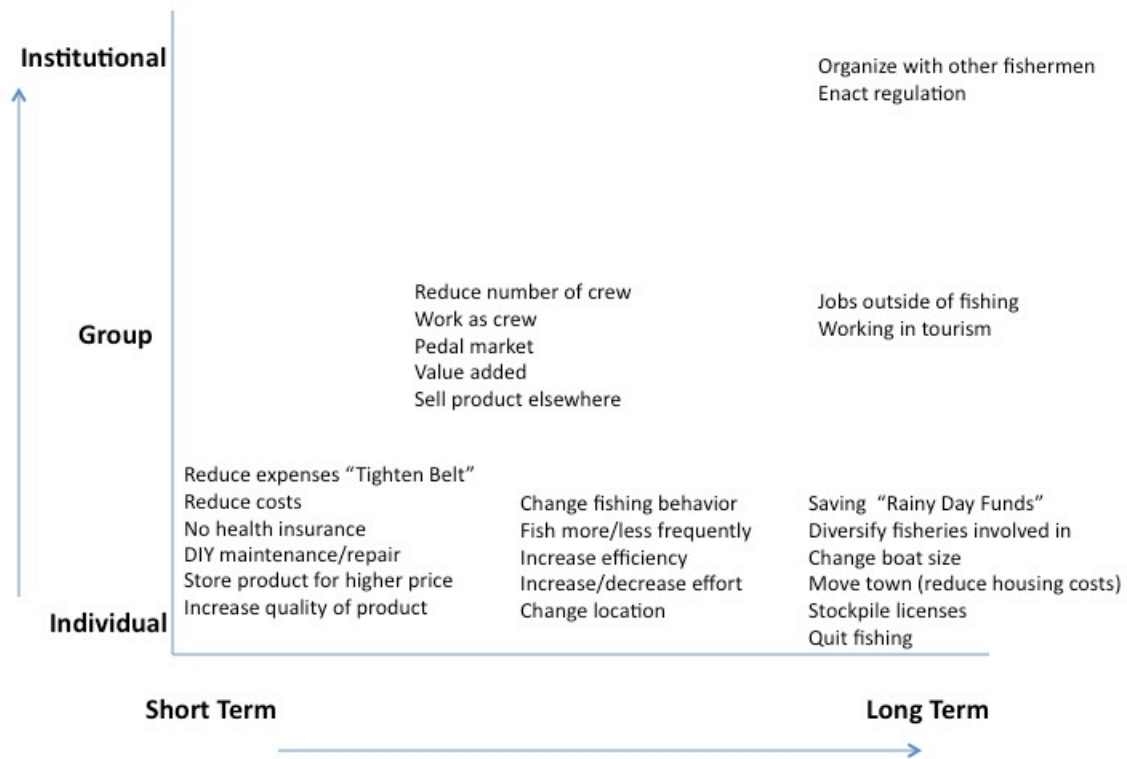
The ability of fishermen to respond to these threats varies, as some are simply beyond their control. Those who can respond reported a variety of long-term and short-term strategies.

Occupational Pluralism

“They’ll go from beating nails to painting someone’s house to wrinkling and probably all in the same day. Whatever it takes to feed the family.”

Many fishermen in Lubec expand their employment to opportunities available outside of fishing. As an example, while the increase in tourism may pose a threat to the fishing community in terms of loss of access to waterfront, it may also have a positive effect in

the creation of more opportunities outside of fishing. One commercial fisherman has started a successful chocolate business, while an urchin fisherman spends his summers driving whale watching tour boats.



Short and long-term responses to threats.

Organizing

In 2000, fishermen organized the Cobscook Bay Fishermen’s Association to promote the “conservation, enhancement and sustainable use of marine resources in Cobscook Bay.”¹¹ This organization played a vital role enacting scallop conservation regulations including lower quotas and meat counts, however many interview respondents mentioned that the Association’s influence and participation has declined in recent years. When asked about the Association, one fisherman responded: “I don’t hear much about it no more. I don’t think it, I don’t know if it’s still going on, you just don’t hear much anymore about it.” Another fisherman, who is very active in the Association, estimated that only five percent of fishermen in the community participate or are involved in the Association.

¹¹ Cobscook Bay Fishermen’s Association, cobscook.org/cbfa_pressrelease1.htm.

Participation may improve as many fishermen are increasingly emphasizing the need for local management to respond to changing resources:

“We’d like to be able to have this bay our self and to manage it...And yes, boats could come here but they’d have to abide by a certain—our conservation rules and they’d have to do something to get a license to fish here. Maybe they’d have do some conservation, you know?”

Reduced Prices/Increased Costs

Some fishermen have been able to cope with reduced prices by creating pedal markets where they sell directly to the consumer or adding value to their product. These opportunities should increase with the construction of Cobscook Marketplace, a project currently under construction by the Cobscook Bay Resource Center that will house a marketing cooperative and provide business and entrepreneurial training and assistance to local fishermen.¹²

Many fishermen respond to changes that increase costs (such as fuel or bait prices) by changing their fishing behavior. To save on fuel they will steam slower, ensure they are steaming with the tide and/or fish in locations that are closer. Many fishermen have reduced the size of their boat and/or the number of crew that they keep: “Used to be you used to have two stern men and everyone just about had two stern men. Now everyone seems like they’ve got one.” Additionally, many fishermen have been forced to move out of town due to increased housing prices and property taxes. Almost all of the fishermen we interviewed mentioned this emigration of fishermen to less expensive areas and it is a trend that continues to occur. One fisherman, when asked what the community would look like in the future responded: “I can see a whole lot more summer people moving in and a whole lot of fishermen moving out.”

Quit Fishing

“There’s been a lot of fishermen drop out. Fishing will take care of itself because people will drop out. The more people that drop out they’ll (the fisheries) come back again.”

There are some threats that, when considered cumulatively, fishermen have been unable to cope with or adapt to and as a result they have been forced out of the fishing industry completely. This is obviously, for most fishermen, a decision only made as a last resort.

¹² Cobscook Bay Resource Center, cobscook.org.

Summary

Lubec is a community in transition. While some residents consider fishing to be an integral part of the community, others feel that since the closure of the sardine factories only a minority of the community continues to be involved in fishing. Another perspective is that the community has more independent fishermen now than it did when the sardine companies were the center of activity. This dichotomy can be seen with the following responses to the question:

Is this a fishing community?

"No, no. 'Cause no one goes fishing anymore."

"Yeah...Just the amount of work that people do on the water. I mean you could look out the window here now and within five minutes you'll see a boat going by..."

"Never has been, it's more now than it used to be, there's more fishermen then there used to be"

While many would like Lubec to be a strong fishing community in the future, most view this as unlikely, instead describing a community dominated by tourism and little else:

"So, ten years from now, it's going to be different alright, you're going to see more tourism and less fishing. Twenty years from now, there likely won't even be a fishing boat here..."

Myriad factors contribute to this lack of hope in the future of the fishing community; key among these are a reduction in resources and resource diversity, declining and aging population and lack of economic opportunity. Despite these challenges, many see the community as resilient based on its ability to withstand threats from the past. For example, when asked if the fishing community of Lubec is resilient one fishermen responded: "It's gotta be because as many changes as they gave us, we're still here."

Many people see the strength of the community as their willingness to work hard and do whatever it takes to survive. This attitude has facilitated their ability to transition between species and discover new species to harvest.

"Yeah. We're fairly creative. We'll find something like the whelks. We'll find something else to fish for pretty much. Periwinkles. They've been big in the last seven or eight years. Now the seaweed industry. We've never really had—well, for so many years we really had no industry so we've had to get creative to make a living if you want to stay her. And yeah, so they're very resilient, very creative."

The future of the fishing community in Lubec may depend upon the continued viability of this strategy.

Recommendations

- Promote tourism and creative economy to take advantage of the limited summer season and create economic opportunities while maintaining traditional aspects of the fishing community.
- Explore ways to address limited entry issues and create opportunities for new entrants.
- Preserve working waterfront. Identify opportunities to create new working waterfront access areas and invest in infrastructure.
- Consider options of local management to increase diversity of fishing opportunities.

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