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# Communicating Care in Coastal Fisheries: Restoration, Adaptation, and Collaborative Policy Change

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## Restoration, Adaptation, and Collaborative Policy Change

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### Abstract

The soft-shell clam fishery in Maine and Wabanaki homelands is in a state of crisis, or so say most news reports about this fishery. While there is ample evidence that small-scale fisheries and the communities these fisheries support are rapidly changing, the crisis narrative conceals more than it reveals about how communities are actively responding and the longer-term histories to which these changes are connected. In this paper, we describe the dominance of the crisis narrative in news reports about clamming, and we connect with critiques in Native American and Indigenous studies and environmental communication that describe some of the problems with this narrative.

### INTRODUCTION

Reading the news is a daily confrontation with crisis, especially in news stories about how climate change is affecting oceans and coastal communities. In our work, we encounter a crisis narrative in nearly every news story and scientific report about the future of clamming in Maine. The dominant story is that the wild clam fishery is collapsing; in more apocalyptic versions, this fishery is already dead.[1] Collectively, we have been working in the clam fishery and in Maine's municipal shellfish comanagement system for more than a decade. The more we read and hear these dire reports in news media and science, the more questions we have about the disconnect between these and our lived experiences working in this context. As these reports attest, there are many reasons to be concerned about the health and survivability of the clam fishery and the communities and peoples who have long relied on this fishery as a source of sustenance, income, and spiritual, cultural, and familial connections. Yet, this dominant narrative misses important parts of the story about how people and communities are showing up to sustain this way of life now and for future generations.

What does this crisis narrative communicate about the future of clamming? What would it mean to tell a different story about this future? We begin by describing a news media analysis that creates a sense of context for our argument and documents the prevalence of the crisis narrative in news coverage about clamming. We connect the news analysis with broader critiques of the crisis narrative in environmental communication, Native American and Indigenous studies, and sustainability science, all of which identify a need to shift from a dominant focus on crisis to collaborative approaches to care and stewardship. When we shift from narratives of crisis to those of care, different stories come into view (Pezzullo and Cox, 2021). We highlight three stories of care, focusing on the (1) diverse adaptation projects within Maine and Wabanaki clamming communities; (2) emergence of informal networks to support these projects; and (3) formation of collaborative policy efforts to facilitate intertidal restoration and climate adaptation. We conclude with a call to action for how to care differently through more just collaborations with coastal communities.

### CLAMMING AND CRISIS NARRATIVES

As stories, place names, and shell mounds attest, shellfish fisheries have long sustained people living along the Maine coast and within Wabanaki homelands. The soft-shell clam (*essok* in Passamaquoddy; *Mya arenaria* in Latin) is the second- or third-most economically valuable fishery in Maine. We have been working on multiple projects to support the resilience of shellfishing as a livelihood and to address myriad challenges in municipal and tribal shellfish comanagement.[2] Over time, we increasingly found

ourselves talking about a pattern in news articles about clamming. On the one hand, we appreciated seeing clamming garner news attention, as this fishery is not always on the front page as compared with other fisheries. At the same time, we started to notice a disconnect between the stories these articles were telling and what we were experiencing working directly with clamming communities. The articles were repeating the same story of crisis over and over and missing a lot of the important details about the nature of this crisis and how people are actively responding and working to sustain, adapt, and strengthen this fishery.

FIGURE 1: **Word Frequency and Valence Analysis in Articles about Clam Fisheries (left) and Shellfish Aquaculture (right)**


Note: The size of the words corresponds with the frequency with which these words appear in articles. Words in orange were interpreted as having a negative valence, gray as neutral, and blue as positive. Words like red tide, water quality closures, green crabs, and ocean warming are much more common in news coverage about clamming than in news stories about aquaculture, despite the fact that this fishery faces many of the same challenges.

Concerned about the potential consequences of this crisis narrative, we decided to conduct a news media analysis to get a better understanding of this pattern. To do this, we searched news databases and identified 130 articles in major newspapers that focused on wild clam fisheries (including soft-shell clams and quahogs) in this region. We systematically analyzed the headlines and reviewed who was cited as an expert and what these experts were saying. We also examined how the articles frame the relevant problems, status, and solutions within clamming communities, and we paid attention to the valence in the article, including whether the headline and content emphasized a negative, neutral, or positive future for the fishery. Media framing analyses also consider alternatives, or what is being excluded from dominant coverage, and for this part of the analysis, we compared frames for the clam fishery with those of lobster and aquaculture.

We identified a distinct pattern in these stories, one that exhibits both biased news patterns and a dominant crisis-narrative-framing strategy. Using crisis narratives is a common framing strategy in news reporting about climate change and one that has received significant critical attention in the fields of environmental communication and Native American and Indigenous studies. The evidence of bias is related to a consistent pattern in sources and expert testimony as well as the dominant coverage of more urban and wealthier communities to the relative exclusion of tribal, rural, and under-resourced places. In terms of sources, journalists often cite the same experts repeatedly. News articles also focus more on southern than central or Downeast Maine, despite that some of the largest and most economically significant clam fisheries are in these regions. Though this pattern is problematic, it is relatively easy to address, and we have been reaching out to journalists to call their attention to the need for greater diversity in the reporting. We have also seen evidence that, in recent years, articles are including more diverse sources and coverage, and a recent article in *The Guardian* is a good example of this shift (Olson and Rybus 2022). The bigger issue is that in this news coverage the clam fishery is frequently described in negative, even fatalistic language. This pattern is particularly striking when we compare it to news stories focused on other fisheries or aquaculture, where the future is framed in a more positive light (Figure 1).

This word frequency analysis connects with frames in the headlines and body of the articles. One article from the Associated Press, for example, starts by asking a question,

"Where have all the clams gone?" and then goes on to note that "Maine's harvest last year was lowest in decades." The article attempts to answer the question of where the clams have gone by describing how climate change, algal blooms, increasing predation, and declines in clam landings serve as evidence for the disappearance of clams. Testimonies from a biophysical scientist and clammer further emphasize the dire state of the fishery. We find a similar pattern in a Portland Press Herald article that leads with the headline, "Clammers in crisis," and goes on to detail one coastal town's challenges with water quality and invasive green crabs.

Overall, news media consistently emphasize that the wild clam fishery is in crisis and that the solution, if one exists, can be found in technical fixes. These fixes include installing netting to protect juvenile clams from being eaten by green crabs and transitioning to aquaculture techniques to grow more shellfish and provide back-up options once the clam fishery is gone for good. This emphasis on crisis is not necessarily wrong. At the same time, this narrative excludes much more than it reveals about the future of this fishery, including the people and communities who are actively working to ensure that the future that these news stories predict remains a figment of a limited imagination.

## THE PROBLEM WITH CRISIS NARRATIVES

The problem with crisis narratives is not that they are wrong. There is ample evidence that small-scale fisheries are in trouble. In many places, including in parts of coastal Maine and Wabanaki homelands, the situation is rapidly getting worse. Many of the trends discussed in this special issue underscore the need to attend to crises we are facing. However, as our partners in clamming communities as well as other scholars have helped us understand, the crisis narrative is problematic in how this narrative relies on framing strategies that (1) reduce the complexity of these issues and ignore or miss important details and (2) reinforce a linear and urgent sense of time and subsequently a rush to technical, and often ill-fitting, solutions to complex justice-related issues.

To return to the question posed in the Associated Press article, there is no single or simple answer to the question "Where have all the clams gone?" This is not a question we can currently answer because we do not have the baseline information we need to accurately determine how clam populations have changed through time and across regions.[3] Clammers provide observational reports about changes in shellfish populations, which are likely the most reliable information about the status of clam populations at the local level. However, claims about declines in clam populations in news articles and scientific reports are often based on an assessment in changes in clam landings values, the weight and economic values of clams brought to market and sold every year. At a statewide scale, there have been marked declines in soft-shell clam landings. At local and regional scales, there is variation in landings trends as well as substantial year-to-year differences. Clam landings data are not a reliable proxy for the size or status of clam populations in the mud at any given time. Many factors can influence clam landings, including the price of clams (which fluctuates dramatically and this year has seen historic lows), the price of lobster (which is a generally more lucrative fishery though also with more overhead), the availability of commercial licenses (where there is wide variation in access to licenses across towns), and the ability to get to productive mudflats (in the face of coastwide declines in access due to colonialism and gentrification). Despite the relatively straightforward relationship between warming ocean temperatures, green crabs, and declines in clam populations that news organizations draw, there are substantial information gaps, regional differences, and a diverse set of factors that are influencing social-ecological trends within this fishery.

Narrowing the presumed disappearance of clams to a single factor, like green crabs, ignores how this fishery functions as a complex social-ecological system. This simplification also interacts with a framing strategy that has dominated news stories about climate change, referred to as "tipping point discourse" (Russil and Lavin 2012). The recent disappearance of clams connects with one such tipping point when, in 2012, the Gulf of Maine experienced a heat wave (Mills et al. 2013). Because green crabs prefer warmer ocean temperatures, there was a marked increase in their populations that year, and their numbers have remained high since.[4] As news articles describe, this event precipitated a cascade of tipping points, from temperatures to trophic shifts to the inevitable death of the clam fishery.

One of the main concerns is how the focus on tipping points inspires solutions that do not address root causes and can make existing problems worse. Chris Russill explains how "Popular employments of 'tipping points' advance an epidemiological or viral way of seeing the world" which "have proliferated widely as a sense-making device for events characterized by complexity, urgency and uncertainty"

(Russill 2008: 134). This view plays out in the news articles about the clam fishery too, where one of the primary solutions to the problem of declines in clam populations/landings is to use netting to protect clams as they settle and grow. The effectiveness of this technique is variable and has limited scalability for commercial applications. Though this strategy can help achieve conservation goals, it is one among many needed to sustain this and other fisheries. Strategies that address justice, equity, tribal sovereignty, and capacity-building in rural communities need to be part of the story of this fishery's future as well.

Further, the crisis narrative is based on a way of seeing the world that Kyle Whyte (2021) calls a "crisis epistemology," and which makes it seem that we are only now facing an apocalypse and that if we don't act fast, the world as we know it will end. This narrative ignores how the contemporary crises in the modern era are for many people, including Indigenous peoples and descendants of people who were enslaved, part of a much longer, devastating history. As Kim TallBear (2020) argues, Indigenous peoples have been living the climate apocalypse since first contact. In this perspective, a crisis like climate change is only a more modern manifestation of extractive, colonial, and oppressive relations that have been shaping life on earth for hundreds of years. The focus on tipping points and contemporary, urgent, climate-driven crises forgets these more complex histories of how we got to where we are now and what it would take to equitably fix something like climate change. This erasure connects with our second major concern about crisis. If we consider some of the recurrent frames in crisis thinking, we can detect how crisis constructs time: crisis demands that we act fast because we are running out of time. We only have so much time before we cross a threshold past which we can never return. These constructions of time rely on two underlying logics: that time is linear and moving in one direction (into an uncertain but predictable future of collapse) and that time is something we can control and possess, especially if we hurry up about it.

Linear temporality drives toward technical solutions in ways that reduce the likelihood of equitable engagement and a consideration of ongoing injustices and traumas, such as those related to Indigenous land dispossession and wealth inequality. For example, during an offshore wind seminar hosted by the Bureau of Energy Management, Corey Hinton, attorney for the Passamaquoddy Tribe, called attention to how the rush to technical solutions can reinforce existing inequities and intergenerational traumas. Hinton describes how the urgent need to install hydropower (a project that failed) required building a two-lane highway through a watershed that "never recovered" and where

> that exact two-lane highway, which is etched into our intergenerational trauma, is being proposed as a highway to deliver supplies to launch offshore wind from Downeast Maine, which means that the trauma that's already been inflicted upon our people is being proposed to be dredged back up as a part of this current presidential administration's plans for renewable energy. We've been through that. We've seen these plans traumatically impact us, and we've seen these plans fail in the past.[5]

Though these come from different histories and forms of injustice, we hear similar expressions of concern from clamming and fishing communities as they raise questions about technical solutions, like wind energy development and aquaculture. As this experience shows, the rush to technical solutions runs the risk of continually repeating the same mistakes and reinforcing existing traumas within communities, and this likelihood becomes even greater when the decision-making processes around these solutions do not consider diverse voices and equitable, meaningful participation.

This critique of the crisis narrative does not mean to suggest that we should ignore crises, turn away from the multiple forms of evidence that coastal ecosystems and communities are rapidly changing, nor abandon technical approaches. We do mean to call attention to how, in the context of the clam fishery, the dominance of the crisis narrative in news media sends a clear message that investing in or showing up for the clam fishery is, as one article concluded, "a lost cause" (Gibbs 2022). This narrative constructs a limited sense of what is both possible and necessary for resilience. In response to increasing awareness about the problems with crisis narratives, leaders in environmental communication, including Phaedra Pezzullo, Robert Cox, and Catalina de Onís have identified a need to shift from narratives of crisis to those of care (de Onís 2021; Pezzullo and Cox 2021). This shift involves showing up in communities to listen to and learn from their experiences and to identify ways to amplify and support existing efforts to address climate change and justice-related issues (Pezzullo and de Onís 2018). In our work with clamming communities over many tidal cycles and seasons, we have learned from them

what a shift from crisis to care can mean. In making this shift, different stories come into view.

## EVIDENCE OF COASTWIDE ADAPTATION, STEWARDSHIP, AND CARE

Setting aside the newspaper and showing up on a local mudflat, a different and more hopeful situation emerges. In our efforts to listen to, learn from, and work alongside clamming communities, we have found a lot of reason for hope because, despite the very real challenges, people are enacting diverse and transformative practices of care for the present and future health of this fishery. In this section, we highlight three stories of care, including how clamming communities are leading diverse conservation and intertidal restoration activities, the emergence of formal and informal partnership networks that extend capacities for shellfish comanagement and stewardship, and recent successes in collaborative policy development to enhance shellfish sustainability and climate adaptation.

### *Diverse Conservation, Intertidal Restoration, and Stewardship Activities*

Clammers and volunteers with municipal shellfish programs demonstrate stewardship through a wide range of conservation and intertidal restoration activities. In most towns with a shellfish program, participation in these conservation activities is a requirement of having a commercial license. These activities range from seeding the flats to enhancing the wild stock, trapping predators (usually green crabs, but also milky ribbon worms and moon snails), shoreline surveys, population surveys, shoreline clean-ups, and water quality mitigation (Tripp 2021). In Scarborough, Thomaston, Bristol, and Frenchman Bay, you may see clammers and partners walking the shoreline looking for failing septic systems or other sources of pollution, which affect local water quality and therefore shellfish. In Brunswick, clammers regularly participate in shoreline clean-ups to pick up trash while also providing a community service. In Lubec, clammers organize events that also serve both conservation and their community, including hosting educational programs about clamming, conducting biomass surveys to assess clam populations, and planting brush in the mud to promote clam settlement. In Sipayik, Passamaquoddy clammers are drawing from Wabanaki and Indigenous clam garden techniques to increase the mudflat productivity.

Clamming communities are also leading the way in developing climate adaptation techniques. As climate change shifts the composition of species in the mudflats, quahogs (hard clams) are becoming more abundant in the Gulf of Maine, and clammers in Casco Bay are increasingly focusing on quahogs more than soft-shell clams. To bolster quahog populations and support the industry's future, municipal shellfish committees are turning to stock-enhancement techniques, often in close collaboration with local aquaculture growers. In a stock-enhancement program in Georgetown, clammers focus on building a broodstock population. Adult quahogs were transplanted to a flat to establish the population, and harvesters voted to close this area to harvest, allowing the quahogs to acclimate and reproduce undisturbed. Harpswell has focused on bringing harvesters together at reseeding days, where small quahogs are spread across flats designated as priority areas for stock-enhancement efforts. Brunswick also focuses on the rearing and seeding of hatchery quahogs, but has built partnerships with a local oyster farm, resulting in a nursery program where small quahog seed is grown to 15–20 mm, a size that leads to higher survival when unprotected on the flats.

In addition to intertidal restoration and adaptation, many conservation efforts address social challenges such as coastal access. The commute to work for shellfish harvesters involves a complex series of decisions around the timing of the tide; where to dig that day; whether to access the flats by foot, skiff, airboat, or canoe; where to park; and how best to transport heavy shellfish between the mudflats and their vehicles. These considerations are further complicated by increasing loss of access to the intertidal zone on both private and public land. This trend is driven by changing coastal property ownership, infrastructure, crowding issues at public boat ramps, gentrification, limited parking, and a fragmented approach to identify and preserve working waterfront areas statewide. For example, recent work led by Manomet with five towns in Casco Bay found that 65 percent of the places where shellfish harvesters access the coast are through private property, and the majority of these are informal or handshake agreements (Farr and McMahon 2023). As properties change hands and new homeowners are less familiar with the shellfish fishery, these agreements may be lost.

In response to this tenuous access, municipal shellfish programs are taking creative approaches to reach out to

landowners, build new partnerships, and conduct inventories to understand how access is changing over time. For example, Gouldsboro is building a culture within their town that celebrates clamming and also builds capacity to respond to changes. They host community shellfish events, clam-tasting days, and work with news media to raise awareness about clamming livelihoods. They pair these efforts with an innovative project they call Gouldsboro Shore, to host community conversations to address and plan for change holistically and in ways that seek to maintain clamming as a livelihood (Zoellick et al. 2023).

### *Informal Partnership Networks for Shellfish Comanagement*

When we look across these individual projects, a striking pattern emerges: not only are clamming communities advancing projects dealing with intertidal restoration, conservation, and climate adaptation, they are doing so with many partners and as part of multiple networks, many of which have emerged from efforts to support these very conservation activities. In a fishery that historically has not received the same level of funding or resources as the lobster fishery or aquaculture, these networks provide resources and capacity and highlight the value of investments in collaboration.

#### Downeast Fisheries Partnership

The Downeast Fisheries Partnership came together in 2012 out of a recognition that collective action was needed to rejuvenate eastern Maine's coastal communities by restoring the region's fisheries. The partnership is united around a shared vision that "There will be a day in Downeast Maine when the Gulf of Maine is silver with fish...when coastal villages bustle with new energy and new possibilities; and when we, the communities of Downeast Maine, are the stewards of our future" (DFP 2018: 2). The Downeast Fisheries Partnership is comprised of ten organizations spanning a range of expertise in land conservation, municipal leadership, outreach and education, economic and community development, stakeholder engagement, and fisheries restoration and management. One central goal is to improve and support shellfish fisheries and intertidal ecosystems because of the economic importance of the fishery to the region. The partners also recognize that improving shellfish comanagement strengthens relationships among fishery stakeholders, which will empower the next generation of harvesters to continue stewarding intertidal ecosystems, shape more inclusive and ecosystem-based policies, and promote the resilience of this region.

#### Casco Bay Regional Shellfish Working Group

The Casco Bay Regional Shellfish Working Group was created in 2019. Tidal Bay Consulting and Manomet secured funding and founded the working group on the premise that there is strength in numbers among the 14 different municipal shellfish management programs facing similar issues related to social and ecological change. The vision is a healthy intertidal ecosystem that sustains shellfish resources and the jobs that depend on these fisheries. The approach stresses the importance of listening to shellfish harvesters, volunteer committee members, shellfish wardens, and others and of creating spaces to share knowledge, make connections, and discuss concerns. In addition to regular meetings, the team conducts research to create guidance documents on topics such as shellfish management in other states and tribes; quahog conservation, restoration, and aquaculture; and preserving access to the intertidal zone. The working group has also led several larger projects, including the Community Intertidal Data Portal, intertidal access mapping, and ecological survey methods. Beyond these tangible outputs, there is equal value in reaching across rivers and bays to work across towns; offering and elevating respect to an undervalued profession; and increasing capacity from nonprofit partners, students and fellows, and funders.

#### Maine Shellfish Learning Network

The Maine Shellfish Learning Network emerged from longstanding research partnerships between the University of Maine's Senator George J. Mitchell Center for Sustainability Solutions, the Maine Department of Marine Resources (DMR) and shellfish communities, starting with, and then expanding from, Frenchman Bay. The network formally launched in 2019 with a mission to support learning, leadership, and equity across Maine and Wabanaki intertidal fisheries. Getting ready for the launch meeting involved many conversations, interviews, and small group meetings to identify how to structure the meeting as well as the objectives for the learning network itself. In one of these conversations, a key partner and longtime clammer advised us that the "MSLN should be a doing network." We took this to heart and structured the launch meeting around the identification of action-oriented priorities which led to collaborative policy development, the creation of The

Mudflat website,[6] technical support across multiple community-led projects, and participating in other networks.

### Maine Shellfish CoManagement Initiative

The Maine Shellfish CoManagement Initiative team has been involved in various initiatives over the last three years. In March 2023, team members facilitated a panel discussion during the Maine Fishermen's Forum focused on shellfish harvester access to the mudflats, which spurred discussions about access challenges and potential solutions from Downeast to southern Maine and was inspiration for a small group that formed to address this topic. At the state level, several members of the Shellfish Advisory Council are also part of the shellfish initiative and actively engage in projects to improve the shellfish comanagement system through research and outreach. Each year the team selects several focus areas to work on and is committed to increasing positive communications around the wild shellfish fishery in the news media and communities in which we live and work.

#### *Collaborative Policy Development*

These stories of intertidal restoration, networks, and practices of care within clamming communities feed into the third story, where these activities and networks came together to create a successful policy development process. This collaborative process resulted in multiple informal and formal policy changes that facilitate climate adaptation and shellfish restoration techniques within this fishery.

In addition to the host of conservation activities already described, clamming communities and networks of partners have been working on different kinds of clam stock-enhancement techniques. In some cases, these efforts have evolved into more intensive attempts to grow shellfish using aquaculture techniques. Typically, communities will receive juvenile shellfish from a hatchery and then continue to grow them in upwellers (tide-suspended gear that allows the clams to filter feed and grow to greater maturity). This approach is a cost-saving measure and some communities are using it as a stepping stone to the eventual development of regional capabilities for producing seed stock. However, this gear requires limited purpose aquaculture (LPA) licenses and applying for and maintaining these licenses is time and resource intensive. As we were supporting conservation activities, developing networks, and participating in statewide shellfish management workshops hosted by DMR and the Shellfish Advisory Council, the challenges with the LPA process came up repeatedly.

Through an engaged project led by Gabrielle Hillyer, Marissa McMahan, and partners, we decided to conduct research on this issue to build capacity for informal and formal policy change. Engaged research relies on relationships to create knowledge, so we started conversations and interviews with representatives within DMR who work at the intersection of shellfish management and aquaculture, including the Aquaculture program, the Bureau of Public Health, and the Nearshore Marine Resources program, as well as community project leaders, shellfish harvesters, and others who have navigated the LPA process. Together, we identified the need for an LPA workbook to provide information to towns about how to apply for an LPA. As partners drafted the workbook, we also started to identify specific short- and long-term policy recommendations to change how community-based shellfish restoration projects are regulated as aquaculture. These recommendations were circulated back to partners, presented to the Shellfish Advisory Council, and made available online.[7]

This approach to identifying recommendations led to tangible short-term policy changes. DMR Aquaculture agreed to change the application form for LPAs related to community-led research, including removing the limitation on the number of people who can volunteer and work on the upweller and related gear. This change increases the potential volunteer capacity for these projects, which is a limiting factor for many towns. During this process Gabrielle Hillyer was invited to submit testimony by DMR representatives to a DMR rulemaking committee about proposed rule changes to Ch. 2.90, Section 1, Subsection C. This proposed rule change, which was later implemented, removed limits of helpers for LPAs held by municipal shellfish committee, a specific recommendation that emerged from the engaged research.

The sustained listening, in research, in the shellfish management workshops, and through involvement in shellfish networks opened a window of opportunity to collaboratively develop state legislation to address this issue. Dan Devereaux and Senator Mattie Daughtry took the lead on convening partners to craft LD 581—An Act to Assist Municipal Shellfish Conservation Programs. This bill was unanimously approved by the Marine Resources Committee, passed by the Maine House and Senate, and signed into law. This change, which includes removing fees and education requirements for community-based projects, was unique in that it received broad support across sectors, including

aquaculturalists, shellfish harvesters, researchers, and state agency representatives. While many shellfish-related bills in the past have failed to receive support, the success of LD 581 serves as a model for how collaborative approaches to policy can make a difference in multiple ways.[8]

## CONCLUSION

Wild clam fisheries in Maine and Wabanaki homelands are facing a suite of changes that are overwhelmingly framed as a crisis in news media. The dominant crisis narrative communicates that this fishery is on the brink of collapse, and aside from a small handful of technical solutions, there isn't much we can do. This narrative ignores how communities are meeting real crises with practices of care, including diverse conservation and intertidal restoration activities; informal partnership networks that support comanagement; and collaborative policy development. While the situation is dire here and elsewhere, it is nowhere near a lost cause, and there is much room for hope about what the future of this fishery can mean.

While here we have focused on intertidal ecosystems and communities, the influence of the crisis narrative is playing out across contexts as part of international climate adaptation efforts. As evident in the title of Maine's four-year climate action plan, *Maine Won't Wait,* these types of efforts are moving forward with urgency and often with an eye toward technical solutions.[9] We recognize the need for urgency, and at the same time, we ask ourselves: What becomes possible if we do wait, if we pause to remember that the commitment to crisis thinking has consequences that may undermine the futures we are trying to create together? Networked, relational, and collaborative solutions take time. Furthermore, it takes time to learn what efforts are already happening in local communities and how these could help inform what adaptation means or requires. Remembering care in the midst of crisis becomes a way of slowing down so we can listen to and learn from stories, histories, and practices within coastal communities to lead us all toward more just and resilient futures.

## NOTES

1 We use *wild clam fishery* to refer to soft-shell clam and quahogs that are not grown using aquaculture and that are managed as part of Maine's municipal shellfish management program.

2 Our understanding of resilience comes from literature and from diverse conversations and community perspectives about how to promote the health, vitality, survivability, and sovereignty of coastal communities (Berkes and Ross 2013).

3 There are efforts underway to address this gap, including the Soft-Shell Clam Recruitment Monitoring Network (https://downeastinstitute.org/research/soft-shell-clams/shellfish-recruitment-monitoring-network/), led by the Downeast Institute, and an intertidal monitoring initiative, led by the Maine DMR's Nearshore Marine Resources Program.

4 We do not have continuous statewide assessments of green crab populations though there have been localized monitoring efforts.

5 Corey Hinton, public comments presented to the BOEM Task Force, Bangor, Maine, May 11, 2023. https://www.youtube.com/watch?v=BQHWmPHjKSs&t=6652s

6 https://themudflat.org/

7 https://themudflat.org/limited-purpose-aquaculture-workbook/; https://themudflat.org/final-recommendations/

8 We want to acknowledge an important detail about how these activities, networks, and policy development processes evolved. A funder associated with the Maine Community Foundation recognized how clam and mussel fisheries were underfunded compared to other fisheries. They provided extensive financial and relational support to these efforts that have fundamentally changed and strengthened capacities in this fishery and made both measurable and immeasurable differences in its future.

9 *Maine Won't Wait: Inspiring Climate Action for Maine* (https://www.maine.gov/climateplan/) is shaped by a crisis narrative and commitments to technical solutions. It also intersects with a persistent lack of state support for Wabanaki tribal sovereignty. At the same time, this climate adaptation planning process seeks to have robust public participation and to make structural commitments to equity, as demonstrated in the leadership of the Equity subcommittee and related efforts through the University of Maine's Mitchell Center for Sustainability Solutions.

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