

Gateway Maine: Following Old Arctic Routes to a Sustainable Future for the United States

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If one were to extend the nooks and crannies of Maine's coastline, it would reach more than 3,400 miles from the state's southern terminus to the North Pole and beyond. It is a stretch that from trade among the Red Paint People to subsistence cod fisheries has been entrenched in the region's culture, livelihoods and ecological approach for more than 10,000 years. Despite this northern connection, the United States traditionally has viewed its relation with the Arctic through Alaska. However, as the country faces increasing climate threats and is under pressure to divest from petroleum, Maine is capitalizing on the opportunity to rewrite the national narrative and frame itself as a true Arctic player. As part of this process, Maine is finding economic prosperity, forging global partnerships and ushering in a carbon-free future. If the United States is committed to meeting its environmental promises while concurrently spurring economic ingenuity, it best pay attention.

Alaska—and its oil—dominate the national narrative

Since the acquisition of the future state from Russia in 1867, Alaska has been the country's sole territorial connection within the Arctic region. The discovery of oil in Alaska's Kenai Peninsula in 1957 contributed toward its promise of financial self-sufficiency, which led to its statehood two years later. Since then, the petroleum industry has continued to dominate Alaska's economy, having generated more than \$180 billion US cumulatively and comprising as much as 90% of its annual unrestricted general funds (Resource Development Council for Alaska, n.d.). While Alaska has a plethora of other cultural, economic and political links with the wider Arctic, the dominance of its oil continues to guide much of the national policy in the region.

In both of the United States' chairmanships of the Arctic Council (1998-2000, 2015-2017), facing the urgency of climate change ranked among the country's top three priorities for its tenure (Arctic Council, 2021). In each case, the US left its leadership position with increased interest in expanding

petroleum development in Alaska, and in the Arctic more broadly. In 2000, the US Energy Information Administration, at the request of Frank H. Murkowski, Alaskan senator and chair of the US Senate Committee on Energy and Natural Resources, claimed that the Arctic National Wildlife Refuge alone held “the largest unexplored, potentially productive onshore basin in the United States” (US Energy Information Administration, 2000: vii) Toward the end of the second chairmanship, President Trump signed the “America-First Offshore Energy Strategy,” which cut drilling restrictions in the Arctic (Exec. Order No. 13795, 2017). Later that spring, the Administration announced its intentions to withdraw from the Paris Agreement.

History of Maine’s Arctic engagement

Unlike the northern half of Alaska, only the peak of Maine’s tallest mountain, Katahdin, chiseled from the receding Pleistocene glaciation, meets any statistical definition of “Arctic.” Katahdin is within the 10°C isotherm and is home to isolated populations of flora and fauna more associated with an Arctic alpine environment than a continental one (Quinn, 2008: 119). However, in the intervening years between US chairmanships, the long-simmer of Arctic interests began to boil thousands of miles away in Maine. The tipping point came in 2013 when the Icelandic shipping company Eimskip announced it would move its North American headquarters to Portland, thereby providing a concrete link between Maine and the entire Arctic spread.

Despite Maine’s position bisecting the 45th parallel, making it as close to the equator as to the North Pole, the people of Maine and the Wabanaki Confederacy have been looking to the North for millennia. For over 10,000 years, small-scale subsistence societies have peppered the shores of the North Atlantic. Throughout this time, these communities united through a common and resilient heritage of responding to climatic and cultural developments ranging from deglaciation to colonization. Dating back 7,000 years ago, one of the earliest attested trades amongst peoples of the Arctic and present-day Maine focused on Ramah chert, a prized silica-based tool stone, from the Ktjigattalik (Ramah) quarry in today’s northern Labrador.¹

Labrador, possibly because of its relative accessibility as well as its familiar culture and climate, has continued to have a well-trodden role in Maine’s maritime history. Under the initial guidance of professor and naturalist Paul Chadbourne in 1860, Bowdoin College began a continual 160-year legacy of Arctic research and expeditions, most famously including the early 20th century journeys of Robert Peary and Matthew Henson, as well as the later expeditions of Donald MacMillan aboard the locally-built ice-safe schooner *Bowdoin*.

Maine harbors international climate research

Today, Bowdoin’s academic work in the Arctic is joined by a plethora of leading institutions, mostly focusing on the interconnectedness between drastic Arctic climate shifts and social systems. Established in 1973 with an eye toward the poles, the Climate Change Institute at the University of Maine in Orono has grown into an international focal point for researchers seeking to understand the processes and implications of natural and anthropogenic climate change. As new members of UArctic and its north2north exchange, students from universities in Reykjavik, Akureyri and Tromsø can now study at the University of Southern Maine. Arctic Law Fellows at the University of Maine School of Law learn about intergovernmental science agreements in Svalbard and Greenland. University of New England’s Institute for North Atlantic Studies in

Portland draws upon the Sustainable Development Goals to connect disparate silos of science and culture. Together with the World Ocean Observatory, the Climate Change Institute and Maine Law developed the Arctic Futures Institute, which now leverages international collaboration to advance economic and environmental interests in the northern regions.

In the midcoast town of Castine, Maine Maritime Academy developed the nation's first course in Arctic navigation as the school (and current home to the *Bowdoin*) studies the opening of icy, disputed waters. In Boothbay, the independent Bigelow Laboratory for Ocean Science just discovered new relationships between algae and bacteria in the warming Arctic waters with significant implications for controlling atmospheric CO₂. Farther south in Portland, the Gulf of Maine Research Institute (GMRI) monitors North Atlantic and Arctic sea currents while supporting community resilience and fishery adaptation.

Gulf of Maine's rapid warming

The Gulf of Maine has become Ground Zero for understanding the oceanographic impacts of climate change due to its shallow horseshoe-shape at the confluence of the Labrador Current and Gulf Stream. In 2014, a bombshell report from Dr. Andy Pershing, the then-Chief Scientific Officer of GMRI, concluded that "the Gulf of Maine has warmed faster than 99.85% of the global ocean" (Pershing, 2014). Yet, like most of the world experiencing drastic climate devastation, Maine does not need statistics. With the warming and acidifying waters, lobsters move into Canadian territory and the shells on bivalves fail to harden. After peaking in 1969 at more than 24 million pounds (Maine Department of Marine Resources, 2021), the shrimp industry has now been closed for eight consecutive seasons and the cod fishery that once sustained the entire maritime region has been cut by 95% in the past decade (Castañón, 2019). Nets previously overflowing with boreal haddock and flounder are now picking up subtropical species like seahorses, triggerfish and black sea bass. In 2018, having set 18 new temperature records in the previous twelve months, Dr. Pershing acknowledged that GMRI has "had to add new colours to our temperature illustrations to reflect just how warm the Gulf of Maine has been" (GMRI, 2018).

Of course, Maine is not alone in its experience of environmental devastation. Rising tides, stronger storms and new agriculture patterns are increasingly universal in the United States and the rest of the world. However, in a country for which the Arctic has become synonymous with resource extraction, Maine instead looks north to draw upon its thousand years of cultural, climatic and economic similarities. While Alaska and the rest of the United States left its last Arctic Council chairmanship with new orders for off-shore Arctic drilling and a full dismissal of anthropogenic climate change by the national administration, Maine's governor, Janet Mills, led a delegation of more than 60 Maine researchers, policy-makers, business leaders and artisans to address the Arctic Circle Assembly in Reykjavik. Eleven Mainers spoke at the international gathering, a new memorandum of understanding concerning sustainable forestry practices was signed, past environmental agreements confirmed and a preview of the state's "Maine Won't Wait" climate policy was unveiled.

Linking the Arctic with economic revitalization

This rapid warming of the Gulf of Maine, the result of the warming waters to the north and the consequential disruption of ocean circulation, impacts every sector of Maine's \$70 billion US

economy. In the two years following Eimskip's move to Portland in 2013, shipping between Maine and Iceland skyrocketed more than 4000% as new markets opened (Eimskip, personal communication, 15 May, 2021). While consecutive directors of the Maine Port Authority and Senator Angus King (ME-I) have argued that the strategic positioning of Maine's three deep-water ports (compared to Alaska's one) will bring business to the coastal state as shipping through the Northwestern Passage clears (Angus King, personal communication, March 2, 2021), Eimskip provided the incentive to search the wider Arctic for existing models of environmental and economic success that could be transplanted to Maine. According to one senior Arctic official, "[previously] Maine moaned about having a poor economy and pointed to its position at the end of the line in the [country's] north-eastern corner. Today, it sees itself as the jumping off point" (McGwin, 2016).

As a linchpin to this process, the state inaugurated the Maine North Atlantic Development Office (MENADO). In 2014, MENADO co-hosted two international Arctic-focused trade events drawing audiences from Nuuk to Murmansk. Maine companies also started looking for new opportunities. The Maine-based Ocean Renewable Power Company started building its river- and tidal-powered hydrokinetic electricity generators throughout Alaska and northern Canada, thereby reducing the monthly reliance on diesel by as much as 25,000 gallons (Andrews, 2016; Caldwell, 2016). Eimskip's cold storage offered Bristol Seafood a new European market. Hancock Lumber began to explore partnerships to supply and transport building materials to Greenland. External companies also began to see opportunities in Maine. The German AquaVentus consortium turned to the University of Maine's offshore wind program to design floating wind-to-hydrogen turbines that could generate clean electricity while sparing Arctic migrating species. Likewise, the Iceland Ocean Cluster looked to the coastal state to form a sister "hús" to foster sustainable blue economic entrepreneurship throughout the northern North Atlantic. At the national level, then-President Barack Obama instituted the Arctic Executive Steering Committee by executive order, and Maine's Angus King (I) reached out to Alaska's Lisa Murkowski (R) to form the bipartisan US Senate Arctic Caucus.

The Arctic Council puts Maine on the map

Maine's big break may have come in October 2016 when the US Department of State chose to hold the Arctic Council plenary in Portland rather than in Alaska in recognition of the state's Arctic stewardship and emerging leadership as a northern player. Predictably, climate change topped the agenda. While Arctic Council plenaries returned to Alaska and then moved abroad with the change in chairmanship, US Ambassador David Balton concluded that hosting the meeting in Maine "makes [Americans] aware of why they should care about the Arctic" (McGwin, 2016).

In some ways, the Arctic Council meeting was also a public coming out party for Maine. The following year, MENADO became the first US organization outside of Alaska to join the Arctic Economic Council, and it has been developing new bilateral engagements continually. Given Maine's strategic position in the northeast of the Atlantic and environmental values, it is of little surprise that Maine lawyer, Ben Ford, argues that "Arctic development will be the number one driver of Maine's economic growth for the next generation" (MacLean, 2018).

Looking north to find sustainable solutions

In 2019, Governor Mills signed an MOU with Finland over innovation in forest bioeconomy innovation, recognizing that “Finland and the State of Maine have a lot in common in forest issues,” according to Finnish Prime Minister Antti Rinne (State of Maine: Office of Governor Janet T. Mills, 2019). Yet, while Maine’s paper mills are facing a declining market and high costs for lumber and energy as well as lawsuits for the use of PFAS chemicals, Finland has transformed a once-comparable industry into a thriving biosolutions economy in which it creates products associated with the petroleum industry, including batteries, medical devices and textiles--all without the petroleum. Maine offers Finland strong business and research connections to sidle into the North American market, while Finland offers Maine a model of expertise for new biotechnologies that can make better use of the state’s natural resources (Dana Eidsness, personal communication, July 24, 2021). Following the initial success of this venture, Michigan signed a joint MOU with Finland and Maine in 2020, and other forested states are seeing what such sustainable bioeconomic models might bring to their own regions.

Currently Maine is exploring options for a marine economy MOU with a variety of companies in Tromsø, Norway (Dana Eidsness, personal communication, July 24, 2021). One, Nofima, a biorefinery, has the capacity to extract proteins and lipids from discarded lobster shells, which can be used for a variety of purposes, including cancer research and bioplastics. Nearby BioTep transforms fish waste into key components of blood pressure medication. Elsewhere, seaweed is reconfigured into a sludge that can clean oceans. Sharing the same marine ecosystem, Maine has all of the raw materials but lacks the investment in biotechnology to use them in place of petroleum-based products. Tromsø, meanwhile, lacks the workforce and sees a potential employee pipeline from the new trans-Atlantic partner. Due in part to Maine’s intentional search for solutions rather than quest for extraction, Nils Arne Johnsen, the Norwegian founder of the High North Business Alliance has cited the state “as one of the most important players when it comes to establishing international business development in the high North Atlantic” (MacLean, 2018).

Maine: The United States’ missing Arctic link

Ultimately, Maine’s participation in the Arctic, even as a subnational actor, creates trans-Atlantic partnerships that leverage similarities in culture, history and resources to address escalating climate challenges. If the United States is serious about addressing its climate needs and moving away from oil, while simultaneously supporting new economic endeavors, it needs to look beyond Alaska. Through Maine’s steadfast effort to prioritize science-based climate action and community, the state is “perfectly positioned” to shape the “pathways and solutions we all need for a more regenerative, equitable and sustainable North” (Parker, 2021). While Maine may still be a subnational actor of an Arctic state, according to MENADO’s director, Dana Eidsness, it “has more in common with Nordic countries than with New Jersey. [The] coastal communities, small enterprises, resource utilization, sustainability of industry, these are all common threads” (MacLean, 2018).

Notes

1. Chert, however, seems to have cultural significance beyond its functional value, as it was prioritized over more accessible materials and was reserved for specific intents and associated with burials (see Loring, 2002).

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