

**War of the Whales:
Climate Change, Weather, and Arctic Conflict in the Early Seventeenth Century**

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ABSTRACT:

Beginning in 1580, average annual temperatures across the Arctic cooled amid the regional onset of the “Grindelwald Fluctuation,” a particularly cold but volatile period in the Little Ice Age. By contributing to socioeconomic trends that raised the cost of vegetable oils, climatic cooling encouraged European merchants to establish rival whaling operations around the frigid archipelago of Svalbard, roughly halfway between Norway and the North Pole. From 1611 until 1619, European whalers depended on temporary encampments set up along the shores of bays in the islands of Svalbard, and eventually the nearby island of Jan Mayen. When regional sea ice registered the climatic trends of the Grindelwald Fluctuation by besetting these bays, whalers from different European nations and companies coped by cooperating with one another. Yet when the volatility of the Grindelwald Fluctuation in the already variable climate of Svalbard and Jan Mayen drew ice away from these bays, violence often broke out between rival whalers and their escorting warships. Shifting environmental circumstances therefore played a previously ignored role in inciting and mitigating violence in the first decade of the Spitsbergen whaling industry. These relationships can offer new perspectives on the future of geopolitical competition in a warming Arctic.

ARTICLE:

As average annual temperatures soar in the Arctic, retreating ice is opening new sea lanes for commerce and tourism, while exposing some of the world’s richest mineral and hydrocarbon reserves. Neorealist political scientists argue that conflict will eventually break out between northern powers competing for the windfall.¹ Yet neoliberal institutionalists dismiss these claims by emphasizing the history of cooperation between Arctic powers and the strength of institutions that oversee how the region is exploited and studied. Other scholars have cast doubt on

¹ See, for example: Scott G. Borgerson, “Arctic meltdown: the economic and security implications of global warming.” *Foreign Affairs* (2008): 63-77. Kristian Åtland, “Interstate relations in the Arctic: an emerging security dilemma?”. *Comparative Strategy* 33:2 (2014): 145. R. Huebert, *The Newly Emerging Arctic Security Environment*. Calgary: Canadian Defence & Foreign Affairs Institute, 2010.

projections of war in the Arctic by highlighting the unequal importance of untapped hydrocarbons for distinct regional economies, stressing the difficulty of establishing commercial sea lanes and oil rigs in forbidding Arctic environments, or questioning the assumptions that come with reducing the causes for future conflict to climate.²

To shed further light on the future of violence in a warming world, academics in many disciplines have scoured the past for examples of conflict that may have been provoked, at least in part, by pre-industrial and therefore largely natural climate changes. Such work invites charges of “presentism,” the common tendency to interpret and therefore distort the past by viewing it through the lens of present-day concerns. Yet all scholars of the past – including those who insist that their work is guided purely by curiosity – at least implicitly approach their topics with the baggage of values and problems in their present. That reality is not necessarily a weakness in historical research. As cultures, technologies, and political problems change, scholars often consider the past from new angles. Historians, for example, have drawn on debates in their present to reconstruct the history of marginalized classes, expose the gendered construction of social power in different cultures, and follow the lifeways of non-literate peoples. Historical work inspired by present-day concerns has led to one of the great contributions of the environmental humanities and sciences to intellectual and public discourse: the idea that many of today’s environmental challenges have deep roots and distant analogues. Scholars who connect episodes of violence to historical climate changes rarely claim that the past can reveal precisely what the future has in store. Yet most would insist that the past can nevertheless yield valuable

² See, for example: Oran R. Young, “Whither the Arctic? Conflict or cooperation in the circumpolar north.” *Polar Record* 45:1 (2009): 75. Heather N. Nicol and Lassi Heininen, “Human security, the Arctic Council and climate change: competition or co-existence?”. *Polar Record* 50:1 (2014): 80. Kathrin Keil, “The Arctic: A new region of conflict? The case of oil and gas.” *Cooperation and Conflict* 49:2 (2014): 180.

examples of human responses to climate change, ones that can indeed yield fresh perspectives on the warmer world to come.³

With that in mind, historical geographers, economists, political scientists, and earth scientists have all found striking correlations between temperature trends, precipitation extremes, harvest failures, and conflict across Eurasia over the past millennium. Their methods, however, rarely account for variability in socioeconomic or cultural conditions, and therefore they have not yet established convincing causal connections between climate change and violence.⁴ Historians have largely relied on qualitative methods to find more compelling, causal relationships between trends towards cooling, drier, or more variable weather on the one hand, and agricultural failures, outbreaks of epidemic disease, and conflict on the other. Yet much of their work skips lightly over the local connections between weather and violence that ultimately support claims about broader regional relationships. Together, both quantitative and qualitative approaches nevertheless suggest that many historical wars between and within states can be partly attributed to shortages in critical resources that directly or indirectly followed from climate changes.⁵

Until now, only archaeologists and natural scientists have studied how past climate changes may have provoked conflict in the forbidding environments of the Arctic. They have investigated, for example, how a regional trend towards a cooler, more variable climate in the thirteenth century complicated the subsistence strategies of the Greenlandic Norse, whose Western Settlement may have then warred with neighboring Thule communities over access to

³ William Cronon, "The uses of environmental history." *Environmental History Review* 17:3 (1993): 8. J. Donald Hughes, *What is Environmental History?* (Hoboken: John Wiley & Sons, 2016), 105-106.

⁴ See, for example: Solomon M. Hsiang, Marshall Burke, and Edward Miguel, "Quantifying the influence of climate on human conflict." *Science* 341:6151 (2013): 1235367. Richard S. J. Tol and Sebastian Wagner, "Climate change and violent conflict in Europe over the last millennium," *Climatic Change* 99 (2010): 65-79. See also: Dagomar Degroot, "Climate Change and Conflict," in *The Palgrave Handbook of Climate History*, eds. Christian Pfister, Franz Mauelshagen, and Sam White. (Basingstoke: Palgrave Macmillan, 2018).

⁵ See, for example: Geoffrey Parker, *Global Crisis: War, Climate Change and Catastrophe in the Seventeenth Century*. (New Haven: Yale University Press, 2013). Sam White, *The Climate of Rebellion in the Early Modern Ottoman Empire*. (Cambridge: Cambridge University Press, 2011).

migrating harp and hooded seals. Such work suggests but cannot firmly establish that both the quantity and the accessibility of Arctic resources can be affected by climate change in ways that incite violence. Once again, its focus is on cooling and resource shortages, rather than the abundance expected in a warmer Arctic.⁶

Historians and historical geographers who connect climate change to conflict have therefore focused on societies far south of the Arctic Circle, while archaeologists and scientists have concentrated on the very distant past. This article is among the first to connect relatively recent climatic variability to well-documented violence in the Arctic. It considers conflict – here broadly defined as violence against person or property – between representatives of merchant companies that competed for a stake in the “Greenland Fishery:” a whaling industry that ultimately stretched between the island of Jan Mayen to the west and the Svalbard archipelago to the east (Figure 1). The worst altercations between whalers broke out in the second decade of the seventeenth century, amid a particularly cold phase of a generally chilly but erratic climatic regime that is usually called the “Little Ice Age” (LIA).

⁶ See, for example: Kirsty A. Golding, “Norse–Inuit interaction and landscape change in southern Greenland? A geochronological, pedological, and palynological investigation.” *Geoarchaeology* 26:3 (2011): 315-345. Andrew J. Dugmore et al., “Cultural adaptation, compounding vulnerabilities and conjunctures in Norse Greenland.” *Proceedings of the National Academy of Sciences* 109:10 (2012): 3658-3663.



Fig. 1. The location of the Greenland Fishery. Base map provided by the Norwegian Polar Institute, 2018.

For much of the seventeenth century, Europeans valued no Arctic resource more highly than the thick blubber of the bowhead whale (*Balaena mysticetus*): the key whale species in the Greenland Fishery. Employees of whaling companies boiled bowhead blubber into oil that could be used in lamps, deployed in rope making or ship building, and manufactured into fine soap. They also sold the thin but strong baleen “hairs” in gigantic bowhead mouths to manufacturers of women’s clothing. By combining scientific reconstructions of Arctic climate changes with ship logbooks, legal testimonies, and correspondence compiled by whalers, this article reveals, first, that climate change – defined by the World Meteorological Organization (WMO) as a shift in the mean or variability of weather that lasts at least thirty years – helped launch a renewed European

hunt for the bowhead whale.⁷ Cooling contributed to increases in the price of grains otherwise used as substitutes for whale oil, and thereby increased the potential profitability of whaling in even dangerous environments.

Dutch and English whalers soon competed to establish temporary whaling stations in the bays of western Spitsbergen, the largest island of the sprawling Svalbard archipelago. The article argues, second, that sea ice off the coast of Spitsbergen repeatedly responded to a new, frigid climatic regime by enclosing some or in rare cases all of these bays, either sealing ships within or preventing ships from entering. When that happened – as it did in 1614, 1615, and 1616 – Dutch and English whalers did not attack one another, sometimes because they cooperated to exploit bays that could still be used, and other times because sea ice separated them from one another. By contrast, when the volatile climate of the LIA around Svalbard permitted shifts in air surface temperatures or prevailing winds that drew the ice away from Spitsbergen – as it did in 1613, 1617, and 1618 – ships could move freely and competition for whales and whaling sites repeatedly provoked conflict. Climate change as defined by the WMO did not directly provoke these hostilities; rather, a climate that had changed to be colder and less predictable played a role in starting them and then in shaping how they unfolded. The erratic weather of a particularly cold wave of the LIA provides an opportunity to test how both warming and cooling provoked or mitigated violence between corporate agents in search of a valuable resource in the Arctic.

Although scholars can today use a remarkable range of sources to reconstruct how Arctic environments and animals changed with time, the reasons for those changes – the mechanisms behind them – can be stubbornly elusive, especially on local scales. Unfortunately, neither bowhead whales nor icebergs took the time to write a detailed record of their activities.

⁷ Many climate historians use their own definitions for climate change, which adhere more closely to the lived experiences of historical actors. Mark Carey and Philip Garone, “Forum Introduction,” in “Forum: Climate Change and Environmental History.” *Environmental History* (2014): 284.

Similarly, the human actors in this narrative – whalers weakened by a host of physical and psychological burdens – more frequently articulated what they were doing rather than why they were doing it. This article therefore acknowledges areas of lingering uncertainty in its discussions of the motivations behind human actions, and the mechanisms for environmental changes.

There is a tendency among historians in particular to assume that scholars weaken their arguments when they admit uncertainty by, for example, using conditional statements. In fact, claims that communicate certainly about that past – ones that express with indefensible confidence, for example, what historical actors felt, how historical trends shaped events, or why exactly historical environments changed – are far more corrosive to the quest for truth in the historical record. Such claims actually rely on subjective interpretations of documents that do not always objectively record the activities of environments, animals, and subaltern peoples, if they mention them at all. A close reading of available documents can provide the appearance of omniscience, but no collection of documents can ever give a complete reckoning of the forces, human and non-human, that shaped historical events and trends. Some environmental historians therefore argue that the best documented narrative of the past would not necessarily be the most accurate.⁸ Many arguments in environmental history – and particularly in climate history, which deals with variable environments on radically different scales – accordingly hinge on a careful consideration of probability, of what is more or less likely to have happened. They offer a humbler but often more truthful perspective on the past than do arguments in most other historical genres.⁹

⁸ J.R. McNeill, “Author’s Response by J. R. McNeill, Georgetown University,” *H-Environment Roundtable Reviews* 1:1 (2011): 25.

⁹ Dagomar Degroot, *The Frigid Golden Age: Climate Change, the Little Ice Age, and the Dutch Republic, 1560-1720*. (Cambridge: Cambridge University Press, 2018), 14-17.

Whales, Whalers, and the Shifting Environments of Svalbard and Jan Mayen

The Svalbard archipelago lies roughly halfway between the northern coast of Norway and the geographic North Pole. Over its islands, warm air welling up from the southwest collides with frigid air blowing from the northeast. Winds flowing over the warm West Spitsbergen Current make Spitsbergen the mildest and most biologically diverse island in the archipelago. The mingling of warm and cold water off Spitsbergen also churns up nutrients from the deep ocean, which promotes the growth of plankton and creates rich feeding grounds for bowhead whales. These whales once belonged to a Svalbard marine ecosystem that stretches west to include Jan Mayen. Early in the year, whales would calve near Jan Mayen and then make their way northeast along the edge of the retreating pack ice to the bays of Svalbard (Figure 2).¹⁰

¹⁰ Louwrens Hacquebord, “The hunting of the Greenland right whale in Svalbard, its interaction with climate and its impact on the marine ecosystem.” *Polar Research* 18:2 (1999): 377. J.M. Węśławski et al., “Greenland whales and walrus in the Svalbard food web before and after exploitation.” *Oceanologia* 42.1 (2000): 42. Frigga Kruse, “Is Svalbard a pristine ecosystem? Reconstructing 420 years of human presence in an Arctic archipelago.” *Polar Record* 52: 5 (2016): 523. Waldemar Walczowski and Jan Piechura, “Influence of the West Spitsbergen Current on the local climate.” *International journal of climatology* 31:7 (2011): 1091.



Fig. 2. The islands of Svalbard, with major bays used by whalers. Base map provided by the Norwegian Polar Institute, 2017.



Fig. 3. Top: Amsterdamøya, eventual locus of Dutch whaling in Svalbard. Bottom: Jan Mayen, with major bays used by whalers. Base maps provided by the Norwegian Polar Institute, 2017.

In 1600, up to 50,000 bowhead whales made the annual migration from Jan Mayen to Svalbard. Despite their immense size, the whales are mild-mannered and relatively slow, and they float soon after dying. Easy to kill and full of useful materials, they were ideal targets for seventeenth-century whalers. Yet bowheads were far too intelligent to be passive spectators in their own destruction. Seventeenth-century whalers reported that individual bowheads cleverly exploited sea ice in order to wait out and, in some cases, elude pursuit. Whalers also found, however, that bowheads travelled in distinct pods of no more than four animals, within larger groups that could number in the hundreds. When whalers attacked a whale, its pod would scatter, but the larger group would carry on as though nothing had happened. Since mothers and calves were inseparable, whalers would target calves in order to kill mothers.¹¹

Captains recruited whalers in port towns by drawing on family ties or searching through familiar social circles. Whaling ships departed for the Arctic in the spring and whaled through the summer, when sea ice was usually sparse and bowheads typically abundant in the bays of Svalbard and Jan Mayen. To earn a living, whalers depended on “making their voyage” – catching enough whales to fill a ship with barrels of oil – because it was hard to find winter employment as a sailor that would allow them to depart with the whaling fleet in the spring. Their quest for financial security encouraged them to take terrible risks in the forbidding coastal environments of the Arctic. Many succumbed to the death throes of dying whales, or the sudden

¹¹ Marine biologist Mads Peter Heide-Jørgensen (Greenland Institute of Natural Resources) confirmed that these are likely behaviors of the bowhead whale. Hal Whitehead and Luke Edward Rendell, *The Cultural Lives of Whales and Dolphins*. (Chicago: University of Chicago Press, 2014), 71. L. Hacquebord, F. Steenhuisen, and H. Waterbolk, “English and Dutch whaling trade and whaling stations in Spitsbergen (Svalbard) before 1660.” *International Journal of Maritime History* 15 (2003): 132. William Martin Conway, *No Man’s Land*. (Cambridge: Cambridge University Press, 1906), 197. Frederick Martens, “Voyage into Spitzbergen and Greenland: Part the First,” in Adam White (ed.), *A collection of documents on Spitzbergen and Greenland*. (London: Hakluyt Society, 1855), 8.

onset of sea ice. Others, as we will see, risked life and limb to secure valuable hunting grounds from foreign competitors.¹²

Whales and whalers alike moved through an Arctic that changed dramatically over the course of the seventeenth century. Recently, paleoclimatologists and climate historians have used a mix of model simulations, documentary evidence, and especially natural “proxy” sources – such as ice cores, tree rings, or marine sediments – to show that the LIA was not quite the period of continuous global cooling imagined in works such as Brian Fagan’s *The Little Ice Age*. Rather, climatic cooling during the LIA came in a series of frigid waves, each triggered in part by tropical volcanic eruptions that launched sulphur dioxide high into the equatorial stratosphere. After reacting with water, sulphur dioxide formed sulfuric acid and then bonded with tiny particles to create sunlight-scattering aerosols in the high atmosphere. Prevailing winds gradually spread these aerosols over the northern and southern hemispheres, creating volcanic dust veils that cooled Earth’s surface for several years. That was long enough to trigger feedback loops in soil and sea ice that contributed to occasionally profound changes in patterns of oceanic and atmospheric circulation. These mechanisms allowed cooling to endure long after volcanic dust veils fell out of Earth’s atmosphere, although they also ensured that temperatures did not fall at precisely the same time in every region. Moreover, in most regions warm seasons or even years repeatedly interrupted the cold waves of the Little Ice Age, which all endured for no longer than a century before they gave way to decades of generally mild weather.¹³

¹² Joost C. A. Schokkenbroek et al., *Trying Out: An Anatomy of Dutch Whaling and Sealing in the Nineteenth Century, 1815-1885*. (Amsterdam: Amsterdam University Press, 2008), 34.

¹³ Dagomar Degroot, “Climate Change and Society from the Fifteenth Through the Eighteenth Centuries.” *WIREs Climate Change* (2018). DOI:10.1002/wcc.518. M. Sigl et al., “Timing and Climate Forcing of Volcanic Eruptions for the Past 2,500 Years,” *Nature* 523 (2015): 546. PAGES 2K Consortium, “A global multiproxy database for temperature reconstructions of the Common Era.” *Scientific Data* 4 (2017). doi:10.1038/sdata.2017.88. PAGES 2K Consortium, “Continental-scale temperature variability during the past two millennia” *Nature* 6 (2013): 981. Eduardo Moreno-Chamarro et al., “Winter amplification of the European Little Ice Age cooling by the subpolar gyre,” *Nature Scientific Reports* 7 (2017): 3. Pablo Ortega et al., “A model-tested North Atlantic Oscillation

The erratic and regionally diverse character of cooling in the LIA has led scholars to propose different definitions for the period, with alternative beginnings and endings. Yet few would dispute that the second or, by some counts, third cold wave of the LIA – the “Grindelwald Fluctuation,” named after the contemporary expansion of a glacier near the alpine town of Grindelwald – was among the chilliest to hit the northern hemisphere. It reached the Arctic in the 1580s, roughly two decades after it started cooling northern Eurasia, and it would endure there until the late 1630s, around a decade longer than it lasted in Europe (Figure 4). Yet in both the Arctic and much of Europe, summer temperatures did not cool as much as temperatures in other seasons, and weather from year to year, and decade to decade, remained exceptionally volatile.¹⁴

reconstruction for the past millennium.” *Nature* 523:7558 (2015): 72. Brian M. Fagan, *The Little Ice Age: how climate made history, 1300-1850*. (Boulder: Basic Books, 2000).

¹⁴ Nicholas P. McKay and Darrell S. Kaufman, “An extended Arctic proxy temperature database for the past 2,000 years.” *Scientific Data* 1 (2014), 140026. E. Cressin et al., “The 15th century Arctic warming in coupled model simulations with data assimilation.” *Climate of the Past* (2009): 394. E. Cressin et al., “Arctic climate over the past millennium: Annual and seasonal responses to external forcings.” *The Holocene* 23 (2013): 327. J. Overpeck et al., “Arctic Environmental Change of the Last Four Centuries.” *Science* 278:1251 (1997): 1253.

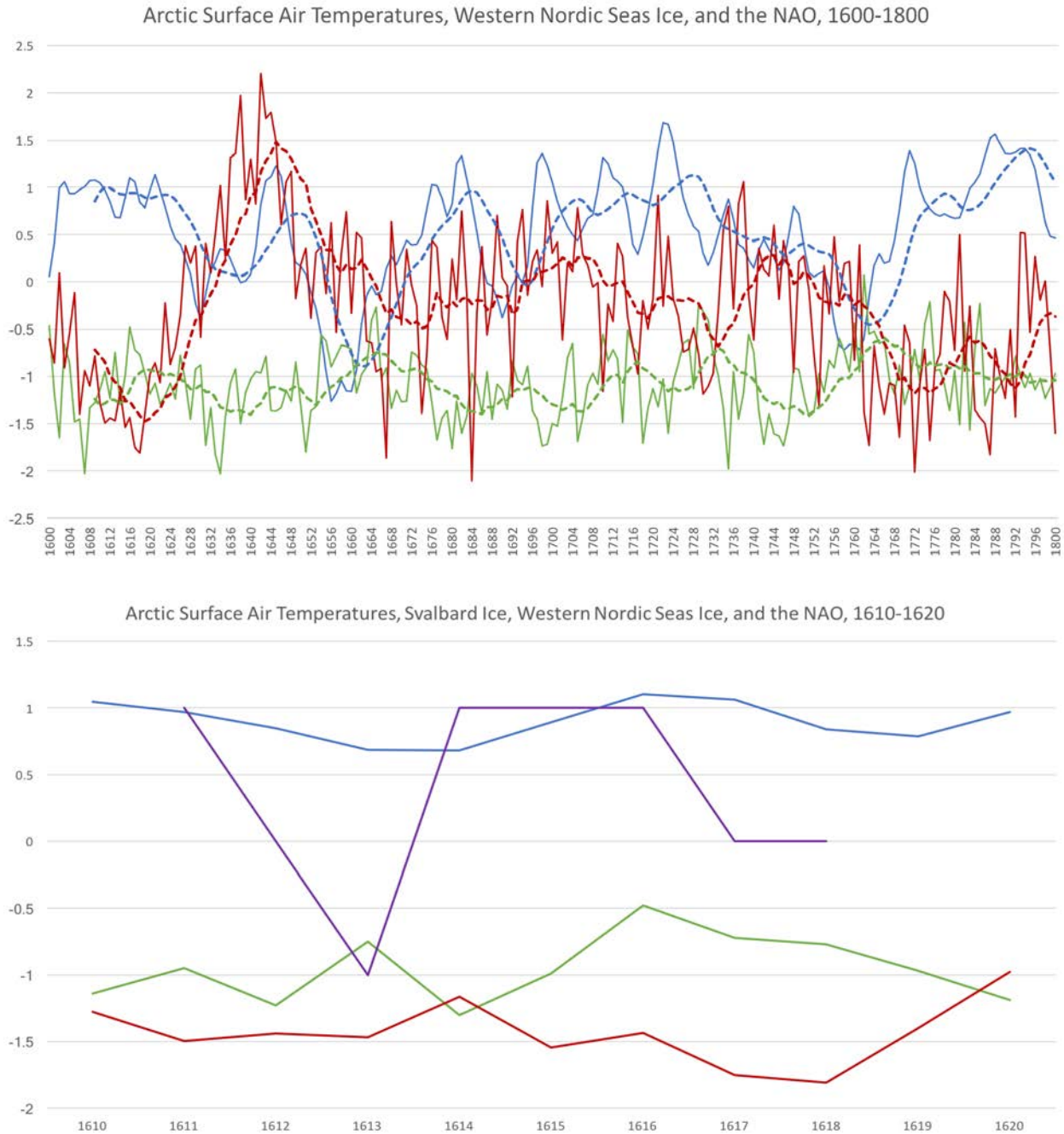


Fig. 4. Top: A multi-proxy reconstruction of average annual Arctic temperatures (green); sea ice (blue) in the Western Nordic Seas (the sea region roughly between Greenland and Spitsbergen); and the state of the NAO (red), all from 1600 to 1800. The NAO statistics represent the mean ensemble of a model-constrained reconstruction. Ten-year moving averages (thick dashed lines) show decadal trends. The second decade of the seventeenth century was cold, with abundant sea ice and a generally negative NAO. Bottom: the same reconstructions from 1610-1620, with a qualitative measure (purple) of sea ice observations in whalers' logbooks, letters, and testimonies, reconstructed on an ordinal scale (-1 for minimal sea ice, 1 for abundant ice). Relatively ice-free conditions prevailed in 1613, 1617, and 1618: years of violence around Spitsbergen. M. Macias Fauria et al., "Unprecedented low twentieth century winter sea ice extent in the Western Nordic Seas since AD 1200." *Climate Dynamics* 34:6 (2010): 781-795. McKay and Kaufman, "An extended Arctic proxy temperature database," 140026. Ortega et al., "A model-tested North Atlantic Oscillation reconstruction," 72.

In the corner of the Arctic that includes Svalbard and Jan Mayen, colliding atmospheric and oceanic currents introduced yet another element of environmental variability. Powerful winds sent sea ice surging into bays along Svalbard and Jan Mayen in even warm years, or temporarily drew it out to sea in colder years. Frigid winters in even the chilliest phases of the Grindelwald Fluctuation routinely gave way to mild but short-lived weather, brought in by depressions moving north from the southwest.¹⁵

Yet the everyday volatility of environments around Svalbard and Jan Mayen did not overwhelm the decadal rhythms of climate change. Trends in average annual temperature around Svalbard and Jan Mayen roughly mirrored those of the broader Arctic in the seventeenth century, and the regional extent of sea ice responded to these temperature fluctuations. Storms capable of breaking up sea ice also grew less common in the Grindelwald Fluctuation, as the North Atlantic Oscillation (NAO) – a climatic mode that consists of a low-pressure zone near Iceland and a high-pressure zone near the Azores – slipped into a negative phase (Figure 4). While the NAO is in this phase, atmospheric pressure is very low over Iceland and very high over the Azores. Strong winds from the west that typically carry storm systems to Svalbard then meander to the south, permitting the persistent intrusion of winds from other directions.¹⁶

¹⁵ Elisabeth Isaksson et al., “Two ice-core $\delta^{18}O$ records from Svalbard illustrating climate and sea-ice variability over the last 400 years.” *The Holocene* 15:4 (2005): 501.

¹⁶ W. Van der Knaap, “Human influence on natural Arctic vegetation in the 17th century and climate change since A.D. 1600 in northwest Spitsbergen: a paleobotanical study.” *Arctic, Antarctic and Alpine Research* 17:4 (1985): 384. Patrycja Jernas et al., “Palaeoenvironmental changes of the last two millennia on the western and northern Svalbard shelf.” *Boreas* 42:1 (2013): 245. Hilary Birks, “Holocene vegetational history and climatic change in west Spitsbergen – plant macrofossils from Skardtjørna, an Arctic lake.” *The Holocene* 1:3 (1991): 216. Dmitry Divine, “Thousand years of winter surface air temperature variations in Svalbard and northern Norway reconstructed from ice-core data.” *Polar Research* 30:1 (2011): 7379. Cabedo-Sanz, Patricia, and Simon T. Belt. “Seasonal sea ice variability in eastern Fram Strait over the last 2000 years.” *Arktos* 2:1 (2016): 8. Fauria et al., “Unprecedented low twentieth century winter sea ice extent,” 782. Rueda et al., “Coupling of air and sea surface temperatures in the eastern Fram Strait during the last 2000 years.” *The Holocene* 23:5 (2013): 695. Christophe Kinnard et al., “Reconstructed changes in Arctic sea ice over the past 1,450 years.” *Nature* 479:7374 (2011): 511. R. R. Dickson et al., “The Arctic ocean response to the North Atlantic oscillation.” *Journal of Climate* 13:15 (2000): 2673. Ortega et al., “A model-tested North Atlantic Oscillation reconstruction,” 72.

Climatic trends therefore influenced average annual temperatures, atmospheric circulation, and ultimately the quantity of sea ice in the bays of Svalbard and Jan Mayen. Yet these trends did not simply dictate the daily or even monthly conditions that whalers and whales had to endure. Above all, environmental volatility on different scales shaped the course of the Greenland Fishery.

Climate Change and the Rise of the Greenland Fishery

In the sixteenth century, adventurers from England and eventually the newly established Dutch Republic started exploring the Arctic in order to usurp Hanseatic trade with northern communities, and to find routes to Asia that would be quicker and therefore more lucrative than those trafficked by Iberian sailors. Unfortunately for them, their summer expeditions gathered pace just as the Grindelwald Fluctuation started cooling the far north. While Dutch and English merchants established trade routes with Russia, Iceland, and even (in the case of the Dutch) the Inuit of western Greenland, none of the journeys they sponsored found a “Northern Passage” through the ice to Asia. However, in 1596 sea ice forced an expedition piloted by Dutch navigator Willem Barents to repeatedly change course until it encountered first Bjørnøya and shortly thereafter Spitsbergen (Figure 2). The thick but passable ice likely registered both the general cooling of the Grindelwald Fluctuation and the relative mildness of its summers. If so, the regional manifestations of climate change helped Barents discover an environment that would later provoke intense competition between European whalers.¹⁷

¹⁷ Degroot, *The Frigid Golden Age*, 68. John F. Richards, *The World Hunt: An Environmental History of the Commodification of Animals*. (Berkeley: University of California Press, 2014), 142. Louwrens Hacquebord, *De Noordse Compagnie (1614-1642): Opkomst, Bloei en Ondergang*. (Zutphen: Walburg Pers, 2014), 11.

Although Barents and his ships sailed into what was then one of Spitsbergen's richest bowhead feeding grounds, Gerrit de Veer, who wrote and later published the expedition journal, only reported seeing one dead whale soon after passing Bjørnøya. Still, England's Muscovy Company, which controlled English trade with the White Sea, soon sponsored two expeditions that revealed the rich marine resources around Svalbard. In 1607, another expedition in search of a Northern Passage, this one led by Henry Hudson and documented by John Playse, brought news to England of plentiful whales off the coast of Spitsbergen. Three years later, hunters led by Jonas Poole butchered walrus on Spitsbergen's shores and reported seeing hundreds of whales nearby.¹⁸

Barents and his crew may not have spotted bowheads off Spitsbergen. It is more likely, however, that they sighted whales but did perceive them as having any special value for their sponsors, which meant that they were not worth reporting. For much of the sixteenth century, Basque sailors hunted bowhead whales in modest numbers off the coast of Labrador. Using carefully honed techniques unknown to Dutch sailors, they supplied most of Europe's whale oil and made healthy but by no means lucrative profits. For Dutch explorers, whaling may have seemed like a mysterious, dangerous, and not particularly rewarding trade. Yet in the waning years of the sixteenth century and the first decade of the seventeenth, the price of oilseeds used to produce substitutes for whale oil rose sharply. Wartime disruptions in trade and agricultural production; growing industrial demand; commodity price inflation spurred by imports of Spanish silver; and shifts in agricultural practices that favored grains at the expense of oilseeds all

¹⁸ Jonas Poole, "Divers Voyages to Cherie Iland," in *Purchas His Pilgrimes Vol. 13*. (Glasgow: James MacLehose and Sons, 1904), 265. Gerrit de Veer, *Reizen van Willem Barents, Jacob van Heemskerck, Jan Cornelisz. Rijk en Anderen Naar het Noorden (1594-1597), Eerste Deel*. ('S-Gravenhade: Martinus Nijhoff, 1917), 51. H. Hudson and J. Playse, "Divers voyages and northerne discoveries of that worthy irrecoverable discoverer, Master Henry Hudson," in *Henry Hudson the Navigator: The Original Documents in which his Career is Recorded*. (London: Hakluyt Society, 1860), 2. Hacquebord, Steenhuisen, and Waterbolck, "English and Dutch whaling trade and whaling stations," 117. Węsławski et al., "Greenland whales and walrus," 42. Conway, *No Man's Land*, 33.

contributed to the rise. Yet so did dust veils launched into the atmosphere by the volcanic eruptions of Nevado del Ruiz in 1595 and Huaynaputina in 1600, which in Europe helped usher in the chilliest stretch of the entire LIA. In northern Europe, wet winter weather repeatedly delayed the onset of the growing season, which cold snaps then shortened and interrupted. Greater weather unpredictability from year to year, season to season made it hard for farmers to adapt. Meanwhile, political instability in Spain and perhaps the depletion of the bowhead stock off Labrador undermined Basque attempts to supply whale oil to the European market. When Hudson and Poole encountered the great bowhead feeding grounds off Spitsbergen, therefore, they did so in the wake of a shift in Europe's economic climate, one that registered a change in its physical climate.¹⁹

After English hunters butchered most of the walrus on Bjørnøya, the Muscovy Company planned a major whaling expedition for the summer of 1611. By then, English mariners had gained some familiarity with the unique hazards of the Arctic environment. They knew little of the art of killing bowhead whales or stripping away and boiling blubber, however, so they recruited Basque whalers to join them. Nevertheless, the expedition of 1611 was an unqualified disaster. Across the Arctic, the year was colder than even the Grindelwald Fluctuation average. In May, the expedition reached Krossfjorden, near Kongsfjordrenna (Figure 2), but in June extensive sea ice drove its ships from the shore and sank a shallop (a boat used for whaling). Sailors aboard a ship captained by Poole now travelled west along the edge of the pack

¹⁹ Bauernfeind, W. and U. Woitek, "The Influence of Climatic Change on Price Fluctuations in Germany during the 16th Century Price Revolution," *Climatic Change* 43:1 (1999): 320. Dag Avango, Louwrens Hacquebord, and Urban Wråkberg, "Industrial extraction of Arctic natural resources since the sixteenth century: technoscience and geo-economics in the history of northern whaling and mining." *Journal of Historical Geography* 44 (2014): 16. Jürg Luterbacher et al., "European summer temperatures since Roman times." *Environmental Research Letters* 11:2 (2016): 7. Mary H. Gagen et al., "North Atlantic summer storm tracks over Europe dominated by internal variability over the past millennium." *Nature Geoscience* 9 (2016): 630-635. Markus Stoffel et al., "Estimates of volcanic-induced cooling in the Northern Hemisphere over the past 1,500 years." *Nature Geoscience* 8 (2015): 786. Hacquebord, *De Noordse Compagnie*, 13.

ice, sighting and perhaps hunting whales along the way. In late June, they arrived far to the southeast, at Bjørnøya, where they butchered some 200 walruses.²⁰

Weeks later, abundant sea ice forced a crew under a particularly ambitious captain, Thomas Edge, to beach the expedition's second ship near Krossfjorden. The crew boarded five shallops, of which three made it to Bjørnøya and reunited with their companions under Poole. The other two, however, encountered a ship captained by Thomas Marmaduke and crewed by hostile walrus-hunters from the port city of Hull. The Muscovy Company whalers convinced their rivals to help them salvage blubber they had stripped from 500 dead walruses but left behind. Poole, his crew, and the rescued sailors in the first three shallops made it to the wreck on 3 August, where they found the Hull interlopers and the rest of Edge's would-be whalers. Poole and his Basque whalers started to boil the blubber into oil, but when they brought their load aboard Poole's ship it all slid leeward, capsizing the ship. Poole and the other survivors boarded shallops and rowed to the Hull ship, whose crew may have threatened violence but ultimately brought them to Hull for a fee. They returned to England with little more than their lives.²¹

The inaugural year of English whaling around Spitsbergen introduced themes that would continue to affect relationships between whaling, conflict, and the volatile Grindelwald Fluctuation climate in the seventeenth-century Arctic. Whalers found that bowheads congregated along the edge of the pack ice, where they waited for the ice to open and had some protection

²⁰ Jonas Poole, "A briefe Declaration of this my Voyage of discovery to Greenland," in *Purchas His Pilgrimes Vol. 14*. (Glasgow: James MacLehose and Sons, 1906), 38.

²¹ Poole, "A briefe Declaration of this my Voyage of discovery to Greenland," 38. Thomas Edge, "Greenland first discovered by Sir Hugh Willoughbie," in *Purchas His Pilgrimes Vol. 13*, 12. Conway, *No Man's Land*, 47. William Martin Conway, *Early Dutch and English Voyages to Spitsbergen in the Seventeenth Century*. (London: The Hakluyt Society, 1902), 3. Richards, *The World Hunt*, 130. J. M. Węśławski, et al., "Greenland whales and walruses in the Svalbard food web before and after exploitation." *Oceanologia* 42:1 (2000): 38. Fauria et al., "Unprecedented low twentieth century winter sea ice extent," 782. McKay and Kaufman, "An extended Arctic proxy temperature database," 140026. Hacquebord, *De Noordse Compagnie*, 13.

from killer whale pods. In theory, extensive sea ice left most bowheads vulnerable to whalers in the summer whaling season.

Yet in the first decade of the Greenland Fishery, crews hired by whaling companies could not hunt far from the coast. Basque whalers approached whales in shallows and killed them by spearing them with tethered harpoons. Once they had killed a whale, they would “flense” it – strip away its blubber – and then haul the blubber to the shore. Next, they used rocks to build temporary furnaces – “try pots” – and sails to construct makeshift tents. When they had crudely boiled the blubber into oil, they poured the oil into more barrels, rolled the barrels onto boats, and finally loaded them aboard ships. These techniques forced whalers to hunt in bays, where whale commodities could be easily rowed to temporary whaling stations (Figure 5). Fortunately for whalers, every spring bowheads waited for ice to drift from the coasts of the Svalbard ecosystem, and then entered its bays. Yet sea ice often returned, given cold temperatures and high or persistent winds from the west or north. The summer of 1611 revealed that the behavior of whales, the practices of whalers, and above all the volatile Arctic environment would force whalers to move often, and to congregate in ice-free corners of Svalbard’s many bays.²²

²² Louwrens Hacquebord and Dag Avango, “Settlements in an Arctic resource frontier region.” *Arctic Anthropology* 46:1-2 (2009): 26. Avango and Hacquebord, “Industrial extraction of Arctic natural resources since the sixteenth century,” 18. L. Hacquebord, F. Steenhuisen, and H. Waterbolk, “English and Dutch whaling trade and whaling stations in Spitsbergen (Svalbard) before 1660.” *International Journal of Maritime History* 15 (2003): 118.



Fig. 5. A late seventeenth-century painting depicts an imagined scene from the early history of Dutch Arctic whaling: sailors pursuing bowhead whales near a temporary encampment off Spitsbergen. Sea ice glitters near the coast while a whaler flenses a floating carcass near his ship. Other whalers hunt around the apparent entrance to the bay. Abraham Storck, “Walvisvangst bij de kust van Spitsbergen,” 1690. Stichting Rijksmuseum, Zuiderzeemuseum.

Indeed, whalers had to think fast. The same summer demonstrated that the dynamics of air and water made Arctic sea ice a ferociously complex and unpredictable challenge for early modern mariners, not unlike the animals they hunted. If sea ice came on suddenly, whaling ships and shallops could be shattered, stranded, or isolated from one another and the whales they pursued. Even the gradual encroachment of sea ice could block harbors altogether, forcing whalers to move on. Amid extensive sea ice in 1611, whalers of every nationality suffered and so for the most part helped one another.

1611-1613: Competition in a Chilly but Volatile Climate

Despite the disaster of 1611, the Muscovy Company dispatched a second expedition to Spitsbergen in 1612, another cold year in the far north. Soon after its sailors arrived off Spitsbergen, they encountered foreign competition for the first time. In 1609 and 1610, two Dutch expeditions had hunted whales near Novaya Zemlya. Now, a Dutch ship led by Willem Cornelisz. van Muyden and at least nominally guided by the Englishman Allen Salowes entered Bellsund (Figure 2). Muscovy Company sailors quickly forced it from the bay. Yet a Basque ship led by another Englishman escaped interception and killed enough whales to make a lucrative profit. Company whalers also confronted two English interlopers – one captained by Marmaduke – in Forland-sundet. Since Marmaduke later explored as far as 82° N, sea ice may not have been particularly extensive along the western coast of Spitsbergen in 1612, even though it lay fairly thick across the Western Nordic Seas as a whole. Sparse sea ice may have made it easier for hostile whalers to encounter one another, but the vague descriptions of the year's events that survive make it difficult to know for sure. In any case, Muscovy Company whalers met with modest success, killing 17 whales and rendering them into 180 barrels of blubber “with much difficultie,” according to Edge, “as not being experimented in the businesse.”²³

The Muscovy Company responded to Basque, Dutch, and English interlopers by winning a charter from James I that granted it exclusive rights to whaling in and around Svalbard. The

²³ Poole, “A Relation written by Jonas Poole of a Voyage to Greenland,” 47. Edge, “Greenland first discovered by Sir Hugh Willoughbie,” 15. Thomas Edge, “A briefe narration of the discoverie of the northerne seas.” Martin Conway, *Collection of Notes and Printed Items on the History of Spitzbergen & its Exploration*. Reference code: SSC/23. Archives of the Royal Geographical Society, London. Hacquebord, Steenhuisen, and Waterbolk, “English and Dutch whaling trade and whaling stations,” 119. Schokkenbroek et al., *Trying Out*, 27. Conway, *Early Dutch and English Voyages to Spitsbergen*, 4. Hacquebord, *De Noordse Compagnie*, 15.

Company accordingly dispatched seven ships to Spitsbergen in the summer of 1613, a fleet that included the warship *Tiger*. Temperatures across the Arctic were warmer in 1613 than they had been in previous years. In late May, Robert Fotherby, a whaler with the fleet, reported that during the journey to Spitsbergen “wee had no trouble with ice all this while, as wee expected; for it was almost all avoided er wee came ther.” Thick, extensive sea ice might have forced the crew to change course on their way to Spitsbergen, or required a perilous journey amid floes that could suddenly shift in windy weather. Luckily, the way was clear.²⁴

When they arrived at Spitsbergen, the sailors of the Muscovy Company confronted a wave of new and old rivals from other nations, despite their charter. Port cities in the burgeoning Dutch Republic collectively dispatched three whaling ships and two walrus-hunting sloops to Spitsbergen, although they were not under unified command. The town of Dunkirk in Flanders also sent two Dutch ships. Like the English, the Dutch employed and struggled to learn from Basque whalers, and so they also depended on temporary coastal installations to boil whale blubber. This time, Van Muyden carried a charter from Maurice of Nassau, *stadtholder* of all Dutch provinces except Friesland, that permitted Dutch whaling around Spitsbergen. Joining the Dutch were sailors aboard eight or more Basque ships, and English interlopers aboard at least one vessel.²⁵

Six different accounts survive to document the “troubles” that followed the meeting of Dutch, English, and Basque whalers off Spitsbergen. Together, they suggest that in early or perhaps mid-June, Benjamin Joseph and his crew in the *Tiger* encountered two Amsterdam vessels, piloted by Van Muyden, in or near either the north or south end of Forland-sundet

²⁴ William Baffin, “A Journal of the Voyage made to Greenland with five English Ships and a Pinnasse,” in *Purchas His Pilgrimes Vol. 14*, 53. Conway, *No Man’s Land*, 53. Fauria et al., “Unprecedented low twentieth century winter sea ice extent,” 782. McKay and Kaufman, “An extended Arctic proxy temperature database,” 140026.

²⁵ Conway, *No Man’s Land*, 53. Hacquebord, *De Noordse Compagnie*, 16.

(Figure 2). Joseph disregarded Maurice's commission and ordered the ships from Spitsbergen. Van Muyden probably agreed to go, but instead led his ships to an anchorage near the island of Akseløya on the northwestern coast of Bellsund. There, he permitted the crew of a large Basque ship to whale, on the condition that they surrender half their harvest to the Dutch. On 10 July, Joseph aboard the *Tiger* spotted them but decided against attacking three ships. On the following day, however, two Muscovy Company ships joined the *Tiger*, and Joseph ordered an attack. The Basques, chafing at their treatment by the Dutch, quickly went over to the English. Suddenly outgunned, the Dutch reluctantly surrendered the floating whales they had recently killed, the oil they had stored in barrels, and the baleen hairs they had extracted. Once again, Van Muyden promised to leave Spitsbergen, yet once again he hung around the island. His sailors spotted and seized 400 baleen hairs on the coast, but as their ships left for Amsterdam in foggy, stormy weather they lost sight of a crew in a shallop. Later, whalers aboard a Muscovy Company ship found the crew and brought them to England.²⁶

Other whalers hired by Dutch cities fared even worse. The crew of an Enkhuizen ship surrendered after Joseph and his marines opened fire and damaged it. Muscovy Company officers also compelled sailors aboard a Dunkirk ship to carry out jobs in Hornsund. Eventually they mutinied and made for Norway, but the officers regained control and delivered the mutineers to Dunkirk. Only one Dutch crew made a successful journey.²⁷

Joseph in the *Tiger* also forced rival whalers in Basque ships to either surrender some of their spoils or leave the coast of Spitsbergen. Even Basque whalers who agreed to English terms found themselves in a precarious position. In late July, a Basque captain complained to Joseph

²⁶ Hessel Gerritszoon van Assum, "History of the Country called Spitsbergen," in Conway, *Early Dutch and English Voyages to Spitsbergen*, 29. Conway, *No Man's Land*, 60. Richards, *The World Hunt*, 130.

²⁷ Edge, "Greenland first discovered by Sir Hugh Willoughbie," 16. Conway, *No Man's Land*, 64. Schokkenbroek et al., *Trying Out*, 27.

that other Basques, working for the Muscovy Company, had unfairly claimed a whale carcass that his whalers had harpooned first. While the outcome of the dispute is not recorded, by then Company mariners scarcely needed an extra whale. They returned to England with huge stores of oil and baleen hair, which Company merchants went on to sell for a healthy profit.²⁸

The Republic's governing body, its States-General, soon sent envoys to England to demand reclamations. Dutch scholars and statesmen – including the cartographer Petrus Plancius, who had encouraged the Barents and Hudson expeditions – maintained that Dutch explorers had discovered the island, which meant that Dutch whalers should have access to it. The great jurist Hugo Grotius also argued that no country could lay claim to the resources of the sea, a concept he had originally proposed to support Dutch interests in the East Indies. Yet Muscovy Company merchants had a very different understanding of the history and legality of their presence in Svalbard. They had originally assumed that Spitsbergen was part of Greenland, and so paid tribute to the Danish Crown, which owned Greenland. Yet now they not only accepted that Spitsbergen was an island, but also argued that one of the Company's English mariners, Sir Hugh Willoughby, had spotted it in 1553. His discovery, they claimed, gave the Company sole rights to the whales nearby. No reclamations would be forthcoming.²⁹

At first glance, sea ice, weather, and climate change had little impact on the troubles of 1613. Only one Dutch account mentioned sea ice thick enough to keep ships from the Spitsbergen coast, and then only in May. It is in fact precisely the absence of sea ice in an unusually warm year, relative to the prevailing conditions of the Grindelwald Fluctuation, that

²⁸ Baffin, "A Journal of the Voyage made to Greenland," 57.

²⁹ Baffin, "A Journal of the Voyage made to Greenland," 56. Hugo Grotius, *The Free Sea*. (Indianapolis: Liberty Fund, 2004), 78. Van Assum, "History of the Country called Spitsbergen," 33 "Merchants reasons for maintaining Greenland trade to exclusion of the Dutch." State Papers Holland. SP 84/93, National Archives, Richmond. Dag Avango et al., "Between markets and geo-politics: natural resource exploitation on Spitsbergen from 1600 to the present day." *Polar Record* 47:1 (2011): 30.

promoted hostilities in 1613. Because the absence of sea ice kept all of Spitsbergen's bays open, sailors aboard the *Tiger* could not enforce the Muscovy Company's claims to every accessible bay. When Joseph demanded that crews from rival nations and companies leave Svalbard, they could simply travel out of sight to the next ice-free bay. Yet the open water often allowed Joseph and his crew to find them a second time, and when they did they were usually more inclined to attack than negotiate. All in all, the crew of the *Tiger* intercepted no fewer than 17 whaling vessels.³⁰

1614-1616: Cooling and Cooperation from Jan Mayen to Spitsbergen

After their protests fell on deaf ears in London, Dutch entrepreneurs asked the States-General for permission to form a stockholding "Northern" or "Greenland" whaling company, which would open offices in key maritime cities. In 1614, the States-General granted this request and offered a three-year, renewable monopoly to the Company for whaling in coastal waters that stretched from island of Novaya Zemlya in present-day Russia, to the Davis Strait in what is now Canada (Figure 1). The Company's whaling ambitions focused on the bays of the Svalbard marine ecosystem, and Dutch whalers had to join in order to work there. In response, the Muscovy Company convinced James I to formally annex Spitsbergen, which theoretically doomed the Northern Company's new monopoly. Tribute to the Danish Crown abruptly ended.³¹

It was in this turbulent context that the chambers of the Northern Company dispatched 14 whaling ships and three heavily armed warships to Spitsbergen that summer. Outnumbered for

³⁰ Van Assum, "History of the Country called Spitsbergen," 29. Conway, *No Man's Land*, 57.

³¹ Robert Fotherby, "A Voyage of Discoverie to Greenland," in *Purchas His Pilgrimes Vol. 14*, 61. Conway, *No Man's Land*, 65. Schokkenbroek et al., *Trying Out*, 27. Hacquebord and Avango, "Settlements in an Arctic resource frontier region," 26. Hacquebord, *De Noordse Compagnie*, 18.

the first time, the Muscovy Company sent 11 ships and two smaller pinnaces. Upon arriving, both fleets found the northern bays of Spitsbergen choked with ice. Average annual temperatures cooled sharply across Europe and the Arctic in 1614, a cold but by no means extreme year in the context of the Grindelwald Fluctuation. Whalers and soldiers aboard two large fleets now vied for resources that could only be accessed in a few ice-free bays. Rather than fight, leaders of the Dutch and English fleets grudgingly came to an agreement. The Dutch would abandon Bellsund, Isfjorden, the bays around Kongsfjordrenna, and Forland-sundet. The English permitted the Dutch to settle in any other bay, as long as it was free of English ships. This meant that the Dutch would be consigned to the northern tip of western Spitsbergen – the area around Amsterdamøya, then still full of ice (Figure 3) – and the southern tip, at Hornsund. Both parties agreed to work together to drive away Basque or English interlopers.³²

By shrinking the space in which whalers could pursue their prey and restricting access to shore facilities they needed to transform whale carcasses into useful commodities, chilly conditions typical of the Grindelwald Fluctuation discouraged hostilities in 1614. Dutch and English whalers resolved to work together to overcome challenging environmental conditions and earn the largest profits they could. Of course, their cooperation came at the expense of whalers from other countries and companies, who now faced more opposition than they otherwise would have. Yet the cold and ice may well have dissuaded these whalers from approaching the coast, which in turn reduced the chances of violence around Spitsbergen. The

³² Edge, “Greenland first discovered by Sir Hugh Willoughbie,” 17. Fotherby, “A Voyage of Discoverie to Greenland,” 79. “Instructie voor Hillebrant Gerbrantsz. Quast,” in Samuel Muller, *Geschiedenis der Noordsche Compagnie*. (Utrecht: Provinciaal Utrechtsch Genootschap, 1874), 372. Conway, *No Man’s Land*, 69. Richards, *The World Hunt*, 131. Fauria et al., “Unprecedented low twentieth century winter sea ice extent,” 782. McKay and Kaufman, “An extended Arctic proxy temperature database,” 140026. Hacquebord, Steenhuisen, and Waterbolk, “English and Dutch whaling trade and whaling stations,” 120.

comparable size of Dutch and English fleets may also have discouraged hostilities. Since neither side had a decisive advantage over the other, there was little to gain from violence.

After and in some cases during the whaling season, crews aboard whaling vessels set sail for uncharted territories, either because they hoped to discover a northern passage to Asia or because they aimed to find useful resources at sea or on the coast. In 1614, the Amsterdam Chamber of the Northern Company dispatched a special expedition to find new land that its whalers could use without fear of English interference. After the expedition found no way through the pack ice north of Spitsbergen, crews aboard two of its ships followed the edge of the ice all the way west to Jan Mayen (Figure 1). Norse explorers had probably discovered the island centuries earlier, and Hudson spotted it in 1607. Nevertheless, the Dutch expedition of 1614 awakened the merchants of the Northern Company to the existence of an island relatively near Spitsbergen that also offered rich possibilities for whaling. Prompted in part by thick sea ice that congregated along the coast of Spitsbergen and connected that island to Jan Mayen, the expedition's rediscovery would shape the character of conflict around Svalbard in subsequent years.³³

In the summer of 1615, the Northern Company's ships again outnumbered those of the Muscovy Company, yet at least a few likely sailed for Jan Mayen. Some struggled to reach the Arctic. While 1615 was somewhat milder in the Arctic than 1614 had been, it was colder than 1613, and on average it was icier in the Western Nordic Seas than it had been since 1611. A Dutch whaling logbook written in 1615 reported that thick sea ice forced the crew to change course on 7 June, well before they reached Spitsbergen. On the 8th, barrels of water stowed in the hull froze amid bitterly cold temperatures. On the following day, sea ice and thick fog

³³ Fotherby, "A Voyage of Discoverie to Greenland," 65. Conway, *No Man's Land*, 79. Joris Carolus, "Stierman Caertschryver tot Enkhuizen." In William Martin Conway, *A Collection of Tracings and Charts of Spitsbergen*. (London: Royal Geographical Society, 1901). Hacquebord, *De Noordse Compagnie*, 21.

surrounded the ship: an often-deadly combination of atmospheric and oceanic conditions. The crew could hear but not see nearby ships, and periodically fired a gun to announce their location. On the 10th, they grounded their ship on the ice, which pierced their bow and damaged their anchor. On the 11th, they turned and turned to find a way through the ice, before spotting several English ships. Sailors aboard those ships asked where they were going, and shots were exchanged, most likely as a salute. For days, they struggled to find a way through the ice and fog, even though it was now midway through June. On the 17th, they could see little in thick fog and ultimately collided with an ice floe, which damaged the stern of their ship and smashed through their rudder. By the 23rd they had finally left the ice behind, although it would take nearly a month to repair the ship. They would not kill their first whale until July 5th. Sea ice typical of the Grindelwald Fluctuation had in effect shortened the amount of time available for them to compete with English whalers off Spitsbergen.³⁴

While the Dutch later claimed that the agreement of 1614 had been a permanent understanding, the English clearly considered it a one-year arrangement, and in fact the Dutch promptly violated its terms. In 1615, they settled in Hornsund, Bellsund, and Smeerenburgfjorden near Amsterdamøya, while the English stayed around Forland-sundet, Isfjorden, and Kongsfjordrenna (Figure 2). At Bellsund, the Dutch built a large, and they hoped permanent, warehouse for equipment and supplies. Despite that provocation, the English and Dutch largely whaled in peace. By shortening the coastal whaling season and restricting access to the bays of western Spitsbergen, extensive sea ice seems to have compelled whalers to set

³⁴ “Journaal van een Groenlandvaarder, 1615.” 0120 Oud archief stad Enkhuizen 1353-1815 (1872), Westfries Archief, Hoorn. Robert Fotherby, “A true report of a Voyage Anno 1615,” in *Purchas His Pilgrimes Vol. 14*, 83. Edge, “Greenland first discovered by Sir Hugh Willoughbie,” 17. Conway, *No Man’s Land*, 83.

their differences aside and focus on whaling. Still, English diplomats would later complain about Dutch incursions into Spitsbergen, which they now called “King James his New Lande.”³⁵

In the following year, the pragmatic merchants of the Northern Company decided that competition with the Muscovy Company would lower profits around Spitsbergen. After applying for and receiving a renewed monopoly, they therefore dispatched most of their whalers and escorts to Jan Mayen. If they could not kill enough whales there, four ships would follow the bowhead migration to Spitsbergen. Each would enter a different bay, and sailors aboard one would occupy the warehouse the Company had previously built in Bellsund. If the English resisted, those sailors would send for a Dutch warship whose soldiers would seize the warehouse by force.³⁶

Average temperatures across the Arctic were milder in 1616 than they had been since the start of the century, yet sea ice in the Western Nordic Seas was also more extensive than it had been since then. The counterintuitive contrast between warm temperatures on a very large scale, and heavy sea ice – likely caused by cool sea surface or air surface temperatures – on a smaller, regional scale underscores that large-scale weather patterns can have surprising consequences in particular times and places. A ship logbook kept by Dutch captain Heertgen Jansen reveals that sea ice indeed confronted sailors travelling to Jan Mayen in 1616. The ice may not have been thick enough to force Jansen and his crew to change course, but they did arrive at Jan Mayen late: on 10 June, roughly two weeks after whalers usually reached Spitsbergen. According to

³⁵ Conway, *No Man's Land*, 84. “Remonstrance of States General touching Greenland, 1615.” State Papers Holland. SP 84/93, National Archives, Richmond. “States General to James I. - answer concerning Greenland, and another copy, 1615.” SP 84/71/41, National Archives, Richmond. Conway, *Early Dutch and English Voyages to Spitsbergen*, 39. Hacquebord, Steenhuisen, and Waterbolk, “English and Dutch whaling trade and whaling stations,” 120.

³⁶ Conway, *No Man's Land*, 92. “Concept-Instructie voor Jan Jacobsz. Schrobop als commandeur-generaal van het konvooi ter verdediging der walvischvaarders in 1616,” and “Instructie waer naer Capiteyn Jan Jacobsz. Schrobop,” in Muller (ed.), *Geschiedenis der Noordsche Compagnie*, 373-377.

Jansen, the sea off the coast teemed with whales. More ships arrived in subsequent days, and their crews started killing whales in large numbers. On the 15th and 16th, whalers aboard English ships arrived and asked for permission to hunt whales nearby. Northern Company sailors soon agreed. Jan Mayen afforded fewer bays than Spitsbergen, especially in years of extensive sea ice, and that probably encouraged whales to congregate even more densely near its coast than they did off Spitsbergen (Figure 3). There were many whales to kill and great opportunities for profit, so long as rival whalers did not come to blows.³⁷

Extensive sea ice in 1615 therefore led the Dutch to Jan Mayen, an island with environmental conditions that apparently encouraged cooperation between whalers, especially in years of abundant sea ice, such as 1616. Nevertheless, not every Dutch ship made their voyage that year. In late summer, one Northern Company vessel arrived in Bellsund, where its crew found that the English had repositioned their warehouse and appropriated its supplies. They had no warship to call on, however, since much of the Dutch fleet had already set sail for the Republic. Had sea ice been less extensive in 1616, the whaling season would have started earlier, a Northern Company ship would have arrived in Bellsund with time to spare, and hostilities may well have erupted between the English and Dutch off the western coast of Spitsbergen.³⁸

1617-1618: Retreating Sea Ice and Rising Violence off Spitsbergen

³⁷ “Journaal van een tocht naar Groenland en Spitsbergen met het schip ‘de Hoop’ en schipper Heertgen Jansen van Enkhuizen, 1616.” 0120 Oud archief stad Enkhuizen 1353-1815 (1872), Westfries Archief, Hoorn. Fauria et al., “Unprecedented low twentieth century winter sea ice extent,” 782. McKay and Kaufman, “An extended Arctic proxy temperature database,” 140026.

³⁸ Conway, *No Man’s Land*, 92. Conway, *Early Dutch and English Voyages to Spitsbergen*, 40. Hacquebord, Steenhuisen, and Waterbolk, “English and Dutch whaling trade and whaling stations,” 120. Edge, “Greenland first discovered by Sir Hugh Willoughbie,” 18.

In 1617, most of the Dutch whaling fleet again made for Jan Mayen. However, the little island did not have enough natural harbors to accommodate whalers from the Dutch province of Zeeland, who only now joined the Northern Company. Midway through May, captain Cornelius de Cooke and a crew aboard a Zeeland ship therefore arrived off Spitsbergen, where a large Muscovy Company fleet soon found them. Both English and Dutch sailors had made an unusually early landfall. It was only slightly less icy across the Western Nordic Seas than it had been in 1616, but sea ice seems to have been particularly sparse around Svalbard. A later attempt by Muscovy Company whalers to explore towards the north reached 79° N: far enough to suggest that there was little sea ice around the archipelago. The NAO also entered a much more strongly negative position than it had reached since the beginning of the Grindelwald Fluctuation. With the usual flow of westerly winds disrupted, easterlies likely pushed sea ice away from the western coast of Spitsbergen. Sea surface or air surface temperatures may also have been warmer off Spitsbergen than they were elsewhere in the Arctic.³⁹

In any case, Thomas Edge aboard the Muscovy Company flagship sent for De Cooke and demanded that he and his crew leave Spitsbergen. Instead, De Cooke defiantly entered Hornsund just 10 days later, and on the following day two more Zeeland ships joined him there. On 1 June, sailors aboard a Muscovy Company whaling ship arrived in the bay. Despite their protests and threats, the Dutch kept whaling. In response, the English whalers sent for Edge, who delivered a letter that convinced the Dutch to leave for Bjørnøya. When they could not find any whales there, they returned to Hornsund, “hindringe the English what they cold from makinge

³⁹ Conway, *No Man's Land*, 102. Conway, *Early Dutch and English Voyages to Spitsbergen*, 40. Ortega et al., “A model-tested North Atlantic Oscillation reconstruction,” 72. Fauria et al., “Unprecedented low twentieth century winter sea ice extent,” 782. McKay and Kaufman, “An extended Arctic proxy temperature database,” 140026. Hacquebord, *De Noordse Compagnie*, 19.

their voyage in that harbor,” according to a later deposition by Muscovy Company whalers John Weddel and William Heley.⁴⁰

The problem lay in the behavior of the bowhead whales. Whalers had found that, in ice-free bays, they could exploit bowhead behavior by attacking only those whale pods that seemed about to leave the bay. The rest of the whales would carry on feeding, unconcerned. If, however, competing whalers killed bowheads at random, small groups of whales would scatter, and many would escape the bay. The beleaguered Muscovy Company whalers therefore sent another message to Edge. This time, he dispatched the uncompromising Heley to Hornsund. Yet for weeks, strong and remarkably persistent winds – likely from the southeast – slowed Heley’s warship, the *Dragon*, and kept it from reaching Hornsund. At last, in late July word reached De Cooke that the *Dragon* would soon arrive. By then, his crew and that of another Northern Company ship had boiled all the oil they could haul back to the Republic. They managed to load it aboard their ships and slip out of Hornsund before the *Dragon* appeared over the horizon. Yet the crew of a third ship, the *Noah’s Ark*, could not load their ships on time. When Heley finally reached Hornsund, he ordered his crew to seize all the blubber and oil aboard the *Ark*. Embittered, the crew of the *Ark* sailed home emptyhanded. The Muscovy Company fleet, meanwhile, killed 150 whales: so many that its sailors left barrels of oil behind.⁴¹

In 1617, ice-free seas again allowed English crews to chase their Dutch rivals around Spitsbergen, while letting the Dutch temporarily escape to new harbors. Since most of the

⁴⁰ Conway, *No Man’s Land*, 98. Conway, *Early Dutch and English Voyages to Spitsbergen in the Seventeenth Century*, 40.

⁴¹ “Twee getuigenissen van deelnemers aan de reis ter walvischvangst van 1617,” in Muller (ed.), *Geschiedenis der Noordsche Compagnie*, 404-406. Cornelis Gijsbertsz Zorgdrager, *Bloeiende opkomst der aloude en hedendaagsche Groenlandsche visschery*. (The Hague: P. van Thol en R.C. Alberts, 1727). Edge, “Greenland first discovered by Sir Hugh Willoughbie,” 19. William Heley, “Divers other Voyages to Greenland, with Letters of those which were their employed,” in *Purchas His Pilgrimes Vol. 14*, 92. Conway, *No Man’s Land*, 101. Conway, *Early Dutch and English Voyages to Spitsbergen in the Seventeenth Century*, 40. Hacquebord, *De Noordse Compagnie*, 22.

Northern Company fleet had traveled to Jan Mayen, the Dutch were again greatly outnumbered at Spitsbergen, and the Muscovy Company's sailors exploited that advantage. Persistent southeasterly winds enabled by the state of the NAO only worsened the disparity in numbers. By slowing the *Dragon*, these winds allowed crews aboard two Dutch ships to escape. Yet the presence of three Dutch vessels in Hornsund may well have kept Heley from ordering an attack. After all, in 1613 Joseph aboard the *Tiger* had waited to engage three Dutch whalers until he had equal numbers.

When the summer whaling season came to a close in 1617, the States-General again demanded compensation from the Muscovy Company, but again to no avail. In the following spring, the directors of the Northern Company therefore dispatched no fewer than 23 ships to Svalbard, in addition to the 19 they sent to Jan Mayen. The Muscovy Company, by contrast, sent just 13 ships and two pinnaces to Svalbard, which meant that its employees found themselves outnumbered in nearly every bay along the coast of Spitsbergen. Only at Bellsund did the Muscovy Company have the advantage: there, whalers aboard three or four English ships shared the bay with one or two Northern Company vessels.⁴²

Sea ice in the Western Nordic Seas was less extensive in 1618 than it had been in the previous year. The NAO reached an even more negative state than it had in 1617, and so easterly winds may have pushed sea ice away from some of Spitsbergen's shores. Yet temperatures across the Arctic were colder than they had been since 1615, and whalers recorded plenty of sea ice along the northwestern coast of Spitsbergen. Once again, the regional manifestations of the Grindelwald Fluctuation did not simply dictate local realities. On 12 July, James Beversham at Smeerenburgfjorden wrote that "We are and have been so pestered with Ice these 20 dayes that

⁴² Conway, *No Man's Land*, 107.

we have not beene able to goe out to Sea with our shallops above twice in the time.” They had killed only one whale in the interval, but soon lost its carcass amid the ice and later spotted polar bears eating it. They claimed that nearby Dutch whalers had stolen one of their slaughtered whales, but the Dutch were now enclosed by sea ice and could not be reached. In effect, the ice had frozen whaling operations at Smeerenburgfjorden, and halted hostilities that might have otherwise erupted there.⁴³

Very different circumstances prevailed in Spitsbergen’s southern bays. Northern Company whalers now carried three commissions: one from Maurice, which let them whale where they liked; one from the States-General, which allowed them to defend themselves if molested; and one from their owners, which stipulated that “if they were disturbed by the English or anie other to the damage of a line to the value of a penny to take their goodes and bringe them and the chiefe men and shipp and all with them to Holland.” Many whalers and soldiers in the Northern Company fleet hoped that the English would give them some excuse to use their new commissions by avenging Heley’s theft in the previous year. At Hornsund, Dutch sailors claimed that the Muscovy Company had given the bay to the Northern Company in 1614. Dutch soldiers therefore harassed English whalers as they guarded Dutch shallops. Yet they had no excuse to attack the English until Edge ordered the crew of his warship to seize Dutch shallops at Bellsund. He only returned them after Dutch captains in the bay promised to leave Spitsbergen. Instead, they entered Hornsund on 11 June.⁴⁴

⁴³ James Beversham, “A Letter of James Beversham to Master Heley,” in *Purchas His Pilgrimes Vol. 14*, 96. Conway, *No Man’s Land*, 107. Ortega et al., “A model-tested North Atlantic Oscillation reconstruction,” 72. Fauria et al., “Unprecedented low twentieth century winter sea ice extent,” 782. McKay and Kaufman, “An extended Arctic proxy temperature database,” 140026.

⁴⁴ Conway, *No Man’s Land*, 110. Thomas Edge, “At Bellsund,” and John Johnson, William Dridle, and William Henderson, “At Hornsund,” in Conway, *Early Dutch and English Voyages to Spitsbergen*, 65.

Dutch and English documents provide distinct and occasionally contradictory accounts of what happened next. Northern Company soldiers and sailors certainly knew that Heley was “chiefe follower of the business” aboard the *Pleasure*, one of two or three Muscovy Company whaling ships at Forland-sundet. The Zeeland captains aggrieved in 1617 therefore made for Hornsund, where they planned to avenge their losses by seizing Heley’s oil and blubber once the whaling season came to a close. Robert Salmon, master of the *Pleasure*, later wrote that his whalers had killed many whales since they arrived in Forland-sundet in early June. Yet high and persistent northerly winds had brought sea ice into the bay that had kept them from hauling blubber to try pots on the coast. Still, there was not enough ice to keep the Zeelanders from entering Forland-sundet on 19 June, or from landing on the coast. A fight quickly broke out on the beach between Dutch and English officers. “Where is your Dragon nowe?”, the Zeelanders allegedly taunted Heley. “You think to doe as you did the last year, but we are fitted for you nowe.”⁴⁵

By late July, at least six Northern Company ships – including the two *Edge* had ejected from Bellsund – anchored in Forland-sundet, which now teemed with perhaps 30 shallops. By then, Heley had sent for *Edge*. When they realized that *Edge* and his warship could soon arrive, the Dutch on 1 August decided to board the *Pleasure* and seize its oil, baleen hair, and gunpowder. Negotiations and arguments dragged on between the English and Dutch until, on 19 August, five Dutch ships opened fire. By the time Heley finally surrendered, one of his sailors had died, others were injured, and the *Pleasure* had been badly damaged. The Dutch seized the ship’s cargo and delivered it to the four chambers of the Northern Company. For years

⁴⁵ William Heley et al., “Troubles at Spitsbergen,” in Conway, *Early Dutch and English Voyages to Spitsbergen*, 44.

afterwards, Muscovy Company whalers did their best to avoid Forland-sundet. Many believed that God had cursed whaling expeditions in the harbor because the Dutch had shed blood there.⁴⁶

Off Spitsbergen, the “troubles” of 1618 unfolded in a cold year with moderate sea ice, which left some bays open and others closed or partly closed for different lengths of time. Whalers’ responses to sea ice from bay to bay clearly reveal how environments shaped by weather and prevailing climatic conditions influenced violence in the Arctic. Where the ice was thick and extensive, whalers dependent on shore facilities either could not catch or could not process bowhead whales, and they could not approach rival whalers. Where there was no sea ice, whalers could travel freely. Once again, that allowed Dutch whalers to linger off Spitsbergen even after the threat of violence forced them to leave one of its bays. This time, they could marshal support for an attack on Heley: a hated and badly outnumbered rival. Heley, however, whaled in a bay that was north of Spitsbergen’s ice-free southern coast. The Dutch could only begin to harass him and his crew once sea ice had retreated from that bay. Had it been even colder and icier, hostilities might not have erupted at all.

After Heley and his crew returned home emptyhanded, it was the Muscovy Company’s turn to demand restitution. The States-General pressed for an agreement between England and the Dutch Republic that would regulate the Greenland Fishery and divide the bays of western Spitsbergen between the Muscovy and Northern Companies. In July 1619, James I instead maintained his claim to Spitsbergen and demanded that the Northern Company pay damages to

⁴⁶ John Catcher, “Master Catchers Letter the nine and twentieth of June, 1623,” in *Purchas His Pilgrimes Vol. 14*, 105. Robert Salmon, “A Letter of Master Robert Salmon to Master Sherwin,” in *Purchas His Pilgrimes Vol. 14*, 94. Edge, “Greenland first discovered by Sir Hugh Willoughbie,” 23. Conway, *No Man’s Land*, 120. “Deposition concerning the Greenland fisheries, 1619.” State Papers Holland. SP 84/93, National Archives, Richmond. “Mem. of what happened in Greenland, 1618.” State Papers Holland. SP 84/85, National Archives, Richmond. “Note on Dutch attacks on the English in Greenland, 1618,” and “Representations of the Muscovy Co. against the Dutch, 1618.” SP 84/87, National Archives, Richmond.

the Muscovy Company. Yet since the Dutch fleet outnumbered the neglected English fleet, James had no way of enforcing his ruling.⁴⁷

In practice, from 1619 the Northern and Muscovy Companies accepted their claims to different parts of the area around Spitsbergen. The Northern Company confined itself to the area around Amsterdamøya. On that island, its carpenters built a permanent camp called Smeerenburg (“blubber town”) along a flat beach that doubled as a natural slipway (Figure 3). The Muscovy Company claimed every other bay along western Spitsbergen, and soon constructed permanent camps at Isfjorden, Bellsund, and Hornsund. Although the Muscovy Company had seemingly triumphed by claiming most of Spitsbergen, it soon grew obvious that the new arrangement strongly favored the Northern Company. The edge of the summer pack ice usually lingered near Amsterdamøya, so more whales gathered there than entered the bays to the south. Nevertheless, the Muscovy Company did not attempt to overturn the new division of western Svalbard, and hostilities between the Dutch and English largely came to a close.⁴⁸

Conclusion: Cold Truths for a Warming World

Ironically, the cooling of the Grindelwald Fluctuation set the stage for the rise of a whaling industry around frigid Svalbard. Then, in the first decade of that industry, sea ice in cold weather discouraged conflict between whalers from rival companies and countries. Sometimes it literally separated whalers from one another, and other times it dramatically reduced the amount of space in which whalers could hunt. As long as whaling fleets were relatively equal in size,

⁴⁷ Conway, *No Man's Land*, 123.

⁴⁸ “Hacquebord, Steenhuisen, Waterbolk, “English and Dutch whaling trade and whaling stations,” 132. Richards, *The World Hunt*, 132. Hacquebord, *De Noordse Compagnie*, 23. G. Jackson, *The British Whaling Trade*, 2nd Ed. (St. John's, 2015), 47.

their sailors decided to cooperate in those circumstances. By contrast, when winds or warm temperatures led to open seas around the coast of western Spitsbergen, hostilities repeatedly erupted between whalers and their escorts. Paradoxically, open seas provoked conflict by allowing whalers to escape from the threat of violence. When officers aboard escorting warships found those whalers in another harbor, they were less likely to let them leave with a warning. By affecting the distribution of sea ice and the movement of ships, prevailing winds that registered the influence of the shifting NAO then helped shape how hostilities played out.

The local environments of Svalbard and Jan Mayen were highly variable, and did not always clearly register the cooling trends of the Grindelwald Fluctuation. Moreover, these trends were themselves erratic, because the Grindelwald Fluctuation brought with it greater inter-annual weather volatility. This volatility can help us understand how relationships between whalers, and between whalers and whales, responded to weather typical of both cold and somewhat warmer climates. Yet overall, sea ice was more extensive around Spitsbergen in the early seventeenth century than it would be in the warmer intervals of the LIA that preceded and followed the Grindelwald Fluctuation. In those substantially warmer conditions, violence might have been even more common between whalers vying for temporary positions along the shores of Spitsbergen's western bays. Cooling, in short, helped open a new theatre for competition between agents of European empires, but also discouraged conflict between those agents.

The first decade of the Spitsbergen whaling industry can shed new light both on historical relationships between climate change and human history, and on the future of geopolitics in a warming Arctic. It reveals that gradual, global climatic trends can have complex and at times surprising manifestations on small temporal and geographic scales. It also demonstrates that weather events that defy climatic trends can influence human affairs as significantly as those

trends. More importantly, it broadly supports models in ecological anthropology that suggest that competition and conflict do not necessarily follow from changes in the total quantity of a desired resource, but rather from developments that make resource concentrations defensible and exclusive for some groups but not others. Changes in the total number of whales off Spitsbergen did not provoke conflict between whalers, but the question of who owned the small bays of western Spitsbergen and the shore facilities they permitted certainly did. It is surprising, however, that violence between whalers broke out when open water made more of these bays accessible, for longer. Precisely when weather worsened the environmental variables that encouraged conflict, whalers set aside their differences and worked together.⁴⁹

At first glance, this history offers a troubling warning for our future. As sea ice in the Arctic continues to retreat, we might expect resource-hungry companies and countries to vie for newly uncovered resources in ways that promote conflict. Yet the early history of whaling around Spitsbergen reveals, above all, that environmental circumstances do not directly determine human affairs. Recurring hostilities between Dutch and English whalers faded not when climatic conditions changed, but when companies settled on a new way of organizing their operations around Svalbard. Environmental history therefore suggests that global warming need not make the Arctic a more violent place.

⁴⁹ See, for example: James L. Boone, "Competition, conflict, and the development of social hierarchies." *Evolutionary ecology and human behavior* (1992): 301-337. Rada Dyson-Hudson and Eric Alden Smith, "Human territoriality: an ecological reassessment." *American Anthropologist* 80:1 (1978): 21-41.