# Fish in the Face of Climate Change:
# A ten-year analysis of fisheries conflicts in the Barents Sea

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*Master's Project submitted in partial fulfillment of the requirements for the Master of Environmental Management degree from the Nicholas School of the Environment, Duke University*

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**Executive Summary**

Climate change is a risk multiplier, intensifying conflict drivers and disrupting both ecological and human systems. For instance, climate change is shifting fisheries and opening up new areas for commercial and industrial shipping and development. Such a phenomenon has the potential to contribute to conflict between users. In the Arctic region this is immediately relevant, as changes in fisheries distribution and productivity occur across complex and disputed maritime borders. The Barents Sea region of the Arctic possesses both significant fish resources and mineral resources, is highly impacted by climate change, and has disputed borders and governance agreements, all of which make the region particularly vulnerable to fisheries-related conflict.

A pan-Arctic governance regime with clear authority and effective fisheries management might improve adaptive capacity to climate and conflict by providing a formal legal structure for promoting cooperation and diplomatic ties, thus fostering collaboration and communication among Arctic states. However, participation and recognition of Arctic governance is currently voluntary, and resource management strategies are incomplete and insufficient for the advent of major human activity in coming decades as sea ice disappears.

This project aims to elucidate the scale and drivers of fisheries related conflicts in the Barent Sea. In order to do so, we analyzed the number and intensity of fisheries conflicts in the Barents Sea for the period 2013-2022. Using the Nexis-Uni database, we designed a Boolean search to target news articles, then manually reviewed a total of 7,499 articles to find incidents of fisheries conflict. From the qualitative coding process, we identified 22 unique fisheries dispute events and 54 fisheries dispute aggregates (conflicts without a discrete time and/or location) in the region. We found that 82% of conflicts were cross-national - the majority involving disputes between Norwegian and Russian stakeholders. We also found that 77% of conflicts happened within Norway - including waters around Svalbard, the Bear Island, Troms og Finnmark, and Norway's EEZ within the Barents Sea.

In terms of the conflict drivers, the most commonly found in our study were fishing illegally without a proper license, the presence of foreign fishers, and the limitation of fishing grounds.

Additional drivers included weak governance and weak government capacity, marginalization perceived by one of the actors involved, and changes to the fisheries ecosystem due to warming waters and to pollution from oil drilling. We found that the majority of conflicts in the region involved disputes between the Norwegian and Russian authorities, foreign and domestic fishers, activists, and the oil industry. In terms of the consequences, the conflicts analyzed resulted in a low- and mid-level of violence, with low levels including acts such as official complaint letters, accusation of governments, legal action, while mid-level acts included arrests, fines and detainments. No events of physical violence (e.g., injury, death or sexual assault) were documented for the region.

For the fisheries dispute aggregates, we developed an Aggregate Intensity Score (AIS). The highest AIS average across 2013-2022 was in Svalbard and the highest AIS average across all districts was in the year 2017, characterized by disputes over the rights of non-Norwegian fishers to fish off of Svalbard.

Our study revealed a few different patterns of conflict. Estimates of potentially lucrative oil grounds spurred interest from the oil and gas industry, and the Norwegian government took steps towards potential licensing of those grounds for development. As a result, persistent conflict occurred between fishers and NGOs who protested potential licensing, and the oil industry and Norwegian government. Throughout our period of study, we observed an increase in tensions regarding interpretation of the Svalbard Treaty. Conflict ranged from political disagreement to multiple instances of vessel detainments by Norway. Major international geopolitical events were found to at times affect fishers, including the UK's withdrawal from the EU and Russia's invasion of Ukraine. Vessel detainments and arrests occurred throughout our period of study, in which Norwegian or Russian security forces detained a foreign vessel. Oftentimes, the detained parties disputed the validity of the arrest. This paper provides context and analysis of these trends given the geopolitical and environmental conditions shaping fisheries in the Barents Sea.

**Acknowledgements**

We would like to express our appreciation to the people who have made direct and indirect contributions to the development of this project. A special gratitude to our Master's Project advisor, Dr. David Katz - Visiting Scholar in Environmental Sciences and Policy at the Nicholas School of the Environment - for his support and guidance throughout the research and writing process.

We also appreciate the support of our client, World Wildlife Fund (WWF), and a special thanks to the Senior Director of the Oceans Futures Program, Dr. Sarah Glaser. Her inspiration, encouragement, and assistance in defining the project's goals and scope of work, as well as in providing feedback on the project deliverables, were essential to the creation of a useful product for the organization.

Furthermore, we would like to acknowledge with much appreciation the crucial role of Colleen Devlin, Research Associate of the Secure Fisheries Program at the One Earth Future Foundation. She provided the team with training and technical assistance on the data processing and analysis, based on the methodology developed by her and Dr. Glaser, published in the article *The causes and consequences of fisheries conflict around the Horn of Africa* (Devlin et al, 2021). Her selfless responsiveness and persistent support led to the creation of a comprehensive and robust database to further understanding of fisheries conflict.

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## I. Introduction

Climate change is shifting fisheries locations and opening up new routes for commercial and industrial purposes. Such a phenomenon has the potential to contribute to conflict between users. The Barents Sea region of the Arctic possesses both significant fish resources and mineral resources, and is highly impacted by climate change, making it particularly vulnerable to fisheries-related conflict.

In partnership with the World Wildlife Fund (WWF), this study aims to further understanding of the characterization of fisheries conflict over the 2013-2022 period in the Barents Sea region. The data will be combined with similar studies from other regions and time periods to develop a more extensive fisheries conflict database.

In this study, we used a methodology developed by Devlin et al. (2020) that used keyword searches in the Nexis Uni database. We reviewed a total of 7,499 articles. From the qualitative coding process, we identified 22 unique fisheries dispute events and 55 fisheries dispute aggregates in the region. We found that major conflict drivers include weak governance, ground limitations, ecosystem changes, marginalization, foreign fishers, and illegal fishing. We also found that the majority of conflicts in the region involved disputes between the Norwegian and Russian authorities, foreign and domestic fishers, activists, and the oil industry.

This report presents, in its first section, a review of the literature, focused on fisheries conflicts, geographic and geopolitical elements in the region of study, as well as on the impacts of climate change in fisheries, in the Arctic, and in the Barents Sea region in particular. Section 3 presents the research methodology and the data collection process. Section 4 presents the quantitative results from the qualitative-coding process. Section 5 includes findings and conclusions on major trends found from the results. Finally, Section 6 discusses the limitations of this study and areas of further development.

## II. Literature Review

To better understand our research and findings, this literature review focuses on the geopolitical and environmental contexts of fisheries conflicts in the Barents Sea, and specifically addresses the following guiding questions:

1. What are the drivers and what is the significance of fisheries conflict in general?
2. What fisheries-related issues present in the Arctic Ocean and Barents Sea are security risks, and how are they managed?

### *Fisheries as a Security Threat*

#### Overview: Fisheries Conflict

Fisheries play a crucial role globally as a key part of marine ecosystems and a source of food security, livelihoods, and economic development for coastal communities and states. However, marine fisheries are an increasing, accelerating source of conflict due to the concurrent growing demand for fish and declining availability of fisheries, threatening regional and international stability (Spijkers et al., 2019; Spijkers et al., 2021). Fish stock depletion due to drivers including overfishing, habitat degradation, and the broader effects of climate change, threatens the health and sustainability of marine ecosystems, and thus also maritime security (Blasiak et al., 2017).

Mitigating this marine resource conflict requires effective fisheries management strategies, and key to this is understanding the drivers and predictors of fisheries conflicts, particularly given both ecological and geopolitical complexities. Despite the importance and urgency of understanding the drivers of these conflicts and the need for robust and effective management of fisheries, they are understudied and undermanaged, enabling potential systemic risk in emerging areas of strategic and economic importance like the Arctic (Spijkers et al., 2018).

#### Overfishing

90% of the world's fishing stocks are overexploited, with some scientific estimates predicting marine biodiversity loss may lead to resource collapse (Kituyi & Thomson, 2018; Worm, 2016). This is a security issue: for coastal states reliant on fishing as a critical industry, the impacts of fish stock depletion on ecosystems threaten destabilization at multiple levels, from coastal

communities dependent on fisheries for income and food security, to interstate conflict (Desombre et al., 2019).

Without regulatory and interstate cooperative intervention to prevent overfishing, stock depletion may exacerbate existing issues and trigger resource-related disputes regarding access and resource allocation (Pomeroy et al., 2016). These significant, complex real-world conflict linkages can be simply described via the demand-induced scarcity hypothesis: rising demand and shrinking supply of fishery resources increase fisheries conflict (Spijkers et al, 2021). Marine capture resources are declining while global demand is growing, and increased competition for access to continuously shrinking fish stocks may drive illegal fishing and disputes over fishing grounds, with both impacting geopolitical relations (Spijkers et al., 2021). While overfishing is not the sole driver of fishery scarcity, it is a significant factor within the context of systems-level environmental change with wide ranging impacts.

Social destabilization, for example, is not limited to the high-level regional geopolitics concerned with economic resilience and militarization. Coastal communities already disproportionately impacted by climate change, such as the multiple indigenous populations of the Arctic, are also highly vulnerable to disruption. The relationship between traditional fishing grounds, heritage, and livelihoods cannot be altered without fundamentally reshaping cultural identity and potentially eroding established social structures and relationships (O'Rourke et al., 2022). These are also frontline communities for climate change's broader impacts and the environmental health impacts of human industrial expansion via, for example, oil and gas exploration (Sumaila et al, 2011). Overfishing jeopardizes the health of complex ecosystems. As fishing stock depletion escalates, so does system-wide ecological disruption, and the marine ecosystem's capacity to withstand impacts dwindles (Sumaila & Tai, 2020).

**Illegal, Unreported, Unregulated, and Unprepared: Fisheries and Crime**

The depletion of global fish stocks intensifies the economic impacts of marine resource scarcity: fishing activity puts greater stress on fishing grounds, increasing scarcity of a previously renewable economic and food resource, and driving up prices (Crowell & Turvold, 2020). With livelihoods and food security at risk, high profitability of catches incentivizes fishers to engage in illegal,

unreported, and unregulated (IUU) fishing. IUU fishing is pervasive, multiscale, and socially and environmentally disruptive, enabling systematic crime and human rights abuses and massive, unsustainable levels of marine resource exploitation, and presenting a potential risk for military conflict over resource scarcity (Shaver & Yozell, 2018; Widjaja et al., 2020).

IUU fishing is likely to further evolve in response to rapid environmental and geopolitical changes. Climate change-induced shifts in fish stocks' distribution will increase fisheries' presence in some areas and decrease in others, without full predictability of where or to what extent these movements will occur (Sumaila et al, 2011). Regional management and monitoring of fisheries that may or may not exist in that region is a challenge, as is anticipating where increased competition for fishing resources may occur. Fisheries migration further complicates this as a geopolitical issue, with IUU fishing incidences often already aligned with contentious marine territorial boundaries (Shaver & Yozell, 2018). IUU fishing is thus a significant emerging security and conservation concern in changing marine environments such as the Arctic Ocean, where environmental change is increasing strategic importance and economic opportunity—for example, areas like the Central Arctic Ocean have been mostly or totally inaccessible to human activity including commercial fishing due to year-round sea ice, but open access is expected to increase with warming (Muir, 2010).

### *Hot Spots: Climate Change, Fisheries, and Conflict*

#### The Impact of Climate Change on Fisheries

Climate change threatens both healthy marine fisheries and those that are already stressed and declining due to other anthropogenically-led causes including overfishing—the primary driver, but also pollution and habitat degradation. These changes are not hypothetical, they are occurring, and models show that climate change is and will result in changes in distribution, potential yield, and primary productivity, further impacting diminishing stocks (Sumaila et al, 2011). Fisheries stocks are already changing in response to climate change, with new species appearing in regions in which they were previously absent, and established species diminishing or disappearing (Hollowed et al., 2013).

The basic dynamics of fish and fisheries are inherently variable—for example, distribution and productivity are affected by seasonality or normal changes in ocean conditions—but climate change enhances this beyond the baseline. Normal fluctuations and events are more intense, greater unpredictability is introduced for changing conditions, and changes in one system affect those in another via complex linked processes (Burden & Fujita, 2019; Hollowed et al., 2013). Climate change is systemic stress, both to entire marine ecosystems and fisheries-based economies.

Specific major environmental changes with fisheries impacts include increasing ocean temperatures and acidification, higher frequency, and severity of extreme weather events, and altered ocean currents. Individually and together, these may alter reproductive timing, growth patterns, and survivability in addition to larger changes to fish stocks like spatial distribution, abundance, and the introduction of new species into established ranges (Burden & Fujita, 2019).

Of major relevance to this report, fisheries migration is highly climatically influenced: warming ocean temperatures are leading to shifts in distributions of marine species towards higher latitudes in pursuit of cooler waters. This has led to invasion of new species at a significantly higher intensity and rate than global averages (Cheung et al., 2009; Hollowed et al., 2013). The Arctic Ocean is a particular climate change hot spot: very strong regional warming increases access to Arctic waters as sea ice melts (which in turn amplifies warming), further enhancing these migratory trends (Wunderling et al., 2020). Warming trends in the Arctic are driving major, rapid ecological changes, the rapidity and uncertainty of which have profound implications for regional geopolitics—and thus also security.

These mass migrations of fisheries fundamentally alter marine ecosystems, and human activity as a result, from fisheries-dependent economies to geopolitical cooperation. As such, they present challenges for marine governance (Pinsky et al., 2018). Established assumptions of fisheries distributions inform international fisheries agreements and fishing stock swaps between Exclusive Economic Zones (EEZs), but projections indicate nearly the majority of EEZs globally will experience at least one shifting transboundary stock by 2030 (Palacios-Abrantes et al., 2022). Climate change aggravates existing environmental and social issues, and significant changes in

access to fisheries and in the distribution of fishery benefits provide conditions for fisheries-related resource conflict.

**Climate Change as a Conflict Multiplier**

Climate-related stresses exacerbate ongoing tension and amplify risk of new conflicts via their interaction with factors such as social marginalization, geopolitical dispute, and economic reliance on climate-vulnerable resources (Spijkers et al., 2021). Human and natural systems are deeply interconnected: climate impacts broadly increase system vulnerability, and conflict can influence adaptive capacity and sensitivity to climate change (Scheffran et al., 2012). Given issues of resource scarcity and vulnerability, already-increasing incidences of fisheries conflicts are projected to increase further with climate impacts given existing and potential future socioeconomic and political contexts (Spijkers et al., 2021). Although the specific impacts of climate-driven changes in fisheries are not clear, the sensitivity of these factors and associated vulnerabilities provide a wide breadth of pathways to conflict (Blasiak et al., 2017).

Fisheries conflicts are not a new phenomenon, but climate change is intensifying known drivers like depleting stocks and disputed maritime borders and altering where, how often, and what kind of conflicts occur (Mendenhall et al., 2020). Using the Arctic as our ongoing case study: year-round sea ice has historically shut out access to potential fishing and shipping routes, but intensifying sea ice melt likely means ice-free Arctic summers within decades (Wunderling et al., 2020). This creates both a literal and figurative opening for the entry of extractive industries into previously inaccessible but resource-rich areas, and increased ecosystem vulnerability to associated human impacts (Sumaila et al., 2011). Open marine access is already transforming Arctic geopolitics and economic relevance — and enabling intense competition, presenting an emerging security concern (Mendenhall et al., 2020; Sacks et al., 2021).

Strong, adaptive governance mechanisms and effective resource management could guide existing conflict resolution and, with geopolitical cooperation, respond to the security threat of climate change, including potentially reducing conditions for risk multiplication (Gemenne et al., 2014; Pinsky et al., 2018; Sacks et al., 2021). Regional governance and legal frameworks that, by contrast, are not comprehensive in addressing climate-related issues like marine resource access

(or the rights to them) may instead be a security threat in themselves, and lead to increased conflict between resource developers and other potential stakeholders in marine territories (Mendenhall et al., 2020).

### *Fisheries and the Arctic Regime Complex*

#### Overview: Incomplete Governance and Resource Competition

The Arctic Ocean is a strategically important region with significant economic potential, yet vulnerable to conflict given complex, interconnected security concerns and the absence of a comprehensive governance structure (Klimenko, 2019; Sacks et al, 2021). It is home to major economically, socially, and politically significant natural resources, including fish, oil, and gas, that are becoming increasingly accessible with climate change. The Arctic of the 21st-century climate crisis is the most rapidly warming region on Earth and sea ice melt makes intensive human polar activity increasingly feasible—and competitive (Rantanen et al., 2022; Mendenhall et al., 2020).

Untapped offshore mineral extraction, oil and gas reserves, unexploited fishing stocks, and time-efficient new shipping routes in the High North present major opportunities for new economic prosperity in an increasingly polarized global political economy in flux. However, this may have significant and interrelated consequences: without effective governance and fisheries management to peacefully manage resource competition, the opportunity for enduring geopolitical cooperation and proactive, comprehensive scientific research informing sustainable ecological management in this new landscape may be lost (Dankel et al., 2020; Glaser et al., 2018; Jeffers, 2010). This is particularly relevant in the Barents Sea, which is resource-rich and spans both international high seas and the territorial waters of Norway and Russia — two major fishing powers — in a time of increasing fisheries-related geopolitical tension.

Given the Arctic's strategic importance, the absence of both a robust pan-Arctic governance regime and an effective, comprehensive framework for fisheries management instead frames this mass change as a security threat.

## Arctic Governance & Stakeholder Agreements

The Arctic Council is the Arctic's principal intergovernmental forum for promoting regional geopolitical cooperation and sustainable development, comprising eight member countries (Canada, Denmark including Greenland, Finland, Iceland, Norway, Russia, Sweden, and the United States of America), Arctic Indigenous communities as permanent participants, and non-voting observers (Sacks et al., 2021). The latter includes major stakeholders without territorial claims, but significant interest in the region, such as China and the EU (Jakobson & Melvin, 2016).

This inclusivity guarantees the Council's connection to major geopolitical shifts, but its geopolitical role is in flux—it lacks legal authority, but the Arctic's increasing economic relevance has spurred critique of the Council as decision-shaping, not decision-making, and members have increasingly indicated support for repositioning as a more results-oriented body (Spence, 2017). At present, it continues to operate as a non-legally binding collective of sovereign actors with individual priorities. Because of this, members can choose to take political action by simply not participating—and when Russia's 2022 invasion of Ukraine coincided with its turn as Council leadership from 2021-2023, the Arctic Council ceased to function when all seven other member states jointly declared a boycott in which they would halt participation in all formal aspects of the Council (McVicar, 2022).

The "Arctic 5," the five littoral states of the Arctic Council—Canada, Denmark including Greenland, Norway, Russia, and the United States of America—collectively have a more central influence over the Council than the three members without Arctic coastlines (Jakobson & Melvin, 2016). This has partly shaped the direction of the Council and Arctic governance, including through formal agreements like the 2008 Ilulissat Declaration: in this, the Arctic 5 effectively rejected the possibility of formal and comprehensive cooperative governance in the Arctic, in favor of the ongoing, loose collective of sovereign actors (Young, 2016; Sacks et al., 2021).

## Major Legal Frameworks

The Arctic Ocean is unique in international marine law: it is smaller than other recognized oceans, environmentally distinct, has few coastal states, and large swathes of its waters are inaccessible and ice-covered (Vylegzhanin et al., 2020). These factors result in a complex, distinct system of

legal frameworks informing Arctic governance, with key policy instruments that sometimes conflict or overlap and may enable geopolitical ambiguities and tensions among states. Like governance structures, these frameworks face issues of recognized versus informal legal authority.

**The Svalbard Treaty (Spitsbergen Treaty)**

The Svalbard Treaty, signed in 1920, grants Norwegian sovereignty over the Svalbard archipelago and stipulates equal rights to economic activity and resource exploitation within these territorial waters for signatory countries. The scope and nature of this equality remain a debate, with disputed limits to Norway's autonomy and the borders of Svalbard's maritime zones vis-à-vis the extension of its continental shelf and the application of Norway's EEZ (Kirchner, Koivurova, & Singh, 2022). One complexity is the Treaty's age, as the geopolitics, international marine law, and norms of the Arctic have significantly evolved in the century since signing (Pedersen, 2006; Pedersen and Henriksen, 2009). The evolution of the law of the sea is particularly salient, and Norway has actively participated in negotiating these agreements as it seeks to assert its territorial rights. In the 21st century and within the scope of this project, states such as Russia have accused Norway of Treaty violation, given the Norwegian approach to assigning fishing quotas and access to the Svalbard Fisheries Protection Zone (SFPZ) (Churchill, 2022).

**The United Nations Convention on the Law of the Sea (UNCLOS)**

Established in 1982, the United Nations Convention on the Law of the Sea, or UNCLOS, is the primary legal framework for governance of international marine relations (Guilloux, 2020). UNCLOS includes guidelines for determining maritime zones, including EEZs, but these have not prevented competing claims by coastal states on issues like continental shelves (Jakobson & Melvin, 2016). This is highly relevant in the Arctic, where rights over, for example, oil and gas drilling in newly accessible resource-rich areas cannot be ambiguous, and UNCLOS' differentiation of maritime zones and territorial boundaries must be exact. UNCLOS is also, importantly, not universally ratified—notably, this includes an Arctic Council member, the United States (Jakobson & Melvin, 2016).

UNCLOS is not static and new guidelines for governance can be established. In 2023, the High Seas Treaty was signed, adding significant international conservation and sustainability measures.

If ratified, the High Seas Treaty will provide a legal framework for international marine protections via measures for establishing marine protected areas and requiring environmental impact assessments prior to resource extraction like deep sea mining (McVeigh, 2023; Stallard, 2023).

**International Tribunal for the Law of the Sea (ITLOS)**

UNCLOS also established a dedicated, independent judicial body for dispute resolution, the International Tribunal for the Law of the Sea (ITLOS). As a neutral forum, ITLOS can address and resolve maritime disputes in the Arctic, from international, state-to-state disagreements on resource allocation, to issues like the illegal detainment of fishing vessels. ITLOS' jurisdiction and authority, however, are limited by the same issue constraining UNCLOS' full regional efficacy—not all Arctic states have accepted it (Jakobson & Melvin, 2016).

**Central Arctic Ocean Fisheries Agreement (CAOFA)**

The Central Arctic Ocean Fisheries Agreement (CAOFA), signed in 2018 by the Arctic Five, and five additional non-Arctic actors (Japan, South Korea, Iceland, the EU, and China), places a 16-year moratorium on commercial fishing in the high seas area of the Central Arctic Ocean, to be re-evaluated every 5 years. It is a major act of international cooperation, representing a significant change in the legal approach to Arctic marine resources, with important scientific implications: the agreement acts by the precautionary principle (Calderwood & Ulmer, 2023; Vylegzhanin et al., 2020). The Central Arctic Ocean is not yet accessible, and by imposing a moratorium prior to any commercial or industrial (oil and gas) activity, it establishes a framework for full scientific research into the ecological conditions of the Arctic high seas, enabling informed sustainable fisheries management (Calderwood & Ulmer, 2023).

**Bilateral Cooperation**

Interstate relationships are also key components of the efficacy and structure of Arctic governance. Norway and Russia together hold claim to nearly the entirety of the Barents Sea as the two states with recognized marine territorial claims. These neighbors have a lengthy history of collaboration and diplomacy, but also tension and major disagreements. Since the 1970s, the fisheries stocks of the Svalbard Fisheries Protection Zone and Barents have been shared and managed by the Joint Norwegian-Russian Fisheries Commission (Churchill, 2022). In 2010, the Treaty Concerning

Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean further cemented Russo-Norwegian diplomatic relations over marine resources (Jakobson & Melvin, 2016; Sacks et al., 2021). This does not remove other geopolitical influences, however. After Russia's 2014 annexation of Crimea, Norway effectively exempted the fishing industry from impact when it joined other states in imposing sanctions on Russia. This tact was repeated following the 2021 invasion of Ukraine but later reversed to formally limit Russian access to Norwegian ports (Solsvik, 2022).

### *Gaps and Weaknesses*

#### Incomplete and Unclear Governance

The structure of Arctic governance is ruled by undefined roles, unanswered questions over participation, and uncertain priorities of sovereign versus collective governance. Arctic governance effectively relies on voluntary cooperation by sovereign states and non-state actors like China and the EU, and is composed of a dense landscape of individual, unrelated actors and arrangements (Young & Kim, 2021). Uncertainty reigns over both hierarchy of influence within the Arctic itself, and the role of non-Arctic actors. The Arctic Council has no true geopolitical might and it remains to be seen what position and role the Council, still the primary pan-Arctic governance entity, can best fulfill in a rapidly changing and complex region. The Council was formed via declaration, not a treaty, keeping its influence secondary by design to the preserved and full sovereignty of the eight Council members, particularly the Arctic Five, and maintaining the status quo (Young, 2016). Thus, as seen with the boycott of Russian leadership in 2022, its activity and role is dependent on how Arctic states perceive its value to their individual sovereign priorities (Wilson, 2016; McVicar, 2022).

#### Territorial Complexity

Maritime boundary disputes are an ongoing tension in the Arctic, enabled by the inherent difficulty of defining such boundaries. Territorial borders in a marine environment are defined in an entirely different manner than terrestrial, as these spaces are dynamic and constantly changing, impacted by factors like climate change (Mendenhall et al., 2020). The four UNCLOS maritime zones involving territorial claims differ in scope, legal breadth, and border recognition (Jakobson & Melvin, 2016). These differences result in disputes like that over Norway's territorial boundaries

stemming from differing interpretations of the wording of the Svalbard Treaty. Territorial seas only extend 12 nautical miles from coastal borders, contiguous zones 12 more, and EEZs 200 nautical miles total, but continental shelves may end at the outer edge of the continental margin — and Norway's claimed EEZ, and continental shelf together cover an area six times greater than its mainland (Pedersen, 2006).

**Reactionary Management and Climate Mitigation**

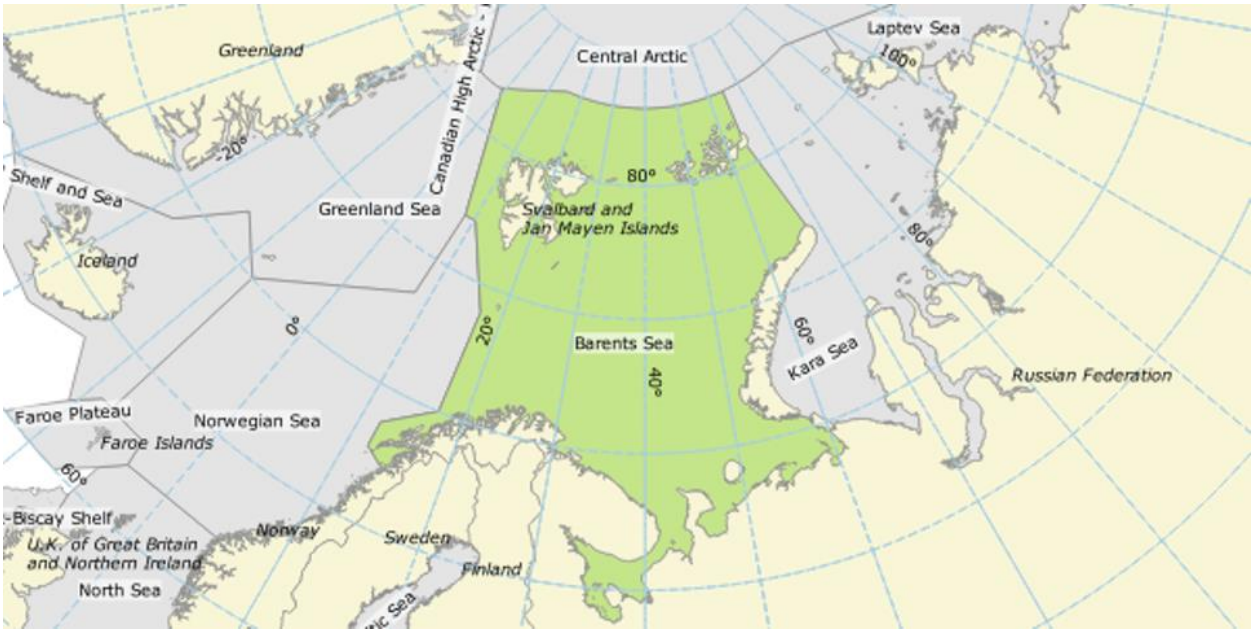
For Arctic fisheries management to meet evolving needs as climate impacts and geopolitical status increase, greater regulatory systems must also change—at present, pan-Arctic governance has proven to be reactionary in its regulation, implementing policy after a potential problem has emerged. This is problematic for environmental issues such as fisheries, where, without comprehensive and effective management, it may not even be well-understood what problems may exist, or their scope (Calderwood & Ulmer, 2023). Fisheries management in the Arctic is additionally complex due to the region's shared and migratory fish stocks. Paired with the structure of Arctic governance, and the divergent and sovereign priorities of the Arctic coastal states, effective management first requires effective international cooperation and priority alignment. Good, effective management of fisheries, with stakeholder cooperation, would reduce vulnerability to fisheries-related conflict and improve the sustainability of Arctic fisheries, enhancing regional climate change mitigation (Burden & Fujita, 2019).

## III. Methodology

### *Area of Study*

The Barents Sea is bound by Norwegian mainland territory to the south, Russian mainland territory to the south and east. The Russian Island of Novaya Zemlya bounds the eastern side of the sea. The Norwegian archipelago Svalbard and its exclusive economic zone form the Northern boundary of the sea. On the northern side, the sea is adjacent to the Central Arctic Ocean, a "donut hole" of international waters. To the West, the Norwegian Sea and the Greenland Sea frame the Barents Sea. Waters surrounding the Svalbard Archipelago (Norwegian territory), Franz Josef Land, and the Western side of Novaya Zemlya (Russian territory) are part of the Barents Sea and were covered in the study. The island of Jan Mayen is located in the Greenland Sea but is included in this study because of its designation as Norwegian territory. The exact area of study can be seen in the figure below from the UNESCO portal of Large Marine Ecosystems.

Figure 1. Area of the Barents Sea examined in this study.




**Source:** One Shared Ocean

***Research methodology***

The methodology for this study was adapted from Devlin et al. (2021). Fisheries conflict events were collected via an online article search database. Nexis Uni was selected as the database because of its broad spatial and temporal coverage and archive of over 15,000 news sources (Devlin et al. 2021). A Boolean search was developed in order to capture fisheries conflict events specifically in the Barents Sea. The search had two main criteria: location and association with fishing. "Conflict" and similar words were intentionally left out of the search string in order not to be limited to articles that were described by the journalist as a conflict event.

***Boolean Search Terms***

Location-based search terms (green) included water bodies of the Barents Sea and names of major bordering land districts in Norway or "oblasts" in Russia. All islands in the area of study were named individually, including each island of the Svalbard Archipelago. All articles had to include words that imply marine boundaries or location (red), as well as fisheries-related words (blue). The actual Boolean search was:

"søraust-svalbard" OR "soraust-svalbard" OR "sør-spitsbergen" OR "sor-spitsbergen" OR "sassen-bünsow" OR "ossian sars" OR "nordvest-spitsbergen" OR "nordre isfjorden" OR "nordaust-svalbard" OR "indre wijdefjorden" OR "russkaya arktika" OR "svalbard west" OR "svalbard east" OR "franz josef land" OR "kong karls land" OR "novaya zemlya" OR "white sea" OR "pechora sea" OR "jan mayen" OR "troms og finnmark" OR "matochkin strait" OR "matochkin shar" OR "prince george land" OR "zemlya georga" OR (svalbard OR barents OR spitsbergen OR nordaustlandet OR nordenskiöld OR moffen OR hopen OR forlandet OR festningen OR bjørnøya OR bjornoya OR svenskøya OR svenskoya OR kongsøya OR kongsoya OR abeløya OR abeloya OR kvitøya OR kvitoya OR edgeøya OR edgeoya OR barentsøya OR barentsoya OR kolguyev OR troms OR finnmark OR murmansk OR arkhangelsk OR karelia OR lofoten OR vestfjord OR kola OR nordland OR nenets OR narvik OR severny OR severnyy **OR yuzny** OR vaygach) AND "exclusive economic zone" OR "territorial waters" OR (coast OR coastline OR coastal OR beach OR island) AND (fish OR fishery OR fisheries OR fisherman OR fishermen OR fisherfolk OR aquaculture OR fishmonger OR mammies OR seine OR cockle)

The following filters were applied to the NexisUni search in order to call only news articles that reference territories of the Barents Sea. The specific filters used are listed below:

- Content Types: News
- Group Duplicates: ON*
- Time period: 1/1/2013 – 12/31/2022
- Geography by document: select multiple - Europe OR Asia OR Territories and Dependencies
- Sort by: Oldest to Newest

*The group duplicates feature groups of very similar articles into one place, which allows coders to identify repeated events more easily. Further identification of repeated events is explained in the inter-coder reliability section (below).

***Data Collection***

**Cataloging**

Within these search parameters, we manually scanned through articles published during the years 2013 through 2022. Any articles with a potential incidence of fisheries conflict were "cataloged" into a repository on a cloud based shared drive. Articles were assigned a numerical identification code, which increased chronologically. The three researchers divided up the time period such that each scanned between 2,000 and 2,500 articles, for a total of 7,499 scanned articles. The time period division was as follows:

- **2013:** Stephanie Murphy, Maité Duquela, Sasha Iturralde
- **2014 - 2017:** Stephanie Murphy
- **2017 - 2019:** Maité Duquela
- **2020 - 2022:** Sasha Iturralde

**Coding**

Once cataloging was completed, every article was scanned for more thorough identification incidents of fisheries conflict. Identified incidents were sorted into "Fisheries Dispute Events" (FDEs) and "Fisheries Dispute Aggregates" (FDAs). According to the methodology developed by Devlin et al. 2021, an FDE is defined as "an incident in which a fisheries resource is contested,

disputed, or the source of conflict between a minimum of two actors, at a discrete temporal moment, and in a discrete location" (Fisheries Conflict Codebook 2021). FDAs must take place between a minimum of two actors, but do not necessarily occur in a discrete temporal moment or a discrete location.

Events and aggregates were coded according to a wide range of parameters involving defining the timeline, precise location (if available), waterbody, categorization of actor types, level of intensity of the conflict, a qualitative description of the incident, and other details. A complete list of questions and instructions for coding can be found in the Fisheries Conflict Codebook. These details were entered into an online form that outputs into a shared spreadsheet.

**Actors:** Actors on each side of the conflict were categorized by actor type and number of actors involved and given a qualitative description of the actor's name. Actor types include government (ranging from local to international level), fishers (small-scale to commercial scale), security forces, rebels, and other categories. Each actor may also be characterized as domestic or foreign. A complete list of actor types and definitions can be found in the Fisheries Conflict Codebook.

**Drivers:** Drivers of the conflict were documented for every entry according to 14 potential variables that represent different "motivations of the actors and enabling factors or conditions" (Fisheries Conflict Codebook, 2021). Any drivers that represent motivations of any actors within a conflict were documented. For example, actors may be motivated to engage in conflict by changes to the ecosystem, by the presence of foreign fishers, by market dynamics, poverty, breaches of ground limitations, and other factors. A complete list of drivers is provided below. For a complete description of the 14 potential drivers and examples, refer to the Fisheries Conflict Codebook.

**Fisheries Conflict Drivers:**

- **WeakGov:** Were the actions of at least one of the actors driven by weak governance?
- **FishPop**: Were the actions of at least one of the actors driven by an actual or perceived decline in fish population(s)?

- **EcoChngOther:** Were the actions of at least one of the actors driven by changes to the natural ecosystem, excluding the health of fish populations?
- **Poverty:** Were the actions of at least one of the actors driven by conditions of poverty, excluding food insecurity?
- **FoodInsecurity:** Were the actions of at least one of the actors driven by food insecurity? Food insecurity is a lack of access to a reliable source of sufficient and nutritious food (both fisheries and non-fisheries food).
- **Marginalization:** Were the actions of at least one of the actors driven by social, economic, ethnic, tribal, gender, or political marginalization?
- **GroundsLim:** Were the actions of at least one of the actors driven by limitations on access to fishing grounds?
- **OpsScales:** Was at least one of the actors motivated by competition with actors that operate at a different scale of fishing? Scale of fishing refers to the sector (commercial/industrial versus artisanal/subsistence), which can usually be determined by the size of boat, number of crew, flag of vessel, gear, or location of fishing.
- **ForeignFisher:** Were the actions of at least one of the actors driven by the presence of foreign fishers in domestic waters?
- **Markets:** Were the actions of at least one of the actors driven by the supply or demand from transnational markets? Do not assume the presence of a foreign boat represents high demand in that country. There must be something about the state of the foreign market.
- **IncrEfficiency:** Were the actions of at least one of the actors driven by increased efficiency of fishing by the other actor(s)?
- **IncrPressure:** Were the actions of at least one of the actors driven by conditions related to increased fishing pressure?
- **Crime:** Were the actions of at least one of the actors driven by a non-fisheries' maritime crime? Event does not need to be marine.
- **StratLoc:** Were the actions of at least one of the actors driven by the strategic importance of the fishery's land location? Not related to access to fish.

**Violence Score:** Each FDE is given a "violence score" that assigns an intensity to the conflict. Intensity levels are given a score between 1 and 3 and are defined as follows according to the Fisheries Conflict Codebook:

- Low-level intensity (1): Verbal conflict - no physical action taken.
    - Examples: Bans, complaints, fines, protests
- Mid-level conflict (2): Action is taken, but no physical harm is done.
    - Examples: Arrests, abductions, property damage, stolen property, gear confiscation
- High-level intensity (3): Event involves physical harm.
    - Examples: Injuries, sexual assaults, fatalities

**Aggregate Summary:** For each conflict, coders wrote a qualitative description of events providing context, a summary, and any details not captured by prompted questions in the online form. These descriptions can help coders understand patterns of events that emerge and put conflicts into a larger context of events. They are also used to ensure that conflict events are not repeated in the database.

***Aggregate Intensity Scoring***

The Aggregate Intensity Score (AIS) measures intensity of disputes from the perspective of fishers. After all fisheries conflict events and aggregates for the time period were coded, the database was categorized according to year and waterbody district. Together, coders read every incidence of fisheries conflict in a given waterbody for a particular year and came to a group consensus on the AIS score for each incidence using the definitions below. The highest score for a single incident then became the AIS score for that waterbody-year. For example, if two fisheries conflict incidents were assigned an AIS score of 1, and one incident was assigned an AIS score of 2, the AIS score of that waterbody-year would be 2. AIS scores are defined below; refer to the Fisheries Conflict Codebook for a complete description of scores and examples.

1 = Low: Represents inconvenience to fishers

2 = Medium: Conflict intensity presents a serious problem or threat to fishres

3 = High: Fishers are fearful to fish

### *Inter-coder Reliability*

Coders were trained on coding methodology by Colleen Devlin, designer of the Fisheries Conflict Codebook and methodology. Coders held multiple "practice" sessions in which each student independently coded the same articles, then met to discuss differences and come to a consensus. Coding decisions were guided by Colleen Devlin and according to the Codebook. All coding entries were independently reviewed by Colleen in consultation with Sarah Glaser, the project lead from the World Wildlife Fund. For incidents for which designation of one or more parameters was in question, group sessions were held in which coders decided based on consensus. As such, no statistical analysis of intercoder consistency was performed.

Many incidents of fisheries conflict appear in multiple news articles in the database. Articles covering an incident already in the database that provided no additional information were disregarded and did not lead to a database entry. Articles that provided new information about a previously documented conflict were added to the original conflict entry in the online form, and conflict details were updated with the newest information. Each coder reviewed the entire database of events and aggregates, and collaborated with other coders to ensure that conflict incidents were not repeated across coders.

### *Data Analysis*

Statistical analysis was conducted by running the coding database through R statistical language and Microsoft Excel spreadsheets. The R code was derived from the original code designed to analyze fisheries conflicts around the Horn of Africa in Devlin, et al, (2021) and was edited to capture this case study's locations, years, and priorities. Key statistics include the frequency of different types of actors involved in conflict, frequency of conflict drivers, frequency of land locations of conflict, and frequency of conflicts that occur in Russian, Norwegian, or international waters.

Coders also analyzed major conflict themes by reading through each aggregate description to qualitatively understand issues and patterns that commonly occurred in the Barents Sea region.

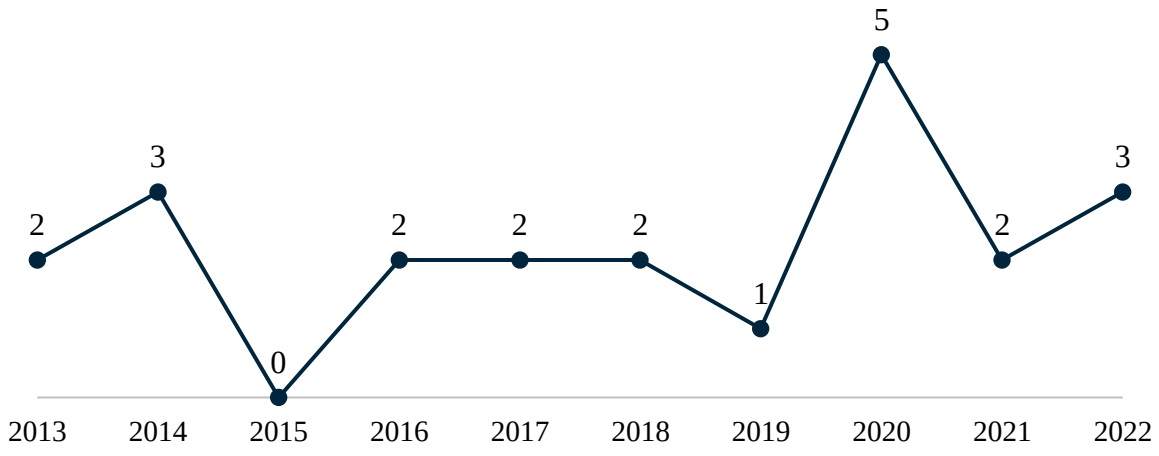
## IV. Results

Between 2013 and 2022, the researchers identified 22 unique fisheries dispute events (FDEs) and 53 fisheries dispute aggregates (FDAs). Figure 2 shows the distribution of the 22 events by year for the ten-year period. There is a nearly-constant average of 2 events per year, with a notable peak in 2020.

The year 2020 is the year with the highest number of events, followed by 2022, with 23% and 14%, respectively. This period is mainly characterized by conflicts between the Russian and the Norwegian governments. For instance, Norway declared the 200-nautical miles Fishery Protection Zone around the Svalbard archipelago, which was quickly implemented. However, Russia considered this an attempt from Norway to limit access of foreign fishers to these fishing grounds. Several conflicts arose as a consequence.

Another year that can be highlighted by the frequency of events is 2014. This year is characterized by several detainments and fines, including a Lithuanian trawler for illegal fishing in Russian waters and a Russian trawler for illegal fish dumping in Norwegian waters.

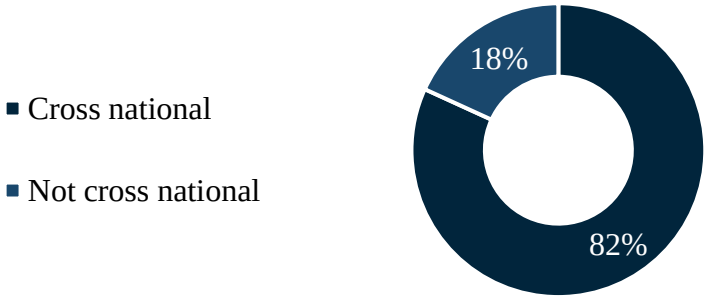
Figure 2. Distribution of FDEs by year, 2013-2022




As shown in Figure 3, the majority of events were cross-national, around 82%. Cross-national events involve parties from two or more different nations. These conflicts were mostly disputes

between Russia and Norway. On the other hand, all of the remaining 18% of events that were not cross-national involved only Norwegians stakeholders and occurred within Norway.

Figure 3. Distribution of FDEs by cross-nationality, 2013-2022




The majority of cross-national events happened in Norwegian waters. Figure 4 shows the distribution of the 22 events by major region. 77% occurred in Norwegian waters, out of which 41% occurred around the waters of the Svalbard territory and 18% occurred around Troms og Finnmark, a coastal county in the north of Norway. Both of these are heavily fished areas (Arve et al, 2016). Only 18% of the events occurred around Russian waters, with events happening around Murmansk.

Out of all events, 18% happened within the waters of the Barents Sea, including both the Norwegian EEZ and the Russian EEZ.

Figure 4. Distribution of FDEs by major region, 2013-2022

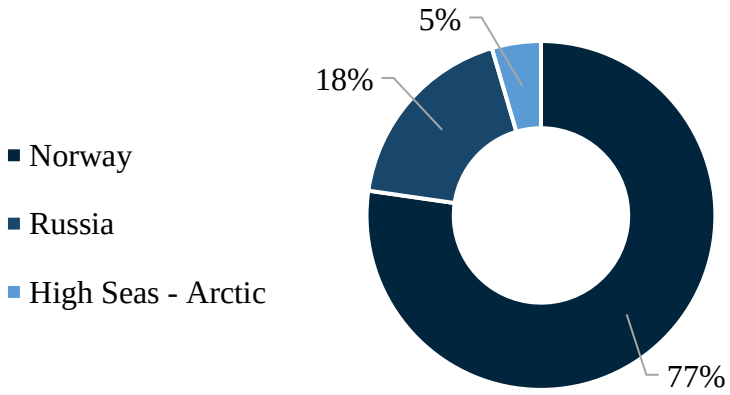
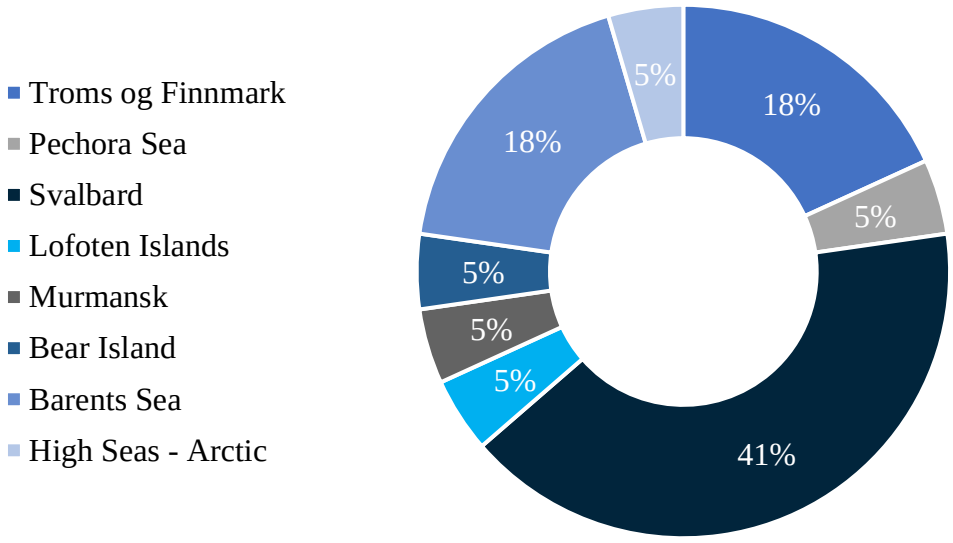


Figure 5. Distribution of FDEs by land name, 2013-2022




The most common drivers of fisheries dispute events were illegal fishing, foreign fishers, and grounds limitation. As shown in Figure 6, these drivers were present in 59% of the events. Although they are similar factors and somewhat related to each other, it is important to note that the team cataloged these events differently. For instance, illegal fishing can include foreign fishing in national waters without any type of permission to do so. However, illegal fishing also includes conflicts that were enabled due to fishing in an area without a state flag or license, regardless of the nationality of the fishers. It could also correspond to fishing in closed areas, such as fishery protection zones, marine protected areas, national parks, or fishing in an open area during closed seasons. Illegal fishing can also count any type of fishing-related practices without proper authorization, such as dumping by-catch. On the other hand, ground limitation refers to cases driven by limiting access to specific fishing grounds, which usually happens in disputed areas.

Figure 6. Distribution of FDEs by driver, 2013-2022

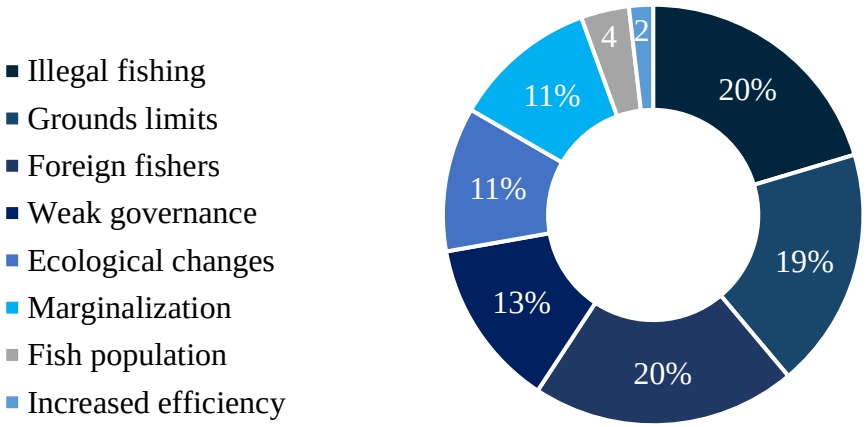
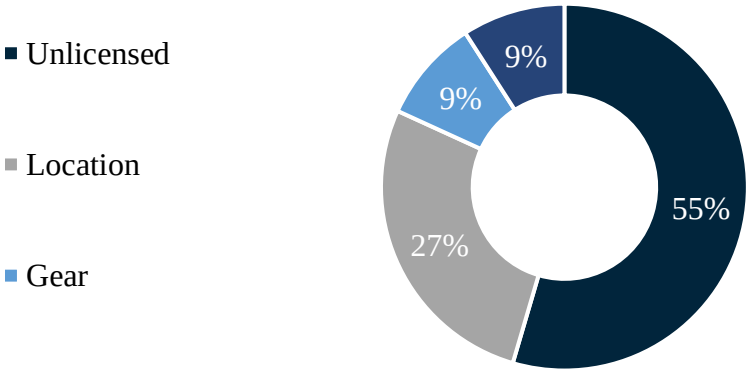



Figure 7 shows the cases where illegal fishing was the driver, distributed by type. Out of the 11 conflicts that happened due to illegal fishing, 55% were related to fishers and vessels lacking a proper license to fish and 27% were related to fishing in specific closed areas.

In the cases studied, conflicts that were mainly driven by illegal fishing in the Barents Sea region often resulted in trawlers being seized and fishers being fined and/or arrested.

Figure 7. Distribution of FDEs driven by illegal fishing by the type of illegal fishing that occurred, 2013-2022



On the other hand, foreign fishers refers to conflicts directly driven by the presence of foreign fishers in the domestic waters of a particular country. In the cases studied, the majority of conflicts with this driver were related to illegal fishing as well, and most reported Russian fishers in Norwegian waters. There were other cases such as United Kingdom fishers and European Union member flagged vessels trying to fish in Norwegian waters, especially around the Svalbard territory.

These conflicts were characterized by specific disputes over the rights of foreign fishers to fish off the waters of Svalbard. While the Svalbard Treaty establishes Norwegian sovereignty over Svalbard, it also provides the freedom and the right of other states to use their resources as well, both for commercial fishing and for scientific research purposes. However, in the last 20 years there has been a debate over the contextual framework in which the treaty was signed, as well as the interpretation of its text. Norway has consistently argued that they have the exclusive rights to issue fishing licenses for Svalbard. This means that vessels with licenses issued by the European Commission are technically not allowed to fish unless they get "the official" license by the Norwegian government. Additionally, in the years 2017-2019, Norway argued that the treaty does not include rights to fish in the continental shelf, which has posed a threat to other countries in terms of access to the snow crab fishery.

In contrast, the grounds limitation driver refers to cases driven by limitations on access to specific fishing grounds. This refers to conflicts where one of the actors believes that other fishers shouldn't be fishing for any particular reason. This includes foreign fishers that don't hold a license, protected regions, border conflict, and disputed areas. In our study, we found that the majority of the cases where grounds limitation was the driver were also related to illegal fishing due to lack of licenses and to the presence of foreign fishers.

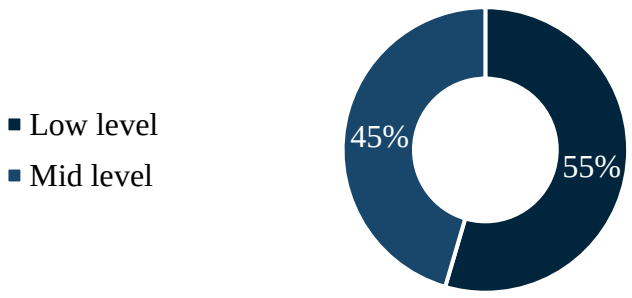
Weak governance was the driver responsible for 13% of cases. This refers to conflicts arising due to corruption, weak enforcement of laws, weak institutional capacity, or even organized crime. For example, this happened when fishers protested the government's inability to reach agreements on fishing locations and catch quotas.

Events that were driven by ecological changes represented 11%. This refers to conflicts driven by a particular change in fisheries ecosystems. This includes ocean acidification and sea-surface temperature change, as well as coral-reef damages and pollution. In the cases studied, all of these conflict events were related to fishers and environmentalists taking legal action, holding demonstrations, and actively disrupting oil and gas drilling activities in the region founded on their purpose to protect the local fisheries, coral reefs, and overall marine ecosystem from harm and pollution, particularly potential oil spills. NGOs often tie ecosystem concerns to climate change, insisting that protecting fisheries is particularly important in a melting Arctic.

Another common driver was marginalization, representing 11% of the events. This refers to cases when the actions are driven by social, economic, ethnic, tribal, gender, or political marginalization or discriminatory practice. In our cases, this happened, for instance, when Russian fishers and fishers licensed by the European Commission claimed and protested that they were being targeted by the Norwegian government and unfairly fined, resulting in a violation of their equal rights to fish off of Svalbard based on the Svalbard Treaty.

Figure 8 shows an outlook of the consequences of these events by their level of violence. 45% of them resulted in a low-level of violence and 55% of them resulted in a mid-level of violence. This, in no way, implies that the consequences as insignificant or negligible; rather, it only indicates that the conflicts did not result in physical violence.

Figure 8. Distribution of FDEs by violence level, 2013-2022

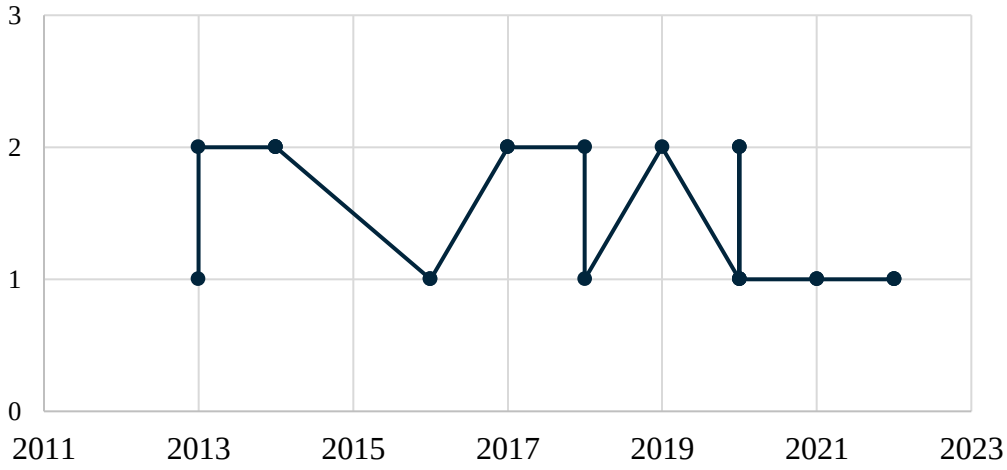



The 12 events with a low-level of violence include disputes where people or organizations sent a formal letter complaining about a policy or accused governments of unfair treatment or of arbitrary

restriction of activities. This also includes protests, like Greenpeace holding a demonstration or infiltrating an oil drilling ship to disrupt its activities. This category also includes legal action, such as environmental groups suing the government for licensing oil and gas drilling claiming a violation of constitutional rights to a healthy environment.

The 10 events with a mid-level of violence include cases where fishers and protesters were arrested. It also includes vessels, trawlers, and fishing gear being detained and seized by the corresponding authorities. This usually happened when a vessel was caught fishing illegally. In these cases, fishers were also fined and required to pay to get their confiscated boats and gear back. All of these 10 events were cross-national and involved confiscation of gear, vessels, and equipment. And 4 of these events involved arrests of fishing crews, including a Latvian crew arrested by the Norwegian Coast Guard, and a Lithuanian crew and a Norwegian crew each arrested by the Russian Coast Guard on different occasions.

Figure 9. Distribution of the violence level of FDEs by year, 2013-2022

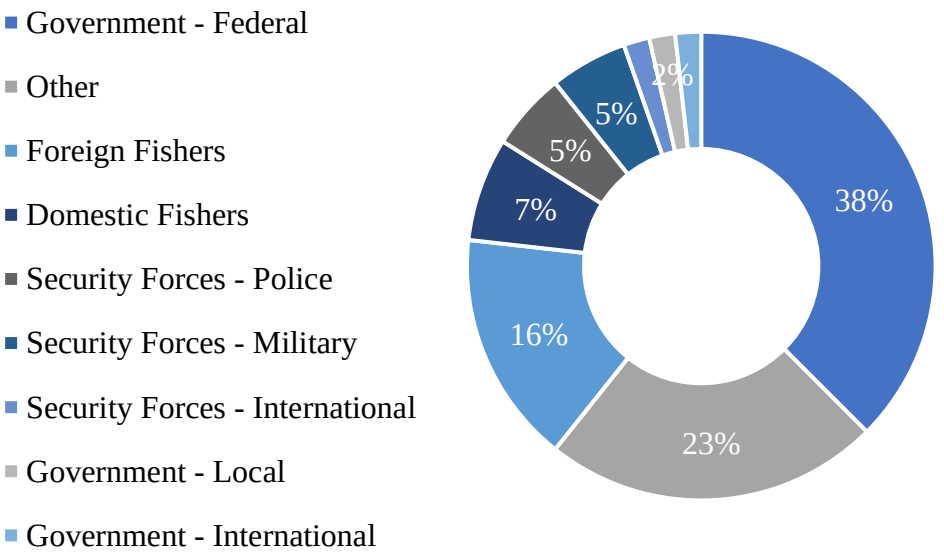



As shown in Figure 9, the years 2014, 2017, and 2019 were characterized by conflicts in the category of mid-level of violence. This is due mostly to events that involved detainments of fishing vessels and arrests. In contrast, 2021 and 2022 were characterized by conflicts with low-level violence. This is due to disputes based on geopolitical and policy-related issues.

As shown in both Figures 8 and 9, none of the events identified in this time period and in this region involved any high-level of violence, which means there were no injuries, sexual assaults incidents, abduction, or fatalities reported as a consequence of these fisheries dispute events.

Figure 10 presents the stakeholders identified. Due to conflicts involving several stakeholders, the graph shows the percentage distribution of stakeholders by category based on the total frequency of the stakeholders across conflicts.

Figure 10. Distribution of stakeholders identified in FDEs by category, 2013-2022



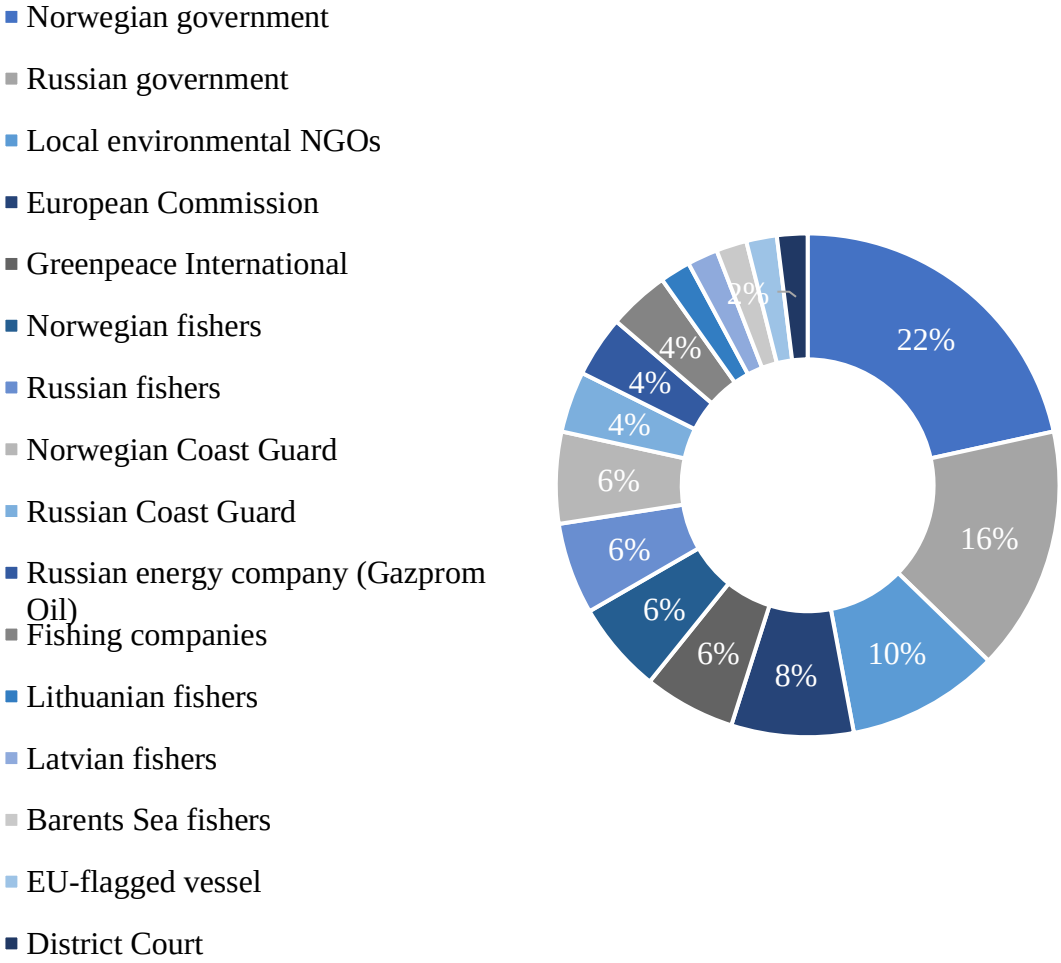

Out of the 22 events identified, there are 15 in which at least one federal government was involved in the conflict, with overwhelming engagement of the Russian and the Norwegian governments. There were 9 events in which at least one of the actors involved was considered a foreign fisher or foreign fishing vessel in Norwegian or Russian domestic waters. Only 4 events involved domestic fishers, and they were all between Norwegian actors.

There were 6 events that involved security forces. This includes the Norwegian Coast Guard that corresponds to the military branch and the Russian Coast Guard that corresponds to a federal dependency. One of these events also included the European Free Trade Association Surveillance

Authority (EFTA), which is responsible for monitoring compliance with the Agreement on the European Economic Area (EEA) in Iceland, Liechtenstein, and Norway.

Figure 11 shows a more detailed overview of the stakeholders identified across events and aggregates. The most frequent stakeholder involved was the Norwegian federal government, representing 22% in all conflicts. This is followed by the Russian federal government, representing 16% in the conflicts studied.

Figure 11. Distribution of stakeholders identified in FDEs and FDAs by category, 2013-2022




As shown above, local environmental NGOs were also key actors in the conflicts in the Barents Sea region, present in 8% of all conflicts. There were specifically 4 organizations from Norway that were repeatedly engaged in disputes: Greenpeace Norway, WWF Norway, Young Friends of

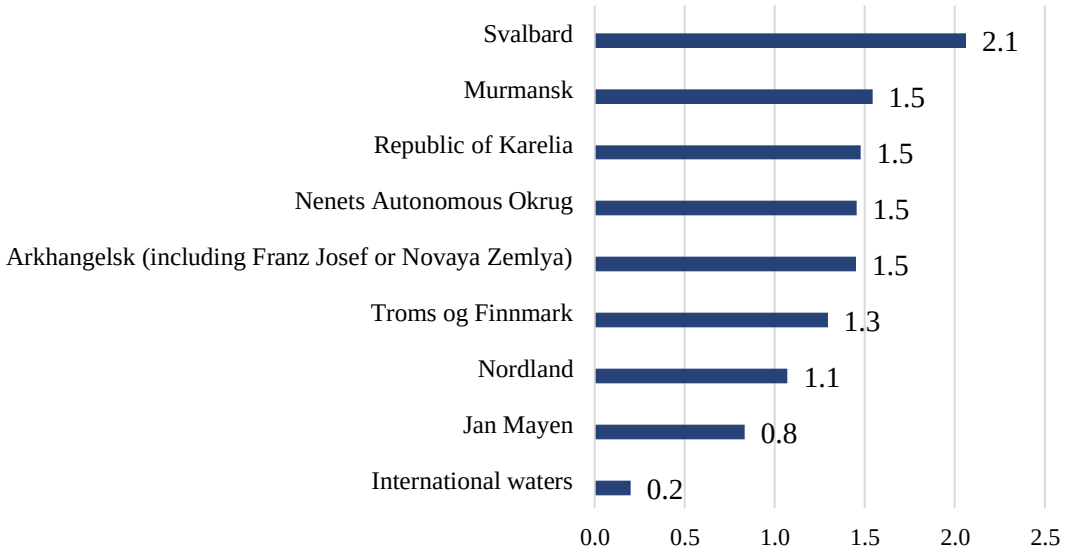
the Earth Norway, and Nature & Youth. Concurrently, Greenpeace International also had a significant presence in conflicts, occurring in 6% of all conflicts.

Interestingly, Norwegian fishers and Russian fishers accounted for 12% of actors in all conflicts, representing 6% each. The Norwegian Coast Guard also accounted for 6%, while the Russian Coast Guard represented 4% in all conflicts. Additionally, the Russian energy company Gazprom Oil was also a relevant actor in several conflicts, acting in 4% of all conflicts.

The fisheries disputes aggregates were also separately analyzed in order to capture their intensity score, their location, and their trends. Figure 12 shows the ten-year average of AIS by district. The highest AIS average over 2013-2022 was in Svalbard with a score of 2.1. Svalbard was the central region of fisheries disputes, especially with the debates over the implementation of the Svalbard Treaty.

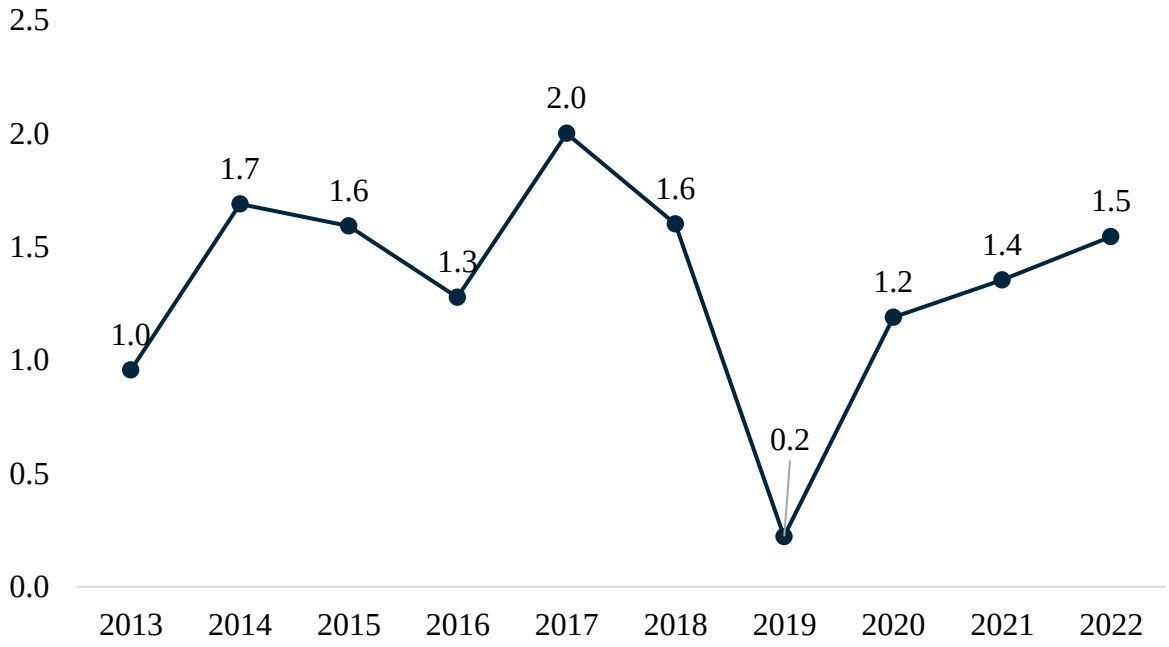
Interestingly, – below Svalbard – the four highest AIS averages were all 1.5 and were all corresponding to Russian districts, specifically: Murmansk, Republic of Karelia, Nenets Autonomous Okrug, and Arkhangelsk. These locations are characterized by disputes with a mid-level of violence.

Figure 12. Ten-year average of AIS score for FDAs by district, 2013-2022



Finally, Figure 13 below shows the AIS average across all districts studied by year. The year with the highest AIS average was 2017. This year was characterized by many conflicts regarding the Svalbard Treaty and rights to fish in the Svalbard fisheries protection zone (implemented by Norway), as well as several arrests of fishers by the Russian Coast Guard for illegal fishing.

Figure 13. Average across districts of AIS score for FDAs by year, 2013-2022



## V. Discussions and Conclusions

From 2013 - 2022, several dynamics emerged as consistent drivers of fisheries conflict. These patterns and central stakeholders are discussed below.

### *Fossil fuel exploration and development drives fisheries conflict*

Tensions between oil and gas interests and fisheries stakeholders proved to be a major source of conflict throughout the 2013 - 2022 period of study. Exploitation of oil and gas has been expanding in the Barents Sea since it first developed in the mid-1960s, and it has since become a central part of Norway's economy and status as a welfare state (Norwegian Ministry of Petroleum and Energy, 2023). Our study observes two significant forms of fisheries conflict related to oil and gas development.

### NGOs and fishers peacefully protest oil and gas expansion

The first form of conflict primarily relates to oil and gas development around the Lofoten Islands. Located on the very edge of the Barents Sea in the district of Nordland, the Lofoten archipelago is home to the world's largest deep water coral reef. The area provides critical habitat for the rich marine ecosystem, including nursery for the Arctic cod and herring fisheries (Fjord Travel Norway, n.df). Oil and gas exploration surveys estimate that the Lofoten Islands contain 1.3 billion barrels of oil equivalent (International Oil Daily, 2016).

In 2013, Norway's center-left Labour Party came out in favor of oil impact studies around the Lofoten Islands (Bennett, 2016). In reaction, fishers and NGOs including World Wildlife Fund Norway, Friends of the Earth, Greenpeace Norway, and Nature and Youth consistently express opposition to any potential development. Forms of protest include regular commentary criticizing exploration studies and letters to the Norwegian government insisting instead that the area be conserved for the benefit of fisheries and ecosystem health. Fishers and environmentalists also held a demonstration in Oslo in 2016 (Milne, 2016). The dispute is reported to have lasted from 2013 - 2017, at which time support for oil around Lofoten began to wane among the oil industry and among supporters in government. In 2019, the Norwegian government agreed to halt oil exploration plans until 2024 (Holter, 2019).

**Greenpeace boarding oil and gas rigs across the Barents Sea**

Throughout the period of study, Greenpeace International toured the Arctic as part of their "Act for Arctic" campaign, which consisted of protesting both oil and gas development and expansion of commercial fishing. Touring on the *Arctic Sunrise* vessel, the organization boarded oil rigs across the European and Russian Arctic, including several via incidents in the Barents Sea. For instance, in 2013, thirty Greenpeace activists were arrested by the Russian Coast Guard after protesting and attempting to board a rig in Russia's Pechora Sea. Russian forces detained the vessel and held activists in Murmansk. In 2014, Greenpeace activists boarded an oil rig near Norway's Bear Island Nature Reserve to protest drilling and unsustainable fishing. In this case, activists were removed but not arrested (Lazare, 2014).

***Use of Vessel Detainments as a Political Tool***

The period witnessed several arrests and associated detainments of foreign vessels by both Norwegian and Russian forces. In most instances, the validity of the arrest was disputed by the arrested party and by their home country. For example, in 2014, Russia detained a Lithuanian vessel under the claim the vessel was illegally fishing for snow crabs in Russian waters. The Lithuanians asserted that no fishing had taken place in Russian waters, arguing instead that the snow crab had been caught in international waters. The incident sparked a multi-year dispute in which Lithuania and the European Union (EU) accused Russia of violating international law. The Lithuanian Prime Minister also suggested that Russia's arrest was a politically-motivated exercise of Russian power (BBC, 2014).

**Vessel Detainments and the Svalbard Treaty**

Signed in 1920, the Svalbard Treaty gives Norway Sovereignty over the Svalbard Archipelago. Norwegian authorities have the right to regulate all activity around the islands, yet treaty signatories are supposed to have equal rights to resource extraction (Offerdal, 2016). Between 2013 and 2022, our study observed a rise in tensions between Norway and several other nations with regards to fishing rights around Svalbard. The EU, in addition to several individual EU member states (including Latvia and Lithuania), accused Norway of misinterpreting the Svalbard Treaty to the detriment of foreign fishers. The dispute centers on Norway's establishment of a fisheries protection zone in the 200 nautical mile EEZ surrounding the islands. While the EU refers

to the equal fishing rights guaranteed by the treaty, Norway counters that EU fishers have no such rights without an approved quota exchange (Fouche, 2019). Furthermore, parties are primarily interested in fishing for snow crabs, and Norway argues that the treaty does not include access to the continental shelf in the Svalbard surrounding waters, which is where the snow crabs live. The major dispute relies on whether snow crabs are a sedentary species living on the seabed or whether it qualifies as a fish stock that moves around. Norway argues the former, because it would mean that it is a resource belonging to their continental shelf and, thus, not included in the treaty. The latter position, however, would mean a potential threat to Norway's claim over oil and gas resources in the region (Fouche, 2019).

Several Baltic vessels were detained between 2017 and 2018 (Owen, 2018). Most notably, Norway's detainment of a Latvian vessel in 2017 caused Latvia to accuse Norway of unlawfully restricting their fishing rights (Esmersk, 2017). The event triggered a battle between the EU and Norway overfishing quotas. Additionally, Latvia filed suit against the European Commission for the failure to secure fishing rights for member states (Vilnius, 2018).

Russia also asserted that Norway was unfairly restricting their equal access to Svalbard fisheries, calling the establishment of the fisheries protection zone "unlawful" (Radio Free Europe, 2020). In 2020, the Norwegian Coast Guard detained a Russian vessel in the Fisheries Protection Zone for suspected violation of Norwegian regulations. In response, Russia filed a formal protest to Oslo and accused Norway of illegally expanding its rights in the area (Balmforth and Adomaitis, 2020).

The extended conflict points to the shortcomings of the 100-year-old international agreement, which fails to clearly define fishing rights or provide a mechanism for treaty updates as stakeholder interests evolve.

***Major geopolitical events affect fishers***

Documented conflicts also demonstrate the effects of international, non-fisheries geopolitical events on the fishing sector. When Russia invaded Crimea in 2014, the West enacted sanctions on Russia. In retaliation, Russia banned food imports from Western nations, including Norway. Salmon and trout from Norwegian aquaculture farms were one of the first products affected

(Karpukhin, 2017). After Russia's 2022 invasion of Ukraine, Russian fishers lost access to several European fishing ports, including three in Norway (Agence France Presse, 2022).

The United Kingdom's withdrawal from the EU in 2020 - commonly known as "Brexit" - had notable impacts on the ability of UK fishers to legally fish the Barents Sea. Previously, Svalbard and other areas within Norway's EEZ were major destinations for the UK's distant water fishing fleet. After Brexit, UK fishers lost access to EU quota arrangements were grounded until agreement could be negotiated directly between Norway and the UK. Dissatisfied with this arrangement, UK fishers expressed discontentment and at times protested the UK government for failing to successfully negotiate on their behalf. The EU and UK eventually agreed to divide the existing fisheries quotas, a deal that allocated 24, 645 tons for European Union vessels around Svalbard. However, Norway insisted that only it had the exclusive right to issue quotes around the archipelago (Moens and Galindo, 2021). Norway and the EU have continued to dispute overfishing access to Svalbard into early 2023. The conflict has implications not only for fisheries, but for the ability of other nations to extract oil and gas in the 200 nautical-mile zone around Svalbard (Paddison, 2023).

## VI. Limitations and Areas for Further Development

### *Limitations*

This study is restricted by conflicts that were reported in the media, and specifically media documented in the NexisUni database. While NexisUni is a robust database with broad spatial and temporal coverage, it is possible that some news articles containing incidents of fisheries conflict did not appear in our search. Furthermore, this study was conducted only using English-language search terms (with the exception of Norwegian location names) and only articles written in English were cataloged. Articles documenting fisheries conflict not written in English were not considered, which may have limited the scope of fisheries conflict captured in our database.

Finally, most fisheries conflict events were coded by a single individual. Coders were trained together, held practice coding sessions, and all coded according to the standards of the Fisheries Conflict codebook. However, there is some unavoidable subjectivity in decisions made by

individual coders. In order to reduce subjectivity and increase coding consistency, questionable issues were decided by consensus, and all coding was reviewed by Colleen Devlin, author of the coding methodology.

***Areas for further development***

Expansion of the time period of study would elicit a stronger understanding of conflict trends in the region. A ten-year period of study allows us to identify some patterns, critical stakeholders, and major conflict drivers in the Barents Sea. However, a longer period of study would provide a more comprehensive understanding of how conflict trends and stakeholders evolve. Likewise, the study could be replicated in other areas of the Arctic with significant fisheries in order to understand conflict trends more deeply in the high North, and to help elucidate which are generally indicative of the Arctic region and which are particular to each study area within the region. Exploring these trends is particularly important given the current environmental and geopolitical conditions shaping the Arctic.

Climate and oceanographic modeling may be combined with stock distribution modeling to understand how warming temperatures and changing oceanic conditions may shift fisheries. Transboundary fisheries movement should be explored given the heightened conflict potential if traditional fishing grounds are upended.

Further study could also include regression analysis to determine correlations between variables of fisheries conflict events. Data collected could be translated into quantifiable measurements to assess the statistical significance of certain conditions. For example, analysis could compare specific conflict drivers or locations in relation to the probability of conflicts occurring or conflicts with a specific level of violence. These data could also be developed to train machine learning algorithms that could document and identify incidents, patterns, and drivers of fisheries conflict, and even predict where such conflicts are likely to occur given various expected or potential changes in underlying drivers.

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