Nordic Council of Ministers

ENSURING GENDER EQUALITY IN NORDIC BLUE ECONOMY

Results from the Salmon and Equality project

Contents

Where are the women in the maritime sector? 3

Hvor er kvinder i den maritime sektor? 4

Gender equality is a decision in fisheries and aquaculture 5

Concepts: The maritime sector or the blue bioeconomy? 7

Status of knowledge internationally and in the Nordic Region 12

Data on gender presence in fisheries, aquaculture and the blue economy 15

Gender presence in the Nordic maritime sector, 1990-2022 26

Women on the factory floor 30

Women in aquaculture 34

Captains and fishers – finding gendered fish-legs 43

Culture of masculinity and harassment 57

Organisations – women in the maritime unite 63

Education, gender and the blue bioeconomy 66

Leaders and entrepreneurs – gender presence 86

Gender, agency and capital power in fisheries and aquaculture 90

Discussion and conclusion 92

Recommendations to boost gender equality 94

References 96

About this publication 104

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Where are the women in the maritime sector?

This project was initiated by the Norwegian Chairmanship of the Nordic Council of Ministers for Gender Equality and LGBTI in 2021. It is funded by The Nordic Committee of Senior Officials for Gender Equality and LGBTI (EK-JÄM) and Working Group for Fisheries (AG-Fisk). The project is conducted and managed by Nordregio and the University of Iceland, Department of Geography (& Tourism Studies), Faculty of Life and Environmental Sciences.

Fisheries and aquaculture is an important economic sector for most of the Nordic countries. The "blue fields" of the seas in the Nordic Region are, however, a sector that is traditionally male-dominated and statistics on gender ratio and female presence reveal a gender-segregated labour market. The Nordic partners regard this gender imbalance in the sector as problematic on many levels, prompting launch of the LAKS OG LIKESTILLING ("Salmon and Equality") project to identify reasons contributing to the gender imbalance. This project analyses factors hindering or promoting an improved gender balance in fisheries and aquaculture in the Nordic Region.

The project aims to contribute to an improved knowledge base on equality matters in fisheries and aquaculture, as well as other newly emerging blue economies across the Nordic countries. In parallel, it intends to raise awareness of the need for an improved gender balance in businesses as well as recognizing value of women's skills who are working in the sector. More specifically, the research findings of the project are intended to improve knowledge of measures that have proved effective in increasing gender equality within the sector. On the basis of a comparative analysis, we aim to build a knowledge base for best practices and the exchange of experiences. Lastly, the results of the comparative research will be presented in policy recommendations on measures likely to increase recruitment of women, both as owners and active workers in the sector.

The project focuses on uncovering active measures that contribute to increased gender equality and more balanced representation of both men and women. It also aims to provide an overview of existing statistics on gender ratio among employees and employers in the fisheries and aquaculture sector and identify gaps with respect to division of labour and across strata within the sector.

Photos: iStock and Unsplash

Hvor er kvinder i den maritime sektor?

Dette projekt blev initieret af det norske formandskab for Nordisk Ministerråd for Ligestilling og LGBTQ i 2021. Det er finansieret af Den Nordiske Embedsmandskomité for Ligestilling og LGBTQ (EK-JÄM) og Arbejdsgruppen for Fiskeri (AG- Fisk). Projektet ledes og udføres af Nordregio i samarbejde med Islands Universitet, Institut for Geografi (& Turismestudier), Fakultet for Liv- og Miljøvidenskab.

Fiskeri og akvakultur er en vigtig økonomisk sektor for de fleste af de nordiske lande. De "blå marker" i havene i Norden er dog en sektor, der traditionelt er mandsdomineret, og statistik over kønsforhold og kvindelig tilstedeværelse afslører et kønsopdelt arbejdsmarked. De nordiske partnere betragter disse kønsforskelle i sektoren som problematiske på mange niveauer, hvilket har foranlediget lanceringen af projektet LAKS OG LIKESTILLING ("Salmon & Equality") for at identificere årsager, der bidrager til ubalancen mellem kønnene. Dette projekt analyserer faktorer, der hindrer eller fremmer en forbedret kønsbalance i fiskeri og akvakultur i Norden.

Projektet har til formål at bidrage til et forbedret vidensgrundlag om ligestillingsspørgsmål i fiskeri og akvakultur samt andre nye og fremvoksende blå bioøkonomier på tværs af de nordiske lande. Sideløbende har det til hensigt at øge bevidstheden om behovet for en forbedret kønsbalance i virksomhederne samt anerkende værdien af kvinders færdigheder, der arbejder i sektoren. Mere specifikt har projektets forskningsresultater til formål at forbedre viden om tiltag, der har vist sig effektive til at øge ligestillingen inden for sektoren. På baggrund af en komparativ analyse sigter vi mod at opbygge en videnbase for bedste praksis og udveksling af erfaringer. Endelig vil resultaterne af den sammenlignende forskning blive præsenteret i politiske anbefalinger om foranstaltninger, der kan forventes at øge rekrutteringen af kvinder, både som ejere og aktive arbejdere i sektoren.

Projektet har fokus på at afdække aktive tiltag, der bidrager til øget ligestilling og mere balanceret repræsentation af både mænd og kvinder. Det har også til formål at give et overblik over eksisterende statistikker over kønsforhold blandt ansatte og arbejdsgivere i fiskeri- og akvakultursektoren og identificere videnskløfter med hensyn til arbejdsdeling og op igennem hierarkiet indenfor for sektoren.

Photos: iStock and Unsplash

Gender equality is a decision in fisheries and aquaculture

"Whoever decides over nature is a question of democracy – and thus also equality"

– Kilden, 2023

Equality means that all human beings have equal rights and opportunities to participate in society regardless of gender, functional ability, sexual orientation, age, ethnicity and religion. Here we focus on gender equality, meaning equal opportunities and conditions for women and men in terms of economic, political and social participation. Gender equality and women's rights are recurring topics in the UN`s sustainable development goals (SDGs). SDG 5 emphasises that gender equality includes the fair distribution of power, influence and resources between the genders.

Half of the world's population are born women and half are born men. At all levels of governance and societies in the Nordic Region, there has been increased recognition of the value of diversity in leadership, access to decision-making, empowerment, equal pay etc. In the Nordic Region, the sea is important for numerous aspects of livelihoods, however varied they may be: as a source of work and income, source of cultural heritage, technology, ecosystems and resource extraction, for both women and men. Focusing on gender equality and representation in the blue natural resource economy is important in order to understand how equality is practised in societies in the Nordic Region. Our focus is on fisheries, aquaculture and maritime activities on sea and land, both as an occupation in the primary chain of operations and up through the hierarchy of various jobs directly linked to the maritime sector in a vertical perspective.

How come there are no gender-specific targets or indicators under The United Nations SDG 14 in fisheries (Life Below Water) like there are in most other goals?

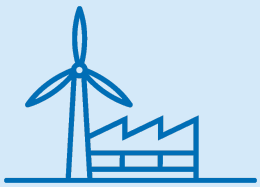
Photos: iStock and Unsplash

Concepts: The maritime sector or the blue bioeconomy?

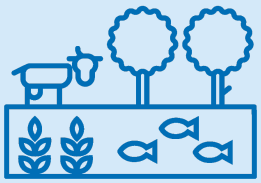
In recent decades, the concept of the blue bioeconomy has emerged in numerous publications, replacing the conventional concept of the maritime sector or economy. In this report we use both concepts in flux. However, it is important to stress that, conceptually, the blue bioeconomy has a broader reference framework and also relates to newly emerging and often innovative practices or activities associated with the sea. A report by the Nordic Council of Ministers on "25 Cases for Sustainable Change" defined bioeconomy as follows back in 2017*: "Responsible use of renewable biological resources from the land and water for the mutual benefit of business, society and nature".* It is a value-laden approach in the sense that the transition to bioeconomy is intended to create a more resource-efficient economy based on increased value added for bio-mass materials and a reduction in energy consumption. Renewable biological resources may be converted into food, feed, biofuels, bioplastics and bio-pharmaceuticals. (Nordic Council of Ministers, 2017).

That view of a responsible blue bioeconomy (which is more geared towards a circular economy than conventional approaches to the industry) corresponds to Nordic visions and the UN Sustainable Development Goals.

Job generation in blue bio economy corresponds well with serveral aims in the Nordic vision



Aim 1: Promote green transition and carbon neutrality and a sustainable circular economy.



Aim 2: Securing biological diversity and sustainable harnessing of nature and oceans of the Nordic Region.

Aim 6: Together we will promote green growth in the Nordic Region based on konwledgement, innovation, mobilities and digital integration.

Aim 7: Develop competences and well functioning labour markets matching the reguriements of green transition and digital development, supporting free movement in the Nordic Region.

Figure 1. Aims of the Nordic vision connected to the blue bioeconomy
(Karlsdóttir, 2021)

The modern-day blue bioeconomy includes a range of economic activities based on intelligent and sustainable use of bioresources, focusing on improved utilisation, use of novel bioresources and creation of higher-value products. Products include food, animal feed, pharmaceuticals, cosmetics and various chemical compounds. A blue bioeconomy based on sustainable development means that the needs of the present are met without compromising the ability of future generations to meet their own needs (Arctic Council 2021).

However, a review of milestone literature on the blue bioeconomy (Nordic Council of Ministers, 2017; European Commission, 2019, Arctic Council, 2021, Nordic Council of Ministers, 2021) reveals that the approach taken to maritime activities in society is generally gender-blind.

Furthermore, this newer conceptual framework and approach has not gone uncriticised. Albrechts & Lukkarinen (2020), for example, note that the blue bioeconomy is gaining momentum in EU policy and the strategies of various national governments and receives substantial funding; yet while the blue bioeconomy promises regional economic development and is portrayed as holistic, it involves little integration

of freshwater perspectives or alternative development paths (Albrecht & Lukkarinen, 2020). Moreover, advocates of this conceptual framework and approach state they address climate change. However, it makes it necessary to question in some cases. Primarily why regional bioeconomies seem to have an easy access to public finance priorities, since it is not being proofed to be more sustainable in all cases (Albrecht, Grundel, & Morales, 2021). Thus, as claimed by Albrecht et al., there may be challenging mismatches between policy narratives, local development processes and potential.

However, our primary focus is on the gender perspective. We wish to stress that the notion of gender, women or equality, with very few exceptions (Svels et al., 2022; EMOUFA, 2023), is almost completely absent from literature on the blue bioeconomy. This failure to prioritise gender equality in the fishing industry is a challenge with respect to safeguarding local communities along the coast (Kilden, 2022).

While we would have liked to study the place of women in the blue bioeconomy, due to the timeframe and scope of the project, we have had to focus on women in the maritime sector. One way to identify women's role and influence is to look at value chains. It is important to broaden the conventional view of fisheries and aquaculture since the presence of women is substantial in all the various layers and dimensions of the blue bioeconomy, up through the relevant value chains. For example, according to a recent study produced by the EU, coastal tourism continues to generate the largest share of employment and gross value added (GVA) in the EU blue economy (European Commission, 2023; Iceland, Norway Lichtenstein grants, 2022). If the maritime sector is extended to the blue economy sector, Finland, Åland, Sweden and Denmark would increase in importance in that sector compared to Norway, Iceland, Greenland and the Faroe Islands.

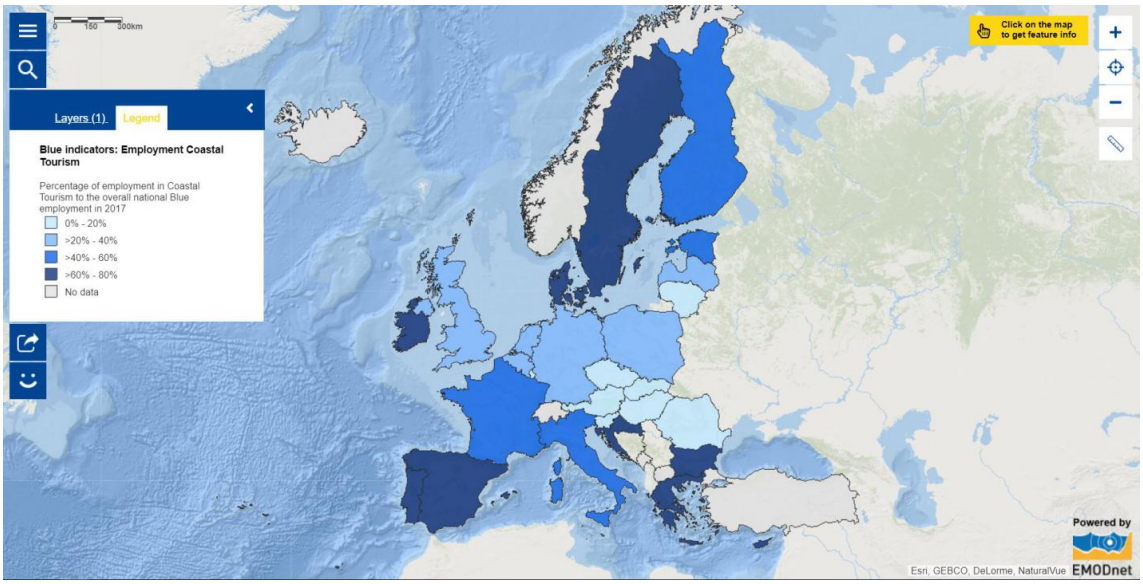


Figure 2. Employment in coastal tourism.
Source: European Marine Observation and Data Network (EMODnet)

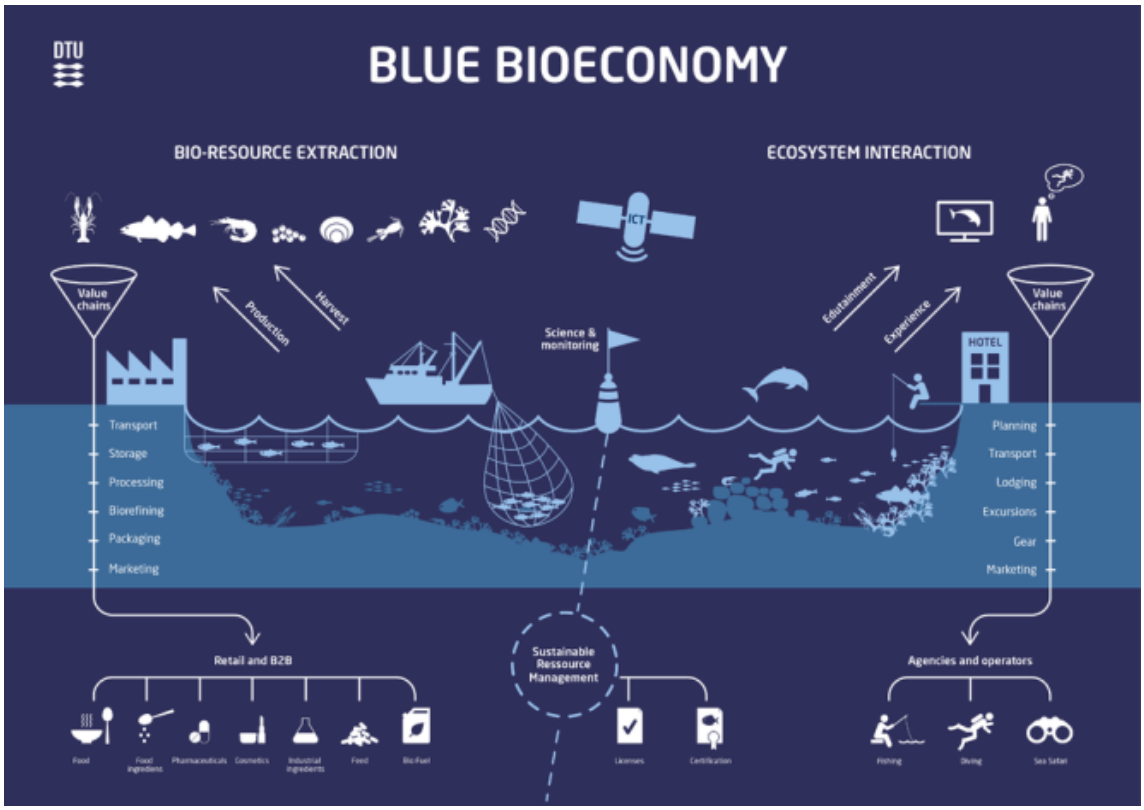


Figure 3. An overview of the blue bioeconomy.
Source: DTU-Aqua 2019

The blue bioeconomy works with living resources, ecosystem goods and services provided by the sea for human use, value chains and interaction chains from sea to land (and vice versa).

The graphic above distinguishes between three main types of value chains: 1. The extraction of life-based resources (bio-resource extraction) and 2. Human uses that are non-extractive (ecosystem interaction). The former includes the hunting and harvesting of living resources (fishing and bio-prospecting) or their production (various forms of aquaculture). This describes the value chain of extractive uses from harvest/production to transport (some parallel, some serial). While it produces value, it also impacts on the ecosystems and species in question and their resilience and capacity to reproduce. The non-extractive, latter types of uses include experiential and educational aspects (edutainment, experience). These may have impacts and need infrastructure, which in turn provide further opportunities for value creation (but also have environmental and societal impacts). 3. Science and monitoring support evaluation and knowledge-based planning and management e.g. through the provision of licences and the certification of marine uses.

There are also other value chains, e.g. related to energy and non-living resources. Marine space may be regarded as an important prerequisite (raising the question of whether it can be considered an ecosystem service).

The representation of women varies highly from one value chain to another, but also along value chains. If, for example, women's engagement in coastal tourism activities is included, we have to broaden the horizon beyond just the maritime sector. The argument holds weight that a broader view of the maritime sector (or seafood sector) should be taken to capture the important efforts of women in coastal regions of the Nordic countries and provide a genuine overview of the numerous women involved across the value chain. The focus needs to be widened to encompass the entire broader value chain now often coined the blue bioeconomy.

Photos: Unsplash

Status of knowledge internationally and in the Nordic Region

All over the world, women participate in all segments of the seafood industry, including fishing, farming, trading and selling, monitoring and administration. However, the widespread lack of consideration for their role and work in the seafood industry is, in many respects, disadvantageous to them and ultimately bars them from participating fully and equitably in the industry (Monfort, 2015). Observation of fishing communities internationally and the whole fish supply chain reveals that women and even children make enormous, often unpaid contributions to fish supply by providing fishing support services such as net making and bookkeeping, as well as by processing and marketing fish. Since fisheries management and its costs and benefits affect the whole fish supply chain, management measures thus need to account for gender (Williams, 2010).

Women are responsible for many pre-harvest and post-harvest activities but remain mostly invisible in the fishing narrative, especially since they hold little decision-making power in fishery organisations due to the lack of gender equality. Securing sustainable seafood relies heavily on people in the seafood supply chain, the majority of whom are women (WWF, 2019). Scientific evidence has unequivocally shown how collaboration between conservation actors of all genders, cultures, ages and values contributes to both sustainable development and better environmental protection. Effective policies must address the diversity of gender roles and identities, as well as the underlying drivers of inequality, in order to harmonise how we evolve the sustainable use of marine resources (WWF, 2019).

The first Europe-focused study addressing the participation of women in the industry dates back to 2002 (MacAlister Elliott and Partners, 2001). In that year the issue of its periodical publication "Fishing in Europe" was titled: "Women in fisheries: an unnoticed role". The editorial starts with the strong statement: "The European Commission acknowledges women's role in fisheries. Despite their presence at all levels and in all areas of the sector, the role of women in European fisheries has until recently remained largely unnoticed." European institutions, including the Commission and the Parliament, now strongly encourage national governments to be more "gender

sensitive" in their policies. One effective means of persuasion, namely the inclusion of gender issues as selection criteria in the allocation of subsidies, was introduced in 2014 and is intended to help transform fisheries and fishery communities (Monfort, 2015).

The first Arctic Council Conference on Gender Equality and Women in the Arctic titled "Taking Wing" was held in 2002. The focus was on roles of both indigenous and non-indigenous women in resource-based sectors and natural resource management in the Arctic in the effort to promote sustainable development (Sloan et.al, 2004). That meeting spurred a Norwegian-led initiative during Norway's presidency of the Arctic Council on women's access to decision-making in the work of the Arctic Council's Sustainable Development Working Group 2002-2004. It followed up on the UN Rio Declaration, Principle 10: Environmental issues are best handled with participation of all concerned citizens at the relevant level, and Principle 20: Women have a vital role in environmental management and development, as well as Principle 22: Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices (Sloan et al. 2004).

A follow-up study more widely focusing on women and natural resources in the rural North concluded that a common feature is that women tend to have higher levels of education than men and may also find it harder to find challenging work in the communities they wish to reside in. Raising the awareness of the highly male-dominated, resource-based industries that they may be missing out on potential well-qualified local employees may serve to increase the number of local residents (men and women) employed by such industries (Sloan et al., 2005). The authors of the circumpolar study found that adopting measures to encourage local residents to seek qualifications enabling them to work in such positions seemed at the time to be a possibility that was given little consideration. The management of natural resources, including living resources, is a task well suited to Arctic residents, both women and men. Proximity to the resources and an understanding of the local conditions, based on knowledge handed down over generations – when combined with understanding based on training and access to positions of power – can yield a resource management system that is sustainable in the sense that stakeholders are actively involved. The authors' main recommendations encompassed the following: a) Decision makers, administrators and companies engaged in natural resource-based industries in the North should act in accordance with their own stated aims of achieving gender equality and step up their efforts to achieve gender equality. b) That includes evaluating stated policies and legal measures, taking into account how recruitment practices, company cultures, local culture and educational strategies combine to affect such efforts. c) Comparable statistics broken down by gender should be compiled, reflecting employment, decision making and effects on local communities. Those statistics should be comprehensive and reflect developments over time. Such a statistical base would also serve to emphasise the contributions that Arctic residents, both women and men, make to the economy (Sloan et.al., 2005).

The Icelandic Chairmanship of the Arctic Council has launched a range of studies devoted to gender equality in the Arctic (GEA I, II, III & IV). The latest publication includes a special subchapter on gender and environment, and a special section on arctic marine resources (Smiezek & Prior 2021, in Oddsdóttir & Ágústsson, 2021). It concludes that scholarship on the relationship between gender and ocean governance remains scarce. Despite the United Nations Convention on the Law of the Sea (UNCLOS) being one of the most comprehensive international conventions, it does little to address gender inequality, the vulnerability and marginalisation of women at sea and women's role in promoting sustainability in ocean governance (Lijnzaad, 2019 in Oddsdóttir & Ágústsson, 2021). It is also the case that women's voices are rarely heard in the governance of ocean resources (Goettsch-Wanli, 2019 in Oddsdóttir & Ágústsson, 2021). Research on women in Arctic fisheries shows that promotion of women's contribution to activities across hierarchies at sea is largely lacking (Frangoudes & Gerrard, 2018). Echoed by many scholars and publications, the lack of gender-disaggregated data in fisheries is "the single biggest void in the literature, which limits our understanding of women's actual participation in fisheries" (Sloan et al., 2004; Arctic Human Development Report, 2004; Henriksen & Nyrud, 2021).

According to recent report from the IUCN-CEM Fisheries Expert Group, the importance of gender equality is well-recognized in the fishery policy sector, but not necessarily implemented in practice. Indeed, practically one cannot show full and equitable participation of women and girls in all aspects of fisheries, but acknowledgement of their many roles in fisheries overall has improved. Some barriers to full gender equality are operational, as some roles in fisheries and fishing vessels have not been designed to be equally welcoming to men and women and are changing very slowly. There are also still aspects of gender differentiation embedded in some cultures, and these must be addressed above the scale of individual fisheries (Charles et al., 2023).

Nordic countries are generally perceived as "gender-equal", but there are still gender issues in many areas of society, with marine-based industries being an especially concerning area. A range of sources allow us to conclude that there is a need to focus on gender issues in blue economies – going beyond the traditional focus on fisheries to explore gender issues in other marine sectors such as aquaculture, offshore energy, shipping, marine tourism and offshore mineral extraction among others.

Previous research on gender issues in marine contexts, particularly focusing on fisheries and sometimes aquaculture, is lacking in general. Most research to date has been conducted in Norway and Iceland. Other countries have largely omitted gender perspectives. Women need to be included in governments` efforts to boost economic activities at sea.

The areas of Nordic countries where the economy largely depends on extraction of natural resources and the blue bioeconomy are the Coastal Nordic Arctic and insular areas of the Nordic Region. There is thus a need to compare how Nordic/Arctic countries have addressed gender issues in blue economies in relevant policies.

Photos: iStock

Data on gender presence in fisheries, aquaculture and the blue economy

Having been tasked with focusing on gender statistics and the maritime sector (fisheries and aquaculture), we started out by defining areas in which gender-disaggregated data were available in each of the Nordic countries. The first round of data collection involved contacting the national statistical offices. In the case of Iceland and Finland, we liaised with special representatives for gender statistics in those organisations. In some other cases, we realised that responsibility for statistics on fisheries and aquatic-related employment, ownership etc. had been transferred from national statistical agencies to sectoral authorities (such as the fishery directorate in Norway, or the Swedish Agency for Marine and Water Management). In many cases, data on fisheries and aquaculture in national statistical accounts are primarily economical (export value, landing prices, FOB value etc.) or technical (volumes, vessel sizes), while the manpower aspect of the maritime sector in officially available statistics is either not available or non-existing, except in the case of the number of staff involved in harvesting or in fish processing.

We started by looking for data from 1990 and onwards, keeping in mind former recommendations that statistics should be comprehensive and reflect developments over time.

In this report we examine pan-Nordic gender statistics in the maritime sector. Gender distribution among fishers and staff in the primary production section of the maritime sector and aquaculture is known for most places and well researched. However there is a lack of available statistics in other parts of the economic sector (horizontal pattern) as manifested in individual parts of the value chain and the various dimensions of the maritime economy. There is furthermore no insight into how quotas are allocated (who is in charge gender representation) or women's presence at the top level of businesses (vertical pattern). The statistics we have referred to in order to provide an overview allowing for comparison between countries (using national statistics) are as follows: A) Gender distribution in fisheries (harvest) and the aquaculture sector in practice; B) Gender distribution in fisheries and aquaculture ownership; C) Gender distribution in related branches (land-based activities that base their existence on fisheries and

aquaculture or are innovative spin-offs in the maritime economy/value chain); D) Gender distribution in secondary education, steersperson training in aquaculture and other vocational training, fishery technology etc. and E) Gender distribution in relevant higher education (veterinary, marine biology, fishery and aquaculture disciplines at universities).

The main challenge with respect to comparability of the available data across the Nordic Region is the difference in how disaggregated the data are. That is particularly pronounced for some of the statistics such as educational data. When it comes to vocational training and secondary education, we find fairly specific data that prove helpful, but it can be difficult to harmonise the data across the Nordic Region. When it comes to data on tertiary education, in some cases the data are highly aggregated and limited to degree courses within universities rather than disciplines allowing for a selection proving relevant to activities and employment in maritime professions. Some disciplines are more obviously relevant, such as degrees in marine biology, maritime engineering and maritime business, but in most cases it remains guesswork as to which graduates will go on to work in the blue bioeconomy, so the evidence needs to be supplemented to a high degree by qualitative evidence.

Regular global statistics on fisheries compiled by the Food and Agriculture Organization of the United Nations (FAO) from country information contain only sporadic information on gender participation, although the FAO (2003) referred to broadening the scope of statistics to include, among other things, social and economic information. In the FAO's State of World Fisheries and Aquaculture reports, published biennially since 1996, Williams (2010) found that the word "women" appeared only 1, 2, 11, 3, 8, and 36 times in the years 1996, 1998, 2000, 2002, 2004, and 2006 respectively. The most recent report of World Fisheries and Aquaculture still largely omits gender issues, only mentioning women marginally and only containing statistics on the number of processors by gender from Denmark, Sweden and Finland in the period 2010-2019 (FAO, 2021).

In some cases, we have retrieved data from websites of organisations and companies on leadership on gender ratios among expert staff by counting (and thus our statistics is limited by what is available on the net), or presence in boards (by annual reports, companies, institutions, or public authorities websites).

Table 1. Available statistics on nordic gender representation in the blue economy – timeline.

	FISHERIES, AQUA-CULTURE, FISH PROCESSING (practice)	FISHERIES, AQUA-CULTURE, FISH PROCESSING (ownership)	Related Branches Value Chain	Secondary Education	Relevant Higher Education	Access to decision-making
DK	2008-2021 & 1994-2000	NA	2012-2020 (Shipping)	2005-2022	NA	2023
GL	2008-2020	NA	NA	2003-2022 2013-2022	2003-2022 2013-2022	2023
FO	1985-2022, 1985-2022, 1985-2022	?	1985-2021 (Shipping) 1985-2022 (wages)	2008-2021	NA	NA
IS	1991-2021 1991-2021 1991-2021	2005-2006 2011 2015 2017	sporadic	1995-2021	1995-2021	2004, 2017, 2021
NO	1983-2019 1994-2021 2016-2022	2005 2023	1983-2019 (Age & county)	2012-2022	Fiskeri- hojskolen	2022 sporadic
SE	2005-2018 2019-2020 2005-2013	NA (highly aggre- gated)	Sporadic shipping		Yrkes- gruppe- registret 2012-2018	2023
FI	2010-2020	NA	Sea transport employees 2020	2004-2021	Uni marine tech Uni fisheries	NA
AX	2021	NA	2020	2023	2023	NA

On a pan-Nordic level, we have retrieved data on the five Nordic countries; Norway, Iceland, Denmark, Sweden and Finland in relation to fishing, annual catches 2000-2021. Those data show volumes and relative importance of the fisheries in each country in this period but are not disaggregated by sex.

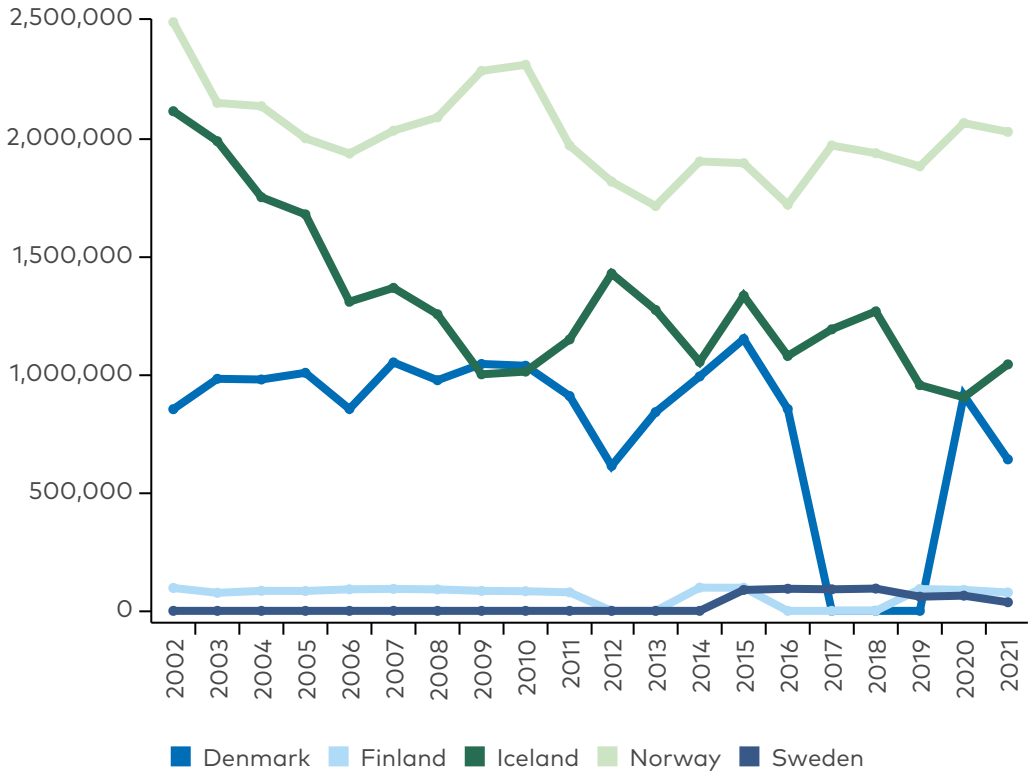


Figure 4. Fisheries volumes (tonnes) in the Nordic countries, 2000-2021.
Source: Nordic statistical database

Pan-Nordic statistics on gender ratio are also available for chief executives at the largest companies listed on the stock exchange, as well as an overview of executives in the period 2012-2022. Those statistics reveals inequal gender distribution when it comes to access to decision-making. As the following graphs show, the proportion of female CEOs in Norway has increased, especially since 2017, while the percentage of female CEOs in Iceland decreased from 2015 but increased in 2022 by 3%. The proportion of female CEOs in Finland peaked at 8% in 2018, but has been on the decrease. The proportion of female CEOs in Denmark increased from 2015/6 and has stabilised at 12% since 2021, while the proportion of female CEOs in Sweden was at its highest in 2016 and 2022 at 12% of Swedish CEOs.

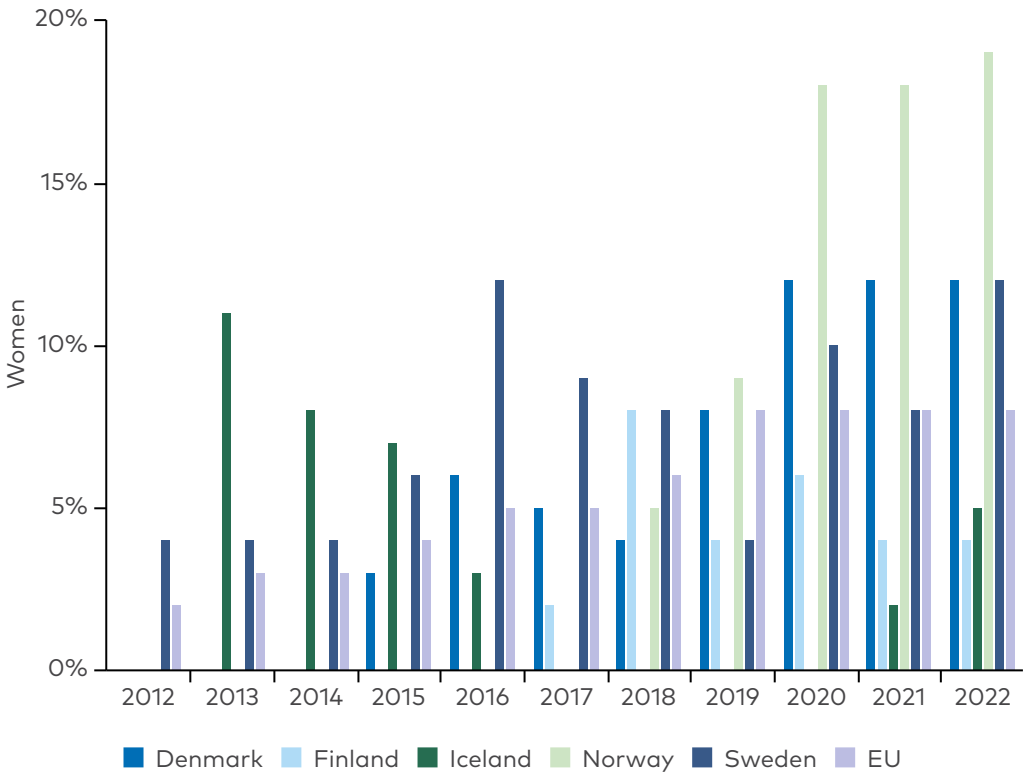


Figure 5. Share of women as CEO´s largest listed companies in the Nordic countries, 2012-2022. Source: Nordic statistical database

Comparing the graphs, it is evident that men dominate when it comes to decision-making roles at the largest listed companies in the Nordic countries in this period.

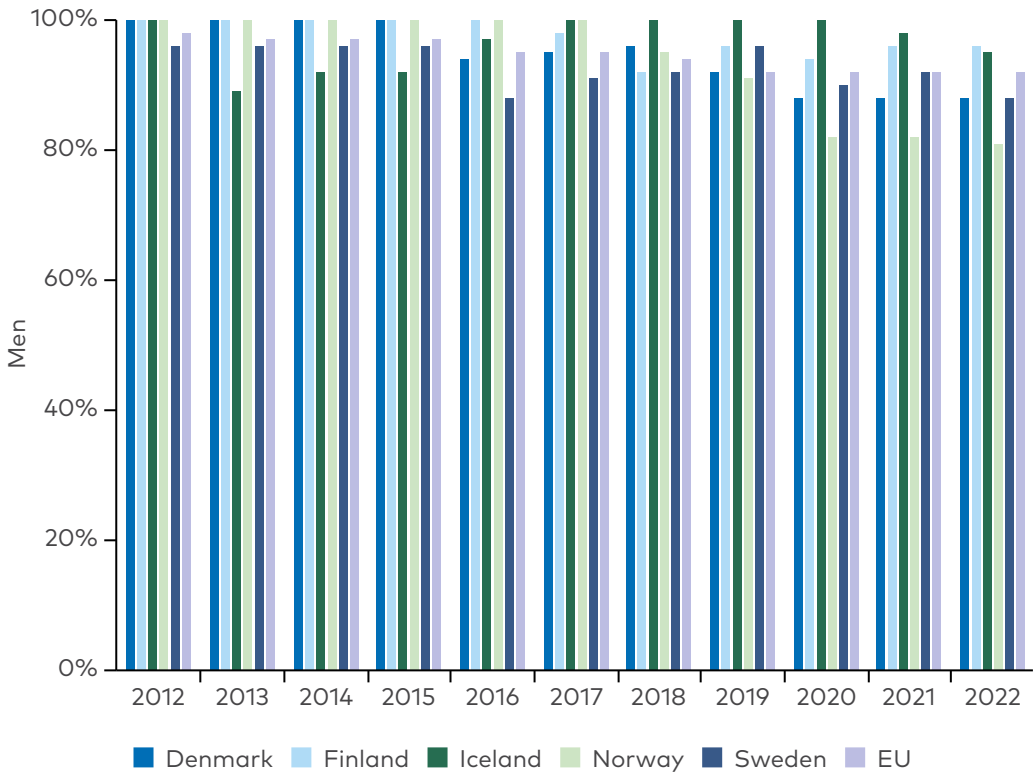


Figure 6. Share of male CEOs at the largest listed companies in the Nordic countries, 2012-2022. Source: Nordic statistical database

Members of the executive team within a company can have a variety of titles. Key positions like managing director (MD) and chief executive officer (CEO) have distinct functions and ways in which they affect the direction and leadership of a business or company. An appreciation of the differences between these two senior roles is part of understanding company structure and how a business is run at a senior level and how CEOs affect the firm's performance and daily approaches and decision-making (Quigley et al., 2021).

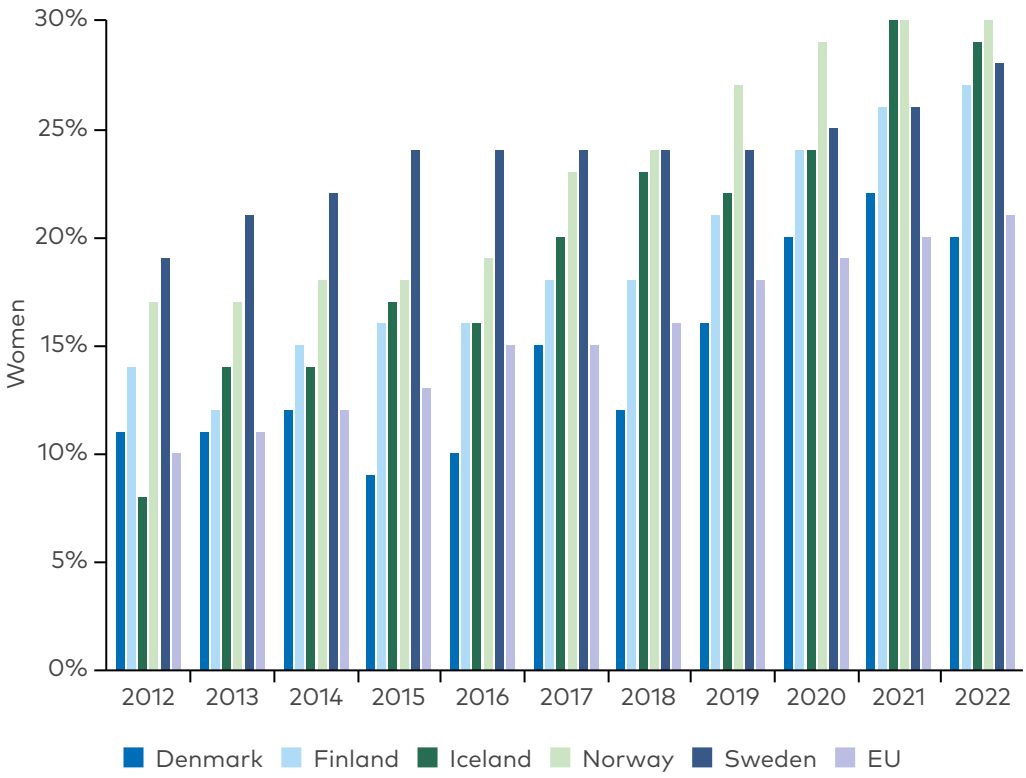


Figure 7. Share of women executives in the Nordic countries, 2012-2022. Source: Nordic statistical database

A variety of companies are involved in the seafood business, with some of the largest seafood organisations and aquaculture companies being publicly traded companies registered on the stock exchange. However, a substantial proportion of businesses are smaller, often being family-owned and private companies. This overview therefore provides an aggregated view of the directors and executives by gender in the Nordic countries, and specifically in the maritime sector. It can however form the basis for comparison when we take a closer look at the maritime sector.

Women accounted for around 15% of the total of 61,04 million people engaged in the primary sectors of capture fisheries and aquaculture worldwide (FAO, 2021). Comparatively, women across the Nordic Region accounted for 6-20% of the manpower involved in fishing and aquaculture in 2020, with womens ratio highest in Åland or 21% ((2021) ÅSUB, 2023). The three maps below show the proportion of women in both fishing and aquaculture in 2010, 2020 and the change in between 2010-2020 in seven Nordic countries.

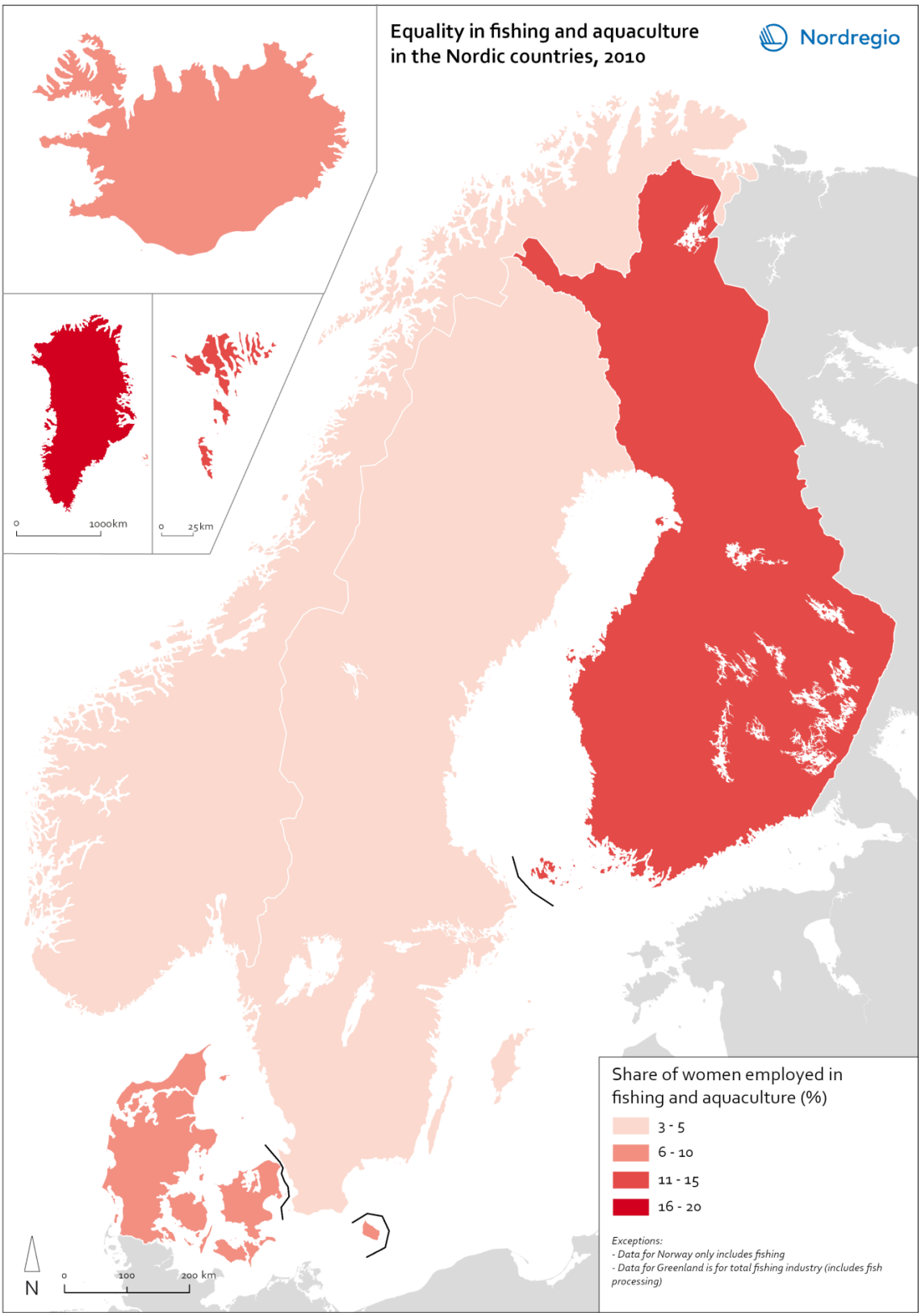


Figure 8. Proportion of women in various jobs in fishing and aquaculture, 2010.

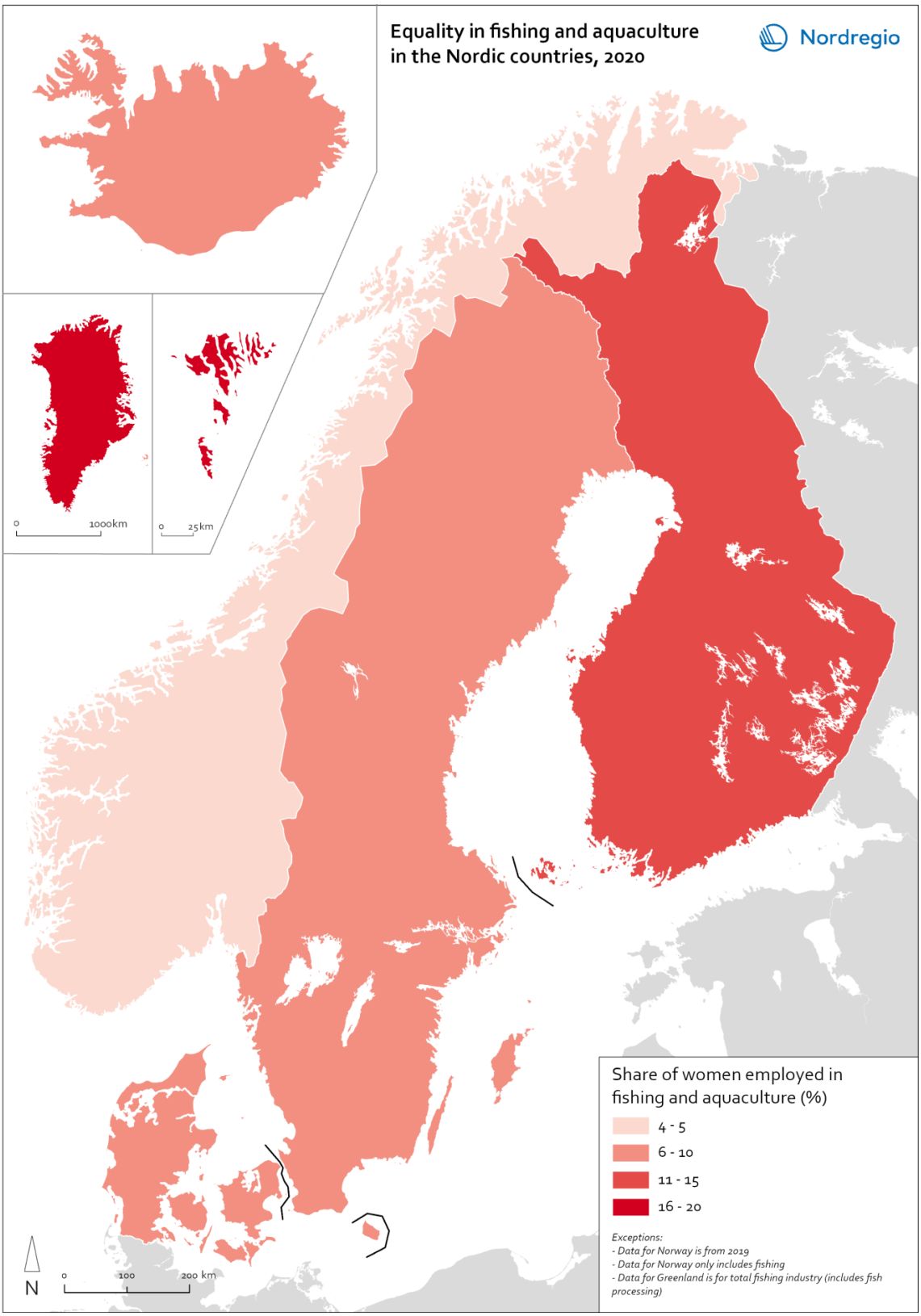


Figure 9. Proportion of women in various jobs in fishing and aquaculture, 2020.

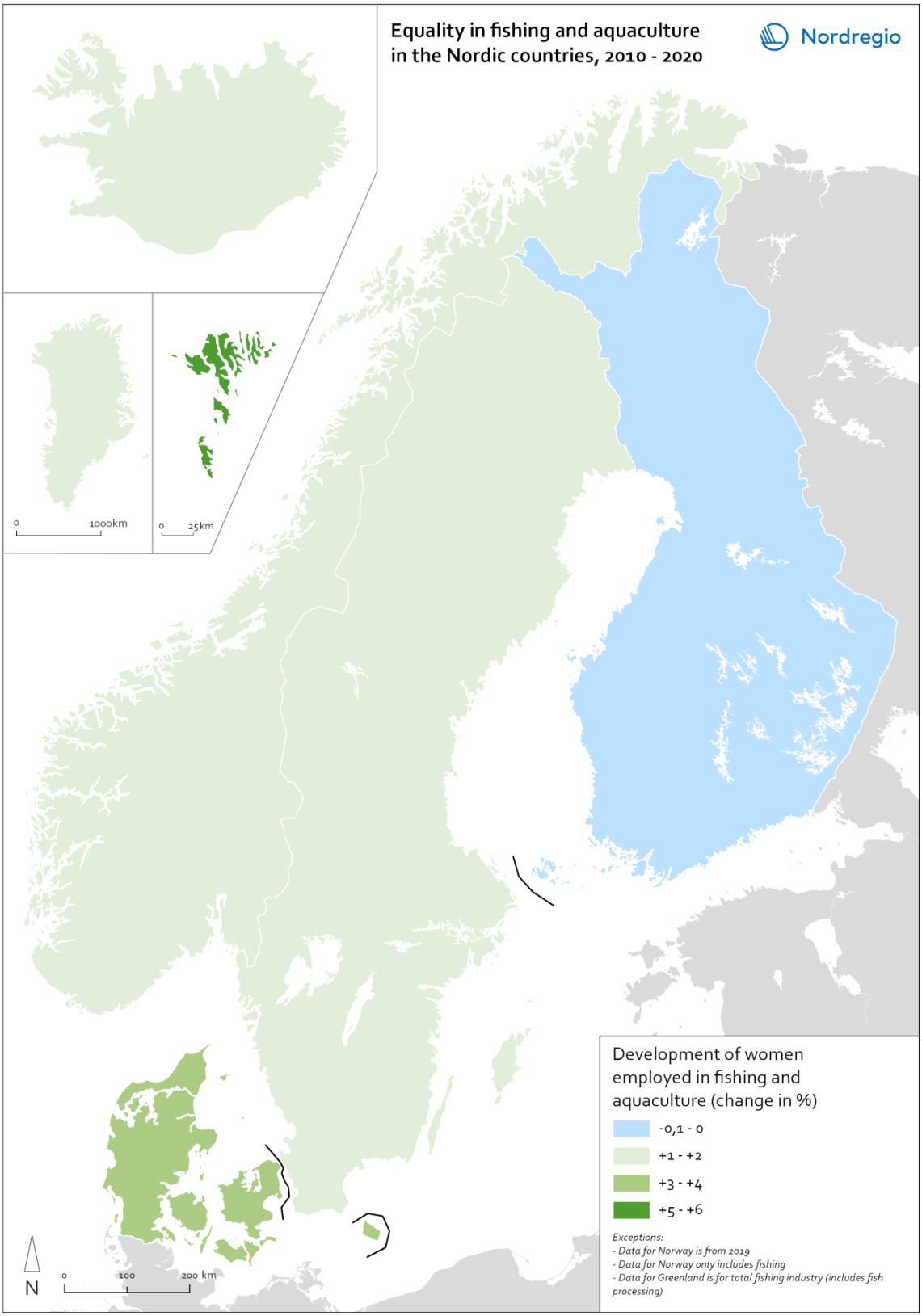
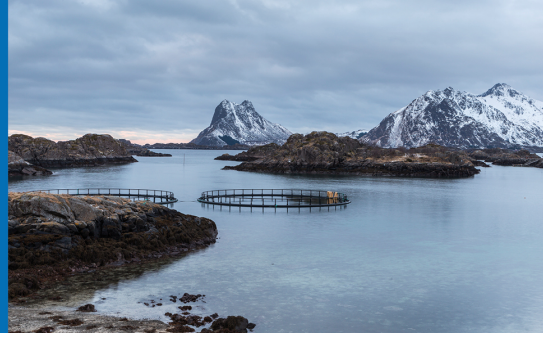


Figure 10. Proportion of women in various jobs in fishing and aquaculture, 2010-2020.

Over a decade the share of women as labour in fisheries and aquaculture has declined in Finland and Åland, and increased slightly in other Nordic countries. Mostly in Faroe Islands (+5-6%) and little less in Denmark (+3-4%).



Photos: iStock

Gender presence in the Nordic maritime sector, 1990-2022

Twenty years ago, several studies in Iceland revealed that women's access to decision-making on extraction of natural resources related to fishery management was inequal and unfavourable to women. No women were involved in the transformation of the fishery management system by being appointed to committees of officials engaged in such work or implementation. In spite of a long history of marine female experts, their role was not visible or officially decisive. However, the year is now 2023 – the situation may have changed. Administrative changes have also taken place in the meantime. The picture is mixed when assessing gender equality from the point of view of influence on politics and setting the agenda in the maritime sector.

The fisheries sector is an occupational world where males have reigned. Unfortunately, the perception that it is difficult to find decisive women to engage in public committees for the sector also has a long tradition. We may question whether that is actually the case or not or whether it is rather due to ingrained cultural practices. What we know is that very few women have been shareholders within the fisheries sector or quota holders or owners of companies historically. If they were present, it was primarily through pension funds (Sloan et al. 2004, Karlsdóttir, 2004).

At the beginning of the millennium, the female presence in the sector was questioned – as the following two quotes from Iceland showcase:

"While studying I wondered a bit about this. In biology at the university, women are a clear majority of the students. Then it felt a bit upside down when I came here (to the workplace); there are only two of us women out of a staff of 12." (Aquaculture researcher (F), Iceland). (Karlsdóttir, 2004).

"While studying I wondered a bit about this. In biology at the university, women are a clear majority of the students. Then it felt a bit upside down when I came here (to the workplace); there are only two of us women out of a staff of 12."

– Aquaculture researcher (F), Iceland. (Karlsdóttir, 2004)

Examples of governmental bodies	Total number of female staff	Female R&D, experts	Total number of male staff	Male R&D, experts
Ministry of Fisheries	11	0	10	1
Marine Research Inst.	42	4	84	5
Icelandic Fisheries Lab.	34	5	20	2
Directorate of Fisheries	20	0	74	1
Ministry of Agriculture	14	0	10	1
Directorate of Freshw. Fisheries	–	–	2-5	1
Inst. of Freshwater Fisheries	5	2	13	7

Table 2. Gender presence in public bodies related to fisheries and aquaculture in Iceland, 2004.
Based on various public sources combined with interviews, 1 August 2004 (Karlsdóttir, 2004).

"Yes, for sure, people have opinions about what I am doing here. I want to tell you that it is very odd when we have meetings, let's say with some Norwegians or foreign money people (investors). I am always asked: What is your job? None of the guys in the meeting are asked this. What do you do? It is just that you always have to explain yourself. They understand that the guys are there... but they question my presence."

– Managing employee in an aquaculture company, N-Iceland

In Norway, the fishing industry is male-dominated. For example, the national board of Norges Fiskarlag ("The Norwegian Fishermen's Association") had no female representative in 2022. The Norwegian Coastal Fishermen's Association (Norges Kystfiskarlag) and Bivdu, the Sami fishers' association, each had one woman on their boards (Kilden, 2023). However, in 2023 the Norwegian fishery minister introduced a number of measures to promote increased gender equality in the sector. (Regjeringen, 2023). The minister allocated 2 million NOK for this purpose, including support for networks for female fishers who provide information and look after women's interests as fishers (Regjeringen, 2023).

In Finland, civil society representation in Local Action groups (LACs) has a gendered perspective, but the gender ratio is largely unknown (Miret Pastor et al., 2020, Freeman & Svels, 2022, Salmi et al., 2022, Salmi & Svels, 2023). Whether the regional or local action groups have real influence or power has been questioned and it has been claimed that they are weak co-management bodies (Hegland, Ouanian & Raakjær, 2012). In Faroe Islands, the director of the fisheries research institute is a woman, while the gender ratio within the ministry of fisheries (and infrastructure) and related institutions is 50/50 (fiskivinnu- og samferdsluradid, 2023). In both Sweden and Finland, maritime policies including gender or gender goals are clearly absent (Svels et al., 2022).

In Iceland, the gender ratio in 2023 within public bodies has become more balanced in terms of maritime governance compared to two decades earlier. Moreover, the main industrial organisation representing fishery company owners is headed by a woman.

It would be interesting to trace gender equality in positions within the institutional hierarchy in each of the Nordic countries in terms of maritime governance and decision-making on natural resource licence allocation. We have, however, had limited opportunity to do so systematically for the other Nordic countries as it requires generating statistics which was not a mandate we were given.

Table 3. Female presence in various administrative bodies relevant to the maritime sector, Iceland 2023.

Examples of governmental bodies	Total number of female staff	Thereof, female researchers, experts	Total number of male staff	Thereof, male researchers, experts
Ministry of Food	27	9	29	13
Marine and Freshwater Research Inst.*	63	41	112	45
Directorate of Fisheries**	17	5	36	20
Icelandic Food & Veterinary Authority***	62	6	36	10

Sources: *Hafogvatn employee list **Fiskistofa employee list ***Matvælastofnun employee list

In some of the Nordic countries, there have been substantial improvements when it comes to gender equality in leadership roles. Norway, Denmark and Iceland all have or have had female fishery ministers and the directors of the most influential stakeholder organisations are women in some cases. Equality has improved in terms of women's presence in public institutions and organisations, but not many women are in charge when it comes to the industry and the private sector.

Photos: Imagebank Sweden, Fredrik Broman and iStock

Women on the factory floor

The most numerous studies about women engaged in the maritime sector relate to the field of fish processing. Most of them are from Iceland and Northern Norway. Fewer studies are based on research in Sweden, Denmark and Finland.

Figure 11. Women are most present globally in the field of seafood processing.
Source: WIS, 2021

National and global socio-economic changes in the last decades of the 20th century have led to growth and change in women's migration in many parts of the world (Audebert & Doraï 2006), including the North Atlantic region (Aure, 2011). That has become particularly pronounced in recent decades, with a more ethnically diverse labour force in fish factories and processing being one of the results of the outmigration of young people and women from fishery communities. The dominant mobility discourses tend to obfuscate the complexity and tensions felt especially by young women in the community (Norman and Power, 2015, Ouanian, 2016):

Despite the image of gender equality, a highly gender-segregated labour market persists. To a limited degree, that has been challenged by employment-related migration and ethnification in some of the labour market in recent decades (Júlíusdóttir, Skaptadóttir, Karlsdóttir, 2011, Yingst & Skaptadóttir, 2018). In the early 1990s, new management systems in fisheries led to decreased job security and job losses for inhabitants of smaller villages (Karlsdóttir, 2008; Karlsdóttir, 2009). Attitudes towards jobs in fish processing became more negative, with the jobs increasingly seen as degrading and associated with low levels of status and skills, not to mention low-paid and monotonous in tandem with increased automation of the industry (Karlsdóttir, 2008). That resulted in a general sense of disempowerment in fishery communities. Many women reported feeling stuck in an industry without future prospects (Skaptadóttir & Proppé 2005; Karlsdóttir 2006). Research in other parts of the Arctic has revealed similar processes leading to gender imbalances in migration from fishing towns (Hamilton & Seyfrit 1994; Rasmussen 2009).

As a result of Icelandic women leaving fish processing plants, where most of the labour-intensive tasks have been defined as "women's work", demand for workers could not be met internally (Skaptadóttir & Rafnsdóttir 2000; Skaptadóttir & Proppé 2005). The fishing industry started recruiting foreign temporary workers as long as thirty years ago (1980s). As more women immigrate to places like Iceland or other Nordic countries to work in fisheries, it is important to understand their roles and perceptions of their jobs, since work satisfaction can influence overall quality of life (Yingst and Skaptadóttir, 2018).

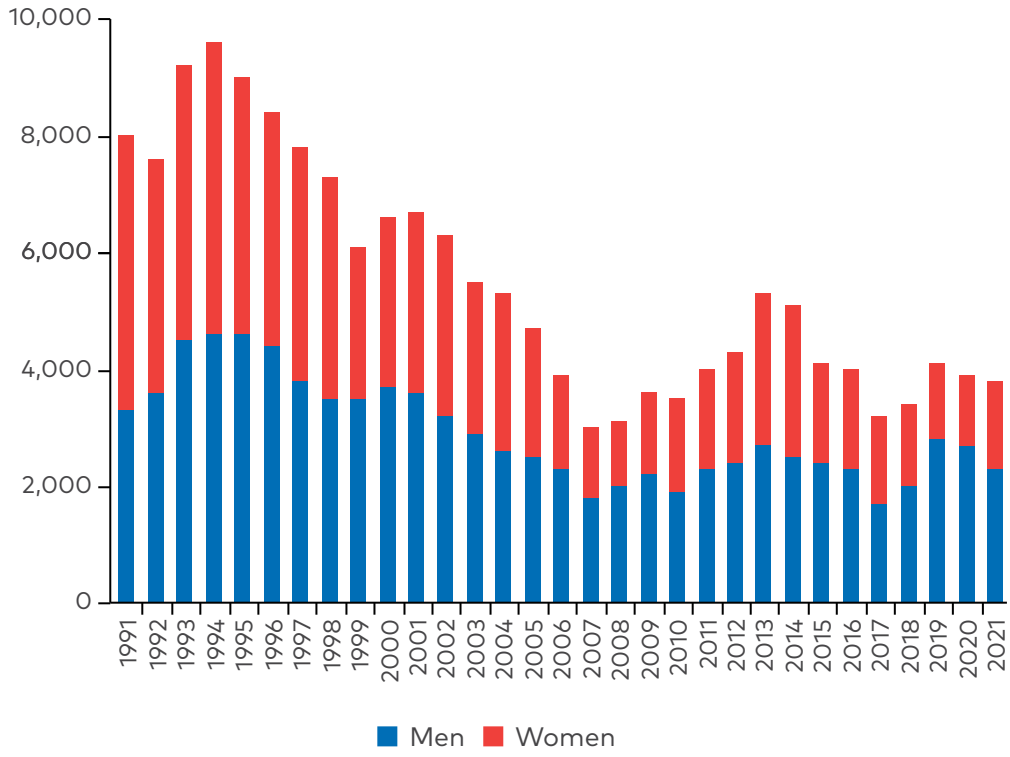


Figure 12. Iceland. Number of women and men employed in fish processing, 1991-2021.

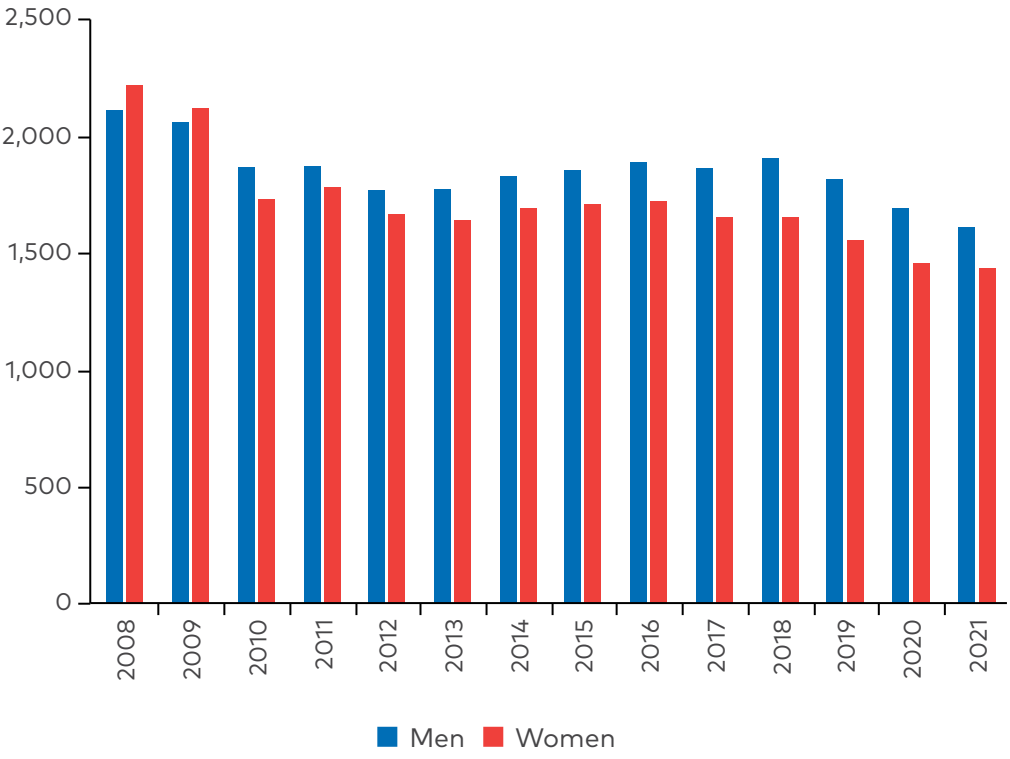


Figure 13. Number of people employed in processing and preserving of fish by gender in Denmark, 2008-2021.

The most evenly balanced gender representation found in the maritime sector is in the field of fish processing. Comparability of the data is limited by the varying timeline of the available statistics, but the trend is clear.

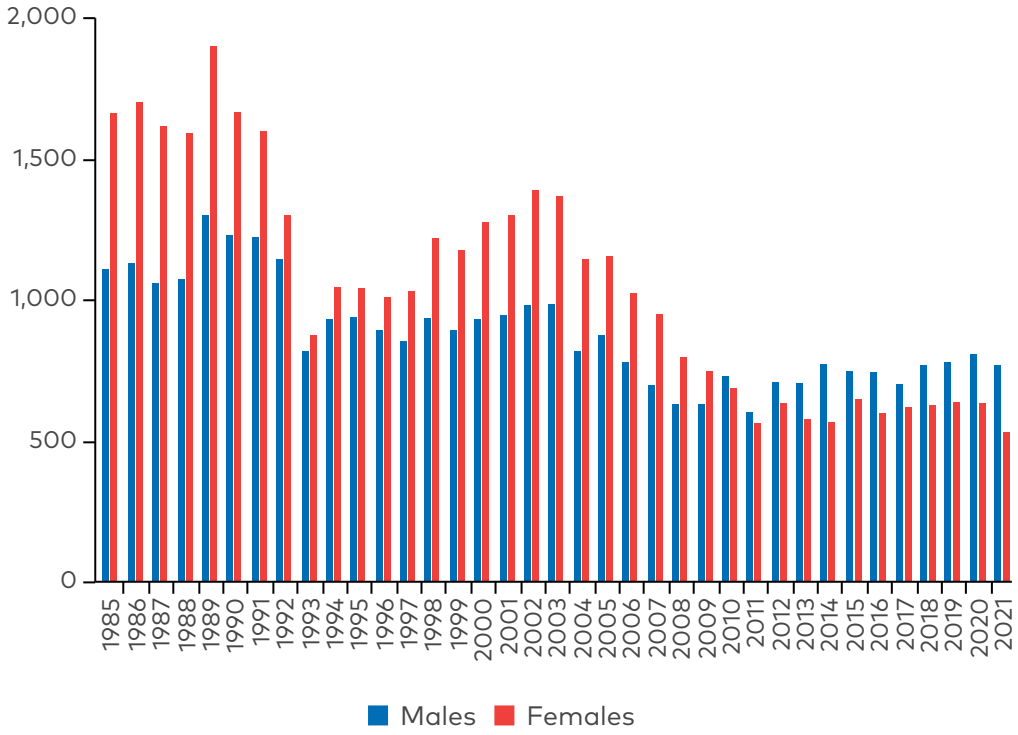


Figure 14. Number of people employed in fish processing by gender in the Faroe Islands, 1985-2021.

In Iceland, the proportion of women employed in fish processing – which was higher than that of men in 1991 – decreased in the years leading up to 2021. The figures from the Faroe Islands show a similar pattern, with men outnumbering women in the processing workforce since 2010. In Denmark the gender ratio is almost even.

Overall, the figures reveal a decline in the total number of people employed in fish processing, reflecting also geographical shifts in the location of processing, either out seas or overseas.

We have not been able to find comparable data for Sweden, Finland, Greenland and Åland. The Swedish data concern fishery workers from 2005-2013 and show that women accounted for 19% of the fishery workforce in 2013, with the proportion of women gradually rising from 1 to 19% during the period 2005-2013. Finnish data were only available for 2008 and showed a female ratio of 28%, while the Åland data showed that the female ratio in fisheries and aquaculture combined was 18% in 2021 (ÅSUB, 2023). The Finnish data are the only statistical data that also show income for the group of fishery workers in the processing industry.

Photos: Getty Images and Unsplash

Women in aquaculture

At the global level, women's participation in aquaculture is estimated at 70 percent of the total workforce, all production modes included. Again, this figure has only an indicative value. It is based on indications by country covering a range of fields; in some cases processing operations are included, while in others they are not (Hishamunda, 2014).

The proportion of women depends on the production mode and the type of occupation. Internationally, most of the women are found in small-scale, low capital intensive operations, in charge of all tasks. They are less present in modern industrial units, where men dominate (Monfort, 2015). Bodil Maal noted that in Norway modern aquaculture "industrialisation, vertical and horizontal integration, may potentially exclude local communities, rural people and especially women from the aquaculture sector" (Maal, 2013). Over the 20 years and more of salmon farming development, from 1990 to 2010, Norway, the world's leading producer of salmon, experienced a 600 percent increase in farmed Salmo salar production. In the same period (from 1994 to 2010), the employment of women decreased from 20 percent in 1990 to 9 percent in 2010. There are several reasons for that decline in the employment of women. The industry has evolved from family businesses, in which women often held part-time jobs, to modern, integrated, capitalistic corporations hiring more professional employees. In the meantime, Norway's coastal areas have benefited from an expansion in job opportunities, offering better job conditions to women than aquaculture (Pettersen and Alsos, 2007).

We have also examined women's role in decision-making in the Norwegian and Faroese aquaculture. Norway and the Faroe Islands are world-leading in corporate governance when it comes to salmon aquaculture. Norwegian-run and Faroese-run companies account for around half of the top 20 largest salmon farmers in the world. Mergers and acquisitions have affected the composition of aquaculture companies, especially in the salmon business, and some of those companies now operate transnationally or worldwide. It may be incorrect to say that transnational companies like that have a "nationality", even if they were founded in the Norway or Faroe Islands – but their identity and corporate culture are still influenced by the place where they were established.

As at many transnational, vertically integrated companies, the corporate structure becomes more diverse in the sense of intercultural. However, gender diversity does not always follow suit. For instance, a company owned by Mitsubishi, Japan, exhibits a glaring gender imbalance, with nine out of ten global managers and all board directors being male. That is not such a good look from a gender equality perspective.

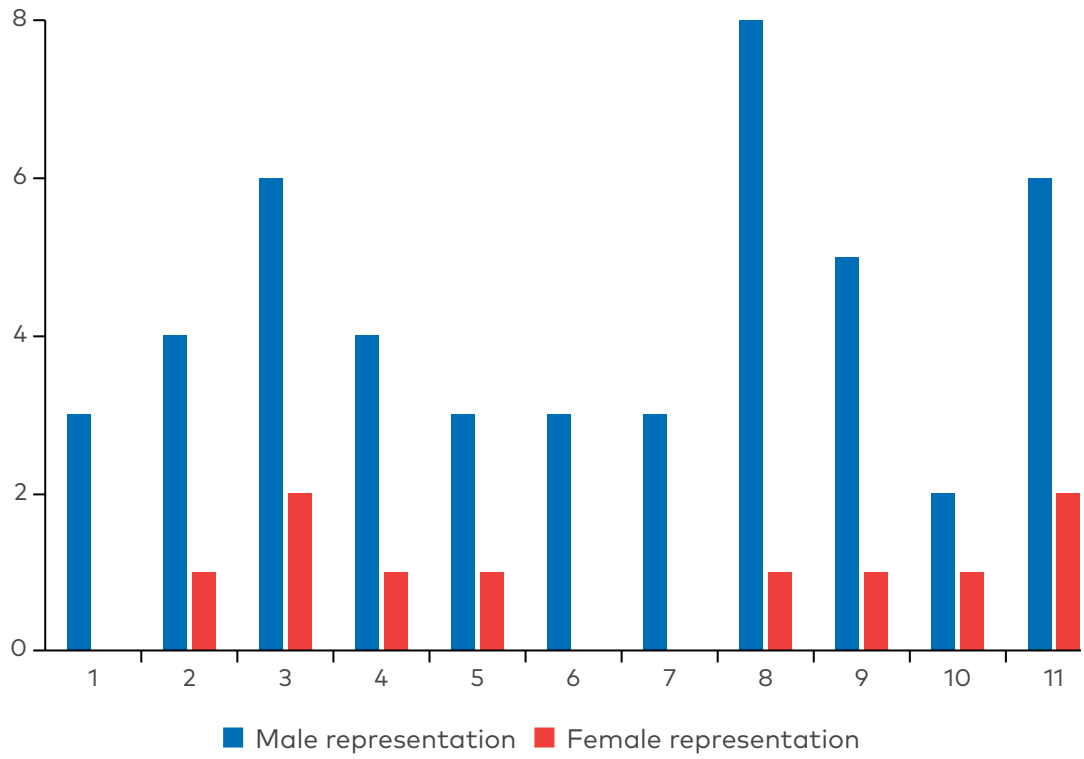


Figure 15. Share of managers by gender in 11 largest aquaculture companies in the Nordic Region.
Sources: ilaks.no and annual reports of companies

What is promising for aquaculture compared to fisheries is that in four of 11 aquaculture companies gender representation in board of directors is even (see figure 16). Our research reveals a distinct pattern among the female board members or the major management group of such ventures. Many women hold positions as shareholders, representing family establishment values within the corporate world. Some have climbed up the ladder of the financial sector by virtue of educational merits (business school, economy degree, law degree, strategy, management etc.), while others have previous experience in governmental institutions, ministries, national central banks etc. and rise to prominence, gaining influential positions in the sector. Strikingly, many of the women in the management group of the companies are either responsible for HR or communication. However, the representation of women in the position of financial director remains limited.

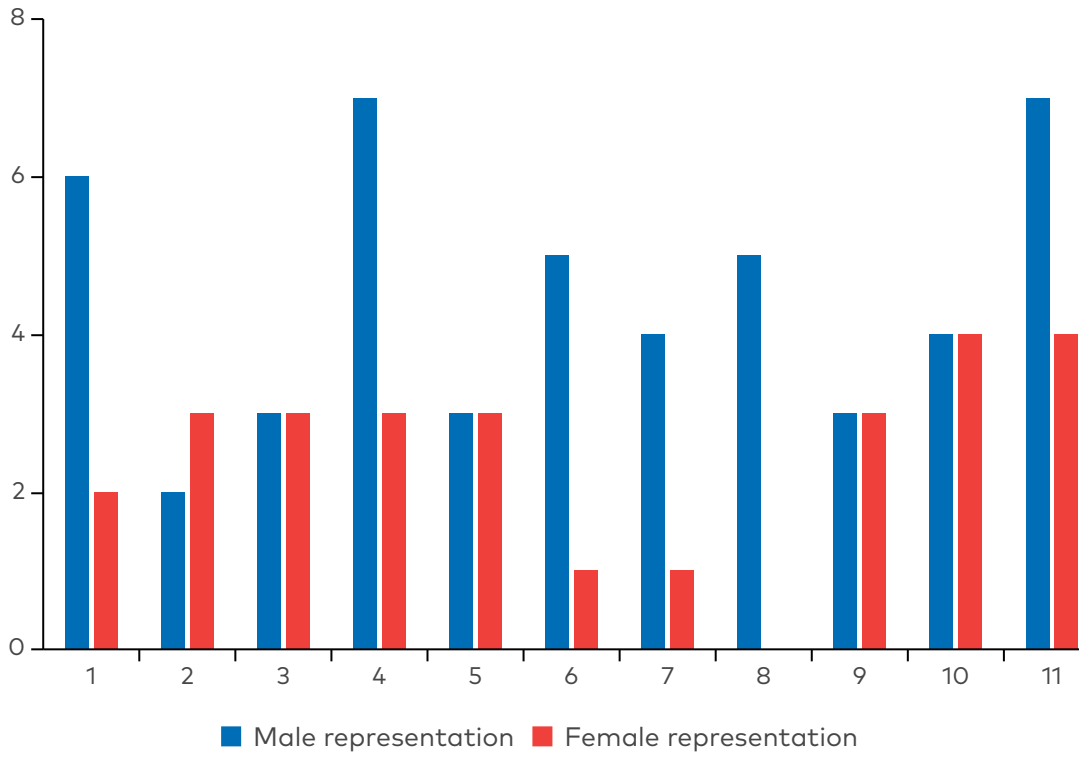


Figure 16. Share of members on boards of directors by gender in largest aquaculture companies in Norway and the Faroe Islands, 2023.
Sources: ilaks.no & Annual Reports of companies

There is a stark divide in terms of age – a fairly significant proportion of the women concerned were born in the early 1960s or earlier, bringing valuable experience and seasoned leadership to the sector. Meanwhile, there are few women born in the 1980s and onwards in such positions. That does not rule out the possibility of them becoming prominent actors and influencers later, but it is interesting to note that there are numerous young men in such positions. There are exceptions to that of course – a few companies have an equal gender structure and more equal age structure among their board members.

SHE INDEX	THREE IMPORTANT TASKS FOR MAKING CHANGES TOWARDS AN EQUAL WORKFORCE
01	**01 Bold leadership** Top management have defined policies, strategies, goals and practices.
02	**02 Measuring equality targets openly** A diverse leadership team that sets, shares and measures equality targets openly.
03	**03 An empowering environment** One that trusts employees, respects individuals and offers equal opportunities.

OUR RESULTS

In 2022, we received a score of 73 points (High score) in the SHE Index. The average score across Norwegian companies was 71. We have reported on the SHE Index since 2019 in order to be transparent about the gender balance in our organization. The SHE Index is a voluntary measurement of how companies perform on gender balance, gender equality policies and diversity to become a preferred employer. Change takes time, and we should pay more attention to the work being done to create greater diversity and inclusion. During 2021, Grieg Seafood has taken several steps to improve our gender balance. This includes filling vacant management positions with women both with internal and external candidates, as well as having our first female regional director. In 2021, 40% of our new hires were women. We have also pledged to support the International Organization for Women in the Seafood Industry.

Figure 17. SHE index measures at the GRIEG Seafood corporation. Grieg Seafood Annual report 2023

The figure above is an example of one approach, the SHE index, to make change within an company towards an equal workforce. Aspiring to and working towards equality is important in the industry.

In Faroe Islands, there is also a strikingly high proportion of women in aquaculture. The question remains whether this depends on educational merits and hence social mobility or whether it is due to role models in Faroese society who have impacted women's engagement in the industry.

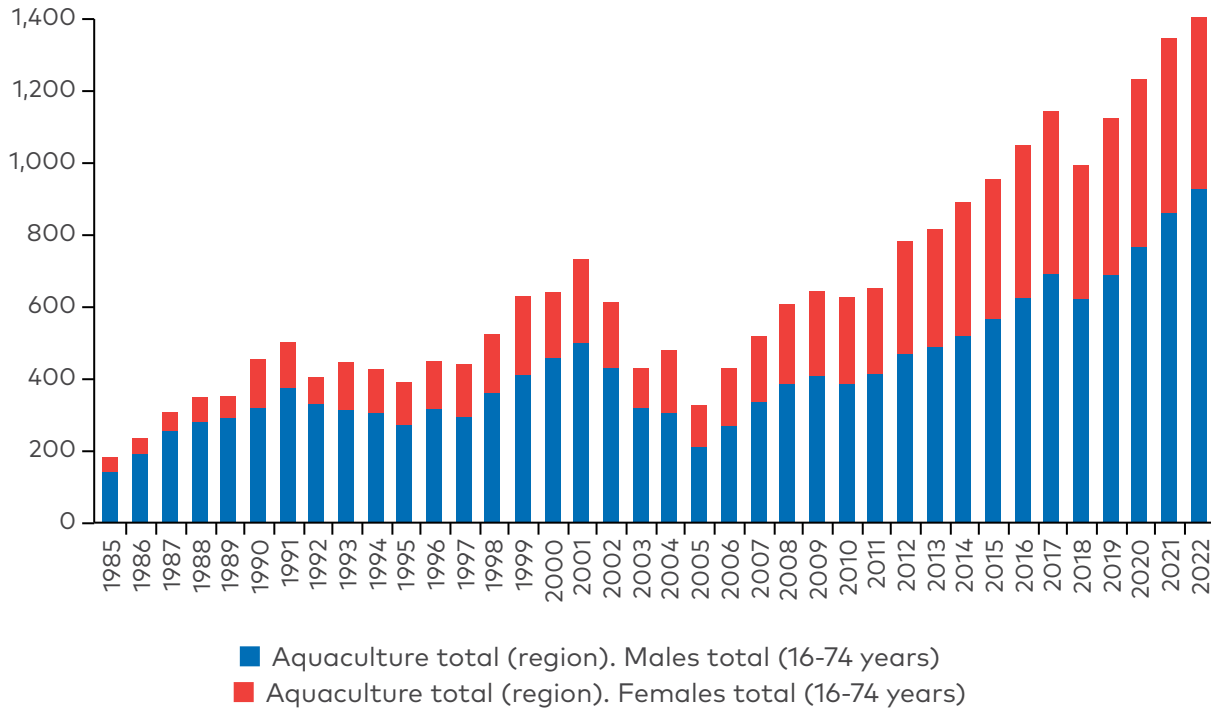


Figure 18. Total number of employees in Faroese aquaculture by gender, 1985-2022.
Source: Faroese National Statistics

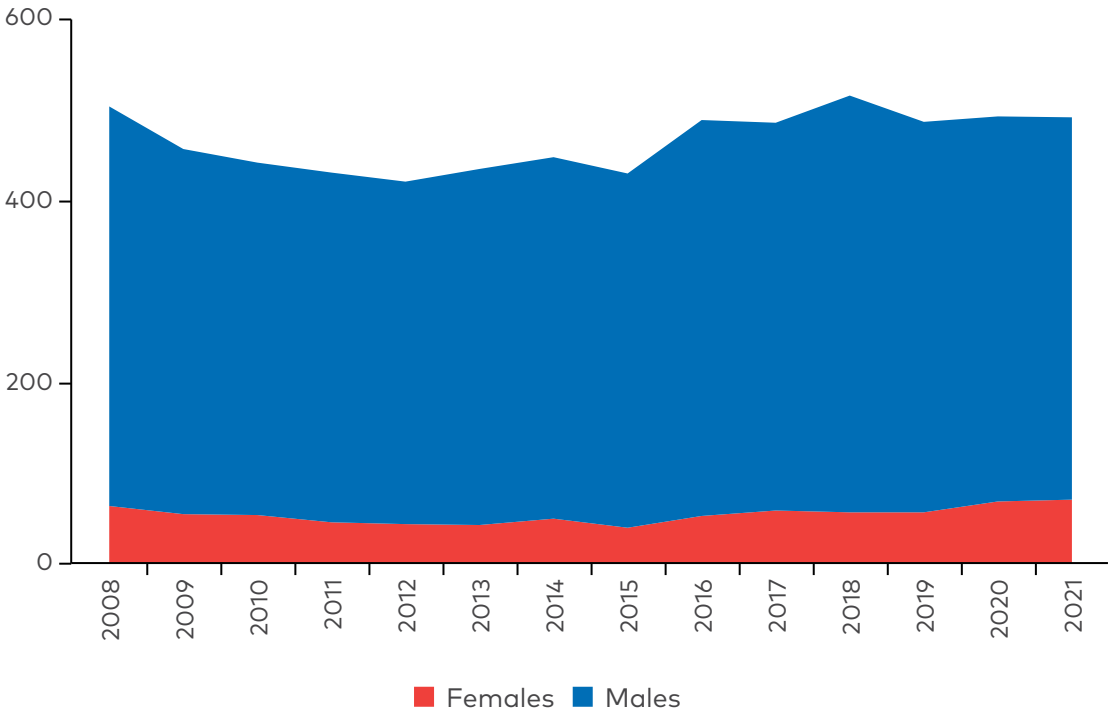


Figure 19. Marine and freshwater aquaculture employment by gender, Denmark, 2008-2021.

Source: Statistics Denmark

In Iceland there are no gender-disaggregated data on employment in aquaculture, but the national statistics provide an overview of employers (estimated number) and employees registered (paying taxes) from 1991 through until 2021, as the graph below illustrates.

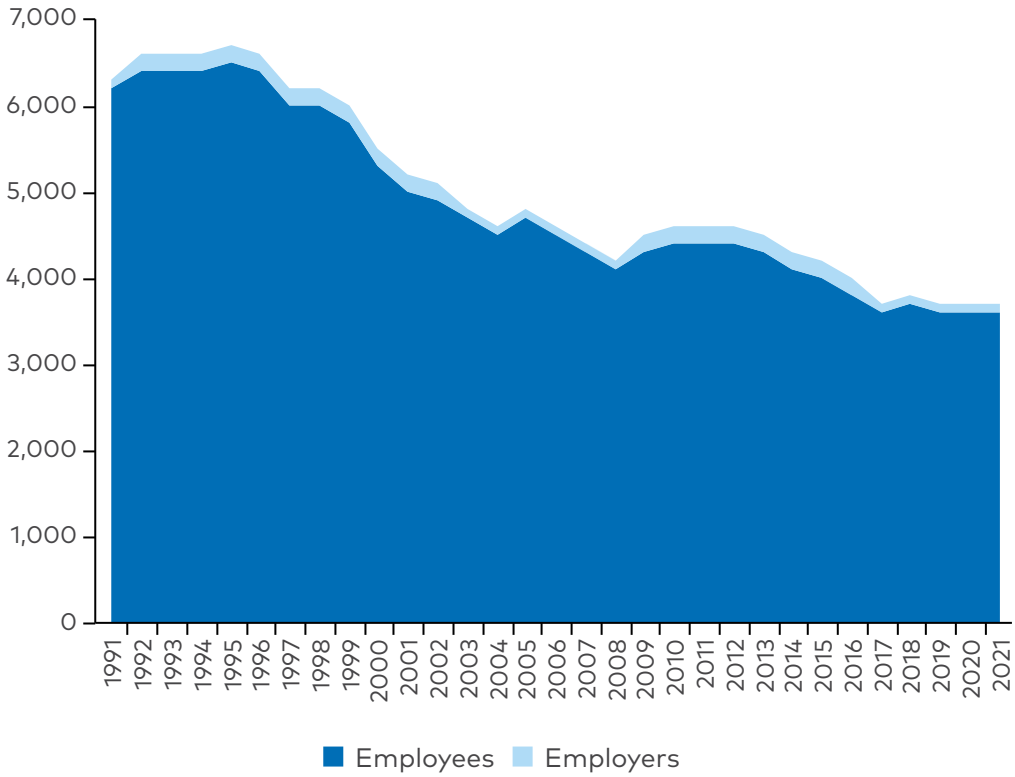


Figure 20. Employers and employees in aquaculture in Iceland, 1991-2021.
Source: Iceland statistics

In Sweden there are numerous statistical series available on aquaculture and people involved in aquaculture, as well as concerning companies, cultivation workers and fish farmers. The following table, showing employment in aquaculture over a decade, is the only one showing employment broken down by gender.

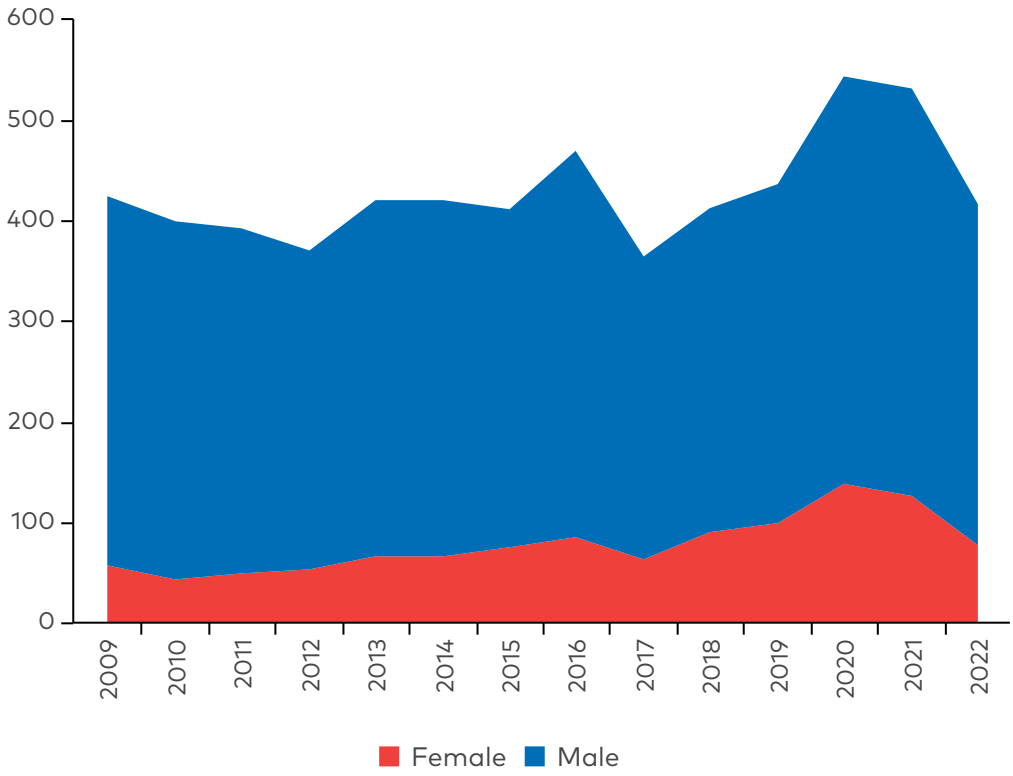


Figure 21. Employees in aquaculture by gender in Sweden, 2009-2022.
Source: SCB & Jordbruksverket

In Finland, the gender-disaggregated national statistics divide employees in aquaculture into managers, workers and fish farmers. Another category is fishery and aquaculture labourers. However, we decided not to include that in the graph below, which illustrates developments over a decade.

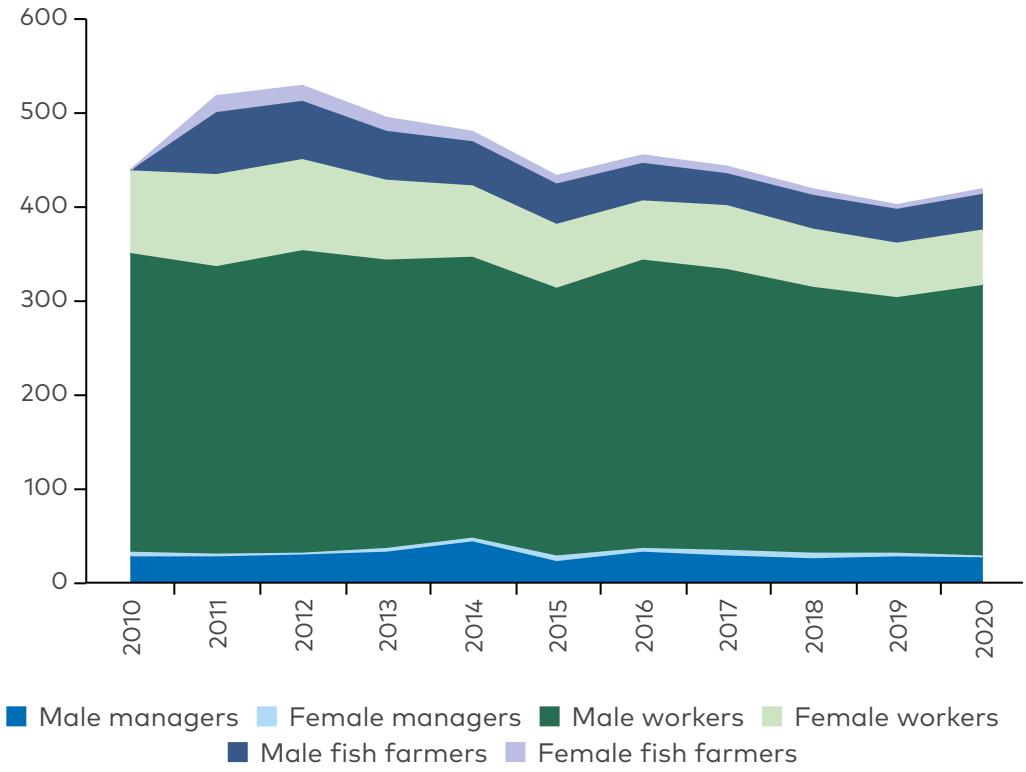


Figure 22. Finnish labour in aquaculture, broken down by gender and roles, 2010-2020.
Source: Statistics Finland, employment

In Åland, the statistics for fishery employment and aquaculture cannot be disaggregated but they likewise show a gender-segregated labour market, with women accounting for just 17% of employees in the sector, compared to men, who accounted for 73% in 2021.

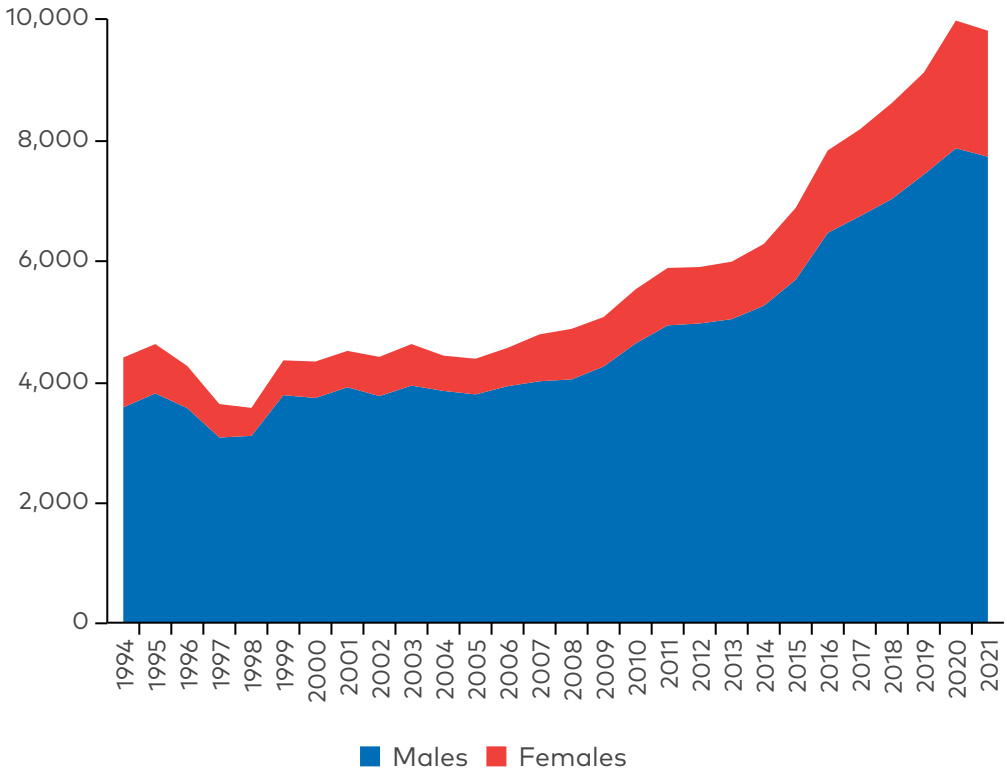
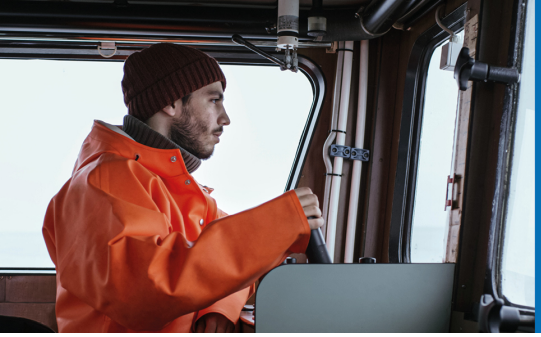


Figure 23. Number of women and men employed in aquaculture, 1994-2021 (Norway).
Source: Fishery directorate

In Norway there are gender-disaggregated employment data available for aquaculture covering a period of almost three decades. They are disaggregated by counties, with four counties dominating in terms of number of employees in this sector. The two northernmost counties, Finnmark-Troms and Nordland, followed by West Norway and Trondelag, have particularly high numbers of employees in the field of aquaculture.

Overall, we see a gender-disaggregated labour market in aquaculture too. However there seems to be a mentality that encourages women for leading positions that goes beyond national boarders with initiatives such as "weareaquaculture" on women in aquaculture, were leading women in different jobs within the sector are highlighted (weareaquaculture, 2023).



Photos: iStock and Umagebank Sweden, Aline Lessner

Captains and fishers – finding gendered fish-legs

Captain Þuríður born in Iceland i 1777, lived a life that was both controversial and unconventional. Her first time fishing, on the open unprotected rowboats of her time, was at age eleven. Soon after, she audaciously began wearing trousers. She later became an acclaimed fishing captain, brilliant at weather reading and seacraft, and consistently brought in the largest catches. In The Artic Sea where drowning occurred with terrifying regularity, she never lost a single crewmember. Renowned for her acute powers of observations, she also solved a notorious crime. *(Margaret Willson, 2023)*

It is important to document and understand women's contributions to fisheries as professional fishers and political actors to challenge assumptions that fishing can only be done by men, while also highlighting the interacting cultural and structural barriers that can limit women's participation (Gerrard & Kleiber, 2019). Siri Gerrard has done research on female fishers in Norway for decades and in one of her most recent articles she and her co-author Kleiber conclude that the number of registered fishing boats has decreased as an effect of regulation (Gerrard and Kleiber, 2019). Thus, the number of women and men registered as fishers has declined since 1990 by 59% (ibid).

In Norway, women's contribution to fishing households focused on their role as part of the "ground crew", engaging in many of the land-based fishing tasks (Balsvik 2001; Gerrard 1983). They were not registered as fishers, but their labour was integral to pre-harvest and postharvest tasks such as baiting long-lines, cleaning boats, washing clothes, gutting fish and sometimes the administrative work related to the crew and the boat (Gerrard ,1983; Gerrard, 2011;Munk-Madsen, 2000; Jentoft, 1989; Thiessen et al., 1992; Pettersen, 1994).

While women's labour has been critical to the longevity of the fisheries industry, they have not been seen as fishers, either by men or by women themselves. Women's crucial historical role in the fisheries in Norway came to be termed "the hidden fishery" and "ground crew" to highlight the important work performed by women onshore for the fisheries. Women supported men's activities as fishers through unpaid work in the home, producing food and clothes and caring for children and animals in the traditional household of a fisherman farmer. Although it was recognised that life as a fisherman was nearly impossible without a woman at home, women's work and efforts were not considered in the formal fishery accounts. One consequence of women's informal role in the fishing industry was a loss of welfare rights (Kilden, 2023). There are also similar accounts from Iceland (Karlsdóttir, 2005, Willson 2016).

Women's fisheries labour has also often been paid less or not paid at all. Indeed, women's fisheries tasks have been considered a natural part of their duties in fishing households. They fit in with their roles as daughters, sisters, wives, partners and friends in fishing communities (Bratrein, 1976; Elstad, 2004; Flakstad, 1984; Gerrard, 1995; Pettersen, 2018; Grønbech 2008). However, women have also worked at sea, both as crew and as owners of their own boats.

Nofima was commissioned by the Norwegian Ministry of Trade, Industry and Fisheries to study women in Norwegian fisheries, their formal and real equality status and to develop potential measures to increase the proportion of women in the sector (Henriksen and Nyrud, 2021). The aim was to draw up a strategy for better gender equality in fisheries. In its efforts to collect statistical data shedding light on equality, it found that despite double the number of women studying relevant disciplines at secondary and vocational level (Vg2 fish and harvesting/fiske og fangst) from 2012-2021, the proportion of women is still low (11.3%). That is reflected in the proportion of vocationally trained interns (5.3%) and women who have got recruitment quotas in the period 2010-2020 (1.6%). The proportion of female full-time and part-time fishers has constantly been low (2.5-4%). While the average age of female fishers is lower than for males, women registered as fishers are generally older (Henriksen and Nyrud, 2021, p.1). Women are generally older than men when they start their career as a fisher and remain for a shorter time in the industry. In Finnmark and Rogaland (counties in Norway), female fishers are higher in number. There is a low proportion of women among boat owners. In the open fisheries it is on average 4.3% and in the closed fisheries allocation system, the proportion of female owners is at a stable low or absent (0-2.5%).

The most recent state of affairs in terms of ownership of vessels is shown in the table below (source: Fiskeridirektoratet, 2023). We have not been able to retrieve statistical data for Nordic countries other than Norway on gender distribution of vessel ownership. However, we have data on ownership of vessels in Denmark by age (see figure 33).

Table 4. Ownership breakdown of the Norwegian fishing fleet as at the end of 2022.
Source: Norwegian Fishery directorate

Vessel size	Total number of vessels	Vessels owned by women (>50%)	Vessels owned by men (>50%)	No single ownership above 50%
Under 11 meter	4,409	189	3,999	221
11-14.99 meter	676	4	598	74
15-20.99 meter	101		84	17
21-27.99 meter	99		62	37
28 meter and over	286	8	108	170
Total	**5,571**	**201**	**4,851**	**519**

In Finland, women's involvement in fisheries is portrayed as important, albeit both "visible" and "invisible", as labour efforts often remain without remuneration and achievements are overlooked by authorities and academic research (Salmi and Sonck-Rautio, 2018).

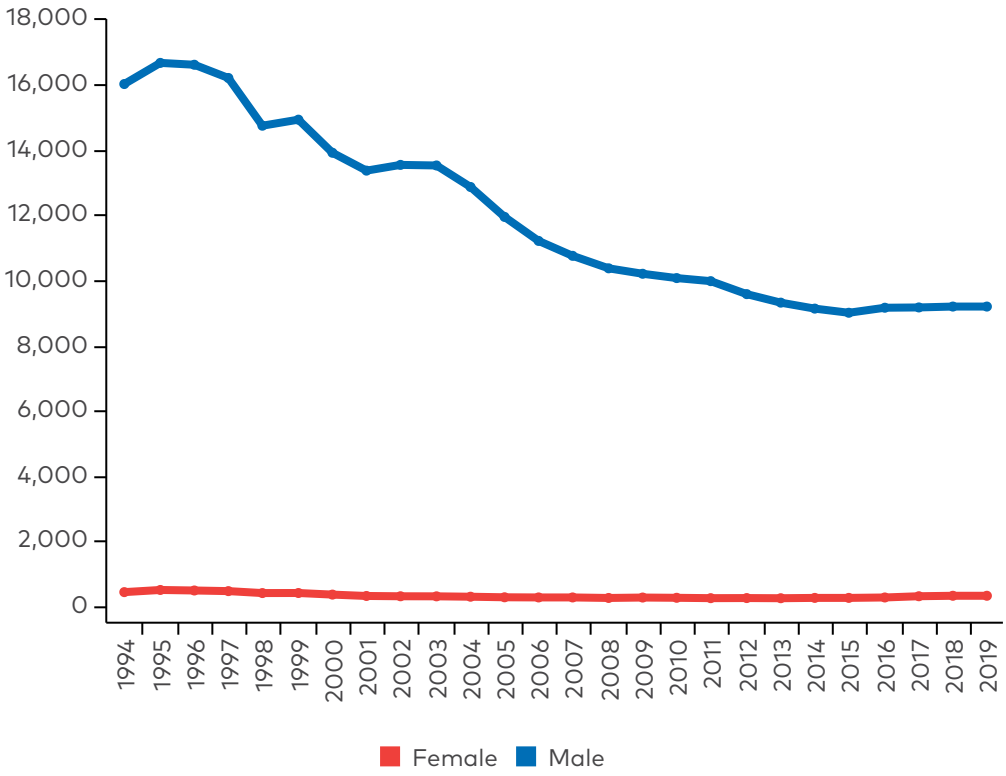


Figure 24. Fishers in Norway by gender, 1994-2019.
Source: Fiskermanntalet

When the number of fishers in Norway broken down by gender is examined from 1983, and especially from 1994 to 2019, it can be observed that the number of male fishers has decreased by over 42%, while the number of female fishers has decreased by 25%.

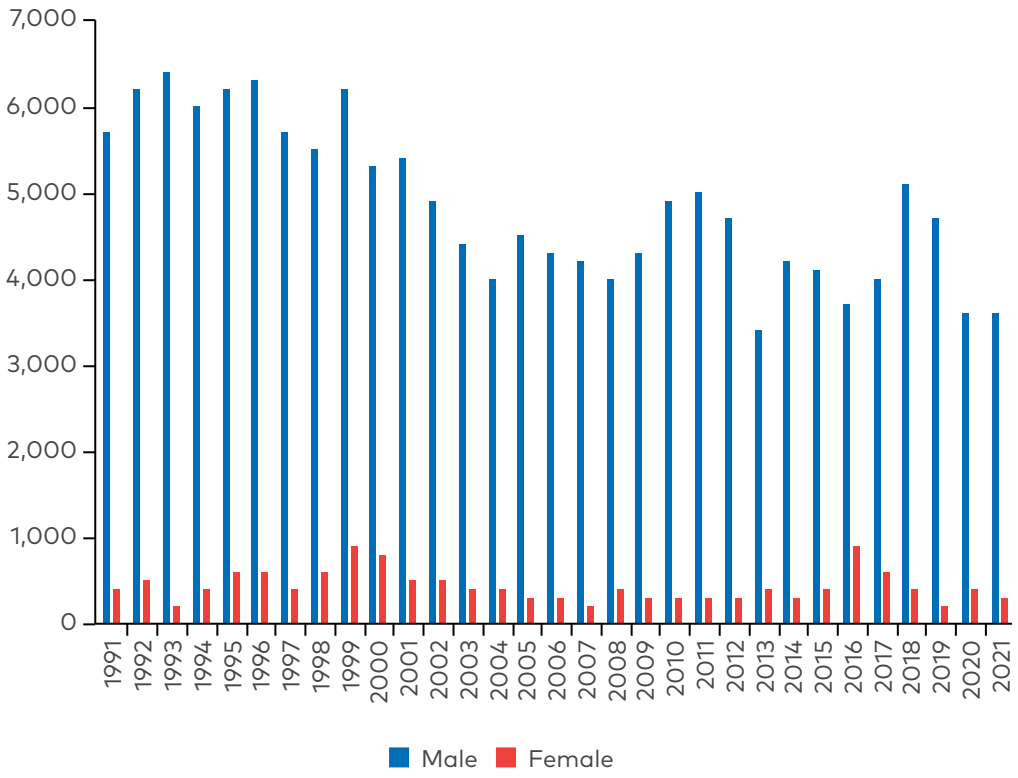


Figure 25. Fishers in Iceland by gender, 1991-2021.
Source: Iceland statistics labour market survey 2021

While the number of female fishers was at the same level (n=400) in 1991 and 2021, the number of female fishers peaked at 900 in 1999. The number of male fishers fell by 36% between 1991 and 2021.

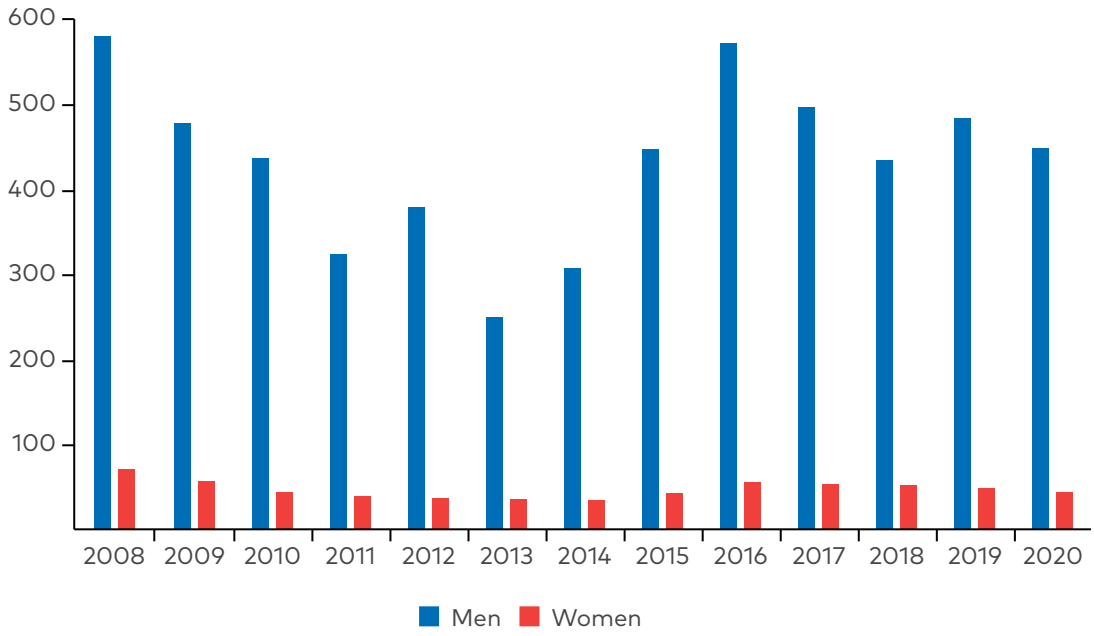


Figure 26. Fishers, secondary occupation in Greenland by gender, 2008-2020.
Source: Greenland statistics

The number of female fishers as a secondary occupation in Greenland has fallen by 38% since 2008, while that of male fishers has fallen by roughly 23%. The opposite trend goes for fishers with fishing as their main occupation, with an increase in the number of both female and male fishers (31 more women and 97 more men) compared to 2008.

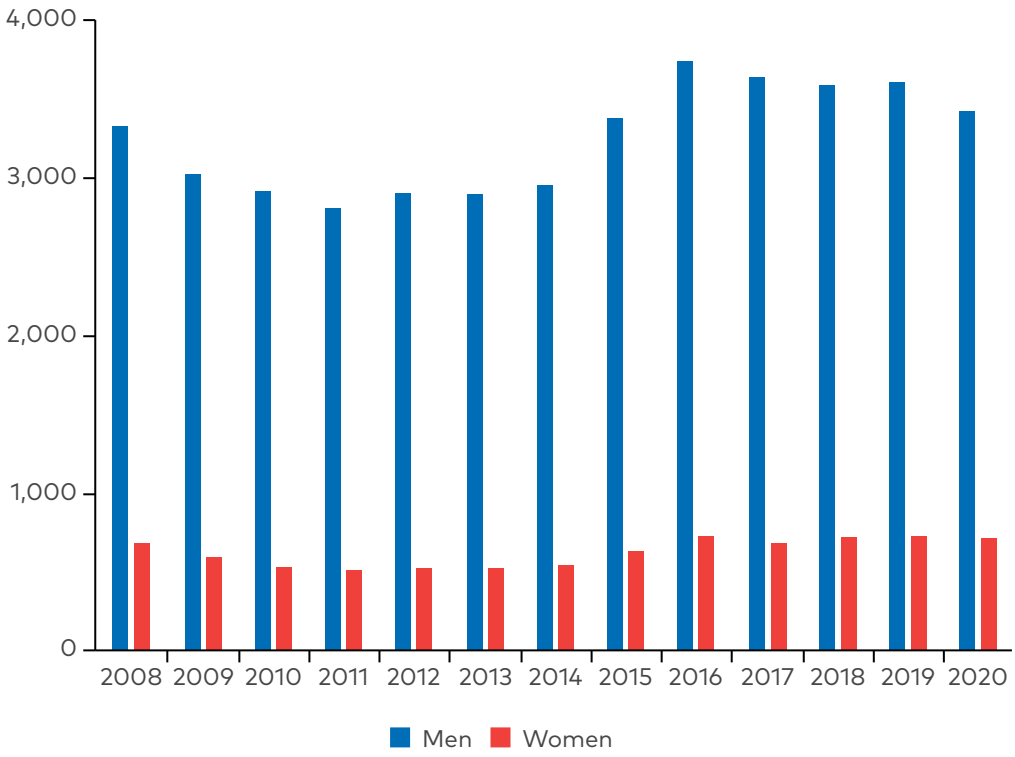


Figure 27. Fishers as main occupation, Greenland, by gender, 2008-2020.

In the Faroe Islands, the number of male fishers has decreased by roughly 5% since 1985, while over 52% less women are active as fishers since 1985. The graph below shows development of the number of fishers in the Faroe Islands since 1994 (Faroe Islands statistics, 2023).

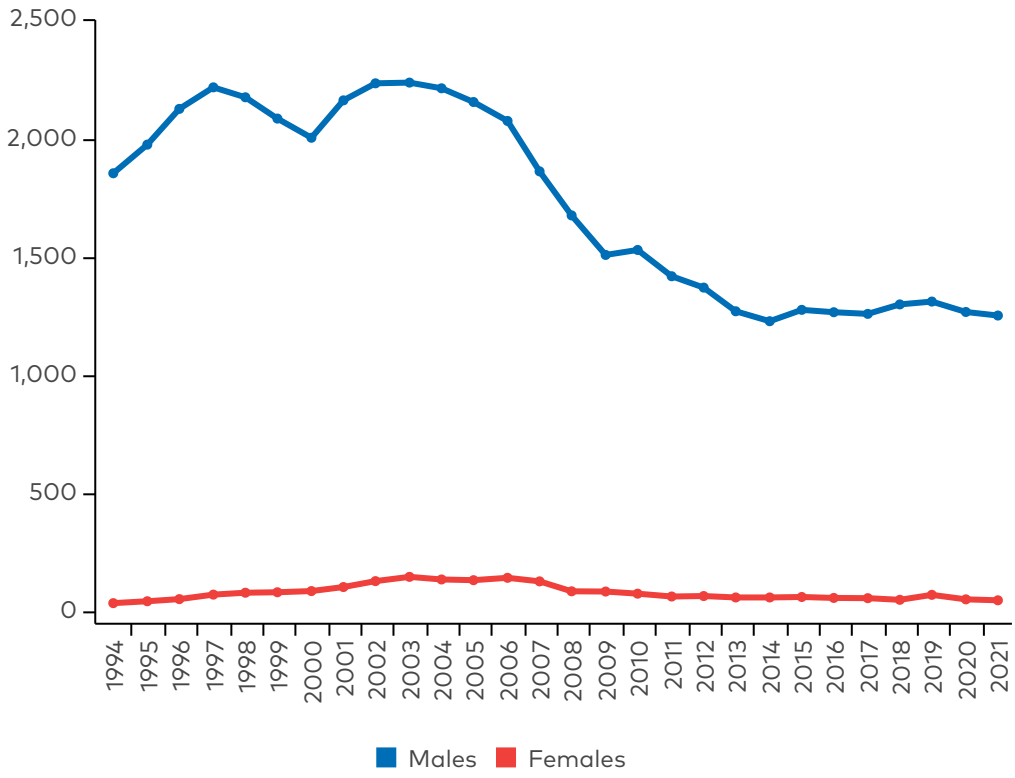


Figure 28. Number of fishers by gender in the Faroe Islands, 1994-2021.
Source: Faroe Islands statistics

In Sweden, fishers have increased in number since 2014; the number of female fishers has roughly doubled and seven females were registered fishers in 2020 (SCB, Sweden Statistics, 2022).

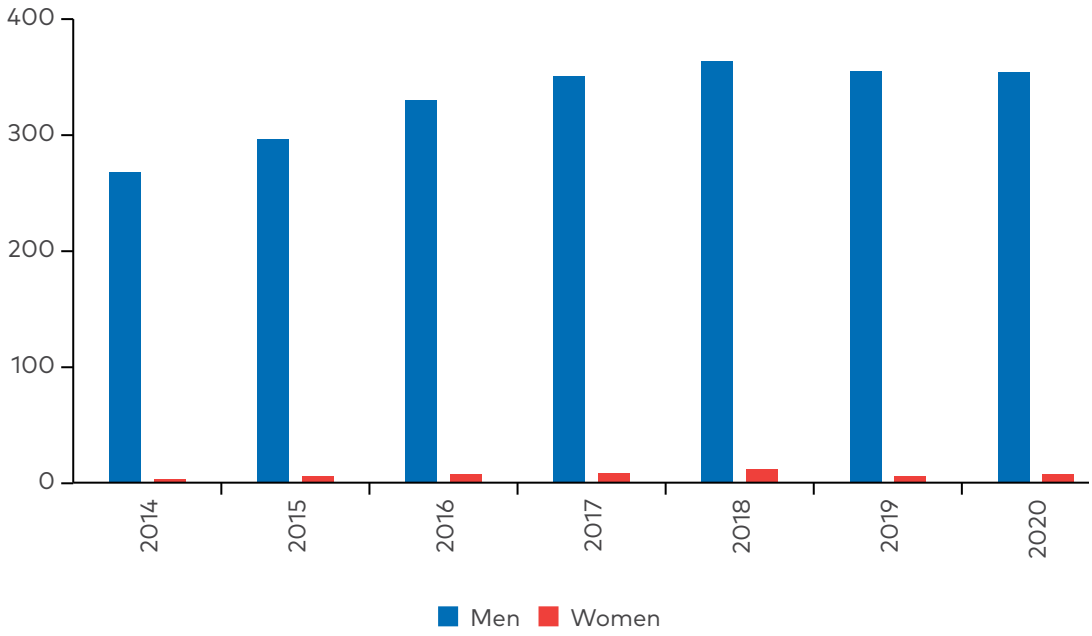


Figure 29. Fishers in Sweden by gender, 2014-2020.
Source: SCB, 2022

In Finland, the number of fishers of both sexes has decreased slightly. Finland has considerable inland and lake fisheries, so the statistics encompass both inland and coastal fisheries.

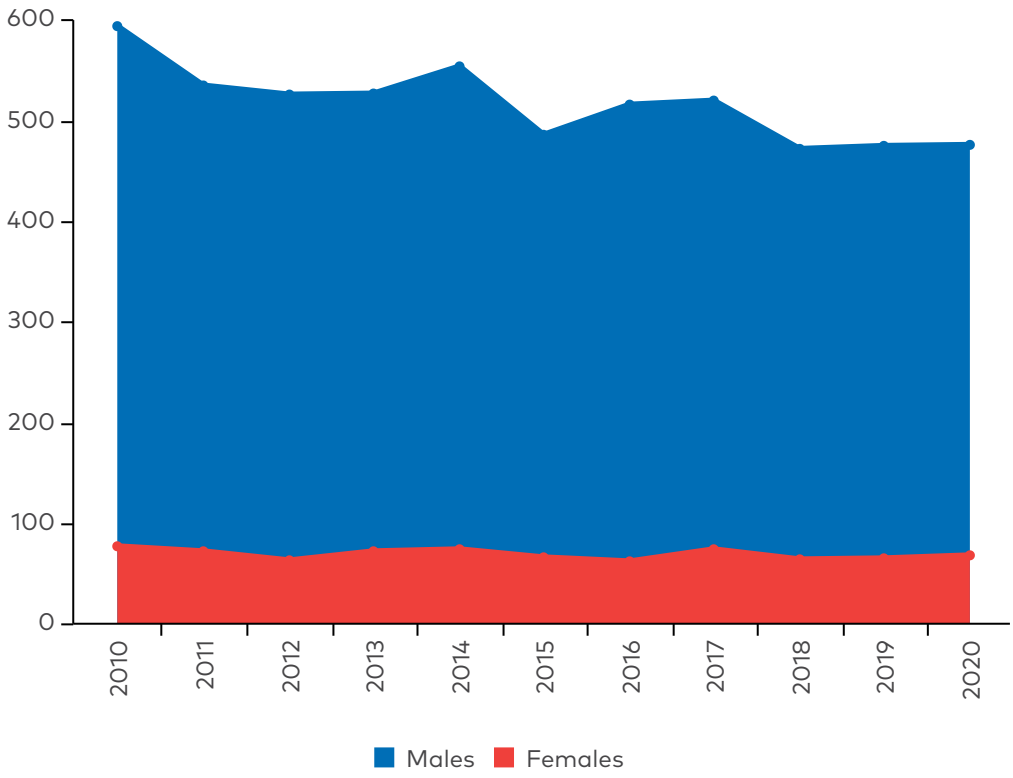


Figure 30. Inland and coastal fishers by gender in Finland, 2010-2020.
Source: Finland statistics

Young people in the fishing industry

Fisheries are an important economic source in many Nordic coastal communities, especially in remote areas. One of the biggest identified threats and weaknesses in the Nordic fisheries sector is the lack of women in the industry, as well the declining numbers of young people entering the fisheries field.

Taking the situation in Denmark as an example, the two graphs demonstrate the ageing of the fishing sector. The first graph shows the decreasing number of people employed in fishing in Denmark, and the change in age representation – the largest age group of Danish fishermen is now 55 years and older. Participation of women in fishing remains very low.

The second graph demonstrates the average age of Danish vessel owners. Unfortunately, this statistic is not available by gender. The average age of vessel owners is increasing over time. The report *Nordic coastal fisheries and communities* (Viðarsson

et al., 2018) identified barriers to the coastal fishing industry in the Nordic countries. The findings of recent studies in Iceland paint a similar picture (Lebedef & Chambers, 2023). In all the Nordic countries, one of the sector's main weakness is the low rate of young people entering the field. The reasons are similar; unattractiveness of small villages, low wages and, for small-scale fisheries, the high initial investment and the reorganisation of harbour areas previously dedicated to small-scale fishing. The increasing popularity of Nordic fishing villages as summer and tourist destinations has led to proportionally high second-home ownership. In some cases Denmark in particular this ghost-town effect has significantly weakened the infrastructure for the permanent population and consequently the local fishing industry (Ouanian, 2016).

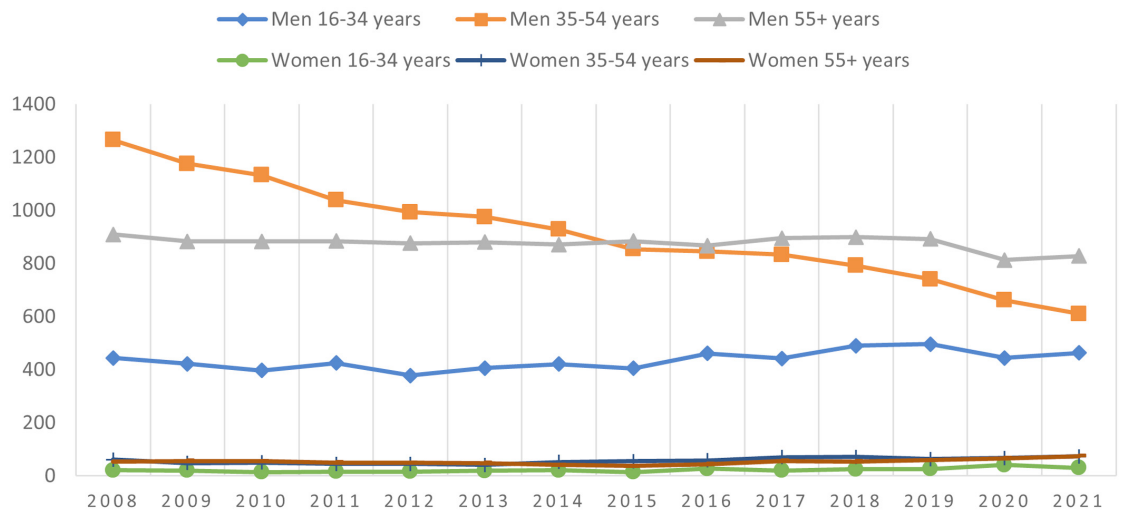


Figure 31. Employees in fishing by age in Denmark, 2008-2023.
Source: Statistikbanken (statbank.dk)

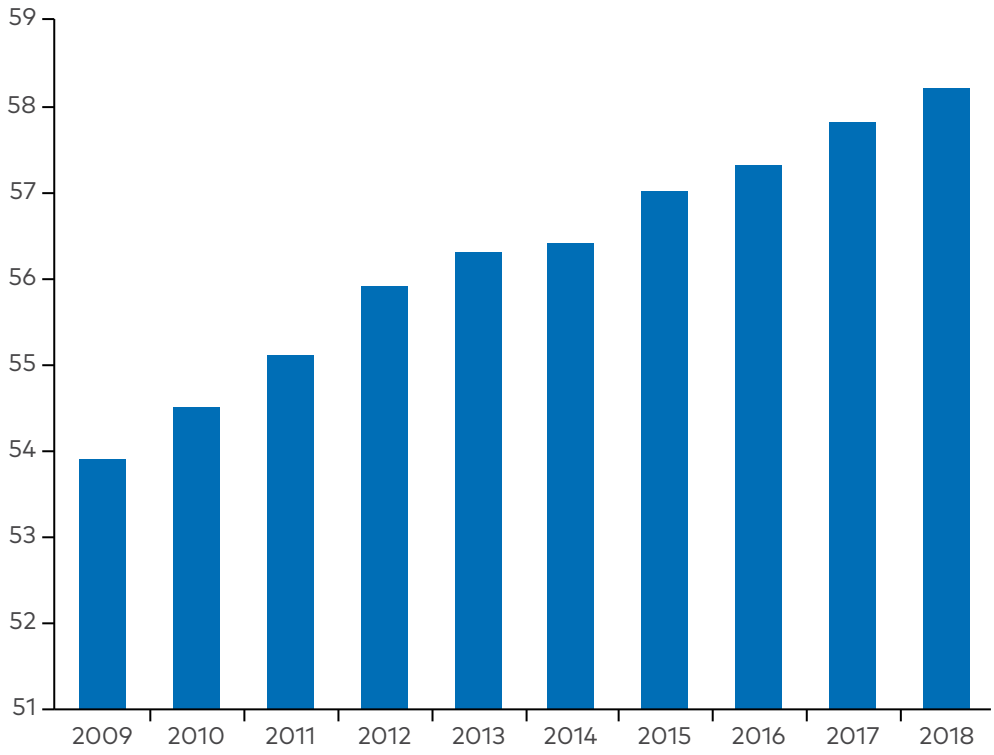


Figure 32. Average age of Danish vessel owners, 2009-2018.
Source: Age statistics (fiskeristyrelsen.dk)

Iceland and Norway show the same trend, as does Greenland even if the average age is lower than in the rest of the Nordic countries.

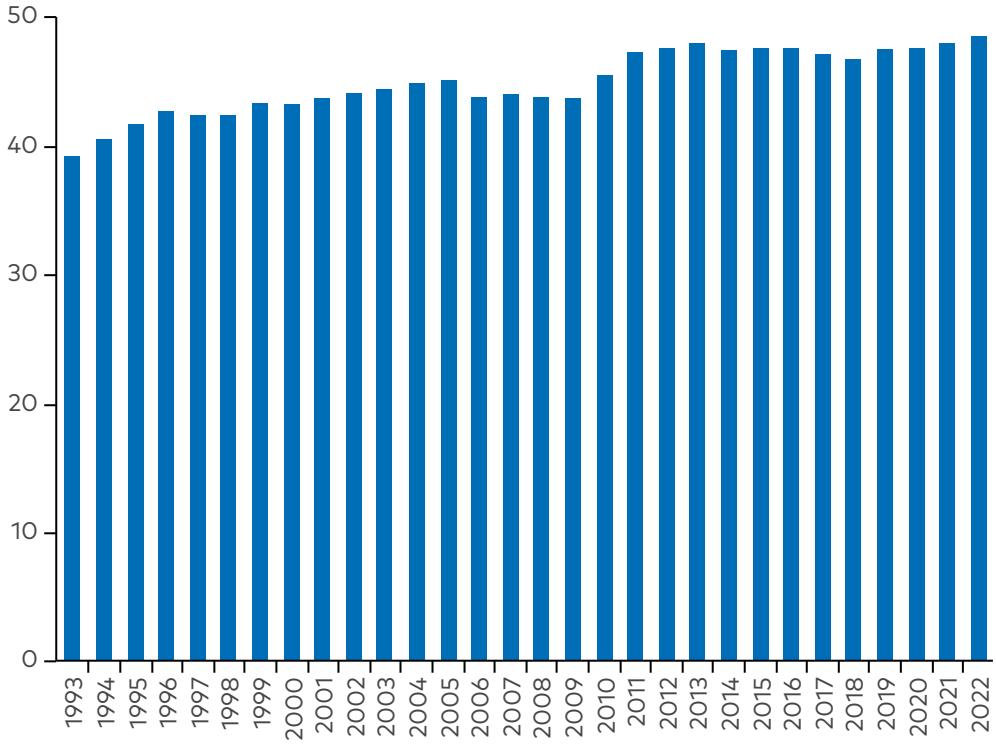


Figure 33. Average age of professional fishers, Greenland, 1993-2022.
Source: Greenland Statistics, 2023

Lebedeff (2021) observed that there was and is a common perception of fishers as strong, brave and hard-working in the Westfjords of Iceland, but newer ideas about fishers are less favourable, contributing to decreased attractiveness of jobs at sea, with implications for young people's choices (Lebedeff & Chambers, 2023). The new ideas are associated with fishers not being smart enough for school and thus un-educated and even working as modern-day slaves on larger trawlers. The more favourable association with the job is that good pay makes it an honourable line of work that allows young men to provide for their families (Lebedeff 2021, p.30).

Female licence holders at sea tend to obtain their licence later in life, thus making their working life at sea shorter than that of men (Henriksen & Nyrud, 2021). That provides food for thought both within the education system and in industry. There are some indications – from the media primarily – that young women feel drawn to the sea as a field of work, which contradicts that trend. Maybe change is afoot.

Erla Ásmundsdóttir, Iceland
Photo: Private

Sisilia Skagen, Norway
Photo: Synnøve Sundby Fallmyr, NRK

Inger Marie Høyland, Norway
Photo: Deutsche Welle

Claudia Hansen, Greenland
Photo: Sermitsiaq

Susanne Mortensen, Norway
Photo: Private

Caitlin Krause, Iceland
Photo: Vísir.is & Ice Cold Catch TV show

Karen Halldórsdóttir, Iceland
Photo: Private

Mia Karina Johansen, Norway
Photo: Private / Viðskiptablaðið Fiskifréttir

Olena P. Madsen, Denmark/Greenland
Photo: Private

Sigríður Ólafsdóttir, Iceland
Photo: Private

Karoliina Lehtimäki, Finland
Photo: Snowchange cooperative, 2023

Carla Bro, Denmark
Photo: Private

Photos: iStock and Unsplash

Culture of masculinity and harassment

Sjómannslíf, sjómannslíf draumur hins djarfa manns/ A sailor's life, a sailor's life, the dream of the bold man

Blikandi bárufans, býður í trylltan dans/ The flashing of the waves' company invites one to a furious dance

Sjómannslíf, sjómannslíf, ástir og ævintýr/ A sailor's life, a sailor's life, love and adventure

Fögnuð í faðmi býr, brimhljóð og veðragnýr/ Joy lives in the arms, the sound of the surf and the thunder of the weather.

Ship ohoj, ship ohoj – ferðbúið liggur fley./ Ship ahoy, ship ahoy – the voyage is underway.

Ship ohoj, ship ohoj – boðanna bíð ég ei./ Ship ahoy, ship ahoy - I'm not waiting for an invitation.

Við stelpurnar segi ég ástarljúf orð,/ To the girls I say loving words,

einn, tveir, þrír kossar, svo stekk ég um borð/ One, two, three kisses, then I jump on board

Ship ohoj, ship ohoj mig seiðir hin svala dröfn./ Ship ahoy, ship ahoy, I'm fed by the cool drafts.

Ship ohoj, ship ohoj og svo nýja í næstu höfn./ Ship ahoy, ship ahoy and then a new girl in the next port.

(Song and Lyrics: Oddgeir Kristjánsson & Loftur Guðmundsson)

A negative attitude to having women onboard has been reported in numerous comments by women in the past as well as in current times. It should be a requirement for fishers and sailors to show mutual respect regardless of gender. The hierarchy onboard may place high performance demands on fishers, but give them a low degree of decision-making compared to captains. That situation may contribute to a rough working environment. But why should it be like that? And is it the case that women work harder on board to prove their capabilities because of a tough and demanding work culture?

There are several superstitions related to seafaring. Such superstitions revolve around many ancient notion of luck and ill omens for the vessel concerned. One example is that women, especially redhaired women, and bananas should be banned from boats – as illogical as that may sound. Women who have worked as observers (marine biologists) repeatedly report being regarded with suspicion due to their gender on board (oral comments, EU Marine Band, 2023). The origin of the superstition banning women from boats derives from ancient times, when it was believed that all women were witches bringing storms and disaster. Ironically, naked women on board were seen as bringing good luck. Naked women were thought to calm the sea. That explains why ships and yachts typically had a figure of a topless women at the bow of their vessel. The figure's bare breasts were thought to shame the stormy seas into calm, with her eyes guiding the seamen to safety (Crew HQ, n.d.).

The culture of masculinity, replete with sarcasm, sexist attitudes towards women, dark humour and a rough, competitive atmosphere on board some vessels has been generally accepted and in some cases been perceived as charming (see the song lyrics above). However, it is not an attractive environment for women and does not help at all in reducing negative stereotypes of women in the maritime sector. However, with increased equality in the labour market in general, the question is why mutual respect irrespective of gender is not the standard at sea. It would be reasonable to expect women's access to work at sea to be better than ever.

This project was spurred by a striking incidence in Norway. In 2021, 25-year-old Susanne Mortensen had been recruited onto a fisher boat in West Norway. Her experiences of bullying and verbal harassment prompted her to write a chronicle in the papers. She reported being humiliated as a woman. She was called a prostitute (whore), bullied for being weak or hysterical and called a "fettkjerring" (an insulting word for someone who tricks you). In the chronicle she wrote that she was utterly ashamed (dritflau) on behalf of organisations, shipping companies, trade unions, colleagues and all others who had just stood by and watched the bullying without saying or doing anything. A year after writing the chronicle (in 2022), she ascertained that little change had been made, drawing the conclusion that the industry did not agree with her (NRK, 2022). The industry in Bergen made an attempt to organise a conference but of 300 participants only 11 men showed up (NRK, 2022). That may be the core of the problem; as soon as improving gender equality is on the agenda, men fail to attend. However, she was later awarded a prize by Tromsø municipality for showing great personal courage and taking a risk by coming forward with her case.

Source: Chronic Ink

"The prize winner has highlighted the issue of women in an occupation dominated by men. She has also shown clear intuition and understanding by not criticising individual persons but elevating the discussion to the level of societal institutions. Moreover she has contributed to establishment of the organisation "HUN FISKER" (EN: She Fishes), which sets out to protect the interests of female fishers"

– Tromsø municipality 2022

In 2021 this was the second equality prize award given to Mortensen. She was also presented with the Labour Union (LO) award.

In 2017, the #MeToo movement highlighted sexual harassment in various professions and contexts. Under the hashtag #lättaankar (anchors aweigh), over 1,150 female seafarers in Sweden shared their stories. Working at sea, sometimes for several months in a row, means that a victim of bullying and harassment has limited options to seek support from friends and family (Linneus University, 2021). The purpose of the project, which ended in 2021, was to identify and describe measures to prevent bullying and harassment, and to promote gender diversity and a good organisational and social working environment in the maritime sector. An evaluation of the measures was performed together with industry representatives. The overall project aim was to communicate useful methods and strategies, with clear descriptions of what such practices involve and why they work (ibid). The results show that workplace bullying and harassment is a substantial problem in the maritime industry. The geographical scope of the study was international and included Denmark, Norway, Sweden and Finland among the Nordic countries. The perpetrators of bullying and harassment are

commonly found among supervisors, from senior crew members down to subordinate crew members, followed by co-workers. Nine percent of the perpetrators were passengers (Österman & Boström, 2021, p.5). Also mentioned in the literature is that a high workload, long working hours, too many and conflicting tasks and fatigue lead to increased tension that may cause conflicts (Forsell in Österman & Boström, 2021). Iso-strain work (high job demands, low decision-latitude and low social support) is associated with experiencing harassment or offensive actions. Women in shipping thus endure worse conditions than men (Ritzau, 2021).

Gender-identity management is a strategy used by women seafarers to cope with – and in some cases to avoid – confrontation on ships. Such strategies result in women adopting behaviour usually associated with a masculine identity, or altering their appearance, such as their clothing or hair style, accordingly. They often have to work harder in order to "prove themselves" or to seek acceptance and be seen as able to perform their job (ILO, 2019). Isolation or feeling lonely on board can be alleviated by recruiting more than one woman on board, thus contributing to a more positive experience.

In her book "Sea Women of Iceland", Margaret Willson explains the culture on board:

"Because crews are on the boats for an extended period, time at sea is more than work; it is a life. The physical exertion, hazing, and gender issues are part of this life, but so is a shared existence of adventure and the passing of time together between bouts of hard work. Many sea-women talked about, and demonstrated through their laughter and jokes that they not only participated in, but also very much enjoyed, the ship humor. Everyone is working hard, and in this challenging environment, a laugh can be a lifesaver. Humor can be a close companion to courage, keeping exhaustion and even panic at bay...Most of the women said that they participated in pranks and ongoing gags; they hung certain fish on the pipes above line workers' heads so the fish would fall on them, engaged in running jokes over the radio between ships, teased and got teased. All the experienced seawomen also said that ribald joking between crew members was common, a part of the ship culture."

–Willson, 2016, 193-194

While research in this field is growing, there is a general need for future research involving substantial qualitative fieldwork. Furthermore, there is a need to address underlying causes of workplace bullying and harassment and ensure decent employment and working conditions at sea. Managers ashore and officers on board must be provided with adequate resources, usable tools and sufficient time for proactive work (Österman & Boström, 2021). The Nordic cooperation through Nordic Information on Gender (NIKK) has mobilised work in various fields that focuses on effects of a gender-segregated labour market and impacts of harassment and gender discriminatory practices (Lundqvist, Simonsson & Widegren, 2023). However, women at sea have not been on their radar.

The attractiveness of entering the maritime or the shipping industry can be improved by actions that decrease the feeling of discrimination. One of the discriminatory aspects mentioned is that the working outfit usually does not come in women's sizes. The Norwegian company Leroy decided to address that problem and enabled their female staff to finally get workwear that fits.
https://www.leroyseafood.com/en/about-us/news/women-to-finally-get-workwear-that-fits/

That is a seemingly small but important step towards increasing diversity inclusiveness in the sector.

The **"Go to Sea!"** campaign was launched in November 2008 in association with the International Labour Organization, the "Round Table" of shipping NGOs – BIMCO, ICS/ISF, INTERCARGO and INTERTANKO – and the International Transport Workers' Federation. This campaign recognises that there is a need to have a pool of competent and efficient seafarers to meet future demand. Accordingly, the aim of the campaign is the promotion of seafaring as an attractive career option for young people. That includes highlighting the sector as one that could provide a stimulating and rewarding career, both at sea and in the sector as a whole. Activities included the establishment and maintenance of training institutions, providing support to new and experienced seafarers during their education and training, **highlighting opportunities available to female seafarers**, having gender-friendly accommodation on board, media promotion and campaign endorsements. This initiative further encourages industry stakeholders and governments to mount their own campaigns aimed at improving seafarer recruitment.

Source: Go to Sea! A Campaign to attract entrants to the shipping industry, IMO, ILO et al. & ILO, 2019.

Photo: Carla Bro and Clara Svarre Petersen (Denmark) in action (private photo)

Photos: iStock and Visit Greenland, Mads Pihl

Organisations – women in the maritime unite

Women's organisations can play a vital role in promoting women in society through networking and empowerment. In this section we will highlight examples of initiatives supporting gender equality in the blue economy.

Formed in 1974, the Women's International Shipping & Trading Association (WISTA International) is a global organisation connecting female executives and decision makers around the world. WISTA International serves as a hub for its network of more than 3,800 female professionals from all sectors of the maritime industry. WISTA promotes diversity in the maritime, trading and logistics sectors, empowering women to lead through their unique perspective and skills, based on the conviction that gender diversity is key to providing a sustainable future for the shipping industry internationally. The organisation works towards minimising the existing gender leadership gap in the maritime, trading and logistics sectors, building a community among its members, facilitating the exchange of contacts, information and experiences, promoting the creation of business relationships among its members, facilitating the professional development of its members, and liaising with other related institutions and organisations worldwide (WISTA, 2023).

Based on experiences from the MeToo movement and shipping industries #anchoraweigh, the Swedish shipping industry signed a joint letter of intent for a world-class working environment and zero tolerance of harassment and victimisation in 2022. The Fair Winds collaboration started in 2018, through which organisations work, among other things, to raise awareness and provide information about equal treatment. In the first stage, four different sub-projects have been prioritised to drive the work forward; an industry-wide letter of intent, open workshops and seminars, inclusion of training on victimisation and harassment within basic safety training and gathering of best practices for preventive work.

One voice less in fisheries and aquaculture

In early 2023, it was announced that the International Organization for **Women in the Seafood Industry** (WSI) was ending its activities due to lack of resources. The France-based non-profit association was established by seafood professionals and gender specialists in 2016 and headed by Marie Christine Monfort.

There is growing recognition of the significance of women's participation in the global seafood industry, yet it is often undervalued by private stakeholders and overlooked by public policies. Globally, one in every two seafood workers is a woman. However, they are over-represented in the lowest-paid, lowest-valued positions, with very few women in leadership positions. Women are essential contributors to this important food supply industry, but they remain invisible. Stories of women in the seafood industry, both good and bad, are rarely told. There is a need to increase awareness about women's role in this industry and to recognise the value they bring. Among the organisation's various activities during its lifetime, WSI published global annual WATCH reports gathering news worldwide on the status, positions and activities of women along the fisheries and aquaculture value chain. However, persistent lack of awareness and understanding of the complexity of the issue, combined with a lack of resources, led to the organisation's decision to end its activities.

SEAFOOD AND GENDER EQUALITY (SAGE), an organisation founded in 2020, will partly fill the void left behind. WSI has worked closely with SAGE to develop and launched the Gender Equality Dialogues (GED), a virtual one-year programme started in mid-2023 that offers seafood industry leaders an opportunity to learn about the key barriers to gender equality and help them make measurable and actionable commitments. SAGE and its founder Julie Kuchepatov publish the Conch Podcast www.seafoodandgenderequality.org/theconchsz1

THE BLOOM is a new international networking community for women and genderqueer people in the seafood sector. It holds virtual meetings every month and maintains an active WhatsApp chat community with the aim of supporting and empowering one another. Although the primary audience consists of women and genderqueer people in North America, the community has members from Europe and other regions. www.seafoodandgenderequality.org/the-bloom

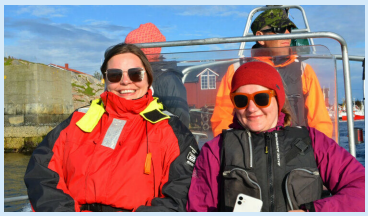
SISTERS IN THE ARCTIC BLUE. The network was funded by the Nordic Arctic cooperation programme 2019-2022 with the aim of advancing a gender perspective in Arctic Marine and Coastal Social Science Research (SAB). The core group consisted of scholars active in Finland, Sweden, Norway and Denmark, but the network has expanded to encompass more scholars active within the field of gender and the blue sector. The core network members compiled a publication in 2022 titled: "Gender in

Nordic Blue Economies Initial networking results & future academic research". The awareness and shortage of an organised support and collaboration network for early career researchers interested in and working on gender issues within blue economy sectors brought together a group of researchers into Nordic fisheries, heritage and rural areas. The network continues to pursue its activities.

HUN FISKER is a Norway-based interest organisation of and for female professional fishers. It aims to promote women's interests and rights at sea, give women visible role models in the profession and contribute to increasing women's experience and skills.

KONUR Í SJÁVARÚTVEGI (The Association of Women in the Marine Industry in Iceland) was established in 2013 with the goal of making women more visible in the maritime industry and encouraging more women to enter the field. Its activities include study trips to companies in the fisheries sector and mapping of the presence of women in the industry. Its goal is to make women more visible both within the industry as well as outside of it and ultimately to encourage more women to choose the marine industry as their line of work. It also sets out to strengthen relationships while learning and broadening horizons. www.kis.is/

Norges fiskarlags kvinnenettverk (Women's Network of the Norwegian Fishers' Association) was established in 2022 during the NorFish convention in Trondelag. The Norwegian Fishers' Association is the largest stakeholder organisation for fishers in Norway and this network of women is part of a larger effort to give women both space and opportunities within the organisation. The aim is for the network to be a platform for making contacts, sharing ideas, opinions, tips and tricks, as well as a starting point for discussing the profession, politics, challenges and opportunities in the industry. Fiskarlaget strives to be an organisation with greater diversity and more perspectives. It recognises that ideas, solutions and perspectives from female fishers are needed in order for the organisation to promote the best interests of fishers most effectively.



Hanna Bakke-Jensen (left) and Marit Hiim Haugseth.
Photo: Norges fiskarlag

Photos: iStock

Education, gender and the blue bioeconomy

Secondary and vocational education

Part of the Salmon and Gender Equality project involves gathering statistical data on men and women in vocational training and university education in the blue economy. For vocational training, most of the statistical institutions in the Nordic Region publish the number of students by gender in maritime training and related fields. Such courses are male-dominated in all the Nordic countries. That confirms the conclusion reached by NIKK in a report on vocational training in the Nordic countries that the labour market is highly gender-segregated and has remained so for a long time, as also reflected in gendered choices of vocational training (Simonson, 2022). A gender perspective was applied in the report, questioning perceptions of "male" and masculinity as well as "female" and femininity. It also discussed the power aspects connected to those perceptions.

In most of the Nordic countries, there is a long tradition of maritime educational tracks at the secondary level of education, e.g. the steersperson course.

A newer addition to education relates to functions in aquaculture. Norway has a good structure that has already been implemented in the secondary school system, while Iceland has some separate educational institutions that cater to various segments of industrial or tradesperson training. Greenland offers fishery training.

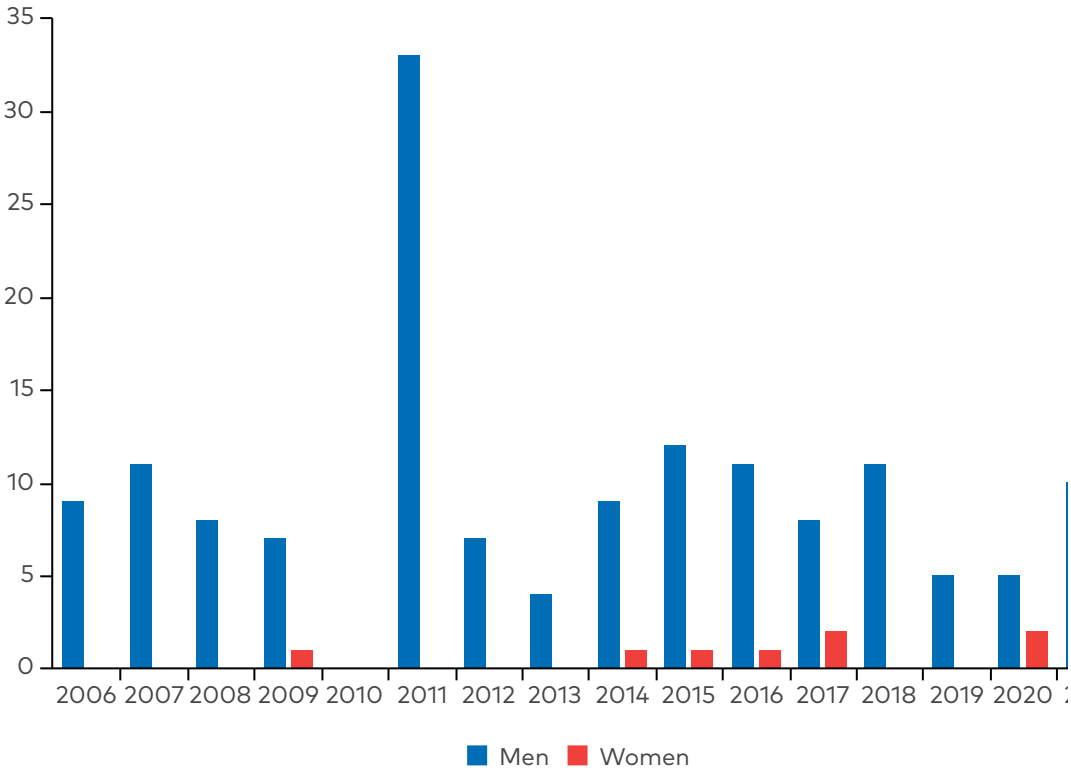


Figure 34. Gender and vocational education and training in Greenland, 2006-2022.
Source: Greenland statistics

Not surprisingly the gender ratio in such courses varies depending on the given track and discipline. In Greenland four women completed the basic fishery course and five the basic maritime course, while only one completed the 1st. class skipper course for fishing vessels in 2021. The highest number of women completed the vessel fitter course in secondary maritime education in Greenland, numbering 14 in total in the period 2013-2022.

Vessel fitter at work
Photo: iStock

In the Faroe Islands, the ratio of female students in maritime education from 2009-2021 was highest in 2014/2015 at almost 20%, but in most cohorts it was under 10%, with men outnumbering women in secondary maritime education in the islands each year according to the available statistics. The red bars

indicate women and the blue bars indicate men in the graph below.

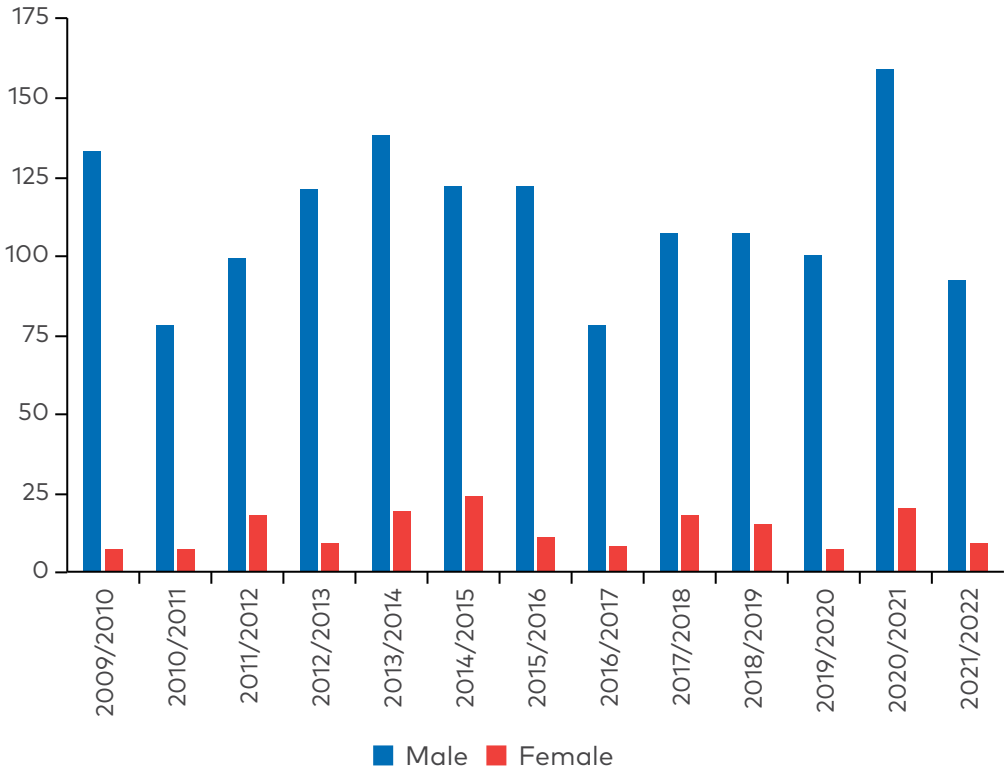


Figure 35. Maritime education by gender (number of students), Faroe Islands, 2009-2021.
Source: Faroe Islands statistics

There are numerous Danish statistics on vocational education and training, covering the period from 2005 to 2022. They include vocational institutions, with data broken down by age, ancestry, institution, education, completion, entrance and gender.

For marine engineering and ship assembly, the number of women is small, with only six women completing that course in Denmark in the period 2005-2022.

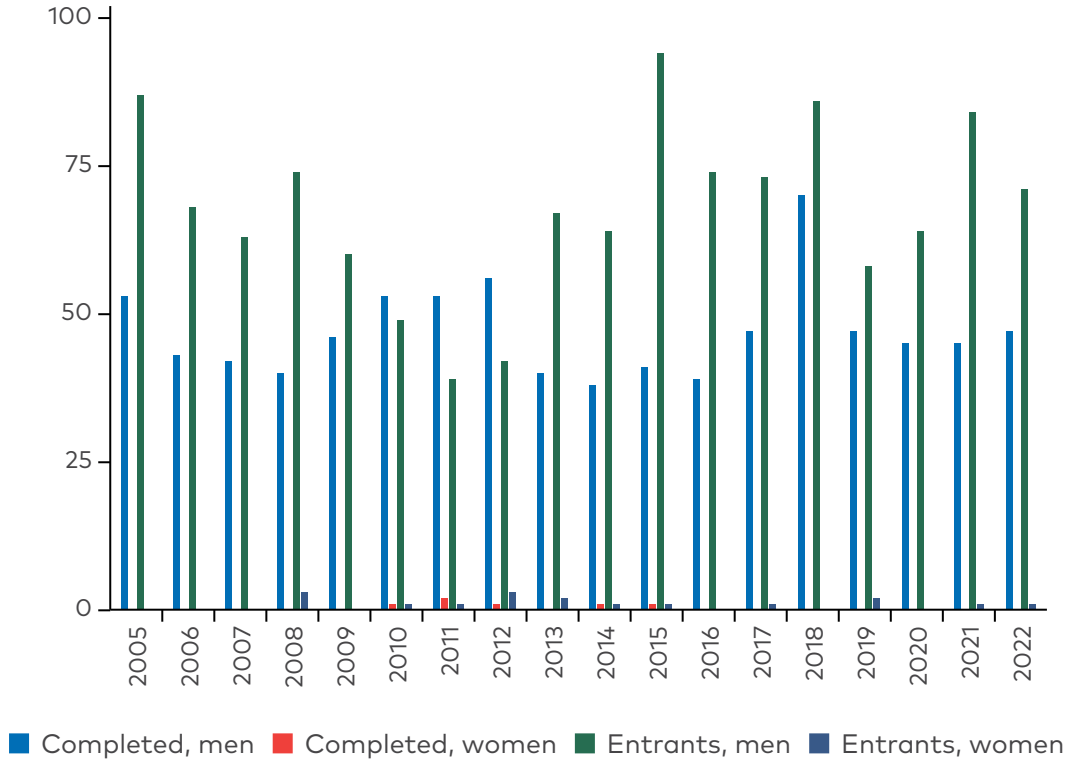


Figure 36. Marine engineering and ship assembly course by gender in Denmark, 2005-2022.

More women participated in the commercial fisheries course, but not proportionally. In the period 2005-2022, 91 women in Denmark completed the course.

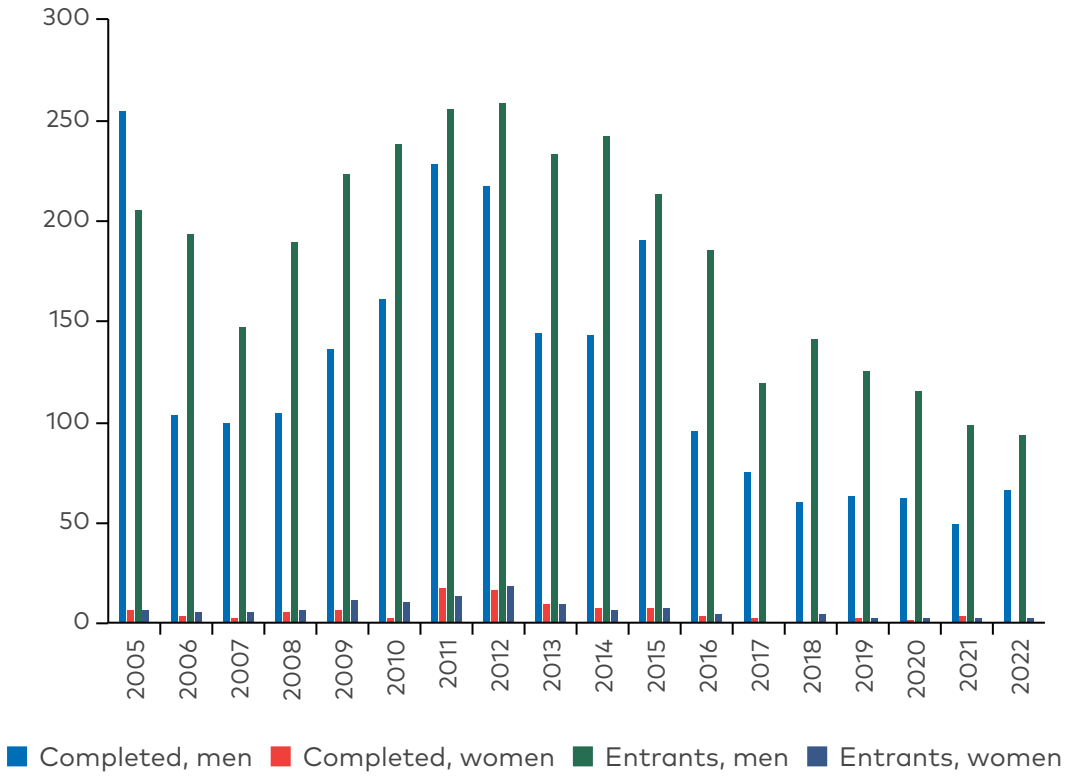


Figure 37. Commercial fisheries course by gender in Denmark, 2005-2022.

The Danish Education and Research Ministry provides a complete overview of the various maritime courses provided (Uddannelses og Forskningsministeriet, 2023). Denmark has a long tradition of navigation training onboard school schooners and has also established educational programmes in various disciplines related to the maritime field. The courses are offered in nine educational institutions across the country, ranging from mechanical schools (maskinmesterskole) in Copenhagen, Frederica, Aarhus, and Odense to maritime and navigational schools in Marstal, Svendborg (SIMAC), Kogtved and Maritime Centre West (Denmark Statistics, 2023).

In Denmark, multiple educational tracks have been identified within the scope of maritime education. Compared to male student recruitment, women are in the minority. When compared to cohorts ranging from roughly 500 to 800 on such courses, females are few and far in between. However, some of these courses are more popular among females, e.g. vocational bachelor education, maritime VBE and ship's officer training. The number of women attaining master's degrees in SCE and engineering related to the maritime field is also on the rise. Qualitative sources suggest that there may be a rise in women choosing such courses (September newsletter, 2023).

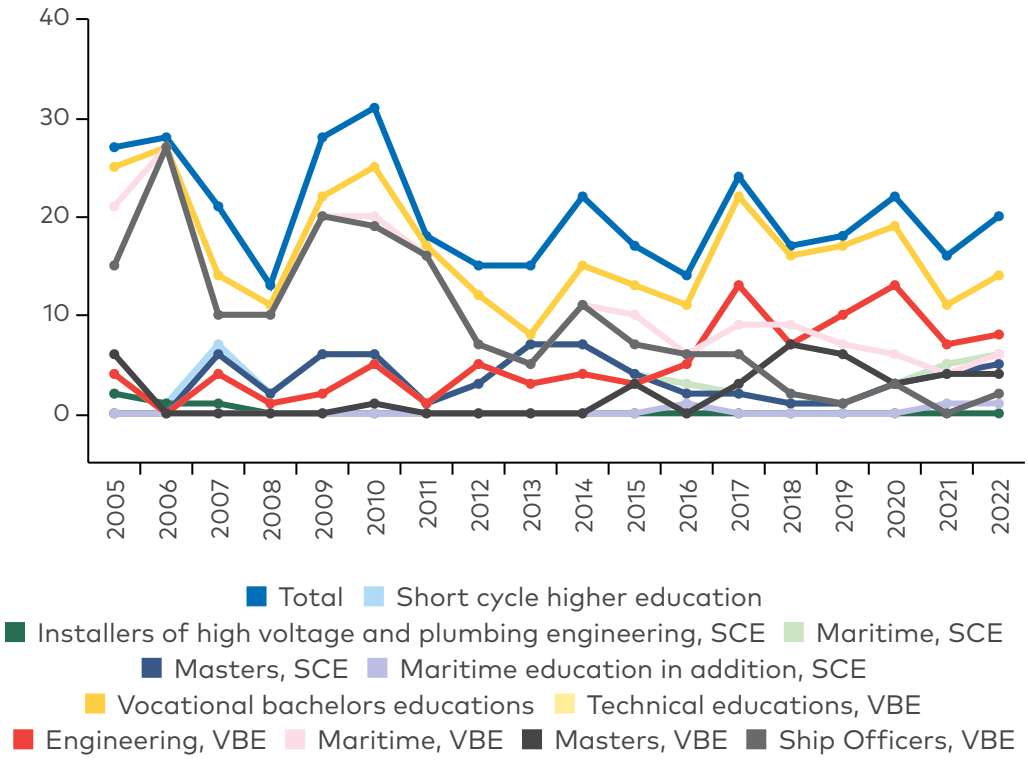


Figure 38. Women's attainment in maritime education in Denmark, 2005-2022.

In Finland, vocational fisheries training has a high dropout rate as there is a marked difference between the number of total students and those completing the course. A small minority of the students were women over the period 2004-2021. The statistical source is Statistics Finland, data on students and qualifications attained at educational institutions.

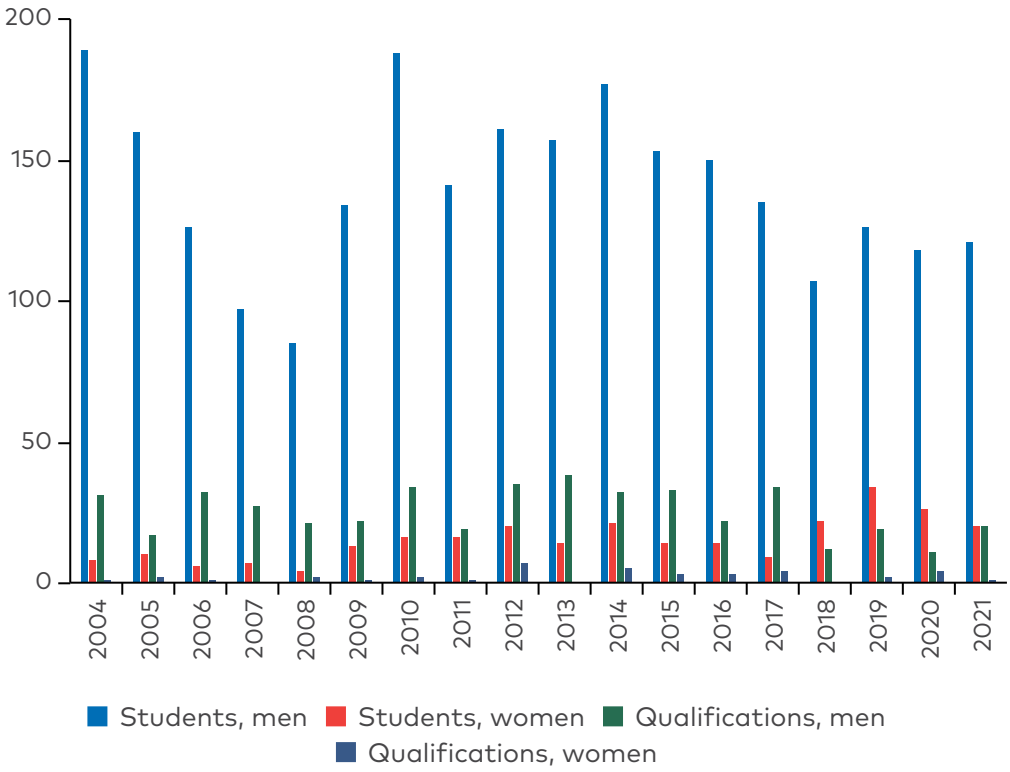


Figure 39. Fishery-related vocational training by gender in Finland, 2004-2021.

Fish processing is a further qualification in Finland within the vocational training system. Here women are more visible in the graph but still form only a minority of students and again there is big gap between student enrolment and the number of qualifications gained.

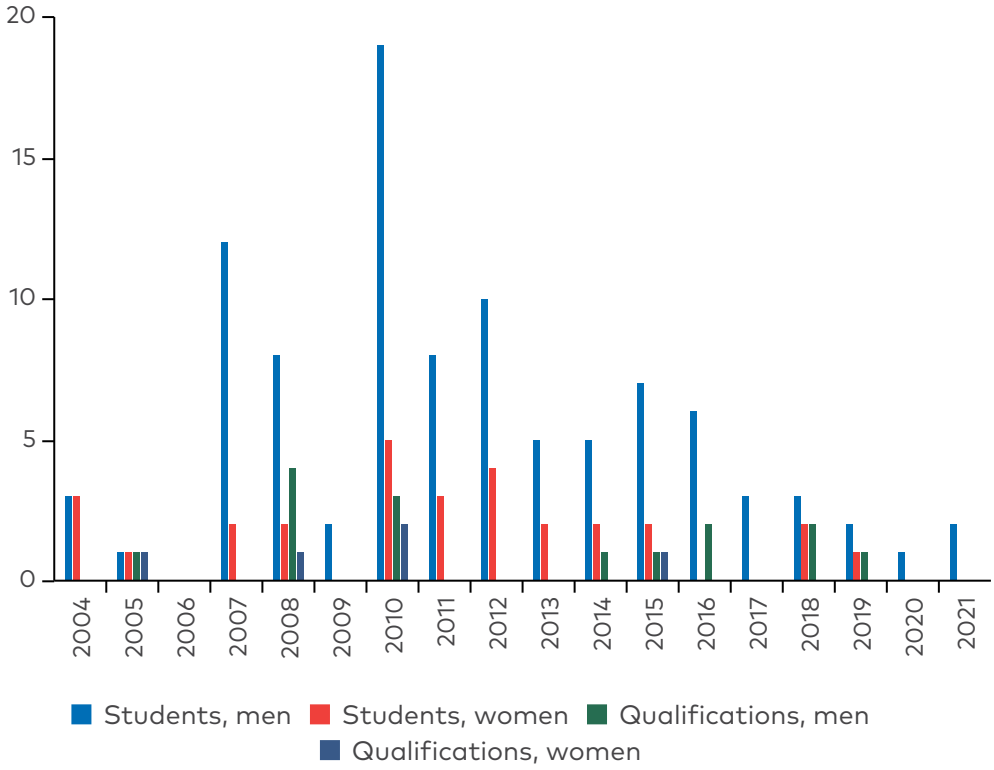


Figure 40. Fish processing training and completion by gender in Finland, 2004-2021.

Vocational training in fish farming shows another trend over a 17-year period, from 2004-2021; there are no number of students from 2005-2009 and none after 2018, but there is more balance between student enrolment and qualifications. Still women are in the minority (on average accounting for less than five percentage of the students).

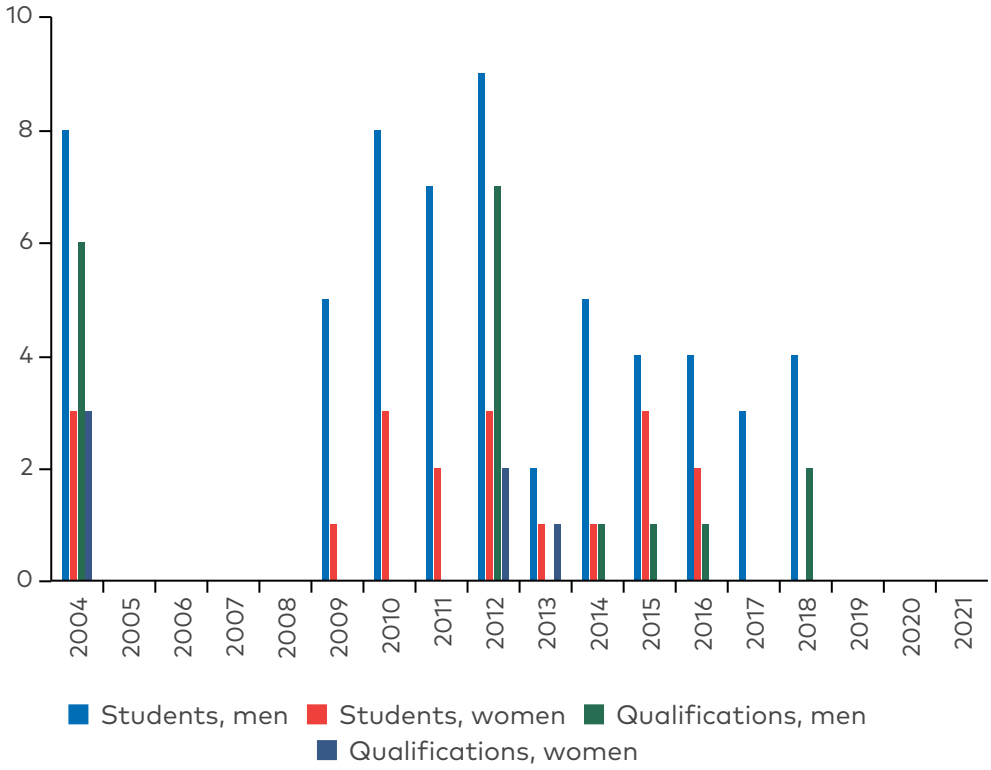


Figure 41. Fish farming training and completion by gender in Finland, 2004-2021.

Fishing guide vocational training has risen in popularity, dominated by the enrolment of male students. Since 2016 there has been a rising proportion of women compared to men, even if at marginal rates.

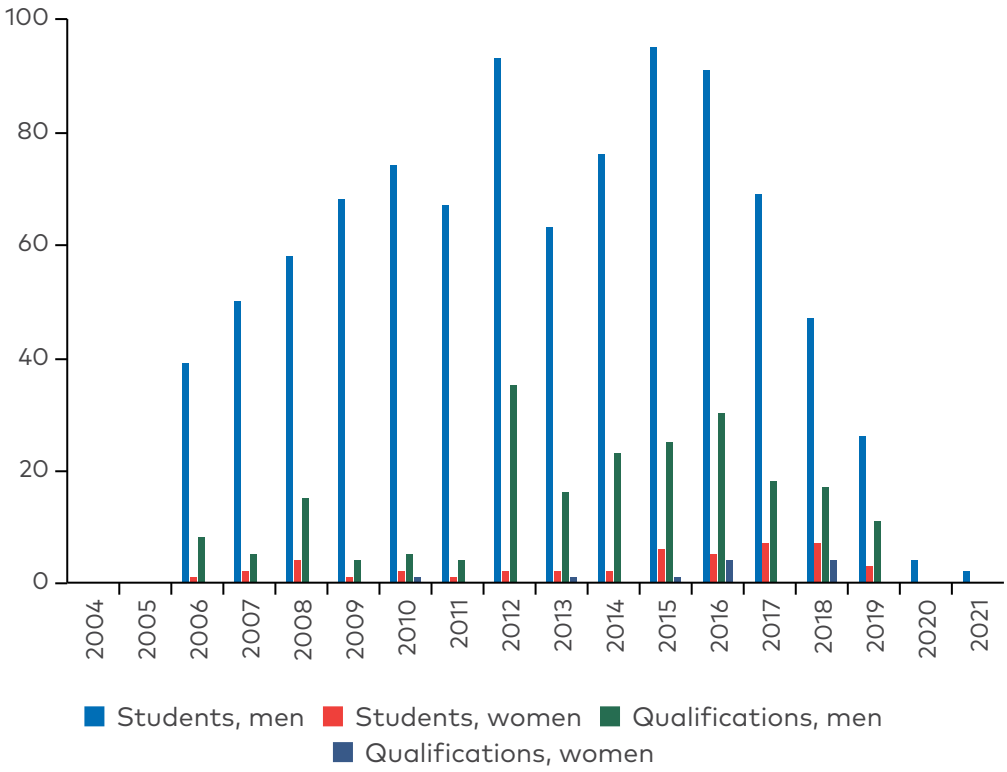


Figure 42. Fishing guide training by gender in Finland, 2004-2021.

Norway has statistics available covering over a decade from 2012-2022 on educational attainment by gender in maritime education and training. Not surprisingly there is a slight increase in women choosing maritime-related education and training, though the number of female students is still far from that of their male counterparts. Even if not yet observable in statistics, there was a news report on the increased popularity of such courses among women in Norway. *"A few years ago, Nord-Trom's high school on Skjervøy struggled to get students to the blue line. Now the situation has turned on its head, and girls are helping to fill up the classes"* (NRK, 2023).Oral sources also report that the majority of women are enrolled in the fisheries college, which forms part of the University of Arctic Norway, Tromsø.

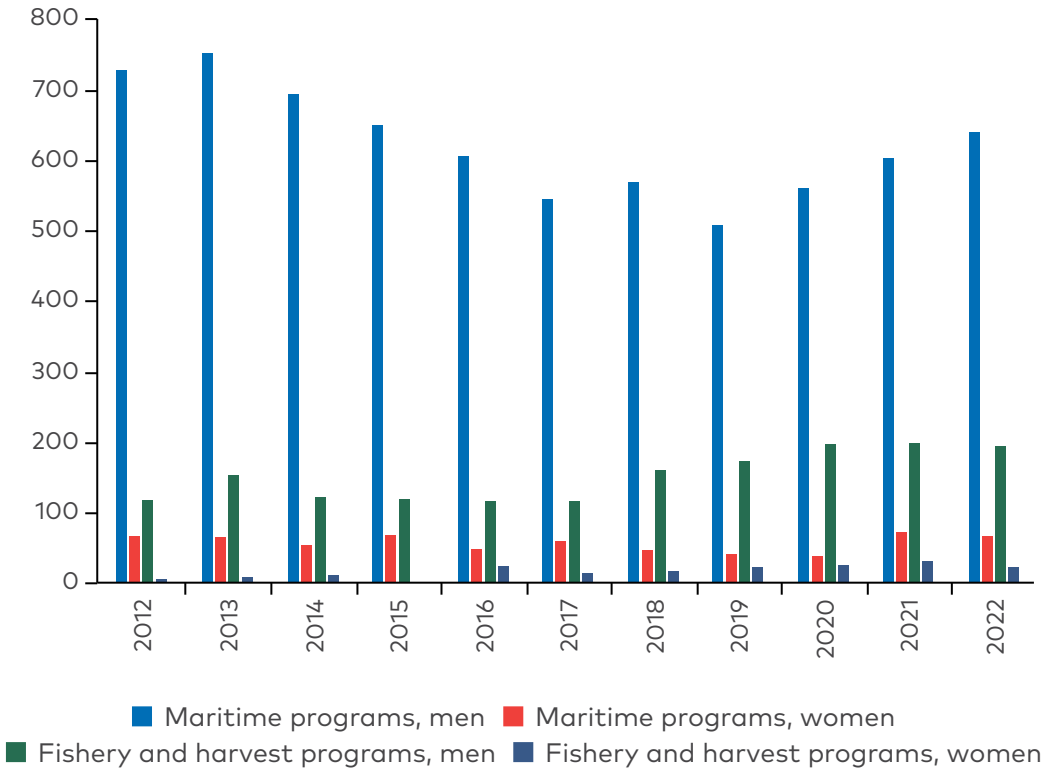


Figure 43. Maritime educational attainment by gender in Norway, 2012-2022.

Table 5. Proportion of girls (%) in secondary maritime-related education in Norway, 2013-2023

2ndary education lines	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Vg1 Nature use	50.6	52.8	49.9	50.2	52.6	50.7	47.5	49.7	49.7	50.7	50.8
NAFFA2 – Fishery and harvest	4.1	5.0	7.6	0.8	9.4	10.2	9.1	11.3	11.3	13.5	10
NAAKV2 - Aqua-culture	28.4	18.8	20.6	23.4	24.1	29.2	23.2	25.1	32.3	29	36

Source: Fiskeridirektoratet (from Henriksen & Nyrud 2021)

The proportion of girls enrolled in the fishery and harvest programme has doubled since the school year 2012-2013. Over time they can become steerswomen and skippers. However, the proportion of women remains the lowest in the fishery and harvest programme, within the nature use educational track. Almost one-third of the student cohort are women in the aquaculture educational track. That reflects well the gender-segregated labour market in Norway.

Some interesting developments are taking place in Iceland. Women's educational attainment in fishery-related education at secondary level fluctuates substantially in some years vs. males over 50% and even over 60% (2015 & 2020). However, the statistics should be treated with caution since there are very few students in each cohort in total, making any changes between years seem like major changes.

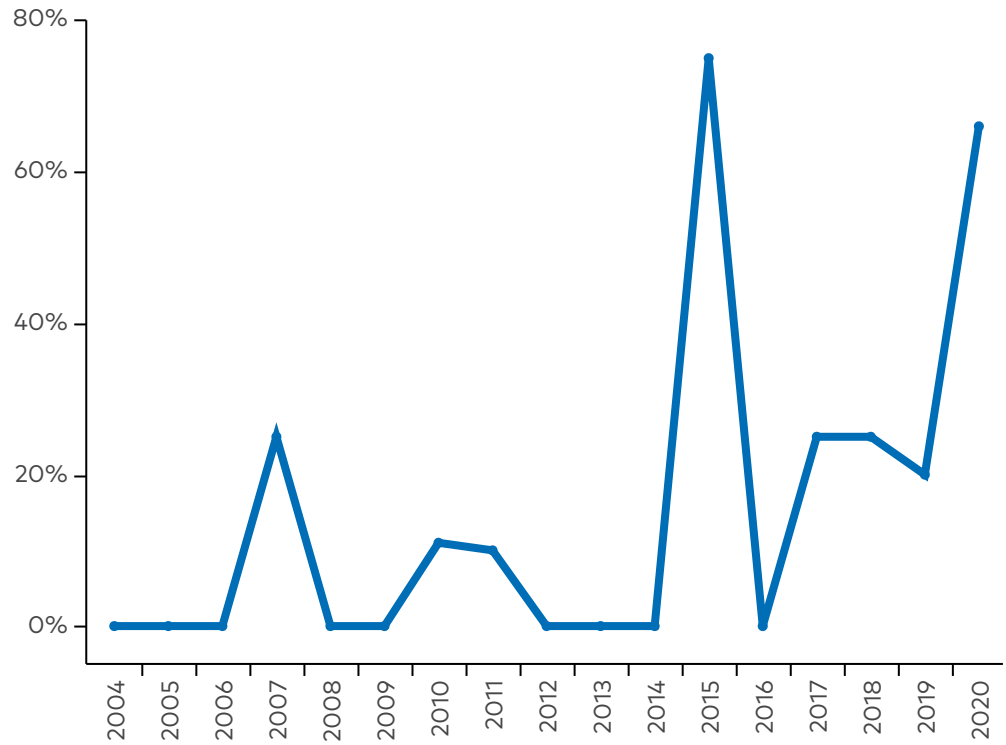


Figure 44. Proportion of women completing fishery-related vocational training in Iceland, 2004-2020.

The participation of women in the VET programmes at technical schools and mechanics education (vélstjórn) is minimal – very few (2-4) of the student cohorts of roughly 50 students were female students except for in the last few years (2019-2021), when they increased to more than 20% of the total number of students acquiring a licence to become machinery experts.

Tertiary level education

A few academic courses available in the Nordic Region are clearly related to the fishing industry, such as the MSc in Coastal and Marine Management in Iceland. Other educational tracks at university level may be highly relevant to tasks in the maritime sector, but are not exclusively focused on the sector (such as business and management programmes). Thus selecting which university programmes should be included in our search for gender-disaggregated statistics proved difficult. We have therefore chosen to highlight a few examples from around the Nordic Region.

The graph below shows the number of students by gender since the MSc course in Coastal and Marine Management started in 2009 (source: Statistics Iceland statistical database). The graph demonstrates how female students have outnumbered male students in recent years.

At university level, female students outnumber male students in most university educational programmes with one exception. As this example shows, the only educational programmes where women have not outnumbered men both as students or faculty is within a few specific disciplines in the natural science programmes. However, women are increasing in number compared to their male peers on STEM courses (Jansson & Sand, 2021; Klang et al, 2019). In the Nordic countries, there has been an ongoing effort to decrease gender segregation on the labour market by profiling educational programmes and orienting them away from a male-dominated educational setting and to try to improve women's study environment on courses for male-dominated professions – by making them feel less like outsiders or deviant from the norm. Various measures have been taken in different countries (Jansson & Sand, 2020).

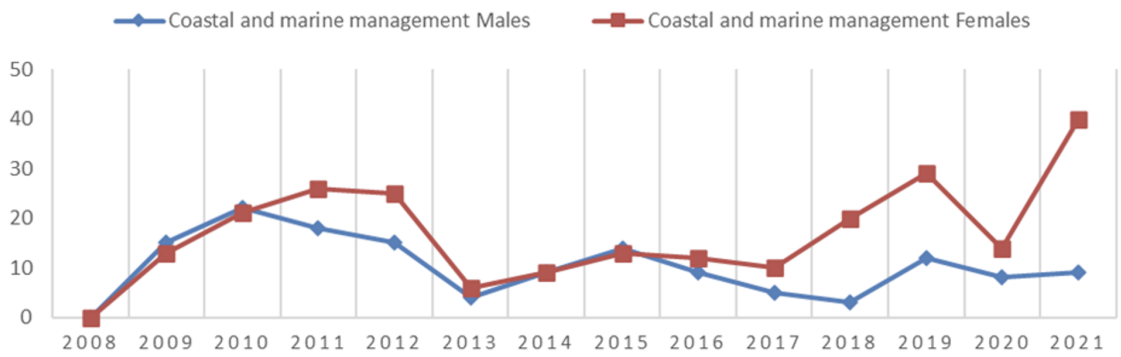


Figure 45. Educational attainment by gender for the MSc in Coastal and Marine Management, 2009-2021.

Further, we have looked at the example of Iceland and Finland with respect to tertiary courses (at university level encompassing bachelor's, master's and doctoral programmes) clearly related to the marine field, with specialisation in coastal areas or inland lakes.

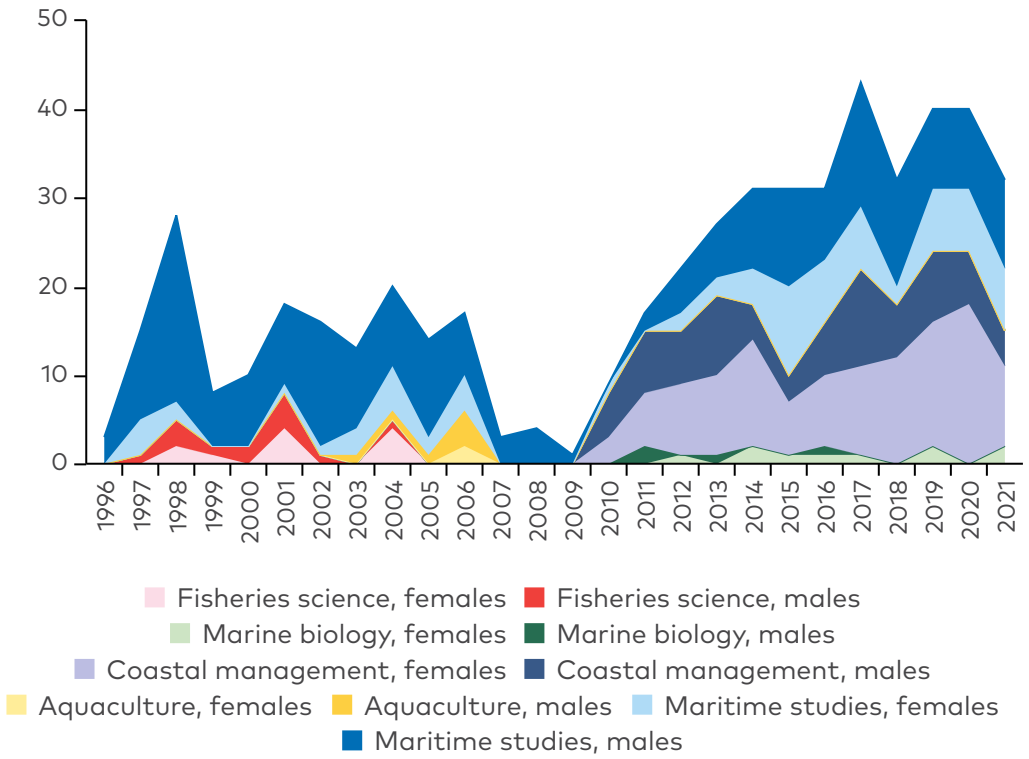


Figure 46. University educational attainment focusing on the marine field by gender, Iceland, 1996-2021.

University educational programmes with a clear focus on the marine field, coastal or inland resources and utilisation or technology are provided at four different universities or university colleges in Iceland, namely the University of Iceland, University of Holar College, University of Akureyri and the Westfjords University Centre. While student attainment has been growing in the field of coastal management, with an increased female ratio, the statistics do not show the same trend for aquaculture and marine studies, where male students have always been a majority. Also, there is a long tradition of female marine biologists.

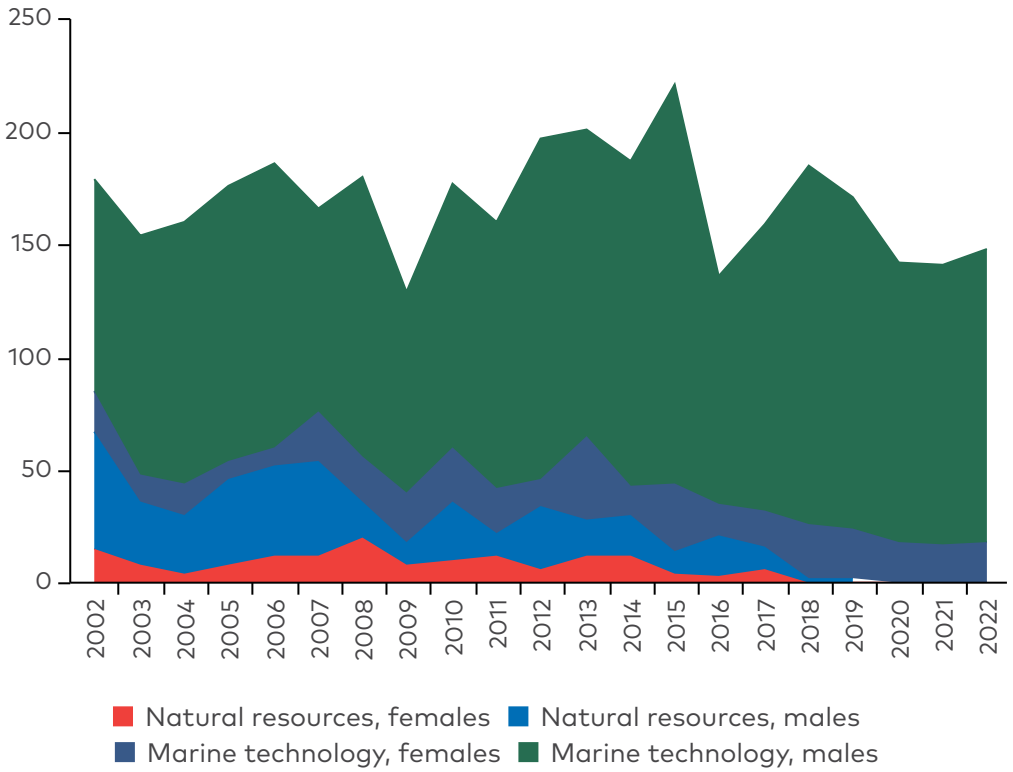


Figure 47. Graduation by gender from fisheries and marine-related courses at university level, Finland 2002-2022.

In Finland, we have also examined the gender ratio across graduate levels (bachelor's, master's and doctoral programmes) within two educational programmes, one on natural resources and another in the field of marine technology. The statistics reveal that while the number of graduates of both genders has been on the decrease in the field of natural resources, males by far outnumber females in terms of the number of graduates of various courses in the field of marine technology.

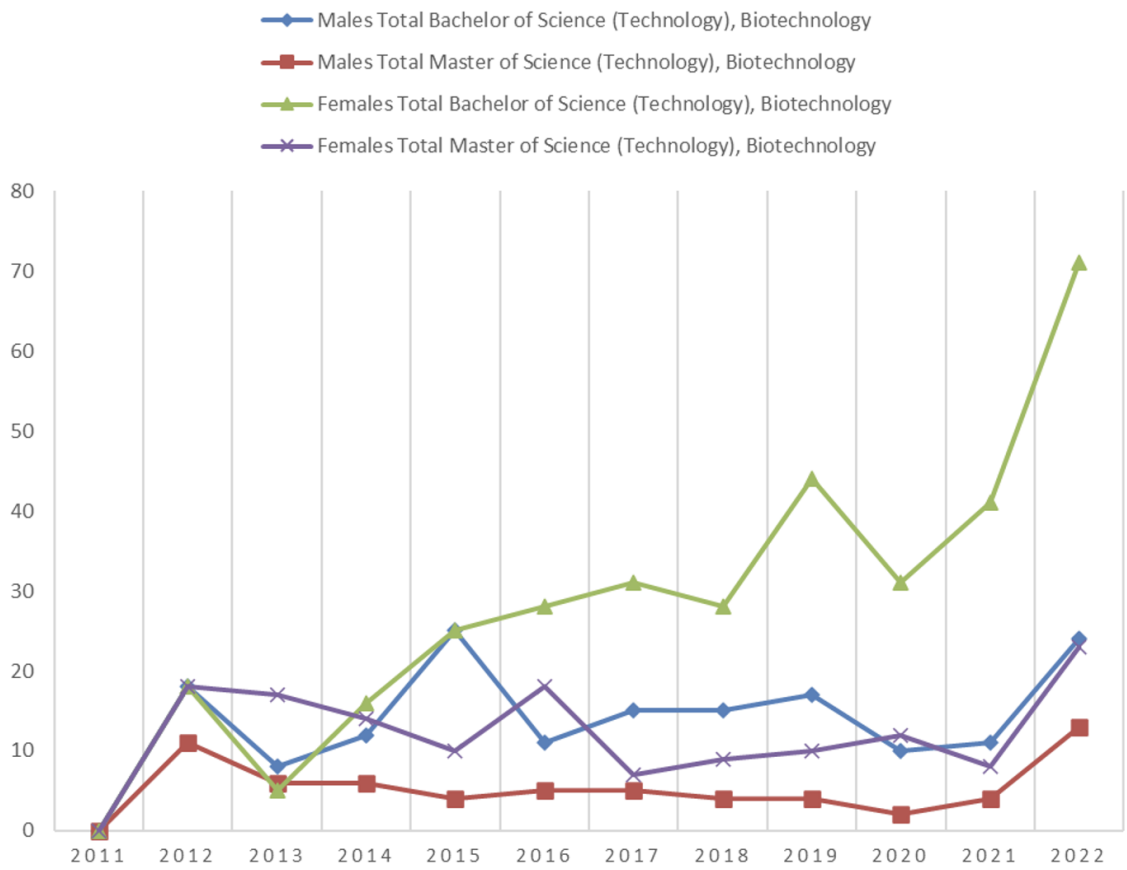


Figure 48. Number of new students in biotech programmes, Finland, 2011-2022.

The situation is different for biotech programmes in Finland. The graph above shows the number of new students in biotechnology at undergraduate and master's level according to data from Statistics Finland. Similar to the gender division in Coastal and Marine Management, there are more female students than male students studying biotechnology in Finland (source: statistical database of Statistics Finland).

In general, we had difficulties obtaining gender-disaggregated data on educational attainment and graduation at university level (tertiary level) from all the Nordic countries. In figures 50, 51 and 52 educational attainment by women across educational levels in maritime related education is shown for 2012, 2021 and changes from 2012-2021. It reveals that in 2012 the highest share of women in fisheries and maritime education on secondary and tertiary level were in Faroe Islands and Sweden. In 2021 the highest share was in Iceland, Greenland and Sweden. Over almost a decade the most significant increase of women in these types of education was in Iceland, Denmark and Sweden.

In Swedish occupational statistics (2012-2018), the gender ratio of marine biologists is high, with women accounting for 51% (SCB, 2012-2018). We also know that while the gender representation among staff on some of the natural science programmes at the University of Iceland that will recruit graduates to the marine sector (i.e. machine

engineering) and the number of female students are rising compared to their male peers, while the vast majority of faculty members are male (University of Iceland, SENS, 2023). However, at the Arctic University Norway, in the College of Fisheries Science, where female students have outnumbered male students for many years (oral information), there is almost even gender representation among the administrative staff and faculty. (https://en.uit.no/enhet/nfh)

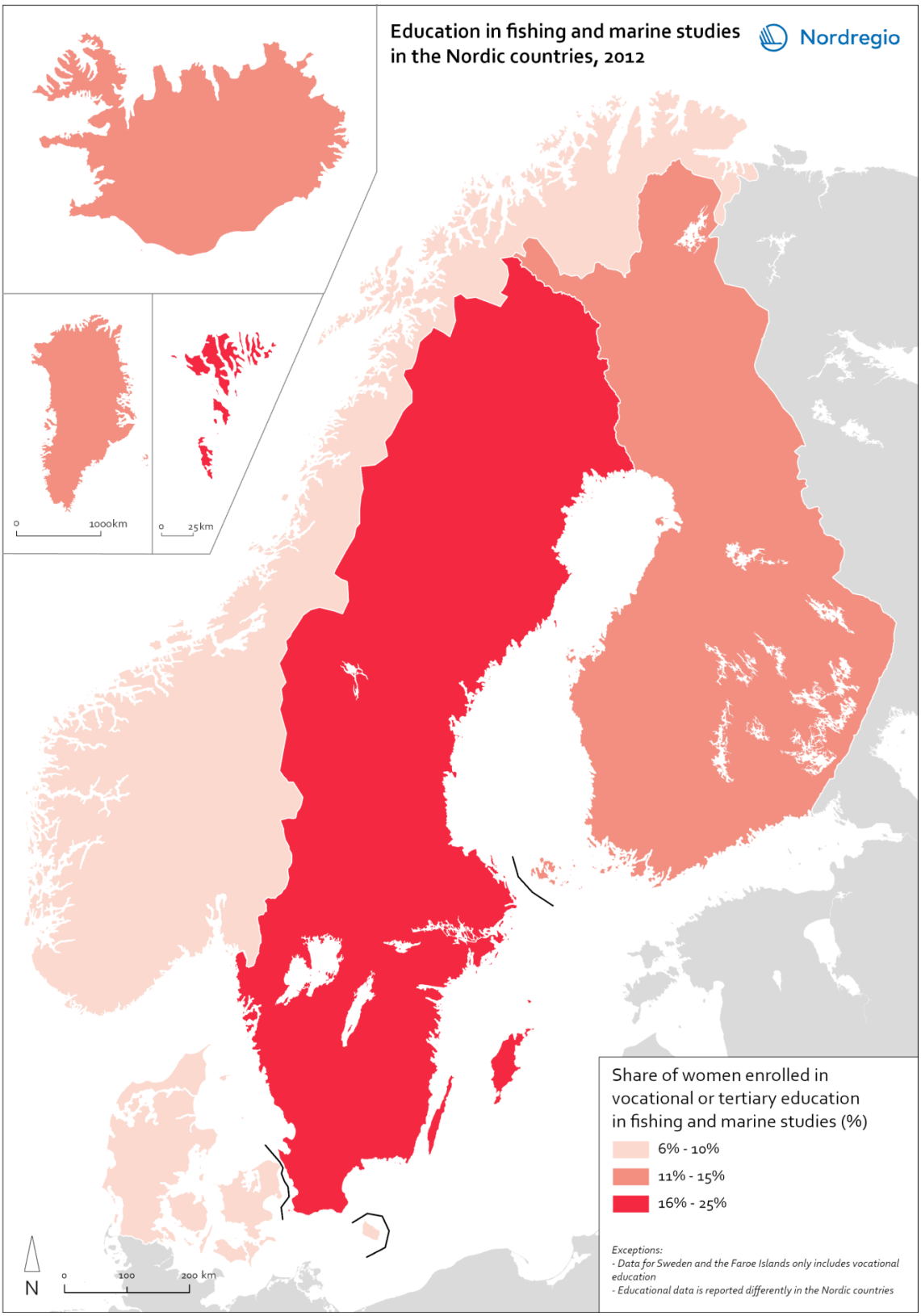


Figure 49. Share of women enrolled in marine studies across educational levels in the Nordic Region 2012.

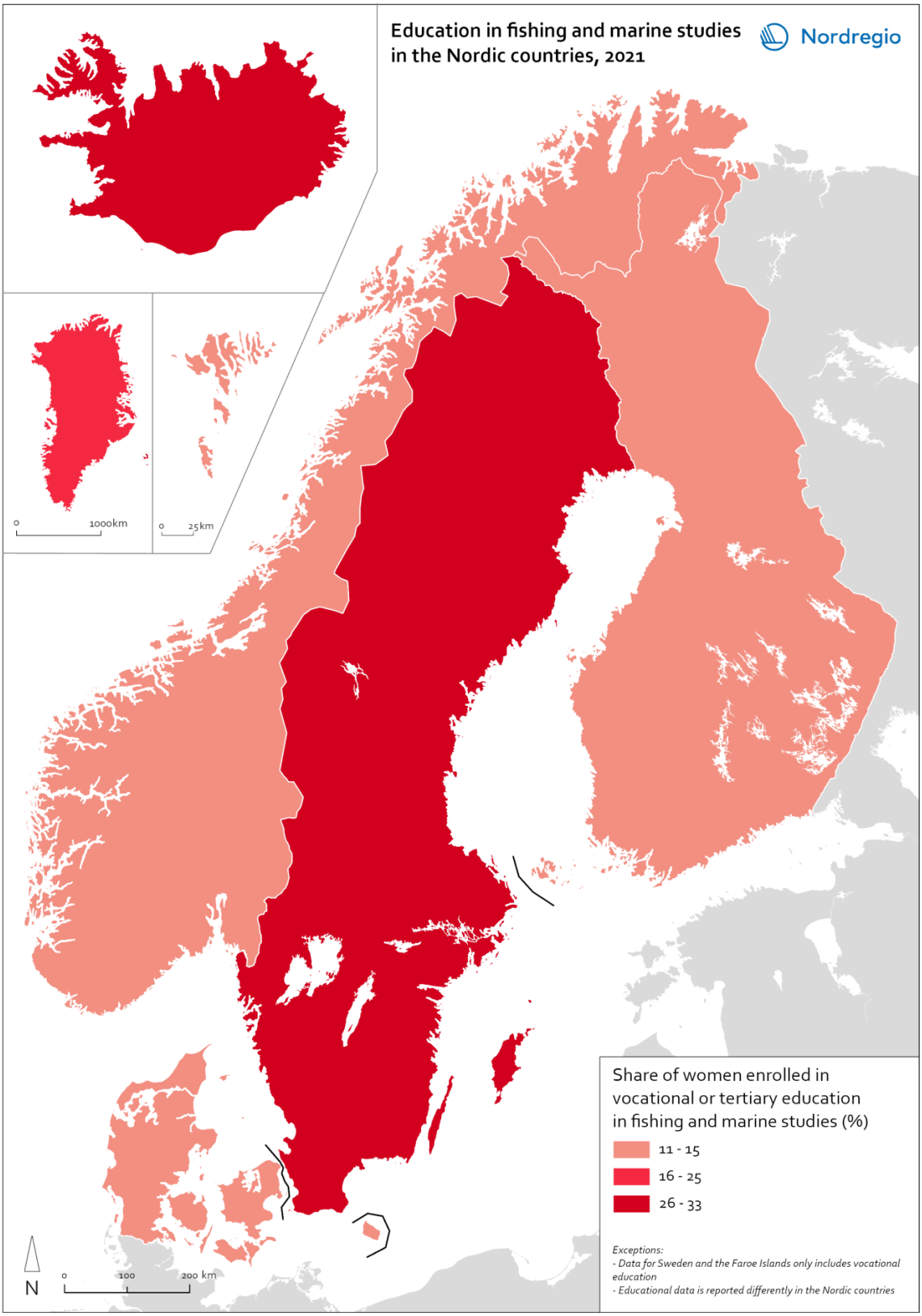


Figure 50. Share of women enrolled in marine studies across educational levels in the Nordic Region 2021.

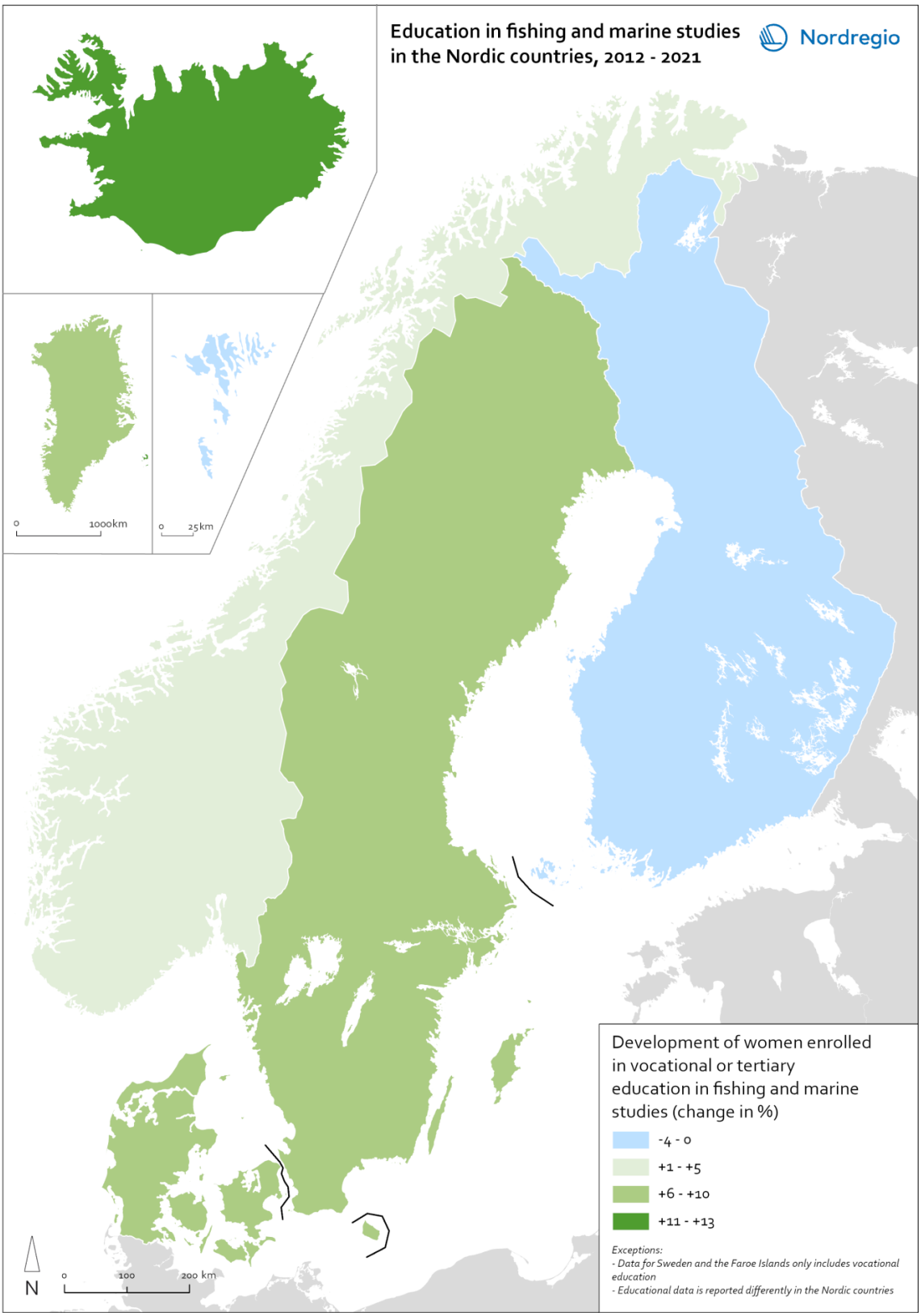


Figure 51. Development of women in fishing and marine studies in the Nordic Region 2012-2021.


Photos: iStock and Visit Greenland, Benjamin Hardman

Leaders and entrepreneurs – gender presence

Are women the drivers of innovation in the blue economy?

One aspect of leadership in fisheries and aquaculture is a derivate of the business and may be considered a prerequisite for a competitive edge, environmental knowledge and innovation development in the sector, namely research leadership. In the subsection we divide leadership and entrepreneurship and women´s presence in those fields into Research and Development and business and economic sectors related to the blue economy.

Even if we do not have bulletproof statistics to prove it, it is striking how many women are working in research and development related to the marine and blue environment, maybe even to the extent that they outnumber their male peers or are in the majority? In terms of developing tools for innovation uptake in the marine sector we claim that women are quite active.

Wherever you look, numerous women are engaged in blue economy initiatives around the Nordic countries, such as in Blue Bio Match (blubioclusters.eu) and ocean clusters (such as the Iceland Ocean Cluster). They are networking, serving as incubators for innovations (e.g. the Innovatum Science Park in Sweden), or driving research. They are, for example, working on multi-use and energy efficiency questions. They are promoting low-trophic aquaculture in multi-use scenarios in North and Baltic seas (Olamur, 2023). They are present in large numbers at SWEMARC (Swedish Mariculture Research Centre) at Gothenburg University. They are promoting regenerative community aquaculture. They are working on ocean and water restoration where climate change mitigation and efforts to improve biodiversity are needed. They are engaged in devising ways, measures and policies to free seas and rivers from plastic litter. They are involved in developing high-value biotech, medicinal and edible products from the sea, including working on macro algae and seaweed production. They are working on research and development to improve the blue environment and economy, and they are involved in circular solutions in the seafood and aquaculture industry. In other words, there are numerous female R&D leaders and entrepreneurs, but we do not have the statistics to support our observations.

According to the findings of a recently completed project titled GenderBaltic, women account for up to 40% of chief scientists on research ships (Hamann et al., 2020).

WinBig is a new, Europe-wide project on women in the blue economy, focusing on gender roles and leadership while highlighting capacity gaps (https://winbigproject.eu/). WinBig regards gender diversity as important for achieving equality and tackling ocean sustainability challenges. However, women are less likely to be in leadership positions within academic interdisciplinary marine research institutions. The project aims to highlight the non-gendered and gendered challenges experienced by leaders that affect their role, mental wellbeing, success and career progression. Accordingly, it intends to present actionable strategies, systems and processes that can be implemented by academic interdisciplinary marine research institutions and the scientific community to improve gender equality. It will be interesting to follow their research and outreach work in the coming years.

Very few studies have been conducted exclusively on female leaders in the maritime sector or on the position of women on the boards of companies in the fishing industry. In Iceland, three independent efforts have been made to map the leadership landscape at Icelandic fishing companies. The first was initiated by a ministerial committee in 2005, with a survey conducted among the 23 largest companies by turnover. Eighteen of the companies responded, comprising over 20% of total labour employed in the sector (Karlsdóttir, 2006). The ratio of women on the boards of the companies participating in the survey was low. According to data provided by respondents, ten out of 73 board members were women, corresponding to just 14% (Karlsdóttir, 2006). Moreover, the respondents seemed to agree that women tend to apply for middle management positions, such as human resource management jobs, rather than going for the position of managing director or chief financial officer (ibid, p.77). In 2017, the Icelandic Association of Women in the Marine Industry (see also p. 46) conducted a survey among its members on leadership. The results revealed that the larger the companies grew, the fewer women were in leadership roles. In spite of legislation clearly defining gender equality policies and the responsibility of companies in Iceland, 42% of all the responding companies had no women in executive roles. No company employing over 20 people had women in managerial roles (Rannsóknarstofnun Háskólans á Akureyri, 2017, pp. 30-31).

A more recent Icelandic study conducted research on the experiences of women who sit on the boards of Icelandic fishing companies (Óladóttir & Pétursdóttir, 2018). It seems to be typical across Nordic nations in the maritime sector that there are not many women in such positions, with some sitting on more than one board. In Iceland in 2010, 10.7% of the managers of fishery companies were female. Eleven years later (in 2021) the figure was 10.8% (Háskóli Islands, 2022). The main findings show that those who do sit on the boards of fishing companies are generally satisfied with their position within the industry, despite the fact that the fishing industry is considered to be a very masculine world. Interviews were conducted with nine women who sit on the boards of fishing companies with the aim of shedding light on their working lives and how they experience the industry and what could be done better.

The results show that the fishing industry has a strong history and traditions that are difficult, but not impossible, to change. While women are gaining ground in the maritime industry, gender-based stereotypes are extremely strong in the industry and men's jobs within the industry have generally enjoyed much more respect than women's jobs. However, the interviewees do not perceive any negative attitudes from the opposite sex, even though it took some time to get into the industry, and they feel that they are listened to and that their voice resonates equally with the men (Óladóttir & Pétursdóttir, 2018).

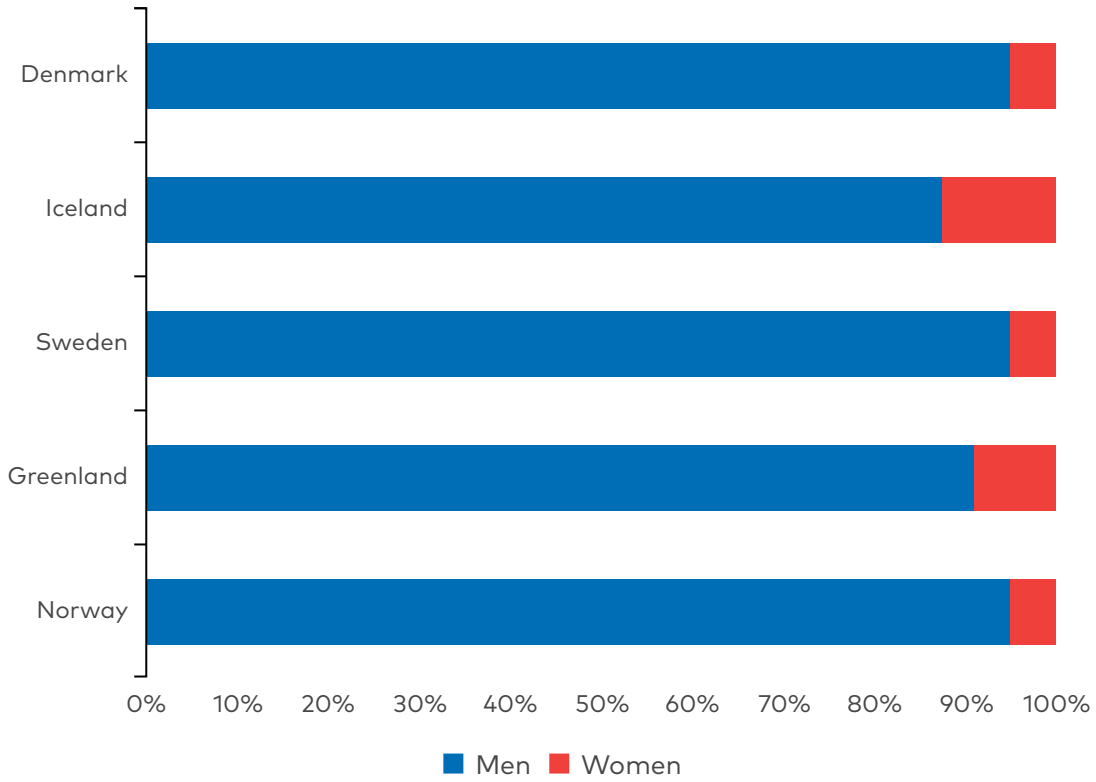


Figure 52. Chairman of board, largest fishery companies, share by gender.
Source: Combination of company websites, annual reports and Nordic Market AB websites

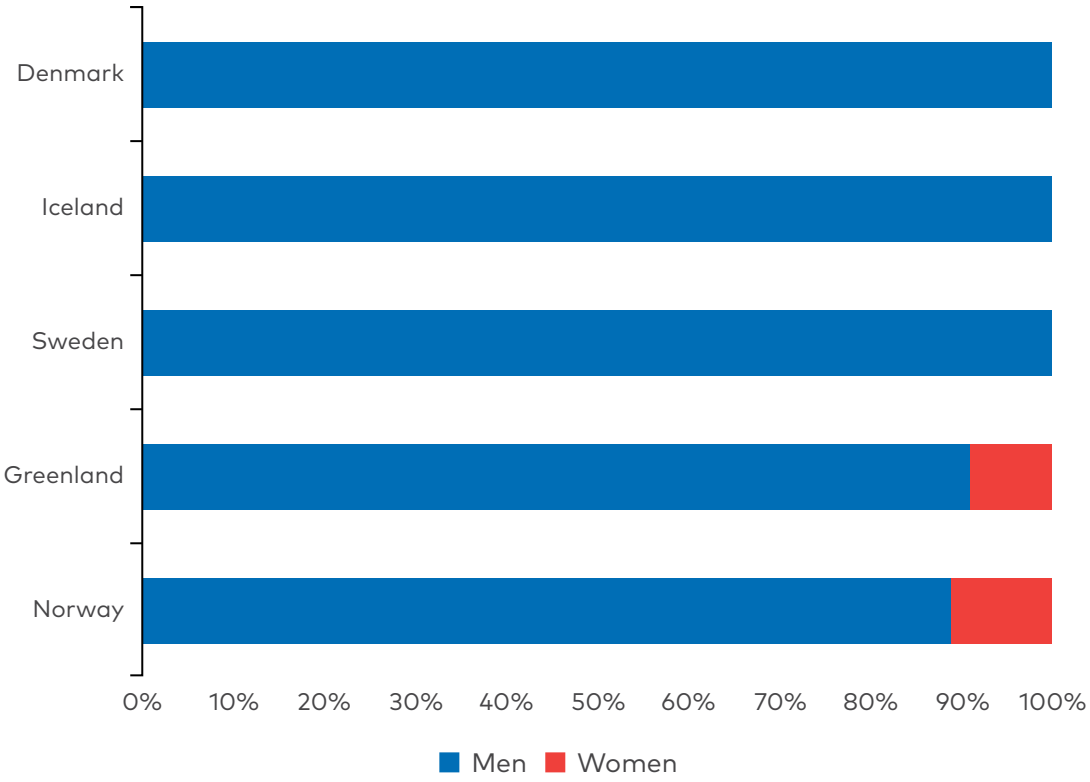


Figure 53. Managing Directors, largest fishery companies, share by gender.
Source: Combination of company websites, annual reports and Nordic Market AB websites

Photos: iStock and Visit Greenland, David Trood

Gender, agency and capital power in fisheries and aquaculture

While women in the Mediterranean region may face the dilemma of choosing between a career and motherhood, that is not the case for women in the Nordic countries even if we have an example of how Sisilia Skagen (NO) had to fight for her rights to take care of her children while fishing (NRK, 2021; NRK, 2023). In the Nordic Region, citizens enjoy generous parental leave, pay schemes and supportive childcare. However it was not until 2018 that female fishers in Norway gained the legal right to take leave during pregnancy and breastfeeding after birth without losing their welfare rights (Kilden, 2023). In an ideal world, the shared values of the Nordic countries and their aim for welfare society infrastructure should liberate women to work according to their skills and abilities as their hearts desire. However, as witnessed throughout history and also more recently, women at sea have had to deal with bullying from male colleagues and speak out to increase awareness of a rough and toxic male-dominated culture in the primary sector of fisheries. According to studies referred to earlier, the perpetrators of bullying and harassment are commonly found among supervisors, from senior crew members down to subordinate crew members, followed by co-workers.

Luckily, we can also point to positive and encouraging examples that we have collected of women on board vessels of various sizes; they are visible and have freedom of action without being harassed. Besides normalising women's presence on board it is important that, regardless of gender, people should have the agency to choose their line of work. That aligns with Nordic gender equality values and visions. The question is how it can be ensured that women are on an equal footing with men onboard vessels. Seemingly minor aspects like work uniforms that only come in men's sizes is something that is easy to change to make women feel more welcome.

Upgrading of skills in the blue economy (biotechnology, marine biology, secondary student mobilisation etc.) is important and we can observe higher numbers of women in some fields of aquaculture. More education results in more women in charge and we have indications of that in research and development leadership – but not necessarily where the money or allocations of fishery licenses are (with some exceptions of ministers).

In general, the gender equality discussion in the Nordic Region and elsewhere is often centred around inequalities in earning or pay gaps, based on the principle of equal pay for equal jobs. Numerous measures have been implemented in the Nordic countries on the path towards increased gender equality. One example is equal pay certification in Iceland. Another initiative is the SHE index in Norway. Various other initiatives have likely been put in place. We also know that male fishers in Norway earn on average twice as much as their female colleagues (Kilden, 2023). However our knowledge across the Nordic countries on this question remains limited and we have only found statistical data on income differences within the industry regarding Finland (for 2008). Such knowledge, however, is important if gender equality is to be achieved. It should be the responsibility of public authorities, in collaboration with industry and trade unions, to enable access to such data, making this aspect of equality less opaque.

Independence and acknowledgement of women involved in the maritime field is important. Young women see the sea as exciting. We know of several cases where women have left their former jobs (including those with education and training in the fields of nursing and prison services, as well as PhD students, to work at sea). There is an interesting contradiction in acknowledging hard work as a form of liberty. Nonetheless that is what women describe:

"It is a struggle to achieve equality, no doubt about it. My contribution is to show that I master my job in a male-dominated profession, while at the same time being a mother and managing to take care of my family. If you want to have a voice like a fisher and be able to express yourself, you must also have done something at sea. I am very committed and think that things should be fair and arranged so that those who want to work as fishers should be able to do so. Whether you are a woman or a man, old or young, single mother or single father."

– Sisilia Skagen, seawoman, Lofoten

Photos: iStock and Johannes Jansson, norden.org

Discussion and conclusion

Gender equality is an important societal issue, and at an overarching level, the same numerous and important opportunities and needs to strive for gender equality in any sector of society, also applies to fisheries and aquaculture.

Women are deeply involved and numerous in all stages and processes in the fishing sector and aquaculture, and have been so for a long time, even if they are not at the front as leaders. It is unfortunate that they play an invisible role in and across value chains in fisheries and aquaculture.

Both genders, women and men, have a stake in maritime resource extraction, the blue economy and development. Thus, decisions that are made affect them alike. Even if they are not directly affected, such decisions may affect their daughters. Policy making and implementation of framework through a gender responsive approach where all women and girls have equal opportunity and capacity to contribute at all levels of action in the decision-making process is much likelier to sustain welfare.

The lack of gender equality in the fishing industry is a challenge when it comes to safeguarding local communities along the coast. The fisheries and aquaculture sector contributes to jobs and is a significant economic contributor to the coastal North. The future of coastal societies depends on equal opportunities for women and men. The share of female fishers has increased in the past years, but women who wish to enter the fishing industry still encounter cultural and structural obstacles.

For resource-based industries, decision-making tends to happen in corporate arenas, in formalised meeting and negotiating forums between the authorities (government and public administration) and interested parties from civil society (industry, organisations etc.). These are often closed arenas with limited access and representation. Legitimate access is granted to "concerned parties", i.e. stakeholders, who are narrowly defined. Industry representatives, bureaucrats and (technical) experts tend to be included in closed circles of decision making and policy making.

While a substantial proportion of the companies involved in the sector are smaller and family-based where decision-making practices may be simpler the more complex nature of corporate decision-making processes shows that networks of buddies or

families generate a male-dominated executive landscape among the big players in the maritime industry, with few exceptions.

However, we cannot ignore the fact that educational merits have brought important social mobility, with more women in research related to the maritime field, startups, technological innovation and food-based innovation as a result of development work. In many ways, therefore, it is no exaggeration to say that women working in research and development are driving innovation in the maritime sector and deserve to be acknowledged accordingly.

In some fields of education, we have seen a rise in female student attainment and graduation. That holds out promise for an improved balance in the gender ratio among the diverse groups of people involved in the maritime sector. However, we have also observed high dropout rates in the case of vocational training and secondary education related to the marine occupation, especially among females. Promotional and empowering efforts need to be considered and put into action in the school system, especially in relation to vocational training to make these occupations more attractive to women.

How far have we come since the first recommendations were made in the years immediately after the millennium, based on studies showing a lack of gender equality in the maritime sector? The short answer is that the recommendations made then might just as well have been issued today. Firstly, it was recommended that schemes be put in place to eliminate persistent negative images, stereotypes, attitudes and prejudices against women – through changes in socialisation patterns, media advertising and formal and non-formal education (Sloan et al., 2004, p.10). Another central recommendation was that countries should develop gender-sensitive databases, information systems and participatory, action-focused research and policy analyses, with the collaboration of academic institutions and local female researchers, focusing on women's knowledge and experience in the field of management and conservation of natural resources for inclusion in the databases and information systems for sustainable development (ibid, p.10). That recommendation is still as pertinent as it was two decades ago. It also serves as a reminder that equality issues have to be constantly raised in order to put pressure on decision-makers and constantly make them aware of the importance of gender inclusion.

Gender equality and sustainability are interwoven. Men and women need to be inclusive in the work towards more sustainable practices in fisheries and aquaculture, recognizing their equal rights and access to natural resources. It is important to guard values of democracy in the Nordic Region, and political choices common for Nordic countries that gender equality should be supported to make society better and more just. Promoting sustainability, including biodiversity, in ocean governance and securing gender equality with meaningful and informed participation and leadership has to be contemporary and future objective for the Nordic Region.


Photos: iStock and Visit Åland, Flatlight Films

Recommendations to boost gender equality

One of the tasks demanded by our steering group was to increase the awareness of business leaders and policymakers, to expand their knowledge of the value women bring to the maritime sector and blue economy, and to encourage them to consider those factors each time they develop a new project or a policy. We would like to encourage policy-makers and industry leaders alike to be attentive and active in working towards increased gender equality at all levels and to the values that women bring to the sector.

The Nordic cooperation should follow up on Norwegian measures and actions that contribute to the recruitment of more women as fishers and fish boat owners and encourage female fishers to remain longer in the profession. The Nordic cooperation could support greater knowledge about women's opportunities in the fishing industry by disseminating findings and providing the foundations for a comparative statistical database. It should also include incentives to close the gendered pay gap.

Each of the countries involved in Nordic cooperation with autonomous regions should mobilise measures that strengthen knowledge about the importance of women in the sector and actions aimed at changing attitudes to abilities of women in the sector. Campaigns are needed against the mindset that allows sexual harassment and gender-discriminatory behaviour in the sector. There is every indication that measures are needed relating to cultural communication and attitude-building work within the fisheries and seafood sector.

1. There are persistent gaps in data availability on gender representation in the sector, as well as a lack of common data protocols and primary data collection. Improvement of gender-disaggregated data in fisheries and aquaculture in the Nordic Region should allow for examination of the multifaceted nature of women's engagement in the traditionally male-dominated sector of fisheries and aquaculture and more broadly in the blue economy. It is critical to account for the full extent of women's contribution therein, as well as for new and emerging professions. It is also important to ensure that management of maritime resources is sustainable and equitable. There may be a need to

mobilise actions to boost primary data collection according to a multi-level governance approach that also engages supranational institutions like FAO, ILO and Nordic institutions and organisations.

2. Women's enrolment in courses related to the maritime sector is reflected only to a minimal degree on the gender-segregated labour market but that may be about to change. Decision-makers should be aware that the seeds of future gender equality are sowed within the educational system. Nordic governments need to encourage women that this is a feasible field of work, with measures taken to secure and support gender-equal actions both in the educational system, as well as in the industry. Promoting good role models is one way but there are also several other ways to increase the attractiveness of this sector; the Nordic policy on mitigating the gender-segregated labour market in the field of skilled trades and critical labour groups with a vocational training background should also extend to professions focusing on marine occupations.
3. Measures need to be developed to mitigate and counteract the risk of sexual harassment and negative stereotypes of women working in the maritime sector. While research in this field is growing, there is a general need for future research prioritizing substantial qualitative fieldwork. Furthermore, there is a need to address underlying causes of workplace bullying and harassment and to ensure decent employment and working conditions at sea.
4. More research is needed on women as leaders within fisheries and aquaculture and the maritime sector. While there are strong examples of power of agency, we lack data on women's power to set the agenda in the maritime sector through diverse leadership roles. Moreover, when it comes to women's access to decision-making on allocation of licences, quotas and in general holding financial power at the executive level, we would like to see more systematic research evidence.
5. It is important to look more broadly at the engagement of women, including at executive level and as drivers and entrepreneurs in the industry and within the broader blue economy.

References

Albrecht, M., Grundel, L, & Morales, D., (2021). Regional bioeconomies: Public finance and Sustainable Policy Narratives, *Geografiska Annaler: Series B,* Human Geography, 103(2), 116-132.

Albrecht, M., & Lukkarinen, J., (2020). Blue Bioeconomy localities at the margins: Reconnecting Norwegian Seaweed farming and Finnish Small-scale lake fisheries with blue politics, *Politics and Space*, 38(7-8), 465-483.

Arctic Council,. (2021) Blue Bioeconomy in the Arctic Region, Project Report SDWG. https://oaarchive.arctic-council.org/server/api/core/bitstreams/10752b66-f636-4616-9941-2763d7b53bed/content

Aure, M., (2011). The migrant making organisation: Gender, labour and agency in a new migration process. *Journal of International and Global Studies* 2, 62-79.

Balsvik, R.R., (2001). Kystkvinner i nord: liv, arbeid, organisering. *Arbeiderhistorie 2001.* Oslo:Arbeiderbevegelsen arkiv og bibliotek, 121-133.

Bratrein, H.D., (1976). Det traditsjonelle kjønssrollemønstret I Nord-Norge. In Bratrein, H.D., et al. (eds.), Drivandes kvinnfolk: om kvinner, lønn og arbeid, Tromsø: Universitetsforlaget.

Crew HQ (n.d.) 13 Surprising Sea Superstitions, retrieved at https://www.crewhq.me/news/13-surprising-sea-superstitions

Elstad, Å., (2004). Kystkvinner I Norge, Oslo: Kommunalt forlag.

European Commission, Directorate-General for Maritime Affairs and Fisheries, Joint Research Centre, Borriello, A., Calvo Santos, A., Ghiani, M. et al., The EU Blue Economy Report 2023, Publications Office of the European Union, 2023, https://data.europa.eu/doi/10.2771/7151

European Marine Observation and Data Network (EMODnet) (2023). One Ocean, One EMODnet. https://emodnet.ec.europa.eu/en

EUMOFA/ - European Market Observatory for Fisheries and Aquaculture Products (2023). Blue Bioeconomy Report. January 2023, Brussels: DG Mare, retrieved at https://www.eumofa.eu/documents/20178/84590/blue+bioeconomy+report+2022+final.pdf

Flakstad, A.G., (1984). Kan endring innen kvinnearbeid utløse strukturendringer. In Rudie, I. (ed.), Myk start hard landing: om forvaltning av kjønnsidentitet i en endringsprosess, 64-83, Oslo:Universitetsforlaget.

Forsell, K., H. Eriksson, B. Jarvholm, M. Lundh, E. Andersson, R. Nilsson, (2017). Work environment and safety climate in the Swedish merchant fleet, Int. Arch. Occup. Environ. Health 90 (2) (2017), 161-168, https://doi.org/10.1007/s00420-016-1180-0

FAO (2021). FAO YEARBOOK. Fishery and Aquaculture Statistics 2019 /FAO annuaire. Statistiques des pêches et de l'aquaculture 2019/FAO anuario. Estadísticas de pesca y acuicultura 2019. Rome https://www.fao.org/fishery/en/publication/287024

Freeman, R., & Svels, K., (2022). Women's empowerment in small scale fisheries: The impact of Fisheries Local Action Groups, Marine Policy, 2022, 136, 104907

Frangoudes, K., & Gerrard, S. (2018). (En)gendering change in small-scale fisheries and fishing communities in a globalized world. *Maritime Studies*, 17(2), 117-124. https://doi.org/10.1007/s40152-018-0113-9

Gerrard, S., (1983) Kvinner i fiskeridistrikter: Fiskerinæringas bakkemanskap. In Hersoug, B. (ed.) *Kan fiskerinæringa styres?*, 217-241, Oslo: Novus Forlag.

Gerrard, S., (2011) Mobile Practices and gender contracts in fisheries societies. *Tidsskrift for kjønnsforskning*, 44-55.

Gerrard, S., & Kleiber, D. (2019). Women fishers in Norway: few, but significant. *Maritime Studies*, 18 (2019), 259-274.

Goettsche-Wanli, G. (2019). Gender and the Law of the Sea: A global perspective. In Papanicolopulu, I., (Ed.), *Gender and the Law of the Sea*, 25-82. Leiden: Brill Publishers. https://doi.org/10.1163/9789004375178_003

Grønbech, D., (2008). Kystkvinners liv og virke: Fra naturalhushold til enetilværelse: En verdighetsbeskrivelse. PhD. Dissertation, Tromsø Universitet.

Hamann, K., Schroller-Lomnitz, U., & Lorenz, N. (2020). Measures for the preventions of sexualized violence at sea, Geomar & BalticGender, Final Conference, retrieved at https://www.baltic-gender.eu/documents/1199638/1405301/Pres.Prev.Sex+Viol._BG.pdf/0dfc4642-4a83-4a67-ba14-bf3631fe24d9

Hamilton, L.C & Seyfrit, C.L 1994. Female flight? Gender balance and outmigration by native Alaskan villagers. *Arctic Medical Research*, 53, 189-193

Háskóli Íslands (2022). Fréttir. Algjör negla á sjávarútvegsráðstefnunni. 16 November 2022, retrieved at https://www.hi.is/frettir/algjor_negla_a_sjavarutvegsradstefnunni

Hegland, T.J., Ouanian, K., & Raakjær, J. (2012). What does 'regionalisation' mean? An exploratory mapping of opinions on reform of the common fisheries policy, *Maritime Studies*, 11(8), 1-19.

Henriksen, E., and Nyrud, T., (2021). Bedre likestilling i fiskeriene – Momenter til strategier for likestilling i fiskerienes fangstledd. Tromsø:Nofima Rapport 15/2021.

Hishamunda, N., Bueno, P., Menezes, A.M., Ridler, N., Wattage, P. & Martono, E. (2014*). Improving governance in aquaculture employment: a global assessment*. FAO Fisheries and Aquaculture Technical Paper No. 575. Rome, FAO. 48 pp.

Iceland, Lichtenstein, Norway Grant (2022). The Blue Generation Project – Carrier Guide: Blue Jobs for Young People. https://bluegeneration.careers/Blue%20Generation_CG-2022_A4_EN_web.pdf

ILO/International Labour Organization (2019). Recruitment and retention of seafarers and the promotion of opportunities for women seafarers. Sectoral Policies Department. Geneva:ILO, retrieved at https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/meetingdocument/wcms_664163.pdf

Jansson, U., & Sand, J., (2021). En nordisk forskningsöversikt, inventering och analys av utbildningsval inom STEM (Science, Technology, Engineering and Mathematics) Nationella Sekretariatet fær genusforskning, for Nordisk information för kunskap om kön, NIKK. TemaNord 2021:518

Jentoft, S., (1989) Mor til rors: Organisering av dagligliv og yrkesaktivitet i fiskerifamilier. Forskningsrapport, Tromsø: Norges Fiskerihøgskole.

Júlíusdóttir, M., Skaptadóttir, U.D., & Karlsdóttir, A., (2013). Gendered migration in turbulent times in Iceland, *Norsk Geografisk Tidsskrift – Norwegian Journal of Geography*, 67:5, 266-275, DOI:10.1080/00291951.2013.847483

Kang, J., Hense, J., Scheersoi, A., & Keinonen, T. (2019). Gender study on the relationships between science interest and future career perspectives. *International Journal of Science Education*, 41(1), 80-101.

Karlsdóttir, A., (2006). Women and fisheries follow up survey. Sloan, L. (ed.) Women and Natural Resource Management in the Rural North, Arctic Council Sustainable Development Working Group 2004–2006, 73-79, Nordfold: Forlaget Nora

Karlsdóttir, A., (2006a). Women's role and situation in the fishery sector in the Eastfjords of Iceland. Sloan, L. (ed.) *Women and Natural Resource Management in the Rural North*, Arctic Council Sustainable Development Working Group 2004-2006, 79-96. Nordfold: Forlaget Nora

Karlsdóttir, A., (2008). Not sure about the shore! Transformation effects of individual transferable quotas on Iceland's fishing economy and communities. Lowe, M. & Carothers, C. (eds.) *Enclosing the Fisheries: People, Places and Power*, 99-117. American Fisheries Society, Bethesda, MD.

Karlsdóttir, A., (2009). Are living fish better than dead fillets? The power and invisibility of women in aquaculture and the Icelandic fishing economy. Kafarowsky, J. (ed.) *Gender, Culture and Northern Fisheries*, 67-85, Canadian Circumpolar Institute. University of Alberta, Edmonton

Karlsdóttir, A. (2021). Generating new jobs in blue bioeconomy of the North. Arctic Circle Assembly, Reykjavík, 14 October 2021. Presentation at Session: Arctic Blue Bioeconomy: Effects of the Covid-19 Pandemic.

Kilden (2022)/Genderresearch.no. Gender equality and nature management. Policy Brief, retrieved at https://kjonnsforskning.no/sites/default/files/rapporter/policy_brief_gender_equality_and_nature_management.pdf

Lebedef, E.A., (2021). Youth and Newcomers in Icelandic Fisheries – Access, Opportunities & Obstacles. MA Thesis, University of Akureyri.

Lebedef, E.A., & Chambers, C., (2023). Youth and newcomers in Icelandic fisheries: opportunities and obstacles, *Maritime Studies* (2023) 22:34, https://doi.org/10.1007/s40152-023-00326-0

Linnæus University (2021). Work environment at sea became Cecilia's niche, 8 April 2021, retrieved at https://lnu.se/en/meet-linnaeus-university/current/news/2021/work-environment-at-sea-became-cecilias-niche/

Lijnzaad, L. (2019). The UN Fish Stocks Agreement as a Metaphor, or the Law of the Sea as a Gendered Process. In Papanicolopulu, I., (Ed.), *Gender and the Law of the Sea*, 149-161. Leiden: Brill Publishers.

Lundqvist, M., Simonsson, A., & Widegren, K. (eds.), (2023). *Re-imagining Sexual Harassment, Perspectives from the Nordic Region*. Bristol: Bristol University Press digital, https://library.oapen.org/bitstream/id/d9d65960-7cb4-4573-add9-f70a987d5923/9781447366546.pdf

MacAlister Elliott and Partners. (2001). *The role of women in the fisheries sector*. Final Report 1443/R/03/C, p71, Brussels: EU Commission.

Monfort, M. C., (2015) *The role of women in the seafood industry,* GLOBEFISH Research Programme, Vol. 119, Rome, FAO 2015, 67.

Miret-Pastor, L., Svels, K., & Freeman, R., (2020). Towards Territorial development in fisheries areas: A typology of projects funded by Fisheries Local Action Groups. Marine Policy, 2020, 119, 104111

Munk-Madsen, E., (1998). The Norwegian fishing quota system: Another patriarchal construction? *Society and Natural Resources*, 11(3), 229-240

Munk-Madsen, E., (2000). Wife the deckhand, husband the skipper: Authority and Dignity among fishing couples. *Women's Study International Forum*, 23(3), 333-342.

Nordic Council of Ministers (2017) Nordic Bioeconomy – 25 Cases for Sustainable Change, Copenhagen: ANP 2016:782, https://norden.diva-portal.org/smash/get/diva2:1065456/FULLTEXT01.pdf

Nordic Innovation (2021). Sustainable Ocean Economy Mapping of Nordic Strongholds. https://norden.diva-portal.org/smash/get/diva2:1611425/FULLTEXT01.pdf

Nordic Market AB (2023). Largest companies in the industry of Fishing and aquaculture. retrieved at https://www.largestcompanies.com/toplists/nordic/largest-companies-by-turnover/industry/fishing-and-aquaculture

Norges fiskarlag (2022). Fiskarlagets kvinnenettverk – Avtale inngås på Nor-Fishing, 18 August 2022, retrieved at https://fiskarlaget.no/fiskarlagets-kvinnenettverk/

Norman, M. E., & Power, N. G. (2015). Stuck between 'the rock' and a hard place: Rural crisis and reimagining rural Newfoundland feminine subjectivities. *Gender, Place and Culture*, 22(1), 50-66. doi:10.1080/0966369X.2013.855707

NRK (2021). Fisker og alanemor Sisilie (27):-Folk spør hvor ungene er, ikke hvor mye fisk jeg har fått. NRK Nordland. Synnøve Sundbye Fallmyr videojournalist, 15.januar, 2021 retrieved at https://www.nrk.no/nordland/fisker-og-alenemor-sisilie-skagen-johnsen_-holdninger-hindrer-likestilling-og-kvinnelige-fiskere-1.15323656

NRK Vestlandet/Norway National Broadcasting Western Norway (2022). Susanne (25) sier hun ble kalt hore og «fettkjerring» på fiskebåt: – Får se om jeg fortsetter, 15 October 2022, https://www.nrk.no/vestland/susanne-_25_-sier-hun-ble-kalt-hore-og-_fettkjerring_-pa-fiskebat_-_-far-se-om-jeg-fortsetter-1.16121064

NRK (2023). Risikerer bot når ho er heime med sjukt barn – Fiskar Sisilie må ta med segj sjuke barn på jobb – i eit av verdas farlegaste yrke. 21.June 2023. Retrieved at https://www.nrk.no/nordland/yrkesfiskar-sisilie-skagen-risikerer-bot-for-a-vere-heime-med-sjukt-barn-1.16446143

Oddsdóttir, E.E., & Ágústsson, H.Ó. (eds.) (2021). *Pan-Arctic Report, Gender Equality in the Arctic*, Phase 3, ISBN 978-9935-24-946-3

Óladóttir, Á.D., & Pétursdóttir, G. (2018). Sjávarútvegur, karllæg atvinnugrein. "Þeir hefðu ekki gúdderað einhverja stelpugálu – nema af því ég var tengd.", *Tímarit um viðskipti og efnahagsmál*, 15(2), 1-18, DOI: https://doi.org/10.24122/tve.a.2018.15.2.1

Ouanian, K., (2016). In place of Fishing: Coastal Communities in Transition. PhD dissertation. University of Rhode Island.

Pettersen, L.T., (1994). Hovedsaken er at kjerring er i arbeid: Husholdsstrategier i fiskerikrisen. In Otterstad, O., & Jentoft, S., (eds.), *Leve kysten: Strandhogg i Fiskeri-Norge*, Oslo:Ad Notam Gyldendal, 65-76.

Pettersen, L.T., and Alsos, G.A., (2007). CHANGE AND STABILITY: The Role of Women in Norwegian Fish Farming, *MAST*, 2007, 5(2):93-121

Quigley, T.J., Chirico, F., Bau, M., (2021). Does the CEO effect on performance differ in private versus public firms? *Strategic Organization*, 20 (3), 654-672

Rannsóknarmiðstöð Háskólans á Akureyri (2017). Staða kvenna í sjávarútvegi frá sjónarhorni fyrirtækja og stofnana. March 2017, retrieved at https://www.kis.is/wp-content/uploads/2019/01/Staða-kvenna-í-sjávarútvegi-frá-sjónarhorni-fyrirtækja-og-stofnana..pdf

Rasmussen, R.O., (2009). Gender and generation: Perspectives on ongoing social and environmental changes in the Arctic. *Signs: Journal of Women in Culture and Society* 34, 524-532

Regjeringen (2023). Tilskudd til prosjekter som fremmer likestilling i fiskeriene. Nærings og fiskeridepartementet. 10 September 2023, retrieved at https://www.regjeringen.no/no/dep/nfd/nfds-tilskuddsordninger/tilskudd-til-prosjekter-som-fremmer-likestilling-i-fiskeriene/id2870717/

Ritzau. 2021. Women in shipping endure worse conditions than men, survey shows. Shipping News, 13 December 2021. https://shippingwatch.com/carriers/article13551134.ece

Salmi, P., & Svels, K. (2023). Fisheries local action group managers as reflexive practitioners: the enhancement of projects and networks and the renewal of the Finnish fishing livelihood. Sociologica Ruralis (in press).

Salmi, P., Linke, S., Siegrist, N., Svels, K. (2022). A new hope for small scale fisheries through local action groups? Comparing Finnish & Swedish experiences, Maritime Studies, 2022, 21(3), 309-323.

Simonson, A., (2022). *Yrkesutbildning i Norden – Kunskap & Insatser för att motverka Könsuppdelning,* TemaNord 2022:503, Copenhagen: Nordic Council of Ministers.

Skaptadóttir, U.D. & Rafnsdóttir, G.L.; (2000). Gender construction at work in Icelandic fish plants. *NORA – Nordic Journal of Women's Studies* 8, 5-16.

Skaptadóttir, U.D. & Proppé, R.H., (2005). Global processes, localities and gender identities: A feminist perspective on changes in Icelandic Fisheries. Neis, B., Binkley, M., Gerrard, S. &. Maneschy, M.C. (eds.) *Changing Tides: Gender, Fisheries and Globalization*, 152-168. Fernwood Books, Halifax, Nova Scotia

Sloan, L. (ed.) (2004). Women's Participation in Decision-making Processes in Arctic Fisheries Resource Management. Arctic Council Sustainable Development Working Group 2002-2004. Norfold: Nora – Kvinneuniversitetet Nord.

Sloan, L et al. (ed). (2005). Women and Natural Resource Management in the Rural North. Arctic Council Sustainable Development Working Group 2004-2006, Nordfold:Nora, https://oaarchive.arctic-council.org/server/api/core/bitstreams/b2c56ed4-8abe-47c1-92c8-5a76bd47956c/content

Smieszek, M., & Prior, T., (2021). Gender and Environment, in Oddsdóttir, E.E., & Ómarsson, H.Á. (eds.), *Pan-Arctic Report, Gender Equality in the Arctic*, Phase 3, 102-140.

Svels, K., Ouanian, K., Gustavsson, M., & Schreiber, M.A., (2022) Gender in Nordic Blue Economies – Initial Networking results and future Academic research. Copenhagen: TemaNord 2022:561.

Thiessen, V., Davis, A., & Jentoft, S., (1992). The veiled crew. An exploratory study of wives reported and desired constructions to coastal fisheries enterprise in Northern Norway and Nova Scotia. Human Organization, 51(4), 342-352.

Tromsø municipality/kommune (2022). Susanne Mortensen (25) tildelt likestillingsprisen, 14 June 2022. https://tromso.kommune.no/nyheter/2023/02/susanne-mortensen-25-tildelt-likestillingsprisen

Uddannelses og forskningsministeriet (2023). Oversigt over alle maritime uddannelser. https://ufm.dk/uddannelse/videregaende-uddannelse/overblik-over-det-videregaende-uddannelsessystem/maritime-uddannelser/oversigt-over-alle-maritime-uddannelser

Yingst, A., & Skaptadóttir, U.D., (2018). Gendered labor in the Icelandic fish processing industry. *Maritime Studies*, 17, 125-132.

Viðarsson, J.R., Einarsson, M.I., Ragnarsson, S.Ö., Laksá, U., Danielsen, R., Iversen, A., Henriksen, E., Berthelsen, T., Manuel, H., Brown, T., Decker, D., Lund, H.S., Larson, B., and Ottosson, C.A. (2018). Nordic coastal fisheries and communities – Status and future prospects. Copenhagen: Nordic Council of Ministers, TemaNord 2018:507

WEAREAQUACULTURE (2023). Women in Aquaculture. Retrieved at https://weareaquaculture.com/women-in-aquaculture

Willams, M. J., (2010). Gender dimensions in Fisheries Management, in Crafton, R.O. et al. (eds.), *Handbook of Marine Fisheries Conservation and Management*, Oxford: Oxford University Press, 72-87.

Willson, M., (2023). *Woman, Captain, Rebel – The Extraordinary True Story of a Daring Icelandic Sea Captain*, Naperville:Source Books.

Willson, M., (2016). Seawomen of Iceland. Seattle: University of Washington Press.

Wingren, I., (2019). Life Above Water. When framing and scaling the crisis in Swedish Baltic Sea Fisheries. PhD Manuscript. Department of Service Management and Service Studies, Lund University.

WISTA (2023). About WISTA, retrieved at https://wistainternational.com/who-is-wista/

Women in Blue Economy (2023). Intelligence gathering and capacity boosting – Empowering women in the blue economy, retrieved at https://winbigproject.eu/

World Tourism Organization (2019), Global Report on Women in Tourism Second Edition, UNWTO, Madrid, DOI: https://doi.org/10.18111/9789284420384

WWF/World Wildlife Foundation (2019). Empowering women in marine communities to mitigate the impacts of climate change. Gender and Seafood: policy briefing 2019. Brussels: WWF European Policy Office. https://wwfeu.awsassets.panda.org/downloads/wwf_genderequalityandfisheriespolicybrief.pdf

Österman, S & Boström, M., (2021). Workplace bullying and harassment at sea: A structured literature review, Maritime Policy, 136 (2022).

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