

GENDER EQUALITY IN THE BLUE ECONOMY: NORTH SEA BASIN REPORT

Sea Basin Report



Co-funded by
the European Union

Project no.	101111985
Project acronym:	WIN-BIG
Project title:	Women in Blue Economy Intelligence Gathering and Capacity Boosting
Call:	EMFAF-2022-PIA-WBE
Start date of project:	01.05.2023
Duration:	36 months
Deliverable title:	D2.2 (<i>Women in EU Blue Economy Reports</i>)
Due date of deliverable:	31.12.2025
Actual date of submission:	30.01.2026
Deliverable Lead Partner:	University of Galway
Dissemination level:	Public
Citation:	WIN-BIG NORTH SEA BLUE ECONOMY GENDER STATUS 2025 Report, WIN-BIG D2.2, 87 pp. Available at: https://winbigproject.eu/resources/publications

Author list

Name	Organisation
Hasmik Grigoryan	University of Galway
Edel Doherty	University of Galway
Stephen Hynes	University of Galway
Jenny O'Leary	Marine Institute
Ingrid Mateo Mantecón	Universidad de Cantabria
Mariana Almeida	University of Aveiro
Liliana Silva	University of Aveiro
Helena Vieira	University of Aveiro
Érica Silva	University of Aveiro
Gloria Bevilacqua	Geonardo
Ömer Ceylan	Geonardo

Document History			
Version	Date	Note	Revised by
01	08.10.2025	1st Draft of Report made available to coordinator	Hasmik Grigoryan, Edel Doherty, Ingrid Mateo Mantecón and Stephen Hynes
02	17.10.2025	Reviewed Draft by the Coordinator sent to UoG Team	Helena Vieira, Mariana Dias Almeida and Liliana Garrido Silva
03	12.12.2025	UoG/MI team sent back revised Draft2 to coordinator	Hasmik Grigoryan, Edel Doherty, Jenny O’Leary and Stephen Hynes
04	08.01.2026	Reviewed Draft2 by the Coordinator sent to UoG Team	Helena Vieira, Mariana Dias Almeida, Érica Silva, Liliana Garrido Silva
05	13.01.2026	Final Version of Report sent to GEO	Helena Vieira, Mariana Dias Almeida Liliana Garrido Silva, Gloria Bevilacqua, Ömer Ceylan
06	30.01.2026	Final Version of Report	All
07	25.02.2026	Revised Final Version (V2)	Hasmik Grigoryan, Edel Doherty and Stephen Hynes, Helena Vieira, Mariana Dias Almeida, Gloria Bevilacqua, Ömer Ceylan
08	24/04/2026	Re-Revised Version (V3) after Project officer comments and suggestions	Hasmik Grigoryan, Edel Doherty and Stephen Hynes, Helena Vieira, Mariana Dias Almeida, Gloria Bevilacqua, Ömer Ceylan

Acknowledgement

This project has received funding from the European Union's EMFAF programme under grant agreement No 101111985.

Disclaimer

The content of the publication herein is the sole responsibility of the publishers, and it does not necessarily represent the views expressed by the European Commission or its services.

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Union or the European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them.

While the information contained in the document is believed to be accurate, the authors(s) or any other participant in the WIN-BIG consortium makes no warranty of any kind with regards to this material including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

Without derogating from the generality of the foregoing neither the WIN-BIG Consortium nor any of its members, their officers, employees or agents shall be liable for any direct or indirect or consequential loss or damage caused by or arising from any information advice or inaccuracy or omission herein.

Copyright notice

© WIN-BIG Consortium, 2023-2026. This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation, or both. Reproduction is authorized provided the source is acknowledged.

Executive Summary

NAVIGATING THE TIDES OF INEQUALITY: Women in the North Sea Blue Economy



WOMEN IN THE WORKFORCE



* United Kingdom, Belgium, France, Germany, Netherlands, Denmark, Sweden, Norway

EU BLUE ECONOMY LABOUR FORCE

EU	North Sea Basin
Female 2,941,850	Female 1,301,827
Male 4,130,743	Male 2,104,409
Total 7,072,593	Total 3,406,236

Sectoral participation is highly polarised



Women report less access to training (56% vs 61% of men)

WORKPLACE REALITY FOR WOMEN: NORTH SEA VS EU



KEY INSIGHT

Positive culture, limited progression: Women in the North Sea Basin report strong inclusivity and leadership support but still face discrimination and harassment and see fewer opportunities for career advancement.



CHARTING THE COURSE: POLICY RECOMMENDATIONS FOR EQUALITY

- **Gender-disaggregated data:** Mandate harmonised EU-wide reporting on employment, pay, and career progression by gender across blue economy sectors. Use the data to track progress and inform targeted policy action.
- **Pay and promotion transparency:** Introduce mandatory transparency in pay structures and promotion criteria. Use audits and reporting to address gender pay gaps and unequal advancement.
- **Gender equality plans:** Require organisations to adopt formal gender equality plans with measurable targets, timelines, and accountability mechanisms. Link implementation to monitoring and compliance frameworks.
- **Training and mentorship in STEM and offshore sectors:** Invest in targeted training, upskilling, and mentorship for women in STEM-intensive and offshore industries. Prioritise pathways into technical and leadership roles in high-growth blue sectors.
- **Zero tolerance for harassment:** Enforce zero-tolerance standards through clear reporting channels, independent procedures, and protection for complainants. Make safe workplaces a non-negotiable condition for sector growth.
- **Inclusive education and awareness:** Strengthen education and awareness campaigns highlighting the economic and innovation benefits of gender parity.



Co-funded by
the European Union

Introduction

The goal of the WIN-BIG project is to advance our understanding of existing gender issues and capacity needs across the EU's blue economy, with a particular focus on emerging and high-tech related industries. Three major challenges have been identified by WIN-BIG: a lack of gender disaggregated statistics, the underrepresentation of women in certain blue economy sectors, and insufficient opportunities for women. Such challenges can act as barriers to female empowerment and limit their access to career advancement and leadership roles.

The WIN-BIG project strives to shed light on gender inequalities in the blue economy sectors within six different Sea Basins in Europe, using data collected from a bespoke survey designed for this project. The survey results are used to identify institutional and industry factors that impact female career advancement. The research also produces estimates of the labour force in the blue economy disaggregated by sex. The following report provides a first set of data on the current gender status for the North Sea Basin -comprising United Kingdom, Belgium, France, Germany, Netherlands, Denmark, Sweden, Norway. The project has also produced separate reports for: the Atlantic, Arctic, the Baltic Sea, the Black Sea, and the Mediterranean Sea Basins.

Methodology

The methodology of the WIN-BIG Survey combined both quantitative and qualitative research approaches to assess gender inequalities across the EU blue economy. A multilingual online survey was developed through an iterative process informed by desk research, focus groups, and stakeholder consultations, ensuring cultural and linguistic clarity across seven languages. The final questionnaire included seven sections covering respondents' industry characteristics, work arrangements, gender culture, career progression, gender policies, and personal demographics, with one section dedicated to female respondents only.

The survey was distributed between March 2024 and November 2025 via email, social media, and events, collecting 1,084 responses (**309 from the North Sea Basin**). To ensure the survey captures issues that affect women differently compared to men, responses from both males and females were collected. Data were processed in compliance with GDPR, analysed using Excel and STATA, and weighted post-stratification techniques were applied to adjust for representativeness across industries, countries, and gender. Additionally, official EU data sources were used to estimate total employment and gender distribution across blue economy sectors, with proxy estimates applied when direct data were unavailable.

Results for the North Sea Basin

In the North Sea Basin:

- Females represent **38% of the total blue economy labour force** across United Kingdom, Belgium, France, Germany, Netherlands, Denmark, Sweden, Norway.

Notable sectoral disparities exist, with



- Female participation is highest in **biotechnology, coastal tourism, public administration, and research and higher education** sectors where women comprise between **46-53%** of the workforce.
- Female representation is below **31%** in traditionally male-dominated fields such as **offshore energy, maritime transport, offshore/marine engineering, and shipbuilding**.

These patterns mirror global findings from the **World Economic Forum's 2025 Global Gender Gap Report**, which notes that gender parity remains uneven across STEM-intensive and leadership roles, with Europe still requiring nearly **eight decades to close the gap at current rates**.

Workplace Culture

The findings from the WIN-BIG survey present a mixed picture for the North Sea Basin with:

- **82%** of female respondents perceiving their **organisations as inclusive** and **79%** believing **leadership supports gender equality**.
- However, **31%** of female respondents report direct experiences of **gender discrimination** and
- **57%** have suffered some form of **harassment within their organisations**—notably greater than the 32% recorded among male employees.
- Despite widespread access to flexible working arrangements reported, **16%** of female respondents find it **difficult to achieve work-life balance**.
- Slightly less female respondents report **less access to training** than males (56% female vs. 61% males) and perceive **fewer career advancement opportunities** (68% of female respondents feel they have fewer promotion opportunities than males).

These findings align with global gender gap research showing that women's underrepresentation in leadership stems from systemic barriers in career progression, mentorship, and equal pay.

The perception gap between male and female respondents is also notable:

- while **68% of male respondents** believe gender balance policies exist in hiring, **45%** of female respondents agree, and **nearly half** of females (**42%**) say their **organisations lack a formal gender plan**.
- **47%** of female respondents **suspect or are unsure they are paid less than male colleagues** doing the same job. Despite **86%** of women **acknowledging that attitudes**



toward gender equality have improved, a bit more than half believe it will take **more than 10 years to reach parity within their industries**.

These results echo global findings by the **OECD (2025)** and **UN Women (2024)**, which emphasize that while legislative progress and awareness have advanced gender equality frameworks, persistent structural and cultural barriers—particularly around pay transparency, career progression, and representation in STEM—continue to slow real parity in the workforce.

How the North area compares with the total sample (including all sea-basins listed above).

In total, WIN-BIG estimates that 7,072,593 people are working in the EU blue economy sectors, out of which 42% are female. In the North Sea Basin, a total of 3,406,236 people work in the blue economy, out of which 1,301,827 (38%) are women.

EU Blue Economy Labour Force				
	Female	Male	Total	% Female
Blue Economy EU Total	2,941,850	4,130,743	7,072,593	42%
Blue Economy North Basin	1,301,827	2,104,409	3,406,236	38%

The North Sea Basin results often mirror the overall proportions of the total sample. Specifically concerning organizational culture, **North women are slightly more positive than the total female sample**. Conversely, women in the North Sea report a higher rate of discrimination and harassment. They also report **lower satisfaction rate regarding the availability of career and training opportunities**.

- **82%** of female respondents in the **North Sea Basin** report their **organizations are friendly and inclusive**, compared to **78% in the total sample**.
- In the **North Sea sample**, **79%** of female respondents believe leadership supports **gender equality**, compared to **77%** of females across the **total sample**.
- Approximately **15%** of the **total sample** and 22% in the **North Sea sample** reported having experienced **gender discrimination** at work.
- In the **North Sea sample**, **46% of respondents** reported experience of some form of **harassment at their organization**, while this percentage is 31% in the **total sample**; almost **half of females** in the total sample (46%) and more than half (57%) of females in the North Sea have experienced **harassment**.

- Among **females, 55% of total sample** perceive **fewer career advancement opportunities** compared to men. In the **North Sea, 68% of females** share this view.
- **41% of females in the total sample** and **42% of females** in the **North Sea Basin** noted their organisations **do not** have a formal **gender plan**.
- A significant percentage of women in the Blue Economy express concern over **potential pay disparity: 46% of females** in the **total sample** compared to **47% females** in the **North Sea Basin**.

Across the **total sample, 72% of female respondents** feel that **attitudes** toward gender equality have **improved**, this compares to **86%** in the **North Sea Basin**.

Conclusions

The findings indicate:

- Progress in promoting gender equality within the North Sea blue economy; however, persistent significant structural and perceptual barriers remaining that continue to impede parity.
- Women are prominently represented in service-oriented and academic sectors; however, they remain **underrepresented in STEM-intensive and offshore industries**, where **advancement opportunities are often limited**.
- Despite overall positive perceptions of inclusivity and leadership commitment to equality, **many women continue to experience discrimination, harassment, and unequal access** to training and promotion pathways.

These findings suggest that gender equality strategies in the **blue economy must evolve beyond policy adoption** towards active implementation, monitoring, and **accountability** to ensure measurable progress in representation, pay, and leadership equity.



Policy Recommendations

This report also provides guidance on potential policy frameworks aimed at further narrowing the gender gap within the North Sea Basin blue economy. Suggested policy recommendations at European level call for:

- the **systematic collection of gender-disaggregated data** across blue economy sectors, supported by a harmonised and mandatory EU-wide reporting framework, to track workforce composition and career outcomes more accurately.
- the introduction or strengthening of **formal gender equality plans** in organisations.
- enforcing **zero-tolerance policies toward harassment**.
- enhancing **transparency in pay and promotion criteria**.
- expanding **training initiatives and mentorship programmes for women**, particularly in STEM and **emerging blue sectors** like marine renewable energy and biotechnology, to improve women's access to technical and leadership roles.
- expanding **inclusive education and awareness campaigns** that target both men and women to highlight the economic and innovation benefits of gender parity.

Ultimately, accelerating equality in the blue economy will require sustained political commitment, evidence-based policy design, and coordinated action across EU institutions, member states, and industry partners to close the remaining gender gaps within a generation.



Table of Contents

Introduction	18
Methodology	25
Questionnaire Design	25
Data collection.....	27
Weighting and analysis	27
Survey Results	29
SUMMARY OF WIN-BIG SURVEY RESPONDENTS DEMOGRAPHIC STATISTICS.....	29
GEOGRAPHICAL DISTRIBUTION OF WIN-BIG SURVEYED INDUSTRIES AND FIRMS.....	33
WORKING ARRANGEMENTS AND CULTURE	39
GENDER CULTURE OF THE ORGANISATION	45
PERCEPTION OF OPPORTUNITIES	49
GENDER BIAS POLICIES AND FRAMEWORKS IN THE WORKFORCE	56
PERCEPTION OF BARRIERS	60
FEMALE PERCEPTIONS OF GENDER INEQUALITIES	68
Conclusions.....	78
Policy recommendations	81
References	83



List of Tables

Table 1 EU Sea Basins (according to the EU Baseline Studies for the Ocean and Waters Mission). 21

Table 2 Number of employees across the Blue Economy sectors, broken down by gender..... 23

Table 3 Survey sample per sector (unweighted) across the EU sea basins 30

Table 4 Personal demographic information of respondents the percentage for the total sample and the North Sea Basin 31

Table 5 Country and Industry where the respondents’ work: North Sea Basin 33

Table 6 North Sea Basin responses to the WIN-BIG Survey question: “Experience of harassment at organisation and industry levels” 46

Table 7 North Sea Basin responses to the WIN-BIG Survey question: “What are/were the biggest challenges to progression you have faced in pursuing?” 55

Table 8 North Sea Basin responses to the WIN-BIG Survey question: “How long do you think it will be until gender diversity in your industry is equal? (comparison across countries)” 76



List of Figures

Figure 1 Current estimate of years needed to close the Gender Gap across the world (adapted from the World Gender Gap Report 2025).	18
Figure 2 Blue economy sectors and industries adopted in this study.	20
Figure 3 Distribution of the workforce across the North Sea countries	24
Figure 4 Stepwise methodology followed in this study.	25
Figure 5 Distribution of gender of respondents across the sea basins (unweighted).....	29
Figure 6 Gender distribution across the North Sea countries	34
Figure 7. Information on the organisation type and size among respondents.....	35
Figure 8 Gender breakdown by organisation type (North Sea Basin).....	36
Figure 9 Gender breakdown by size of organisation North Sea Basin	37
Figure 10 North Sea Basin responses to the WIN-BIG Survey question: “Approximately what percentage (0 – 100) of the persons employed are female?”	37
Figure 11 North Sea Basin responses to the WIN-BIG Survey question: Gender distribution across the employment level.....	39
Figure 12 North Sea Basin responses to the WIN-BIG Survey question: Gender breakdown by sector	40
Figure 13 North Sea Basin responses to the WIN-BIG Survey question: Gender distribution of respondents according to the years spent in current employment	41
Figure 14 North Sea Basin responses to the WIN-BIG Survey question: “It is possible to strike an appropriate balance between my work and home life”	41
Figure 15 North Sea Basin responses to the WIN-BIG Survey question: “At my work, there are flexible working arrangements available that are suitable to my needs.”	42
Figure 16 North Sea Basin responses to the WIN-BIG Survey question: “If you have taken carer’s leave do you believe it has had a negative impact on your career progression?”	43
Figure 17 North Sea Basin responses to the WIN-BIG Survey question: “The prevailing culture and atmosphere in my organisation/firm is inclusive and friendly to all.”	44

Figure 18 North Sea Basin responses to the WIN-BIG Survey question: "I have experienced gender discrimination within my organisation/firm."	45
Figure 19 North Sea Basin responses to the WIN-BIG Survey question: "I have witnessed gender discrimination within my organisation/firm."	46
Figure 20 North Sea Basin responses to the WIN-BIG Survey question: "Experience of harassment at organisation level" broken down by sector	47
Figure 21 North Sea Basin responses to the WIN-BIG Survey question: "Experience of harassment at industry level" broken down by sector	48
Figure 22 North Sea Basin responses to the WIN-BIG Survey question: "Leadership in my organisation/firm is committed to Gender Equality, Diversity and Inclusion"	48
Figure 23 North Sea Basin responses to the WIN-BIG Survey question: "I have access to the opportunities I need to support my career's aspirations."	50
Figure 24 North Sea Basin responses to the WIN-BIG Survey question: "I have access to the opportunities I need to support my career aspirations: broken down by sectors."	50
Figure 25 North Sea Basin responses to the WIN-BIG Survey question: "I have access to the opportunities I need to support my career aspirations: breakdown of responses across types of organisation."	51
Figure 26 North Sea Basin responses to the WIN-BIG Survey question: "I have access to the opportunities I need to support my career aspirations: breakdown of responses across organisations of different size."	52
Figure 27 North Sea Basin responses to the WIN-BIG Survey question: "The process of applying for an internal vacancy is fair and transparent?"	52
Figure 28 North Sea Basin responses to the WIN-BIG Survey question: "I have access to the training I need to support my career aspirations."	53
Figure 29 North Sea Basin responses to the WIN-BIG Survey question: "I have access to the mentoring (formal or informal) I need to support my career aspirations."	54
Figure 30 North Sea Basin responses to the WIN-BIG Survey question: "My direct supervisor supports my career aspirations."	54
Figure 31 North Sea Basin responses to the WIN-BIG Survey question: "Does your firm/organisation has a strategy or formal policy related to gender balance in hiring processes?"	56

Figure 32 North Sea Basin responses to the WIN-BIG Survey question: “Does your firm/organisation has a strategy or formal policy related to gender balance in hiring processes? (Broken down by sector)”	57
Figure 33 North Sea Basin responses to the WIN-BIG Survey question: “Does your firm/organisation have a formal gender policy/plan?”	58
Figure 34 North Sea Basin responses to the WIN-BIG Survey question: “Does your firm/organisation have a formal gender policy/plan? (broken down by sector)”	59
Figure 35 North Sea Basin responses to the WIN-BIG Survey question: “Does your firm/organisation formally or informally support the promotion and advancement of women?” ..	59
Figure 36 North Sea Basin responses to the WIN-BIG Survey question: “In your opinion, do barriers exist preventing women being promoted to senior positions in your firm/organisation?”	60
Figure 37 North Sea Basin responses to the WIN-BIG Survey question: “In your opinion, do barriers exist preventing women being promoted to senior positions in your firm/organisation? (broken down by sector)”	61
Figure 38. North Sea Basin responses to the WIN-BIG Survey question: “In your opinion, do barriers exist preventing women being promoted to senior positions in your firm/organisation? (broken down by type of organisation and firm size)” (broken down by type of organisation (A) and firm size (B)).....	62
Figure 39 North Sea Basin responses to the WIN-BIG Survey question: “Do you have any women managers in the firm/organisation?”	63
Figure 40 North Sea Basin responses to the WIN-BIG Survey question: “Do you have any women managers in the firm/organisation? (broken down by sector)”	63
Figure 41. North Sea Basin responses to the WIN-BIG Survey question: “Do you have any women managers in the firm/organisation? (broken down by organisation type(A) and firm size(B))”	64
Figure 42 North Sea Basin responses to the WIN-BIG Survey question: “Do you personally have any women role models in the firm/organisation?”	65
Figure 43 North Sea Basin responses to the WIN-BIG Survey question: “Do you personally have any women role models in the firm/organisation? (broken down by sector)”	66

Figure 44. North Sea Basin responses to the WIN-BIG Survey question: “Do you personally have any women role models in the firm/organisation? (broken down by organisation type(A) and firm size(B))”	66
Figure 45 North Sea Basin responses to the WIN-BIG Survey question: “Does the social structures in the country where your firm is based (the norms/patterns of relations between family, religion, economic, political and education institutions of the society) impact on the achievement of gender equality in your industry?”	67
Figure 46 North Sea Basin responses to the WIN-BIG Survey question: “Do you feel you are treated the same as men in your workplace?”	69
Figure 47 North Sea Basin responses to the WIN-BIG Survey question: “If you are treated differently, how often does this happen?”	70
Figure 48 North Sea Basin responses to the WIN-BIG Survey question: “In comparison with your male counterparts do you feel that you have more, less, or equal promotion opportunities in your industry?”	70
Figure 49 North Sea Basin responses to the WIN-BIG Survey question: “Do you feel that attitudes and behaviour towards women in your industry have changed for the better during your career?”	71
Figure 50 North Sea Basin responses to the WIN-BIG Survey question: “Do you feel that attitudes and behaviour towards women in your industry have changed for the better during your career? (broken down by sector)”	72
Figure 51 North Sea Basin responses to the WIN-BIG Survey question: “Do you feel that attitudes and behaviour towards women in your industry have changed for the better during your career? (broken down by age)”	72
Figure 52 North Sea Basin responses to the WIN-BIG Survey question: “Do you feel that attitudes and behaviour towards women in your industry have changed for the better during your career? (broken down by employment level)”	73
Figure 53 North Sea Basin responses to the WIN-BIG Survey question: “Do you think you are currently being paid less than your male colleagues, doing the same job, in your industry?”	74
Figure 54 North Sea Basin responses to the WIN-BIG Survey question: “If required for your work, are you provided with the right equipment (including the right size/fit) to carry out your role, including Personal Protective Equipment (PPE) (by sector) ?”	74

Figure 55 North Sea Basin responses to the WIN-BIG Survey question: “How long do you think it will be until gender diversity in your industry is equal?: female responses only” 75

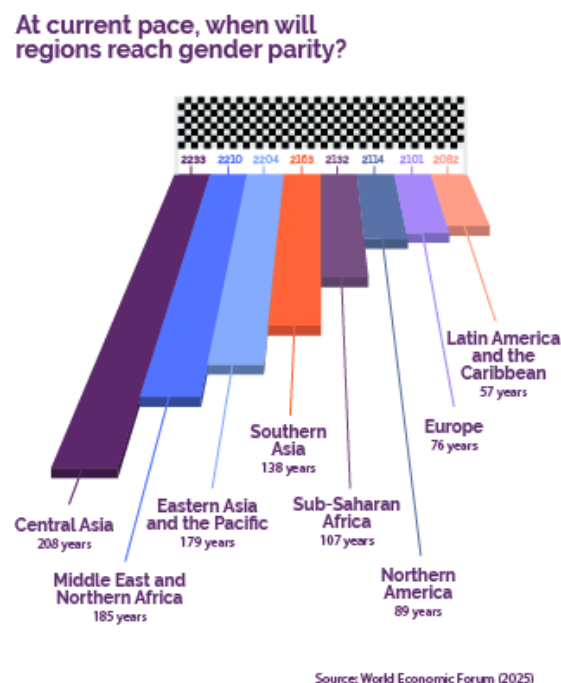
Figure 56 North Sea Basin responses to the WIN-BIG Survey question: “How long do you think it will be until gender diversity in your industry is equal?: female responses only (broken down by sector)..... 76

Introduction

The WIN-BIG project addresses the lack of knowledge on the role women play in the EU Blue Economy sectors. It provides data on women's status and skill gaps that prevent women from entering or progressing up the career ladder. In addition to data gathering, the project provides capacity building, focusing on the EU three emergent sectors, blue bioeconomy, blue sports and coastal tourism and marine renewable energy and robotics. The WIN-BIG project also champions blue female role models using innovative media format. These objectives are in line with the EU goals.

Gender equality and advancing women's rights are normative values of the EU and have been recognized as economic and strategic investments. (European Commission, 2025; OECD, 2025). Various pieces of legislation have been adopted in recent years, such as the Directives on Work-Life Balance, Pay Transparency, and Gender Balance on Corporate Boards (European Commission, 2024). However, bridging existing gender disparities remains a slow process and data shows that in Europe alone another eight decades are needed at current speed to reach parity (Figure 1). Women are still overrepresented in low-paid jobs, carry a disproportionate share of household duties and care responsibilities, have less opportunities for training in such sectors as science, technology, engineering and mathematics (STEM) and face higher risks of violence (European Commission, 2025).

Figure 1 Current estimate of years needed to close the Gender Gap across the world (adapted from the World Gender Gap Report 2025).



The EU Blue Economy and Gender Inequalities

The EU's blue economy is multisectoral, encompassing a wide range of traditional and emerging sectors - from maritime transport, fisheries to blue biotechnology and marine renewable energy. In 2023, the EU blue economy's gross value added (GVA) reached EUR 263 billion, and it employed 4.89 million people in the EU (European Commission, 2025). It is a segment of economy characterized by continued growth, energy and digital transition, and new job opportunities. The EU Blue Economy observatory estimates that a total of 1,609,047 people are employed in the North Sea Basin¹.

Certain sectors of the EU blue economy face not only the challenge of underrepresentation of females, but also a gendered division of labour by occupation. In fisheries, research shows that women are more often in charge of selling or processing the catch, while men are involved in the fishing activities and the preparation of fishing gear (Salmi and Sonck-Rautio (2018). The existing horizontal gender segregation (the concentration of women in certain fields) is paired with vertical gender segregation. Research in areas such as ocean science illustrates this dual gap, noting not only overall lower representation of women but also their significant underrepresentation in senior and decision-making roles (Katsanevakis et al., 2020 and Kamm, Schelten and Braker, 2020).

Gender inequalities also manifest in terms of access to opportunities. Studies note that limited access to training and mentorship opportunities hinders women's career advancement and ability to reach managerial positions (Croucher and Økland, 2021; Johannesen et al, 2023; Shellock et al., 2022; Zhao et al. 2013).

WIN-BIG Objectives

The WIN-BIG project, funded by the European Commission, aims to deepen understanding of gender issues in the Blue Economy and support women's career entry and advancement within the sector. Specifically, WIN-BIG is gathering comprehensive data on gender representation, the roles women play, and the barriers they face across all six EU Sea Basins.

The project's three core objectives are:











1. **Establish a comprehensive dataset** detailing the gender status and roles of women across all **six EU Sea Basins** (Atlantic, Mediterranean, Baltic, North, Arctic, and Black Sea) within the Blue Economy (BuE).
2. **Identify critical skill gaps** that hinder women's entry into or progression up the career ladder in BuE sectors.
3. **Implement targeted capacity-building programs**, including female- and sea basin-specific **learning labs, acceleration programs, and networking events**.

¹ Note: The sectors of the EU Blue Economy Observatory are maritime transport, coastal tourism, living resources, non-living resources, port activities, renewable energy, shipbuilding and repair. The Observatory does not include estimates for the United Kingdom or Norway. Also, the Observatory does not include the workforce in the research related sectors of the blue economy. The EU Blue economy observatory website is available at: https://blue-economy-observatory.ec.europa.eu/blue-economy-indicators_en

For this report, academic and policy research was reviewed to define the EU blue economy industries. For instance, previous studies on blue economy concepts - such as the harvesting of living resources, extraction of non-living resources, and ecosystem protection and management - helped guide the classification adopted in this study (e.g. Smith Godfrey, 2016; Voyer et al, 2018).

Figure 2 presents the blue economy sectors and industries. Final sector and industry grouping were based on the EU Blue Economy sectors specifications with some minor differences².

Figure 2 Blue economy sectors and industries adopted in this study.

SECTOR	INDUSTRY
 Living resources	Aquaculture Sea fisheries Seafood processing
 Blue biotechnology	Blue bioeconomy/biotechnology
 Coastal tourism	Blue sports Coastal tourism Cruise tourism
 Marine renewable energy and offshore exploration (oil and gas)	Marine renewable energy offshore exploration (gas and oil)
 Ports and shipping	Maritime transport Port activities Shipbuilding
 Public administration related to the marine	Public Administration related to the marine
 Engineering and technology	Marine engineering Marine robotics Desalination Maritime defence
 R&D related to the marine	Marine research and development
 Research and marine education (third level)	Marine Education/Training/Research (Third level) Marine Conservation and Advocacy
 Market services	Marine Environmental Consulting Services Marine Retail Services Business and finance

² European Commission, EU Blue Economy Observatory, EU Blue Economy Sectors: https://blue-economy-observatory.ec.europa.eu/eu-blue-economy-sectors_en

EU Sea Basin-Level Analysis

This report is one of six sea basin reports of the WIN-BIG project. The analysis includes EU member states and countries that are part of the European Economic Area, bordering an ocean or sea. The research also covers the United Kingdom, due to the UK-EU Trade and Cooperation Agreement. Table 1 lists the EU Sea Basins and its bordering countries. The EU sea basin countries in each report are defined according to the geographic delineation as established in the EU Baseline studies for the implementation of the lighthouse for the Mission “Restore our Ocean and Waters by 2030” (Chanou Zoulfath et al., 2023; Goba et al., 2023)³.

Table 1 EU Sea Basins (according to the EU Baseline Studies for the Ocean and Waters Mission).

EU Sea Basins	
Arctic Basin	Iceland, Finland, Norway, Sweden
Atlantic Basin	Ireland, United Kingdom, France, Portugal, Spain
Baltic Sea	Germany, Poland, Estonia, Latvia, Lithuania, Denmark, Sweden, Finland
Black Sea	Bulgaria, Romania
Mediterranean Sea	Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia, Spain
North Sea	United Kingdom, Belgium, France, Germany, Netherlands, Denmark, Sweden, Norway

North Sea Basin Industries

The blue economy industries of the North Sea are of significant economic importance and contribute to the ongoing green transition.

³ Two reports were used to define the EU sea basin countries: Chanou Zoulfath et al. (2023). Baseline study for the implementation of lighthouses of the Mission ‘Restore our ocean and waters by 2030’: Atlantic, Arctic, Danube and Mediterranean lighthouses. Luxembourg: Publications Office of the European Union; and Goba et al. (2023). Baseline study for the implementation of the lighthouse in the Baltic and North Sea basins for the Mission ‘Restore our Ocean and Waters by 2030’. Luxembourg: Publications Office of the European Union. Following this approach, countries not bordering an ocean and sea are excluded. In line with the lighthouse studies, where a country borders more than one sea basin they are duplicated in each relevant report. The United Kingdom borders the North Sea and Atlantic. France borders the North Sea, Mediterranean and Atlantic. Denmark borders both the North Sea and Baltic. Sweden borders the North Sea, Arctic and Baltic. Norway borders both the North Sea and Arctic. These countries are therefore duplicated in each of these respective reports.



In Denmark, Germany, Netherlands, and the UK ports and shipping and oil and gas represent about two third of their Blue Economy (Marques, 2021). In the area of shipbuilding and repair, France is the EU's leading contributor in terms of gross value added (GVA)⁴. Seaports in Belgium and the Netherlands serve as large cargo handling platforms and are home to a large diversity of industrial activities (Notteboom et al, 2020).

North Sea Basin countries also play a vital role in the emerging sectors and in green transition. France and Germany are the top countries in terms of the development of blue biotechnology and in the production of algae (Araújo *et al.*, 2021). Denmark, Belgium, Netherlands, and Germany made a joint declaration to substitute fossil fuels in 2022, and in the following year Norway launched the world's first floating wind farm in the North Sea (Hjelmeland and Kristiansen Nøland, 2023).

Gender Breakdown

This report presents estimates of total employment in the Blue Economy in the North Sea Area by industry and gender. To establish a baseline estimate of total employment by Blue Economy industry and gender, WIN-BIG analysed officially published data and statistics.

The analysis estimates that a total of 3.4 million people are employed across the EU Blue Economy industries in the North Sea Basin. **Overall, WIN-BIG estimate women account for approximately 38% of the total workforce in the blue economy in the North Sea Basin.** Table 2 presents the gender breakdown of the workforce in each industry⁵.

Acknowledging the scale and importance of the traditional industries, and recognising the growth of emerging industries, this report also provides information about the organisational and industry wide factors impacting male and female employees in the North Sea Basin using data from a survey developed as part of the WIN-BIG project (see chapter on the perception of opportunities and gender bias policies and frameworks in the workforce).

⁴ EU Blue Economy Observatory, Country Profiles, France: https://blue-economy-observatory.ec.europa.eu/country-profiles/france_en

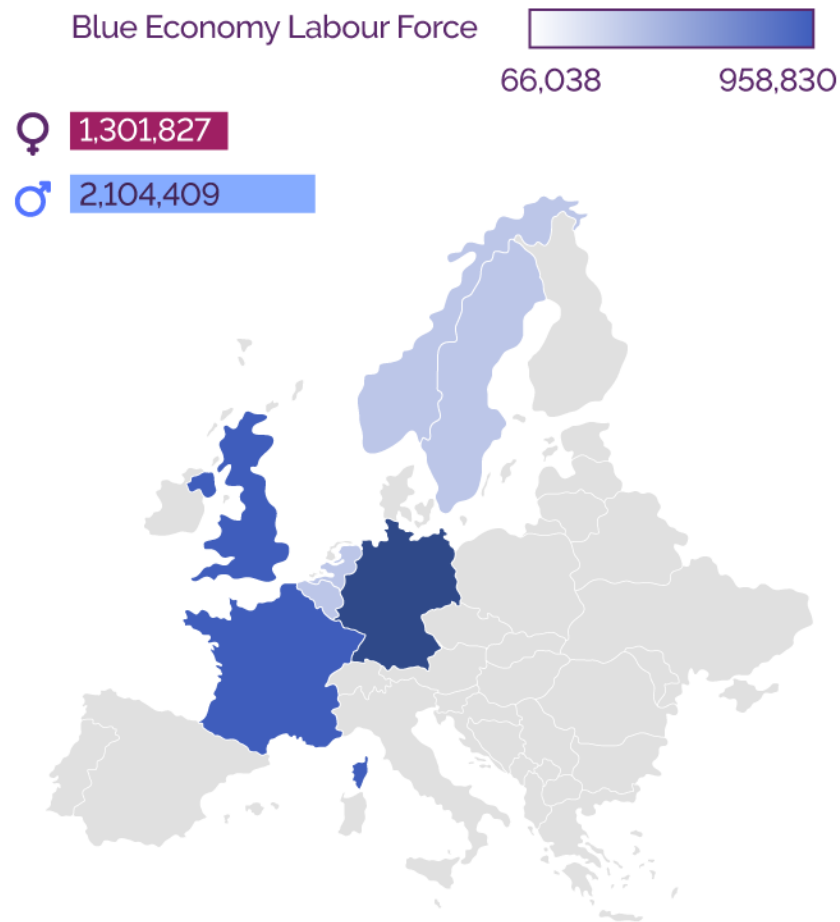
⁵ Data on the total workforce per sector was sourced from the EU Blue economy observatory. The breakdown of gender per sector was established using Eurostat, EU STECF reports, national statistics, national reports and news sources. For further discussion on how these estimates of total employment by industry and gender were derived see [Annex 1](#).

Table 2 Number of employees across the Blue Economy sectors, broken down by gender

Labour force of the North Sea Basin			
Blue Economy Sector	Female	Male	% Female
Living resources	47,035	105,878	31%
Blue biotechnology	1,618	1,876	46%
Coastal tourism	541,608	520,448	51%
Marine renewable energy and offshore exploration (oil and gas)	60,186	133,989	31%
Engineering and technology	80,288	255,391	24%
Ports and shipping	199,163	637,555	24%
Research and marine education (third level)	16,309	19,332	46%
R&D related to the marine	60,875	118,108	34%
Public administration related to the marine	73,238	65,618	53%
Market & Services	221,507	246,214	47%
Total	1,301,827	2,104,409	38%

Figure 3 illustrates the employment number in the North Sea Basin countries. United Kingdom, France and Germany have the highest number of employees in the blue economy followed by Norway and Sweden.

Figure 3 Distribution of the workforce across the North Sea countries



	Total	Female	Male
Belgium	66,038	23,789	42,249
Denmark	147,590	64,151	83,439
Germany	714,190	289,709	424,481
France	803,366	306,976	496,390
Netherlands	209,576	76,506	133,070
Sweden	187,404	86,071	101,333
Norway	319,242	118,070	201,172
United Kingdom	958,830	336,555	861,322

Methodology

To capture both the quantitative and qualitative data required for WIN-BIG, a comprehensive survey was designed, tested and data was collected between June 2023 and November 2025. The survey was translated into seven languages to for inclusivity and accessibility for respondents across different countries.

The methodology involved a desk review stage to design the survey sections and its questions. Following the design and testing of the survey, the survey was launched, and data was collected from the employees of the blue economy sectors. Following the data collection, post stratification weights were generated to make the sample representative of the true marine workforce population.

Figure 4 Stepwise methodology followed in this study.



Questionnaire Design

Prior to designing the questionnaire, a focused desk review was undertaken to inform the design. Previous surveys on gender inequalities in the workplace were consulted. For example, surveys related to institutional culture used to inform *Athena Swan* accreditation in higher education were useful to design Likert Scale questionnaire questions on topics related to work culture, promotion and work-life balance⁶. A survey by *Equileap*⁷ on gender representation at the corporate level and its Gender Equality Scorecard were reviewed to understand concepts around equal compensation, gender equality policies and employee protection. Other surveys, such as *Women in Tech*, conducted in 2023⁸ were also utilised to inform relevant topics and questions.

Early versions of the questionnaire were tested using focus groups. Further discussions across the WIN-BIG consortium and at a special session of the conference *1st Mission Ocean Arena: Blue Mission BANOS - Supporting the EU Mission "Restore our Ocean and Waters* in the Baltic and North Sea in

⁶ The Athena Swan Charter is a framework which is used across the globe to support and transform gender equality within higher education (HE) and research, <https://www.advance-he.ac.uk/equality-charters/athena-swan-charter>

⁷ Equileap, Social Equality Data: <https://equileap.com/data/>

⁸ Women in Tech Survey 2023: <https://www.womenintech.co.uk/wp-content/uploads/2022/12/Women-in-Tech-Survey-2023.pdf>

November 2023 led to some further refinements of the survey instrument. The focus group discussions ensured that the questions were similarly interpreted and understandable across different countries and languages.

The final questionnaire was divided into seven sections described below:

1. Industry and firm: This section collected data on the respondent's blue economy sector, type of organisation, country of operation, number of employees, and the percentage of female employees within the organisation.

2. Working arrangements and culture: This section collected data on respondents' employment level, employment status, and years in their current role. It also included questions about whether respondents had taken any periods of carer's leave, as well as questions on workplace culture and work-life balance.

3. Gender culture and treatment within organisation/firm: This section aimed to assess respondents' perceptions of gender discrimination, whether they had encountered any forms of harassment, and whether the organisation's leadership was committed to gender equality, diversity, and inclusion.

4. Perception of opportunities for career progression: This section collected information on the transparency of internal vacancy applications, access to career growth opportunities, and the challenges respondents have faced in pursuing a career in the blue economy sector.

5. Women in the work force: This section collected data on whether the respondent's firm has gender equality policies, the presence of female managers and role models, and whether there are barriers preventing women from being promoted to senior positions. This section also includes a qualitative question asking why women might not have the opportunity to advance in their industry.

6. Female only section: This section collected information from female respondents only. It collected data on the gender pay gap, their perceptions of whether they are treated equally to men in the workplace, and whether they have the same promotion opportunities as their male counterparts. This section also includes qualitative questions to collect recommendations from females on how to achieve more gender equality.

7. Personal demographics: This section collected demographic data such as respondents' age, country of residence, ethnicity, marital status, caring responsibilities and level of education.

Data collection

The online WIN-BIG survey was launched on March 8th, 2024, and remained open until 17th of November 2025. It was conducted online via the Qualtrics surveying platform and was available in seven languages: English, Spanish, Portuguese, French, German, Italian, and Irish. A link to the survey was disseminated to various blue economy organisations via email, social media, paid advertising and during national and international events by the Consortium partners. A total of 1,244 responses were collected. Out of this number, 59 responses were from non-European countries and 7 were from European countries that do not have access to ocean or sea. The 59 non-European and 7 non-ocean responses were removed from the analysed sample reducing the number to 1,178 which covered the EU sea basins. Following further cleaning of the dataset, a further 94 responses were removed from the final analysis: 20 responses were completed by students, and 74 respondents completed only section one of the survey which covered basic information about their gender and the sector they belonged to, so they were removed from the main analysis. As a result, 1,084 responses are analysed. The data sample for North Sea area include 309 responses, which is the data used for this report.

All data was handled in compliance with confidentiality requirements and the General Data Protection Regulation (GDPR). The data was analysed using Microsoft Excel and the statistical software package STATA.

Weighting and analysis

Given this was a voluntary opt-in survey it was important to generate post stratification weights to make the sample representative of the true marine workforce population. The estimated population totals by blue economy industry, country and gender facilitated the creation of a multidimensional weighting scheme. All results presented use the generated post stratification weights, unless otherwise stated.

There is a lack of gendered statistics in the EU blue economy. Furthermore, while the EU blue economy observatory provides information about total workforce in certain sectors (e.g. living resources, coastal tourism, ports and shipping) there is no data about the workforce in such industries as marine robotics, higher education and research related to marine, environment consulting, marine conservation and advocacy. For the blue economy sectors, where no data was available, the number of employees in a broader industry category was collected, followed by an estimate of the marine share. For example, there is not data about the total workforce in the *marine robotics*. To estimate its labour force, several indicators were used. Based on the number of employees in the *Equipment and machinery subcategory* published by the EU Blue Economy Observatory⁹ and the total number of employees in *Manufacturing of machinery and equipment* from

⁹ Note: there were some countries where no data was provided in the Blue Economy Observatory. Individual country reports or other sources were consulted to provide an estimate of the workforce.

Eurostat, the marine share was estimated in engineering. Next, this estimated marine share was applied to the total number of employees in *Science, technology and digital society* category from Eurostat, to estimate the number of employees in marine robotics. In terms of the gender breakdown, data was collected where sector-specific gender information was directly available. This was only available for the living resources and maritime defence. In cases where there was no gender breakdown at the blue economy industry level, gender distribution of the broader sector which the industry was contained in was used as a proxy. For example, while no gender specific information was publicly available for coastal tourism across countries, Eurostat does provide estimates for gender at the national level for NACE industries such as accommodation and restaurant activities. Similarly, *Public administration related to marine* used the parent sector *Public administration* to generate a proxy for gender shares. [Annex 1](#) provides detailed information about the data.

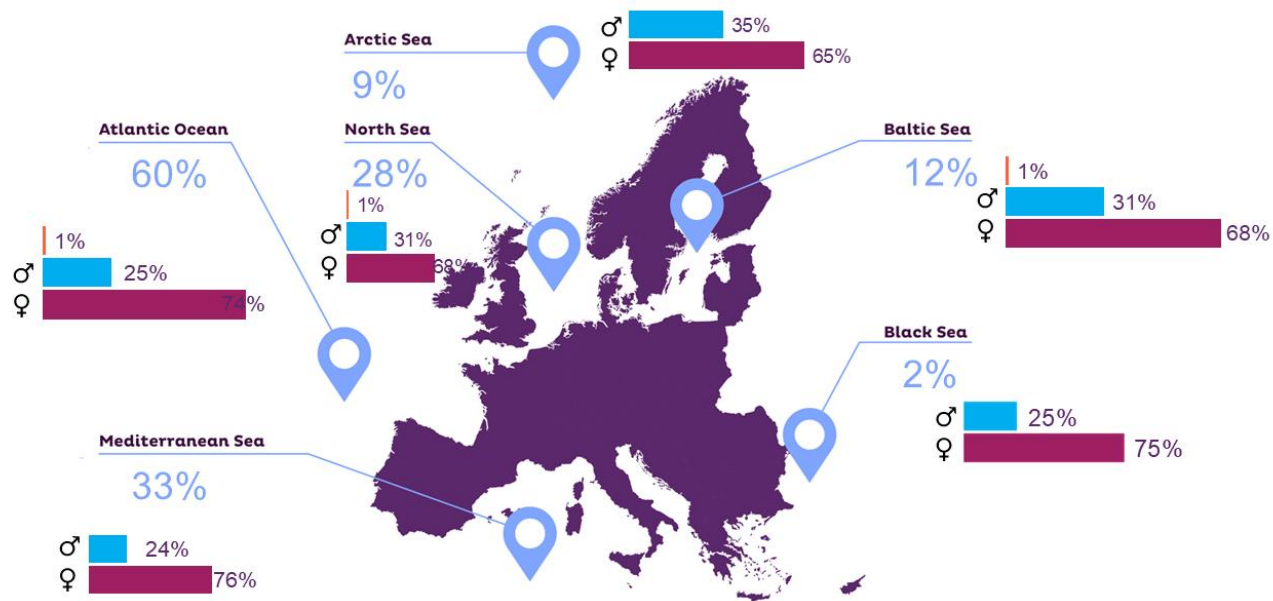
Survey Results

SUMMARY OF WIN-BIG SURVEY RESPONDENTS DEMOGRAPHIC STATISTICS

This next section describes in detail the results and statistics derived from the WIN-BIG survey data.

Figure 5 presents the gender distribution of respondents across the sea basins. The percentages shown are based on the unweighted survey sample. Across all basins, women accounted for more than 68% of the respondents within the Mediterranean, Atlantic, and Black Sea basins showing the highest proportions of female respondents.

Figure 5 Distribution of gender of respondents across the sea basins (unweighted)



North Sea Basin

As shown in Figure 5, **28% of the respondents to the WIN-BIG survey were from the North Sea Basin** countries, with 68% female respondents and 31% male.

Table 3 presents the unweighted percentage of respondents by EU Blue Economy sector across all the EU sea basins.



In the North Sea Basin, the largest shares of respondents are in research and marine education (tertiary level) (17%), marine-related R&D (15%), ports and shipping (15%) and living resources (12%). In emerging sectors within the North Sea basin, such as blue biotechnology and marine renewable energy, respondents represent 11% and 6% of the sample, respectively. Engineering and technology account for 7% of respondents.

Table 3 Survey sample per sector (unweighted) across the EU sea basins

Survey sample per sector						
Blue Economy Sector	Arctic Basin	Atlantic Basin	Baltic Sea	Black Sea	Mediterranean Sea	North sea
Living resources	17%	12%	10%	8%	7%	12%
Blue biotechnology	11%	7%	13%	0%	6%	11%
Coastal tourism	0%	9%	1%	4%	6%	2%
Marine renewable energy and offshore exploration (oil and gas)	2%	5%	4%	0%	2%	6%
Engineering and technology	9%	7%	0%	13%	6%	7%
Ports and shipping	6%	7%	26%	8%	10%	15%
Research and marine education (third level)	21%	18%	16%	29%	21%	17%
R&D related to the marine	20%	15%	23%	17%	16%	15%
Public administration related to the marine	6%	11%	4%	4%	13%	9%
Market & Services	0%	5%	1%	8%	8%	2%
Not specified	8%	4%	2%	8%	5%	4%

Table 4 presents the demographic information for the total sample and North Sea Basin Respondents, with the post-stratification weights assigned. The percentage of female respondents (56%) is slightly higher compared to male respondents in the weighted North Sea sample.

Table 4 Personal demographic information of respondents the percentage for the total sample and the North Sea Basin

Background of Respondents		
Gender of respondents	Total Sample %	North sea %
Female	50%	56%
Male	50%	44%
Age	Percent	Percent
18-25	4%	6%
26-35	13%	18%
36-45	22%	31%
46-55	36%	26%
56-65	23%	18%
65 +	2%	<1%
Ethnicity	Percent	Percent
White (Caucasian)	95%	95%
Black	<1%	1%
Asian	<1%	<1%
Mixed ethnicity	4%	2%
Other	<1%	1%
Marital status	Percent	Percent
Married	51%	42%
Cohabiting	16%	17%
Single	25%	36%
Separated/Divorced/Widowed	8%	5%
Caring responsibilities (e.g. caregiver to children, child with disability, elderly parents, etc.)	Percent	Percent
Yes	40%	29%
No	59%	69%
Prefer not to say	1%	2%

Education level	Percent	Percent
Primary level, or equivalent	<1%	<1%
Secondary level, or equivalent	6%	4%
Bachelor's, or equivalent third level	15%	11%
Master's, or equivalent third level	60%	72%
Doctoral or equivalent third level	18%	12%
Other industry specific qualification	1%	<1%
Prefer not to say	<1%	<1%

Slightly over half (57%) of the North Sea Basin sample consists of employees aged between 36–55. The majority of respondents were white Caucasian (95%). More than half of the sample (59%) were married or cohabiting and approximately 29% of respondents have some type of caring responsibilities. A high proportion of respondents were also highly educated with 72% of respondents have a Master's degree, and 12% have a Doctoral degree.

GEOGRAPHICAL DISTRIBUTION OF WIN-BIG SURVEYED INDUSTRIES AND FIRMS

Table 5 displays the breakdown of the North Sea Basin respondents' industry and the country they work. A large proportion of respondents work in France (32%) and in the United Kingdom (31%), followed by Germany (17%) and Norway (8%). The survey involves a smaller sample of organisations operating in Belgium (6%), Sweden (3%) and Denmark (1%).

Table 5 Country and Industry where the respondents' work: North Sea Basin

Respondents Country and Industry: North Sea Basin	
Country where respondents' organisation is based	Percentage
Belgium	6%
Denmark	1%
France	32%
Germany	17%
Netherlands	2%
Norway	8%
Sweden	3%
United Kingdom	31%
BE sector ¹⁰	Percentage
Living resources	12%
Blue biotechnology	11%
Coastal tourism	2%
Marine renewable energy and offshore exploration (oil and gas)	6%
Engineering and technology	7%
Ports and shipping	15%
Research and marine education (third level)	17%
R&D related to the marine	15%
Public administration related to the marine	9%
Market & services	2%
Unspecified Blue Economy Industry	4%

The highest percentage of the survey sample is comprised of respondents working in research and higher education (17%), R&D (15%), ports and shipping (15%), living resources (12%), and blue biotechnology (11%). The representation of the remaining industries – public administration, coastal

¹⁰ The percentages for the blue economy sectors are not weighted.



tourism, MRE and offshore exploration, Marine engineering and technology, Market & Services, ranges from 2% to 9%.

Figure 6 illustrates gender distribution across the North Sea countries: there is a higher percentage of female respondents in Sweden and the United Kingdom. The lowest percentage of female respondents is in Denmark and Norway.

Figure 6 Gender distribution across the North Sea countries

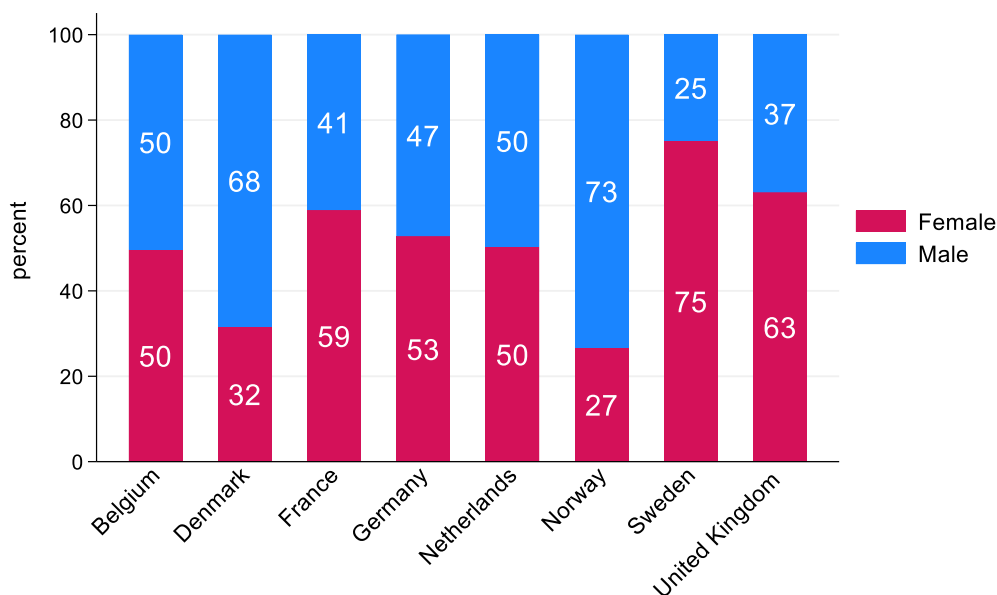


Figure 7 displays data about the type of organisation, whether North Sea Basin respondents work in a public institution, industry or in a non-governmental entity. It also includes information about the size of the organisation given by the total number of employees.

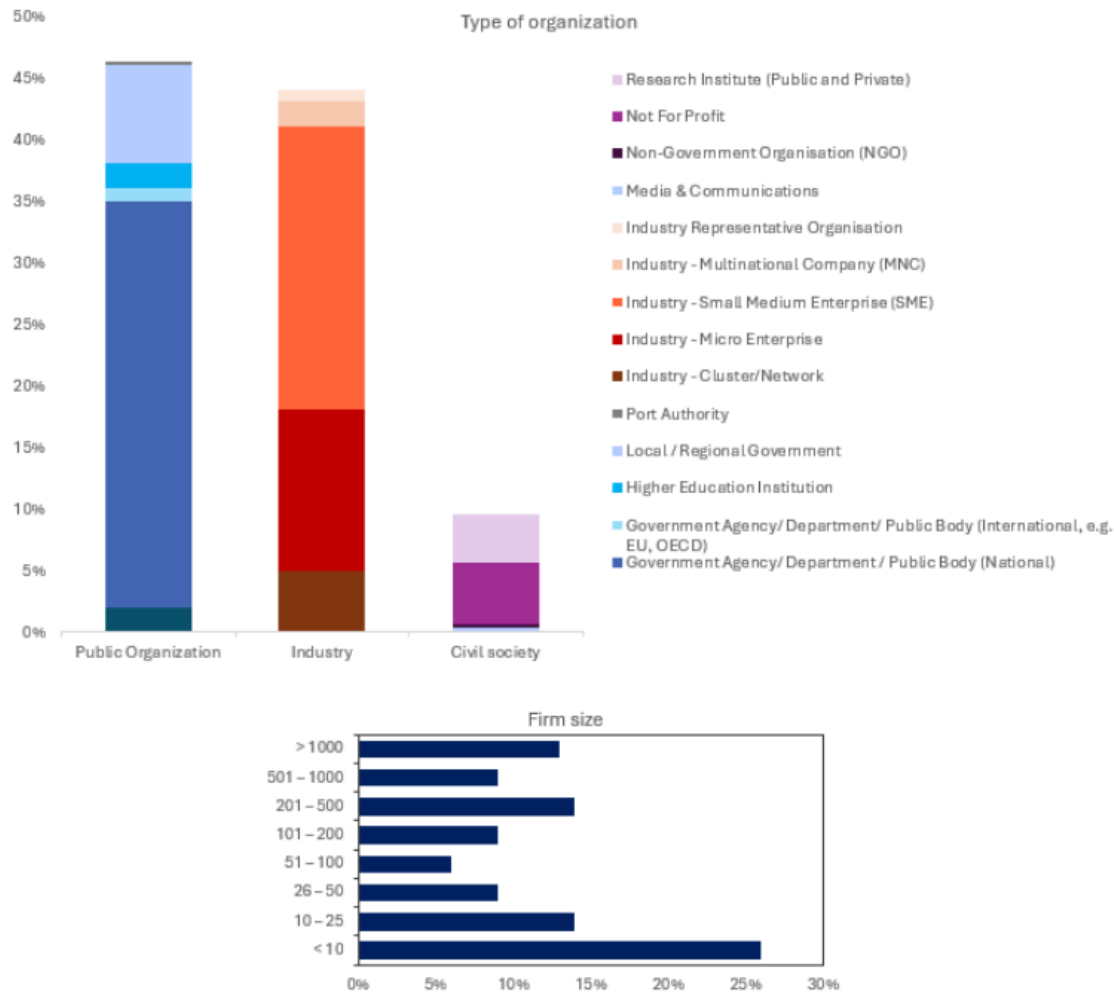


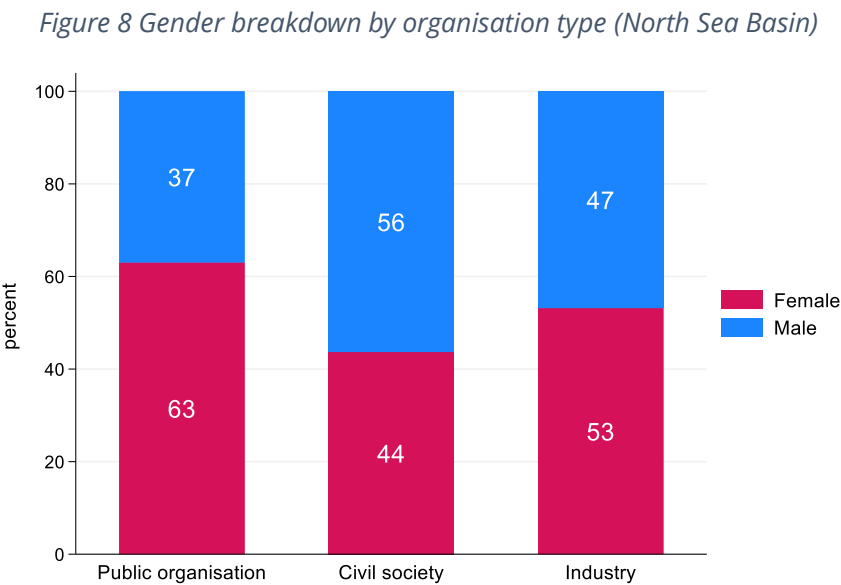
Figure 7. Information on the organisation type and size among respondents

In terms of the type of organisation, the largest portion of North Sea Basin respondents work in Government Agency/ Department / Public Body (National) (33%), Small and Medium Enterprises (SMEs) (16%), multinational corporations (MNCs) (16%), Non-Governmental Organisations (6%) and industry-cluster/network (6%). The remaining respondents work in the not-for-profit sector (5%), Government Agency/ Department/ Public Body (International, e.g. EU, OECD) (5%), higher education institutions (4%), research institutes (public or private) (3%), micro enterprise (2%), local/regional government (1%), industry representative organisation (1%), and commercial state-owned companies (1%).

The survey captured data from respondents employed in a diverse range of organisational sizes, reflecting varying levels of operational scale. A significant portion of the sample are employed in large organisations with over 1,000 employees (33%) and in companies with 501-1000 employees (11%), highlighting the inclusion of major enterprises or institutions with substantial workforce capacities. Approximately, 18% of respondents are employed in organisations with 26–50

employees and 14% of respondents are employed in companies with 201–500 employees, highlighting representation from medium-sized enterprises. Additionally, 11% of respondents work in small enterprises with fewer than 10 employees.

Figure 8 presents the gender breakdown by type of organisation. The categorisation industry includes the respondents from the following types of organisations: Industry - Cluster/Network, Industry – micro-Enterprise, Industry - Small Medium Enterprise (SME), Industry - Multinational Company (MNC), Industry Representative Organisation.

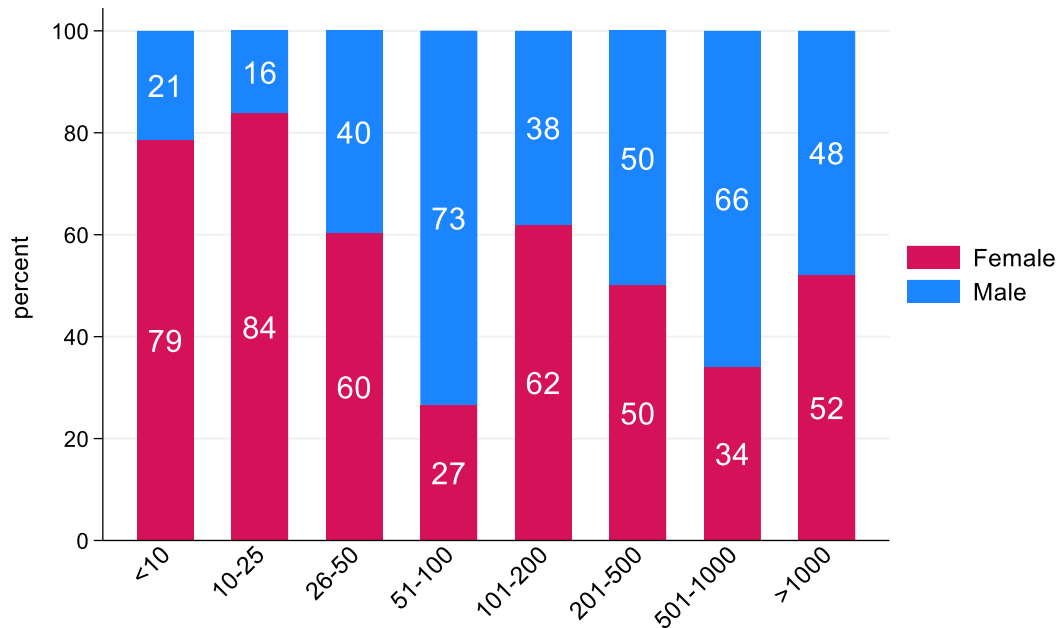


Media & Communications, Non-Government Organisation (NGO), Not For Profit and Research Institutes (Public and Private) are included under the category ‘Civil society’. The category public organisations includes the following types: Commercial State Company, Higher Education Institution, Government Agency/ Department / Public Body (National), Government Agency/ Department/ Public Body (International, e.g. EU, OECD), Local / Regional Government and Port Authority.

Slightly higher percentage of female respondents work in public organisations (63%), compared to the industry (53%) and civil society (44%) organisations.

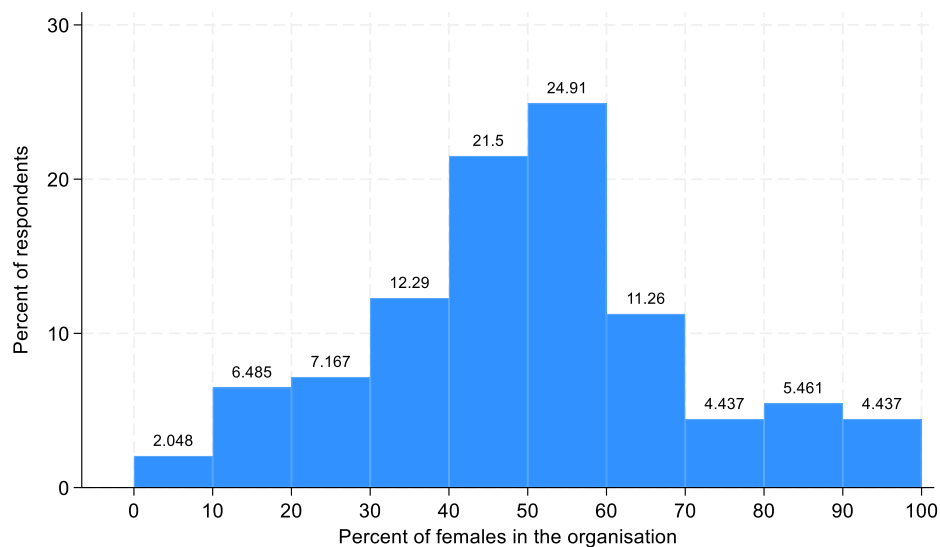
Figure 9 presents the percentage of female and male respondents across different organisational sizes.

Figure 9 Gender breakdown by size of organisation North Sea Basin



A higher number of female respondents work in firms that have less than 10 employees (79%) or workforces with between 10 to 25 people (84%). Female representation is also higher in companies with 101-200 employees (62%). The respondents were also asked to indicate the approximate percentage of female employees in their organisation.

Figure 10 North Sea Basin responses to the WIN-BIG Survey question: "Approximately what percentage (0 – 100) of the persons employed are female?"¹¹



¹¹ This histogram is based on the unweighted results.

When asked about the percentages of female employees in their organisations (Fig. 10), about 47% of the respondents indicated that about 40 to 60% of the employees in their firm are female. About 11% of respondents answered that female employees constitute from 60 to 70%. Another 12% indicated that 30 to 40% of their workforce is female. Another 14% of respondents answered that about 70 to 100% of the employees in their organisation are female, and 16% answered that there is an up to 30% of female workforce in their firm.



WORKING ARRANGEMENTS AND CULTURE

The existing scholarship on gender inequalities refers to the problem of underrepresentation of women in managerial and supervisory positions, especially in male-dominated sectors (Gallo and López, 2023; Macarie and Moldovan, 2012). Studies highlight that flexible work hours and work-life balance are important for females to be able to reach senior positions (Carrasco-Santos et al., 2020; Carvalho, 2018). Furthermore, studies note that gender inequalities can be exacerbated due to the effect of taking carer's leave on the promotion to senior positions and on subsequent wage increases (Evertsson, 2016; Matysiak and Cukrowska-Torzewska, 2021).

To investigate some of these issues, this section presents the North Sea Basin survey responses related to the employment level of the respondents, working arrangements and organisational culture surrounding gender equality.

Generally, North Sea Basin respondents are well represented from intermediate to executive levels, however entry-level employees present the smallest sample (approximately 9% of survey respondents). In total, 89% of respondents work full-time, in either permanent (70%) or contract (19%) positions. Over 30% of respondents have worked at their current employers for more than 11 years and 16% of respondents have been employed for less than one year at their current employment. About 31% of respondents worked from 1 to 5 years and another 19% worked from 6 to 10 years at their current company. In addition, the survey elicited replies regarding periods of extended leave (such as maternity, paternity or carer's leave) and 14% of respondents had taken a period of extended leave at their current employment.

Figure 11 North Sea Basin responses to the WIN-BIG Survey question: Gender distribution across the employment level

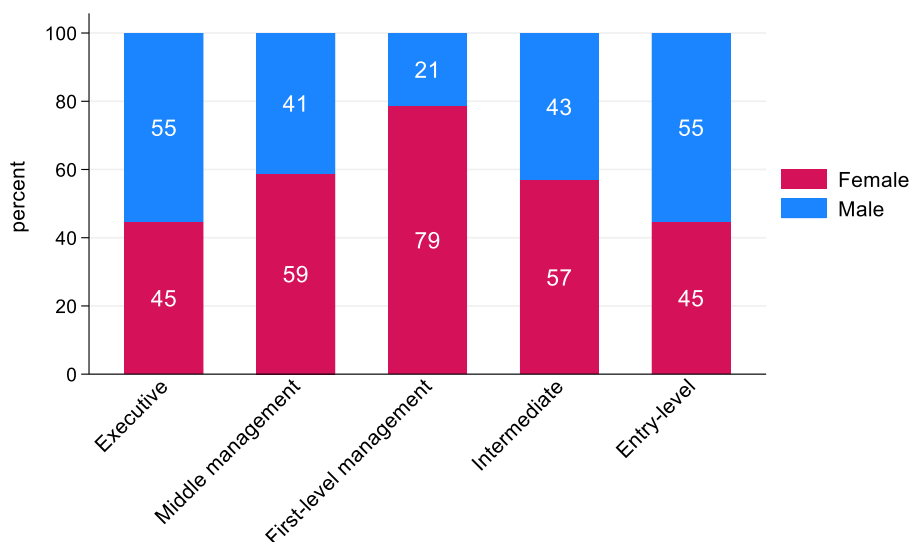
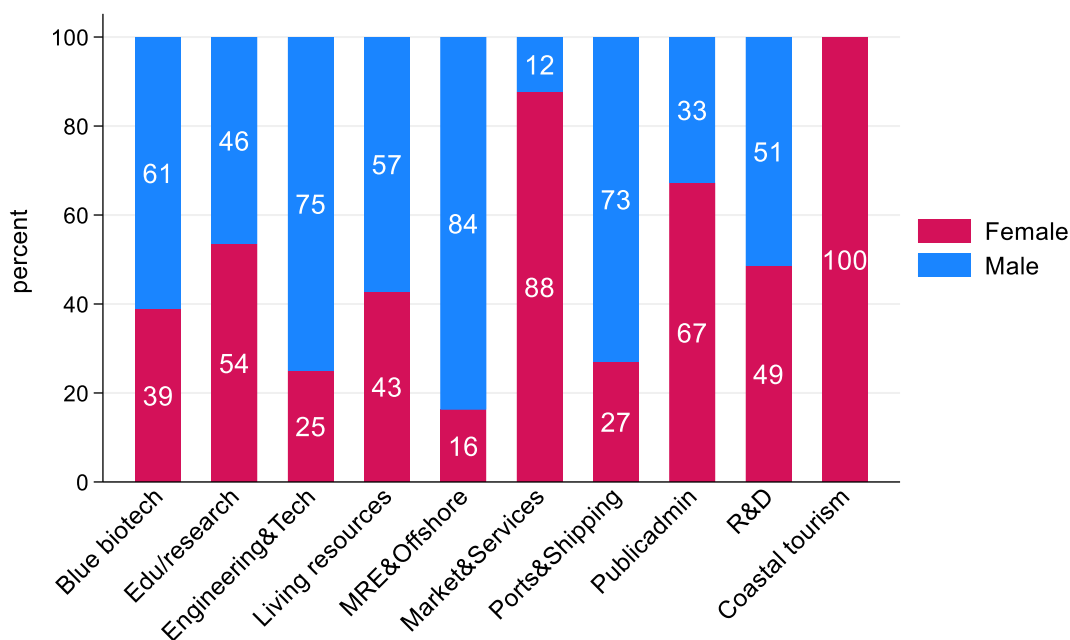


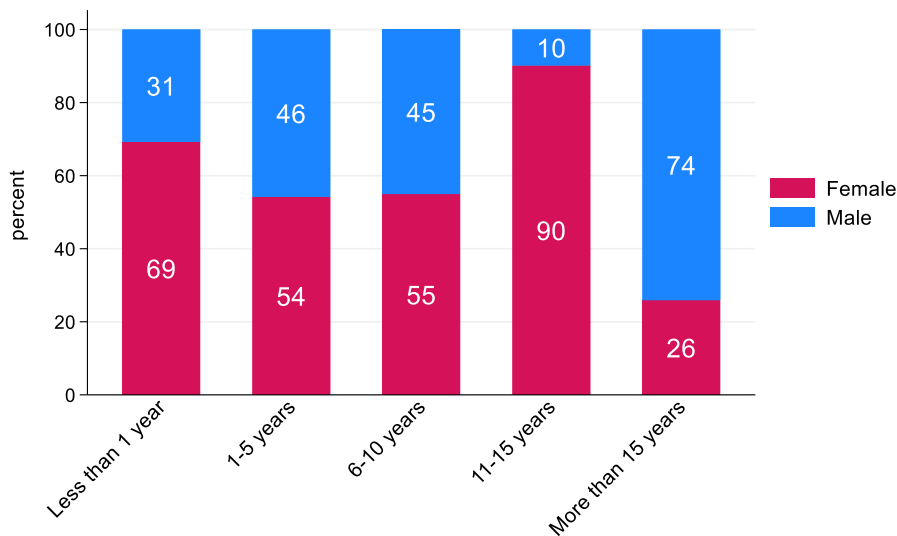
Figure 11 shows the gender of the respondents across the employment levels. Lower percentage of female respondents work in executive (45%) and entry-level (45%) positions. A high percentage of female employees occupy first-level management positions (79%).

Figure 12 North Sea Basin responses to the WIN-BIG Survey question: Gender breakdown by sector



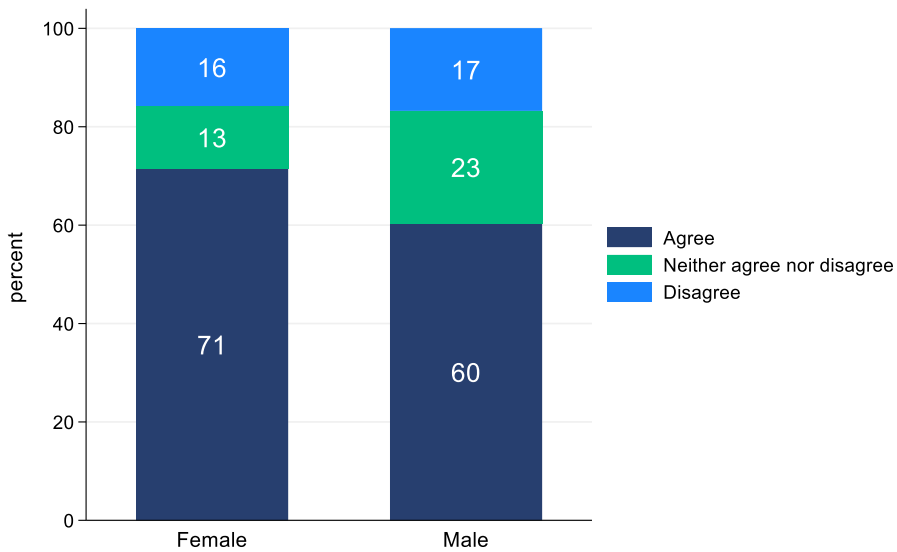
When considering the sectorial breakdown, a higher percentage of female respondents are in public administration related to the marine (67%), research and higher education related to the marine (54%) and in R&D related to the marine (49%). In living resources, the percentage of female respondents is 43% and in blue biotechnology it is 39%. The lowest number of female respondents is in engineering and technology (25%), marine renewable energy (16%) and in ports and shipping (27%) - sectors that are traditionally occupied by men. The survey sample in market & services and coastal tourism is small and the majority the respondents are female (see Figure 12).

Figure 13 North Sea Basin responses to the WIN-BIG Survey question: Gender distribution of respondents according to the years spent in current employment



Finally, when analysing gender distribution per experience level measured in years in current employment, Figure 13 shows the results. A higher percentage of male respondents have worked in their current company for more than 15 years (74% vs. 26%). In contrast, a higher percentage of female respondents (90% vs. 10%) have worked in their current company for 11 to 15 years. Similarly, a larger share of female respondents (69%) is represented among employees who have worked in their current company for less than a year or for 1 to 5 years (see Figure 13).

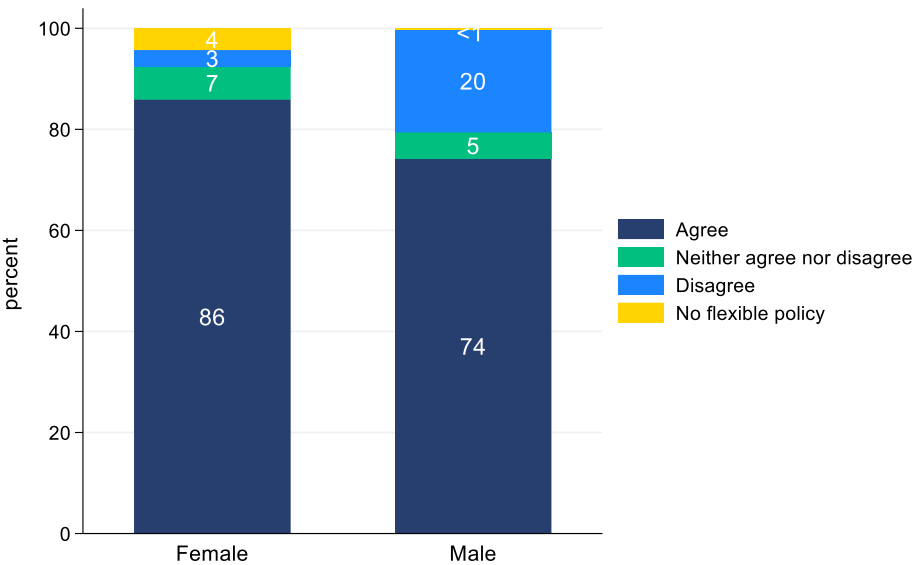
Figure 14 North Sea Basin responses to the WIN-BIG Survey question: "It is possible to strike an appropriate balance between my work and home life"



Considering work-life balance, overall, 67% of respondents indicate that they can strike an appropriate work-life balance, with higher percentage of females (71% vs 60%) agreeing with the statement. Almost equal percentage of female (16%) and male (17%) respondents disagreed with this statement (18% versus 9%), while a higher percentage of men chose neither agree nor disagree (23% of male vs 13% of female) (Figure 14).

Flexible working arrangements with fully remote or hybrid work options have become more common since the Covid-19 pandemic, to support work-life balance and operational flexibility. The WIN-BIG survey investigated whether these are also present in the EU Blue Economy. Figure 15 depicts responses regarding the accessibility to these flexible working arrangements.

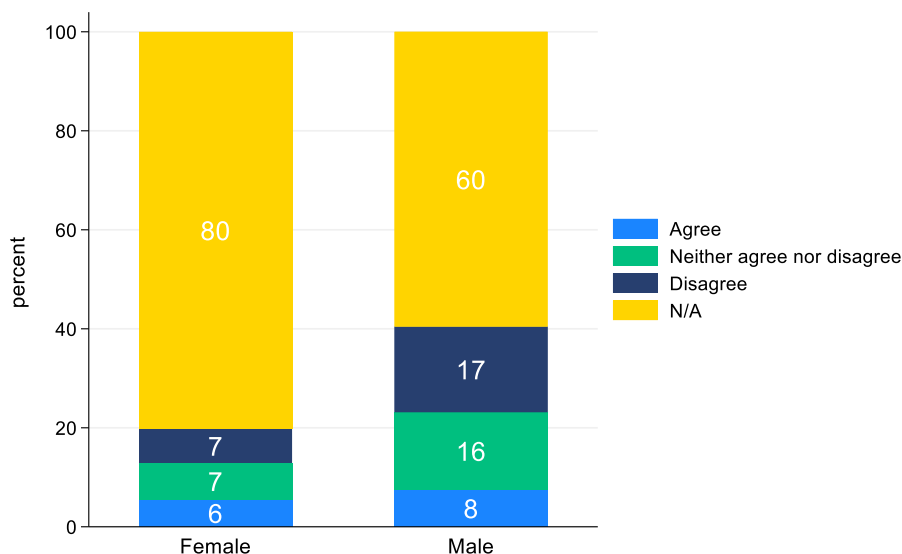
Figure 15 North Sea Basin responses to the WIN-BIG Survey question: “At my work, there are flexible working arrangements available that are suitable to my needs.”



Interestingly, a higher proportion of female respondents (4% female versus <1% male) work in organisations with no flexible working policy. Overall, there are high levels of agreement and low levels of disagreement regarding access to flexible working arrangements, with higher percentage of female employees in the North Sea (86% vs 74%) confirming that there are flexible working arrangements available at their workplace.

WIN-BIG also investigated the perceived impact of carer’s leave periods on career progression. Figure 16 highlights these results, illustrating clear differences between female and male responses.

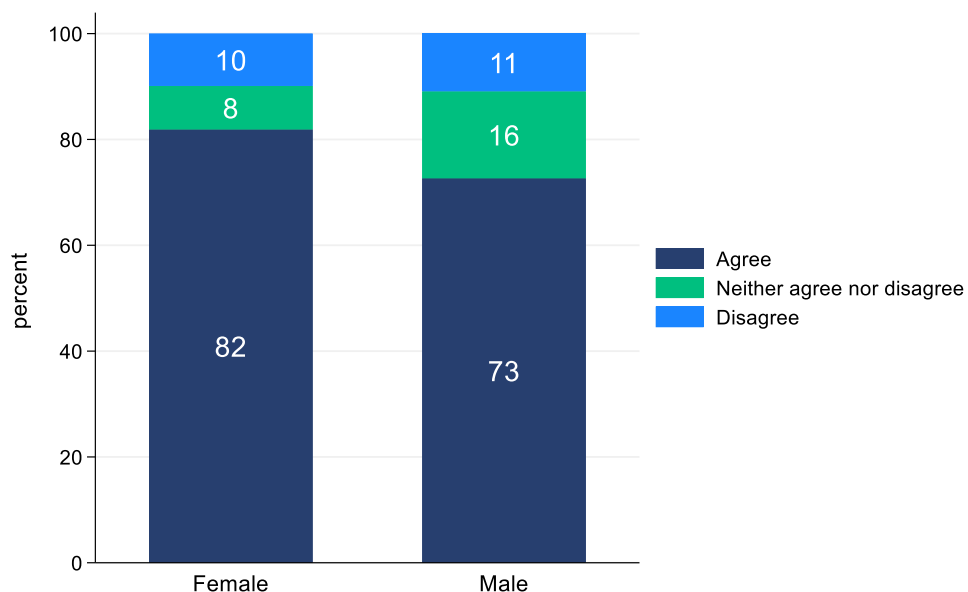
Figure 16 North Sea Basin responses to the WIN-BIG Survey question: “If you have taken carer’s leave do you believe it has had a negative impact on your career progression?”



As evident, a large proportion of male and female respondents have not taken carer’s leave. This percentage is higher among female respondents. Of respondents who have, only 6% of females and 8% of male respondents believe it has negatively impacted their career progression, which is positive. However, 16% of male respondents and 7% of female respondents neither agree nor disagree with this statement, which suggests that they may not know the impacts of the carer’s leave on their career progression. A higher percentage of male respondents (17% male vs. 7% female) disagreed that taking leave had a negative impact on their careers.

When investigating the prevailing Blue Economy organisational culture within the North Sea Basin the respondents report mainly positive views on the inclusivity of their organisations (shown in Figure 17).

Figure 17 North Sea Basin responses to the WIN-BIG Survey question: “The prevailing culture and atmosphere in my organisation/firm is inclusive and friendly to all.”



Of note, female respondents report higher levels of agreement (82% female versus 73% male) and lower levels of neutral response (8% versus 16% male) regarding the inclusivity of their workplace. Almost equal percentage of male (11%) and female (10%) respondents provided a negative response, disagreeing that the prevailing culture is friendly and inclusive at their workplace. While it is speculative, it may be the case the females are more likely to seek employment in organisations that may have a positive work culture.

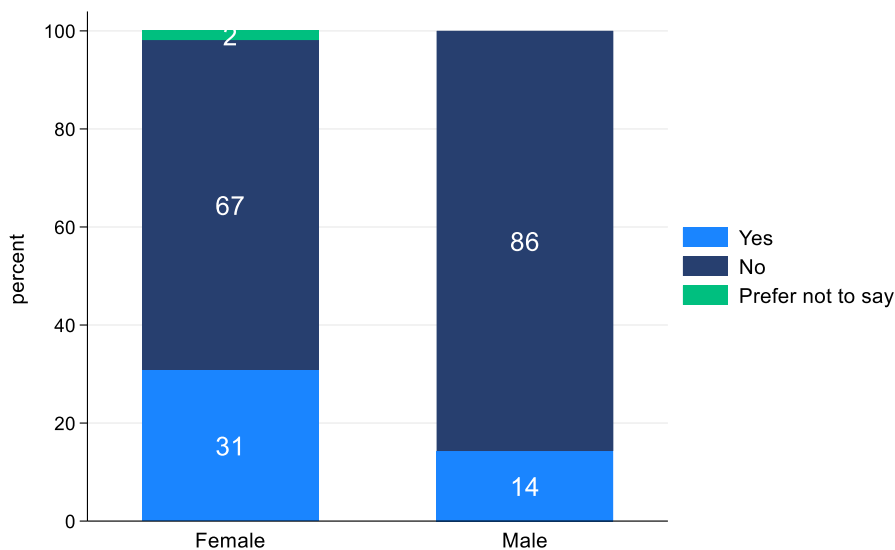
GENDER CULTURE OF THE ORGANISATION

The WIN-BIG survey also assessed the respondents' perceived experiences of gender discrimination and harassment in the industry and sector. The perception of gender discrimination at the workplace is described as a perception of being deprived of opportunities at an employee's workplace and is distinct from sexual harassment (del Carmen Triana et al., 2019). Discrimination refers to any systematic unfair treatment of an individual or group based on personal or social circumstances and characteristics (Ramos Martín, 2014). In addition, studies refer to mobbing, bullying and harassment that need to be tackled at the societal and institutional level as these can negatively affect individual's work performance, and may result in women quitting their jobs (Dogg et al., 2022; Lorient et al., 2020).

Gender-based harassment in maritime transport and seagoing oceanography has also been acknowledged as an issue that acts as a barrier to women's participation in these industries (Dragomir, 2019; European Parliament, 2023; Boström and Österman, 2022; Legg et al., 2023). Studies note that through understanding the value and meaning of diversity, equity and inclusion, leaders of organisations can create an environment where all people feel recognized, have access to resources and opportunities and can create new innovations and solutions (Ashikali and Groeneveld, 2015; Coleman and Taylor, 2023).

The results obtained about the perception of gender discrimination, experience of harassment and leadership commitment to diversity, equity and inclusion are depicted in the next figures.

Figure 18 North Sea Basin responses to the WIN-BIG Survey question: "I have experienced gender discrimination within my organisation/firm."



As illustrated in Figure 18, a much higher percentage of female respondents (31% female versus 14% male) have experienced gender discrimination within their organisation suggesting that gender inequality is still an issue in EU Blue Economy organisational culture and practices.

Figure 19 also shows a much higher percentage of female employees having witnessed gender discrimination compared to male respondents (44% female versus 28% male).

Figure 19 North Sea Basin responses to the WIN-BIG Survey question: “I have witnessed gender discrimination within my organisation/firm.”

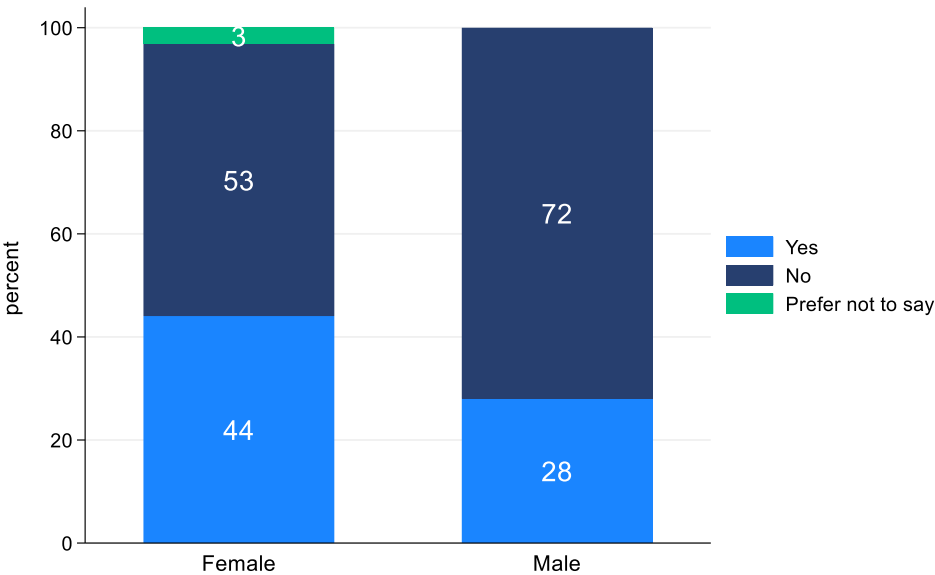


Table 6 presents a summary of the proportion of respondents who have suffered some form of harassment either in their organisation or in their industry in general.

Table 6 North Sea Basin responses to the WIN-BIG Survey question: “Experience of harassment at organisation and industry levels”

Experience of Harassment			
	Yes ¹²	% Female	% Male
Have you suffered any of the following forms of harassment in your firm/organisation?	46%	57%	32%
Have you suffered any of the following forms of harassment in your industry more generally? ¹³	46%	45%	47%

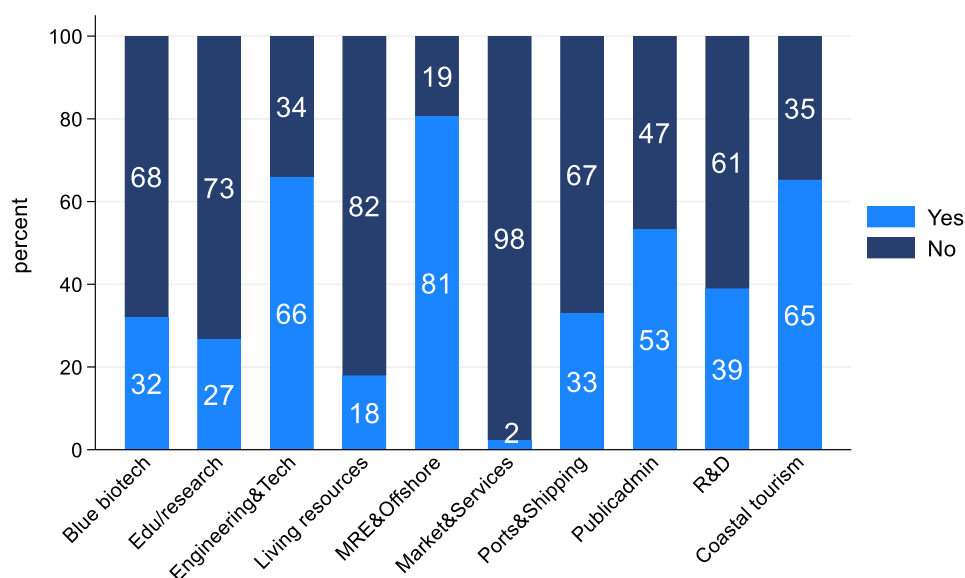
¹² Respondents could choose the following forms of harassment (tick all that are relevant): Offensive jokes or slurs, Physical assaults or threats, sexual assaults or threats, intimidation, insults or put-downs, stalking, other (please state).

¹³ the question on forms of harassment in industry more generally was introduced in the survey 3 months later from the launch. Therefore, the sample for this question is smaller and equals to 72.

A relatively high proportion of North Sea Basin respondents have suffered some form of harassment. Both at company and organisation level slightly lower than half of respondents (46%) experienced harassment. A much higher percentage of female respondents (57% female versus 32% male) have suffered some form of harassment within their firms/organisation. Regarding the sector more generally, the percentage of male and female respondents who have been subjected to harassment is the same (45% of female and 47% of male respondents). This suggests that harassment in the industry is an issue affecting both genders.

Figure 20 presents the breakdown of the proportion of the respondents who answered that they have experienced harassment at organisation level. The highest proportion can be observed in engineering and technology (66%), in public administration related to the marine (53%) and in R&D related to the marine (39%). Coastal tourism and market & services are a small sample.

Figure 20 North Sea Basin responses to the WIN-BIG Survey question: "Experience of harassment at organisation level" broken down by sector



On the industry level (Figure 21), the distribution of the percentage of respondents who experienced harassment across the sectors is somewhat different from the organisation level (see Figure 20). The highest percentage of harassment is observed among the respondents in research and marine education (third level) (69%), followed by research and marine education (69%), ports and shipping (63%), R&D (55%) and in blue biotechnology (54%). Coastal tourism and market & services are a small sample.

Figure 21 North Sea Basin responses to the WIN-BIG Survey question: "Experience of harassment at industry level" broken down by sector

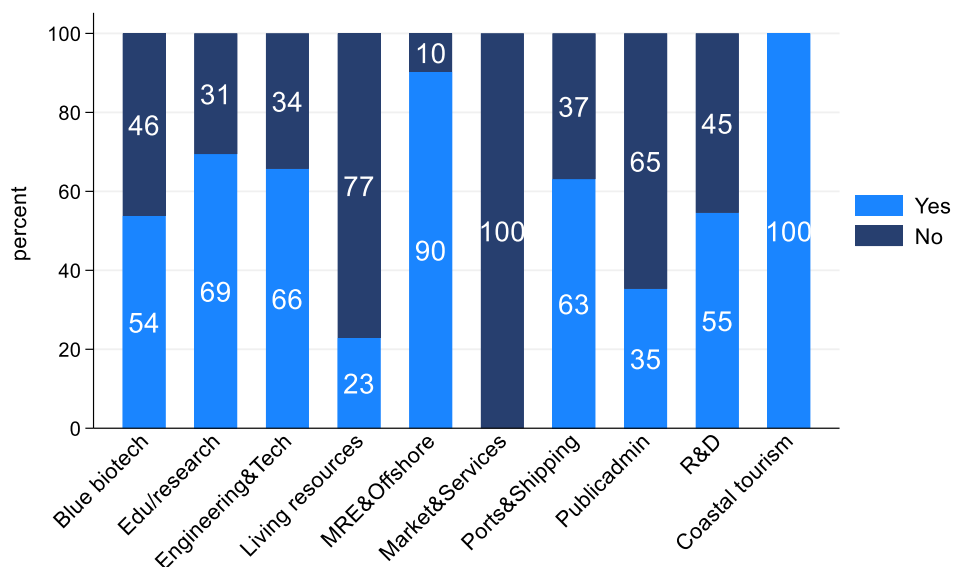
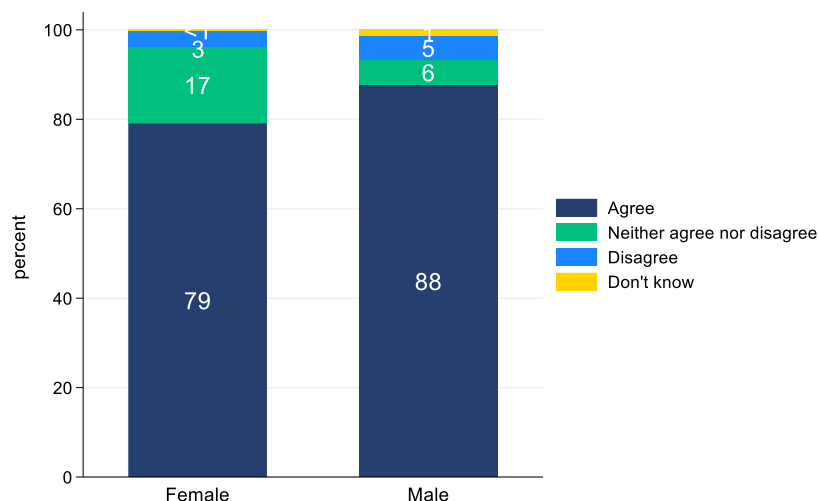


Figure 22 displays North Sea Basin respondents' views on internal leadership commitments to gender equality, diversity and inclusion (EDI), within their organisation. Generally, both male and female respondents report that leadership within their organisation is committed to gender equality with 5% of total respondents disagreeing with this statement. However, it should be noted that a lower percentage of female respondents (79% female versus 88% male) agreed with the statement on the leadership commitment to EDI. The neutral response of neither agree nor disagree is also higher among female respondents (17% vs 6%).

Figure 22 North Sea Basin responses to the WIN-BIG Survey question: "Leadership in my organisation/firm is committed to Gender Equality, Diversity and Inclusion"



PERCEPTION OF OPPORTUNITIES

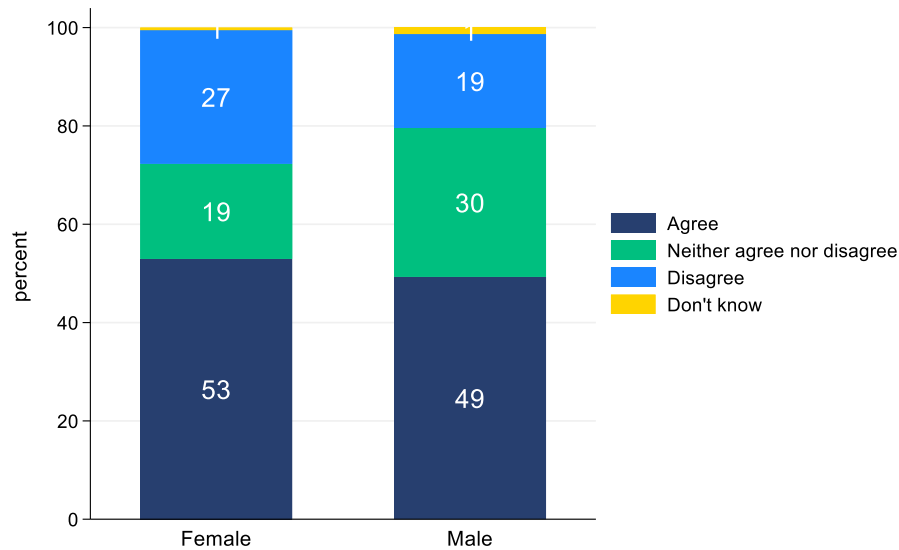
In this section the results about the perception of available opportunities at respondents' workplace are presented. The survey included questions on the availability of career growth opportunities, such as access to training and mentorship.

Studies note that training and mentorship programs fill the gap between knowledge and action and play a positive role on career outcomes (Martini and Cavenago, 2016; Wikström et al., 2023). Workplace training is also acknowledged as a lifelong learning process that realises the potential for skills development, especially considering the need of new skills due to technology change and digitalisation (Lucas et al., 2018; Tikkanen et al., 2018). The existing literature also refers to the importance of training and mentorship to ensure gender equality. First, studies note that women face multiple obstacles such as lack of networks, support from colleagues, non-transparent rules of promotion and recruitment and work-family conflicts, and thus training and mentoring programs are important to close the skills gap between men and women (Górska and Burlakova, 2025; Holzinger et al., 2019; Roosmaa and Saar, 2023).

Second, the literature argues that in certain sectors of economy, such as for example in STEM, women face stereotypes and, thus mentorship programs are important as they empower women and create an environment where women are given equal opportunity to men to develop as leaders (Barabino *et al.*, 2020). Shellock *et al.* (2022) find that encouragement and support from superiors, mentorship, training and coaching are important enablers to overcome gendered barriers, such as lack of trust, leading to the acceptance of women leaders. Mentoring programs are important, especially in masculine fields, as such programs can guide and train all the across—gender workforce to accept women to senior positions or on corporate boards (Varriale et al., 2016). Finally, the literature from the EU blue economy argues that to bridge the gender gap in sectors such as marine renewable energy and maritime transport that is in its transition towards technological advancements and automation, training is necessary in energy-related areas and technical skills (Clancy, and Feenstra, 2019; Di Vaio, 2023; Kim et al, 2019).

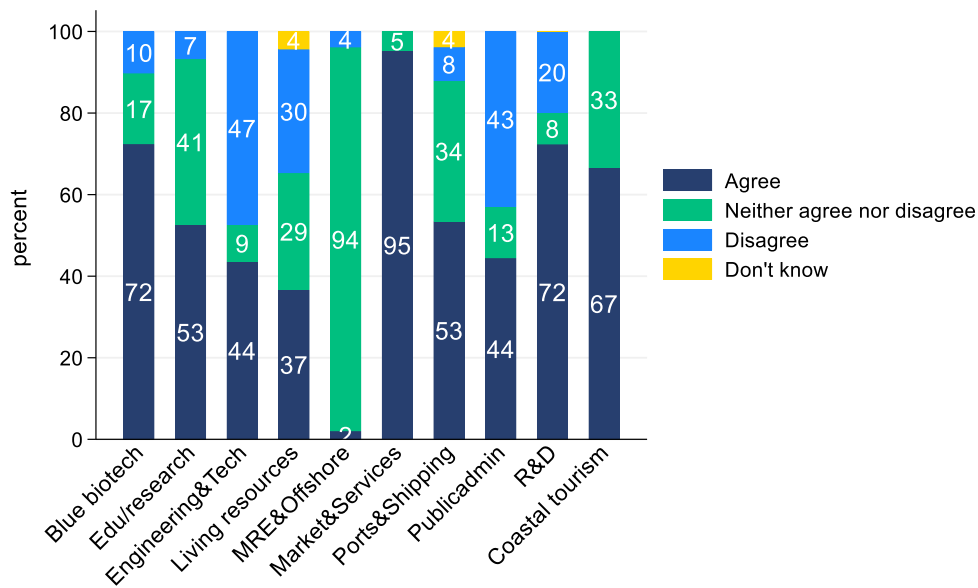
Given these factors, this section of the report documents respondents' views related to training, mentorship and career opportunities. Figure 23 shows the survey results for the broad question on access to the opportunities. Approximately half of respondents (51%) provided a positive answer. The percentage of positive responses is slightly higher among female respondents (53% of females), compared with male respondents (49%). At the same time, a higher percentage of females (27% versus 19%), disagreed with the availability of opportunities for their career aspirations.

Figure 23 North Sea Basin responses to the WIN-BIG Survey question: "I have access to the opportunities I need to support my career's aspirations."



Across the blue economy sectors (see Figure 24), we can observe a high percentage of negative responses in engineering and technology (47%), public administration (43%) and in living resources (30%). Another 20% in R&D and 10% in blue biotechnology disagreed with the statement about the availability of the opportunities to support their career aspirations. Coastal tourism and market & services are a small sample.

Figure 24 North Sea Basin responses to the WIN-BIG Survey question: "I have access to the opportunities I need to support my career aspirations: broken down by sectors."



When studying the emerging sectors, we can observe that 94% of respondents in the marine renewable energy sector chose “neither agree nor disagree” and 4% chose “strongly disagree/disagree” option. It is possible that the emerging sector of marine renewable energy is still perceived to be in development, and the employees are unsure about the available opportunities for their career growth. In the emerging sector of blue biotechnology, 17% of respondents chose “neither agree nor disagree”. A similar high percentage of a neutral response (34%) is observable in the traditional sector of ports and shipping. It is possible that, apart from the lack of opportunities, the employees might not be aware of the availability of existing opportunities.

It should be noted that, although in research or governance related sectors, there is a higher percentage of positive responses on the availability of opportunities, the percentage of negative responses should be acknowledged. For instance, in marine public administration, 43% of the respondents gave a negative and 13% neutral response. In research and marine education (third level), 7% chose “strongly disagree/disagree” options and 41% chose “neither agree nor disagree”. In R&D related to the marine 20% of respondents chose the negative response (see Figure 25).

Figure 25 North Sea Basin responses to the WIN-BIG Survey question: “I have access to the opportunities I need to support my career aspirations: breakdown of responses across types of organisations.”

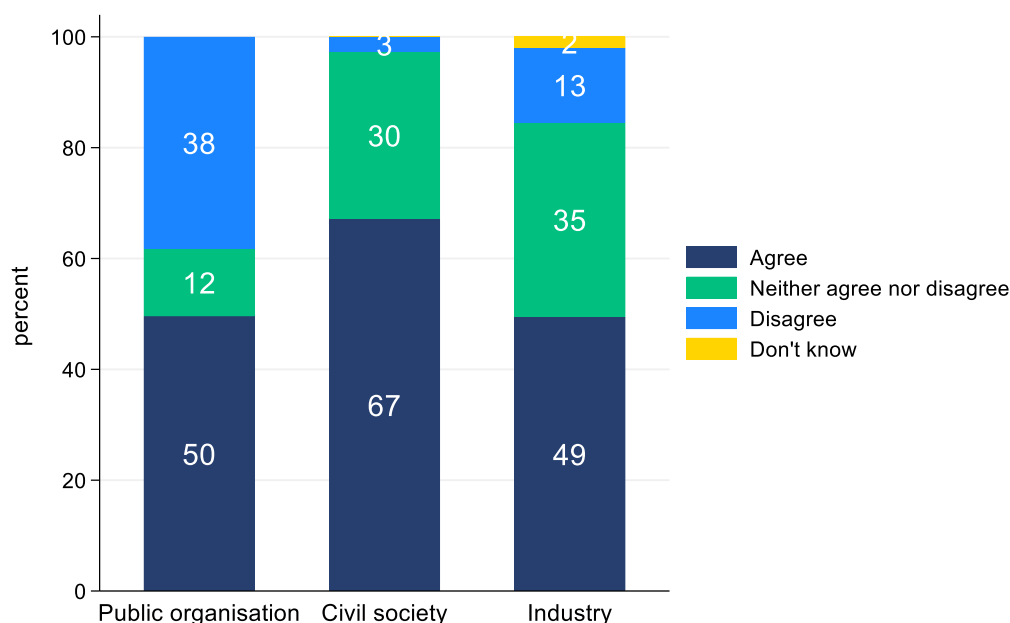
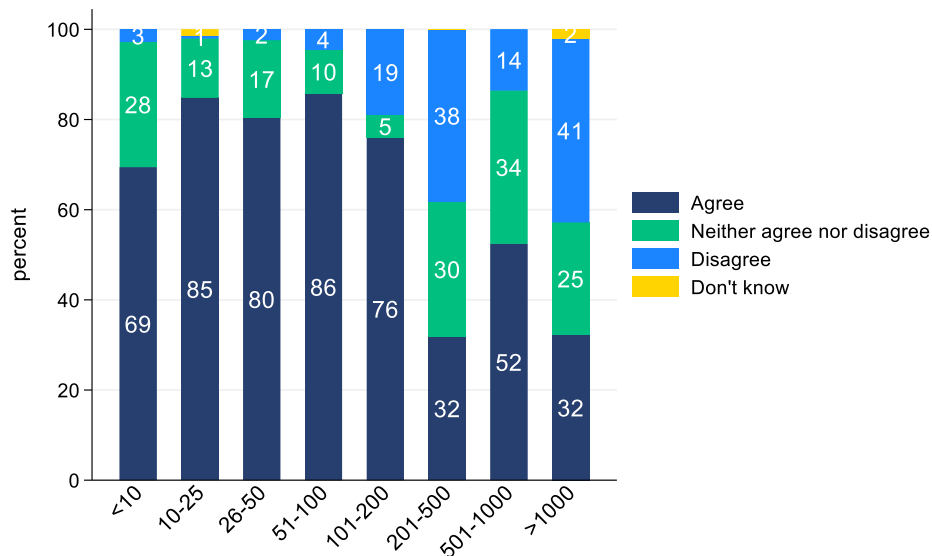


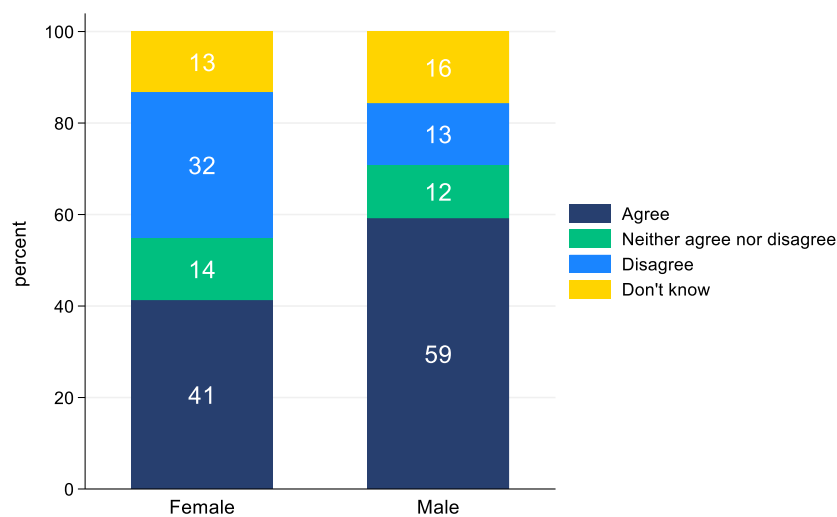
Figure 26 illustrates the availability of access to opportunities across the types of organisations. A higher percentage of negative responses is observed in public organisations (38%). Across organisations of different sizes (see Figure 25), a lower percentage of negative responses is observed in organisations with fewer than 10 employees, between 10 and 25 employees, or between 25 and 50 employees.

Figure 26 North Sea Basin responses to the WIN-BIG Survey question: “I have access to the opportunities I need to support my career aspirations: breakdown of responses across organisations of different size.”



A higher percentage of positive responses is observed in smaller organisations. Whereas, in organisations with 201-500 or more than 1,000 employees, the highest percentage of employees provided negative responses. Only 32% of respondents in these sized organisations agreed with the statement about access to the opportunities.

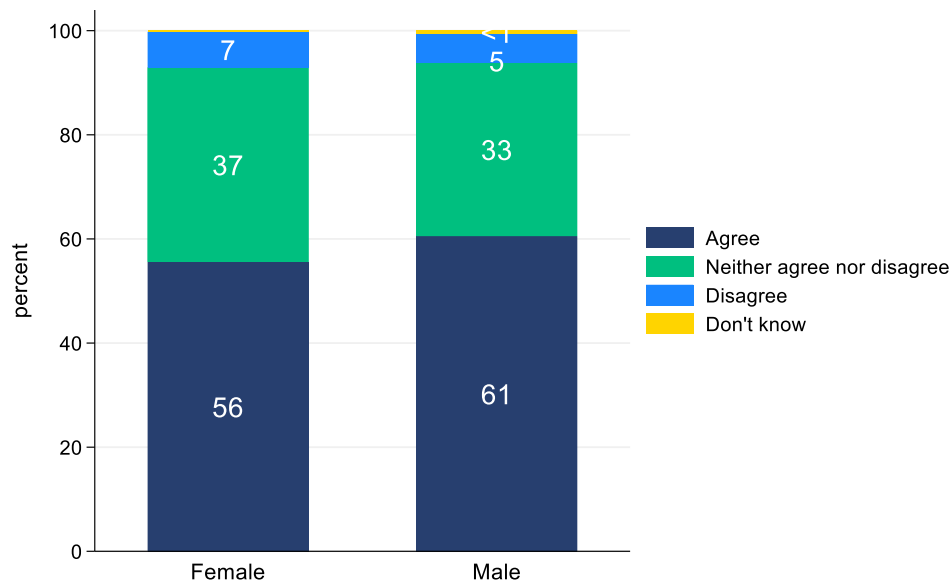
Figure 27 North Sea Basin responses to the WIN-BIG Survey question: “The process of applying for an internal vacancy is fair and transparent?”



As shown in Figure 27, almost half of female respondents (41%) agreed to the statement “The process of applying for an internal vacancy is fair and transparent”. Men are far more positive about

fairness and transparency (59%). Women express higher levels of disagreement (32% versus 13%), suggesting possible differences in experiences and perceptions of internal hiring across genders.

Figure 28 North Sea Basin responses to the WIN-BIG Survey question: “I have access to the training I need to support my career aspirations.”



In total, 58% of respondents agree with the statement “I have access to the training I need to support my career aspirations” (Figure 28). There is a small difference in the percentage of positive responses between male and female respondents (56% female and 61% male). Among both female and male respondents, over a third (37% female and 33% male) remain neutral, which reveals that they might not be aware of available training opportunities. Slightly a higher percentage of women disagree that training access exists (7% females versus 5% males).

On the other hand, regarding the assertion, “I have access to the mentoring (formal or informal) I need to support my career aspiration”, the majority of respondents (62%) affirmed this view. A higher percentage of women (70%) agreed that they have access to the mentoring they need for their career aspirations, compared to 54% of male employees. Males show more neutrality (30%) than females (17%), indicating slightly more uncertainty about mentoring availability or effectiveness (Figure 29).

Figure 29 North Sea Basin responses to the WIN-BIG Survey question: “I have access to the mentoring (formal or informal) I need to support my career aspirations.”

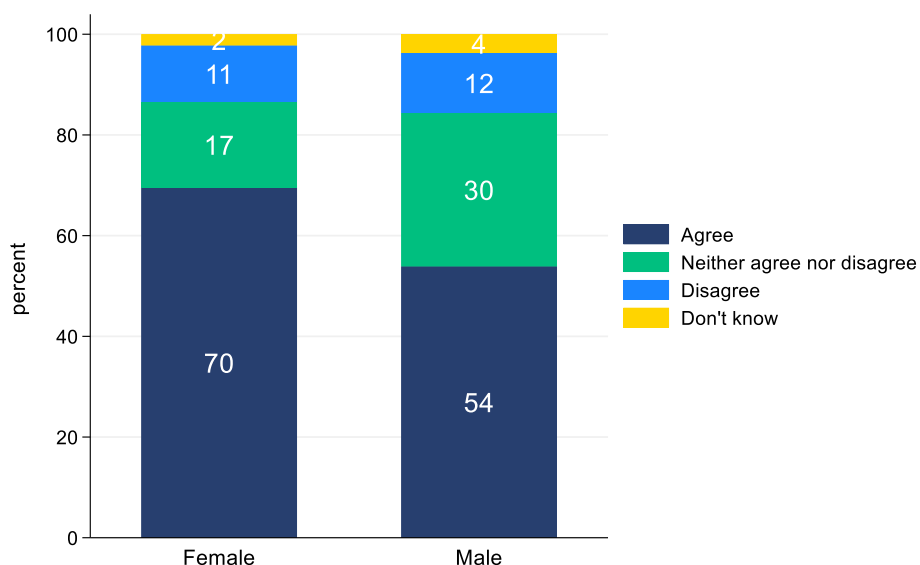
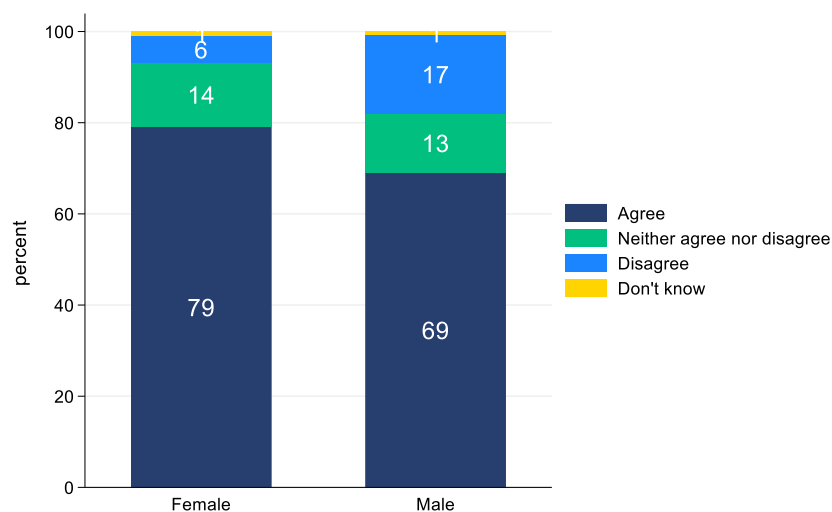


Figure 30 North Sea Basin responses to the WIN-BIG Survey question: “My direct supervisor supports my career aspirations.”



As shown in Figure 30, the majority of respondents (75%) reported agreement with the statement “My direct supervisor supports my career aspirations”. A notably higher percentage of female respondents (79%) feel more supported than male respondents (69%). On the other hand, a higher percentage of males (17%) chose strongly disagree/disagree option, compared to 6% of female employees. There is almost no difference in the neutral response option among the genders, as 14% of female and 13% of male respondents selected “Neither agree nor disagree”. The higher disagreement among males shows more dissatisfaction about the communication with their supervisors regarding their career aspiration.

Table 7 summarizes the biggest challenges to progression respondents have faced in pursuing a career in their industry. Respondents ranked top four where 1 is/was the biggest challenge and 4 is/was the fourth biggest¹⁴.

Table 7 North Sea Basin responses to the WIN-BIG Survey question: "What are/were the biggest challenges to progression you have faced in pursuing?"

Challenges	Percentage
Ranked 1 st : Lack of promotion opportunities	68%
Ranked 2 nd : Position requires travel	68%
Ranked 3 rd : Market forces & competition	40%
Ranked 4 th : Lack of organizational support	23%

Nearly 70% of respondents identified a lack of promotion opportunities as the primary barrier to their career progression. Interestingly, travel requirements were ranked as the second biggest challenge. Market forces & competition followed as the 3rd key concern, followed by lack of support (23%).

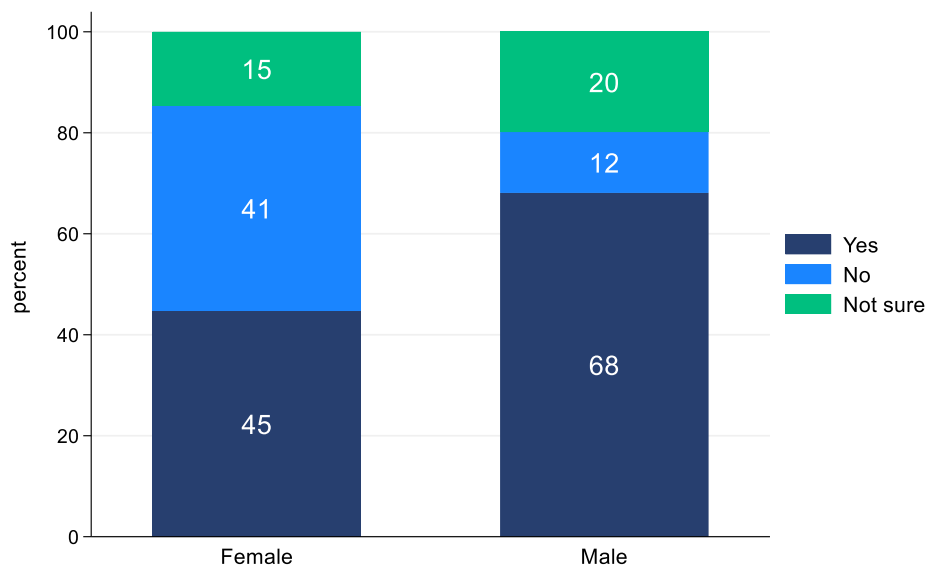
¹⁴ Following choices were available in the survey: lack of education/training, lack of support, lack of promotion opportunities, position requires travel, gender discrimination, family commitment, lack of relevant experience, work-life balance, market forces & competition, other reason (please state).

GENDER BIAS POLICIES AND FRAMEWORKS IN THE WORKFORCE

To identify the prevalence and use of policies that might support gender equality, the survey also asked respondents about the existence of formal organization/firm policies and rules for gender balance in hiring and career promotion, or the existence of internal gender plans at their workplaces. Gender parity laws on Boards of Directors, incorporation of gender mainstreaming into policies, policies on work-life balance are recognized factors that can promote gender equality (Alonso Gallo and Gutiérrez López, 2023; Casey, Skibnes and Pringle, 2011).

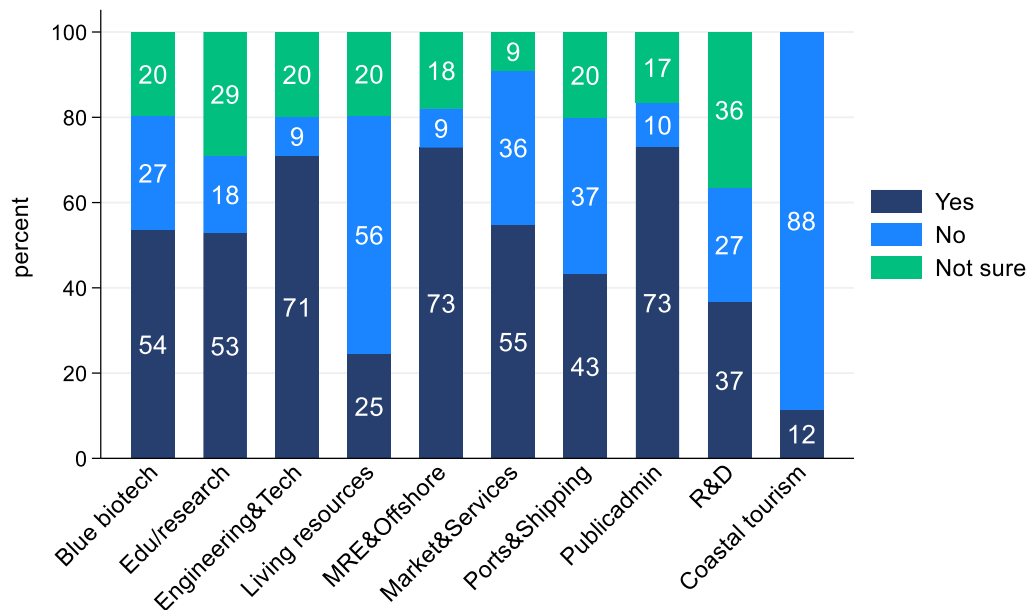
When asked about the presence of formal strategies or policies related to gender balance in hiring in their firm, 54% of respondents answered ‘Yes’, 29% said ‘No’, and 17% were not sure.

Figure 31 North Sea Basin responses to the WIN-BIG Survey question: “Does your firm/organisation has a strategy or formal policy related to gender balance in hiring processes?”



There is a difference in the responses among female and male respondents (see Figure 31). Slightly less than half of the female respondents (41%) answered that their organisation does not have a policy/strategy related to gender balance in hiring processes in contrast to 12% of male respondents. A high percentage of negative responses by female respondents indicates that the hiring process remains less equitable. Noteworthy, slightly higher percentage of male respondents (20%), compared to 15% of females were not sure whether their organisation has a strategy/policy on gender balance in hiring.

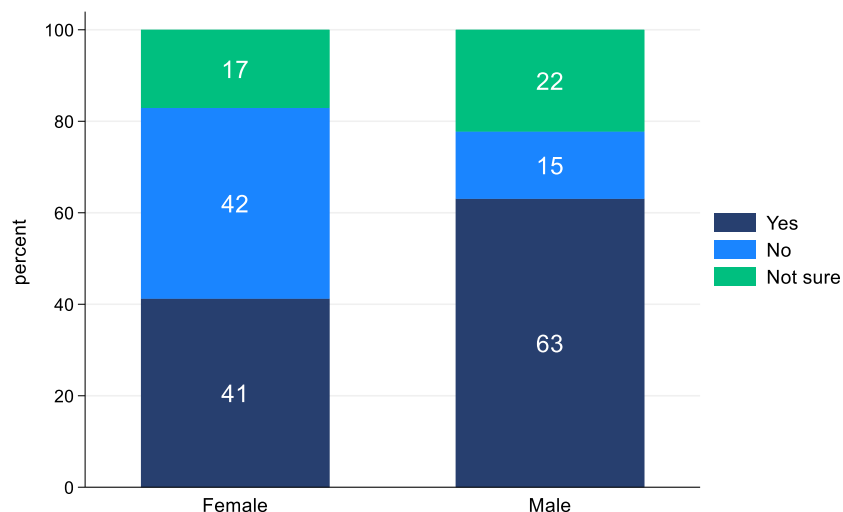
Figure 32 North Sea Basin responses to the WIN-BIG Survey question: “Does your firm/organisation has a strategy or formal policy related to gender balance in hiring processes? (Broken down by sector)”



Across the blue economy sectors (see Figure 32), a high percentage of employees working in living resources (56%), ports and shipping (37%), blue biotechnology (27%) and R&D related to the marine (27%) markets and services (49%) and living resources (36%) answered that their organisation does not have a policy related to gender balance in hiring. The percentage of respondents who chose “not sure” option is high in R&D (36%) and in education and research (third level) (29%). The sample of coastal tourism and market & services is small.

Figure 33 displays the results on whether respondents’ organisations had a formal gender policy/plan.

Figure 33 North Sea Basin responses to the WIN-BIG Survey question: “Does your firm/organisation have a formal gender policy/plan?”



In total, 31% of respondents reported that their organisation does not have a formal gender policy or plan. There is a noticeable variation in responses by gender: slightly less than half of female respondents (42%) indicated that their organisation lacks a gender policy, compared to only 15% of male respondents. Two possible explanations can be considered. First, men may be less aware of existing gender inequalities and therefore assume that appropriate gender policies are in place. Second, men might perceive that women are more favourably treated than how they actually are in reality. At the same time, a bit higher percentage of men (22% versus 17%) were not sure about the existence of formal gender policy plan at their organisations.

Across the blue economy industries (see Figure 34), 36% of respondents in ports and shipping, 26% in living resources and 21% in R&D reported that their organisation does not have a formal gender policy plan. High percentage of uncertainty about its existence are found in living resources (50%), blue biotechnology (39%) and in R&D (39%). Market and services and coastal tourism represent a small sample. The absence of gender policies may have a negative impact on the career growth of female employees.

Figure 34 North Sea Basin responses to the WIN-BIG Survey question: “Does your firm/organisation have a formal gender policy/plan? (broken down by sector)”

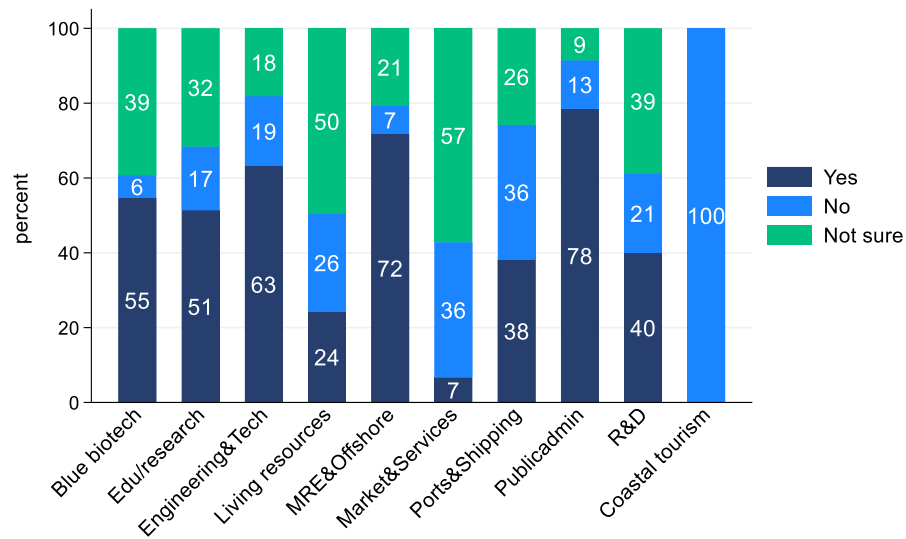
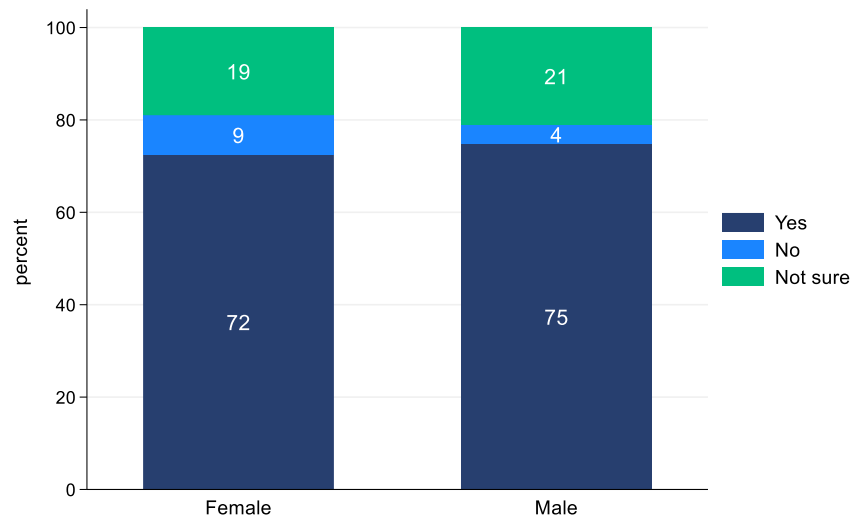


Figure 35 North Sea Basin responses to the WIN-BIG Survey question: “Does your firm/organisation formally or informally support the promotion and advancement of women?”



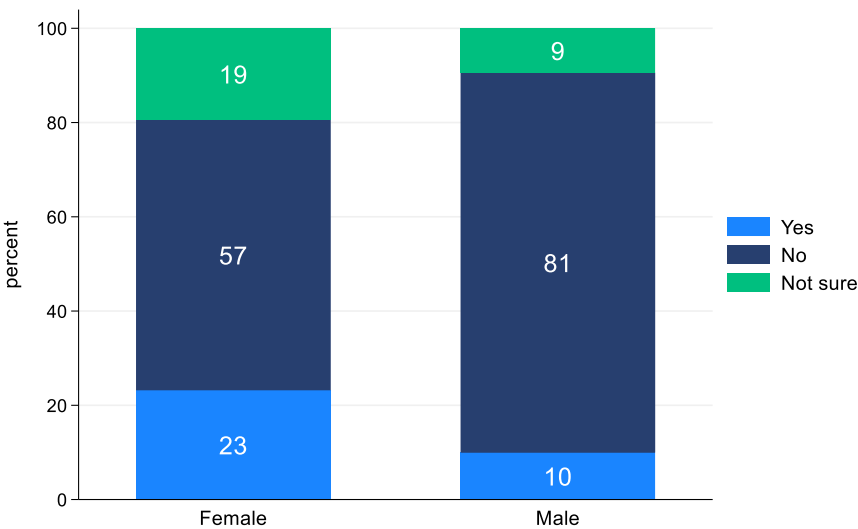
When questioned about the existence of formal or informal support to the promotion of women, responses were similar across genders. As shown in Figure 35, 72% of female respondents and 75% of male respondents perceive their organisation as supportive of women’s career growth. Only 4% of men said “No”, compared to 9% of women. This disparity suggests that some women may not fully trust the organisation’s commitment to their advancement. Uncertainty from 19-21% of respondents (both male and female) also suggests a lack of clarity or visibility around what specific support exists and how it is applied in practice for these respondents.

PERCEPTION OF BARRIERS

Similarly to the analysis of perceived opportunities, the WIN-BIG survey also asked respondents about their perception of barriers to career progression within their organisations/firms and across industries and sectors. This section also presents the results on whether the respondents' companies have female managers and role models.

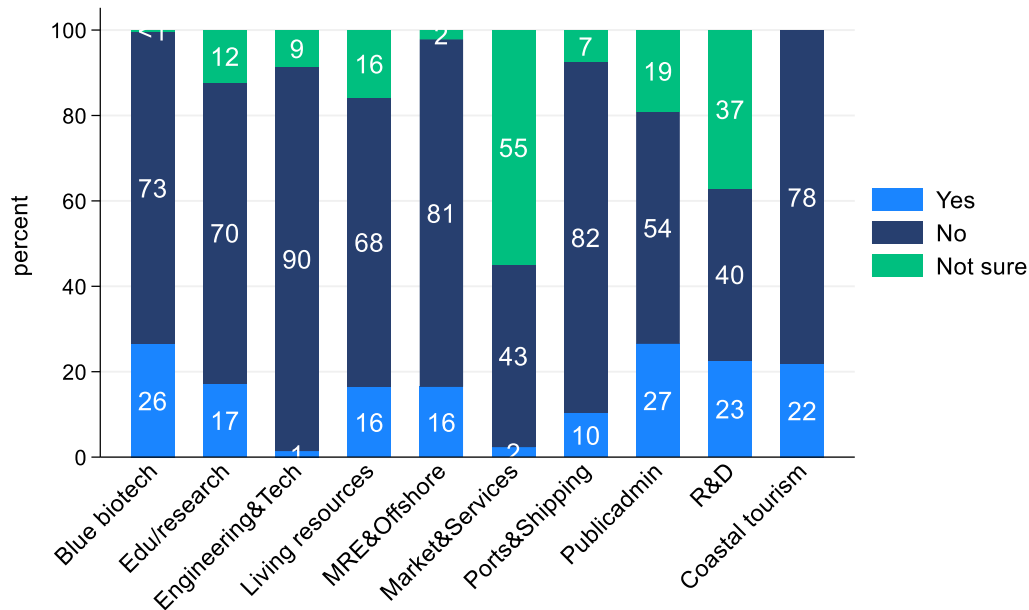
According to Turesky and Warner (2020) companies with female-managers have greater gender sensitivity, more flexible work-life benefits and perceived equal opportunities. An increased of share of female top managers is also associated with subsequent increases in the share of women in midlevel management positions (Kurtulus and Tomaskovic-Devey, 2012). Studies also find that female role models reduce stereotype threat and positively impact women's career-related engagement (Cortland and Kinias, 2019; Sealy and Singh, 2010).

Figure 36 North Sea Basin responses to the WIN-BIG Survey question: "In your opinion, do barriers exist preventing women being promoted to senior positions in your firm/organisation?"



As shown in Figure 36, around 18% of respondents answered that there are barriers preventing women being promoted to senior positions. A higher percentage of females 23% answered that "yes" there are barriers, compared to 10% of male employees. Additionally, a higher percentage of women (19 female versus 9% male) were not sure about the existence barriers to reach senior positions.

Figure 37 North Sea Basin responses to the WIN-BIG Survey question: “In your opinion, do barriers exist preventing women being promoted to senior positions in your firm/organisation? (broken down by sector)”



When studying the question across the blue economy sectors, we can observe that a large proportion of respondents in the public administration (27%) and in blue biotechnology (26%) reported that barriers exist preventing women from being promoted to senior positions. This was followed by 23% in marine-related R&D and 17% in research and higher (third level) marine education (see Figure 37). The sample of coastal tourism and market and services is small.

Figure 38 presents the breakdown of the question on barriers by the type of organisation and firm size. Across the types of organisations, a higher percentage (27%) of employees in public administration think that there are barriers for females being promoted to senior positions, compared to employees in civil society and industry.

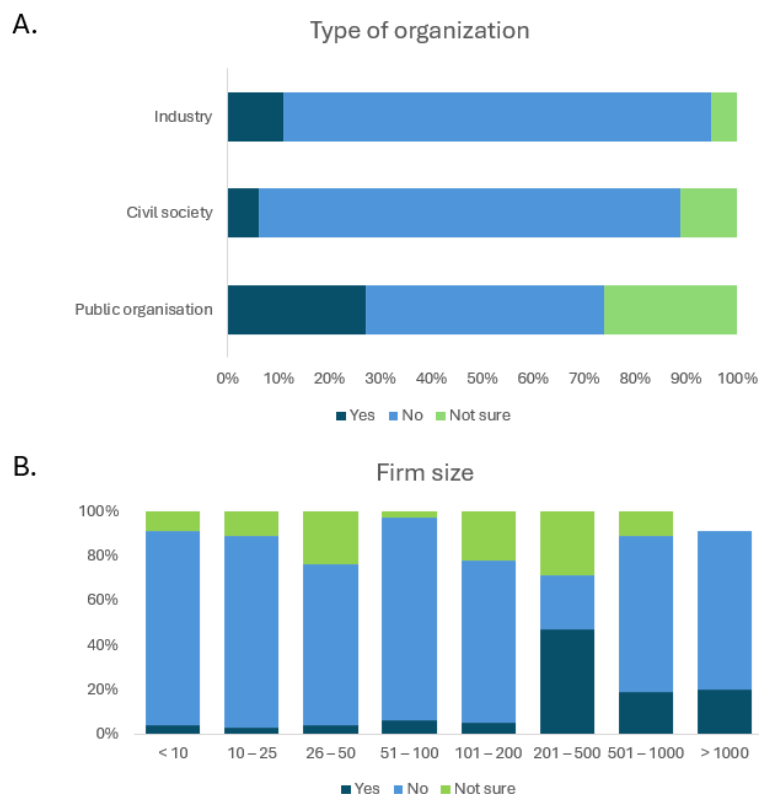
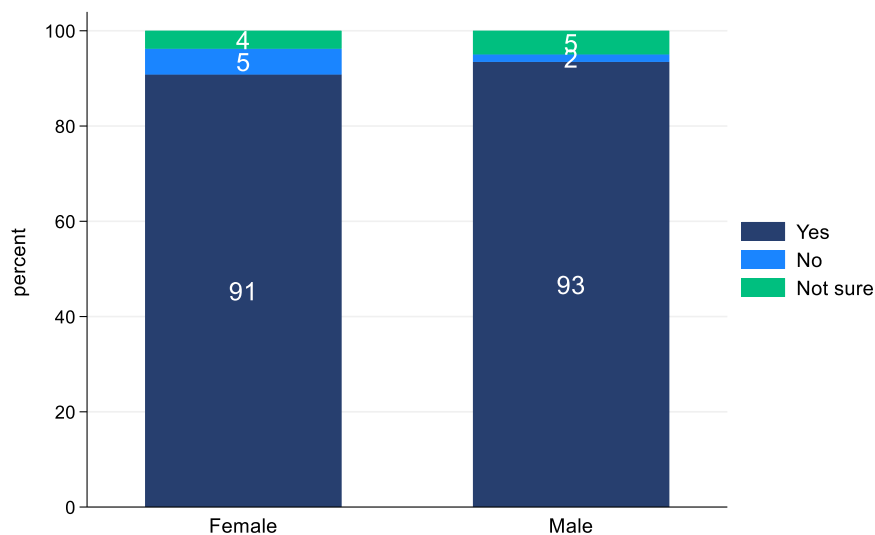


Figure 38. North Sea Basin responses to the WIN-BIG Survey question: “In your opinion, do barriers exist preventing women being promoted to senior positions in your firm/organisation?” (broken down by type of organisation and firm size)” (broken down by type of organisation (A) and firm size (B))

When studying the size of the organisations, we can observe that in firms that have 201-500 or >1000 employees, the percentage of respondents who think there are barriers is 47% and 20% respectively. On the contrary, in smaller scale firms, the percentage of negative responses is low, ranging from 3 to 6 %.

When assessed from a different perspective, on whether respondents’ organisations include women in managerial positions, approximately, 92% of respondents mentioned that they have a woman manager in their organisations (with almost no gender difference in responses). Figure 39 illustrates this result.

Figure 39 North Sea Basin responses to the WIN-BIG Survey question: “Do you have any women managers in the firm/organisation?”



This is an interesting result, given that women are underrepresented in certain blue economy industries, especially at senior levels. Figure 40 shows that the lowest percentage of those who answered that they have female managers work in living resources (82%), ports and shipping (88%), and in public administration (87%).

Figure 40 North Sea Basin responses to the WIN-BIG Survey question: “Do you have any women managers in the firm/organisation? (broken down by sector)”

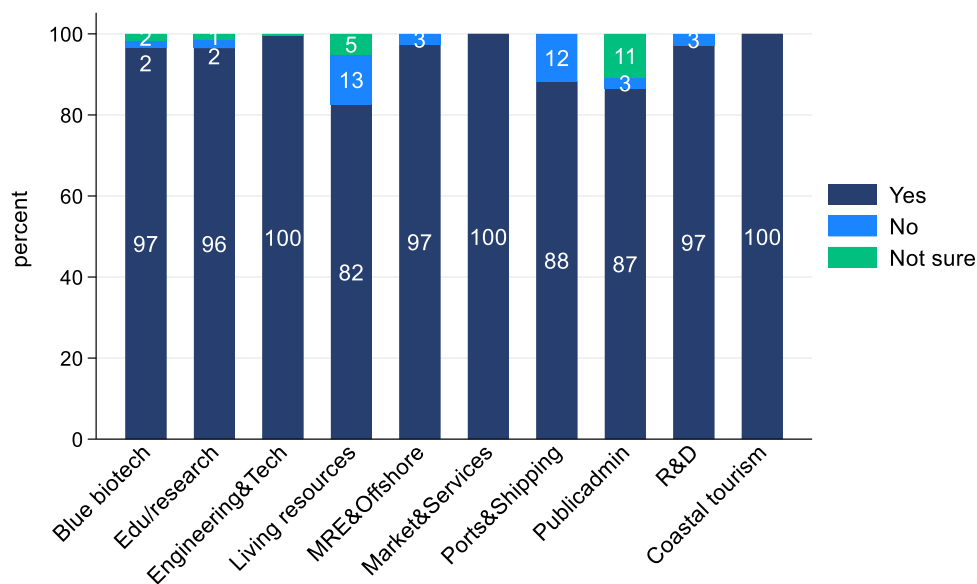


Figure 41 presents the question on whether the employees have women managers broken down by type of organisation and firm size. Across the type of organisation, the percentage of employees who said that they do not have female managers is the highest (11%) among those working in civil society organisations. The variation is not high across the firm sizes. The lowest percentage of those who answered that they have a female manager is in firms with less than 10 employees (78%) and in firms with 201-500 employees (72%).

Figure 41. North Sea Basin responses to the WIN-BIG Survey question: “Do you have any women managers in the firm/organisation? (broken down by organisation type(A) and firm size(B))”

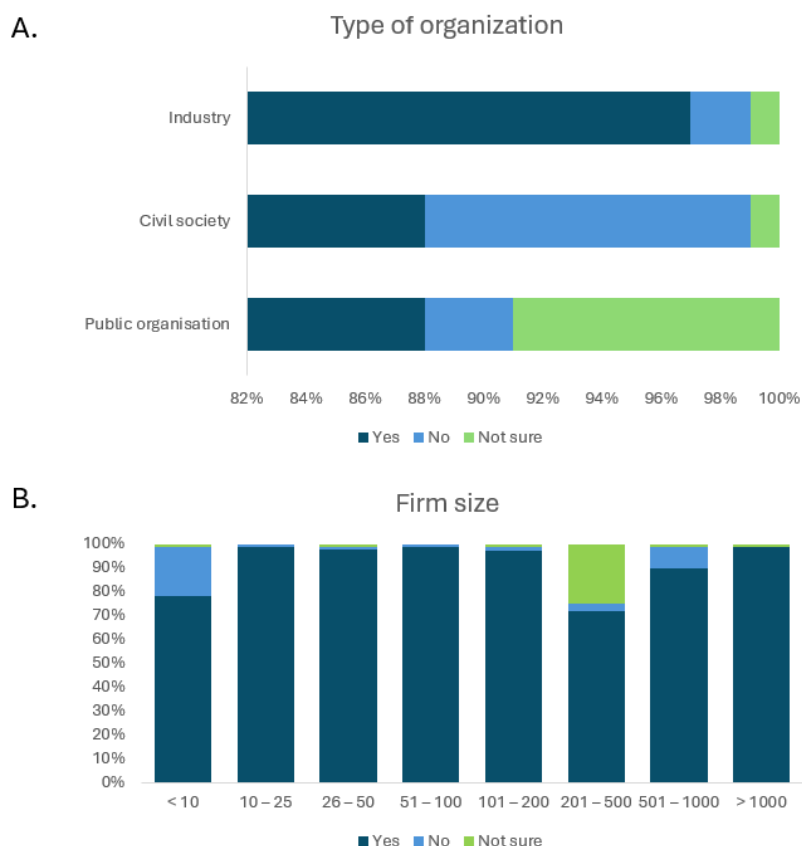
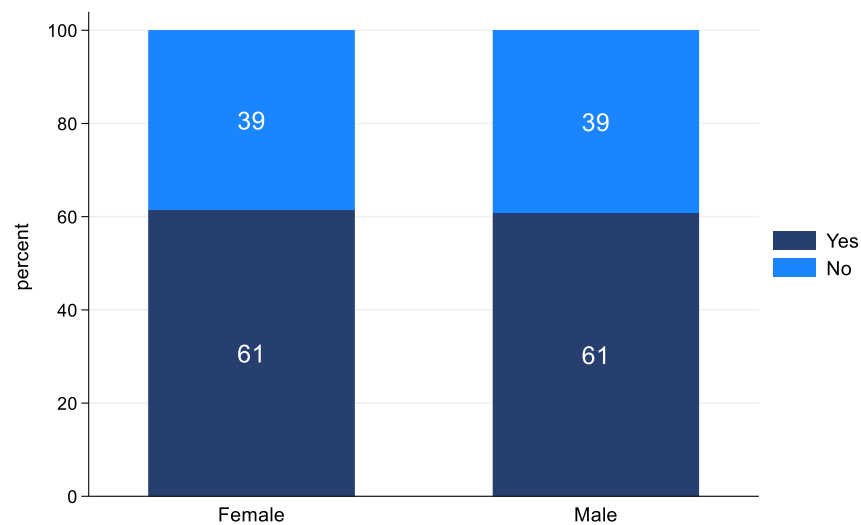


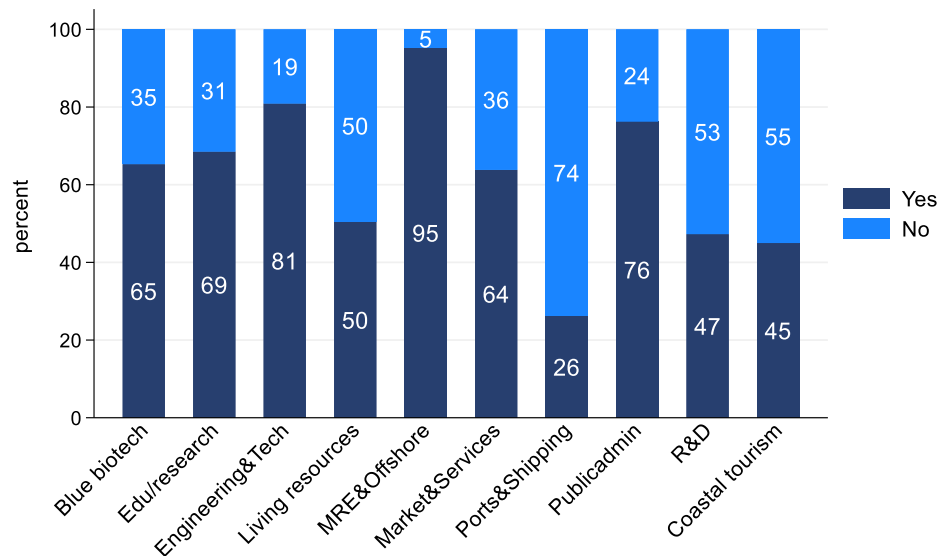
Figure 42 North Sea Basin responses to the WIN-BIG Survey question: “Do you personally have any women role models in the firm/organisation?”



Compared to the question on female managers, a more negative responses are observable when it comes to the presence of female role models across organisations (Figure 42). There is no difference between male and female respondents regarding this question. In total, 61% of respondents answered that they have a female role model at their workplace. While, this percentage represents more than half of the sample, still a significant portion of the respondents (39%) said that they do not have female role models. This is most likely due to the underrepresentation of women in blue economy organisations. It may be the case that while some female managers exist within the organisations, they may not actively act as role-models to employees or there may be too few to play this role.

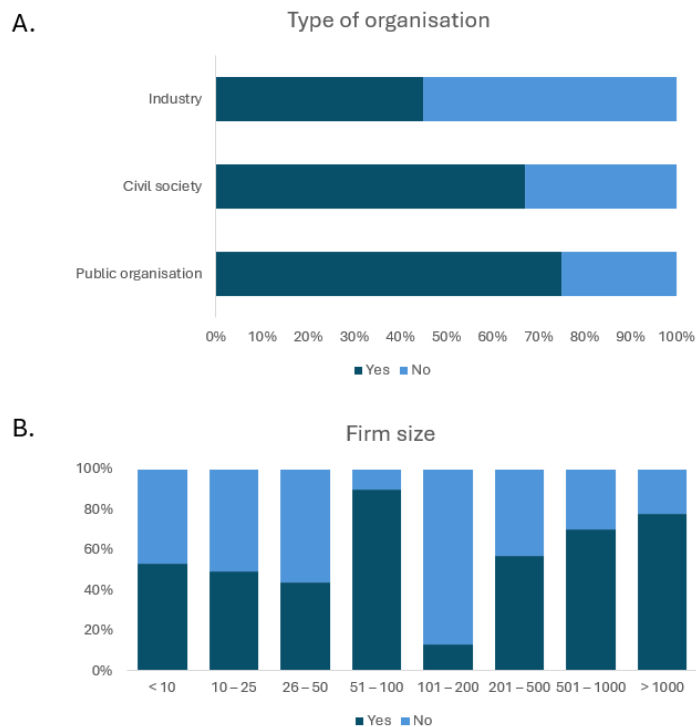
As shown in Figure 43, 74% of respondents in ports and shipping answered that they do not have a female role model, a sector where women are underrepresented. This percentage is also high among the employees in R&D (53%). In living resources half of the respondents answered that they do not have female role models. The sample of coastal tourism and market and services is small.

Figure 43 North Sea Basin responses to the WIN-BIG Survey question: “Do you personally have any women role models in the firm/organisation? (broken down by sector)”



Across the types of organisations, a higher percentage (55%) of employees in industry answered negatively compared to those working in public organisations or civil society (Figure 44).

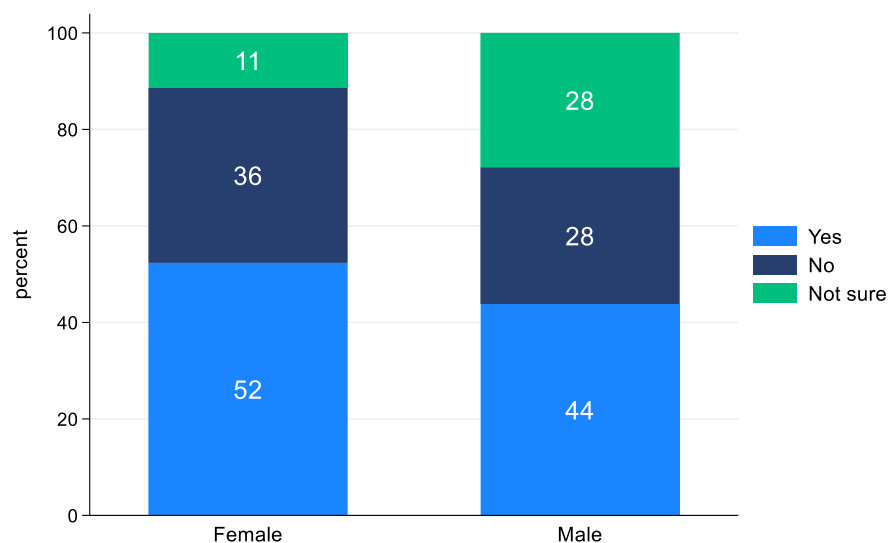
Figure 44. North Sea Basin responses to the WIN-BIG Survey question: “Do you personally have any women role models in the firm/organisation? (broken down by organisation type(A) and firm size(B))”



By studying the answers across the different firm sizes, it can be seen that a higher percentage of employees in larger organisations seem to have female role models. For example, in organisations with over 1000 employees, 78% of respondents answered they have a women role model, while in smaller companies with less than 10 employees or between 10 to 25 employees, the percentage of respondents who have women role models was 53% and 49% respectively

WIN-BIG investigated whether the social structures in place in each member state are perceived to impact the progress of gender equality.

Figure 45 North Sea Basin responses to the WIN-BIG Survey question: “Does the social structures in the country where your firm is based (the norms/patterns of relations between family, religion, economic, political and education institutions of the society) impact on the achievement of gender equality in your industry?”



Almost half (49%) of respondents believe that social structures in the country where their firm is based (the norms and patterns of relations between family, religion, economic, political and education institutions of the society) impact the achievement of gender equality in their industry. Of note, a higher percentage of female respondents indicated that social structures impact gender equality: 52% of women versus 44% of men (see Figure 45). This variation suggests that women may perceive that the role societal norms has a greater impact in shaping gender inequalities.

Respondents were also given opportunities to provide qualitative feedback regarding their experiences. One question related to factors that they perceived hindered career progression.

In blue biotechnology (the target sector of the WIN-BIG project, and also an emerging field), most often the respondents mentioned lack of work-life balance, and experience gap after the return from carer’s leave. They also referred to the concept of the glass ceiling in their industry, which literature defines as the presence of structural impediments, such as discrimination and gender bias, that do not allow women to gain access to top positions (e.g. Krambia Kapardis, Mavrikiou and Symeou, 2025; Purcell, Rhea MacArthur, and Samblanet, 2010). Respondents also made a reference to the idea of “leaky pipeline” which is defined by the scholarship as a phenomenon where higher

number of females leave their industry that men (Auriol, Friebel and Wilhelm, 2020). Respondents mentioned that blue biotechnology is a male-dominated sector, with low number of female leaders who chose employees within their own networks.

Lack of females in leadership positions and decisions made by men was also mentioned by employees working in marine renewable energy industry (emerging industry). Here, one of the respondents also noted about the need to work offshore, and another respondent wrote that the industry is an emerging sector and lacks cultural evolution: it rather inherited the historical masculine environment.

In the traditional shipping industry, it was frequently noted that females still present a small number of the workforce and superiors on the vessel might be biased and block any promotion of women.

In traditional living resources, skills and requirement of being offshore was noted. Apart from the image of men's club in fisheries that was noted by one of the respondents, in aquaculture, respondents noted they need technical and practical skills, and some positions require being offshore.

As for the research and education industries related to the marine, the respondents noted lack of entry level opportunities in education related to the marine (third level) industry and the required long work hours and overload of work. In Research and development, respondents frequently mentioned that their organisations have inflexible working patterns, they lack work-life/family balance.

FEMALE PERCEPTIONS OF GENDER INEQUALITIES

In this section of the survey, female only respondents were invited to respond to questions related to the gender pay gap, their perceptions of whether they are treated equally to men in the workplace and whether they have the same promotion opportunities as men. Equal treatment at work, equal pay and opportunities are fundamental principles of EU law (Guerrero Padrón et al, 2023). Most EU countries prohibit gender discrimination by law and have enacted specific equal treatment legislation (Böök, 2021). Nevertheless, studies note that the gender wage gap still remains a problem (Hedija, 2017; Lausi *et al.*, 2021; Segovia-Pérez, 2019, Landmesser et al., 2019).

Figure 46 North Sea Basin responses to the WIN-BIG Survey question: “Do you feel you are treated the same as men in your workplace?”

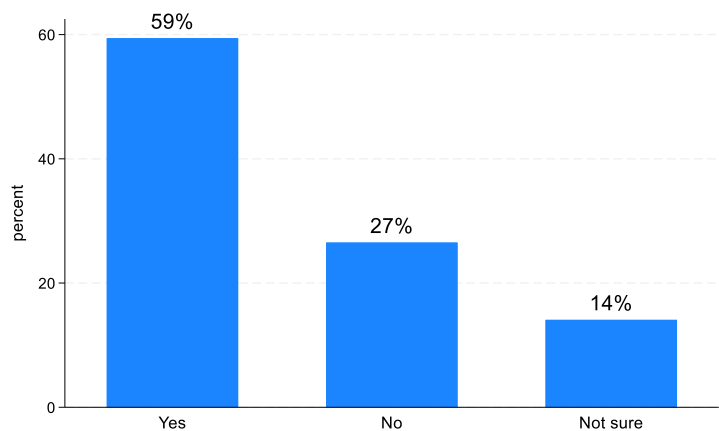


Figure 46 shows female respondents’ perceptions of whether they feel they are treated the same as men in their workplace. In total, 41% of female respondents reported that they do not feel (27%) or are unsure (14%) they received the same treatment as their male colleagues in the workplace. Respondents who gave a negative answer were able to explain why they felt that way and similar patterns emerged within certain industries. For instance, in marine-related R&D one of the respondents noted that when doing a field work, women are treated as less knowledgeable and are not provided a right sized personal protective equipment. Women also face difficulties combining fieldwork with childcare. In shipping gender pay gap was mentioned. Similar thoughts were noted in marine renewable energy: it was mentioned that females have low salaries and that females are not considered for management positions, while male colleagues with less experience are considered for the promotion. Both in R&D related to the marine and in marine robotics, the respondents noted that men’s opinion is easier accepted and male colleagues take females’ ideas and present them as their own.

Figure 47 North Sea Basin responses to the WIN-BIG Survey question: "If you are treated differently, how often does this happen?"

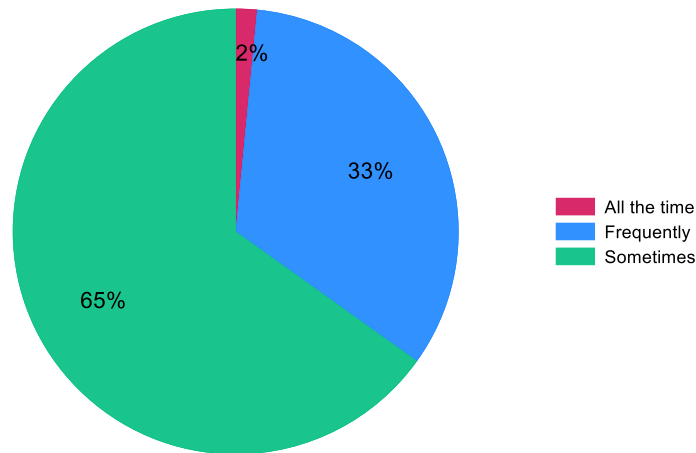
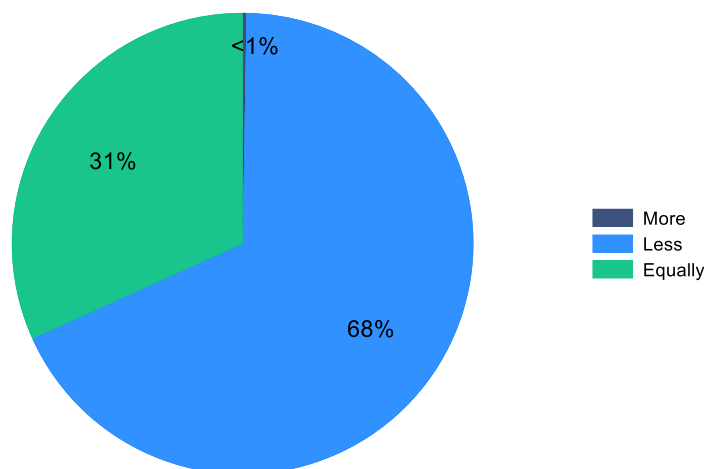


Figure 47 is an extension of the question regarding the perception of being treated the same as men. This question was not mandatory and includes a sample of 90 responses. It illustrates the frequency with which women perceive being treated differently: more than half of females (65%) of the sample reported experiencing occasional unequal treatment, while 33% of female respondents in the sample expressed that it occurs frequently. The high combined share (98%) indicates that such experiences are not isolated occurrences but rather recurring aspects of workplace interactions towards women.

Figure 48 North Sea Basin responses to the WIN-BIG Survey question: "In comparison with your male counterparts do you feel that you have more, less, or equal promotion opportunities in your industry?"

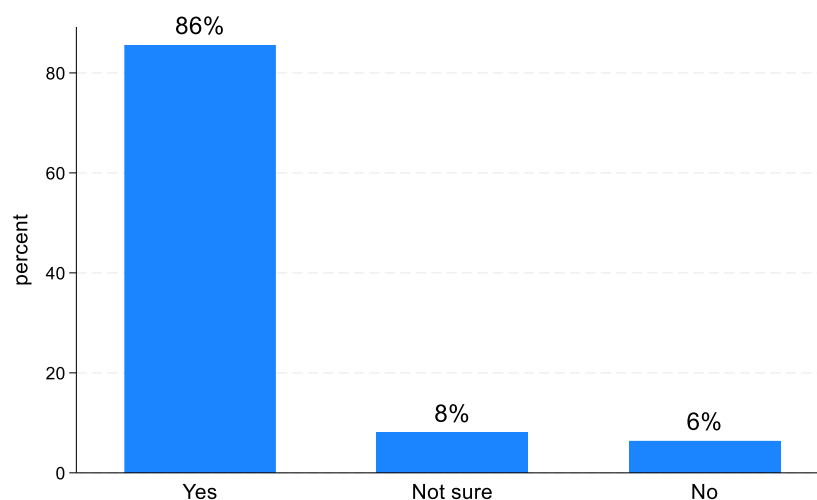


Examining the promotion opportunities available to women compared to their male counterparts, noteworthy that 68% of females think they have less opportunities in their industry, while only 31%

feel that they have equal promotion opportunities (see Figure 48). This high percentage of female respondents who feel they have less opportunities shows that female employees might be in a disadvantaged position. Imbalanced opportunities available to men and women may slow down their career progression and lead to a lower number of women in senior roles.

Noteworthy, that despite a negative perception of opportunities for females, respondents are more positive about the change over time in the attitudes and behaviour towards women in their industry.

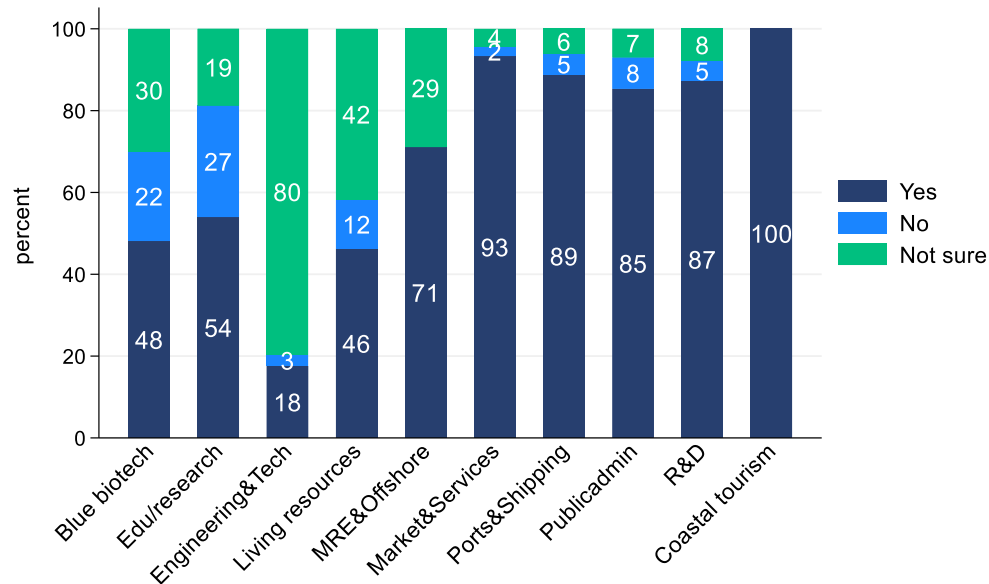
Figure 49 North Sea Basin responses to the WIN-BIG Survey question: “Do you feel that attitudes and behaviour towards women in your industry have changed for the better during your career?”



Overall, 86% of female respondents think that attitudes and behaviour towards women in their industry have changed for the better during their career. However, 8% of women employees answered that they are not sure and 6% stated that that attitudes and behaviour towards women in their industry have not changed for the better during their career (see Figure 49). This suggests that while most women perceive progress in gender-related attitudes, some women remain uncertain about the extent of this change or do not see it in their particular industry.

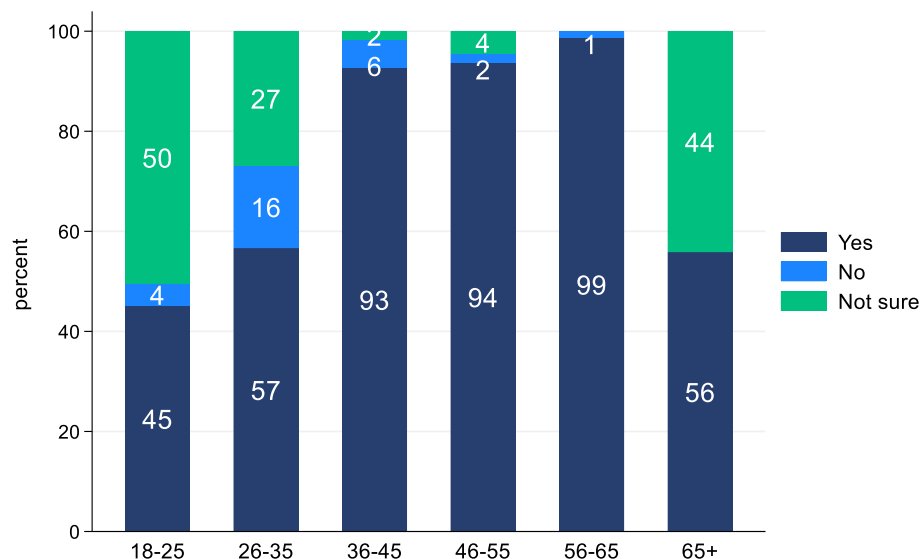
In the research and education related to the marine and in blue biotechnology sector, the highest percentage of female employees (63%) answered that they do not think that attitudes and behaviour towards women in their industry have change for the better during their career (27% and 22% respectively) In living resources the negative percentage of responses is 12% (see Figure 50). Noteworthy that in these sectors, the percentage of respondents who are not sure about the positive change is also high, ranging from 19 to 42%. While overall, females provided a positive response to the changes of attitudes and behaviour in most sectors, the example of the emerging sector of biotechnology shows that the process of change is not easy. The high percentage of “not sure” in the living resources sector also shows that it might be difficult to observe positive changes in traditional sectors as well.

Figure 50 North Sea Basin responses to the WIN-BIG Survey question: “Do you feel that attitudes and behaviour towards women in your industry have changed for the better during your career? (broken down by sector)”



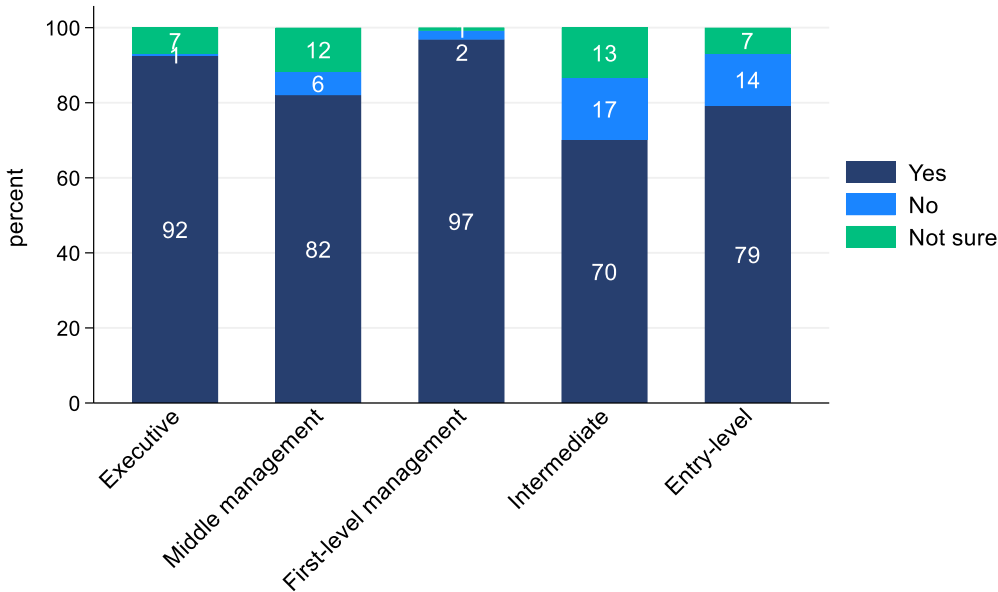
When studying the personal background of the respondents and the question on the change in the attitudes (Figure 51), we can observe that half of female employees aged between 18-25 were unsure about the positive change towards women in their industry. Among female respondents aged between 26-35, 16% of respondents answered that attitudes have not changed for the better and 27% were not sure. This result illustrates that the percentage of respondents who were unsure or chose the negative answer is high among younger employees who had less time to observe change during their career. The sample of the respondents aged between 56-65 and 65+ is small.

Figure 51 North Sea Basin responses to the WIN-BIG Survey question: “Do you feel that attitudes and behaviour towards women in your industry have changed for the better during your career? (broken down by age)”



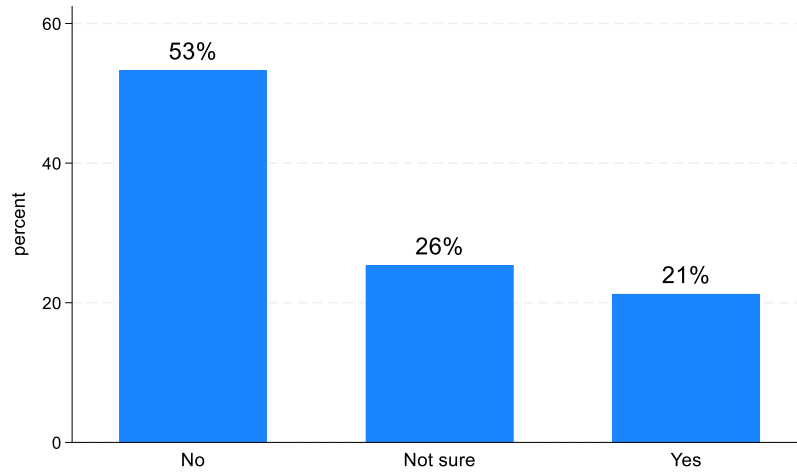
Across the female respondents according to their employment level (Figure 52), it is observable that lower percentage of females occupying entry-level (79%) or intermediate (70%) positions think that the attitudes and behaviour towards women have improved during their career, compared to the percentage of female employees in the executive (92%) and middle management (82%).

Figure 52 North Sea Basin responses to the WIN-BIG Survey question: “Do you feel that attitudes and behaviour towards women in your industry have changed for the better during your career? (broken down by employment level)”



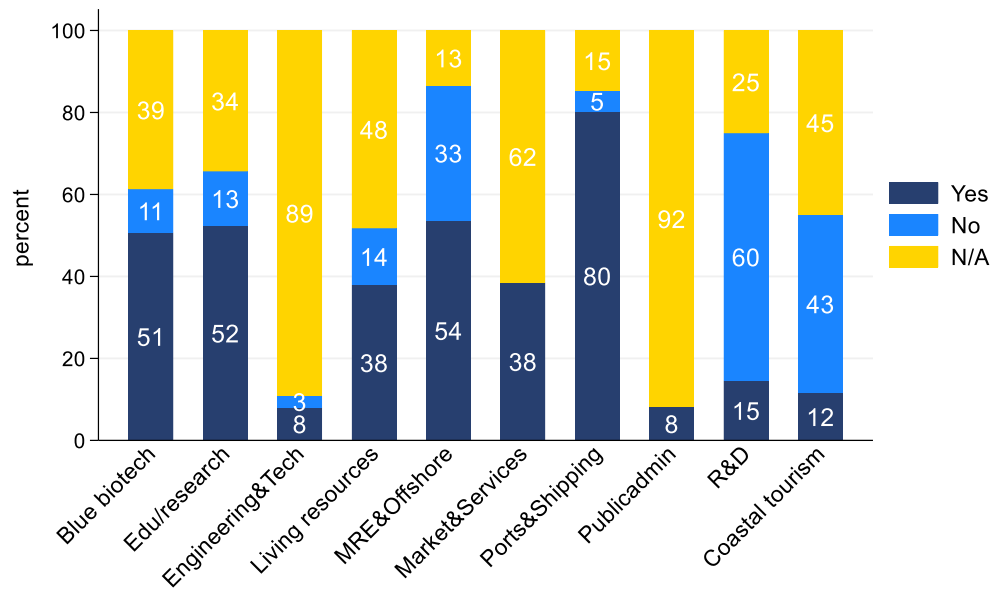
In terms of gender pay-gap, approximately, 47% of female respondents are unsure or believe they are paid less than their male colleagues doing the same job (Figure 53). The 21% of negative responses illustrates the ongoing gender pay gap, a topic frequently debated in the scholarship and by policymakers. At the same time, the 26% of unsure responses suggests that salary and payment information is likely non-transparent or undisclosed at the company level.

Figure 53 North Sea Basin responses to the WIN-BIG Survey question: “Do you think you are currently being paid less than your male colleagues, doing the same job, in your industry?”



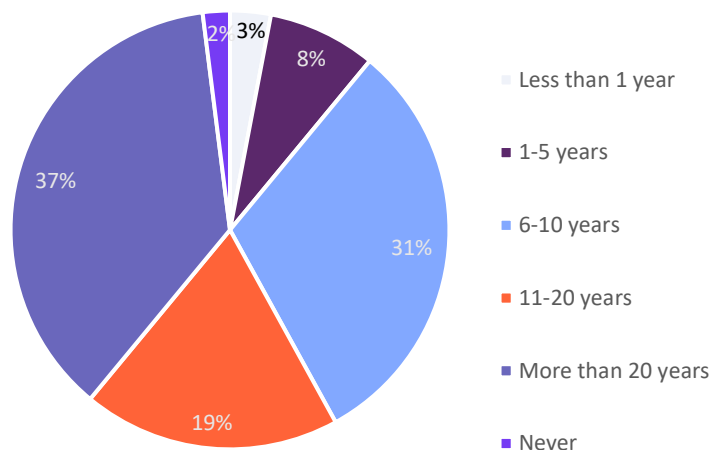
The survey also addressed the question about the provision of right equipment for female employees across the blue economy sectors (see Figure 54). The highest percentage of negative responses is observable in R&D (60%) and living resources (14%). The sample of marine renewable energy, market and services and coastal tourism is small in this question.

Figure 54 North Sea Basin responses to the WIN-BIG Survey question: “If required for your work, are you provided with the right equipment (including the right size/fit) to carry out your role, including Personal Protective Equipment (PPE) (by sector) ?”



Finally, the survey asks female respondents their views on how long in years it will take to reach gender equality in their industry (Figure 55).

Figure 55 North Sea Basin responses to the WIN-BIG Survey question: “How long do you think it will be until gender diversity in your industry is equal?: female responses only”



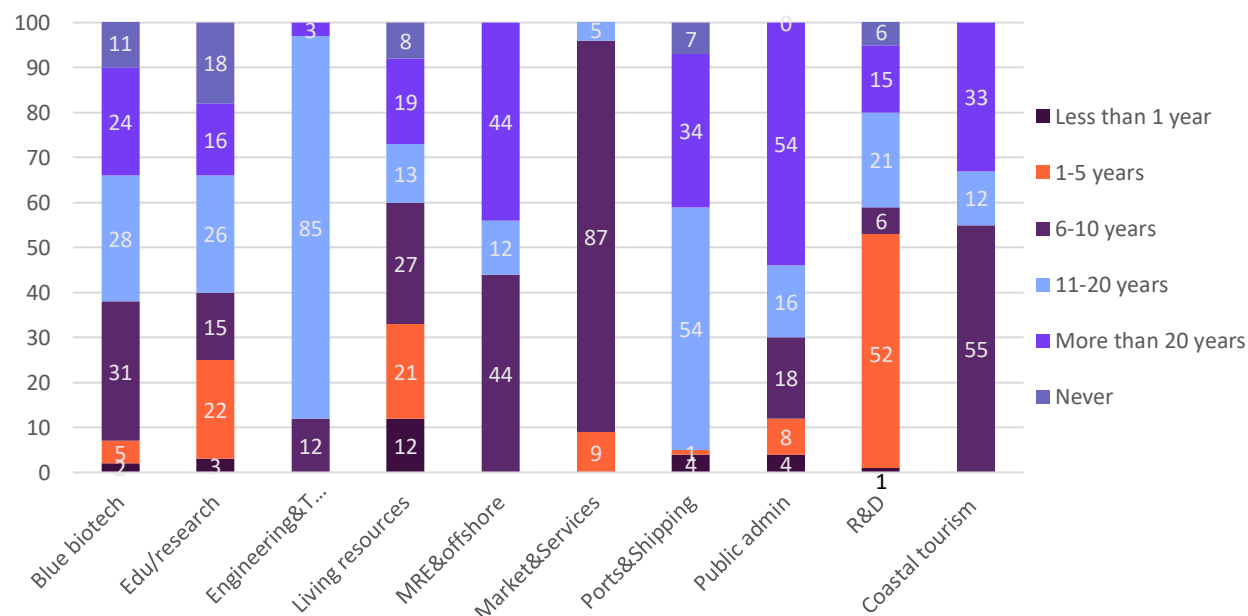
Among female respondents, 37% of female respondents think that gender diversity in their industry will be equal in more than 20 years, while 19% of females think that 11-20 years will be required and 31% think 6-10 years will be enough to reach gender diversity. Only 11% of respondents think it will be achieved in less than 5 years and 2% think that their industries won't ever achieve gender diversity.

Table 8 presents a comparison of data across the countries. In general, a low percentage of respondents chose that less than 5 years will be required to reach gender diversity, ranging from 0 to 5%. Only in organisations operating in Denmark 24% of females chose the timespan between 1-5 years, in Norway this percentage is 14% and in France it is 11%. At the same time, in the case of Denmark, a high percentage (33%) of female employees chose the option “never” on the possibility of achieving gender diversity. The highest percentage of female respondents who chose the option of more than 20 years is among respondents working in Sweden (87%). In organisations based in France, a total of 44% of respondents indicated that achieving gender diversity would require either 11–20 years (24%) or more than 20 years (24%), while another 39% selected 6–10 years.

Table 8 North Sea Basin responses to the WIN-BIG Survey question: “How long do you think it will be until gender diversity in your industry is equal? (comparison across countries)”

Comparison across countries						
Country	Less than 1 year	1-5 years	6-10 years	11-20 years	More than 20 years	Never
Belgium	3%	0%	36%	24%	36%	<1%
Denmark	0%	24%	0%	39%	4%	33%
France	5%	11%	39%	24%	20%	1%
Germany	1%	5%	35%	9%	40%	9%
Netherlands	0%	0%	24%	8%	60%	8%
Norway	4%	14%	12%	58%	11%	1%
Sweden	0%	5%	0%	8%	87%	0%
United Kingdom	<1%	7%	28%	16%	48%	<1%

Figure 56 North Sea Basin responses to the WIN-BIG Survey question: “How long do you think it will be until gender diversity in your industry is equal?: female responses only (broken down by sector)

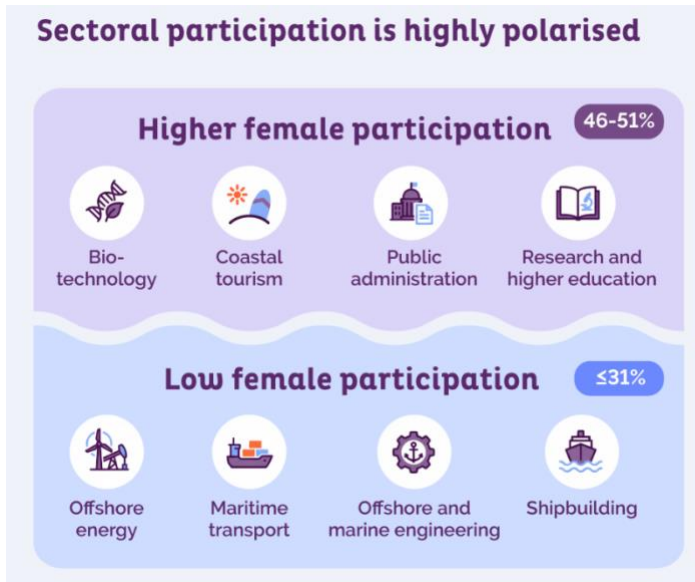


Among the blue economy sectors, a high percentage of respondents who work in marine renewable energy, ports and shipping and in public administration chose the option of 11-20 or more than 20 years as a required time span to ensure gender diversity. For instance, 54% of respondents in public administration and 44% in marine renewable energy, 34% in ports and shipping chose the option of more than 20 years. At the same time, percentage of females who think that 10-20 years will be sufficient in ports and shipping sector is also high (54%). In blue biotechnology the distribution of the responses across the time spans is equal: 31% chose 6-10 years, 28% chose 11-20 years, 24% selected more than 20 years and 11% chose the option 'Never' (see Figure 56).



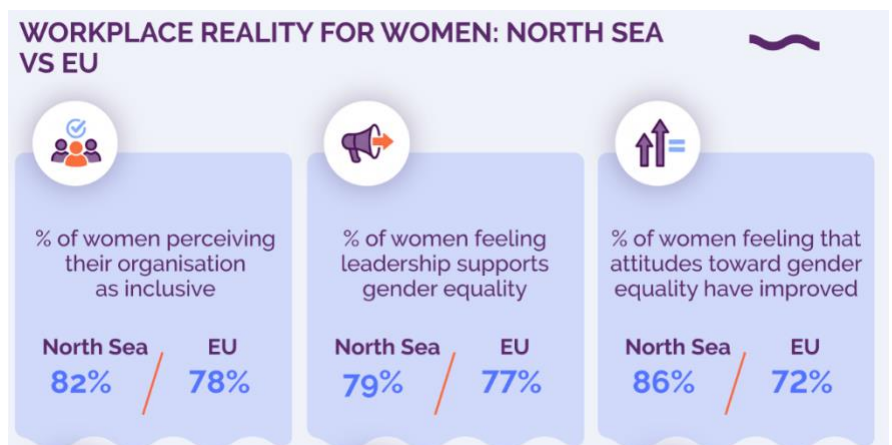
Conclusions

This report presents findings from a survey that was conducted as part of the WIN-BIG project to



map the gender status of the blue economy across six Sea Basins within Europe. The North Sea Area has an estimated 3.4 million people employed in the blue economy, and **females comprise 38% of the total labour force**. Women are well represented in sectors such as Biotechnology, Coastal Tourism, Public Administration and Research and Higher Education. However, female representation is lower in sectors related to Offshore, Engineering, Transport and Energy related sectors, which may reflect wider trends of lower female representation in STEM intensive fields.

Generally, the results show a mixed picture with respect to gender equality in the blue economy sectors of the North Sea Basin. In terms of **working arrangements and general culture within organisations the picture is relatively positive**. Most female respondents report access to flexible working arrangements, which have become more prevalent since the Covid-19 Pandemic. Although, a certain percentage of respondents (16% females versus 17% males) finds it difficult to strike an appropriate work-life balance. Overall, respondents are positive regarding the inclusivity of their work culture, with female respondents having higher levels of agreement (82% females versus 73% males). A higher proportion of male respondents report that leadership within their organisation is committed to gender EDI, compared to female respondents (79% female versus 88% male).



On the other hand, female respondents report higher levels of abusive, inappropriate or negative behaviour – more females have experienced **gender discrimination within their organisations (31% female versus 14% male)**. More women have witnessed discrimination (44% female versus 28% male) and a **much higher proportion of women have suffered some form of harassment**



within their organisations (57% female versus 32% male). In the wider industry there is a small difference of harassment experience between men and women (45% female versus 47% male).

The views on career progression are also

somewhat mixed. For example, **women are less likely to view processes within their organisation as fair**. Slightly fewer women report access to training to support their career aspirations (56% women versus 61% of men). More female respondents disagree they have opportunities to support their career aspirations (27% female respondents disagree compared to 19% male respondents). On the other hand, **female respondents are more likely to have access to mentoring in their careers** (70% female versus 54% male) and a higher share of women report that their direct supervisor supports their career aspirations (79% female versus 69% male).

With respect to **policies directly related to advancing equality in the workplace**, there is quite a divergence between male and female respondents. Interestingly, **women are much less likely to report that their organisations have formal policies related to gender balance** in hiring (45% female versus 68% male) and **women are less likely to report that their organisations formally support the promotion and advancement of women** (72% female versus 75% male). There was no difference in the male and female respondents (61% for both genders) to the statement noting that they have female role models. Less than half of female respondents (42%) report their firm has a formal gender policy compared to 63% of male respondents. A higher share of female respondents think that **barriers exist preventing women being promoted to senior positions** (23% female versus 10% male). Female respondents are more likely to state that social structures in their country impact the achievement of gender equality in their industry (52% female versus 44% male).

For the questions asked solely of female respondents, **41% of females report they are unsure or not treated the same as men**. Nearly **70% of women feel they have less promotion opportunities in their industry compared to men**. Slightly more than one-fifth of women believe they are being paid less than men with a further 26% of women uncertain about pay differences. Still, surprisingly nowadays, **13% females report they are not given the right equipment to carry out their job**. While 86% of females believe that attitudes and behaviour have improved towards women during their career, **58% of females believe it will take more than 10 years to achieve gender equality**.

While overall, **86% of female respondents answered that attitudes and behaviour towards women in their industry have changed for the better during their career**, there were differences in the answers across the blue economy sectors. In living resources **46% of female, in**

blue biotechnology 48% of females, and 54% in research and higher education provided a positive response. A high percentage of positive responses was observable in R&D (87%), ports and shipping (89%) and public administration (85%).

Among the blue economy sectors, **in the blue biotechnology, 28% of females** think that **11-20 years** will be required to reach gender diversity and **24%** think that more than **20 years** will be required. Among the respondents in **public administration, 54%** thought that more than **20 years** is required to gender diversity. **In ports and shipping, 11-20 years** option was chosen by **54%** and **more than 20 years** was chosen by **34%** of female employees.



Policy recommendations

It is encouraging that gender equality has been recognized by the EU as a strategic and relevant aspect for a just and fair transition, not only through its EU Gender Equality Strategy 2026-2030, but also through the adoption of various cross-cutting directives and action plans. The EU Gender Equality Strategy 2026-2030 introduces its roadmap principles, covering issues related to equal pay and economic empowerment, work-life balance and gender equality in care, equal employment opportunities and adequate working conditions, inclusive education and training, active and safe participation in public and political life, physical and mental health, freedom from gender-based violence, and institutional mechanisms that deliver on gender equality. At the same time, the next step should be **the consistent tracking of progress on gender equality by both the EU and its Member States, through systematic data collection**. This will help prevent a slowdown in progress and ensure that reforms and implementation of gender equality policies stay on track.

Despite significant efforts made within the framework of the EU Blue Economy Observatory and the EU STECF to collect data on the labour force across EU blue economy, there is **still a lack of data on gender breakdown in certain sectors across the industries**. The EU should develop a **harmonised approach to collating such gender specific workforce data for each blue economy industry**. This would help ensure that Member States report employment figures in a consistent manner. Additionally, the **reporting process should be made mandatory**. Also, tracking progress around experiences in the workplace for both male and female employees would help identify general trends and progress, identify issues and barriers and support the design of policies or solutions that might address barriers.

Generally, it **appears that there has been real and perceived progress in gender related issues**. Most respondents report positively on organisational culture and perceive improvements over time. It appears in the **context of career progression, women perceive barriers related to training and opportunities, including promotion opportunities**, rather than a lack of support by leadership within their organisations. Somewhat striking in the findings, is that men are more likely to state that there are policies and supports in place to promote women's career advancement, compared to women themselves. This suggests that while men may perceive that women are being more supported in career advancement, this may not be the real experience of many women in these sectors. **Identification of evidence-based policies that support female enhancement and training for staff** on how such policies benefits the organisation may be useful for all employees and potentially reduce gaps between men and women. While trying not to speculate, given that men report lower levels of agreement regarding inclusivity and poor organisational culture and are more likely than women to perceive that organisations support women, **it is important that men do not view policies promoting women's advancement as having a negative impact on them**. Hence, **training on the benefits of gender parity policies for all employees is warranted**.

In addition, more than half of women believe it will take ten years or more to achieve full equality, which suggests that faster progress may be needed and more targeted actions and supports to

advance equality. Of the current workforce, **almost half of respondents (46%) has experienced some form of harassment within their own organisation, and the same percentage of respondents have experienced this within their own industry.** This points to the **need of policies, training and legislation that support rights within the workplace and promote a cross-cutting industry zero tolerance policy towards harassment and discrimination.** Such measures would benefit female employees in particular at the firm level, and men and women at the industry level (given high levels of reported harassment at the industry level reported by both genders).

Finally, the **emerging sectors of the blue economy** require greater visibility and more information about how they operate, as well as the types of skills they require. Sectors such as **marine renewable energy, desalination, and blue biotechnology** are relatively new and at different stages of development. **Raising awareness** about these sectors is essential. This will encourage women, particularly those at the early stages of their careers, to consider pursuing opportunities in these fields. **In blue biotechnology 26% of respondents think that there are barriers preventing women being promoted to senior positions, and 16% in marine renewable energy and offshore exploration think the same.** In terms of the access to opportunities necessary for career growth, only 2% of respondents in marine renewable energy provided positive, and 94% provided a neutral response, while 4% disagreed that they have access to opportunities. In blue biotechnology, while more than half (72%) of the respondents answered positively to the access of opportunities, 17% provided a neutral response and 10% chose a negative response. Noteworthy, **in marine renewable energy, 81% reported that they have experienced harassment at organisation level, while in blue biotechnology 32% of respondents reported harassment.** The two sectors should raise awareness about available opportunities among the population. The low level of positive responses about available opportunities and the high percentage of neutral responses in marine renewable energy indicates that the employees do not have sufficient information about the existing opportunities. It would also be necessary to focus on mechanisms to eliminate harassment at workplace, which would attract a higher number of workforces in the sectors.

Caveats

Overall, the survey was weighted to ensure better representativeness at the sectoral level. Nevertheless, the respondents may not be representative of the full suite of blue economy industries in the survey. Respondents were more likely to be highly educated and represent more senior grades, compared to what would be expected in the wider industries. For example, only 9% of respondents were at entry level grade and over 84% of respondents had a Masters or PhD level degree. Higher educated respondents may have more opportunities to work in sectors that promote better treatment of women. This suggests that responses may be skewed towards more positive responses than we may have observed if the data was more representative.

In terms of future research, systematic data collection ensuring a representative sample is collected across the blue economy is needed. Without better data, it will continue to be difficult to understand

what barriers exist for women and identify areas of progress and areas that need further work and supportive or incentive policies. While future research is needed, the current report provides the first evidence identifying the status and barriers that exist for women in the Blue Economy in the EU North Sea Basin.

References

Alonso Gallo N. and Gutiérrez López I. (2023) "Gender and Organizational Culture in the European Union: Situation and Prospects", *Frontiers Psychology*, 14:1164516.

Araújo *et al.* (2021) "Current Status of the Algae Production Industry in Europe: An Emerging Sector of the Blue Bioeconomy", *Sec. Marine Fisheries, Aquaculture and Living Resources*, 7:626389.

Ashikali, T. and Groeneveld, S. (2015) "Diversity Management in Public Organizations and Its Effect on Employees' Affective Commitment: The Role of Transformational Leadership and the Inclusiveness of the Organizational Culture", *Review of Public Personnel Administration*, 35(2), pp. 146-168.

Auriol, E., Friebe, G. and Wilhelm, S. (2020) "Women in European Economics", in Lundberg, S. (ed.) *Women in Economics*. London: CEPR Press, pp. 26-30.

Barabino *et al.* (2020) "Solutions to Gender Balance in STEM Fields Through Support, Training, Education and Mentoring: Report of the International Women in Medical Physics and Biomedical Engineering Task Group", *Science and Engineering Ethics*, 26, pp. 275-292.

Boström, M. and Österman, C. (2022) "Creating Clarity and Crew Courage: Preventive and Promotive Measures for a Maritime Industry Without Bullying and Harassment", *Occupational Health Science*, 6(4), pp. 605-629.

Böök, B. *et al.* (2021) *A comparative analysis of gender equality law in Europe 2020*, Luxembourg: Publications Office of the European Union. Available at: https://dspace.library.uu.nl/bitstream/handle/1874/416981/EELN_A_comparative_analysis_of_gender_equality_law_in_Europe_2020.pdf?sequence=1

Brugere, C., *et al.* (2023) "Humanizing Aquaculture Development: Putting Social and Human Concerns at the Center of Future Aquaculture Development", *Journal of the World Aquaculture Society*, 54(2), pp. 482-526.

Carrasco-Santos, M.J.; Cristófol Rodríguez, C.; Royo Rodríguez, E. (2020) "Why is the Spanish hotel trade lagging so far behind in gender equality? A sustainability question", *Sustainability*, 12:4423.

Carvalho, I. et al. (2018) "Women at the top of tourism organizations: Views from the glass roof", *Journal of Human Resources in Hospitality & Tourism*, 17(4), pp. 397–422.

Casey, C. Skibnes, R. and Pringle, J.K. (2011) "Gender Equality and Corporate Governance: Policy Strategies in Norway and New Zealand", *Gender, Work and Organization*, 18(6), pp.613-630

Chanou Zoulfath, A. et al. (2023) Baseline study for the implementation of lighthouses of the Mission 'Restore our ocean and waters by 2030': Atlantic, Arctic, Danube and Mediterranean lighthouses. Luxembourg: Publications Office of the European Union.

Clancy, J. and Feenstra, M. (2019) *Women, gender equality and the energy transition in the EU*, Brussels: European Union.

Coleman, L.R. and Taylor, E.D. (2023) "The Importance of Diversity, Equity, and Inclusion for Effective, Ethical Leadership", *Clinics in Sports Medicine*, 42(2), pp. 269 – 280.

Cortland, C.I. and Kinias, Z. (2019) "Stereotype Threat and Women's Work Satisfaction: The Importance of Role Models", *Archives of Scientific Psychology*, 7, pp.81-89.

Croucher, R. and Økland, G.M. (2021) "Women Production Workers' Introduction into a Norwegian Shipyard 1965-1989", *Business History*, 63(5), pp. 776-794.

Del Carmen Triana et al. (2019) "Perceived Workplace Gender Discrimination and Employee Consequences: A Meta-Analysis and Complementary Studies Considering Country Context", *Journal of Management*, 45(6), pp. 2419-2447.

Di Vaio, A., Zaffar, A., Balsalobre-Lorente, D. and Garofalo, A. (2023) "Decarbonization technology responsibility to gender equality in the shipping industry: a systematic literature review and new avenues ahead", *Journal of Shipping and Trade*, 8(9).

Dogg Jonsdottir, S. et al. (2022) "Risk Factors for Workplace Sexual Harassment and Violence among a National Cohort of Women in Iceland: a Cross-Sectional Study", *Lancet Public Health*, 7, pp.e763-774.

Dragomir, C. (2019) "Gender in Postmodernism Maritime Transport", *Postmodern openings* 10(1), pp. 182-192.

European Commission (2026) *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Gender Equality Strategy 2026-2030*. Available at: https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/gender-equality/gender-equality-strategy_en#gender-equality-strategy-2026-2030

European Commission (2025) *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A Roadmap for*

Women's Rights. Available at: https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/gender-equality/gender-equality-strategy_en

European Commission (2024) *2024 Report on Gender Equality in the EU*. Luxembourg: Publications Office of the European Union.

European Parliament. *Ensuring European transportation works for women*. (2023) Strasbourg: European Parliament. Available at: https://www.europarl.europa.eu/doceo/document/TA-9-2023-0339_EN.html

Evertsson, M. (2016) "Parental Leave and Careers: Women's and Men's Wages After Parental Leave in Sweden", *Advances in Life Course Research*, 29, pp. 26–40.

Goba, V. et al. (2023) Baseline study for the implementation of the lighthouse in the Baltic and North Sea basins for the Mission 'Restore our Ocean and Waters by 2030'. Luxembourg: Publications Office of the European Union.

Górska, M. and Burlakova, I. (2025) "The Role of Women's Leadership in Business: Challenges and Prospects", *Economics, Finance and Management Review*, 1(21), pp. 116-129.

Grimett, L. (2024) "The Status of Women within the Maritime Sector", *American Journal of Industrial and Business Management*, 14, pp. 1-35.

Guerrero Padrón, T., Kovačević, L. and Ribes Moreno, M.I. (2023) "Labour Law and Gender", in Vujadinović, D., Fröhlich, M. and Giegerich, T. (eds.) *Gender-Competent Legal Education*. Switzerland: Springer.

Hedija, V. (2017) "Sector-Specific Gender Pay Gap: Evidence from the European Union Countries", *Economic Research-Ekonomska Istraživanja*, 30(1), pp. 1804-1819.

Hjelmeland and Kristiansen Nøland (2023) "Correlation Challenges for North Sea Offshore Wind Power: a Norwegian Case Study", *Scientific Reports*, 13:18670.

Holzinger, F. et al. (2019) "Implementing Measures to Promote Gender Equality and Career Opportunities of Early Career Researchers", in Murgia, A. and Poggio, B. (eds.) *Gender and Precarious Research Careers. A Comparative Analysis*. Abingdon and New York: Routledge, pp. 209-235.

Johannesen, E. et al. (2023) "Gender and Early Career Status: Variables of Participation at an International Marine Science Conference", *ICES journal of marine science*, 80(4), pp. 1016-1027.

Kamm, R, Schelten, C.K., Braker, G. (2020) "Gender Equality in Marine Sciences in Kiel, Germany: How Project-Funded Measures can Urge Institutions to Act", *Advances in Geosciences*, 53, pp. 7-106.

Katsanevakis, S. et al. (2020) "Twelve Recommendations for Advancing Marine Conservation in European and Contiguous Seas", *Frontiers in Marine Science*, 7. DOI: 10.3389/fmars.2020.565968.

Kim, T. et al. (2019) "Impact of automation technology on gender parity in maritime industry", *WMU Journal of Maritime Affairs*, 18, pp. 579-593.

Krambia Kapardis, M., Mavrikiou, P. and Symeou, L. (2025) "Gender Leadership Imbalance in Academia: An Etiological Approach", *Social Sciences*, 14(8).

Kurtulus, F.A. and Tomaskovic-Devey, D. (2012) "Do Female Top Managers Help Women to Advance? A Panel Study Using EEO-1 Records", *The Annals of the American Academy*, 639, pp. 173-197.

Lausi et al. (2021) "Gender Pay Gap Perception: A Five-Country European Study", *SN Soc Sci*, 1(267).

Lechman, E. and Popowska, M. (2022) "Overcoming Gender Bias in the Digital Economy. Empirical Evidence for European Countries", *Gender, Technology and Development*, 26(3), pp. 404-436.

Legg, S. et al. (2023) "Gender Equity in Oceanography", *Annual Review of Marine Science*, 15, pp. 15-39.

Loriol, M., Dassisti, L. and Grattagliano (2020) "Harassment at Work in France and Italy First hypothesis for an International Comparison", *Aggression and Violent Behaviour*, 53, 101427.

Lucas, H. Pinnington, S. and Cabeza, L.F. (2018) "Education and Training Gaps in the Renewable Energy Sector", *Solar Energy*, 173, pp. 449-455.

Martini and Cavenago (2016) "The Role of Perceived Workplace Development Opportunities in Enhancing Individual Employability", *International Journal of Training and Development*, 21(1), pp. 18-34.

Matysiak, A. and Cukrowska-Torzewska, E. (2021) "Gender and Labour Market Outcomes", in Schneider, N.F. and Kreyenfeld, M. (eds) *Research handbook on the sociology*. Cheltenham, UK: Edward Elgar Publishing, pp. 329-341.

Marques, M. (2021) "The EU Blue Economy in the World", *Public Policy Portuguese Journal*, 6(1), pp. 56-70.

Macarie, F.C. and Moldovan, O. (2012) "Gender discrimination in management. Theoretical and empirical perspectives", *Transylvanian review of Administrative Sciences*, 35, pp. 153-172.

Notteboom, T. et al. (2020) "The Role of Seaports in Green Supply Chain Management: Initiatives, Attitudes, and Perspectives in Rotterdam, Antwerp, North Sea Port, and Zeebrugge", *Sustainability*, 12(4).

OECD (2025) *Gender Equality in a Changing World: Taking Stock and Moving Forward*. Paris: OECD Publishing.

Purcell, D., Rhea MacArthur, K. and Samblanet, A. (2010) "Gender and the Glass Ceiling at Work", *Sociology Compass*, 4(9), pp. 705-717.

Ramos Martín, N.E. (2014) "Positive Action in EU Gender Equality Law: Promoting Women in Corporate Decision-Making Positions", *Spanish Labour Law and Employment Relations Journal*, 3(1), pp. 20-33.

Roosmaa E.-L. and Saar, E. (2023) "Gender Differences in ICT Training Participation in International Comparison", RASI paper, No 22, Tallinn University. Available at: https://www.tlu.ee/sites/default/files/Instituudid/%C3%9CTI/RASI/2023_RASI%20toimetised%20nr%2022_Gender%20differences%20in%20ICT%20training%20participation%20in%20international%20comparison.pdf#page5

Salmi, P. and Sonck-Rautio, K. (2018) "Invisible Work, Ignored Knowledge? Changing Gender Roles, Division of Labor, and Household Strategies in Finnish Small-Scale Fisheries", *Maritime Studies* 17(2), pp. 213-221.

Shellock, R.J. et al. (2022) "Breaking Down Barriers: The Identification of Actions to Promote Gender Equality in Interdisciplinary Marine Research Institutions", *One Earth* 5(6), pp. 687-708. DOI: DOI: <https://doi.org/10.1016/j.oneear.2022.05.006>.

Sealy, R.H.V and Singh, V. (2010) "The Importance of Role Models and Demographic Context for Senior Women's Work Identity Development", *International Journal of Management Reviews*, pp. 284-300.

Segovia-Pérez, M. et al. (2019) ""Being a woman in an ICT job: an analysis of the gender pay gap and discrimination in Spain", *New Technology, Work and Employment*, 35(1), pp. 20-39.

Tikkanen, T., Hovdhaugen, E. and Støren, L.A. (2018) "Work-Related Training and Workplace Learning: Nordic Perspectives and European Comparisons", *International Journal of Lifelong Education*, 37(5), pp. 523-526.

Turesky, M. and Warner, M.E. (2020) "Gender Dynamics in the Planning Workplace", *Journal of the American Planning Association*, 86(2), pp. 157-170.

Varriale, L., Buonocore, F. and Ferrara, M. (2016) "Insights and Challenges from Italian Regulations for Women Employment and Career Advancement: The Role of Mentoring Programs in Banking and Finance Industry", *Law and Economics Yearly Review*, 5(2), pp. 309-329.

Wikström et al. (2023) "Mentoring programmes – building capacity for learning and retaining workers in the workplace", *Journal of Workplace Learning*, 35(8), pp.732-751.

Zhao, M. et al. (2013) "Women as Visible and Invisible Workers in Fisheries: A Case Study of Northern England", *Marine Policy* 37, pp. 69-76. <https://doi.org/10.1016/j.marpol.2012.04.013>

