

Turning the tide: women's role in EU aquaculture

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Aquaculture production in the EU

Gender gaps in the EU labour market are gradually closing. Nevertheless, women working in the marine living resources sector (production, processing and distribution of fish products) of the **blue economy** represent a small proportion of the workforce.

Women account for just 22 % of the workforce in EU aquaculture production (*).

(*) Aquaculture economic report **STECF-22-17**.



Gender distribution in EU aquaculture by EU Member State

Country	% Female	% Male
Belgium	68	32
Bulgaria	15	85
Croatia	11	89
Czechia	14	86
Denmark	18	82
Finland	20	80
France	29	71
Germany	21	79
Greece	11	89
Ireland ⁽¹⁾	12	88
Italy	8	92
Latvia	13	87
Lithuania ⁽¹⁾	26	74
Malta	5	95
Netherlands	0	100
Portugal	21	79
Romania ⁽²⁾	20	80
Slovenia	37	63
Spain ⁽³⁾	26	74
Sweden	27	73



⁽¹⁾ Data refers to 2022
(Source: [STECF 24-14](#)).

⁽²⁾ Data refers to 2018
(Source: [STECF 22-17](#)).

⁽³⁾ Data refers to 2017
(Source: [STECF 22-17](#)).

Regarding aquaculture production technologies, the highest share of female workers (30 %) participates in on-bottom mussel production, commonly used in intertidal zones.

Gender distribution in EU aquaculture by production technology

Production technique	% Female	% Male
Enclosures and pens	5	95
Other methods	13	87
Tanks and raceways	18	82
Recirculation systems	20	80
Rafts	20	80
Ponds	13	87
Polyculture	21	79
On-bottom mussel production	30	70
Longline mussel production	15	85
Hatcheries and nurseries	22	78
Cages	13	87

Data refers to 2022
(Source: [STECF 22-17](#))

Gender distribution in EU aquaculture by production sectors

Production sector	% Female	% Male
Shellfish	23	77
Marine	23	77
Freshwater	18	82

Data refers to 2022
(Source: [STECF 22-17](#))

Shellfish farming is tied to the local history, traditions and landscape of certain regions in Spain, Italy and France, where women significantly contribute to the rural economy.



Spain

In aquaculture, around 85 % of female employment is concentrated in the shellfish sector, where women hold over 50 % of the jobs in shellfish farming in intertidal zones and 20 % in mussel raft production ([Nicheva et al., 2022](#)). The region of Galicia stands out, where women *mariscadoras* are of great social, cultural and economic importance. In 2022, 75 % of registered shellfish gatherers were women ([Shellfish aquaculture in the EU, Infographic](#)).

In small-scale shellfish farming and freshwater aquaculture such as family enterprises, it is common for women to engage in 'invisible work' (informal and unrecognised work). However, in more capital-intensive and technology-driven marine farming, female employees often hold qualified and formal positions ([Women in fisheries](#)).

Women's formal recognition in the aquaculture sector often depends on the size and nature of the enterprise, as well as the legal status in each EU Member State. Generally, women working in aquaculture have higher levels of education compared to other sectors, allowing them to increasingly occupy management positions in quality control, research and hatchery operations. Nevertheless, the number of women holding leadership roles in aquaculture companies is relatively low ([European Commission Study, 2019](#)).

By contrast, women's presence in **fish processing activities** accounts for 56.2 % of employees in 2021 ([STECF-23-14](#)). The fish processing industry has a much lower level of 'invisible' female work compared to the fishing and aquaculture sectors. Larger processing companies generally provide regulation and stability through formal contracts and structured benefits including maternity leave and work-life balance measures, making them more attractive to female workers. Nevertheless, depending on seasonal demand, some women in family businesses continue to work without legal status and remuneration ([Research for the PECH Committee: Women in fisheries – State of play and progress on gender equity in the EU](#)).

Fostering a more inclusive and equitable aquaculture sector in the EU

Despite challenges, the EU aquaculture sector continues to grow and diversify, creating new opportunities for innovation and sustainability. In this context, women are increasingly recognised as key drivers of progress. Initiatives such as [WINBLUE](#), [WIN-BIG](#), [She4Sea](#) and the [NOWA](#) organisation promote female leadership and inclusion in aquaculture value chains.

Samples of WIN-BIG survey results on the aquaculture sector in April 2025 highlight that men and women have different perceptions about working conditions and career prospects. 29 % of females reported that they have experienced gender discrimination at work, particularly those working as low- and intermediate-level employees and first-level management.



Figure 1

I have experienced gender discrimination within my organisation/firm

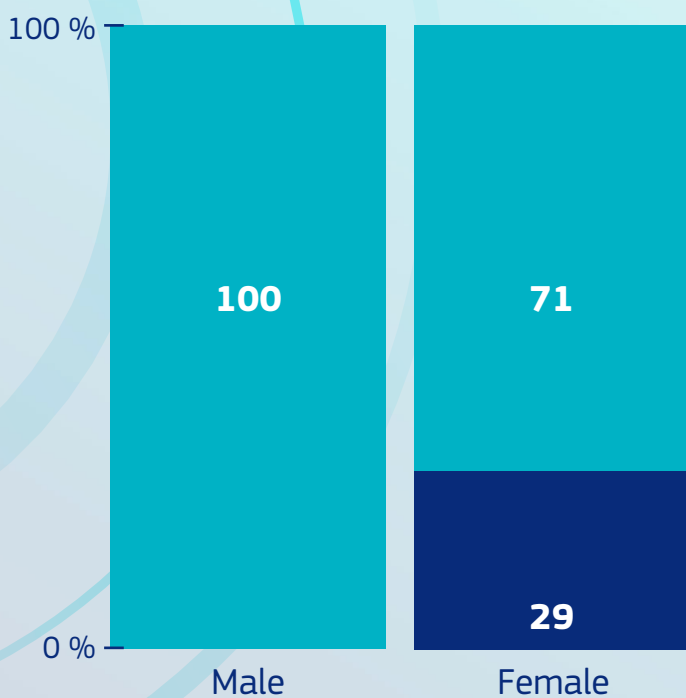
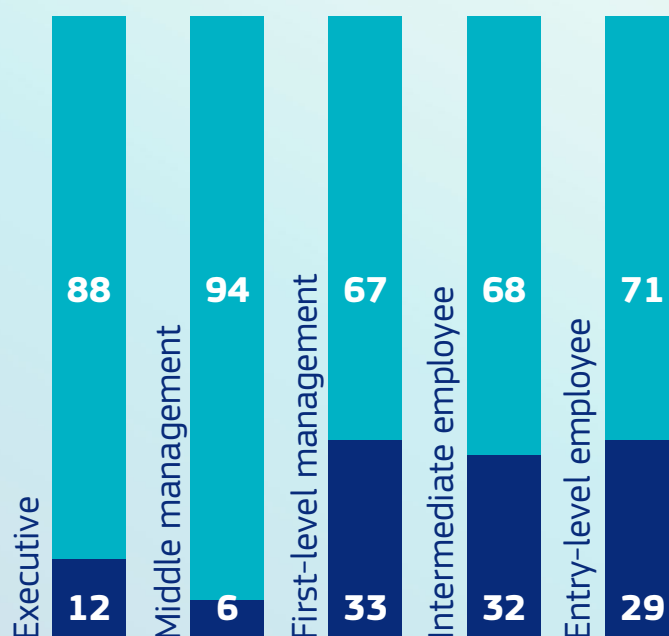


Figure 2

Breakdown by employment level



Experienced gender discrimination

NO

YES

In response to whether there is access to opportunities for career growth, 57 % of women and 78 % of men responded positively.

Figure 3

I have access to the opportunities I need to support my career aspirations

Access to opportunities

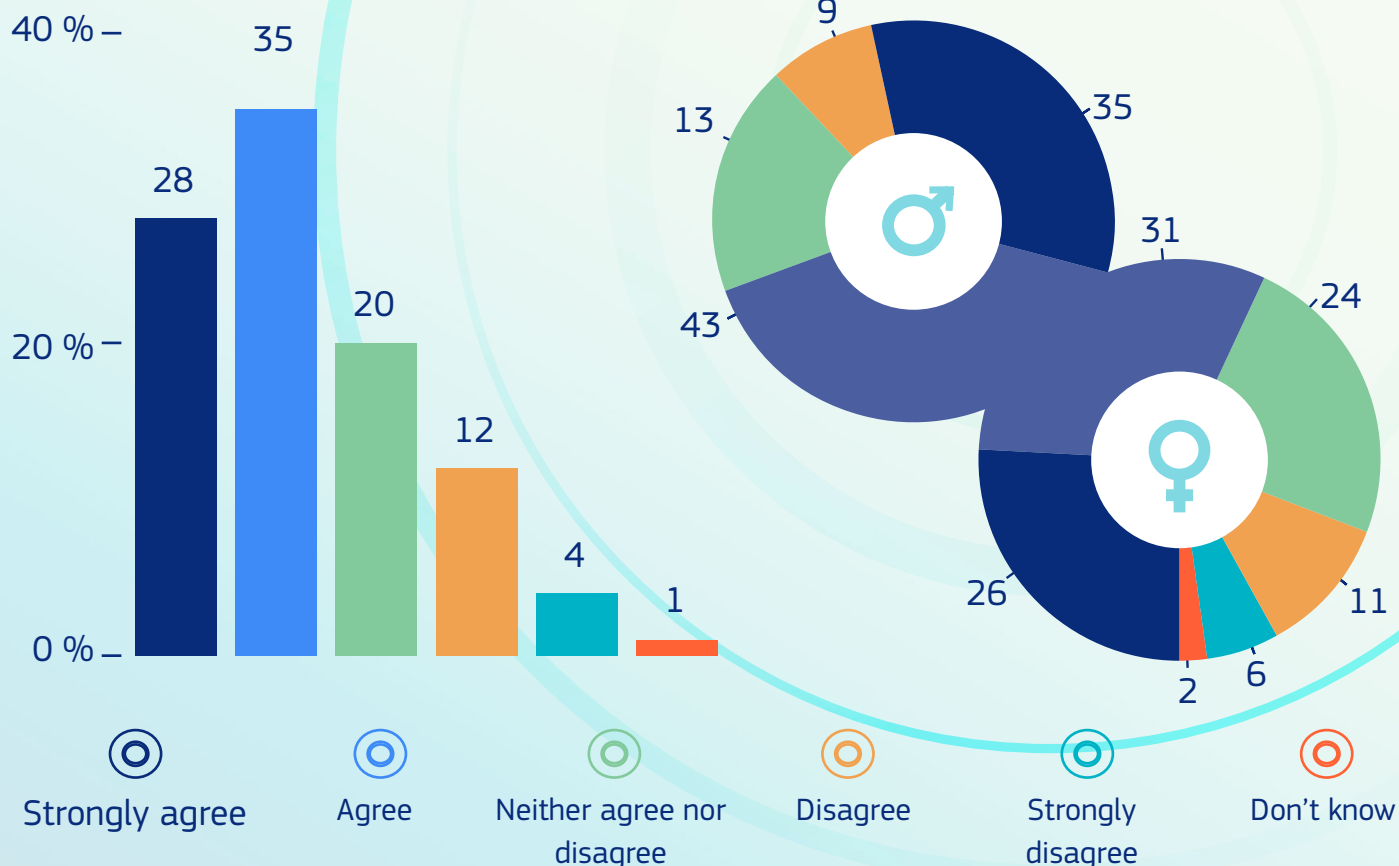
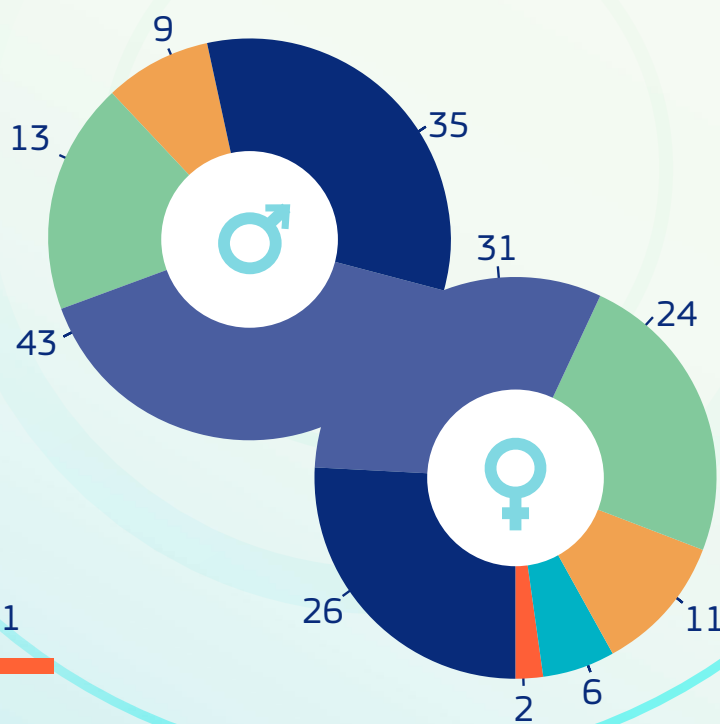


Figure 4

Breakdown by gender

Access to opportunities



Data source (*): Project WIN-BIG, Survey results on aquaculture sector (Preliminary data – 8.4.2025)

(*) WIN-BIG data is based on post-stratification weighing, estimating population totals by blue economy industry, country and gender.

New possibilities for women on the horizon

The transition to a more digital and sustainable aquaculture sector opens new possibilities for women (**Brechas de género**):

- Emerging areas such as algae aquaculture and biotechnology demand new skills and offer inclusive potential.
- Education and training programmes are needed to attract women to technical and leadership roles.
- Better communication tools targeted at young women could encourage them to pursue careers in the blue economy, especially in high-tech sectors (STEM).



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Creating waves: leaders and innovators in the EU aquaculture sector



Production (fish and molluscs) and processing



Carlotta Santolini (Italy) is the **administrator of Mariscadoras Srl Benefit**, a women-led SME founded by five women under 40.

Key contributions

- Developed a **fully women-managed supply chain** for the invasive blue crab, from harvesting to processing.
- Created the **Blueat** brand that transforms the blue crab into a marketable product, generating sustainable income for local fishermen.
- Innovated in **circular economy** by extracting **chitosan** from crab waste, used in pharmaceuticals, agriculture and packaging.
- Promotes **biodiversity conservation** through sustainable use of marine biomass and collaboration with aquaculture SMEs and research centres.

Santolini's initiative is a model of **gender-inclusive innovation** in aquaculture. It empowers women across the entire value chain, from fieldwork to entrepreneurship, while addressing ecological challenges and creating new economic opportunities in coastal communities.

R&D

Simona Paolacci (Italy/Malta) is **head of research and development at AquaBioTech Group**, a Malta-based consultancy specialising in aquaculture and marine biology services.

Key contributions

- Developed the **first duckweed-based remediation system** in Ireland to treat freshwater aquaculture effluents, reducing environmental impact.
- Advanced research on **integrated multitrophic aquaculture** and sustainable aquafeeds, testing innovative ingredients to improve sustainability.
- Leads EU-funded projects focused on **innovative solutions for sustainable aquaculture**, bridging science and industry.



Paolacci's work demonstrates how women in R&D drive **innovation and sustainability** in aquaculture. Her projects combine environmental restoration with practical applications, improving water quality and reducing reliance on conventional feed sources.

Mabel Sáez Casado (Spain) is **senior lecturer at the University of Almería** and a leading **researcher** in aquaculture and biotechnology.

Key contributions

- Led innovative research on **nano-encapsulated vaccine feed for fish**, resulting in a patent that improves oral vaccine delivery in aquaculture.
- Founded **LifeBioencapsulation S.L.**, a spin-off company that develops sustainable additives and functional feeds for aquaculture.
- Coordinates the **CEI-MAR International Campus of Excellence in Marine Sciences**, connecting universities, research centres and companies across Spain, Portugal, Morocco and Colombia.
- Leads the aquaculture line of the national **ThinkinAzul project**, promoting precision aquaculture and sustainable growth.

Sáez Casado's work bridges **academic research and industry innovation**, contributing to more resilient and environmentally friendly aquaculture practices. Her leadership in EU projects and technology transfer demonstrates how women in R&D can shape the future of the blue economy.

Kerli Sarap (Estonia) is **Member of the Board with a focus on business development at Est-Agar**.

Key contributions

- Innovates in **circular economy** by giving new life to seaweed manufacturing residue and turning waste into value.
- Created the Seaweesh brand that **replaced plastic seedling pots in the herb-growing industry by producing pots made from seaweed waste** and other discarded materials.
- Engaged in the EU project **SEAFOODTURE** that focused on **manufacturing seaweed for the development of high-quality food products**, with leftover waste repurposed for packaging materials.
- She is a strong voice in the Estonian blue biotechnology industry by actively engaging in high-level discussions and debates while helping pave the way for more inclusive innovation.

Sarap's work demonstrates that **women do not have to choose between family, ambition and purpose**.



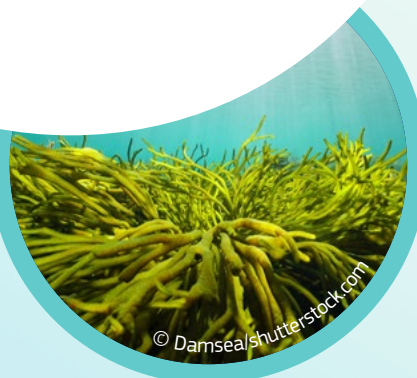


Stefanie Malchow (Germany) works in **Research & Development** at biotechnology research company **Vyld**.

Key contributions

- Leads the development of **seaweed-based menstrual products** that combine environmental and health benefits.
- Ensures applicability of lab-grown innovations through **scaling and early-stage involvement** with industrial partners.
- **Advocates for reality-based testing and free access** to menstrual products, ensuring that functional, healthy innovation benefits everyone, not just those who can afford it.

Malchow's work highlights how women contribute to **redefining marine resource valorisation** in the blue economy. By developing everyday products from seaweed in regenerative production systems, she helps **bridge sustainability, industrial needs and gender equality**, making marine innovation more tangible and accessible for all.



Policy & advocacy

Lara Barazi-Geroulanou (Greece) is **president and CEO of Kefalonia Fisheries**, a leading aquaculture company in Greece, and the past **president of the Federation of European Aquaculture Producers**. She actively represents the sector at both national and EU levels, serving on the boards of multiple industry associations.

Key contributions

- Advocates for **sustainable aquaculture development and gender equality in leadership**.
- Promotes **policy dialogue** at the EU level, influencing strategic decisions in aquaculture.
- Highlights the need to move beyond surface-level gender representation, emphasising the importance of **female leadership and management roles**.

Barazi-Geroulanou's leadership demonstrates how women in policy and governance can shape the future of aquaculture. She brings attention to **gender gaps in decision-making**, while also promoting **environmental responsibility, community engagement and economic resilience**.





Anna Pyć (Poland) is the **CEO of Pustelnia Fish Farm**, **vice president of the Polish Trout Breeders Association** and **the president of the Federation of European Aquaculture Producers (FEAP)**. She has been actively engaged in FEAP's work for many years and demonstrated strong commitment to advancing the interests of European aquaculture. Her experience, professionalism and dedication to collaborative European dialogue make her a highly respected leader in the sector.

Key contributions

- ⦿ Represents the two main aquaculture species farmed in Poland – **carp and trout** – strengthening their visibility and strategic importance at national and EU level.
- ⦿ Builds strong cooperation with **key national institutions**, shaping the development of sustainable aquaculture and contributing to evidence based policymaking and sectoral innovation.
- ⦿ Advocates for sustainable growth of the aquaculture sector, promoting responsible production, environmental stewardship and high-quality standards across the value chain.
- ⦿ Leads a **modern, continuously developing family-run company**, combining tradition with innovation and implementing new technologies to improve efficiency, welfare and sustainability.
- ⦿ Represents fish producers in strategic policy discussions, ensuring that the perspectives of Polish and European aquaculture are reflected in EU-level decision-making.
- ⦿ Strengthens the professional visibility of women in aquaculture, demonstrating through her leadership that women bring effectiveness, innovation and long term strategic vision to the sector.

Pyć demonstrates the strength and leadership of women in aquaculture by managing and developing her own fish farm, driving continuous improvement and providing substantive, well-informed input on legal frameworks regulating the sector. As a Polish aquaculture ambassador with specialised education combined with hands-on experience, she bridges scientific knowledge, practical management and policy expertise to support the sustainable future of European aquaculture.

