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# FishFocus

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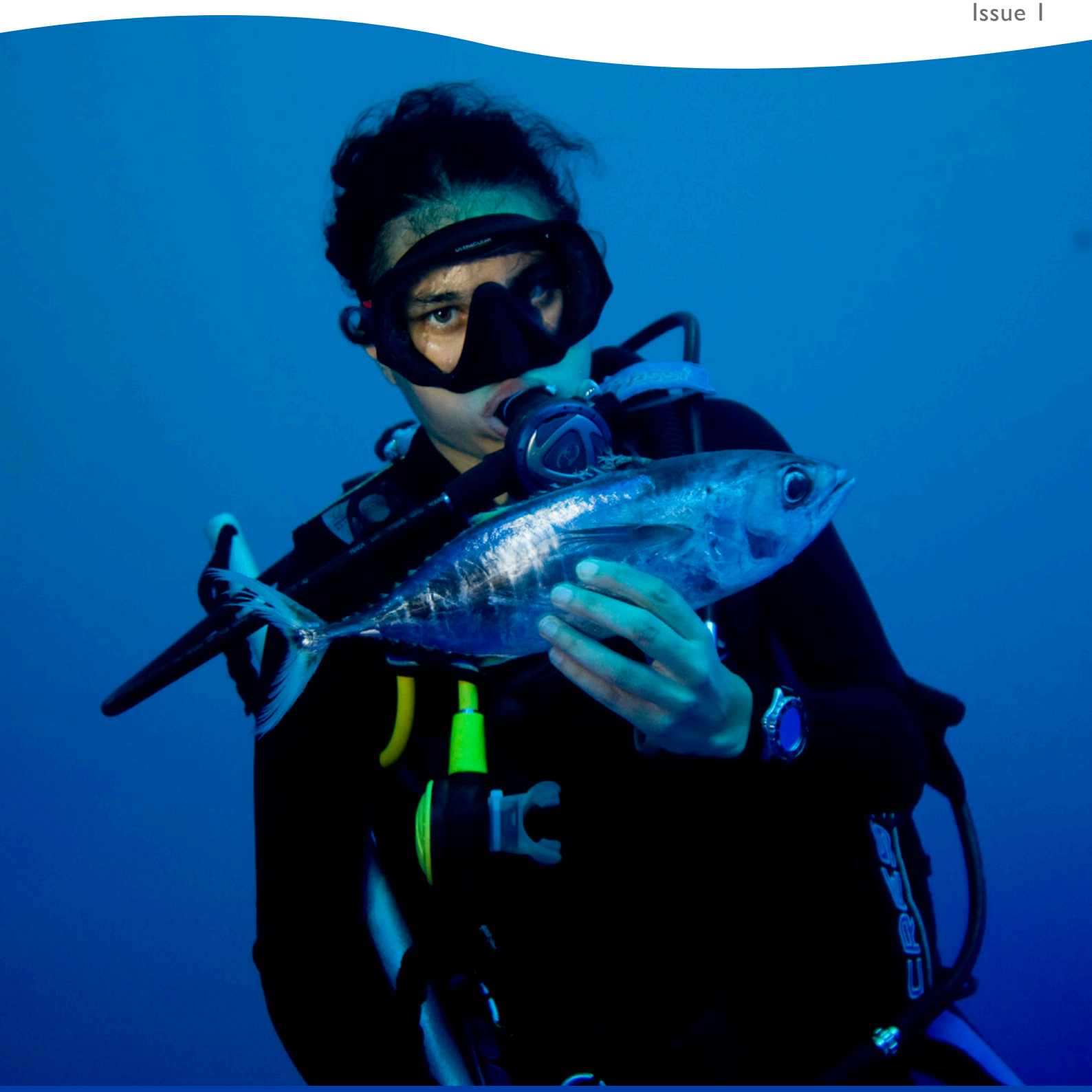
## WOMEN IN SEAFOOD

Issue 1



FISH FOCUS CELEBRATES WOMEN IN THE SEAFOOD INDUSTRY

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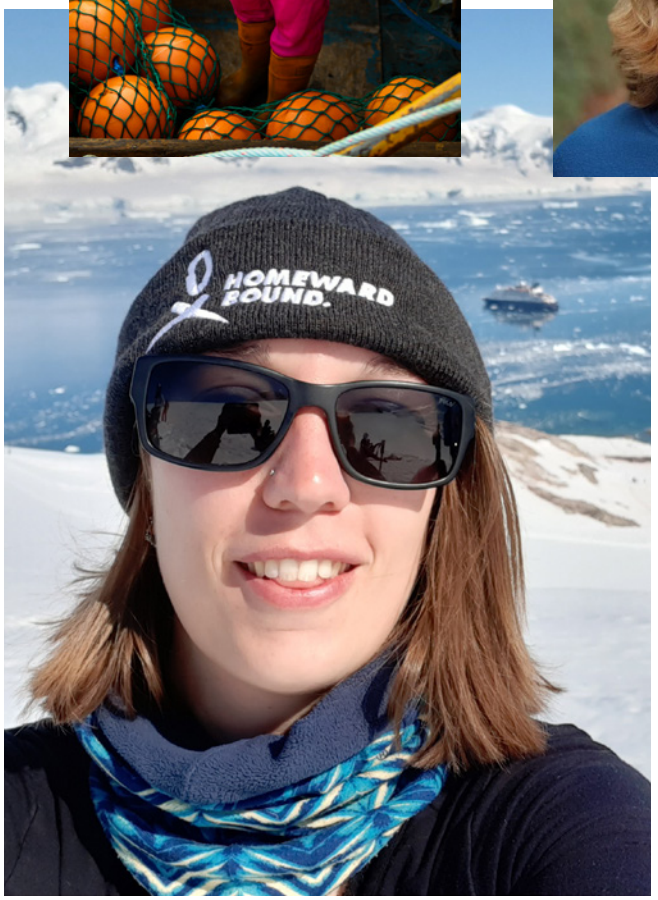
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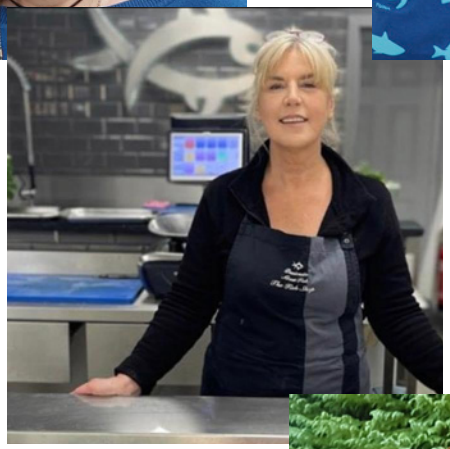


# Women In The Seafood Industry

Women have long been integral to the seafood industry, contributing significantly across various sectors from onshore roles to seafaring positions. Despite their substantial involvement, their contributions have often been undervalued and underrepresented.

**Historical and Current Roles**

Traditionally, women in the seafood industry have been predominantly engaged in onshore activities such as administration, seafood processing, and roles within fishing families. Their responsibilities often extend to domestic duties and childcare, providing essential support to the industry's infrastructure. However, these roles have frequently been informal and less visible, leading to underappreciation of their true value. In recent years, there has been a growing recognition of the diverse roles women play throughout the seafood supply chain. From vessel ownership and fleet management to fishmongering and conservation efforts, women are increasingly visible in various capacities. Initiatives like the UK Women in Fisheries network have been established to support and acknowledge these contributions, fostering a community for women across the industry.

**Challenges Faced**

Despite progress, women in the seafood industry continue to face significant challenges. A 2017 report by Women in Seafood International highlighted a strong gendered division of labour, with women often occupying lower-revenue positions and being largely absent from higher-level roles within the value chain. Additionally, research indicates that women are underrepresented in industry events and decision-making processes. A study revealed that at business meetings or industry networking events, women often constitute less than 20% of attendees, underscoring the need for greater inclusivity and representation.

**Advancements and Initiatives**

To address these disparities, several initiatives have been launched aiming to promote gender equality and support women's advancement in the seafood sector. The UK Women in Fisheries network serves as a platform for women to connect, share experiences, and advocate for greater recognition and opportunities within the industry. Moreover, organisations like Seafood and Gender Equality (SAGE) work globally to uplift and integrate diverse voices in the seafood sector, striving for a more resilient and equitable industry.

**Conclusion**

While women have always been foundational to the seafood industry, their roles are gaining increased recognition and appreciation. Continued efforts to promote gender equality, provide support networks, and celebrate the achievements of women are essential steps toward a more inclusive and thriving seafood sector.

# Dr. Gala Moreno, Research Scientist, International Seafood Sustainability Foundation

**An ISSF research scientist and member of the ISSF Bycatch Committee, Dr. Gala Moreno has two decades of experience working with purse-seine tuna vessels in the Indian, Atlantic, and Pacific Oceans, studying tuna behaviour at fish aggregating devices (FADs).**

Her work focuses on reducing adverse FAD impacts and draws on fishers' knowledge and scientific data to improve fisheries management. She coordinates research projects in three oceans on the impact of FADs on bycatch, tuna species, and the ecosystem — including research on biodegradable FADs, acoustic selectivity to discriminate tuna species before the set, and interactions with Mobula rays and sea turtles in tuna fisheries. She also has facilitated skipper workshops on best practices and potential solutions to fishing impacts in more than 20 countries.

Dr. Moreno earned her doctorate from the Institut de Recherche pour le Développement (IRD) in Seychelles and France and AZTI, and she has a master's degree from the University of the Basque Country (UPV) in Spain. She has taught university-level courses on FADs, eco-ethology of pelagic species, and hydro-acoustics for pelagic species monitoring at UPV, Paul Sabatier University in France, and Instituto Español de Oceanografía.

From 2003-2015 she was at AZTI, first as a researcher and then as a senior researcher. At AZTI, she coordinated, among others, the EU GAP2 project examining stakeholder-driven science within the context of fisheries, the EU MADE project on mitigating FAD impact on pelagic ecosystems, and the EU FADIO project on tuna behaviour at FADs. She spent two years as a scientific observer in the Indian and Atlantic Oceans in 1998-2000.

Fish Focus posed some questions for Dr. Moreno:

**What initially inspired you to pursue a career in fisheries management and sustainability?**

My inspiration to pursue a career in fisheries management and sustainability comes from a combination of personal passion and early influences. Growing up, my family instilled in me a love for the sea. I had a neighbour who was a biologist, and he would show me documentaries that absolutely fascinated me, even when I was just 7 years old. I am from the Basque Country in northern Spain, a region with a strong maritime tradition, so fishing and the sea were always present in my surroundings. In many ways, my path was shaped by both where I come from and my passion for marine biology and conservation.

**Can you explain how fish aggregating devices (FADs) impact marine ecosystems and what efforts are being made to mitigate their effects?**

Though fishing with fish aggregating devices (FADs, or more generally, floating objects) has been in practice for hundreds of years, the number of FADs being used by tuna purse seine vessels has increased steadily in the last two decades. Fishing on FADs is a crucial means of providing an important food source for the world; it is efficient and widely used. But FAD use also comes with downsides that are of concern and must be addressed.

All fishing methods have an environmental footprint. And when sustainable fishing is the goal, conventional FADs present challenges. These challenges include:

- Marine fauna that share the same habitat and aggregate with tuna, including sharks, mobula rays and sea turtles, are at risk of becoming bycatch. These animals can be unintentionally caught by tuna fishers making sets on FADs.
- They also can become entangled in FADs that are made with netting. Certain FAD designs and materials create an especially high bycatch risk for vulnerable species. Fortunately, current regulations now do not allow vessels to deploy FADs with netting material. However, there might be older FADs at sea that still have the netting, posing an entanglement risk to sharks and other "non-target" species. The new generation of FADs without netting, already compulsory in all tuna RFMOs, will replace those conventional FADs.
- FAD structures abandoned or lost in the ocean after fishing can continue to ensnare vulnerable bycatch species over time, a process called "ghost fishing."
- Those same unrecovered or lost FADs can pollute oceans, drift into reefs, and wash up on shores and beaches. Wherever FADs with non-biodegradable materials drift or sink, they persist in the marine ecosystem, becoming marine pollution and damaging coastal and benthic ecosystems.
- There are other potential impacts, such as the ecological trap hypothesis, but there is no scientific evidence about FADs changing the ecology and movements of tuna.

At ISSF, my fellow scientists and I have conducted at-sea research, as well as consultations with fishers through workshops, to identify ways to mitigate FAD impacts. A major part of this work focuses on fishers' use of best handling practices to safely release bycatch species, along with transitioning to FADs made mostly or completely of biodegradable materials.

We are conducting biodegradable FAD trials in all oceans. And, with our newest innovation, the jelly-FAD — comprised of materials that provide a structural density like seawater, allowing for a neutral drift in the water column, like a jellyfish — we are confident that a viable

FAD that is fully biodegradable will be available for fishers in the coming years.

**How do biodegradable FADs compare to conventional ones? What were some key findings from your recent visit to Colombia?**

Biodegradable FADs offer a more sustainable alternative to conventional FADs, which are generally made of plastic components.

Bio-FADs are made with organic materials like bamboo, cotton ropes, and woven palm leaves instead of synthetic plastics and nylon, which persist in the ocean for decades. While conventional FADs are more durable and widely available, they can contribute to marine debris and habitat damage. In contrast, biodegradable FADs are designed to break down naturally, reducing long-term pollution and aligning with sustainability efforts promoted by tuna RFMOs.

We are researching how to improve the durability of biodegradable materials while ensuring they remain environmentally friendly. Numerous fleets in the three tropical oceans have already begun bio-FAD tests. Organic materials are more expensive than plastic, but as production scales up and local sourcing improves, costs are expected to decrease. The transition from conventional to biodegradable FADs requires continued innovation, industry adoption, and regulatory support to balance sustainability with the operational needs of tuna fisheries. We are working on these things.

We recently visited Colombia, for example, to identify organic FAD materials that could be sourced locally to support fleets operating in the Eastern Pacific Ocean (EPO). We met with rope and canvas manufacturers that use organic materials for their construction and talked with engineers from a university who specialize in bamboo for civil construction projects.

In other countries where FADs are commonly used, we also are working to identify local suppliers of organic materials for FAD construction to the fishing fleets. To facilitate this, we educate them about the FAD industry, construction requirements established by tuna RFMOs, and other key technical considerations. We have travelled to Taiwan and Ecuador and will soon visit China and the Philippines. Our objective is to explore and source alternative


materials for FAD construction that meet sustainability standards and are harvested responsibly.

**How do you see fisheries science evolving in the next decade, particularly in sustainability and conservation efforts?**

If we look back 10 years, we can see how much fisheries science has evolved, which gives us an idea of where it's heading in the next decade. For instance, when it comes to FADs, there was almost no regulation a decade ago, yet today, we have made significant progress in managing them more sustainably. This trend will continue, with science playing a key role in driving improvements.

One of the transformative developments will be the introduction and expansion of electronic monitoring systems, which will enhance data collection, improve compliance, and accelerate scientific understanding, ultimately leading to better fisheries management. There is also a growing emphasis on including stakeholders in research and the decision-making process and advancing toward ecosystem-based fisheries management.

I'm optimistic about this transformation. The adoption of electronic monitoring can significantly speed up progress in sustainable fishing. In addition, consumer awareness of sustainability is growing, influencing market demand and encouraging more responsible practices. With these combined efforts—scientific advancements, regulatory improvements, stakeholder engagement, and market-driven sustainability—the next decade has the potential to bring even greater and faster progress in fisheries conservation and management.

**What are some of the biggest challenges you've faced in your research, and how have you overcome them?**

We have faced numerous challenges. I prefer to use the plural here, as this work is always a team effort. One early major challenge was the transition to non-entangling FADs (FAD structures designed without netting to prevent entanglement of marine fauna), and then the ongoing global shift toward biodegradable FADs. The complexity of this transition lies in its global reach, involving diverse countries, cultures, and fishing practices, each with different realities and constraints. While we were able to develop a technical solution, the real challenge came in ensuring widespread vessel adoption, which required translating scientific findings into effective management measures for fisheries. Bridging the gap between science and policy demands a strong collaboration with stakeholders in tuna RFMOs.

We continue to face other challenges. Some are scientific, such as improving our understanding of why and how tuna interact with FADs. Gaining this fundamental knowledge would enhance our ability to manage tuna fisheries more effectively. Technological challenges also persist, particularly in improving selective fishing. We are working with the acoustic equipment used by tuna fleets to help fishers distinguish between tuna species before setting their nets, enabling more informed and sustainable fishing decisions. Other challenges are more political, such as requiring existing technologies that could improve fisheries management but are still met with resistance in some sectors. Overcoming these challenges takes a mix of science, teamwork, trust-building, policy support,

and a good dose of creativity! We make it a priority to work in multidisciplinary teams, bringing together experts from different scientific fields, and, most importantly, local scientists who have invaluable knowledge of their fisheries.

Collaborating with fishers, engineers, and policy experts allows us to tackle problems from multiple perspectives and develop solutions that are both scientifically sound and practically feasible. Fieldwork with fleets is also key; there's only so much you can figure out from behind a desk. Getting out on the water, talking to fishers, and testing solutions in real conditions helps us understand what actually works (and to realize that what looks good on paper can fall apart in practice!).

Communication is another big piece of the puzzle. Turning complex scientific data into something that makes sense to policymakers, industry, and other stakeholders requires a lot of effort and translation—sometimes literally, given how global this work is!
And of course, a sense of humour helps! Working across different countries, cultures, and perspectives means unexpected challenges pop up all the time, but that's part of the adventure. The key is to stay adaptable, keep learning, and always be ready to adjust our approach as we go.

**Women in Science & Mentorship**

As a leader in your field, how do you support and mentor young female scientists entering fisheries management?
I always make an effort to provide additional support to women in my field. For example, when organising meetings, I am very conscious of the number of women present, and when planning projects, I ensure that women are leading part of the research. I also advocate for equity within my organisation and others, to achieve gender equality.

I often encourage young women to present their work and make a special effort to promote their research. Some people may see this as unfair, but it is not; it's necessary because women start at a disadvantage. For some, this may be difficult to understand, but many women have faced situations where they feel they don't belong in this field or where their expertise has been dismissed simply because of their gender. Those are just two of the many challenges we continue to encounter. This approach can sometimes make people uncomfortable, but I believe discomfort is part of progress.

**What advice do you have for young women aspiring to work in STEM fields, particularly in marine science?**

I would tell them to seek out mentors and colleagues who truly support them, and when opportunities arise, whether it's presenting their work, leading a project, or applying for a position, they should go for it, even if they don't feel 100% ready. This is important. Too often, women doubt whether they deserve a role or fear they won't measure up.

The reality is that women in marine science still face challenges that men don't, and recognising that isn't about complaining, it's about making progress. My advice? If they ever feel uncomfortable pushing for change, remember: progress is rarely comfortable, but that's how we move forward, and don't ever doubt that you belong in this field.

**Have you encountered gender-related challenges in your career, and if so, how have you navigated them?**

Yes, in my 25-year career, I have faced gender-related challenges, as many women do in STEM. There have been times when my expertise was not taken as seriously as that of my male colleagues, even when I had equal or greater experience.

I've encountered situations where I had to work harder to prove my capabilities, or where my contributions were overlooked until echoed by a male counterpart. A common experience during fieldwork with a male colleague is that people who don't know us often assume he is the project lead, addressing him as such, even when I am the one leading the work. And then there are the more subtle, systemic inequalities that are nearly invisible to those who don't experience them. These are situations that only women recognize because they are so deeply ingrained in the culture that they appear "normal" to many.

Women, at times, can be our own biggest obstacles. It took me a while to believe in myself. This is why I now make a conscious effort to uplift other women, ensuring they are encouraged to take leadership roles, speak up in meetings, and believe in their own expertise. Of course, not every woman has personally felt disadvantaged by sexism, just as there are men who have experienced self-doubt or hesitated to apply for a position they didn't feel fully qualified for. However, in the broader reality, it's an undeniable fact that women still suffer systemic disadvantages in STEM. Navigating these challenges hasn't been easy, but I've learned to be persistent. I've also built a strong network of colleagues who support gender equity, and whenever possible, I choose to work with people who share these values in an environment where I feel comfortable.

**How do you think initiatives like the International Day of Women & Girls in Science help encourage more women to pursue careers in STEM?**

Initiatives like the International Day of Women & Girls in Science play a crucial role in encouraging more women to pursue careers in STEM. First, they help raise awareness about the gender gap in these fields and highlight the achievements of women scientists, providing much-needed role models for younger generations.

These initiatives also promote discussions on the challenges women face in STEM, such as biases and lack of representation, which hopefully can lead to policy changes and institutional support for gender equality. All initiatives like this are necessary for progress. Without them, achieving true gender equality in STEM would be much more difficult.

# Women Leading Change In Aquaculture And Marine Science

**Women make significant contributions to aquaculture and marine science, yet they remain underrepresented in leadership roles.**

Despite comprising roughly 50% of the global fisheries and aquaculture workforce, fewer than 30% hold decision-making positions (FAO, 2022). This trend is mirrored in academia, where women make up the majority of undergraduate students in the UK (57%), yet their representation declines sharply in senior positions, with only 30% of professors being women (Advance HE, 2023).

This disparity exists despite evidence that female students outperform their male counterparts academically—84% of white female students and 65% of Black female students attain a First or 2:1 degree, compared with 81% of white male students and 59% of Black male students (Advance HE, 2023).

However, this academic success does not translate into proportional representation in leadership within academia. Women continue to face slower career progression, lower research funding allocations, and the additional burden of institutional service work, often referred to as the "mental load" (Weeks and Ruppanner, 2024; Huyer, 2015).

Women, especially those with caregiving responsibilities, often take on a disproportionate share of administrative and teaching workloads, limiting time for research—the primary driver of academic promotions (Guarino & Borden, 2017). The gendered "mental load" of academia—balancing research, teaching, pastoral care, and home responsibilities—adds another layer to these challenges (Social Sciences Feminist Network Research Interest Group, 2017).

However, the Institute of Aquaculture (IoA) at the University of Stirling, for the first time in its 50+ year history, has reached gender parity at the professorial level—a reflection of the institute's commitment to recognising excellence in research, leadership, and innovation. Professors Amaya Albalat, Mags Crumlish, Sonia Rey-Planellas, and Associate Professor Mónica Betancor exemplify this, having earned their positions through their internationally recognised expertise, groundbreaking research, and dedication to mentoring the next generation of aquaculture scientists while also balancing roles as mothers, wives, and mentors. Their success highlights the strength of talent at the IoA and its role in shaping the future of global aquaculture science.

## Scientific leadership in aquaculture and marine science

**Professor Amaya Albalat- Global expert in stress physiology**

Professor Albalat is a leading researcher on stress physiology in both decapod and fish species. Her current research is focused on optimising stunning methods using behavioural and neurological responses as proxies of insensibility (Neil et al., 2024). Previous research uncovered key biochemical pathways that determine fish and shellfish quality post-mortem. Optimisation of harvest, handling and stunning are critical not only for industry profitability but more importantly to ensure animal welfare. She is currently the Director of Research at the IoA. Her expertise is widely sought after by both academia and industry, as her findings help optimise aquaculture production, improve animal welfare, and enhance the quality of seafood products.

**Associate Professor Mónica Betancor- Transforming aquafeeds for a sustainable future**

Associate Professor Betancor is at the forefront of sustainable aquafeed innovation, tackling one of aquaculture's biggest challenges: reducing reliance on marine-derived ingredients. Her research on genetically modified Camelina sativa, an oilseed plant enriched with omega-3 fatty acids, has provided a viable plant-based alternative to fish oil—a game-changing development for reducing pressure on wild fish stocks (Betancor et al., 2015). Her work has been instrumental in shaping industry practices, demonstrating that alternative feed ingredients can match or even surpass traditional fishmeal and fish oil in terms of nutritional quality and fish health outcomes.

**Professor Mags Crumlish- A pioneer in aquatic disease management**

Professor Crumlish has built a global reputation for her work on aquatic bacterial diseases and diagnosis. Her research has influenced disease control strategies in aquaculture, particularly for economically significant species including pangasius and tilapia. Her studies on bacterial infections have led to improved diagnostic methods, advances in biosecurity measures, and vaccine strategies, directly benefiting sustainable fish farming (Crumlish et al., 2024). Beyond her scientific contributions, Professor Crumlish Chaired the IoA's successful Athena SWAN Bronze Award (2019), demonstrating a commitment to gender equity in STEM. She took on this work in addition to her research, an example of how female academics often bear a disproportionate service load in academia (Guarino & Borden, 2017).

**Professor Sonia Rey-Planellas- Bridging behavioural science and aquaculture**

Professor Rey Planellas' research focuses on fish behaviour and welfare, challenging conventional approaches to aquaculture system design. Her work demonstrates that fish exhibit individual personalities and behavioural traits, which can significantly impact stress resilience, immune function, and growth performance (Rey Planellas et al., 2015). By incorporating behavioural science into aquaculture, her research has influenced welfare-enhancing production systems. In addition, she previously chaired the IoA's EDI Committee.

**Addressing structural barriers in aquaculture and academia**

These female academics act as role models for our students, staff and industry partners, however, the evidence overwhelmingly shows that women in science face systemic obstacles:

- **Funding inequality:** Female scientists receive less research funding than their male counterparts, even when applying under identical conditions (European Commission, 2021).
- **Career progression:** While women enter STEM fields at similar rates to men, they are far less likely to reach senior leadership positions due to slower career progression (mostly due to child-rearing responsibilities), biases in hiring and promotion structures (Huyer, 2015).
- **Citation disparity:** Studies show that female scientists receive fewer citations than male scientists, which directly impacts funding opportunities and professional recognition (Schmaling et al., 2023; Helmer et al., 2017).

At the IoA, while EDI initiatives have been supported by both women and men, the reality is that progress requires continuous effort and structural changes. One of the least recognised yet most impactful burdens faced by female academics is the mental load of institutional service work. Women are more likely to take on roles in EDI committees, mentorship, and departmental governance—all crucial responsibilities, but ones that sometimes do not count equally towards promotions or research evaluations (Guarino & Borden, 2017). A crucial takeaway from these women's achievements is that their success is a result of merit, expertise, and relentless effort. They are highly cited researchers, globally recognised experts, and innovators in their respective fields. For institutions to truly support gender equity in STEM, the focus must shift from representation targets to structural reforms that allow women's talent and contributions to be fully recognised.

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# Women In Scottish Aquaculture: Accelerating Action In The Sector

**As the leading professional network for women working and studying in Scottish aquaculture, WiSA is on a mission to advance the sector by developing the potential of women, at all levels, within their respective organisations. By celebrating the achievements of women already making significant contributions, and by providing crucial talent development, WiSA is fostering a more inclusive and diverse aquaculture community.**

### Growth of Women's Presence

Increased diversity in aquaculture brings unique perspectives and skills to the sector. And here in Scotland, a growing number of women are shaping the ecosystem by occupying crucial positions. They are taking up leadership roles, driving innovation, and contributing to a more balanced and collaborative work environment. For example, Mowi, the largest producer in the industry, has reported that 40% of the company's area managers are women, with their female workforce growing from 8% to 12.5%, demonstrating the tangible progress being made.

### Challenges

However, challenges remain. The aquaculture sector has traditionally been male dominated, which can present practical constraints such as ill-fitting personal protective equipment (PPE) and the physical demands of the job. Wider issues also persist, such as unconscious bias and the perception of limited equal opportunities. These are additional hurdles that WiSA is actively aware of.

Increased diversity in aquaculture brings unique perspectives and skills to the sector.

### Improvements and the Role of WiSA

The good news is that the industry is evolving. Technological advancements and automation are reducing the physical demands of aquaculture work, making it more accessible to women. More businesses are adopting flexible working policies, making shiftwork much more feasible for people with caring responsibilities, who, more often than not, are women.

WiSA plays a complementary role in driving this positive change. The organisation raises awareness about the valuable contributions of women in the sector by showcasing their varied career journeys. WiSA's mentoring programme develops female talent by providing guidance to early and mid-career professionals, as well as equipping more experienced individuals with the skills to mentor effectively. To date, WiSA has delivered three successful mentoring programs, with a fourth on the horizon, reaching a significant number of women in the sector.

### WiSA's Impact and Future Directions

WiSA's commitment to recognising and empowering women in aquaculture is further demonstrated through their annual awards and training and networking events, providing women with opportunities to connect, learn and share best practices.

Looking ahead, WiSA aims to continually adapt to the needs of women in the sector, with the guidance of its advisory group, to help shape a more equitable and thriving future for women in Scottish aquaculture.

# Sue Mackenzie Elected As First Female President Of The NFF

**Sue MacKenzie Elected as First Female President of the NFF – National Federation of Fishmongers**

Marking a historic moment for the National Federation of Fishmongers (NFF), Sue MacKenzie was elected in February this year as the new President during the AGM.

As the first female President in the Federation's long history, Sue succeeds Rex Goldsmith, and the committee extends their heartfelt thanks to Rex for his dedication over the past three years. The team now looks forward to working under Sue's leadership.

Sue, the owner of The Fish Shop in Camberley, adds this prestigious role to her impressive list of industry achievements. In addition to her new presidential role, Sue is a Trustee of the Fishmongers & Poulterers Charity and holds the Master Fishmonger accreditation.

Sue shared her excitement, saying: "I am thrilled to have been elected as the President of the National Federation of Fishmongers, and I'm especially proud to be the first woman to hold this position. It has been a true pleasure to be involved with the Federation over the years, and I'm grateful for the opportunity to carry the role forward after Rex Goldsmith."

> 'I am thrilled to have been elected as the President of the National Federation of Fishmongers, and I'm especially proud to be the first woman to hold this position'

Looking ahead, she added: "There's much to do in 2025, and with such a fantastic team on the Council, I'm really looking forward to the challenges and opportunities ahead!"

**About the National Federation of Fishmongers**

Founded in 1932, the National Federation of Fishmongers was created to protect and promote the interests of fishmongers and associated trades. During World War II, membership peaked at over 9,000, and despite the evolving market and challenges facing independent retailers, the Federation continues to represent roughly 50% of independent fishmongers today.

The NFF is widely recognised as the voice of the retail fish trade, working closely with government departments, trade organisations, and official bodies like Seafish and Salmon Scotland. Many of its members, including those on the current Council, have received the highly esteemed Master Fishmonger accreditation from the Fishmongers Company for their exceptional expertise and skills.

# Women At The Helm In Scottish Fishing Industry

**It is traditionally regarded as a male-dominated industry, but women have risen to the top in the Scottish fishing industry.**

The chief executive of the country's largest fishing body, the Scottish Fishermen's Federation (SFF) which represents more than 400 vessels, since 2019 has been Elspeth Macdonald, formerly deputy chief executive of Food Standards Scotland.

President of the SFF is Hannah Fennell, who is the head of the Orkney Fisheries Association (OFA), and vice-president is Sheila Keith, executive officer at Shetland Fishermen's Association (SFA).

Equally, while the statistics show that the vast majority of skippers and crew are male, the workforce demographic is starting to change.

Erin Mackenzie, who featured as part of the SFF's successful Pride in the Seas campaign, is a deckhand on board the prawn boat Caralisa out of Mallaig in the west Highlands.

Elspeth says: "I've been asked many times what it's like being a woman leader in what is a very male-dominated industry and I can say that I have been treated with nothing but respect since I took on the role.

"I have not felt any gender-based bias in going about the job. While I don't hail from a fishing family, I grew up in a small fishing town on the west coast and have always had maritime 'roots' – I think these have helped me find my way."

For her part Erin, believes that fishing is in her blood and loves being out at sea. She worries about the lack of young recruits joining the fleet, perhaps put off by the physical workload and lack of time off but believes that neither of these things should deter young women like herself from a career on board.

'I have not felt any gender-based bias in going about the job'


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# **Dr. Alexandra Leeper**, CEO Of The Iceland Ocean Cluster, Reyjavik

**The Iceland Ocean Cluster is a pioneering initiative based in Reykjavík**

**We posed some questions to Dr. Leeper.**

**How did studying at multiple universities (e.g. Southampton, Bilbao, Liege) help expand your knowledge in the blue economy?**

I found it hugely beneficial to experience different universities and educational cultures around the world, as well as the differing blue economy priorities. I suspect this experience in fact was more important in teaching me about differing cultural interactions, effective communication of science across language barriers and adapting to different work-life balances than perhaps it was academically. For example, how progress and understanding is evaluated across different countries and universities is very different, what types of skills sets are prioritised varies and even the level of initiative and creativity expected or desired in different countries varies. Different universities also put differing emphasis of fundamental compared to applied sciences and this really solidified for me, my personal passion lay in direct impact and application of scientific knowledge.

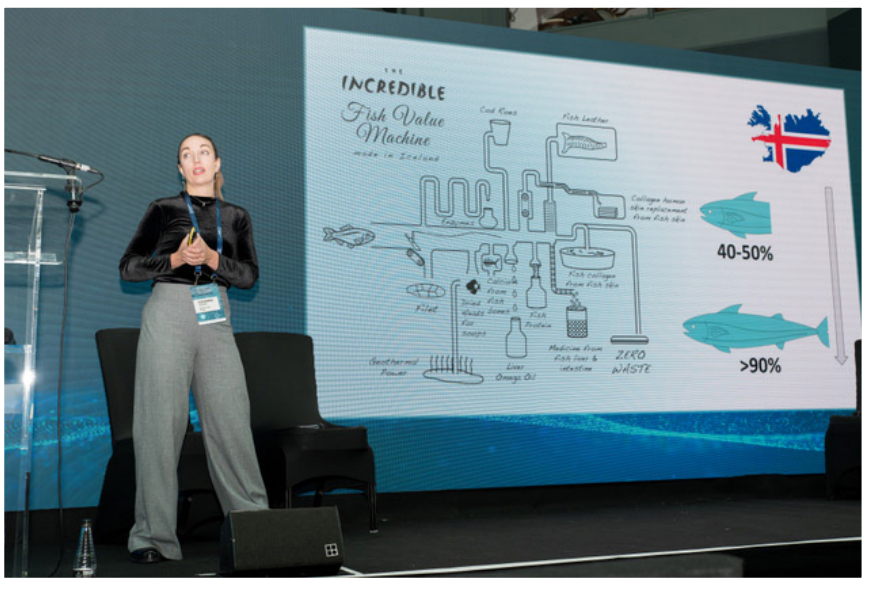
**Can you share more about your PhD research in sustainable aquaculture at NMBU, Norway and Matís, Iceland? What were some of the key findings or challenges you encountered?**

I was very lucky with my PhD, both in terms of the subject matter and in terms of having a great committee. My PhD was jointly carried out between a university and applied research institute, again balancing two differing organisational and cultural philosophies. The research objective, focused on sustainable food security was really asking the question: How can we farm fish more effectively and sustainably? Testing alternative proteins, sourced from the circular economy (e.g. Insects grown on food side streams, or yeast grown on forestry side streams) in the diet of Atlantic salmon, and measuring the impact of growth, gut microbiome and behaviour (a key indicator of welfare). This allowed a cross-disciplinary approach, which really suited me personally, but did require a wide-angle lens approach to the research, keeping different fields and perspectives in mind in a single thesis. The studies collectively showed that these ingredients, if applied in the right formulations of feed, may indeed impact and potentially improve fish farming compared with traditional ingredients which could in turn, enhance sustainability of the sector.

> ‘my personal passion lay in direct impact and application of scientific knowledge’

**How did your previous studies and work experiences prepare you for your PhD in sustainable aquaculture?**

There were a couple of really distinct experiences that shaped the nature and direction of my PhD studies. I´ve loved the ocean since I was young and started diving at the age of 12 and working with fish from a young age, which instilled in me a strong sense of respect for the power and beauty of the ocean. I started teaching diving in Malaysia and saw stunning marine habitats, and also first hand, the human impact through fishing and waste management on these environments. Then through my bachelor´s at Plymouth University, which included a year out for experience building (“sandwich year”) working in research at Bangor University, Wales and consultancy at DHI, Singapore, I started to narrow my focus on the thought of – how can we do all the things we need to do for a healthy society – find food, defend coastlines, source energy etc, without significant harm to ocean health.


A stint working offshore in seismic exploration as a navigator – way out in the high seas, where negative human impact is still very visible, just intensified this thought. I ended up focusing on aquaculture, as an increasingly important source of global seafood, that needs to be improved if it is to be a sustainable future solution to human food security. The idea that the "waste" from one industry could be used, not wasted, and could create value for another industry – this just made all the dots connect for me as the way all industries should function.


**Iceland has pioneered the 100% Fish Programme at Iceland Ocean Cluster. As CEO, what are you most excited about for the future of this programme?**

100% Fish, the model of how we can optimally use every part of the precious seafood that we catch and farm, minimising waste, and simultaneously creating resilient value was the programme that first attracted me to the Iceland Ocean Cluster. It has been such a pleasure to join Dr. Thor Sigfússon, the founder of the cluster back in 2022 and now be leading the cluster team and 100% Fish into the future. What I am most excited and proud of, is how we are now extracting the core learnings and components of the 100% Fish model, originally built on full utilization of Atlantic cod in Iceland, and through amazing international and cross-sector collaborations, adapting and applying the 100% model to species and countries all around the world. Examples of this are ever emerging, starting with the 100% Great Lakes project led by the Great Lakes St. Lawerence Governors and Premiers, 100% Shrimp in Greenland in collaboration with Royal Greenland. Further spread of 100% Fish activities and cluster collaboration is being pioneered too by our sister clusters established with support of Iceland Ocean Cluster, all over the world, to name a few, the Danish Ocean Cluster, the Namibian Ocean Cluster and the Oregon Ocean Cluster. This means we are constantly learning too from each of these regions and seafood species. This takes a dynamic, adaptable and innovative thinking from our amazing team and the teams we collaborate with internationally.


**Have you seen a change in the role of women in blue economy, throughout your career?**

This is an interesting question; I am currently 33 and perhaps have not been in the sector or in my career journey long enough to identify large systematic shifts in the role of women in the blue economy and seafood. I have noticed however, that where there is inequality or inequity present, particularly significantly present, it is more often commented upon or acknowledged in an open and public way, by both men and women. This change in dialogue makes me feel hopeful for greater change in action, so maybe ask me again in 20 years!

**Is Iceland an advocate for women in the blue economy?**

I think Iceland is an advocate for women in general, just a glimpse at the current political leadership provides a host of great women leaders and role models that are hugely important for the overall perception of women in society. Iceland, like everywhere, of course is not without its challenges, there are for example still few women working on fishing vessels or captaining ships. There are also intersectional considerations that are challenging Iceland to advocate for women more inclusively, for women of foreign birth, women of colour, and women from minority backgrounds for example. There is work to do, but again I find it hopeful these are active and public dialogues.

**Has being a woman been a positive or a negative in your chosen career?**

Having not gone through my life in any other way, its hard to say, but I suspect I have learnt different lessons and skills in my career path as a woman than I might have as a man. To give one example, my impression is, as a woman I must prove my worth every time I enter a new community, whereas, as a generalisation, a man´s worth tends to be assumed on entry. While this has proved frustrating on numerous occasions, it has meant I have developed a honed skill in expressing my personal and professional value proposition, which has no doubt helped me in my career too.

> 'as a woman I must prove my worth every time I enter a new community'


**How have your early leadership roles, like being Head Girl and Managing Director of St. Mary's Young Enterprise Company, influenced your approach to teamwork and leadership in your academic and professional life?**

These early roles were wonderful opportunities to experience some of the expectations of a leader. The Head Girl role was happening at the same time I was training to be a scuba diving instructor, and in both cases, I felt like it instilled in me quite a strong duty of care for the people I was leading, and it was definitely a taste of responsibility for others that has stayed with me. In all these early roles too, I was encouraged and expected to speak publicly and started to develop my communication skills, and realised it was something I really enjoyed doing. Something too that the diving instruction taught that has influenced me to this day, is the art of giving feedback to people in a constructive way, in PADI dive school, they teach this with a script and a gentle approach that combines something that a person is doing well as something they can work on to improve. In all cases these experiences showed me a collaborative style of leadership which I favour in my current role too.

**What advice would you give to someone considering a career in marine biology, sustainable aquaculture or the blue economy, especially women, based on your educational and professional journey?**

For any career I would say: In every experience you have, every job relevant or not to your dream career, I would say think about what that job taught you, both in terms of skills, but also about yourself, what you value, what is important to you, and what aspects of that role brought you joy, and importantly, what did you dislike? This has helped as I have moved into different roles, in different cultures and in the case of specific roles, it has helped me communicate why I want a job and why I would be well suited to it. Nothing beats experience, so try to get as much relevant and diverse experience as possible, marine biology and the blue economy is a really wide field, from biology, to digital, to engineering and business skills there are many routes into this this sector. I would say good mentors and great role models and building professional relationships is important for everyone.

# Farah Obaidullah
## founder of Women4Oceans

**Farah Obaidullah, one of the leading voices for ocean advocacy and one of the most inspiring and dedicated figures in marine conservation.**

Raised in The Netherlands, Gabon and the UK, Farah developed a deep connection to the ocean through snorkelling, rescuing marine animals as well as through her studies before becoming a Senior Oceans Campaigner with Greenpeace. For over 20 years, she has been relentlessly pursuing her mission to save the ocean from destructive fishing, labour abuses and fish crimes

Today, Farah is the founder of Women4Oceans, a platform empowering over 5,000 women across 70 countries to lead marine conservation efforts, and The Ocean and Us, a non-profit organisation that connects people to the vital role of oceans in our lives. Her current mission: The Ocean Hope Expedition, a project aimed at preventing deep-sea mining, a major threat to marine ecosystems and fostering a sense of hope that collectively we can stop a disaster from starting.

Why 2025 is the ideal moment to showcase Farah's story?

This year is a pivotal year for the future of our oceans. With the UN Ocean Conference (UNOC) just around the corner, issues such as deep-sea mining—a topic Farah is deeply passionate about—will take centre stage.

Farah will be a key participant at UNOC, providing invaluable insights and championing the protection of fragile marine ecosystems. Through her work with The Ocean Hope Expedition, she is shedding light on the potential devastation caused by deep-sea mining and advocating for stronger protections for the High Seas.

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## Farah Obaidullah

With a life dedicated to the ocean, spanning advocacy, global campaigns, and grassroots empowerment, we believe that Farah's story deserves to be told. Her work is not only timely but deeply inspiring, offering readers an opportunity to connect with essential ocean issues through her unique perspective.

**Farah has successfully executed campaigns to end destructive fishing practices including in West Africa, the Pacific and the North Atlantic. She has worked with coastal communities, lobbied for protected areas at sea and is currently campaigning to stop deep-sea mining from happening on the High Seas.**

**Farah is the editor of the book: The Ocean and Us. A book that explores all the ways our lives interact with the ocean.**

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**Farah's platform Women4Oceans has attracted 5000 women from more than 70 countries to the growing movement to protect our ocean. Over the past several years, Farah Obaidullah has been campaigning for a moratorium on deep-sea mining. The campaign has garnered close to 350,000 signatures on its 'Say NO to deep-sea mining' petition and is actively collecting endorsements from organisations and businesses on a deep-sea mining declaration.**


We must bring back healthy oceans, our lives depend on it.
-Farah Obaidullah
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