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Equality, diversity and inclusion: A way forward for aquaculture in Scotland

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This paper focuses on the importance of equality, diversity, and inclusion (EDI) in the aquaculture industry, with a particular emphasis on the sector in Scotland. Aquaculture is a particularly important industry when it comes to EDI, given its potential to address Sustainable Development Goals on gender equality and diversity. The paper highlights the increasing attention being paid to EDI in many areas and the significant benefits to businesses that adopt EDI policies, including improved reputation, increased innovation, and greater profitability. This paper draws on a survey of EDI in Scottish aquaculture, a workshop and interviews with industry experts to suggest concrete actions that could improve EDI in the sector. A key priority is the collection and publication of workforce data in Scottish aquaculture as well as industry champions who raise awareness and promote EDI, and supporting cross-sector organizations who provide EDI training. We conclude by calling for more research to support the development of EDI in Scottish aquaculture, which will contribute to future resilience and fairness as well as a dynamic, relevant, and accessible industry.

KEYWORDS

equity, governance, social justice, data, value chains, farmed seafood

1 Introduction

Over the past decade, the human dimension of seafood supply has become an increasing area of focus for researchers, policy-makers, and industry (Teh et al., 2019; Wilhelm et al., 2020; Szymkowiak, 2021). Post-pandemic attitudes held by employees towards their employers have changed and organizations are acknowledging the important connection between workplace conditions and well-being (Krekel et al., 2019). Leaders must now navigate the disclosure economy (Lutz et al., 2018; Sama et al., 2022), the 'Great Resignation' (Formica and Sfofera, 2022; Serenko, 2022), and a competitive talent market. In addition to the moral imperative of improving equality, diversity, and inclusion (EDI) in the workplace, EDI is an essential aspect of good people management, contributes to the

well-being of employees, and full representation has the potential to benefit the UK economy (McGregor-Smith, 2017; Syed and Ozbilgin, 2019; Warren et al., 2019; Ali, 2022).

EDI is an umbrella term for the power an organization can derive from deliberately nurturing and integrating diverse groups of people into the workplace (Barclay et al., 2019). Access to rights, goods and services based on social or economic characteristics is the result of certain beliefs and practices (Barclay et al., 2019). If business strategy includes equality, diversity and inclusion then reputation, relationships, profits, innovation, collaboration and safety are all positively changed, and not just for disadvantaged groups (Levitas et al., 2007; Barclay et al., 2019; Krause, 2022).

Aquaculture has enormous potential to address Sustainable Development Goal (SDG) 5 on gender equality and women's empowerment, but also for broader goals of diversity and inclusion. Aquaculture is the fastest growing food industry sector globally, offering a healthy protein with less carbon impact than other forms of protein (FAO, 2020). In Scotland, salmon is the UK's biggest fresh food export with a direct economic contribution in 2021 of GBP 303 million in Gross Value Added (GVA, a measure of contribution made by a producer, industry or sector to the economy). This reaches GBP 766 million if all indirect supply chain and staff spending is included (Salmon Scotland, 2022). Aquaculture production and processing directly employs more than 2,500 people with a further 10,000 Scottish jobs dependent on the sector and concentrated within the Highlands and Islands, generally in rural and coastal communities (Salmon Scotland, 2022). In general, biological, technical and economic aspects of aquaculture production have been addressed more than social and cultural aspects (Krause, 2022). As building a wellbeing economy based on an inclusive economy that promotes sustainability, prosperity and resilience is a priority for Scotland (Scottish Government, 2023), the aquaculture sector presents an opportunity to enhance wellbeing.

The objective of this paper is to reduce the knowledge gap around EDI in the aquaculture sector in Scotland and suggest leverage points for improvements at the business and policy levels. In this perspectives piece, we begin by defining EDI in the context of aquaculture generally, before focusing on the sector in Scotland. We draw on the results of a survey on EDI in Scottish aquaculture, distributed through our networks, and an accompanying workshop that was attended by policy makers, researchers and industry representatives. Follow-up interviews were also held with industry experts. We present these outcomes and our recommendations for concrete actions leading to improved EDI in the sector, before concluding with a call for future research in Scotland to support this ambition.

2 Understanding the terms

EDI in the workplace is any action that provides opportunities of access, participation, and fair treatment, regardless of identifying characteristics (Gill et al., 2018; Johnson and Chichirau, 2020; Cameron et al., 2021; Estime et al., 2021). EDI is built upon a commitment by an organization to going beyond non-discriminatory rules to building a trusted company culture;

enabling, understanding, recognizing and integrating diverse voices, including underrepresented or marginalized groups (Pless and Maak, 2004). Successful EDI programs provide numerous potential benefits, including improved efficiency, productivity and value (Zhang et al., 2003; Morley, 2018). In aquaculture, the challenge of equity is also linked to nutrition, sustainability and access to benefits, especially by women and marginalized groups, although much of the research to date has been focused on developing countries. (Bush et al., 2019; Gopal et al., 2020; Krause, 2022; Simmance et al., 2022).

Equality is when resources are distributed fairly and the systemic barriers that oppress underrepresented and marginalized groups are removed. Wage inequities, a lack of gender parity, discriminatory access to technology, productive resources or decision-making power are barriers to equality in aquaculture (FAO, 2020; Adam et al., 2022; Kusakabe, 2022).

Diversity refers to differences within a workforce according to language, gender, race, ethnicity, language, and (dis)ability. Non-visible disabilities include mental health conditions, autism, visual or cognitive impairments and conditions such as diabetes or chronic fatigue. Research on workforce diversity sits within the organizational behavior literature (Roberson, 2019; Yadav and Lenka, 2020) but in aquaculture is most often related to diverse characteristics and contributions made to food systems (Short et al., 2021).

Inclusion refers not only to individual feelings that a worker's contribution is valued, but also that the organization itself is contributing valuably to its environment (Mor Barak, 2000; Mor Barak and Travis, 2010; Barak, 2022). Recent additions to the literature has been food justice and inclusion (Krause, 2022; Hicks et al., 2022; Axon and Collier, 2023). For example, the rapid expansion of aquaculture production can alter the nature of local ecosystem services and access by particular groups in society to diverse, nutritious seafood (Brugere et al., 2021; Chenyambuga et al., 2014).

3 Methods

We launched a questionnaire in October 2022 to compile information on perspectives on EDI in the Scottish aquaculture sector by a range of stakeholders. While the survey was open, a half-day workshop was held in November 2022 at the Marine Alliance for Science and Technology Scotland (MASTS) Annual Science Meeting (ASM) in Glasgow and co-hosted with the grassroots networking group, Women in Scottish Aquaculture (WiSA). The workshop aims were to discuss EDI in Scottish aquaculture from the perspectives of industry, policy, and science, and to conclude with recommendations for these sectors. The workshop had 15 attendees; two men, one non-binary and the rest women. One speaker each from academia, industry and policy presented, and the audience was made up of MASTS ASM attendees (primarily researchers), including two additional invited industry representatives. Three in-depth interviews were held with industry sector experts after the workshop and initial survey analysis in order to examine emerging themes and recommendations from the workshop.

The survey was made up of tick boxes and text boxes and received 23 responses in total. 74% of all the respondents were female, 31% of all respondents were below the age of 30 (35% between the ages of 46-64 and the rest over 64). 70% of respondents had a postgraduate degree and 30% had at least a first degree. Overall, the demographic responses demonstrated that respondents were primarily female and well-educated: an outcome that is not representative of the sector in Scotland as a whole.

Sixty per cent of respondents indicated that they live in a household where at least one member is or was actively employed in the aquaculture industry. 16 survey respondents came from supporting services to the value chain (research, industry associations etc) and 7 responses were submitted by those actively involved in the aquaculture value chain – input supply, aquaculture farming and seafood distribution. There were no respondents from seafood processing (outside the scope of this study), retailers, NGOs or policy makers, although there was policy representation at the workshop.

4 EDI in Scottish aquaculture

In Scotland, farmed seafood production is a leading rural industry that offers substantial benefits for fragile economic areas (Alexander et al., 2014). In 2020, aquaculture represented 0.38% of the overall Scottish economy and 11% of the marine economy GVA from 218,000 tonnes of production (Marine Scotland, 2022). Consumption of Scottish salmon increased in the UK in 2021 by 8%, but, despite this, most of the seafood eaten in the UK is imported (Seafish, 2022). In general, the amount of fish eaten by the British population remains static and significantly below recommended guidelines of at least two portions of fish a week, one of which should be oily fish (NHS, 2023). Within Scotland, there are large and growing inequalities in consumption of seafood by age and wealth and consumption of seafood is limited by poor affordability, culture and class (Seafish, 2019).

In 2018, women made up 15% of shellfish aquaculture workers and 11% of salmon aquaculture workers in Scotland (ScotGov, 2019b) with both horizontal and vertical segregation evident: the majority of women work in the processing sector and women are under-represented in managerial positions (ScotGov, 2019b). This mirrors the aquaculture value chain worldwide in which women primarily work in the administration and food processing sectors, but their work is often underappreciated and under-acknowledged (Frangoudes and Gerrard, 2018; Zhao et al., 2013). Work undertaken by women is usually unrecognised in official statistics, sector policies and development programs: for example, the FAO collects data on primary fish production (14% of women) but not on the secondary sector that employs many more women (Gopal et al., 2020). Global and most national fisheries policies are gender blind, and SDG 14 Life Below Water, is one of the few SDGs not to contain gender targets (UN Women 2018; Gopal et al., 2020). Despite decades of research documenting women's economic contributions, collective action to advance women's interests and rights and mainstream gender inclusion in fisheries development programs, gender equality and women's empowerment remain a challenge globally (Gopal et al., 2020).

Despite the importance of aquaculture to Scotland, without sufficient data, it is easy to underestimate the formal and informal barriers limiting women's and other marginalized groups' contribution to Scottish aquaculture, as well as the impact of improved diversity and inclusion policies. Aside from social justice represented by SDG 5, inequity results in inefficiency in the allocation of human resources and results in missed opportunities for innovation (Kruijssen et al., 2018). Furthermore women's responsibility in the household affects their strategic choices regarding work outside the home and can reinforce inequity. (Hegewisch and Gornick, 2012; Howcroft and Rubery, 2019; Yerkes et al., 2020; Kabeer, 2021).

When asked about barriers to women's participation in the industry, 48% of all respondents agreed that barriers exist. Reasons provided centered around the nature of aquaculture work, current safety measures, benefit policies such as maternity leave, and that the proportion of unpaid work in the home is still primarily undertaken by women. Both male and female respondents said that a barrier to improved EDI is the ongoing perception that work in the aquaculture sector is a job for men, due to the physical aspects of work, particularly on farms. The physicality of modern aquaculture farm work was contradicted through discussions at the workshop that indicated that today's workforce, regardless of gender, relies on a number of automated systems that promote health and safety. Other barriers include an assumed lack of female competency for on-farm work, few female role models, lack of support at home, working in a male-dominated environment, balancing career and family, unattractive parental leave benefits (maternity and paternity leave) compared to other industries, lack of training on EDI across the sector, and inflexible working arrangements after maternity leave. These barriers are similar to those experienced in other industries such as agriculture, education and finance and stem from the same root causes (Bettio and Verashchagina, 2009; Michailidis et al., 2012; Briceño-Lagos and Montfort, 2018; Petts et al., 2021).

When asked about barriers for people with visible and non-visible disabilities, 50% of all respondents indicated that they do not know whether barriers exist. 45% indicated that they do exist. When we explored these responses with experts, respondents said they rarely saw people with visible disabilities, and that non-visible disabilities were not routinely spoken about. This may be because barriers to entry into the industry are sufficiently high for people with visible disabilities that the sector is not seen as a viable option, or because non-visible disabilities are not disclosed, even where they exist. EDI policies around access to work and support for people with visible and non-visible disabilities could lead to adapting tasks within aquaculture to make them more accessible. One respondent indicated that some otherwise-accessible tasks to people with disabilities may not currently be possible due to easily resolved issues. Strengthening EDI could encourage companies to think ahead and plan to remove barriers rather than wait until an employee has difficulties.

Almost 80% of respondents said they were unaware of any aquaculture-specific frameworks help people with visible and non-visible disabilities and 63% of respondents indicated they were unaware of policy and legal frameworks to support women's

participation in Scottish aquaculture. The following section look at the ways to overcome these barriers and improve EDI across the sector.

5 Discussion

The first condition necessary for improving EDI is to understand the contribution and needs of certain groups. The collection and publication of workforce data in Scottish aquaculture is therefore necessary to reduce barriers that prevent participation. Improved data collection around EDI in Scottish aquaculture would increase the visibility of women or those with visible or non-visible disabilities already working in the aquaculture sector, and could ensure policies and structures are neither gender blind nor maintain unequal power structures. Food systems in general have not yet adequately addressed the challenges of EDI. Without adequate data, policies that ensure equality and positive promotion of diversity and inclusion are missing or undervalued. One way to help this is to ensure that women have strong roles in decision-making processes that shape programs, policies, and investments. However, women are currently under-represented in all the UK devolved administration states' fisheries and aquaculture sectors (BiGGAR Economics, 2020).

Increasing EDI will also rely on internal company policies around recruitment and retention of talent. One way to improve EDI is for an aquaculture company to positively select for diverse or underrepresented groups [including setting targets, like professional services firms (KPMG, 2023)]. For this policy to be successful, companies may need to broaden their recruitment strategies. Increasing EDI is further improved when the industry itself is an attractive and competitive option, which requires commitment by companies to investing in current talent. This could be through leadership programs, mentoring opportunities and women's networks, as promoted, advocated and delivered by WiSA, competitive salary and benefits packages and flexible working. Innovative EDI policies combined with EDI training could form part of a competitive offer and would contribute to increasing percentages of women and people with visible and non-visible disabilities in the aquaculture workforce in Scotland.

Amplifying the work that women and underrepresented groups already do would highlight the diverse and inclusive workforce that already exists in parts of the sector in Scotland, attracting greater diversity and inclusion as a result. WiSA was a network established in 2019 at the initiative of the Sustainable Aquaculture Innovation Centre (SAIC). WiSA's aim is to support and make women already working in the industry visible, as well as working to increase the representation of women, particularly in senior leadership positions and offshore operations (WiSA, 2023). WiSA was referenced by participants as a valuable provider of mentorship opportunities, career fairs, support and sector-wide training. WiSA now has over 300 members and its mentoring scheme has successfully linked over 40 early-stage professionals with experienced aquaculture leaders. It also delivered a returners' training programme to attract women not in employment into the aquaculture industry (WiSA, 2023). Increasing funding for WiSA was encouraged by respondents.

Workshop discussions and the survey indicated that company commitments to EDI, including raising awareness and providing training, would accelerate positive change. One expert who works for an aquaculture processor said that overcoming barriers to EDI requires "leadership from within the industry", including regular internal company training and awareness raising on EDI issues and tools. Other policies that would support EDI should also be reviewed and strengthened. For example, improved flexible working options are more likely to attract diverse talent and those with caring responsibilities or who prefer to work remotely or part-time. Workshop participants discussed how investments in technology allow more tasks to be completed remotely, and how lockdown led to increased automation and therefore opportunities for people with disabilities. For example, video monitoring of pens would allow someone who cannot work on-site to work at the farm level. Another area identified where improvements could be made to strengthen recruitment and retention is parental leave policies. In aquaculture, companies will need to align benefits packages with broader wellbeing trends that permit families to find balance and promote equal work in the home and with child-rearing. For the aquaculture industry in Scotland, attracting and retaining talent also relies on broader policies around housing, childcare and accessibility in rural areas. Boosting facilities in these areas, such as processes for becoming childcarers (one example provided during the workshop), could improve EDI by attracting and retaining talent.

EDI needs to be talked about more openly in aquaculture companies and grappled more seriously by the sector. Equality, diversity, and inclusion challenges must be addressed effectively to create and promote an equality culture, and in doing so, make the industry safer, fairer, and accessible to all. National policy to ensure gender responsive and coordinated policies, incentives and regulations are critical (Cottier-Cook et al., 2021). The UK Equality Act 2010 provides a legislative context for ensuring a more equitable and equal society by advancing equality of opportunity and fostering good relations between groups regardless of their gender reassignment, pregnancy and maternity, and sexual orientation (UK Government, 2010). The Scottish government has embedded equality as a key priority in Scotland's National Performance Framework (2021) to give equal importance to social, economic, and environmental progress for sustainable development and reducing inequalities (APS Group Scotland, 2020). Scotland is well placed to drive the EDI agenda and raise awareness of the benefits of improved EDI. Within the wellbeing economy framework that sets Scotland's future growth, policy and regulation can encourage the sector to identify sector-wide common goals and to collaboratively integrate solutions for shared benefit (ScotGov, 2021). This program highlights the importance of supporting women in food production and explicitly emphasizes the need to create sustainable aquaculture, a robust marine economy, and develop a seafood strategy. Although the Scottish Government's 2020-2030 Fisheries Management Strategy did not explicitly include women in fisheries and aquaculture, it underlined the necessity of promoting equality in the industry (ScotGov, 2020). Scotland's ambitious strategic plan for growth in aquaculture to 2030 has explicitly outlined the necessity of providing training and

skills development across the diverse workforce in terms of gender, nationality, experience, and age for the industry to deliver sustainable growth by 2030 and beyond (Scotland Food and Drink, 2016). However, with only 7 years to go, actions need to accelerate.

The aquaculture sector in Scotland is a provider of healthy and nutritious seafood but ensuring inclusive access to seafood by the whole of society remains a challenge (Farmery et al., 2022; Arch-UK et al., 2022). The UK population over the age of 55 is the age group most likely to eat fish twice a week (Seafish, 2019). Promoting the health benefits of seafood and the local production of some key products could potentially strengthen seafood consumption overall. Retailers of Scottish aquaculture products have a role to play in improving inclusion by promoting the nutritional benefits of seafood, particularly to under-represented groups in society. We argue that providing data on the proportion of Scottish farmed seafood products that are bought by lower income households or are publicly procured (for hospitals, schools, and prisons) would help paint a picture of the inclusivity of seafood in poorer postal codes in Scotland. Over time, this data series would enable future research and more robust conclusions on the contribution of the sector to society. In the future, diverse employee representation and inclusive management teams could lead to the development of improved market strategies and innovations in the sector to promote fish to diverse populations.

6 Conclusion

In the current context of critical environmental, social, and economic transition, addressing EDI in Scottish aquaculture is essential for ensuring future resilience and fairness as well as a dynamic, relevant, and accessible industry. After qualifying the terminology, we used qualitative data based on a survey, workshop and individual interviews in Scotland to explore ways for industry, researchers, and the policy community to work together to ensure inclusive practices. We argued that a key priority to reduce barriers to participation and ensure that policies and structures are not gender-blind is the collection and publication of workforce data, which could be accelerated *via* policy requirements. We also suggested that aquaculture companies need to broaden their recruitment strategies, improve workplace conditions and invest in current talent through leadership programs, mentoring opportunities and flexible working arrangements. Industry champions who raise awareness of the need for and benefit of EDI would help promote an open and transparent sector. Supporting WiSA to expand its participative network and increase sector-wide EDI training would support long-term success in the sector. Overall, inclusive access to seafood in Scotland would be strengthened through a combination of further research, improved data and supportive policies, ensuring both a top-down and bottom-up approach to improving EDI. Scotland would gain from a stronger and louder discussion on EDI in aquaculture, and future research – specifically including the

voices of women and men in the fish processing sector - can help support this ambition.

Data availability statement

The datasets presented in this article are not readily available because Anonymised and held on HWU sharepoint only. Not accessible for further use. Requests to access the datasets should be directed to T.Henry@hw.ac.uk.

Ethics statement

The studies involving human participants were reviewed and approved by Energy, Geoscience, Infrastructure and Society Ethics Committee, Heriot-Watt University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

IK conceived and designed the research, co-designed the survey, organized and facilitated the workshop, led the key informant interviews, and planned and wrote this perspective. IL drafted the literature review, co-designed the survey, conducted initial analysis, and contributed to the workshop as a speaker. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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References

- Adam, R., et al. (2022) *Four pathways to achieve gender equality and women's empowerment in small-scale fisheries and aquaculture: Insights from FISH research* (WorldFish (WF)). Available at: <https://digitalarchive.worldfishcenter.org/handle/20.500.12348/5108> (Accessed 20 January 2023).
- Alexander, K., Gatward, I., Parker, A., Black, K., Boardman, A., Potts, T., et al. (2014). An assessment of the benefits to Scotland of aquaculture. *Mar. Scotland*. Available at: <http://www.scotland.gov.uk/Resource/0045/00450799.pdf>.
- Ali, L. (2022). *Equality, diversity and inclusion (EDI) in the workplace* (CIPD). Available at: <https://www.cipd.co.uk/knowledge/fundamentals/relations/diversity/factsheet#graf>.
- APS Group Scotland (2020) *Scotland And the sustainable development goals: a national review to drive action* (The Scottish Government). Available at: <http://www.gov.scot/publications/scotland-sustainable-development-goals-national-review-drive-action/> (Accessed 25 January 2023).
- Arch-UK, ThinkAqua and University of Stirling and University of Aberdeen and Lancaster University. (2022). *Making seafood a core choice for UK consumers in an equitable, healthy, and sustainable food system* (London, United Kingdom: Stirling). Available at: <https://static1.squarespace.com/static/55fee16de4b0410637d19d96/t/6397342e2eedab45710b9d7e/1670853679187/SeafoodMattersUK-PolicyDocument.pdf>.
- Axon, S., and Collier, S. (2023). "Breaking blue: Establishing comprehensive policy for a just and inclusive transition for the blue economy," in *Marine policy* 147, (United Kingdom: Elsevier), 105343. 10.1016/j.marpol.2022.105343.
- Barak, M. E. M. (2022). *Managing diversity: Toward a globally inclusive workplace. 5th edition.* (Thousand Oaks: Sage Publications).
- Barak, M. E. M., and Travis, D. J. (2010). Diversity and organizational performance. *Hum. Serv. as Complex organizations. Los Angeles ua*, 341–378.
- Barclay, K., Mangubhai, S., Leduc, B., Donato-Hunt, C., Makhoul, N., Kinch, J., et al. (2019). *Pacific handbook for gender equity and social inclusion in coastal fisheries and aquaculture* (First. Noumea, New Caledonia: Pacific Community).
- Bettio, F., and Verashchagina, A. (2009). *Gender segregation in the labour market. root causes, implications and policy responses in the EU* (Luxembourg: Publications Office of the European Union). Available at: <https://op.europa.eu/en/publication-detail/-/publication/39e67b83-852f-4ffe-b6a0-a8fbb599b256>.
- BiGGAR Economics (2020). *Estimation of the wider economic impacts of the aquaculture sector in Scotland. a report to marine Scotland* (Edinburgh: BiGGAR Economics). Available at: <https://biggareconomics.co.uk/the-economic-contribution-of-the-scottish-aquaculture-sector>.
- Briceno-Lagos, N., and Montfort, M.-C. (2018). *Putting gender equality on the seafood industry's agenda. results of a global survey* (International Organisation for Women in the Seafood Industry (WSI)).
- Brugere, C., Troell, M., and Eriksson, H. (2021). More than fish: Policy coherence and benefit sharing as necessary conditions for equitable aquaculture development. *Mar. Policy* 123, 104271. doi: 10.1016/j.marpol.2020.104271
- Bush, S. R., Belton, B., Little, D. C., and Islam, M. S. (2019). Emerging trends in aquaculture value chain research. *Aquaculture* 498, 428–434. doi: 10.1016/j.aquaculture.2018.08.077
- Cameron, B., Ghaith, Z., and Chilton, L. (2021). Diversity, equity and inclusion policy texts in Canadian agriculture: a patchwork quilt. *Int. J. Info. Divers. Incl. (IJIDI)* 5 (5), 1–47. doi: 10.33137/ijidi.v5i5.37130
- Chenyambuga, S. W., Mwandya, A., Lamtane, H. A., and Madalla, N. A. (2014). Productivity and marketing of Nile tilapia (*Oreochromis niloticus*) cultured in ponds of small-scale farmers in Mvomero and Mbarali districts, Tanzania. *Livestock Research for Rural Development* 26(3), 3–12.
- Cottier-Cook, E. J., Nagabhatla, N., Asri, A., Beveridge, M., Bianchi, P., Bolton, J., et al. (2021). *Ensuring the sustainable future of the rapidly expanding global seaweed aquaculture industry – a vision* (Bruges: UNU Institute on Comparative Regional Integration Studies).
- Estime, S. R., Lee, H. H., Jimenez, N., Andreae, M., Blacksher, E., and Navarro, R. (2021). Diversity, equity, and inclusion in anesthesiology. *Int. Anesthesiol Clinics* 59 (4), 81. doi: 10.1097/AIA.0000000000000337
- FAO (2020). *The state of world fisheries and aquaculture 2020. sustainability in action* (Rome, Italy: FAO). Available at: <https://www.fao.org/documents/card/en/c/ca9229en/>.
- Farmery, A. K., Alexander, K., Anderson, K., Blanchard, J. L., Carter, C. G., Evans, K., et al. (2022). Food for all: designing sustainable and secure future seafood systems. *Rev. Fish Biol. Fish.* 32 (1), 101–121. doi: 10.1007/s11160-021-09663-x
- Formica, S., and Sfodera, F. (2022). The great resignation and quiet quitting paradigm shifts: An overview of current situation and future research directions. *J. Hospitality Marketing Manage.* 31 (8), 899–907. doi: 10.1080/19368623.2022.2136601
- Frangoudes, K., and Gerrard, S. (2018). (En) gendering change in small-scale fisheries and fishing communities in a globalized world. *Maritime Stud.* 17 (2), 117–124. doi: 10.1007/s40152-018-0113-9
- Gill, G. K., McNally, M. J., and Berman, V. (2018). "September. effective diversity, equity, and inclusion practices," in *Healthcare management forum*, vol. 31. (Los Angeles, CA: SAGE Publications), 196–199.
- Gopal, N., Hapke, H. M., Kusakabe, K., Rajaratnam, S., and Williams, M. J. (2020). Expanding the horizons for women in fisheries and aquaculture. *Gender Technol. Dev.* 24 (1), 1–9. doi: 10.1080/09718524.2020.1736353
- Hegewisch, A., and Gornick, J. C. (2011). The impact of work-family policies on women's employment: A review of research from OECD countries. *Community, Work & Family* 14(2), 119–138. doi: 10.1080/13668803.2011.571395
- Hicks, C. C., Gephart, J. A., Koehn, J. Z., Nakayama, S., Payne, H. J., Allison, E. H., et al. (2022). Rights and representation support justice across aquatic food systems. *Nat. Food* 3 (10), 851–861. doi: 10.1038/s43016-022-00618-4
- Howcroft, D., and Rubery, J. (2019). "Bias in, bias out": gender equality and the future of work debate. *Labour Industry* 29 (2), 213–227. doi: 10.1080/10301763.2019.1619986
- Johnson, M. P., and Chichirau, G. R. (2020). Diversity, equity, and inclusion in operations research and analytics: A research agenda for scholarship, practice, and service. *Pushing boundaries: Front. impactful OR/OM Res.* 1–38. doi: 10.1287/educ.2020.0214
- Kabeer, N. (2021). "Gender equality, inclusive growth, and labour markets," in *Women's Economic Empowerment* (Routledge). pp. 13–48.
- KPMG (2023) *Inclusion, diversity and equity.* Available at: <https://home.kpmg/uk/en/home/about/our-impact/our-people/inclusion-diversity-and-equity.html>.
- Krause, W. (2022). "Diversity, equity and inclusion as fertile foundation for workplace well-being, optimal performance, and planetary health," in *Leading with diversity, equity and inclusion*. Eds. J. Marques and S. Dhiman (Cham: Springer International Publishing (Future of Business and Finance)), 263–279. doi: 10.1007/978-3-030-95652-3_16
- Krause, G., Billing, S-L, Dennis, J, Grant, J, Fanning, L, Filgueira, R, et al. (2020). Visualizing the social in aquaculture: How social dimension components illustrate the effects of aquaculture across geographic scales. *Mar. Policy* 118, 103985. doi: 10.1016/j.marpol.2020.103985
- Krekel, C., Ward, G., and De Neve, J.-E. (2019). *Employee wellbeing, productivity, and firm performance* (Oxford, England: Said Business School). doi: 10.2139/ssrn.3356581
- Kruijssen, F., McDougall, C. L., and van Asseldonk, I. J. M. (2018). Gender and aquaculture value chains: A review of key issues and implications for research. *Aquaculture* 493, 328–337. doi: 10.1016/j.aquaculture.2017.12.038
- Kusakabe, K. (2022) *Women and men in small-scale fisheries and aquaculture in Asia.* Available at: <https://policycommons.net/artifacts/2388033/women-and-men-in-small-scale-fisheries-and-aquaculture-in-asia/3409034/> (Accessed 20 January 2023).
- Levitas, R., Paantazis, C., Fahmy, E., Gordon, D., Lloyd-Reichling, E., and Patsios, D. (2007). The multi-dimensional analysis of social exclusion. (University of Bristol), 246. <https://dera.ioe.ac.uk/6853/1/multidimensional.pdf>.
- Lutz, C., Hoffmann, C. P., Bucher, E., and Fieseler, C. (2018). The role of privacy concerns in the sharing economy. *Inform. Commun. Soc.* 21 (10), 1472–1492. doi: 10.1080/1369118X.2017.1339726
- Marine Scotland (2022). *Scotland's marine economic statistics 2019* (Scottish Government). Available at: <https://www.gov.scot/publications/scotlands-marine-economic-statistics-2019/pages/4/>.
- McGregor-Smith, B. (2017). *Race in the workplace: The McGregor-Smith review* (Department for Business, Energy and Industrial Strategy). Available at: https://assets.publishing.service.gov.uk/government/uploads/uploads/attachment_data/file/594336/race-in-workplace-mcgregor-smith-review.pdf.
- Michailidis, M. P., Morphetou, R. N., and Theophylatou, I. (2012). Women at work equality versus inequality: barriers for advancing in the workplace. *Int. J. Hum. Resource Manage.* 23 (20), 4231–4245. doi: 10.1080/09585192.2012.665071
- Mor Barak, M. E. (2000). The inclusive workplace: An ecosystems approach to diversity management. *Soc. Work* 45 (4), 339–353. doi: 10.1093/sw/45.4.339

- Mor Barak, M. E., and Travis, D. J. (2020). "Diversity and organizational performance." in *Human services as complex organizations* (Los Angeles), 341–378.
- Morley, T. (2018). Making the business case for diversity and inclusion: Short case studies and research papers that demonstrate best practice in HR. *Strat. HR Rev.* 17 (1), 58–60. doi: 10.1108/SHR-10-2017-0068
- NHS (2023) *Fish and shellfish*. Available at: <https://www.nhs.uk/Live-well/eat-well/food-types/fish-and-shellfish-nutrition/>.
- Petts, R. J., Carlson, D. L., and Pepin, J. R. (2021). A gendered pandemic: Childcare, homeschooling, and parents' employment during COVID-19. *Gender Work Organ.* 28 (S2), 515–534. doi: 10.1111/gwao.12614
- Pless, N., and Maak, T. (2004). Building an inclusive diversity culture: Principles, processes and practice. *J. Business Ethics* 54, 129–147. doi: 10.1007/s10551-004-9465-8
- Roberson, Q. M. (2019). Diversity in the workplace: A review, synthesis, and future research agenda. *Annu. Rev. Org. Psychol. Org. Behav.* 6 (1), 69–88. doi: 10.1146/annurev-orgpsych-012218-015243
- Salmon Scotland (2022). *Scottish Salmon. economic quarterly: 2021 quarter 4* (Edinburgh: Salmon Scotland). Available at: <https://www.salmonscotland.co.uk/sites/default/files/inline-images/salmon%20scotland%20-%20economic%20quarterly%20-%202021%20q4.pdf>.
- Sama, L. M., Stefanidis, A., and Casselman, R. M. (2022). Rethinking corporate governance in the digital economy: The role of stewardship. *Business Horizons* 65 (5), 535–546. doi: 10.1016/j.bushor.2021.08.001
- ScotGov. (2019b) Scottish government - supporting women into aquaculture. Available at: <https://www.gov.scot/news/supporting-women-into-aquaculture/> (Accessed 31 October 2019).
- ScotGov. (2020). Scotland's fisheries management strategy 2020-2030 (T. S. Government). Available at: <https://www.gov.scot/publications/scotlands-future-fisheries-management-strategy-2020-2030/>.
- ScotGov. (2021). A fairer, greener scotland: Programme for government 2021-22 (Edinburgh: The Scottish Government, St Andrew's House). Available at: <https://www.gov.scot/publications/fairer-greener-scotland-programme-government-2021-22/documents/>.
- Scotland Food and Drink (2016) *Aquaculture growth to 2030: A strategic plan for farming scotland's seas*. Available at: <https://aquaculture.scot/#:~:text=The%20Aquaculture%202030%20Strategy%20identifies,global%20leader%20in%20the%20industry>.
- Scottish Government (2023) *Wellbeing economy governments (WEGo)*. Available at: <https://www.gov.scot/groups/wellbeing-economy-governments-wego/https://www.gov.scot/groups/wellbeing-economy-governments-wego/>.
- Seafish (2019) *State of the nation full report, seafish*. Available at: <https://www.seafish.org/document/?id=8a28f065-aed3-472a-85b8-069613e5dd39> (Accessed 20 January 2023).
- Seafish (2022). *UK Seafood in numbers 2021* (Seafish Industry Authority). Available at: <https://www.seafish.org/document/?id=a42c3cf8-b072-4ebe-a100-61661174a0d3>.
- Serenko, A. (2022). The great resignation: the great knowledge exodus or the onset of the great knowledge revolution? *J. Knowl. Manage.* [Preprint]. doi: 10.1108/JKM-12-2021-0920
- Short, R. E., Gelcich, S., Little, D. C., Micheli, F., Allison, E. H., Basurto, X., et al. (2021). Harnessing the diversity of small-scale actors is key to the future of aquatic food systems. *Nat. Food* 2 (9), 733–741. doi: 10.1038/s43016-021-00363-0
- Simmance, F. A., Cohen, P. J., Huchery, C., Sutcliffe, S., Suri, S. K., Tezzo, X., et al. (2022). Nudging fisheries and aquaculture research towards food systems. *Fish Fish.* 23 (1), 34–53. doi: 10.1111/faf.12597
- Syed, J., and Ozbilgin, M. (2019). *Managing diversity and inclusion: An international perspective* (Sage: SAGE Publications).
- Szymkowiak, M. (2021). A conceptual framework for incorporating human dimensions into integrated ecosystem assessments. *Front. Mar. Sci.* 8. doi: 10.3389/fmars.2021.617054 (Accessed 19 January 2023)
- Teh, L. C., Caddell, R., Allison, E. H., Finkbeiner, E. M., Kittinger, J. N., Nakamura, K., et al. (2019). The role of human rights in implementing socially responsible seafood'. *PLoS One* 14 (1), e0210241. doi: 10.1371/journal.pone.0210241
- UK Government (2010) *Equality act 2010: guidance* (GOV.UK). Available at: <https://www.gov.uk/guidance/equality-act-2010-guidance> (Accessed 20 January 2023).
- UN Women. (2018). *Turning promises into action: Gender equality in the 2030 agenda for sustainable development*. Available at: <https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2018/SDG-report-Gender-equality-in-the-2030-Agenda-for-Sustainable-Development-2018-en.pdf>
- Warren, M. A., Donaldson, S. I., Lee, J. Y., and Donaldson, S. I. (2019). Reinvigorating research on gender in the workplace using a positive work and organizations perspective*. *Int. J. Manage. Rev.* 21 (4), 498–518. doi: 10.1111/ijmr.12206
- Wilhelm, M., Kadfak, A., Bhakoo, V., and Skattang, K. (2020). 'Private governance of human and labor rights in seafood supply chains – the case of the modern slavery crisis in thailand'. *Mar. Policy* 115, 103833. doi: 10.1016/j.marpol.2020.103833
- WiSA (2023) *Home* (WiSA). Available at: <https://wisa.sustainableaquaculture.com/> (Accessed 20 January 2023).
- Yadav, S., and Lenka, U. (2020). Workforce diversity: from a literature review to future research agenda. *J. Indian Business Res.* 12 (4), 577–603. doi: 10.1108/JIBR-08-2019-0243
- Yerkes, M. A., André, S. C., Besamusca, J. W., Kruijen, P. M., Remery, C. L., van der Zwan, R., et al. (2020). "Intelligent" lockdown, intelligent effects? results from a survey on gender (in)equality in paid work, the division of childcare and household work, and quality of life among parents in the Netherlands during the covid-19 lockdown. *PLoS One* 15 (11), e0242249. doi: 10.1371/journal.pone.0242249
- Zhang, C., Cavusgil, S. T., and Roath, A. S. (2003). Manufacturer governance of foreign distributor relationships: Do relational norms enhance competitiveness in the export market? *J. Int. Business Stud.* 34 (6), 550–566. doi: 10.1057/palgrave.jibs.8400051
- Zhao, M., Tyzack, M., Anderson, R., and Onoakpovike, E. (2013). Women as visible and invisible workers in fisheries: A case study of northern England. *Mar. Pol.* 37, 69–76. doi: 10.1016/j.marpol.2012.04.013