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Further Reading:

Carr, L. and Heyman, W., 2012. "It's about seeing what's actually out there": quantifying fishers' ecological knowledge and biases in a small-scale fishery as a path toward co-management. *Ocean & Coastal Management* **69**: 118-132.

Gargan, P. et al., 2012. Evidence for sea lice-induced marine mortality of Atlantic salmon (*Salmo salar*) in western Ireland from experimental releases of ranched smolts treated with emamectin benzoate. *Canadian Journal of Fisheries and Aquatic Sciences* **69**: 343-353.

Jackson, D. 2011. Ireland: the development of sea lice management methods. *In:* Jones S and Beamish R (eds.) *Salmon Lice: An Integrated Approach to Understanding Parasite Abundance and Distribution*. Oxford: John Wiley & Sons, 177-203.

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Fishing for salmon farming consensus in Ireland

Wild capture fisheries landed 93.4m tonnes globally in 2014, a figure that has remained stable over 25 years. Over the same time, global per capita demand for seafood has risen from 14 to 20 kg per person. To meet demand, aquaculture – which now provides more than half of all seafood destined for human consumption – has intensified. In Ireland, salmon aquaculture has been cited as a growth area, with government estimates suggesting a 78% increase in farmed salmon production by 2020 is possible. Such growth carries concomitant environmental and socioeconomic impacts, and stakeholders have mobilised from all sides to voice their priorities.

Research Findings

Eighty-six high-level, well-informed stakeholders rank-sorted 56 statements covering eight salmon aquaculture discourses. Through Q-Method, five unique perspectives were identified: Aquaculture (F_{aqc}), Wild Salmon (F_{sal}), Government (F_{gov}), Planning (F_{pln}), and Local (F_{loc}) Champions. Z-scores calculated the relative priority of discourses within each group, and were used to identify areas of consensus.

Discourse	F_{aqc} (n = 14)	F_{sal} (n = 27)	F_{gov} (n = 15)	F_{pln} (n = 14)	F_{loc} (n = 16)
Licensing and Permit Review	1.33	-1.27	1.66	2.24	1.85
Regulatory Oversight	0.88	0.81	1.79	1.72	1.45
Spatial Conflict Between Sectors	0.34	1.17	0.73	0.80	-0.28
Aquaculture Impacts	-0.01	1.42	1.30	1.43	2.22
Seafood Production	1.95	-0.84	-0.56	0.98	-0.16
Environmental Health	0.83	0.97	1.12	1.11	1.50
Research and Development	0.92	-0.35	-0.39	-0.50	-1.12
Jobs Training and Employment	1.33	-1.25	0.43	-0.56	1.58
"Sea lice are a negative impact."	0.32	1.72	1.46	1.40	1.60

Results show strong cross-group consensus in the need to improve and formalise regulatory oversight for salmon aquaculture. There is agreement between several groups that salmon farming threatens the environment, that sea lice (*Lepeophtheirus salmonis*) negatively impact both wild and farmed salmon, and that a review of the licensing programme is necessary. There is less agreement for prioritising aquaculture technologies or expanding production of farmed salmon until environmental and regulatory uncertainties have been more completely addressed.

Policy Implications

Stakeholders believe that salmon farming in Ireland is hindered by regulatory uncertainty, legitimate but disputed levels of harm to wild salmon and the environment, and entrenched views. Licensing has backlogged and the industry is stalling. Ireland has a unique opportunity to modernise salmon farming. Adaptive, ecosystem-based, and community-inclusive policies should be enacted and Single Bay Management and CLAMS programmes strengthened. Priorities include: adopting maritime spatial plans and implementing multi-sector, ecosystem-based integrated management, and establishing formal carrying capacity measures that account for the intensity and scale of operations as well as the unique dynamics, processes and ecological thresholds of bays where farming occurs to minimise sea lice risk.