

There is evidence of extensive environmental impacts of salmon farming, but the exact nature and degree of these impacts is sometimes unclear due to a lack of data, reporting of data or because there is a lack of transparency and accessibility to that data. Our Best Fishes project highlights the environmental impact of Scottish salmon farming, from the use of chemical treatments to the waste products of the fish. Increased monitoring and reporting, and therefore by default transparency, is needed to inform and drive action that will minimise the impact of salmon farming practices on the marine environment.

We believe that increased traceability and transparency throughout the supply chain will work towards improving standards across the entire Scottish salmon farming industry. To achieve this, we propose the creation of a salmon farming dashboard providing information on a range of environmental criteria at individual farm level, with corresponding labelling on products that names the source farm¹. Fidra is wholly supportive of endeavours of individuals, industry and governments to identify and address these concerns, and encourages reviews of the criteria proposed for the Scottish salmon farming dashboard.

A salmon farming dashboard would present information on numerous areas of concern via an online, publicly accessible resource, with coherent and accurate data from individual farm sites. Substantial data is already collected by farms so the introduction of a central dashboard should not require the collection of any additional information, but rather for there to be a system in place which does service to the work that is already being done by those working at farm level. There may be a need however for investment in digitising some, or all, of the reporting processes. **Two examples of a central salmon farming dashboard presenting clear data** down to individual farm level have been set up in Australia (Tasmania's Salmon Portal¹) and Norway (Norway's Barents Watch²). These dashboards include information on criteria such as mortality rates, wildlife interactions, antibiotic use, benthic surveys and water temperatures. This process could be applied in Scotland to give information to farm level, increasing transparency in the rearing and production of salmon. Coupled with the source farm being named on product packaging this will also increase traceability along the supply chain. Suggested criteria and present sources of information are shown in Table 1 below.

Conclusion & recommendations

Information flow and transparency is one of 7 cross cutting workstreams of the Scottish Government's 10 Year Farmed Fish Health Framework³. In line with this Fidra believes there is an urgent need that the subsequent Vision for Sustainable Aquaculture⁴ being developed by the Scottish Government ensures that the processes involved in the farmed salmon industry are transparent and suitably communicated to all stakeholders, including retailers, local communities and civil society. Dialogues with industry, retail and government representatives indicate that they too agree that one way for this to work would be via an online salmon farming dashboard⁵⁻⁶ for this to be achieved.

To achieve increased information flow and regulatory compliance Fidra asks MSPs to call for:

1. Development of a central online database which displays environmental data to farm level;
2. Inclusion of the following parameters as essential: sea lice (real time counts), mortalities, benthic survey details, CAR licences (compliance, breaches and enforcement actions), wildlife interactions, acoustic deterrent device use, use of medicines including antibiotics, use of chemicals, planning applications, escape events, production tonnage;
3. Inclusion of the following parameters as desirable: Plastic/other litter, climate change, Feed Conversion Ratio, accreditation.
4. Where a farm has underperformed, action taken for 'unsatisfactory' results or compliance failure should also be recorded.

For more information contact the project team at info@fidra.org.uk

1. Tasmanian Government (2022). Tasmanian salmon farming data (salmon portal) <https://salmonfarming.nre.tas.gov.au/>
2. BarentsWatch (2022). Fish health. <https://www.barentswatch.no/fiskehelse/?lang=en>
3. Scottish Government (2018). Strategic framework for farmed fish health. <https://www2.gov.scot/Topics/marine/Fish-Shellfish/Strategic-Framework>
4. Scottish Government (2022). Next steps to improve regulation of aquaculture. <https://www.gov.scot/news/next-steps-to-improve-regulation-of-aquaculture/>
5. British Retail Consortium & Fidra. (2022) A workshop to discuss responsible sourcing, transparency and traceability of farmed Scottish salmon. https://www.bestfishes.org.uk/wp-content/uploads/BRC-meeting-write-up_2020-2.pdf
6. Fidra. (2022) Improving transparency and traceability of farmed Scottish salmon to support climate- and biodiversity- responsible sourcing. https://www.bestfishes.org.uk/wp-content/uploads/Fidra-workshop-write-up_2022.pdf
7. Salmon Scotland (2022). Annual and month reports. <https://www.salmonscotland.co.uk/reports>
8. Scotland's aquaculture (2022). <http://aquaculture.scotland.gov.uk/>
9. Scotland's environment (2022). Marine fish farm map. <https://www.environment.gov.scot/data/data-analysis/marine-fish-farm/>
10. Global Salmon Initiative (2021). Sustainability report. <https://globalsalmoninitiative.org/en/sustainability-report/sustainability-indicators/>
11. Aquaculture Stewardship Council. (2019). ASC salmon standard Version 1.3.; https://www.asc-aqua.org/wp-content/uploads/2019/12/ASC-SalmonStandard_v1.3_Final.pdf

Table 1: Environmental criteria proposed for sustainability dashboard concept

Environmental criteria	Importance and issues	Present source of data	Essential/ Desirable
Sea lice and other diseases	Open net pens can contribute to infection of wild fish. There is a need for stronger regulation and enforcement by Marine Scotland's Fish Health Inspectorate and siting of farms with regard to risk of sea lice infection, proliferation and dissemination.	Salmon Scotland website ⁷ /Scottish Aquaculture Website ⁸	Essential
Mortality	Percentage mortality and some information on causes reported, for companies and individual farms. Area level data, more detail and mitigation measures desirable.	Salmon Scotland website/Scottish Aquaculture Website	Essential
Benthic survey details	Waste from fish faeces and feed can create anoxic conditions, affecting the seabed and marine organisms. Where surveys are 'Unsatisfactory' no details are available, including any required mitigation.	Scottish Aquaculture Website/Scottish Environment website	Essential
CAR licences	Licenses include limits on chemical treatments, such as pesticides that may affect wild marine life. There is little detail of licence compliance, breaches and enforcement.	Scottish Aquaculture Website/SEPA website	Essential
Wildlife interactions	Details of presence and mortalities at farm level should be available for (1) seals, (2) otters and (3) birds.	Not presently recorded	Essential
Medicine use	Treatments for diseases may affect wild marine life, i.e. sea lice treatments and wild crustaceans. More detailed reporting of application method and dosage is needed.	Scottish Aquaculture Website/Scottish Environment website ⁹	Essential
Chemical use	Little detail of chemical use other than sea lice treatments with Environmental Quality Standard. Details of all chemical use, i.e. for net cleaning, is required.	Scottish Aquaculture Website/Scottish Environment website	Essential
Planning applications	Details of company, site, biomass and Environmental Impact Assessment should be available.	Local planning authority	Essential
Escape events	Net damage from predators or bad weather can lead to escaped farm fish which can interact with wild populations. Reasons, recovery and mitigation action are needed.	Scottish Aquaculture Website/Global Salmon Initiative ¹⁰	Essential
Production tonnage	Details required from farm to Area Management area and country level.	Not presently reported	Essential
Plastic/other litter	Policies or guidelines to mitigate litter required.	Not presently recorded	Desirable
Climate change	Strategy to deal with climate change impacts e.g. increasing water temperatures. Carbon footprint calculation by farm.	Not presently recorded	Desirable
Feed Conversion Ratio	Details desirable from farm to Area Management area and country level.	Not presently reported	Desirable
Accreditation	Details of accreditation including audits	Only ASC ¹¹ publishes farm audits	Desirable