SPICe The Information Centre
An t-Ionad Fiosrachaidh

Briefing for the Public Petitions Committee

Petition Number: PE01715

Main Petitioner: Mark Carter on behalf of Marine Concern

Subject:

Calls on the Parliament to urge the Scottish Government to ensure that the salmon farming industry solely utilises a closed-containment method with full water filtering in Scottish waters.

Background

Scotland is the largest producer of farmed Atlantic salmon in the EU and one of the top three producers globally (after Norway and Chile), producing 189,707 tonnes in 2017. The table below is taken from the Scottish fish farm production survey 2017. It shows the increase in the production of farmed salmon in Scotland since 2008, (although a decrease is estimated for 2018) and the number of staff employed – 1,362 full time staff in 2017.

Region	Year	Staff		Annual Production
		F/T	P/T	
Scotland Total	2008	849	100	128,606
	2009	874	89	144,247
	2010	944	120	154,164
	2011	923	90	158,018
	2012	944	115	162,223
	2013	1,081	99	163,234
	2014	1,191	134	179,022
	2015	1,256	107	171,722
	2016	1,379	107	162,817
	2017	1,362	69	189,707
	2018			150,774*

*Estimated production for 2018.

It has been estimated that the direct, indirect and induced impacts of salmon farming supports 10,340 jobs in Scotland (Highlands and Island Enterprise, 2017).

Atlantic salmon are anadromous. This means that in the early stages of life they live in freshwater. The main growth phase occurs in seawater and the

adults return to freshwater to reproduce. Salmon farming therefore occurs in both freshwater (hatchery and nursery) and seawater (on-growing to harvest).

The sea water phase occurs predominantly in open water cages on the west coast. The National Marine Plan (chapter 7) states that "there is a continuing presumption against further marine finfish farm developments on the north and east coasts to safeguard migratory fish species."

There has been concern from some stakeholders that salmon farming in open water cages leads to significant environmental impacts, and that closed containment salmon farming (sometimes called Recirculating Aquaculture Systems - RAS) is required. An examination of many of the environmental impacts of salmon farming can be found in Review of the environmental impacts of salmon farming in Scotland (2018).

This review says that by isolating fish from the natural environment, closed containment salmon farming provides security from diseases, infestations and predators and eliminate the risk of harming wild salmon. By retaining wastes, they prevent organic and nutrient impacts on the environment. They therefore address many of the environmental issues related to salmon farming in open sea cages.

It also states –

> "… the energy costs for pumping and treating large amounts of water are high, about ten times those of net-pen rearing. Unless this energy is supplied from renewable sources, RAS will add to emissions of carbon dioxide. … the removal of organic waste results in solid material that needs to be disposed of, and 100% nutrient stripping from recirculated water seems unlikely. RAS wastes will therefore continue to make some demands on environmental assimilative capacity; however, there is uncertainty as to the extent to which this may occur. Significant RAS will either be large floating structures or will occupy

> extensive land alongside lochs. At least one example of the former is in commercial development. The pressures and consequent environmental effects generated by such systems have yet to be researched, and might include disturbance by moorings and effects on seabirds, as well as the organic waste and nutrient issues already mentioned. Finally, there is the possibility of chemical inputs both from external antifoulants and chemotherapeutants in outflows. … It seems likely that the majority of salmon production in the sea will, for the foreseeable future, continue to take place in net-pens."

Scottish Government and SEPA Action

The Scottish Government's 10 Year Farmed Fish Health Framework was published in May 2018. This document was produced by the Farmed Fish Health Working Group and identified seven work streams including: Information Flow and Transparency; Gill Health; Sea Lice; Cleaner fish; Production Cycle and on-Farm Management; Licensing Regime and Medicine Use; as well as Climate Change and Ocean Acidification.

The salmon interactions working group was announced in June 2018. It examines and provides advice on the interactions between wild and farmed salmon. The Group is considering the conclusions from the REC Committee inquiry (see below), evaluating current Scottish Government policy and reviewing existing and planned projects around interactions as well as making recommendations and a delivery plan for the future.

In August 2018, the Scottish Salmon Producers' Organisation started publishing details of mortality rates for all salmon farms in Scotland.

In September 2018 Marine Scotland published an updated summary of science on information relating to impacts of salmon lice from fish farms on wild Scottish sea trout and salmon.

In October 2018 SEPA published details of the results of its Compliance Assessment Scheme for 2017 which includes regulatory compliance information for salmon farms.

In November 2018 SEPA published a draft Finfish Aquaculture Sector Plan which includes proposals for a revised regime to strengthen the regulation of the sector; new standards for the organic waste deposited by fish farms; enhanced environmental monitoring and creation of a new SEPA enforcement unit; and a new approach to the sustainable siting and operation of fish farms that could allow for larger farms.

At the same time, SEPA also published a research report on the evaluation of a new seabed monitoring approach to investigate the impact of marine cage fish farms.

Scottish Parliament Action

In November 2018 the Rural Economy and Connectivity Committee published the report from its inquiry into Salmon farming in Scotland.

SPICe has published a briefing on Salmon Farming in Scotland

A report was commissioned by SPICe in 2017 and undertaken by SAMS Research Services Ltd (SRSL) on a Review of environmental impacts of salmon farming in Scotland.

The Environment, Climate Change and Land Reform Committee also undertook an inquiry into the environmental impact of salmon farming in Scotland in 2018. On 5 March 2018, the Committee wrote to the Rural Economy and Connectivity Committee regarding its inquiry into the Environmental Impacts of salmon farming.

Wendy Kenyon
Senior Researcher
16 January 2019

Published by the Scottish Parliament Information Centre (SPICe), an office of the Scottish Parliamentary Corporate Body, The Scottish Parliament, Edinburgh, EH99 1SP