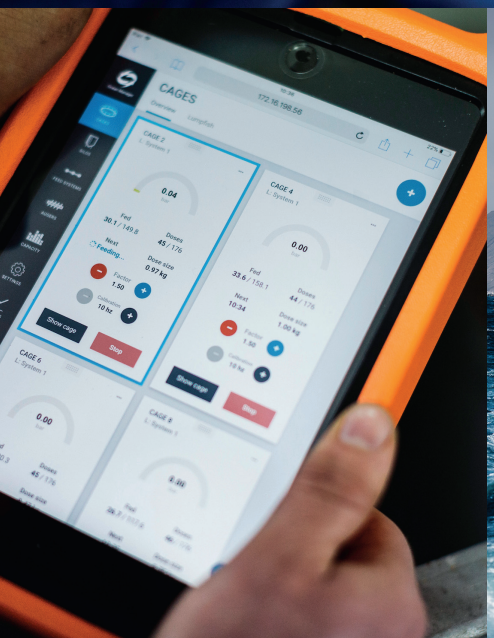
Scottish Salmon
PRODUCERS ORGANISATION

Scottish salmon: an update to the RECC

Our actions, investment and impact

November 2020






In November 2018, **the Rural Economy and Connectivity Committee** (RECC) of the Scottish Parliament produced a report on salmon farming. This made it clear that the status quo was no longer an option and that **change was needed.**

The Scottish farmed salmon sector agreed and two years on we report on the steps we have taken to demonstrate our continued commitment to sustainable farming.

We have also published the **Scottish Salmon Sustainability Charter: A Better Future For Us All.** This is our vision of how we intend to lead in the rearing of sustainable seafood.

The SSPO represents the salmon farming community across Scotland. The sector employs 2,500 people directly and thousands more indirectly, and is worth a quarter of a billion pounds in Gross Value Added (GVA) to the economy. Scottish salmon is UK consumers' favourite fish and it is Scotland's and the UK's number one food export, enjoyed in more than 55 countries worldwide.

Following the RECC recommendations we highlight the work delivered to date in the areas below:

- **Fish health and welfare**
- **Managing our environment**
- **Transparency and data**
- **Wild fish interactions**

About the Scottish salmon sector

GENERATES

£0.25bn

IN GVA FOR THE ECONOMY

PROVIDES DIRECT

2,500

JOBS IN COASTAL AND RURAL AREAS ALONG WITH THOUSANDS OF RELIANT ROLES THROUGHOUT THE SUPPLY CHAIN AND IN LOCAL COMMUNITIES

£730m

IS SPENT BY COMPANIES IN THE SUPPLY CHAIN ANNUALLY, WITH £575 MILLION SPENT IN SCOTLAND

MORE THAN

£120m

GROSS CAPITAL IS INVESTED BY FARMERS EACH YEAR

THERE ARE OVER

210

ACTIVE FARMS AROUND SCOTLAND OF WHICH AROUND A THIRD ARE FALLOWED OR EMPTY TO ALLOW ENVIRONMENT RESTORATION

OUR FARMERS CARE FOR THEIR FISH

24/7

SOME 17 OUT OF EVERY 20 FISH WE FARM AT SEA REACH CONSUMERS

OPERATES TO AN ANNUAL AVERAGE SEA LICE COUNT OF

0.5

ADULT FEMALE LICE IN LINE WITH OTHER LEADING SALMON FARMING NATIONS*

* The Norwegian general requirement is 0.5 adult female lice per fish per locality. Source: www.barentswatch.no/en/havbruk/salmon-lice

RECC Topic Area

Fish health and welfare (including mortalities)

What the RECC recommended

"... the farmed salmon sector has to find solutions to its fish health challenges 'as a priority'."

What salmon farmers have done

- Since 2018, the sector has invested in five land-based recirculating aquaculture systems (RAS), bringing the total number of RAS facilities in Scotland to six, and greatly boosting capacity for smolt production as well as creating new jobs. RAS systems increase smolt strength and sizes for stocking at sea, contributing to overall survival rates.
- A further four RAS facilities have been commissioned.
- The continued development of hatcheries has seen several sites upgraded with advanced filtration technology and oxygen delivery systems, with individual investments of more than £200,000. These will further facilitate future RAS advancements and improve the health and welfare of input stock.
- One new fish feed production plant has been opened and a second feed mill has been brought back into operation, supporting in-house bespoke nutrition to complement specialist feed companies.
- An autogenous vaccine has been developed and deployed within nine months to address the re-emerging waterborne bacterial disease *Pasteurella skyensis*.
- To reduce stress on fish during vaccination, the sector has supported the development of innovative automated vaccination technology in collaboration with, for example, AquaLife and their Incubot II robot.
- Remote sensing technology (currently at advanced trial stage) has been introduced to better monitor for algae and jellyfish, a common cause of high mortality incidents.
- The use of freshwater treatment at sea has been increased through the introduction of one desalination plant and three wellboat treatment vessels, with further freshwater treatment options in the pipeline.
- The sector has invested heavily in freshwater storage solutions, building, maintaining and upgrading 16 such facilities over the last two years.
- The sector achieved a three-fold time reduction in whole farm treatments to support Covid work practice changes, thanks to improved access to medicines. Producers are now working with SEPA to continue this strategy beyond Covid.

Weekly gill health check - farmers use best practices when handling fish, anaesthetising to mitigate any stress responses

- Companies continued to support the ongoing UK TAG (Technical Advisory Group) review of the in-feed sea lice medicine emamectin benzoate.
- Producers ceased production and long-term fallowed 40 marine farm locations that did not meet the sector's stock welfare aspirations.
- To prevent mortality by seal predation, a majority of farms have now introduced specialist HPDE netting, such as Sapphire SealPro. Five producers have a coverage of 90% or more, with their remaining sites due to be upgraded between 2021 and 2026.
- In the twelve months to May 2019, the sector invested £8.4 million in the prevention of seal attacks through upgrading netting (63%), acoustic devices (31%), and other non-lethal deterrents (6%).
- The annual average survival rate achieved for post-smolt farmed salmon is 85.5% or 17 out of every 20 farmed salmon (14.5% mortality).

NB: Wild salmon have unusually high annual rates of mortality at sea of 65-95%, compared to around 18% for other marine fish species. Source: Chaput, G 2012. ICES Journal of Marine Science, Volume 69, Issue 9, November 2012. We understand from discussions with Scottish wild fisheries representatives that recent studies in Ireland indicated a less than 5% survival rate was more realistic.

RECC Topic Area

Managing our environment

What the RECC recommended

"... the environmental impact of salmon farming has to be reduced."
"... there should be tighter controls on sea lice numbers."
"... the role and impact of ADDs should be assessed."
"... there should be tighter regulation and monitoring of the wrasse fishery."

What salmon farmers have done

- The increase in Recirculating Aquaculture Systems (RAS) - which use up to 98% less freshwater than flow-through hatcheries, with water treatment systems and waste capture - has substantially reduced nutrient discharge into rivers and lochs.
- The sector continues to work with the Aquaculture Stewardship Council (ASC), a leading quality assurance scheme, to gain recognition of a farm's sustainability record at freshwater loch sites.
- Operations were ceased at two freshwater loch sites that did not consistently maintain high environmental impact credentials.
- The sector decommissioned 40 marine farm locations that did not meet producers' environmental impact aspirations.
- Salmon farmers have maintained their commitment to the RUMA (Responsible Use of Medicines in Agriculture Alliance) target to reduce antibiotic use across the UK livestock sector, and remain among the lowest users of antibiotics.
- Evidence has been provided to SEPA to improve the overall efficacy of medicine deployment, which will help reduce the volume of medicinal treatments.
- The sector has maintained its commitment to responsible medicine use through vaccine generation and the increased focus on innovative freshwater treatments at sea.
- Over the last three years, there has been a 43% increase in the use of farmed cleaner fish, a biological method that has helped reduce sea lice levels. More than 4.3 million farmed cleaner fish (lumpsuckers and wrasse) were deployed in 2020.
- Voluntary measures for sustainable wrasse catch fisheries, as agreed by Marine Scotland, have been fully complied with.
- Producers have supported the Scottish Government's proposals to enshrine the voluntary cleaner fish catch measures in law (implementation date awaited).
- The sector is supporting an application for PhD funding for a project to characterise and better understand the sustainability of the wild wrasse fishery.

- During the wild salmon smolt migration period (February to May) the sector worked within its west coast regions to reduce the average sea louse count to 0.4, the equivalent of two lice on every five fish.
- The annual average sea lice count was reduced to 0.5, an improvement on 2019 figures (0.54) and only marginally higher than 2018 (0.46), the lowest year on record.
- The regulatory trigger level(s) for adult female sea lice was voluntarily reduced from 3 and 8 to 2 and 6.
- Work continued to reduce the sector average annual biological Feed Conversion Ratio (bFCR) of 1.2kg with some farms getting ever closer to 1kg. This is the lowest feed conversion ratio in major farmed animal species and reduced the ratio of organic discharge volumes per tonne of production.
- The use of feed camera technology was extended and artificial intelligence (AI) is being trialled in feed delivery to increase feed uptake. Innovations in this area – which are attracting the attention of leading AI organisations such as Google parent company Alphabet X - aim to evaluate and reduce individual pellet loss during daily feeding operations.
- The sector is supporting environmental DNA (eDNA) trials to replace traditional taxonomic approaches to assessing benthic impacts from farms. eDNA tools will greatly improve and expand farmers' ability to assess their interaction with the environment. If successful, eDNA technology will allow the sector to undertake a four-fold increase in environmental monitoring at marine farms annually.
- A seabed sulphide monitoring study has been launched, supported by the use of remote sensing technology for seabed environmental monitoring.
- A full risk assessment of Acoustic Deterrent Device (ADD) use in relation to European Protected Species is being carried out.

RECC Topic Area

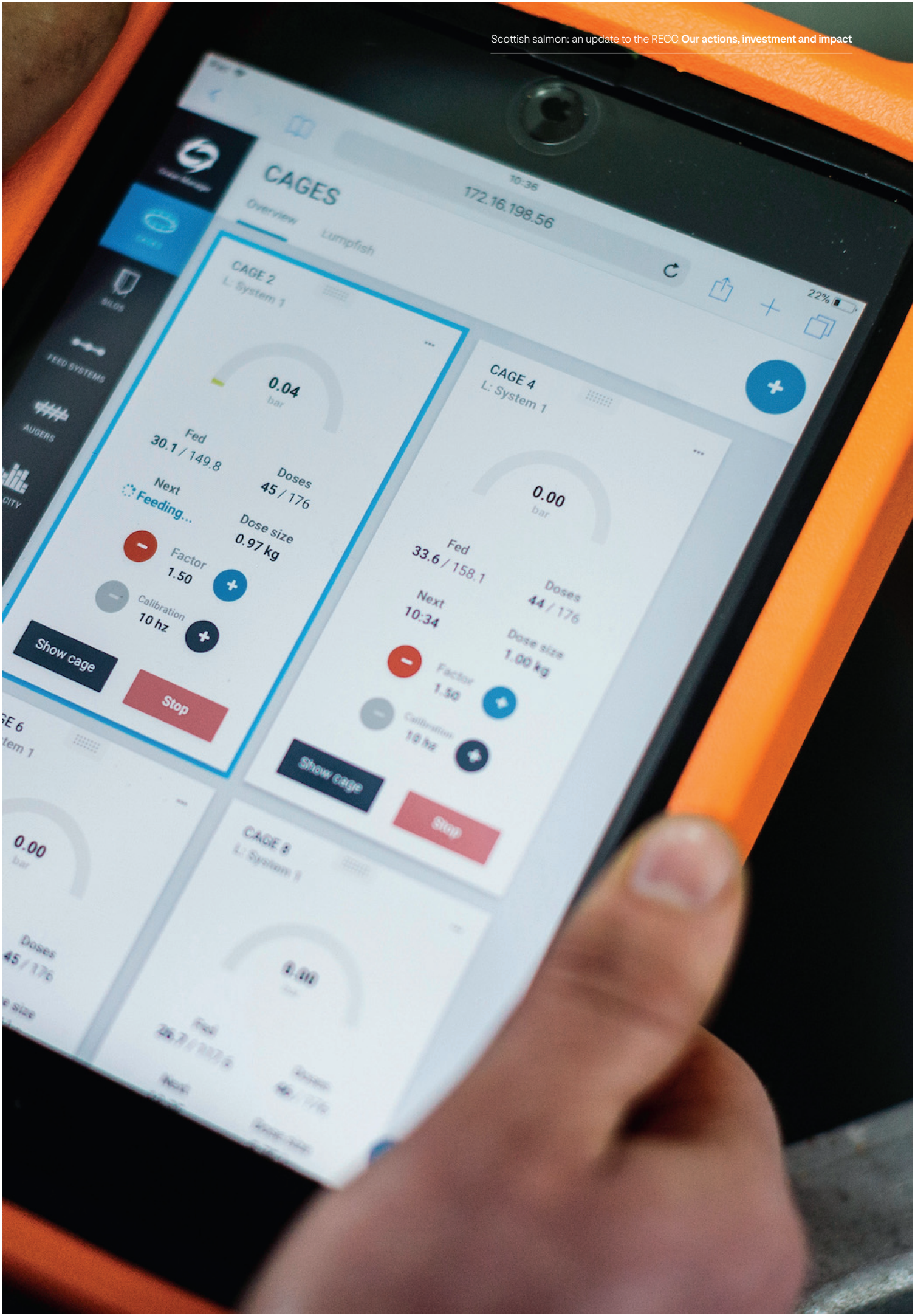
Transparency and data

What the RECC recommended

"... there should be more transparency, quicker reporting and better presentation of all data."

What salmon farmers have done

- The sector has complied with the provision of mandatory data to all regulators. This includes, but is not limited to, use of medicines, mortality, sea lice count reporting, production statistics and environmental monitoring results.
- Producers continue to support the compilation of the Marine Scotland Annual Production Survey, through the voluntary provision of detailed and wide-ranging farm production data.
- The sector has voluntarily published annual wrasse catch fisheries information.
- Individual farms' monthly sea lice counts and monthly mortality losses are reported timeously.
- The sector has participated in the public sector led work associated with Scotland's Aquaculture Database (outcome pending).
- Companies have increased their dialogue (channels and volume) with wild salmon, shellfish and catch fisheries personnel across Scotland, providing information about activities to support their work. This includes provision of sea lice information, dialogue on changes in medicine use, notifications of escapes and actions taken to address them.


CAGES
Overview
Lumpfish
172.16.198.56
10:36
22%
SILOS
FEED SYSTEMS
AUGERS
CAGE 2
L: System 1
0.04
bar
Fed
30.1 / 149.8
Doses
45 / 176
Next
Feeding...
Dose size
0.97 kg
Factor
1.50
Calibration
10 hz
Show cage
Stop
CAGE 4
L: System 1
0.00
bar
Fed
33.6 / 158.1
Doses
44 / 176
Next
10:34
Dose size
1.00 kg
Factor
1.50
Calibration
10 hz
Show cage
Stop
CAGE 8
L: System 1
0.00
bar
Doses
45 / 176

RECC Topic Area

Wild fish interactions

What the RECC recommended

"... there should be closer co-operation and collaboration between salmon farmers and salmon anglers."

What salmon farmers have done

- The sector completed bilateral work with Fisheries Management Scotland (FMS) to deliver robust recommendations within the Salmon Interactions Working Group report to Scottish Government.
- The sector is helping to fund the West Coast Migration Pathways project, a three-year initiative led by the Atlantic Salmon Trust that seeks to identify the migrating path of wild salmon.
- Producers are working with FMS to establish Local Farm Management Groups across salmon farming areas with fisheries board and trust representatives. These groups will assist in data and information exchange and encourage collaborative working and understanding.
- In the two years since 2018 the salmon farming sector invested £360,000 in non-regulatory projects and research to assist the local environment for wild salmonid populations through:
  - investing in equipment either through purchasing or sponsorships
  - purchasing feed, tanks and graders
  - investing in wild hatcheries
  - funding scientific, post graduate research and environmental management programmes
  - long-term investment in rivers, restocking and river restoration projects
  - funding additional angling employees or providing company personnel during study periods.