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Pàrlamaid na h-Alba

Rural Affairs and Islands Committee

Follow-up inquiry into salmon farming in Scotland [EMBARGOED UNTIL 00:01 FRIDAY 17 JANUARY]

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Rural Affairs and Islands Committee

To consider and report on matters falling within the responsibility of the Cabinet Secretary for Rural Affairs, Land Reform and Islands, with the exception of matters relating to land reform, natural resources and peatland, Scottish Land Commission, Crown Estate Scotland, and Royal Botanic Garden.


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Section 1 - introduction

Background to the inquiry

2. The Session 5 Rural Economy and Connectivity (REC) Committee undertook a wide-ranging inquiry into salmon farming between January and May 2018. The Environment, Climate Change and Land Reform (ECCLR) Committee considered the impact of salmon farming on the marine environment in advance of the REC Committee's wider inquiry and its findings fed into the REC Committee inquiry. To inform both Committees' consideration, a review of research on aquaculture and the environment was commissioned from the Scottish Association for Marine Science Research Services Limited.

3. The REC Committee's report, '*Salmon farming in Scotland*', was published in November 2018. For convenience, the report's 65 conclusions and recommendations are set out in **Annexe A** of this report.

4. The Scottish Government responded to the REC Committee report in January 2019, telling the Committee that it agreed with many of its conclusions and "view[ed] the report as a helpful staging point in the development of the sector in Scotland". SEPA responded to the REC Committee report in November 2018.

5. In the REC Committee's legacy report at the end of Session 5, it expressed disappointment by what it saw as a lack of progress in implementing the report's recommendations. It suggested, therefore, that its successor Committee "may wish to consider following up on these matters during session 6 and undertaking continued scrutiny of the regulation, performance and sustainability of Scotland's aquaculture sector".

6. The Rural Affairs and Islands (RAI) Committee considered the issue of salmon farming on a number of occasions early in Session 6. It took evidence from Professor Russel Griggs on his independent review of regulatory process for aquaculture on 22 June 2022. It also held a preliminary evidence session on the Scottish Government's progress in implementing the REC Committee recommendations with the Cabinet Secretary for Rural Affairs, Land Reform and Islands on 10 May 2023.

7. In 2023, the RAI Committee agreed to undertake a follow-up inquiry into salmon farming at the earliest opportunity and this inquiry commenced in April 2024. The RAI Committee's inquiry focused on the implementation of the main recommendations made by the REC Committee, spread across four key themes:

   - fish health and welfare;
   - environmental impacts;
   - interactions between wild and farmed salmon; and
   - salmon farm consents and planning.

8. The Committee took evidence from a range of regulators, stakeholders, fish farm producers and the Scottish Government between June and October 2024. Further

information about the evidence sessions is set out in **Annexe B**.

9. The Committee also received a number of written submissions and these are published on the Committee's inquiry webpage.

10. In addition, the Committee undertook a fact-finding visit to Oban on Sunday 22 and Monday 23 September. The Committee hosted a community engagement event on salmon farming with local stakeholders; visited the marine research facilities at the Scottish Association for Marine Science and visited the Dunstaffnage fish farm operated by Scottish Sea Farms.

11. The Committee thanks all those who provided written or oral evidence to inform the Committee's consideration of this issue.

Developments in aquaculture policy since the REC Committee report

12. In the period since the REC Committee began its inquiry, a number of policy documents have been published and workstreams initiated. These are summarised below and illustrated in the accompanying graphic.

13. In May 2018, and prior to the conclusion of the REC Committee inquiry, the Scottish Government published its 10-year Farmed Fish Health Framework , a strategic plan developed by industry, academia, Marine Scotland (now known as the Scottish Government Marine Directorate), veterinary professionals, as well as regulatory and advisory bodies. The aim of the Farmed Fish Health Framework is:

> To plan and be able to respond to new and developing challenges, the maintenance of high standards of fish health requires further strategic planning and co-ordinated action. This framework aims to provide the focus and mechanism to do this, and ensure the right people, organisations and resources come together to address these challenges efficiently. This framework looks to the long-term and therefore will continue to evolve as our knowledge of the fish health challenges and possible mitigation evolves.

14. The Farmed Fish Health Framework includes “clear reporting mechanisms with transparency and open communication embedded as key principles” in order to “ensure the momentum and drive exists to achieve real and concrete gains throughout the ten-year lifetime of the framework”.

15. In June 2018, the Scottish Government established the Salmon Interactions Working Group to evaluate policy, advice and projects relating to wild and farmed salmon sea lice interactions and to make recommendations, including a delivery plan of agreed actions and timescales, for a future interactions approach. The Salmon Interactions Working Group reported in May 2020 and the Scottish Government responded to the Salmon Interactions Working Group report in October 2021.

16. Since the REC Committee report was published, there has been a number of further developments relating to the salmon farmed fish industry in Scotland.

17. In 2019, SEPA published its finfish aquaculture sector plan with the aim of improving the environmental performance of the sector. SEPA also introduced a revised regulatory framework that provides additional controls around discharges from fish farms into the marine environment and new monitoring requirements of the surrounding seabed.

18. In 2020, the structure of the delivery mechanisms associated with the Farmed Fish Health Framework was reviewed to “help ensure future effectiveness and efficiency”. The Scottish Government announced that the “new governance structure in place and refreshed approach prioritises those work streams of Scotland’s Farmed Fish Health Framework which stand to make the most direct impact on fish health in Scotland”. The revised priority workstreams for the refreshed steering group for the Farmed Fish Health Framework were to:

- develop a consistent reporting methodology for data collection and provide

mortality data for farmed fish according to mortality cause;

- look at the impact of climate change; and
- encourage development of new medicines with the aim of increasing treatment flexibility within environmentally sustainable limits.

19. In August 2021, the Scottish Government invited Professor Russel Griggs to undertake "a review of the current regulatory framework for Scottish aquaculture, with a view to providing recommendations for future work which will improve its efficiency as well as inform any work on more fundamental reform".

20. In January 2022, the Scottish Government published its wild salmon strategy . The strategy "sets out the vision, objectives and priority themes to ensure the protection and recovery of Scottish Atlantic wild salmon populations". The Scottish Government published its wild salmon strategy: implementation plan 2023 to 2028 in February 2023 which sets out over 60 actions to be undertaken within the five-year period to achieve the vision that "Scotland's wild Atlantic salmon populations are flourishing and an example of nature recovery".

21. In February 2022, Professor Griggs published *'A Review of the Aquaculture Regulatory Process in Scotland'* with recommendations which he felt would "give the aquaculture sector an opportunity to develop in a way that allows commercial certainty within a controlled environment while taking into account the different status of each sector". The Scottish Government accepted all recommendations in principle.

22. In May 2022, in response to the findings of Professor Griggs' review of aquaculture regulation, the Cabinet Secretary announced the creation of a consenting task force "to identify an efficient and effective aquaculture consenting process, which enables appropriately informed regulatory decisions to be made as quickly as possible" with a particular task of piloting "new measures to achieve an improved, multilateral consenting process framework". These pilots are currently running in the Shetland and Highland council areas.

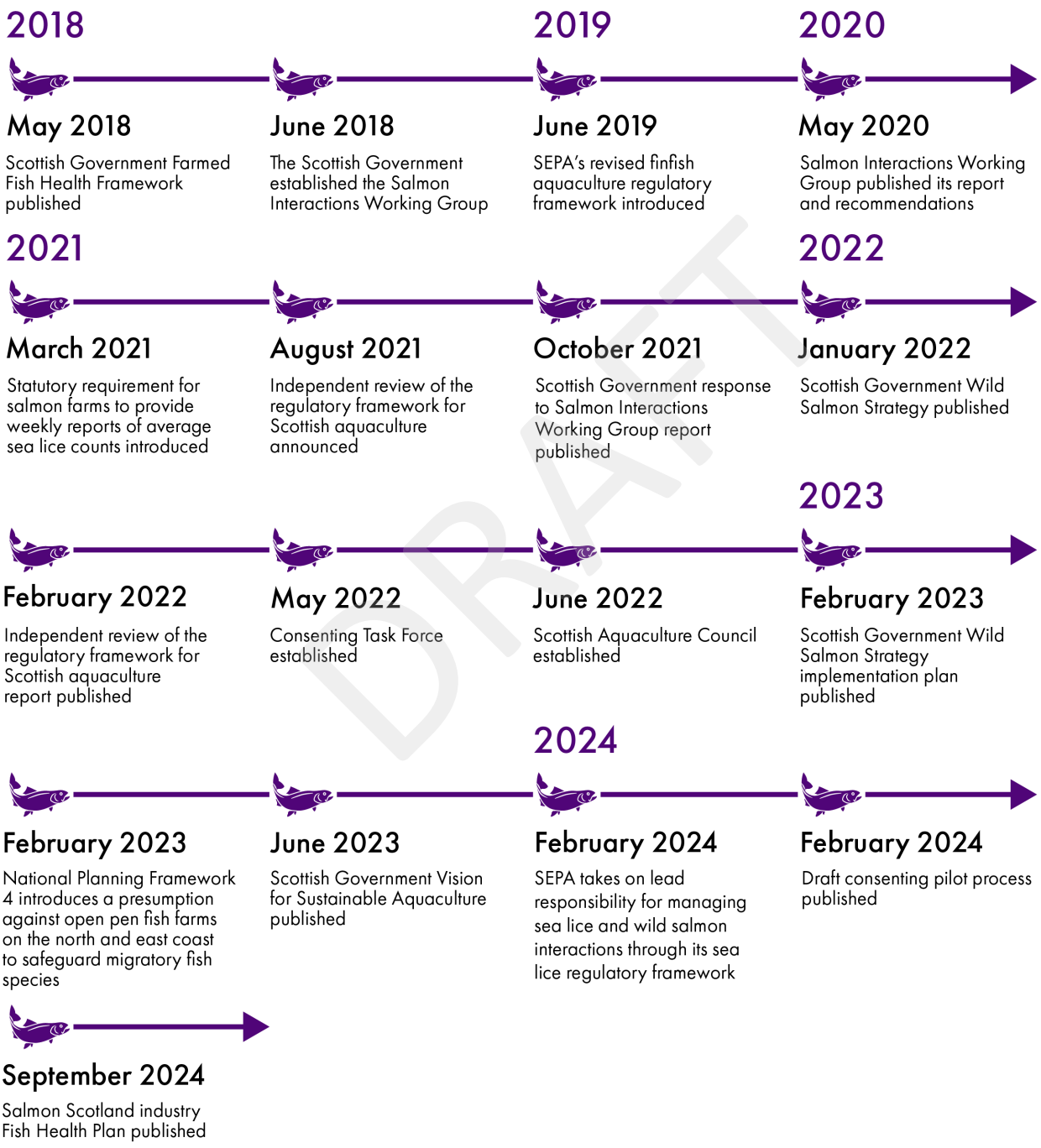
23. In June 2022, the Scottish Aquaculture Council was established as a cross-stakeholder group "to respond to the unique benefits, opportunities and challenges of the salmon, trout, shellfish and seaweed farming sectors".

24. In July 2023, the Scottish Government's ' *Vision for Sustainable Aquaculture'* was published and "describes the Scottish Government's long-term aspirations to 2045 for the finfish, shellfish and seaweed farming sectors, and the wider aquaculture supply chain".

25. In September 2024, Salmon Scotland published the industry's '*Fish Health Plan*', which sets out "what we do to protect the health and welfare of our fish, and how we will go further into the future".

26. A glossary of organisations referenced throughout the report can be found in **Annexe C** of this report. A list of key terms used in the context of salmon farming and the production process can also be found on Scotland's Aquaculture website.

Key developments in aquaculture policy since the REC Committee report



Source: Source: Scottish Parliament Information Centre (SPICe)

Section 2 - fish health and welfare

27. The REC Committee identified fish health and welfare as a “significant challenge to the salmon farming industry in Scotland” and, as part of its inquiry, considered issues around mortality, sea lice and the use of cleaner fish. It also examined how data on these matters were collected and reported by industry and regulators.

Farmed fish mortalities (recommendations 9 and 10)

Background

28. The 2018 Farmed Fish Health Framework stated that mortality "has many causes and is a primary area of focus for fish farming businesses” and recognised the “deterioration (in the years to and including 2017) in farmed fish survival in Scotland”. The Farmed Fish Health Framework sets out the Scottish Government's commitment to “ensure that the industry, Government and principal regulators agree ambitious targets to achieve a significant and evidenced reduction in mortality for salmon and trout, which will be world-leading and based on international comparisons of major farmed salmonid producing nations”.

29. In its letter to the REC Committee, the ECCLR Committee expressed concerns about increased mortalities which it felt “the industry and regulators appear to be incapable of reducing”. It also stated that the same mortality levels “would not be considered acceptable in other livestock sectors”.

30. The REC Committee report stated that "the Committee considers the current level of mortalities to be too high in general across the sector and it is very concerned to note the extremely high mortality rates at particular sites" (recommendation 9). Recommendation 10 welcomed the Scottish Government's commitment in the Farmed Fish Health Framework to agree “ambitious targets”.

31. The REC Committee report made a number of recommendations calling for regulators to be given powers and “practical actions” to use in the event of high mortality levels. The REC Committee said it was “strongly of the view” that "no expansion should be permitted at sites which report high or significantly increased levels of mortalities, until these are addressed to the satisfaction of the appropriate regulatory bodies" (recommendation 9). The REC Committee recommended that "there should be a process in place which allows robust intervention by regulators when serious fish mortality events occur". This included appropriate mechanisms "to allow for the limiting or closing down of production until causes are addressed" (recommendation 10).

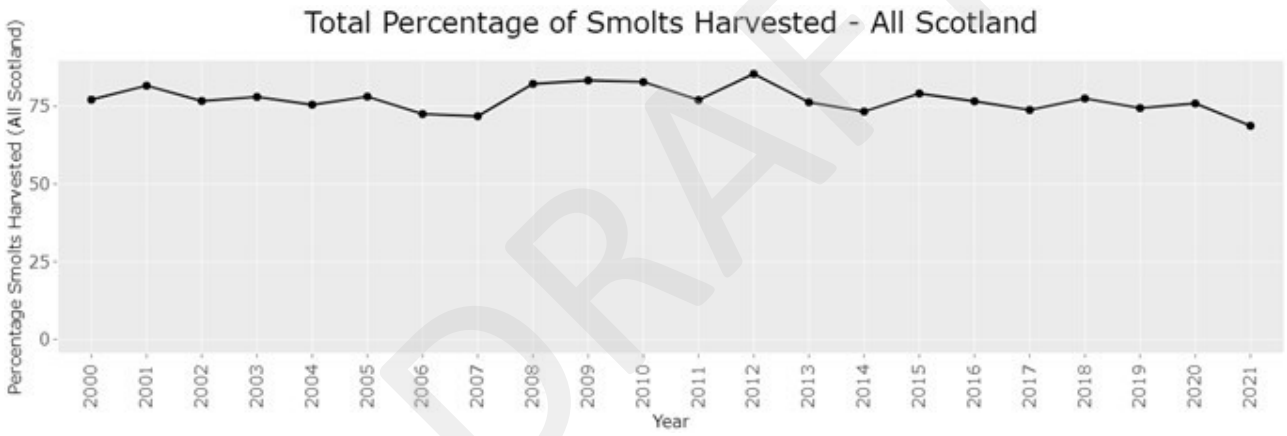
32. In its response to the report, the Scottish Government acknowledged "that performance across the sector is variable”. The then Cabinet Secretaries also stated that “one of the key challenges will be to develop a well-resourced research base to investigate causes of emerging disease and make the epidemiological analysis required to identify options for prevention and control as quickly as possible”.

33. In her 2023 update to the Committee, the Cabinet Secretary stated that "good progress has been made through the Farmed Fish Health Framework in identifying and ranking the main causes of mortality into ten overarching categories".

Committee consideration

Mortality figures and targets

34. In a letter from the Cabinet Secretary for Rural Affairs, Land Reform and Islands to the Convener, 27 November 2024, the Scottish Government provided the latest mortality figures for smolts harvested across fish farms in Scotland. _ The figures show that, since the REC Committee report was published, the average rate of mortality as a percentage of salmon smolts harvested has remained at around 25%.



Source: Source: Scottish Aquaculture Production Surveys, set out in the letter from the Cabinet Secretary for Rural Affairs, Land Reform and Islands to the Convener, 27 November 2024.

35. Information on Salmon Scotland's website explains that the survival rate of farmed salmon is much higher than in wild salmon populations. It states that "Scottish Government data from the survey traps on River Dee tributaries (on Scotland's east coast) show that, even of the fish which survive from hatching to going to sea, the number returning to breed is below 2%" whereas "the annual average survival rate achieved for post-smolt farmed Scottish salmon is 85.5%, or 17 out of every 20 farmed salmon (14.5% mortality)".

36. Evidence from Animal Equality UK, however, argued that making direct comparisons in survival rates in wild and farmed fish were "misleading" because high mortality rates in wild salmon "are part of an ecological balance, with predators and environmental factors shaping populations", whereas farmed salmon "exist in controlled environments where high mortality rates often result from preventable causes like disease outbreaks, sea lice infestations, and farming practices".

37. The Committee discussed the mortality rates with witnesses. Some witnesses, such as the Fish Health Inspectorate, referred to the aquaculture production survey figures which show that mortality as a percentage of salmon smolts harvested has remained at around 25%. The Fish Health Inspectorate acknowledged that the latest survival figures were less than those in previous years, but asserted that, "in the long term, there is still a fairly straight line for survival". Salmon Scotland indicated that survival figures from August were the best reported for five years and considered this a sign that "things are actually moving in the right direction".

38. Other witnesses, however, suggested these figures do not represent the full picture. The Coastal Communities Network referred to information extrapolated from biomass data published by SEPA which estimated 17.5 million fish had died in 2022, a figure significantly higher than numbers reported in 2018.

39. The Committee also heard about industry-reported mortality statistics which have recorded cumulative mortality rates as high as 80 per cent over a production cycle on individual farms. For example, mortality data published by Salmon Scotland for August 2024 indicated a farm in Culnacnoc recorded an end of production cycle mortality rate of 86.8%. Animal Equality UK suggested that the number of farms reporting death rates of above 50% had increased between 2018 and 2023.

40. When asked about mortality levels, the Cabinet Secretary stated that mortality rates have stayed relatively consistent "at a level of about 25 per cent". She went on to say that, "of course, that is not where we or the industry want those figures to be, but dealing with mortality is always difficult, because it is a really complex issue to try to address".

41. The Committee considered the issue of targets for farmed fish mortality, as committed to in the Farmed Fish Health Framework and welcomed by the REC Committee. Professor Simon MacKenzie from the Institute of Aquaculture at the University of Stirling said mortalities of 17 million fish was "not a sustainable practice" and that "the targets that need to be set, and even the aspirations of what are acceptable mortalities in that food production system, have to be debated". The Coastal Communities Network pointed out that:

> … nobody sets an upper limit for mortality. There is no figure for the maximum acceptable mortality. The Government will say that farms should work towards the lowest possible figure. In Druimyeon Bay, where it was 82 per cent, that was the lowest possible figure, so that is apparently acceptable to the Government and to RSPCA Assured. There is no KPI that gives a maximum mortality rate.

42. The Cabinet Secretary did not want to be drawn into a discussion with the Committee about the issue of targets for mortality. She told the Committee that "I do not want to get into that— the Committee asked me during my previous appearance about what an optimum target would be, but I do not think that that is a helpful conversation to have".

Causes of mortality

43. The Committee heard evidence which emphasised the complex factors causing farmed fish mortality, many of which are outwith the control of industry as a whole and its fish farmers individually. The Farmed Fish Health Framework steering group has identified 10 causes of mortality of farmed salmon.[i]

44. The impact of climate change was particularly discussed with the Committee. Increased water temperatures resulting from climate change were identified as having a particularly damaging effect on the sector, through placing increased

i These are listed as: smolt and transfer; predation; jellyfish and plankton; environment; viral disease; bacterial disease; handling; sea-lice related; gill health-related; and other.

stress on farmed populations and creating enhanced conditions for disease and parasites. Professor Sam Martin from the School of Biological Sciences at the University of Aberdeen explained that mortality was cyclical, with higher levels expected in the warmer temperatures of the summer before reducing dramatically in the winter when water temperatures were colder and, therefore, parasites could be "cleared out". He added, however, that recent warmer winters have not cleared out the parasites and, together with an on-going gill health issue with other compromising factors, this has resulted in high mortalities.

45. The Coastal Communities Network highlighted the Scottish Government's own findings on the link between water temperature, biomass and mortality, emphasising the predictability of these factors. It told the Committee that "government scientists found that 81% of the variation in mortality can be predicted by the previous minimum winter temperature and the biomass of fish". It told the Committee that higher temperatures and increased biomass directly correlate with rising mortality rates. Comparing regions, the Coastal Communities Network pointed out that waters in Argyll and the Western Isles are significantly warmer than in Shetland or Orkney, which is reflected in mortality rates: Argyll reported 32%, the Western Isles 38.8%, Shetland 18.1%, and lower rates in the North-West. The Coastal Communities Network highlighted these figures were above Norway's mortality rates.

46. During the Committee's visit to the Scottish Association for Marine Science in Oban, the Committee heard from researchers about the application of hydrodynamic and environmental computer models which use real data to predict how parameters in the marine environment will change over time. This included predictions of ocean current and flow, weather, sea lice dispersal, harmful algal blooms and the environmental footprint of fish farm sites. Researchers also explained how they are working on collaborative modelling research of sea lice dispersal aimed at improving sea lice dispersal monitoring and modelling techniques to predict distribution of sea lice in Scottish sea lochs.

47. Industry representatives agreed that continued fish mortality was a consequence of unique environmental factors arising over recent years. Scottish Sea Farms highlighted the impact of La Niña over recent years, followed by El Niño in 2023, which created new problems for the industry such as the influx of micro-jellyfish (which can cause mortality through their harmful effects on gill health) in Scotland in 2022.

48. The Cabinet Secretary also noted the development of new challenges in recent years and mentioned work was being progressed to "get in front of whatever is coming next" through investment in science and technology. To that end, she pointed to £1.5m funding provided by the Scottish Government to the Scottish Aquaculture Innovation Centre to support its work in horizon-scanning around algae blooms in order "to predict where that might happen again".

Provision for "practical action" in the event of high mortality

49. The Committee heard some support for no expansion (recommendation 9) or a mechanism to enable "robust intervention by regulators" (recommendation 10) when serious fish mortality events occur at a particular site. Professor MacKenzie

from the Institute of Aquaculture at the University of Stirling argued that the current approach to preventing mortality "needs to have some bite behind it, otherwise change will not happen". The Coastal Communities Network told members that "mortality has to come down—we all agree with that—but there were no sanctions for having [a high] mortality rate".

50. Others, however, warned of the dangers and difficulties in putting in place a threshold for intervention which didn't consider the wider context around a high mortality event or that the causes of mass mortality are often outwith industry's control. Dr Rachel Shucksmith, a marine spatial planning manager at the University of the Highlands and Islands, advised that "a level of caution because some mass mortality events—say, those that are driven by algae or by a jellyfish bloom—might occur at a locality then not occur again for 20 years". Dr Shucksmith went on to give an example from Shetland where "I observed that a particular species of jellyfish bloomed and caused mass mortality, but that species has never been seen to bloom again, and so it has never impacted on that locality again". She concluded that "although a one-off mortality rate was very high there, preventing aquaculture at that site in future years would not have been necessary".

51. Several stakeholders highlighted concerns that regulatory responsibilities around mortality were opaque and poorly coordinated between bodies. OneKind said there was a lack of clarity in how the Fish Health Inspectorate, the Animal and Plant Health Agency and local authorities undertake their functions and that many mass mortality events were not being referred by them for further investigation.

52. The Committee asked the Cabinet Secretary why these mechanisms had not been developed. The Cabinet Secretary said she was satisfied the Fish Health Inspectorate has the appropriate powers to deal with mortality resulting from fish health issues and did not see how an intervention mechanism could effectively work. She told the Committee:

> I struggle to see what the purpose of that would be. If, for example, an environmental challenge arises that could not be predicted, how does a farm deal with that? How does a farm deal with a situation that could lead to an increase in mortalities that is outwith its control?

53. When asked about any confusion about the different regulators' responsibilities, the Cabinet Secretary told the Committee that "each organisation has a specific role that it has to undertake and specific laws and regulation that it has to enforce and monitor". She emphasised the importance of "close collaboration between the different organisations in this space" and that the Fish Health Inspectorate and Animal and Plant Health Agency have been in discussions about how to better collaborate on those issues.

54. **The Committee is disappointed by figures showing that mortality has not improved since the 2018 REC Committee inquiry report. The REC Committee considered these mortality figures to be "too high". The Committee also notes that mass mortality events have occurred at some farms since the REC Committee inquiry. These mass mortality events make it more difficult to interpret whether the trend in overall mortality figures have changed significantly.**

55. **The Committee also notes the Scottish Government's Farmed Fish Health Framework commitment to set "world leading" and "ambitious" targets to reduce mortality was not mentioned when the Farmed Fish Health Framework delivery mechanisms and workstreams were revised in 2020.**

56. **The Committee recognises the multiple and complex causes of mortality in farmed fish. In particular, the Committee notes the unpredictable, acute environmental events – such as algae blooms and micro-jellyfish in 2022 and 2023 – which have caused mass mortalities at some sites. The Committee recognises these environmental events are not within the control of industry as a whole and its fish farmers individually.**

57. **The Committee also notes that the frequency of these unpredictable, acute environmental events which cause mass mortalities may increase in frequency due to the impacts of climate change. Consequently, the Committee is concerned that preventing high mortality events is not currently within the operational capability of industry as a whole and its fish farmers individually.**

58. **The Committee recommends the Scottish Government establish a research project focused on testing and improving the modelling of environmental conditions that are known to cause high mortality events on salmon farms. This research should aim to explore improvements in the capability to predict such events to provide early warning to industry and inform technological solutions and approaches to husbandry to mitigate high mortality events. This research should also consider whether the current collection and monitoring of environmental conditions around salmon farms is sufficient for computer modelling purposes and identify potential for improvements. The Committee asks the Cabinet Secretary to set out a timetable for establishing this research project in her response to this report.**

59. **The Committee notes the REC Committee recommendations for no expansion at sites with high mortality and for "robust intervention" when serious mortality events occur have not been implemented. The Committee also notes the Cabinet Secretary's view that a threshold for intervention precipitated by a high mortality event would fail to recognise the wider context or that some are caused by factors outwith the fish farm's control. At the same time, however, the Committee believes further action is needed to improve the governance of fish health and welfare on farms to address gaps in accountability and enforcement around mortality. The Committee recommends, therefore, the Scottish Government provide powers to the Fish Health Inspectorate (or another appropriate body) to limit or halt production at sites which record *persistent* high mortality rates. The Scottish Government should work with industry and regulators to agree appropriate criteria and mortality thresholds for the use of these powers.**

60. **The Committee also notes that, for some fish farms, the flexibility to relocate to more suitable sites would mitigate fish mortality. The Committee makes recommendations relating to this in section 5.**

Mortality data (recommendations 11 and 12)

Background

61. At the time of the REC Committee inquiry, the website published monthly biomass and treatment reports for all fish farms, including a figure in kilograms for biomass lost per month. There was, however, no mandatory requirement for industry to publish mortality data, although some producers published this on a voluntary basis. The Farmed Fish Health Framework set out a number of actions relating to data collection including to develop a consistent reporting methodology for collection of information on the causes of farmed fish mortality and to "develop a national approach to data-sharing and evidence-gathering that can enable evidence-based decision making, best practice and promote openness and transparency within the Scottish industry".

62. Recommendation 11 of the REC Committee report stated it was essential that a consistent reporting methodology for farmed fish mortality should be developed to "provide an accurate, detailed and timely reflection of mortality levels including their underlying causes across the whole sector". Recommendation 12 called for "sufficiently robust" methodology for mortality reporting and stated the REC Committee was "strongly of the view" that reporting mortality data should be mandatory.

63. In their response to the Committee, the then Cabinet Secretaries said the Scottish Government would take into account the Committee's views as part of the Farmed Fish Health Framework workstream.

64. In her 2023 update to the Committee, the Cabinet Secretary referred to the standardisation of mortality reporting across the sector and data publication as "a significant step forward both in terms of transparency and facilitating better understanding of the reasons for mortality". She also ruled out mandatory reporting of additional mortality information, stating that "mortality reporting is not mandatory, mortality reporting thresholds exist and the fish farming sector publishes its own site-level information".

65. The mortality data made available is summarised in the table below.

Source	Information published
SEPA	Monthly (weight in kilograms)
Fish Health Inspectorate	Weekly (number of fish where reporting thresholds have been reached)
Salmon Scotland	Monthly mortality rate (percentage of the total number of fish on the farm each month), Cumulative mortality over full production cycle (percentage of fish that have died on a farm during the entire production cycle, given as a percentage of the total number of fish that were initially stocked on the farm), includes notes on cause identified.
Scottish Government Marine Directorate (fish farm production survey)	Survival rate (percentage) from smolt input to harvest by year class.

Source: Salmon Scotland written submission

66. Industry currently provides voluntary reporting of mortality data to the Fish Health

Inspectorate for mortality above the thresholds set out in the (1.5% for farms with a site average weight of less than 750g; 1.0% for farms with a site average weight of more than 750g).

Committee consideration

67. Some stakeholders acknowledged that industry has made significant improvements to the mortality data it makes available. Professor Martin from the School of Biological Sciences at the University of Aberdeen told the Committee that "the industry has made big efforts, through Salmon Scotland, to publish all the mortality data monthly for every site in Scotland". Scottish Sea Farms stressed the accuracy of the mortality data:

> All the paperwork that is associated with it [farmed fish mortality], from the recovery to the quantities, is fully recorded, fully audited and inspected by the Fish Health Inspectorate and by other organisations, including the Animal and Plant Health Agency. That should be borne in mind.

68. The Committee was also told, however, that improvements could be made to the way that information is presented. For example, RSPCA Scotland noted that there was a difficulty understanding mortality data “because the reporting is still messy”. Salmon Scotland also acknowledged the challenges with interpreting the data, agreeing that “while all data is accurate, it can be confusing to understand what is published, by who, and why”.

69. In particular, a number of stakeholders queried why SEPA published mortality data based on biomass tonnage rather than individual fish as this makes it difficult to compare with other data sets. Environmental groups argued that mortality data should be reported as individual fish because using weight-based mortality was an unfitting method of measuring fish health and welfare. The Coastal Communities Network said SEPA used to collect mortality data on the basis of individual fish but that, “it stopped doing so in 2020, without explanation, and now only publishes mortalities by weight".

70. When asked about this, SEPA stated that it collects weight-based data because biomass is the metric used for discharging its specific regulatory responsibilities around aquaculture.

71. Other witnesses felt that more detail should be provided relating to the causes of mortality. For example, RSPCA Scotland noted that some reasons given, such as 'gill disease', were "super vague".

72. The Coastal Communities Network raised specific concerns that the data to be reported to the Fish Health Inspectorate was limited. The Coastal Communities Network noted its concern that the Fish Health Inspectorate's mortality data excludes all deaths below weekly thresholds of 1.5% or 1% of salmon in each farm (depending on their weight); any smolts that die in their first six weeks at sea (as so many die when they are first put in salt water). It also said “these figures exclude mortality in the earlier freshwater stage, during which more than 30% of fish often die, before the survivors are put to sea”.

73. RSPCA Scotland also acknowledged in its evidence that the mortality information it

received from industry as part of similar reporting arrangements was also not a “full data set”.

74. In relation to the detail provided about the causes of mortality, the Cabinet Secretary highlighted the work done through the Farmed Fish Health Framework to standardise reporting across farms based on 10 defined causes of mortality. She also acknowledged that “further improvements could still be made in how the overall data is presented” and added the issue “is something that we have discussed, and I think it would be helpful for us to provide an explainer of how all the different categories of information are used”.

75. In relation to the criticisms levelled at its data, the Fish Health Inspectorate accepted that it was not a comprehensive data set but argued "it is all mortality that is considered to be significant". It claimed the industry provides "a spread of data throughout the year and throughout the country, which gives us the opportunity to look at trends".

76. The Cabinet Secretary confirmed she was satisfied with current reporting requirements and considered it to be proportionate to the purpose the information was used for by regulators.

77. **The Committee notes the actions taken by industry since 2018 to improve the quality of mortality data published. The Committee is concerned by the lack of consistency in how mortality data is collected and published, however, and welcomes the Cabinet Secretary's commitment to make further improvements. The Committee recommends the Scottish Government must publish comprehensive, consistent and transparent mortality figures that include the number of fish at a farm, the freshwater mortality and seawater mortality, per facility, with accurate numbers of dead salmon, wrasse and lumpsuckers per week and with cumulative mortality totals at the end of each cycle.**

78. **The scope for improvement in the information provided relating to the causes of mortality was also raised with the Committee. The Committee recommends the Scottish Government publish an annual fish health report detailing the health and welfare status of all farmed aquatic finfish, including wild caught wrasse, in Scotland. These reports should include both annual statistics on, and the causes of, finfish mortalities.**

79. **The Committee also heard concerns regarding the information collected by the Fish Health Inspectorate and notes that reporting of mortalities under the Code of Good Practice for Scottish Finfish Aquaculture is currently voluntary. The REC Committee recommended that reporting should be mandatory but the Cabinet Secretary has confirmed the Scottish Government's view that the current reporting requirements are sufficient and proportionate. Given the concerns raised in evidence relating to the Fish Health Inspectorate information, however, the Committee supports the REC Committee recommendation for mandatory reporting of mortalities to the Fish Health Inspectorate. The Committee suggests a reporting mechanism would not be overly onerous given industry already collects this data for the purpose of on-site audits. The Committee believes that a**

more robust reporting regime would bring greater transparency to the industry, support the Fish Health Inspectorate's oversight of farm activities, and align with new reporting criteria around sea lice.

Farmed fish welfare

Background

80. Whilst the REC Committee did not specifically consider, and make recommendations about, farmed fish general welfare, the issue was discussed during this Committee's inquiry.

81. The Animal and Plant Health Agency has statutory responsibility for regulating fish welfare in accordance with the Animal Health and Welfare (Scotland) Act 2006 (the 2006 Act), and for investigating welfare issues occurring at salmon farms. In a letter to the Committee, it said "the Scottish Ministers issue guidance documents on welfare which identify good practice and support regulatory action when standards fall short of good practice; there is no such document for farmed fish".

82. Responsibility for initiating prosecutions for animal welfare offences at fish farms is a matter for local authorities.

83. Animal welfare standards at farms are also assessed through voluntary accreditation services provided by RSPCA Assured. Wildfish raised a concern with the Committee about a conflict of interest in roles and responsibilities between RSPCA Scotland and RSPCA Assured with respect to their relationship to the salmon industry. In a letter to the Committee, dated 5 June 2024, RSPCA Scotland confirmed to the Committee that it was a separate charity to RSPCA Assured and noted that both had different organisational structures and charity numbers.

84. Farm management and husbandry practices that promote fish welfare are set out in the industry's Code of Good practice for Scottish Finfish Aquaculture. The Committee understands the Code is expected to be renewed next year.

Committee consideration

85. The issue of the welfare of farmed salmon was raised during the Committee's evidence gathering. Industry representatives emphasised the importance of promoting good fish welfare in the salmon they produced. Cooke Scotland explained how farms conduct regular welfare assessments to examine the physical condition of fish. Bakkafrost Scotland told the Committee that the sector has made "fundamental changes to our welfare practices over the past five years", including moves away from reactive methods of assessing fish welfare to “more proactive and preventative means of looking after our fish”. Industry representatives gave the example of £1b worth of investments made in new equipment to improve fish health and welfare on their farms through new monitoring and camera technologies, as

well as new treatment wellboats.

86. Other witnesses set out their concerns about the impact of salmon farming on salmon welfare. RSPCA Scotland argued that "fish welfare is improving, but our knowledge is still developing".

87. Professor Lynne Sneddon from the University of Gothenburg told the Committee there is evidence that salmon are capable of experiencing pain, which significantly affects their welfare. She told the Committee that “if an animal is in pain, it is definitely experiencing poor welfare” and noted that pain has measurable impacts on salmon behaviour, physiology and neurobiology. To assess welfare, she suggested monitoring behavioural indicators such as feeding habits, swimming patterns, use of cage space and signs of aggression. She also highlighted that morphological markers, such as lesions or damage to gills, eyes or fins are also critical. Additionally, she advocated sub-sampling fish to evaluate physiological traits and detect disease or parasites and emphasised that “a wealth of information” exists to ensure farmed salmon can live good lives with maintained health, adding, “action should be taken if, say, 10% of the fish start exhibiting signs of aggression”. The Committee heard, as part of its visit to Dunstaffnage fish farm, how staff are trained to monitor behavioural indicators when undertaking welfare assessments.

88. The use of treatments such as Thermolicers (a treatment whereby salmon are bathed in lukewarm water to remove sea lice) were highlighted as detrimental to fish welfare. Wildfish told the Committee that “when you run fish through physical treatments, you have welfare issues and you also weaken the fish and put compromised fish back into the water, which contributes to rising mortality”. Professor Sneddon also expressed concerns about the impact of Thermolicers and said use of the treatment had shown to subject fish to conditions beyond their pain thresholds. She said:

> I have spoken to people in the industry who tell me that the animals do not feed for several weeks after thermal treatments, so they are, in effect, weakened or in a poor welfare state. We should not allow such treatment, because it causes pain and it significantly impairs their behaviour and welfare. They also do not feed for quite a long time afterwards.

89. Industry representatives agreed that treatments for sea lice could damage fish health and welfare.

90. The Committee is aware that farmed fish are covered by general animal welfare protections established in the 2006 Act, which makes it an offence to cause unnecessary suffering and prohibits mutilation, cruel operations and the administration of poisonous drugs or substances as defined under the 2006 Act. Several stakeholders, however, noted that farmed fish do not have species-specific statutory welfare standards or official guidance issued under the 2006 Act like other terrestrial farmed animals – such as cattle, chickens, gamebirds, pigs and sheep – and that addressing this would deliver improvements in standards and their enforcement. The Animal Law Foundation noted official guidance would “ensure that the laws are being enforced effectively and that the welfare of the fish on fish farms is being treated as a priority”.

91. RSPCA Scotland said:

> Scotland has no species-specific legislation for the welfare of fish. Fish are not even covered by the legislation in the UK or Scotland around welfare at the time of killing. There is almost nothing in that regard, so the fact that our [RSPCA Assured] standards even exist is going above and beyond. We have standards around the maximum time that fish can be out of water, around stun and slaughter and around how to handle fish. None of those issues are covered by legislation.

92. The Committee questioned the Cabinet Secretary as to why there were no specific welfare standards for farmed fish under the 2006 Act. The Cabinet Secretary said she is comfortable sufficient protections are in place for promoting animal welfare in salmon farming. She also said she is "open to consider where any potential enhancements to animal welfare can be made" and "to consider the role of Animal and Plant Health Agency when it comes to strengthen their role of when it comes to protecting fish welfare". A Marine Directorate official said there is an "ecosystem of understanding" across various documents that set out indicators of good practice around fish welfare that are drawn upon by the Animal and Plant Health Agency when undertaking their regulatory responsibilities.

93. **The Committee understands the importance of fish welfare to industry in marketing Scottish salmon as a premium product and is supportive of the investments made by the sector in promoting good fish welfare. It notes, however, concerns about some of industry's practices, including the use of mechanical techniques such as Thermolicer and Hydrolicer, as well as chemical and medicinal treatments that can stress the fish, should be proportionate to this aim.**

94. **The Committee is concerned that farmed fish do not have specific statutory welfare standards or official guidance under the Animal Health and Welfare (Scotland) Act 2006. Specific standards and guidance are currently set through voluntary mechanisms, such as accreditation and industry's Code of Good Practice for Scottish Finfish Aquaculture. It is clear to the Committee that the statutory regime must keep pace with knowledge about farmed fish welfare to set a baseline for farm standards.**

95. **The Committee recommends the Scottish Government bring forward additional regulations and official guidance under the Animal Health and Welfare (Scotland) Act 2006 Act in order to set specific baseline standards for the welfare of farmed fish. This should dovetail into the upcoming review of industry's Code of Good Practice to ensure this provides adequate guidance on how statutory requirements should be achieved. The Committee also recommends official guidance must take account of industry's need to balance treating their fish in order to meet regulatory standards for sea lice with the potential unintended consequences this may have for fish health and welfare.**

Sea lice (recommendations 15 and 16)

Background

96. Sea lice occur naturally in the marine environment and live on the skin of fish, causing damage which can lead to infection, stress and immune suppression with greater susceptibility to secondary infection and disease. The REC Committee inquiry considered the treatment of sea lice and the impact of sea lice and treatment measures on the environment. The inquiry also considered the impact of sea lice infecting wild salmon passing fish farms on their migratory routes; this is considered in more detail in section 4.

97. Salmon producers provide data on the amount of sea lice prevalent at their sites and report their counts to the Fish Health Inspectorate, who collect and monitor this data on behalf of the Scottish Ministers. The Fish Health Inspectorate has statutory powers to inspect sites for sea lice to ensure compliance with required farm management protocols for the treatment of sea lice. The Fish Health Inspectorate can also require farms to take action to reduce their sea lice counts if they exceed certain thresholds.

98. At the time of the REC Committee inquiry, sea lice numbers only needed to be reported to the Fish Health Inspectorate if they exceeded the threshold of an average of three adult female lice per fish; at this point, the Fish Health Inspectorate would increase monitoring of the farm. Above an average of eight adult female lice per fish, the Fish Health Inspectorate would intervene to take action to reduce sea lice levels.

99. The REC Committee inquiry identified sea lice infections as a “significant challenge” facing the industry and concluded “it is clear that the industry has not as yet identified a means to fully and effectively deal with this parasite”. The REC Committee referenced the announcement of a dedicated sea lice workstream as part of the Farmed Fish Health Framework and noted a “shift by the industry from medicinal treatment to a more balanced strategy, utilising a range of control methods”.

100. The REC Committee noted the evidence relating to the different thresholds for reporting and intervention purposes and agreed that the Farmed Fish Health Framework workstream provided an opportunity to remove confusion around this issue and develop proposals that are appropriate to both industry and regulators. The REC Committee report recommended these threshold levels for reporting sea lice counts "should be challenging and set a threshold that is comparable with the highest international industry standards" (recommendation 15). Recommendation 16 called for any proposals from the Farmed Fish Health Framework workstream to “make compliance and reporting a mandatory requirement”.

101. In the Scottish Government’s response to the REC Committee report, the then Cabinet Secretaries referred to the on-going work of the Farmed Fish Health Framework workstream and the Salmon Interactions Working Group.

102. In 2021, the threshold levels for increased monitoring or intervention by the Fish Health Inspectorate for sea lice were lowered following the outcome of Marine Scotland's review of its compliance policy for sea lice. They were reduced to two

adult female lice per fish leading to increased monitoring by the Fish Health Inspectorate, and six adult female lice per fish (or above) leading to intervention by the Fish Health Inspectorate.

103. The Fish Farming Businesses (Reporting) (Scotland) Order 2020 introduced mandatory weekly reporting of sea lice counts in 2021; where no count is conducted, the reason must be given and the data is published. In evidence, the Fish Health Inspectorate told this Committee this gives the Fish Health Inspectorate "a far greater oversight of what is occurring on farms".

104. In 2019, a commitment was made to further reduce the monitoring and intervention levels for Fish Health Inspectorate engagement to an average of two and four sea lice per fish respectively.

105. In her 2023 update to this Committee, the Cabinet Secretary referred to the 2019 commitment to further reduce the monitoring and intervention levels for Fish Health Inspectorate engagement. She stated that, as the "policy context within which the fish sector is operating has changed significantly", the Scottish Government would not pursue the commitment at this time.

Committee consideration

106. Some stakeholders felt the reduced thresholds for reporting and intervention purposes were neither sufficiently challenging nor comparable with the highest international industry standards. The Coastal Communities Network argued that Norway is an example of international best practice in protecting wild fish stocks from the effects of sea lice from farmed salmon. Norway has lower sea lice limits than Scotland, with mandatory culling at farms reporting an average of above 0.2 adult female sea lice per salmon throughout the spring and 0.5 adult female sea lice per salmon for the rest of the year.

107. Industry representatives highlighted the "higher risk of harm and the potential for mortality" associated with lower threshold levels. Scottish Sea Farms told the Committee that, "if the sea lice threshold burden for intervention was lower, we would have to intervene and do a treatment on a population of fish when that would not be for their welfare—it would not be in their interest".

108. The methodology used by farms when carrying out sea lice counts was raised with the Committee. The methodology used is to sample a minimum of five fish each from five marine pens, if the number of marine pens at a site is above five, or a minimum of five fish each from all marine pens, if the number of pens is below five. Some environmental stakeholders argued this methodology does not provide an accurate reflection of the sea lice apparent in cages. The Coastal Communities Network argued that "you need thousands of fish counted each week to give a meaningful, relatively statistically accurate figure for lice in a farm". Both industry representatives and the Fish Health Inspectorate explained the methodology for counting was well-established and based on "the minimum requirement to achieve a meaningful count". Automated counting through developments in artificial intelligence was identified as offering a potential solution to allowing a more sizeable and rapid counting of sea lice counts in the future.

109. Some stakeholders highlighted concerns over the number of 'no count' weekly returns whereby data was not provided by farms. Wildfish said that its analysis of published figures indicated that nearly 20% of submitted data since 2021 had been no counts. The Atlantic Salmon Trust suggested that "the Fish Health Inspectorate investigate robustly when repeated no counts occur from a particular business, and that this information is made public".

110. Industry representatives explained that they were sometimes unable to collect data due to bad weather or because fish were being treated. The Fish Health Inspectorate agreed that some 'no counts' were due to legitimate reasons but that it is "attempting to minimise" the number of no counts due to fish being subject to treatments or when stocks are being held for harvest.

111. **The Committee notes that changes have been made to strengthen the regime for sea lice reporting and intervention and considers the reduced reporting thresholds a step towards delivering the REC Committee recommendation for levels to be "challenging and of the highest international standards".**

112. **The Committee welcomes the introduction of mandatory weekly reporting of sea lice counts under the Fish Farming Businesses (Reporting) (Scotland) Order 2020 seeks to implement the REC Committee's recommendation 16. The Committee also notes, however, evidence relating to the number of 'no counts'. Whilst members recognise there will be weeks when it is not possible for fish farms to undertake a sea lice count, the reporting mechanism needs to be robust enough to be comprehensive and accurate in order to inform the Fish Health Inspectorate's oversight. The Committee recommends the Scottish Government introduce stricter conditions on the accepted reasons for no counts with regards to stock that is subject to treatments and being held for harvest, and updates relevant guidance and enforcement approach accordingly.**

Publication of information on salmon farming (recommendations 22,23 and 24)

Background

113. The REC Committee inquiry considered how a range of data relating to fish farming was collected, recorded, published and monitored.

114. The REC Committee was "strongly of the view" that "there needs to be significant enhancement of the way sea lice data and other key information […] is presented". The Committee called for "a comprehensive, accessible reporting system of a similar standard to that which is already in operation in Norway should be introduced in Scotland" (recommendation 22). Recommendation 23 called for this reporting system to hold "a suite of data available covering mortality, sea lice infestation, medicine application and treatment information". The REC Committee recognised there would be a cost involved and recommended "the associated costs

should be borne by the industry" (recommendation 24).

115. The Scottish Government said, in response to the REC Committee report, that these recommendations would be considered as the Farmed Fish Health Framework was progressed, and that this workstream would provide an "opportunity to declutter the landscape".

116. In her progress update to the Committee in 2023, the Cabinet Secretary said a website had been created to collate and publish key data. The publication of data on the Scotland's Aquaculture website is considered later in this section.

Committee consideration

117. Industry representatives said that progress had been made by investing in enhanced data collection tools and improving transparency. Salmon Scotland said that "significant amounts of data and information are available for our sector, all in the public domain – more so than other salmon farming sector around the globe and also compared with other domestic farming sectors".

118. Wildfish questioned the quality of the information published, it told the Committee:

> […] it is also worth reiterating that the counts are self-reported and unverified, which is significant because SEPA bases its sea lice framework on that data. We struggle to see how it can do that with such a big data gap and without verifying the counts that come in from the farms.

119. Both SEPA and Fish Health Inspectorate said they were transparent in publishing information about their regulatory activities. SEPA noted that data made available on the Scotland's Aquaculture website has "grown in volume and subject matter over the period since 2019", including the publication of all its data relating to medicine use and biomass compliance as well as the results of its seabed surveys. The Fish Health Inspectorate similarly noted that "for every case that we carry out, a complete case record—all the information that we have collected on site, the observations of the inspector and the report that has gone to the farmer—is placed in the public domain".

120. Academics agreed that noticeable progress had been made to increase the volume of data around salmon farming in the public domain. Professor MacKenzie from the Institute of Aquaculture at the University of Stirling told the Committee that the amount of available data now, compared with 10 years ago, "is massive—it is orders of magnitude higher than it was".

121. Nevertheless, some stakeholders considered that, whilst more information is available in the public domain, this information is poorly coordinated and not presented in an accessible way. RSPCA Scotland characterised the website as "messy and clunky" but added that "at least the data is coming in, which is an improvement on what was happening six years ago". Dr Helena Reinardy from the Scottish Association for Marine Science said that, whilst there had been efforts to integrate and present data sets on the Scottish Aquaculture website, "we are not yet at a place where we can easily access the data".

122. The Fish Health Inspectorate agreed that data " does not necessarily all sit in one

place". It suggested that "if more resource to produce a different information technology system were available, we—by which I mean the regulators of aquaculture—could make that data more accessible".

123. A number of witnesses highlighted how aquaculture data in Norway is published on a system called BarentsWatch, an information hub which collates and develops data on a number of fish health indicators from fish farms across Norway. The BarentsWatch system was referred to as more user friendly and more frequently updated than its Scottish equivalent.

124. The Cabinet Secretary recognised that “more work could be done overall on the ease of accessibility of that information, but that comes back to a prioritisation discussion”. She committed to the Scottish Government providing an explanatory document to navigate the available information, but that “a website or information technology overhaul could be a very expensive process”.

125. **The Committee notes the development of the Scotland's Aquaculture website and the consensus that the suite of data called for by the REC Committee is now publicly available. The Committee also, however, agrees with the frustration expressed by stakeholders that the website is difficult to navigate and information is not presented in an easily understandable format. The Committee is not satisfied that an explanatory document will wholly address these concerns and recommends the Scottish Government prioritises upgrading and improving the Scotland's Aquaculture website to make data more accessible and user friendly.**

126. **The Committee notes the REC Committee's view that the costs associated with developing the suite of data should be borne by the industry and it called on the Scottish Government to discuss with industry representatives how this might be achieved. This Committee recommends that the Scottish Government takes forward recommendation 24 as soon as practicable.**

Use of cleaner fish (recommendations 26 and 28)

127. So called ‘cleaner fish’, such as lumpfish and wrasse, are natural sea lice predators and have been increasingly used in salmon farming as an alternative method of controlling sea lice to chemicals. Lumpfish are farmed in hatcheries; wrasse are either farmed or wild caught.

Background

128. The ECCLR Committee stated in its report that the potential implications of increased use of cleaner fish in salmon farming are unclear. This was supported by recommendation 26 of the REC Committee report, which found an "urgent need for an assessment of future demand as well as all associated environmental implications of the farming, fishing and use of cleaner fish". Recommendation 28 also called on the Scottish Government to "consider the need for regulation of cleaner fish fishing to preserve wild stocks and avoid negative knock-on impact in local ecosystems".

129. Responding to the REC Committee report, the then Cabinet Secretaries pointed to a number of voluntary control measures in place for wild caught wrasse which "include minimum and maximum landing sizes, limits on the number of traps that can be used, and the recording of catches". They noted that work was underway to gather data amongst the commercial wrasse fisheries and salmon farming sectors "to further understand the wild fishery for wrasse in Scotland and ensure its sustainability". Finally, they noted that the working group for cleaner fish as part of the Farmed Fish Health Framework "will also continue work to map out future wild caught cleaner fish demands, as the industry moves to significantly increase production of hatchery reared cleaner fish for use in salmonid farming".

130. In 2023, the Cabinet Secretary told the Committee that new mandatory measures for wild wrasse harvesting had been introduced in 2021 which "included additional data collection requirements upon each vessel". She also noted that "additional control measures may be implemented as further evidence becomes available".

Committee consideration

131. The Committee heard concerns about the welfare of cleaner fish. Professor Sneddon from the University of Gothenburg told members that almost a third of cleaner fish die within a few weeks of being deployed in marine pens. The Fish Health Inspectorate agreed with this concern, commenting that "the mortality that occurs in cleaner fish deployed in aquaculture cages is higher than we would like". Wildfish told the Committee that all cleaner fish were culled at the end of production cycles and the Coastal Communities Network made the same point, telling the Committee that one farm “put in 182,000 lumpsuckers and 31,000 wrasse and they all died” and that “that happened in just one production cycle—a year and a half, basically”.

132. Professor Sneddon told the Committee about other welfare impacts for cleaner fish:

> Overall, very few studies are looking at what happens to individual lumpfish or wrasse when they go into sea cages, and there seems to be quite high mortality. Once they reach a certain size, they stop feeding on sea lice. They sit in the cage, and it is likely that they will be exposed to treatments—whether that is chemical or physical treatments—for salmon lice.

133. Salmon producers highlighted the improvements they have made to equipment and practices to improve the welfare of cleaner fish. Wester Ross Fisheries spoke about the ability to separate out the cleaner fish before treatments were carried out using upgraded wellboats. It also highlighted the use of kelp and other measures in marine pens to simulate the natural ecological conditions and diet of the species.

134. In terms of the sustainability of the practice, Mowi Scotland thought this was uncertain and indicated the sector is taking steps to increase its capacity for farmed wrasse.

135. When the Committee considered the amendments to the Joint Fisheries Statement on 6 November 2024, the Cabinet Secretary stated the Scottish Government had recently received new information regarding the implications of wrasse fishing on marine sites and features based on a University of Glasgow report commissioned

by NatureScot. The Cabinet Secretary indicated she is expecting further advice from NatureScot on this matter. In correspondence to the Citizens Participation and Public Petitions Committee, in relation to petition PE2110 calling for a fisheries management plan for wild wrasse, she said that "in light of this evidence, we now intend to undertake an appropriate assessment, under the Habitats Regulations, for the wrasse fishery ahead of the next season opening in May 2025".

136. The Committee is aware that Environmental Standards Scotland received a representation raising a concern that the Scottish Government Marine Directorate was not complying with its legal duties under the Habitats Regulations. The concerns raised related to the lack of controls regarding fishing activities within protected areas and the likely wider ecological impacts on other protected features and/or species. Following enquiries by Environmental Standards Scotland, the Marine Directorate accepted that, in light of new scientific evidence, the potential for wider adverse impacts from this type of fishing should be assessed and it has committed to undertaking an appropriate assessment prior to the start of the next fishing season on 1 May 2025. Environmental Standards Scotland determined that this commitment satisfies the outcome sought in the representation; it undertook to monitor progress and, should an appropriate assessment fail to be completed within the agreed timescale, to review what further action is required.

137. The Cabinet Secretary also told this Committee about a package of evidence-gathering activities looking at the deployment of cleaner fish to enhance existing protections. She added that the Scottish Animal Welfare Commission is currently considering the welfare of cleaner fish.

138. In correspondence sent to the Committee on 9 December, the Sustainable Inshore Fisheries Trust suggested that although the report on wild wrasse fishing had been commissioned by NatureScot, and despite the agency receiving the report in 2020, that it did not appear the Scottish Government was made aware of its contents until 2024. It said:

> The importance of the report can be seen by the fact that upon its eventual receipt in 2024 – and because of its findings – the Scottish Government committed to conducting Habitats Regulations Assessments (HRA) for the wrasse fishery within Special Areas of Conservation (SACs). This raises serious questions about why NatureScot, as the Scottish Government's statutory adviser, did not inform Marine Directorate in 2020 that such HRAs were required. That represents four years where the Scottish Government as a whole was in breach of the statutory requirement to conduct these assessments and to conduct them properly.

139. **Although it is clear some welfare measures have been introduced relating to the use of cleaner fish since the REC Committee report, it is not clear whether the "urgent need for an assessment of future demand as well as all associated environmental implications of the farming, fishing and use of cleaner fish" has been met. Whilst the Committee welcomes efforts made by industry to meet the welfare needs of cleaner fish, members share the concerns raised by stakeholders about the ethics and welfare implications of the use of cleaner fish as a tool for sea lice management and, especially, around the high mortality rate. The Committee notes the Fish Health**

Inspectorate shares this concern.

140. **The Committee recommends the Scottish Government publish the University of Glasgow report commissioned by NatureScot as a matter of urgency. The Committee recommends the Scottish Government to provide the further advice it is expecting from NatureScot and to publish the results of the Scottish Animal Welfare Commission review at the earliest opportunity and notify the Committee when that takes place.**

141. **The Committee is deeply troubled by evidence that suggests NatureScot waited four years before alerting the Scottish Ministers about the report's findings. Given the potential impacts from this delay, the Committee requests NatureScot and the Scottish Government provide urgent clarification to the Committee on this matter.**

142. **In addition, the Committee was assured by the Cabinet Secretary during its recent consideration of the amendments to the Joint Fisheries Statement that the Scottish Government could develop a fisheries management plan or take other action to protect a fish stock. The Committee notes the current petition PE2110 calling for a fisheries management plan for wild wrasse. Depending on the further advice it is expecting from NatureScot and the results of the Scottish Animal Welfare Commission review, the Committee recommends a fisheries management plan or other protective action should be developed as soon as practicable to ensure any wild wrasse are harvested sustainably.**

Section 3 - environmental impacts of salmon farming

143. The REC Committee report identified environmental impacts as a significant challenge for the salmon farming industry. Its views were informed by the work of the ECCLR Committee, who reported that it was “deeply concerned that the development and growth of the sector is taking place without a full understanding of the environmental impacts”.

144. This report considers the REC Committee's recommendations regarding the environmental impacts of waste and discharges from salmon farms, and from the use of medicines.

Discharges from marine pen fish farms (recommendations 29 and 30)

Background

145. Research commissioned by the ECCLR Committee in 2018 found that waste products – such as faeces and uneaten feed – can reduce oxygen levels and create a smothering effect on the seabed whereby "the diversity of the community of seabed (benthic) animals is much reduced".

146. Accordingly, the REC Committee's recommendation 29 called for waste collection and removal to be given “high priority” by both industry and regulators as it "is clearly one of the main impacts on the environment and needs to be addressed as a matter of urgency". Recommendation 30 noted SEPA's proposals to develop a new regulatory framework for managing the waste input into the marine environment from fish farm cages and called on SEPA to keep it updated on progress.

147. In their response to the REC Committee report, the then Cabinet Secretaries referred to SEPA’s consultation on a strengthened regulatory framework for marine pen fish farming. In its response to the REC Committee report, SEPA provided further information about the proposals for its new regulatory framework, including "tighter environmental standards for organic wastes; greatly enhanced modelling requirements; much more environmental monitoring by farm operators and by us; and independent accreditation of the monitoring undertaken by operators". In addition, SEPA said the framework would allow "a more comprehensive approach to ensuring fish farm operators comply with the requirements of the new framework, including by using our wide range of enforcement powers and our new national enforcement team".

148. SEPA's revised regulatory framework for discharges from marine pen fish farms was published in 2019. The framework document states that:

> to protect the marine environment, waste releases, and hence farm sizes and medicine usages, have to be appropriately matched to the sea's capacity to disperse and assimilate wastes. As environmental regulator, it is our role to make sure this is the case.

149. The revised framework also committed SEPA to increasing its surveying of the seabed around marine pens to audit "for potential cumulative effects on the wider marine environment".

150. In her 2023 update, the Cabinet Secretary referred to SEPA's revised regulatory framework for discharges as setting a tighter standard for organic waste deposits and more accurate modelling. She also referred to SEPA's plans to develop the regulatory framework to include nutrient discharges in its screening modelling and a review of its regulatory approach to bath medicines.

Committee consideration

151. The Committee discussed issues around discharges from marine pen fish farms with witnesses. Specifically, the Committee considered whether there is now a better understanding of the environmental impacts of these discharges, and whether recommendations 29 and 30 have been implemented.

152. SEPA told the Committee the revised framework "provides significantly greater information, which enables us to speak with confidence about the impacts of the industry on the environment". SEPA went on to explain that "the sampling exercises that are required now are significantly more comprehensive than what was in place for the industry at the point that the REC Committee's inquiry was undertaken". SEPA said currently 65% of farms were subject to the licensing requirements in the revised framework, and the rest would be transferred over by the end of the year.

153. Salmon Scotland told the Committee the discharge framework has provided "a much-improved understanding of our actual impacts on the environment" and that knowledge of the seabed has "changed dramatically since 2018 and the earlier report". Salmon Scotland also highlighted a number of projects it is partnering with SEPA and academic researchers on to assess benthic biodiversity around fish farms.

154. Dr Reinardy from the Scottish Association for Marine Science agreed that the understanding of the benthic effects of discharges from farms "has been a major area of development and research" and that there have been "real developments" in the monitoring of sediments and waste deposits so that "we do have some good processes in place". She added, however, that "huge areas need further investment to understand them better and develop them more".

155. Academics highlighted the impact on research from the lack of dedicated research pens in Scotland. Professor MacKenzie from the Institute of Aquaculture at the University of Stirling described this as a "huge gap" in Scotland's aquaculture infrastructure which has placed a number of restrictions on how research could be conducted. He noted that scientists are limited in the variety of sites and environmental conditions in which they can carry out research work, which can

"make it very difficult to come to a scientific consensus".

156. Concerns were raised by some environmental stakeholders that SEPA does not have sufficient resources to process and analyse data from its seabed surveys and that this compromises SEPA's monitoring and enforcement capabilities. The Coastal Communities Network told the Committee that:

> At present, out of 210 farms, SEPA has 72 submitted seabed survey results, mostly from 2023, that have not been assessed, and some of those farms have been restocked. SEPA does not even have the capacity to assess those results, so providing it with more information is not really helping. It is not able to do its job properly.

157. The Committee heard concerns during its visit to the Scottish Association for Marine Science about gaps in SEPA's skills and resources when it came to analysing seabed samples.

158. In response to questions about the timeframe for analysing seabed survey samples, SEPA accepted it "would always like to be faster in turning data around and providing it to the public in a transparent manner" but explained that surveys take this long to analyse "because it is a very manual process". A Marine Directorate official told the Committee about a project to examine the deployment of 'environmental DNA' monitoring which would "not only speed up the process [of analysing seabed information] but also significantly reduce the costs".

159. During her evidence to Committee, the Cabinet Secretary referred to the significantly strengthened predictive modelling capabilities which are part of the new discharge framework. In addition, she highlighted that SEPA is working with operators to trial new innovative waste collection and removal systems, underpinned by a new charging regime to incentivise movement towards new technologies.

160. **The Committee welcomes the introduction of the new discharge regulatory framework which sets a tighter standard for organic waste deposits and more accurate modelling. In addition, the Committee notes the view of industry and academics that there is now an improved monitoring and understanding of discharges from fish farms on the seabed. The Committee is concerned, however, that there remain uncertainties and knowledge gaps in understanding the environmental impact of waste discharges from salmon farms. The Committee is also concerned that current timescales for analysing seabed samples to assess regulatory compliance are too slow.**

161. **The Committee notes the Scottish Government and SEPA have made some progress in implementing actions in response to the REC Committee recommendations. The Committee agrees, however, that momentum should not be lost and that more could be done to understand and to minimise the impact of discharges. The Committee recommends the Scottish Government continue to support monitoring, data collection and research to improve the understanding and assessment of the impact of discharges on the marine environment. The Committee also recommends**

that the Scottish Government prioritise supporting SEPA in the development of techniques to accelerate the analysis of seabed survey samples as a matter of urgency and ensures SEPA has sufficient expertise and capacity to analyse seabed samples.

162. **The Committee notes the REC Committee recommendation 57 which strongly endorsed the ECCLR Committee's view on the need for more research to address significant gaps in knowledge, data, analysis and monitoring around the adverse risk the sector poses to the environment. The Committee notes evidence from researchers regarding the absence of dedicated research pens in Scotland which limits researchers' ability to develop scientific consensus. The Committee recommends the Scottish Government work with industry and academia to establish dedicated research pens. The Committee recommends that industry should contribute to the cost of financing this infrastructure.**

Medicine use (recommendations 31 and 32)

Background

163. Salmon producers use medicines as part of their husbandry practices to treat fish health and welfare problems such as sea lice and disease. Medicines are licensed by SEPA and administered using a range of methods, such as additives to feed, injection or as bath treatments.

164. The ECCLR Committee reported that "there appear to be very significant data and analysis gaps relating to the discharge of medicines and chemicals into the environment, including analysis of cumulative or additive effects". The ECCLR Committee went on to report that, as a result of these data and analysis gaps, it was "extremely concerned that SEPA may, in the past, or may currently, be permitting the discharge of priority substances and potentially damaging substances". This view was endorsed by the REC Committee report which recommended that any data and analysis gaps "should be addressed by both the industry and regulators" (recommendation 31).

165. The REC Committee report noted "with concern" the conclusion of SEPA research in 2018, which concluded that medicine from Scottish salmon farms "is significantly impacting local marine environments". Recommendation 32 went on to welcome SEPA's application to the UK Technical Advisory Group (UK TAG) to consider whether a new environmental quality standard for the maximum concentration of emamectin benzoate – a medicated feed widely used by fish farms to control sea lice – in water was necessary. The REC Committee also recommended SEPA and the Scottish Government "consider the environmental impact of other medicines by the industry".

166. The Scottish Government committed, in response to the REC Committee report, to bringing forward changes to legislation in order to provide SEPA with responsibility for discharges of medicines from wellboats, which it said would create a more

simplified and integrated regulatory framework for controlling waste and medicine discharges. This was actioned by the guidance, *Wellboat treatment chemical residues – discharge to the water environment: transfer of responsibility* , issued in October 2020.

167. In its response to the REC Committee report, SEPA stated that, whilst UK TAG was progressing its deliberations regarding the effects of emamectin benzoate, SEPA would apply "strict, interim environmental standards when deciding whether to authorise applications from farmers to start using the medicine for the first time; increase the quantity of the medicine they currently use; or otherwise make changes to the operation of their farms that would expose additional parts of the sea bed to risk from the medicine". These interim measures did not apply to existing farms who were not making any changes to their use of emamectin benzoate; in its written evidence, SEPA set out that, out of 332 farms permitted to discharge emamectin benzoate at the previous environmental quality standard, 22 were currently authorised under the tighter control.

168. The UK TAG made its formal recommendation in relation to an environmental quality standard for emamectin benzoate in June 2022 and this was accepted by Scottish Ministers in December 2022 subject to further consultation. In June 2024, the Scottish Government provided formal direction to SEPA to introduce the new environmental quality standard, subject to a four-year implementation period.

169. The Cabinet Secretary's update in 2023 highlighted that SEPA was in the process of updating its framework for regulating bath treatment medicines which "included introducing a new computer model of the dispersion of the medicines in the environment and taking account of the latest evidence on the persistence of the medicines in the environment". As part of this review, the Cabinet Secretary explained SEPA was "looking at the suite of bath medicines to understand if the latest scientific evidence suggests that the existing environmental standards need to be updated".

170. SEPA said it manages the use of medicines at salmon farms by applying limitations at individual sites based on case-by-case approach to assessing the environmental capacity within a specific area. It said "if the operator stays within those limits, the impact on the environment is at a scale that is deemed acceptable". SEPA also indicated that while they had not seen any breaches in farm licensing conditions, the agency held a range of enforcement tools to deal with industry non-compliance including powers to limit biomass.

Committee consideration

171. The Committee discussed how the “very significant data and analysis gaps” identified by the ECCLR Committee relating to chemical and medicine use have been addressed. Evidence from some academics emphasised that whilst, in general, the environmental effects of many chemicals used in salmon farming remained unclear, there is a growing body of literature on some chemicals and their potential harm on organisms and habitats. Professor Nick Owen from the Scottish Scientific Advisory Council said there is a "pretty reasonable idea" about the adverse impact on crustacean species from treatments using emamectin benzoate and hydrogen peroxide, although Mowi Scotland argued there is "a huge database

that says there is little or no evidence of effect" on the environment.

172. The Committee considered the new environmental quality standard in place for the use of emamectin benzoate. Industry representatives argued it significantly over predicted the environmental risks and does not reflect scientific advice. Nevertheless, Mowi Scotland said the sector had accepted SEPA's decision and that it has "innovated to bring in other treatment methods" to replace it. This was supported by comments at the Committee's engagement event in Oban, where members were told that farm operators are using emamectin benzoate less frequently at the lower environmental quality standard. Scottish Sea Farms added that the use of emamectin benzoate has decreased because current permitted levels are ineffective as a treatment.

173. The Coastal Communities Network expressed dismay with the proposed four-year timeframe for implementation because the new environmental quality standard will not apply to all farms until 2028, “13 years after they were first aware that the regulations were not protecting marine life as intended”. The Coastal Communities Network argued “this long delay has favoured the salmon farming industry's needs over the environment”.

174. The Cabinet Secretary told the Committee that the four-year implementation period was determined because it "will be a challenge for the industry to adjust to that new standard, so, ultimately, the period enables that to happen".

175. **The REC Committee recommendations were based on environmental concerns by both the ECCLR Committee around “very significant data and analysis gaps”, and by the 2018 SEPA research that showed that salmon farm medicine use was “significantly impacting” on local marine environments. The Committee notes the transfer of responsibility of medicine discharges from wellboats to SEPA in 2020 but it is not clear to the Committee whether much progress has been made in addressing these knowledge gaps. The Committee recommends that SEPA review its 2018 research report to assess whether salmon farm medicine use is still “significantly impacting” local marine environments or if the tighter standards introduced in the interim period have mitigated the impact alongside their current plans to research, monitor and address the impacts of medicine use.**

176. **The Committee is concerned by the proposed four-year implementation period for the introduction of a revised environmental quality standard for emamectin benzoate, given the environmental risks from the chemical. It recommends the Scottish Government considers whether an expedited timetable may be appropriate.**

Section 4 - interactions between wild and farmed fish

177. The REC Committee inquiry also considered the “important and contentious” issue of the impact of farmed salmon on the wild salmon population. Noting the economic contribution of wild fisheries, the REC Committee inquiry focused on the impact of sea lice infestations and farm escapes on wild salmon.

178. In June 2018, before the REC Committee began its inquiry, the Scottish Government established the Salmon Interactions Working Group to evaluate policy, advice and projects relating to wild and farmed salmon sea lice interactions, and to make recommendations, including a delivery plan of agreed actions and timescales, for a future interactions approach. The Salmon Interactions Working Group reported in May 2020 and the Scottish Government responded to the Salmon Interactions Working Group report in October 2021.

179. The Chair of the Salmon Interactions Working Group told the Committee that, to date, the Scottish Government has only implemented one of the report's 42 recommendations. He added:

> We spent a lot of time and effort producing a lot of recommendations—you must bear in mind that it was not an easy group to chair, but we were able to get the wild fish sector and the fish farming sector together, and I pay tribute to both sides for working together constructively—so it is disappointing that so little progress has been made.

180. When asked about this, the Cabinet Secretary accepted the point but outlined a number of actions the Scottish Government and its agencies have taken since the REC Committee and Salmon Interaction Working Group reports, such as the development of SEPA's sea lice risk framework and the wild salmon strategy.

181. **The Committee is disappointed by the lack of progress made by the Scottish Government in actioning the 42 recommendations from the Salmon Interactions Working Group report. It recommends the Scottish Government publish a timetable for implementing the recommendations, as a matter of urgency.**

182. The Scottish Government published its wild salmon strategy in January 2022. The Scottish Government published its wild salmon strategy: implementation plan 2023 to 2028 in February 2023 which sets out over 60 actions to be undertaken within the five-year period to achieve the vision that “Scotland's wild Atlantic salmon populations are flourishing and an example of nature recovery”.

183. SEPA took on lead regulatory responsibility for managing sea lice and wild salmon interactions from 1st February 2024 with the implementation of the sea lice regulatory framework.

Penalties for escapes from salmon farms

Background

184. The REC Committee inquiry focused on concerns about the impact of farmed salmon escapes on the genetic integrity of wild salmon associated with interbreeding. In conclusion, the REC Committee noted the view that escapes do not currently appear to be a "significant issue" but warned against complacency "as there is potential for even a single escape event to have a significant impact on the genetic integrity of wild salmon". Noting the "strict penalties" in place in Norway for escapes from salmon farms, the REC Committee recommended that "appropriate sanctions should be developed and introduced in Scotland" (recommendation 37).

185. In their response to the REC Committee report, the then Cabinet Secretaries agreed that "instances of escapees are regrettable" and referred to the then current review of the 2015 technical standard for Scottish finfish aquaculture. They told the REC Committee that, "alongside establishing training requirements, the standard will help ensure all finfish farms in Scotland have the appropriate equipment and operational procedures to minimise the risk of escapes". They also indicated that the Scottish Government "will give further consideration as to the appropriateness and enforceability of any penalties for such instances in the future".

186. The Scottish Government is a signatory to the North Atlantic Salmon Conservation Organization (NASCO) commitment to minimising the escape of farmed fish and supporting farmers to achieve a goal of 100% containment in production facilities. In the NASCO Implementation Plan for the period 2019-2024, updated in 2022, the Scottish Government confirmed the management measures planned, and timescale, to achieve this goal. The measures were to revise the 2015 technical standard for Scottish finfish aquaculture and consideration of "the introduction of proportionate financial penalties for fish farm escapes with the ultimate aim of ring-fencing or redistributing this money to support wild salmonid conservation and research".

187. The Salmon Interactions Working Group made a number of recommendations relating to escapes from salmon farms in its report, including increased monitoring and reporting requirements, "appropriate fines, proportionate to the incident and scale of the escape" and for these "monies to be invested into wild salmonid conservation work".

188. In its response to the Salmon Interactions Working Group report, the Scottish Government referenced the Bute House Agreement commitment to strengthening controls on sea lice, wrasse and escapes during 2021-22. The Scottish Government also committed to "take forward a programme of work to consider how best to achieve this [a strengthened regulatory framework for containment and escapes], including how to introduce proportionate penalties for fish farm escapes with the ultimate aim of ring-fencing or redistributing this money to support wild salmonid conservation and research".

189. In her 2023 update, the Cabinet Secretary stated the existing penalties relating to escapes:

> Fish farms may receive an enforcement notice if there is a failure to ensure satisfactory measures are in place to contain farmed fish. Failure to comply with an enforcement notice may result in a fine.

190. The Cabinet Secretary went on to refer to "taking forward" the Bute House Agreement commitment regarding strengthening controls on sea lice, wrasse and escapes. This commitment is also set out in the Scottish Government's Vision for Sustainable Aquaculture. The 2023-24 programme for government referred to the Scottish Government's intention to develop a new technical standard for Scottish finfish aquaculture to reduce the risk of escapes from fish farms.

Committee consideration

191. During its evidence taking, the Committee explored whether instances of escapes had changed since the REC Committee report. Scottish Government figures for 2023 production cycles showed that two serious escape incidents had occurred at sites during the year, leading to a loss of 80,001 farmed fish. The Fish Health Inspectorate said that, in general, industry has a "good record on containment". Fisheries Management Scotland argued, however, that not enough has been done to tackle the issue of escapes. Fisheries Management Scotland told the Committee that, as fish farms are only required to notify the Fish Health Inspectorate of any escape incidents at their farms or any circumstances which suggest an escape may have occurred, "there is no basis for dealing with the issue".

192. Witnesses expressed their disappointment to the Committee about the limited progress in both strengthening overall regulation and implementing this recommendation. The Chair of the Salmon Interactions Working Group said "it appears that very little—if any— progress has been made", and Fisheries Management Scotland also expressed concerns. In its submission to the Committee, the Atlantic Salmon Trust pointed to evidence of continued problems regarding genetic introgression from escapes as a reason why sanctions "must be prioritised as a matter of urgency".

193. Positive actions taken by industry to prevent escapes were highlighted during evidence taking. Dr Reinardy from the Scottish Association for Marine Science said that the deployment of new methods, such as double netting for fish pens, had proven particularly effective in improving containment.

194. Fisheries Management Scotland, however, questioned the efficacy of the self-reporting mechanism. It claimed that there is "a big difference between the number of reported escapes and what we actually find in the rivers" and highlighted instances where local fisheries boards have identified farmed juvenile salmon in their catches.

195. In response, MOWI Scotland highlighted the use of biomarkers on smolts to enable salmon to be traced back to individual farms so that, "if farmed fish are found in the river, they can be traced back to the farmed source". MOWI Scotland claimed this would also assist with identifying escapes unnoticed by salmon farms – as sometimes farms are unaware of, and therefore unable to self-report, escapes – and enable farm management to address containment issues.

196. A Marine Directorate official told the Committee about the assisting escapes framework, which aims to assess and stop the risk of farmed fish escapes, and the inspections regime which ensures that satisfactory measures for containing fish are in place. They also stated that "there is already good practice by some farming companies" and highlighted the monitoring and research Mowi undertook after an escape at Carradale which found no evidence of introgression.

197. When asked about the lack of progress in developing sanctions for salmon farm escapes, the Cabinet Secretary confirmed that the Scottish Government still intends to implement this recommendation but, as a regime is already in place for escapes, the Scottish Government decided it would prioritise actions to address potential gaps first. As this work is ongoing, the Cabinet Secretary said it was not possible to set a definitive timescale for the implementation of recommendation 37.

198. When asked about the lack of progress in revising the technical standard for Scottish finfish aquaculture, a Marine Directorate official told the Committee that the Scottish Government was "still committed" to revising the standard but that "the work is taking us slightly longer than we expected […] due to the internal decisions on prioritisation that the Government has had to take". In a letter to the Committee, dated 27 November 2024, the Cabinet Secretary stated she "cannot commit at this stage to a firm timeframe for the implementation of an updated technical standard" but her view remains that "the general decline in farmed fish escapes and the existing regulatory framework, including existing technical standard guidance, supports the prioritisation decisions we are taking".

199. **The Committee notes there has been little progress in developing and introducing "appropriate sanctions" for escapes from salmon farms and, therefore, recommendation 37 has not been implemented. The Committee also notes the review of the 2015 technical standard for Scottish finfish aquaculture, set out in the Scottish Government's response to the REC Committee report and committed to again in the 2023-24 programme for government, has yet to be progressed.**

200. **The Cabinet Secretary has said she cannot commit to a firm timescale for undertaking these two workstreams. The Committee recommends that, given consideration of penalties is a commitment within the NASCO Implementation Plan for the period 2019-2024 and the review of the 2015 technical standard for Scottish finfish aquaculture which was on-going in January 2019 has yet to conclude, the Scottish Government should set out a clear timetable for when it expects to be in a position to conclude this work.**

201. **The Committee heard concerns regarding the identification of escaped farmed fish in rivers and the potential use of biomarkers to identify which individual farms these farmed fish have escaped from. The Committee recommends the Scottish Government investigate and report on the current use of, and potential feasibility of the mandatory use of, biomarkers. This work should also aim to develop a protocol for the forensic investigation of escaped farmed fish to trace escapes back to individual farms.**

Research on the interactions between farmed and wild salmon

Background

202. The REC Committee inquiry considered the impact of sea lice dispersals from salmon farms interacting with wild salmon migratory routes, as well as other factors causing decline in wild salmon populations.

203. The REC Committee supported the ECCLR Committee recommendation for more research into the interactions between wild and farmed salmon “as a matter of priority”, although both committees noted the challenges which would make this “difficult to deliver” (recommendation 38). The REC Committee also recommended that the wild salmon and farmed salmon sectors should “share information and data as transparently as possible” to improve understanding about wild salmon population decline (recommendation 39) and that a precautionary approach should be taken to minimise potential risks to the wild salmon population (recommendation 40).

204. In their response to the REC Committee report, the then Cabinet Secretaries "committed to developing and implementing evidence-based policy with solid foundations drawn from the best available science to infer likelihood of impact by farmed salmon on wild salmon". They confirmed this was being taken forward by the Salmon Interactions Working Group.

205. The Salmon Interactions Working Group recommended a review of the collection, reporting and monitoring of catch data. It also recommended a “comprehensive package of data which should be placed on a mandatory footing” to be provided by both the wild and farmed salmon sectors.

206. In her 2023 update, the Cabinet Secretary referred to the Scottish Government's commitments in response to the Salmon Interactions Working Group and its wild salmon strategy implementation plan. The Cabinet Secretary also confirmed that, where there is wild and farmed fish interaction, the Scottish Government has taken a precautionary approach and highlighted the presumption against open cage farm development on the North and East coasts through the National Planning Framework 4 to protect migratory species and the largest salmon populations.

Committee consideration

207. Academics told the Committee there is limited research about the impact of fish and wild salmon interactions as most research tends to focus on the conservation of wild salmon. The Fish Health Inspectorate referred to research demonstrating genetic introgression between farmed and wild salmon. The NASCO agreed in 2021 to commission a review of the effect of salmon aquaculture on wild Atlantic salmon populations where the “goal is to conduct a systematic review and potential meta-analysis of the effect of (1) salmon lice and (2) escaped farmed salmon on wild Atlantic salmon.

208. Academics also emphasised that collecting information on wild salmon for research

purposes was inherently challenging given the species complex behaviours. Dr Reinardy from the Scottish Association for Marine Science told the Committee how "it is not easy to monitor how an industry affects a complex species that has very complicated routes of migration and behaviour in the water", and the Chair of the Salmon Interactions Working Group agreed that sampling wild salmon once they are no longer in coastal areas is challenging. Professor Nick Owen from the Scottish Science Advisory Council argued that further research is needed to address current gaps in understanding around the causes of the decline of the wild salmon population.

209. A Marine Directorate official provided information about the research being undertaken to improve understanding about salmon interactions. They highlighted progress in financing enhanced sampling capabilities around interbreeding in order to build up a robust evidence-base on genetic introgression. This information was published in the Marine Directorate's first introgression report in 2021 with a further iteration in the process of being developed.

210. The Committee also heard about the lack of research around the wider issue of the decline in the wild salmon population. The Chair of the Salmon Interactions Working Group said:

> The honest answer is that no one really knows why wild salmon have declined so drastically. Twelve reasons have been put forward, and we referred to those in our report. Clearly, fish farming is one that gets a lot of attention—rightly—but there are, perhaps, 11 other reasons. Much work needs to be done on all those areas.

211. When asked about interactions between farmed and wild salmon, and the delays in implementing the Salmon Interactions Working Group's recommendations, the Cabinet Secretary told the Committee that "I recognise the criticism that the progress is not fast enough". She also, however, highlighted the "significant steps" the Scottish Government has taken (including the SEPA sea lice regulatory framework and wild salmon strategy) and confirmed that "we recognise the pressures that our wild salmon are under".

212. **The REC Committee inquiry called for more research to understand the impact of salmon farming on the wild salmon population and it seems generally agreed that gaps remain in the evidence base around farmed and wild salmon interactions. The Committee recognises the challenges in undertaking this research but, given the Scottish Government's wild salmon strategy and vision for a flourishing wild salmon population, it considers further research is essential. The Committee recommends the Scottish Government provide an update, as a matter of urgency, on its progress against the commitment to building an evidence base through coordinated scientific research and monitoring which is included in the wild salmon strategy implementation plan. This should include an update on the defined research objectives, monitoring framework and reporting requirements.**

213. **The Committee is aware of the NASCO-commissioned review of the effect of salmon aquaculture on wild Atlantic salmon populations. The**

Committee recommends the Scottish Government consider the findings of this review in so far as they relate to the risk posed to wild salmon from sea lice dispersal from farmed sites in Scotland when the review report is published. The Committee also recommends the Scottish Government update the Committee on what, if any, changes it then intends to make to finfish aquaculture policy as a result of the NASCO review findings.

Regulatory responsibility for managing the impact of salmon farms on wild fish

Background

214. The REC Committee inquiry highlighted the lack of clear regulatory responsibility for the impact of salmon farms on wild salmon stocks. The REC Committee recommended that "clarity must be provided by the Scottish Government as to how this apparent regulatory gap will be filled and which agency will assume responsibility for its management" (recommendation 42).

215. In their response, the then Cabinet Secretaries acknowledged a "current lack of clarity" and referred to the work of the Salmon Interactions Working Group and the technical working group, comprised of representatives of industry regulators, that would both consider this matter.

216. The Salmon Interactions Working Group also recommended this issue be addressed and, furthermore, recommended that the lead body tasked with this responsibility should be "required to coordinate its activities with all regulatory bodies with responsibility for the range of pressures that wild salmonids face".

217. In its response to the Salmon Interactions Working Group report, the Scottish Government confirmed that SEPA had undertaken this regulatory responsibility.

218. SEPA took on this responsibility from February 2024 and told the Committee that this demonstrated a simplification of the regulatory landscape to "provide greater clarity".

Committee consideration

219. Fisheries Management Scotland welcomed this development, telling the Committee it addressed "a massive gap in the regulatory system for the past 50 years". The Chair of the Salmon Interactions Working Group agreed this was "a good first step, but it is too early to say whether it has been or, indeed, will be effective".

220. Fisheries Management Scotland also said, however, that the current regulatory framework still does not take account of how aquaculture effects wild salmon in a coordinated way:

> We believe that regulation is disjointed in the way that it does not holistically assess and regulate the impacts of salmon farming resulting in policies and regulation that cause unintended consequences. It is important that any new regulation or policies are developed with a full understanding of the range of existing policies and regulations and the reality of our current environment, to ensure balanced, informed and better decisions are made.

221. The Cabinet Secretary stressed the delivery of the sea lice framework, and SEPA's lead responsibility, is "a critical piece of work that represents a positive step forward in managing those interactions".

222. **The Committee notes that regulatory responsibility for the impact of salmon farms on wild salmon stocks has been given to SEPA and that this implements the REC Committee recommendation 42.**

223. **The Committee, however, has concerns about the structure of the wider regulatory framework not being able to take full account of how salmon farming impacts wild salmon. The Committee recommends that SEPA implements the Salmon Integration Working Group recommendation that the lead body tasked with this responsibility should be "required to coordinate its activities with all regulatory bodies with responsibility for the range of pressures that wild salmonids face". The Committee recommends that a memorandum of understanding between SEPA and other relevant bodies to ensure a coordinated approach to managing the impacts of farmed salmon on wild salmon as a means to achieve this coordinated approach.**

Use of the precautionary principle for the location of salmon farms away from wild salmon migratory routes (recommendations 45 and 46)

Background

224. The REC Committee recommended the "precautionary principle should be applied in a meaningful and effective manner in relation to applications for new sites and expansion of existing sites". In particular, it recommended farms should not be sited in the vicinity of wild salmon migratory routes (recommendations 45 and 46). It also recommended the Scottish Government should provide "strong and clear leadership", policy guidance and access to training to ensure planning authorities are able to "comprehensively and robustly" assess applications against the potential environmental impact (recommendations 48, 49 and 50).

225. The Scottish Government responded to these recommendations by saying the precautionary principle "has and will continue to be applied in a meaningful and effective manner, being a cornerstone of both Scotland's National Marine Plan and Scotland's Planning Policy". The Cabinet Secretary also referred to SEPA's proposals for a new sea lice risk assessment framework and added that, as a result

of national policy frameworks, a presumption against aquaculture developments on the North and East coasts of Scotland was currently in place to protect wild salmon and their well-established migratory routes.

226. In February 2024, SEPA rolled out the first phase of the sea lice framework, its new regulatory system aimed to introduce a proportionate, evidence-based approach to protect young salmon from sea lice. The first phase will be applied when determining applications for proposed new farms and for increases in the number of fish at existing farms on the west coast and Western Isles. The second phase will see the framework applied to existing sites between mid-March to 31st May from 2025 onwards.

227. The framework will enable SEPA to assess the risk of sea lice infestation on wild salmon for proposed sites against a set threshold; applications for farm developments which SEPA determines as being likely to result in the sea lice exposure threshold being exceeded, or further exceeded, will not be granted authorisation. This approach has been referred to as a 'case-by-case' approach to the setting of sea lice limits that reflects site specific risk. According to SEPA, the new screening model "is designed to be appropriately precautionary".

Committee consideration

228. There was support for the SEPA's sea lice framework embedding the precautionary approach. The Highland Council told the Committee that, on the “specific application of the precautionary principle to particular farms and migratory fish, SEPA’s framework has moved that onwards a great deal”.

229. Industry representatives, however, claimed the framework was disproportionately precautionary in its approach. Mowi Scotland argued the model "involves a high degree of over prediction" in the potential risks to wild salmon. Salmon Scotland said it was unclear "why SEPA are continuing to press forward with the development of a highly restrictive, over precautionary model, which far exceeds what was agreed within the Salmon Interactions Working Group". Scottish Sea Farms told the Committee the framework would force operators to treat farmed salmon at relatively low lice burdens which could lead to elevated mortality.

230. Evidence from some environmental groups suggested the new framework did not move towards a precautionary approach due to the adoption of a policy of 'no deterioration' for sea lice levels, which applies standstill limits for sea lice as a licensing condition for certain existing farms. The Coastal Communities Network and Wildfish viewed this approach as enabling farms to continue to operate at high sea lice counts and not requiring improvements to be made to reduce counts in order to protect wild salmonids. Wildfish told the Committee that this is evidenced at a local planning level and that, “In the past six months, two new farms in areas with known migratory fish routes—one in Shetland and one in Kilbrannan—have been given planning consent, which shows that the precautionary principle is not being enacted at a local level”.

231. The Coastal Communities Network and Wildfish submitted a complaint to Environmental Standards Scotland regarding SEPA's sea lice framework which is currently under consideration. The complaint suggests that the Scottish

Government's approach to protect wild Atlantic salmon through SEPA's sea lice framework fails to meet legal obligations under a range of legal instruments. The joint complaint concludes:

> The Scottish Government's approach to the sea lice issue has been characterised both by its sluggish pace, and by the underlying unwillingness to take any steps that might constrain the growth of the politically-important Scottish salmon farming industry.

232. The phased roll out of the SEPA sea lice framework was also criticised by some stakeholders. For example, Wildfish thought it could take SEPA five years to collect evidence regarding the harms being caused at specific farms and argued "that is the opposite of precautionary". The Committee makes further comment and recommendations relating to marine planning in section 5 of this report.

233. SEPA responded to concerns raised by industry and environmental groups about the proportionality of its framework by suggesting the timeframe depends on the information available. SEPA told the Committee that:

> One thing that we have said that is often interpreted in the most negative way possible is that it might take us up to five years in some areas, although we have better information in others. During the next few years, we will acquire information that will allow us to make evidence-based decisions. We will also look to enhance our modelling in those areas, based on the information that we have available to us. There is a bit of modelling and a bit of monitoring and actual real-world testing, followed by reacting to what we find, and bearing in mind that that is one of a number of factors that may be affecting wild salmon stocks.

234. There were mixed views relating to the sea lice exposure threshold and ‘case-by-case’ approach adopted in the sea lice framework. Some stakeholders highlighted concerns and identified Norway as having lower sea lice limits than Scotland, with mandatory culling at farms reporting an average sea lice above 0.2 adult female sea lice per salmon throughout the spring and 0.5 adult female sea lice per salmon for the rest of the year. Some environmental groups, such as the Coastal Communities Network, argued that the restrictions applied in the capped approach taken in Norway illustrated international best practice in protecting wild fish stocks from the effects of sea lice from farmed salmon. The Chair of the Salmon Interactions Working Group, however, supported the case-by-case approach adopted by SEPA "because the circumstances of each fish farm are different".

235. SEPA explained to the Committee its reasons for taking a ‘case by case’ approach:

> If someone wants to develop in a high-risk area they might have a standard of 0.2 sea lice per fish or less, but if they want to develop in an area that is at very low risk or that has minimal risk with lots of capacity, they might have a much higher standard. Each site’s standard will be set according to the individual risk.

236. The Cabinet Secretary confirmed the Scottish Government's view was that SEPA's sea lice framework does take a precautionary approach. In response to concerns about the issue of non-deterioration, a Marine Directorate official told the Committee that:

> There are areas where the risk is really minimal, and we also have targeted focus areas, in which 19 farms have been identified as having the highest relative risk. In those areas, there will be standstill conditions to ensure that farmers maintain good sea lice controls over the next couple of years, while we carry out monitoring and assessment and determine whether we need to take further action on the farms in question.

237. **The Committee notes the complaint made by Wildfish and the Coastal Communities Network to Environmental Standards Scotland about whether the SEPA sea lice framework is compliant with environmental law. The Committee requests the Scottish Government keep it informed of the outcome of Environmental Standards Scotland's investigation and, if the complaint is upheld, how it and SEPA intends to respond.**

238. **SEPA's sea lice framework seeks to embed the precautionary approach called for by the REC Committee when considering the location of sea farms for the risk of sea lice infection to wild salmon. A range of views have been expressed as to the suitability of the framework in delivering a precautionary approach. The Committee notes the presumption against aquaculture developments on the North and East of Scotland established through the National Planning Framework 4 (policy 32(a)) but is concerned that it would appear the REC Committee recommendations 45 and 46 have not been met in other geographical areas and there are still new farms sited on migratory routes. The Committee recommends an immediate end to the siting of farms in the close vicinity of known migratory routes for wild salmon.**

Section 5 - salmon farm consents and planning

239. The REC Committee highlighted the importance of ensuring salmon farms are in the most appropriate locations to protect fish health and welfare and avoid the negative impacts on wild salmon and the wider marine environment. In its report, the ECCLR Committee argued an "eco-systems approach" to planning the industry's growth and development was required.

240. The location of salmon farms are subject to the planning and consenting regimes. Applications for new sites must obtain relevant licences and planning permission for farm proposals. This process engages a wide range of planning and consenting authorities, summarised in the table below.

Application	Competent authority
Planning permission	Local authorities
Environmental impact assessment	Local authorities
Marine licence	Marine Directorate
Seabed licence	Crown Estate Scotland
Authorisation to operate an aquaculture production business	Fish Health Inspectorate
Controlled activity regulations licence	Scottish Environment Protection Agency
Habitat regulations appraisal (if necessary)	All of the above

Source: Griggs review 2022

241. The Scottish Government announced a phased broad review of aquaculture regulatory processes in August 2021 when it invited Professor Russel Griggs to undertake a review of the current regulatory framework for Scottish aquaculture. Professor Griggs published *'A Review of the Aquaculture Regulatory Process in Scotland' in February 2022*. One of the main recommendations was the creation of a new single consenting document for aquaculture and that mandates what all parties (the applicant, regulators, the community, and other statutory consultees) involved in an application are subject to derived from a pre-application consultation prior to submission. Professor Griggs also recommended the new consenting document contains a 'social contract' that recognises the community and its needs. The Scottish Government accepted all of Professor Griggs's recommendations in principle. The consenting task group was created to take Professor Griggs's recommendations forward.

Relocation of existing sites (recommendation 53) and the challenges of moving to more exposed sites (recommendations 54 and 55)

Background

242. The REC Committee identified that some salmon farms "may have been located in areas which are now recognised as being environmentally sensitive" or "less well-suited to production for a variety of reasons". Recommendation 53 called for

"immediate dialogue with the industry to identify scope for moving existing poorly sited farms", and encouraged appropriate incentives to support this.

243. The REC Committee heard evidence suggesting that transitioning salmon farming developments to more offshore or 'higher energy' locations offered potential benefits to the environment and fish health. However, the Committee also noted "significant technological challenges associated with locating farms in these areas, as well as risks in terms of workforce health and safety" that must be overcome by the sector and the Scottish Government.

244. In order to address these issues, the REC Committee called for industry "to examine the scope for siting salmon farms in suitable offshore and other locations where there are higher energy water flows" as a "high priority" (recommendation 54). The REC Committee also recommended that the Scottish Government "should consider how the regulatory framework which applies to the industry might need to be adapted to suit the particular circumstances of offshore aquaculture" (recommendation 55).

245. The Scottish Government responded to these recommendations by stating that "consideration is already being given to the development of offshore aquaculture in relation to the existing regulatory framework and potential future operating practices". It also emphasised the need to "not simply export challenging issues from one location to another".

246. The Salmon Interactions Working Group also considered the issue of relocating from existing sites in its 2020 report. It recommended that:

> For sites where best scientific evidence indicates that an existing site presents an adverse impact on wild salmonids:
>
> - in the first instance, tighter regulatory standards should apply;
> - the consenting regime should be amended to enable efficient relocation of existing biomass to a suitable alternative location, within a spatial planning and area management framework.

247. In its response to the Salmon Interactions Working Group's report, the Scottish Government referred to the sea lice framework and stated SEPA's approach to pre-application is increasingly providing spatial planning advice to operators. The response stated that, "by regulating all emissions (including sea lice) to coastal waters from farms, SEPA will be able to provide operators wishing to re-locate with comprehensive upfront advice on whether potential new locations are likely to have sufficient environmental capacity to sustainably accommodate the type of development being sought".

248. In an update to the Committee in 2023, the Cabinet Secretary said enhanced environmental information would help "the industry to assess where the greatest capacity exists and to focus on which sites have the best conditions, but also those most suitable for time and investment in the development process". She added that the Scottish Government would "consider the efficiency of the fish farm consenting system and the mechanisms available to relocate biomass through the regulatory review of aquaculture consenting" and, in particular, that there should be consideration of the regulatory framework for offshore aquaculture (beyond 3 nautical miles).

249. Marine planning zones set out the spatial limits for particular local authorities' responsibilities for planning controls of marine fish and shellfish farms in Scottish waters. The current marine planning zones extend out to three nautical miles. Between September and December 2024, the Scottish Government issued a consultation on extending marine planning zones beyond three nautical miles out to 12 nautical miles. The Scottish Government suggested that, due to innovations in technology, aquaculture sites can now be located further from the shore and that "these developments have the potential to reduce the environmental impact of marine farming by lessening interactions with wild salmonids and supporting farmed fish health and welfare".

250. Salmon Scotland's fish health plan includes a commitment to "developing farms in more exposed locations, where environmental conditions are more varied, leading to better flushing of farms and better conditions for our salmon". It also considers using sheltered locations as 'nursery farms' during early stages of production cycles before moving fish to more exposed locations.

Committee consideration

251. In correspondence, Salmon Scotland detailed that companies have already begun investing in technology and infrastructure to transition towards more exposed farm locations. In oral evidence, Cooke Scotland said it has moved some of its sites in Orkney further offshore because of "technical improvements and as a result of our having a better understanding of the modelling of the sea and tidal conditions".

252. More generally, however, industry representatives told the Committee about its disappointment that action had not been taken to facilitate the relocation of existing sites. Mowi Scotland said:

> There is no mechanism for dealing with a situation in which it has been identified that the relocation of a site would bring about a series of environmental or economic gains. There is no process for that. In the absence of one, companies have created their own process and have made proposals through the existing system.

253. The Highland Council indicated it has not considered any relocation applications since the REC Committee inquiry reported, although it has considered a large number of applications from the industry to "rework" their existing sites to ensure they are more environmentally sustainable.

254. Issues with securing permits for moving operations were also highlighted in evidence by academics. Professor Martin from the School of Biological Sciences at the University of Aberdeen said:

> I understand that it is very difficult to get permission and licences to go to areas that are thought to be healthier or even expand into those areas and then move the fish away. Companies have their licences, which might go back to the 1990s when the industry was just starting, and they are still farming there because they cannot put the fish anywhere else. Looking forward to the next few years, if it was possible to do something about that, you could mitigate some of the issues.

255. The Chair of the Salmon Interactions Working Group and Fisheries Management Scotland also supported measures to facilitate the relocation of existing sites. The Chair of the Salmon Interactions Working Group called for the Scottish Government to, as a matter of priority, introduce an adaptive spatial planning model for consenting new salmon farming applications. He argued that, "when it comes to adaptive spatial planning, the whole consenting regime must be attuned to being flexible, to allow the fish farming industry to develop and move offshore".

256. SEPA told the Committee the revised regulatory framework should support the industry "to identify the most suitable locations for new farms that better align to where there is environmental capacity to accommodate them". It also noted a trend in applications for larger farms developments in more dispersive coastal areas.

257. There was also support for a better understanding of, and safeguards to prevent, any unintended consequences to fish welfare as a result of moving to more exposed sites. RSPCA Scotland and the Coastal Communities Network, for example, highlighted concerns about the detrimental impact on welfare that could come from increased tidal conditions and colder water temperatures at offshore sites. Wildfish was concerned that the weather conditions at exposed sites would lead to an increase in escapes and cited the 50,000 salmon which escaped from a farm in Carradale because of bad weather in 2020.

258. Academics highlighted that they are working closely with industry to help address gaps in understanding relating to environmental characteristics apparent in exposed sites and how the might effect fish health and welfare. Professor MacKenzie from the Institute of Aquaculture at the University of Stirling said work was being inhibited by a lack of infrastructure, such as marine pen research sites, and difficulties securing research licensing. He explained that “if you do not have an integrated infrastructure where scientists can measure approaches, it is very difficult to come to conclusions, because sites A, B and C will all have different characteristics. That makes it very difficult for us to pinpoint the issues".

259. The Cabinet Secretary agreed that moving to more exposed sites offered a range of potential advantages for the environment and fish health and welfare. She highlighted the Scottish Government's consultation regarding proposals to extend existing marine planning zones from 3 to 12 nautical miles and which she said could provide additional scope for local authorities in developing offshore aquaculture. A Marine Directorate official suggested that most of the benefits of offshore locations could also be achieved at inshore sites with higher energy flows.

260. **The Committee notes the broad support for a mechanism to facilitate the relocation of existing sites, to give industry the flexibility to relocate to protect fish welfare and mitigate environmental impacts. The Committee also notes there is no evidence that recommendation 53 calling for “immediate dialogue” with the industry on this issue has been implemented. The Committee recommends this is progressed as a matter of urgency**.

261. **At the same time, the Committee agrees that the relocation of sites must be done with a full understanding of the environmental and fish health and welfare risks associated with the relocation of fish farms, as well as the**

economic and social impact on fish farm staff and local communities. The Committee recommends the Scottish Government commission research to assess the potential risks and benefits of moving fish farms further from the coast and to more exposed or higher energy flow sites. The Committee notes its earlier recommendation calling for the development of dedicated research pens could support this aim.

Consenting task group – pilot consenting process

Background

262. The Scottish Government's consenting task group published its draft consenting pilot process in January 2024. The proposed framework is being piloted in the Highland Council and the Shetland Islands Council. The proposed framework has been designed as a "voluntary pre-application process with four stages":

Stage 1 – request for pre-application advice

Stage 2 – provision of joint pre-application advice

Stage 3 – community and third-party engagement

Stage 4 – screening/scoping opinion request and issue of a joint scoping opinion report and advice

263. In her letter to the Committee, dated 27 November 2024, the Cabinet Secretary set out two additional areas of work alongside the pilots. She confirmed it was not possible to set a definite end date for the pilots, but stated that:

> it is my ambition to ensure Scotland-wide improvements are adopted by Spring 2026 and I also remain committed to ensuring that changes for the benefit of all are rolled out as quickly as possible. In other words, we do not intend to wait for all work strands to complete if changes to practice are demonstrably beneficial and are working well.

Committee consideration

264. Some participants thought the consenting process pilot had been successful in identifying ways in which coordination could be made easier and more efficient. The Highland Council said the most effective outcome of the project was allowing planning decisions and licensing arrangements to be progressed in parallel.

265. Salmon Scotland, however, was critical that "the overall consenting process remains long and complex" and stated that "all stakeholders agree reform is needed". Salmon Scotland also drew the Committee's attention to the concerns it set out in its 2019 complaint to SEPA, that highlighted a number of problems relating to delays in processing licence applications, SEPA's perceived inability to

provide compliance reports and audits within reasonable timeframes, and its lack of engagement with the sector on changes to its regulatory approach.

266. In evidence to the Committee, a Marine Directorate official emphasised that "a key message is that this is a continuous improvement project" and that:

> We have been meeting constantly to evaluate how things have gone. We have brought in new processes and new templates, and we have different applications doing slightly different things. We will learn from those. Once we have the independent evaluation, we will meet with the consenting task group to discuss whether we want to continue in Shetland and Highland—if we need more pilots there—or whether we want to pilot in new areas. The intention is very much to design a process that works for everybody and that can be rolled out Scotland-wide.

267. In response to concerns around the speed of progress, the Cabinet Secretary told the Committee that "this is a new process that we are working through, so it is important that we take the time to get it right, to do the evaluation and to see what further roll-out could potentially look like from there".

268. **The Committee notes the criticism from industry about the consenting process and is disappointed in the slow pace of progress to address these concerns. The Committee also notes the Cabinet Secretary's ambition to ensure Scotland-wide improvements are adopted by Spring 2026. The Committee requests the Scottish Government, in its response to this report, to provide further information about the process by which any proposed improvements will be assessed and implemented to this timescale and to be kept updated on the evaluation of the pilot projects.**

Wider planning issues

269. The Committee considered a small number of wider planning-related issues which related to salmon farming.

270. Recommendations 48, 49 and 50 of the REC Committee report called for additional support and guidance to be provided by the Scottish Government to assist local authorities with applying the precautionary principle. Subsequently, the Committee notes that the precautionary principle as it relates to the environment was one of five guiding principles on the environment that were listed in section 13(1) of the UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021. Provision 15 (1) of the Act places a duty on public bodies to have due regard to the guiding principles in carrying out their functions.

271. In 2023, the Scottish Government set out statutory guidance for how the guiding principles must be taken into account by public bodies in their decision-making. The guidance states that:

> Decision makers should apply the precautionary principle when there is both a good reason to believe that serious or irreversible environmental damage could occur, and a lack of scientific certainty around the consequences or likelihood of the hazard and associated risk. Where there is uncertainty as to the likelihood or extent of potential environmental damage, but there is evidence indicating significant hazards and associated high risks of harm, cost-effective measures can be put in place to address the risk of harm through regulation of activities or products, further research or public information.

272. Witnesses expressed support for regional marine planning. Dr Rachel Shucksmith explained to the Committee:

> Expecting a one-size-fits-all approach to management across Scotland is unrealistic, because it is very diverse. With sea lochs on the west coast of Scotland, the community structures are very different from, say, those in the Western Isles, Orkney or Shetland. Within that, it is important that the marine regions have freedom to develop a locally appropriate response, rather than having one approach for the whole of Scotland.

273. Marine planners went on to express regret about the slow progress in achieving a regional marine planning approach. The Highland Council's planning team leader told the Committee:

> Certainly in the Highlands, and my colleagues in other aquacultural authorities would probably say the same, we have yet to treat the portion of the marine environment that falls within our control in the same way as we do our terrestrial areas. We do not include it in our local plans in quite the same way; we do not apply constraints; we do not cross-check identification of better or less attractive areas for certain forms of development; and we do not incorporate leases from the Crown Estate into a mapping system and so forth.

274. Dr Shucksmith shared her view that "a greater roll-out of regional marine planning was expected by now, which might have influenced the development of aquaculture and other industries in our marine regions, particularly in the Highlands and Islands".

275. Dr Shucksmith also highlighted issues with taking a zoned approach to marine spatial planning for identifying suitable locations for salmon farms. She explained that, given the fast pace of change in salmon farming, it was difficult for guidance to keep pace with recent developments in technology. She said that, "if we go for a highly zoned approach, we review only on a five-year cycle, so that advice might not be as appropriate as initially perceived" and this "might not necessarily identify the most appropriate areas as those technological improvements and advancements are made". She was supportive of a more flexible approach that enables policy frameworks to remain adaptable to changing circumstances.

276. **The Committee notes that the Scottish Government has published guiding principles on the environment which provides additional detail to support local authorities when applying the precautionary principle in their day-to-day activities. The provision of this information represents progress in delivering recommendations 48 and 49 of the REC Committee report.**

However, the Committee requests the Scottish Government reviews relevant planning and consenting guidance to ensure that it reflects how the precautionary principle and other guiding principles on the environment should be applied. The Committee also recommends that the Scottish Government ensure the guiding principles on the environment are embedded within the policies and principles of National Marine Plan 2.

277. **The Committee recommends the Scottish Government set out in its response to this report how it intends to progress regional marine planning to provide more localised approaches to planning for salmon farms.**

278. **The REC Committee's recommendation 51 called for a spatial planning exercise to inform strategic guidance on areas that are suitable or not suitable for salmon farming. The Committee understands this exercise has not been undertaken. The Committee took evidence that illustrated some of the potential challenges of initiating a zonal approach to spatial planning but recommends that this exercise should be progressed.**

279. **As part of this exercise, the Committee emphasises that consideration must be given to how marine spatial planning will incorporate new knowledge and adapt to changing environmental, social and economic conditions in relation to salmon farm developments, as well as the data collection, modelling and monitoring. This should aim to inform an adaptive planning approach flexible to respond to both short-term acute environmental events and the long-term trajectory of climate change impacts on the sustainability of salmon farming. The Committee notes the Scottish Government is currently developing the National Marine Plan 2 and that this may be the appropriate vehicle to deliver this recommendation. The Committee requests how this recommendation will be implemented in its response to this report.**

280. **Without this exercise, the Committee believes it is challenging for planning authorities to apply fully a precautionary approach to the siting of farms or to take account of their cumulative impacts on the marine environment.**

281. The Committee also considered the role of environmental management plans which were identified as a way for local authorities to place conditions on farm applications that enabled cooperation between sectors around issues such as wild fish monitoring. The Highland Council said that environmental management plans had been successful in stimulating coordination at local level but that enforcement is challenging because "it would be very difficult to identify enough evidence to take the matter to the enforcement stage":

> I would say that environmental management plans have been successful in stimulating a level of work, co-ordination and co-operation among operators, local fisheries boards, river trusts and so forth, on how best to monitor wild fish and the impact of sea lice on their health. There have therefore been some positives. However, the enforcement of the environmental management plans was always going to be difficult. It would be rare to come across information from an assessment in the field that was a smoking gun, indicating that a fish farm was having an unacceptable impact on wild fish. I do not think that anyone has ever delivered data of that nature.

282. The Highland Council concluded that this was "one reason why there was a crying need for SEPA's framework and a scientifically evidenced approach".

283. **The Committee is concerned by evidence suggesting an enforcement gap in relation to monitoring conditions for environmental management plans. Given the importance of environmental management plans as a mechanism to deliver joint working between farmed and wild fish sectors, the Committee recommends the Scottish Government undertake a review of the use of environmental management plans in local planning to ensure it remains fit for purpose.**

Community benefits of salmon farming, including community benefit funds

Background

284. The REC Committee inquiry took evidence about how the industry provides benefits to local communities. For example, the Scottish Salmon Producers' Organisation (the predecessor of Salmon Scotland) spoke about its community engagement charter which it described as:

> [...] a commitment to give the local communities some direct benefit from the yield from the local farm...last year, we contributed about £1 million to local communities through various schemes...It is not all financial support—some of it is the giving of time, offering education and support and getting into schools and even nurseries. For example, we bought small minibuses to transport people to community youth facilities.

285. The REC Committee also heard about concerns that the industry has a negative impact on other marine users and industries and the lack of a statutory community or regional wealth fund within the salmon industry to provide longer term and more stable support for local communities.

286. In November 2020, Salmon Scotland published its sustainability charter 'A Better Future For Us All' which committed to "establish, in consultation with the Scottish Government, a structured community funding model, ensuring that our local areas benefit from us being there".

287. The community engagement charter also makes commitments that developers should create positive relationships with local communities they operate within through taking a comprehensive approach to engagement. The Charter also outlines that operators should seek to invest in local services, projects and infrastructure as a method of delivering benefits for local people.

288. The Griggs review recommended “an allowance in the licence charge for local community benefit for the area where the site is situated”. Professor Griggs explained his reasoning:

> It’s my belief that a significant amount of what is collected (similar to Norway) goes back to the communities in whatever form so that they can also benefit from the economic prosperity that the farms will bring. Decisions will have to be made on whether this part of the payment should be collected by Government for redistribution or whether the operator should be legally obliged to disburse that payment themselves directly to the community.

289. The Griggs review also recommended that a new consenting regime should contain a ‘social contract’ that "recognises the community and its needs" and that “comparisons should be drawn with the wind farm industry where local communities receive a ‘share of the benefits’ that companies make from a local operation”.

290. The Scottish Government's Vision for Sustainable Aquaculture made a commitment to “ensuring that statutory and voluntary funds that are raised from the aquaculture sector for the purpose of community benefit are of an appropriate scale and are put to best use”.

291. The Scottish Government has published good practice principles for community benefits for onshore and offshore renewable energy developments. These principles encourage developers to provide community benefits packages that take into account the scale and impact of the development. For example, the best practice principles for onshore renewable energy developments states:

> [...] the Scottish Government would encourage the renewables industry to offer a package of benefits that is of the equivalent value to £5,000 per installed MW per year.

292. The Committee is aware that the Scottish Government is currently consulting as part of a review of the Good Practice Principles for community benefits from onshore and offshore net zero energy developments.

Committee consideration

293. Figures from Scotland's Marine Economic Statistics notes that in 2022 the aquaculture sector supported 2,200 jobs in Scotland. Salmon Scotland told the Committee the sector indirectly supports a further 10,000 jobs in the wider supply chain. The economic benefits and employment opportunities associated with salmon farming was highlighted to the Committee. Shetland Islands Council said:

> The salmon farming companies are part of the fabric of our islands, supporting local initiatives (e.g. sporting events, school trips) through community benefit contributions, and the nature of salmon farming itself – requiring sheltered waters away from other developments – means that it supports jobs, infrastructure development and economic activity in the remoter areas of Shetland, rather than concentrating activity in central areas, ensuring benefits disbursed across our islands.

294. Some participants at the Committee's community engagement event in Oban, however, suggested that the employment opportunities from salmon farming were limited to between 7 and 10 staff at each site. A number of local community groups also said the industry had negatively impacted other local sectors, such as tourism or fisheries.

295. Some stakeholders highlighted that the funding earmarked for communities was substantially less than the profits generated at specific farms. The notion of a social licence was strongly supported in evidence provided by Marine Conservation Society and in discussions held at the Committee's community engagement event as a way of delivering longer-term prosperity for communities from developments.

296. However, the Coastal Communities Network also said "there is a risk that, in advance of communities deciding how they feel about a consenting decision, they are offered money to say yes and they do not get the improved form of aquaculture but they are paid to put up with the existing dirty form".

297. Industry representatives highlighted examples of how their businesses contribute to and support local communities. For example, Cooke Scotland told the Committee how it works in partnership with schools to develop the young workforce and sponsoring local sports teams. It further explained “our companies all have community benefit funds, and we put hundreds of thousands of pounds into communities every year”.

298. The Committee questioned the Cabinet Secretary on whether there should be good practice principles for community benefit for aquaculture developments as there is for renewable energy. In response, the Cabinet Secretary acknowledged that the current way that finance from Crown Estate Scotland seabed leases is invested in communities is not clear:

> At the moment, all of that is given to local authorities to determine how to distribute, so that is for coastal community benefit. However, I understand that using that mechanism—that is, whatever mechanism local authorities use to distribute the funding—does not necessarily make most transparent the direct relation between aquaculture businesses and the funding that directly reaches communities.

299. Crown Estate Scotland agreed with the Cabinet Secretary stating “I am not sure that we take full advantage of making that transparent and communicating that effectively so that those communities can see clearly the impact of the commercial arrangements in their locality”. It added that if more money was retained by Crown Estate Scotland for reinvestment it “could make that impact more meaningful, more immediate and more visible".

300. Salmon Scotland highlighted challenges in providing community benefits such as

housing and digital infrastructure and said it is "very keen that more of the fees we pay to, as it were, the Government through the Crown Estate are put back into local communities". The Committee is also aware of mechanisms, such as the Coastal Communities Fund, that in 2023-24 (based on monies generated in 2021-22) redirected £11.2m of overall seabed leasing revenues to local authorities in coastal areas for the purpose of investing in their local communities.

301. The Cabinet Secretary explained that it has an opportunity to review how this funding has been provided in discussions with Crown Estate Scotland and local authorities through COSLA.

302. **The Committee recognises the important contribution salmon farming makes to employment opportunities and economic development across Scotland and particularly in rural and island communities. It also recognises the importance of existing community benefit funds created by industry and the investment of funds from seabed leases from Crown Estate Scotland made available to local authorities through the coastal communities fund. However, it is evident that, for some, the benefit of investments made through existing community benefit funds are not always clearly visible.**

303. **The Committee recommends that the Scottish Government consults with relevant stakeholders and affected communities to develop good practice principles for community benefits for aquaculture developments. These should aim to create greater transparency around community benefit packages and ensure they are tailored to the characteristics of each development and their local communities. The Committee also agrees that community benefit funds should take into account the priorities of communities through a social contract in the consenting regime as recommended by the 2022 review of the aquaculture regulatory process in Scotland.**

Section 6 - final comments

304. The Scottish salmon farming industry makes a significant contribution to the Scottish economy. The latest Scottish Government figures show that, in 2022, aquaculture generated £337 million approximate GVA, or 0.20% of the Scottish economy, and directly employed 2,200 people.[ii] Salmon Scotland estimates the industry also indirectly supports around 10,000 jobs in the wider supply chain.

305. In the light of concerns over fish health and welfare, the impact of open pen farms on the local marine environment, other businesses which rely on the natural environment and wild salmon population, the REC Committee undertook an inquiry in 2018 to look at the state of the Scottish salmon farming industry. The REC Committee report made 65 recommendations to address some of these concerns and, in particular, to call for more research to improve our understanding of the impact of open pen fish farms and to improve the regulatory landscape.

306. This Committee's inquiry and report considered where the industry is now and to what extent the REC Committee's recommendations have been implemented. The inquiry focused on recommendations spread across four themes: fish health and welfare; environmental impact, interactions between wild and farmed salmon and consents and planning.

307. The REC Committee concluded that, "if the industry is to grow, the 'status quo' in terms of regulation and enforcement is not acceptable". This Committee concludes that, although the 'status quo' has changed to some extent since 2018, the slow rate of progress in improving the regulation and enforcement of the industry needs to be addressed as a matter of urgency to future-proof the industry and to enable it to grow sustainably.

308. The evidence taken by the Committee highlighted that climate change, and in particular exceptional changes in water temperature, means the industry faces new and unpredictable challenges. Whereas the REC Committee inquiry considered sea lice as a significant fish health and welfare issue, now the impact of other parasites and water-borne diseases has emerged as a greater threat to fish health and welfare. For example, the influx of micro-jellyfish in 2022 which caused mass mortality. It is imperative that both science and research, and the regulatory landscape, keep pace with this rapidly changing marine environment.

309. While some REC Committee recommendations have been implemented, with policy development and additional responsibilities given to the Scottish Environment Protection Agency, planning consent pilots and the Scotland's Aquaculture website publishing industry information, the Committee is concerned about the lack of progress in implementing many of the other REC Committee recommendations and that this is detrimental to the long-term viability of the Scottish salmon farming industry. The impact of this lack of progress is detailed in the main body of this report but, for example, these include the lack of progress undertaking research and analysis into the environmental impact of chemical use on farms, progressing a spatial planning exercise setting out suitable and unsuitable sites for farms or

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ii Scottish Government, *Scotland's Marine Economic Statistics 2022* , published on 6 November 2024.

simplifying the planning process to facilitate farms to relocate from unsuitable sites. The Committee also notes the lack of progress implementing the recommendations made by other parallel workstreams, such as the Salmon Interactions Working Group.

310. Implementation of these recommendations would address some of the concerns levied at the production process and help identify solutions. It could also help address many of the polarised views about the industry and ensure public confidence in both the Scottish salmon farming industry and its product.

311. The industry told the Committee about some of the investment and innovations it has made to address these challenges. Whilst there is a clear role for the industry in keeping pace with and finding solutions for these emerging challenges, there must be stronger leadership from the Scottish Government and its regulatory authorities.

312. The REC Committee considered there was "insufficient evidence" to support a moratorium on new sites or the expansion at existing sites. This Committee is aware that calls for a moratorium remain, especially given the view held by some regarding the lack of progress in addressing high mortality rates since 2018. This Committee has seriously considered whether calling for a moratorium, or pause, on new sites or the expansion at existing sites would be appropriate. On the one hand, a call for a moratorium would send a clear signal to the Scottish Government and industry that further urgent progress is required. On the other hand, the impact of a moratorium – especially on those directly employed on farms or living in local communities – is unclear. Industry also agrees that progress is required and has made improvements and innovations, and it is the Scottish Government's role, as well as the industry's, to drive the change agenda. On this basis, the Committee does not currently support a moratorium or pause on production.[iii]

313. The Committee has made specific recommendations relating to different aspects of the Scottish salmon farming industry throughout this report. In overall conclusion, the Committee calls on the Scottish Government to implement both the outstanding REC Committee recommendations, and its own recommendations set out in this report, as a matter of urgency. The Committee asks the Scottish Government, in its response to this report, to set out a clear timetable for the implementation of these recommendations over the next year. The response should also set out information about how implementation would be measured. In addition, the Committee recommends that this workstream should have dedicated ministerial oversight to give the issue the focus it needs and to give industry, consumers and local communities the reassurance that the Scottish Government recognises the importance of resolving existing issues and providing a long-term future for the industry.

314. The Committee commits to revisiting progress made on the issues raised in this report in one year and it may make further recommendations on this issue at that time.

[iii] Ariane Burgess and Emma Roddick dissented from this paragraph.

Annexe A - REC Committee recommendations

Economic and social impacts of salmon farming

The Committee acknowledges both the economic and social value that the salmon farming industry brings to Scotland. It provides jobs to rural areas, investment and spend into communities and stimulates economic activity in the wider supply chain.

RECOMMENDATION 1

However, the industry also creates a number of economic, environmental and social challenges for other businesses which rely on the natural environment and the Committee recognises this impact. Therefore, if the industry is to grow, the Committee considers it to be essential that it addresses and identifies solutions to the environmental and fish health challenges it faces as a priority.

Growth of the industry

RECOMMENDATION 2

The Committee strongly agrees with the view of the Environment, Climate Change and Land Reform Committee (ECCLR) Committee that if the industry is to grow, the "status quo" in terms of regulation and enforcement is not acceptable. It is of the view that urgent and meaningful action needs to be taken to address regulatory deficiencies as well as fish health and environmental issues before the industry can expand.

RECOMMENDATION 3

The Committee notes calls for a moratorium on new salmon farm development and expansion of existing sites, it considers that there is insufficient evidence to support this.[i]

RECOMMENDATION 4

The impact of expansion plans on other sectors which share the marine environment needs to be recognised and the impact reduced. The Scottish Government, SEPA and all other responsible authorities should therefore ensure that the needs of other industries are fully considered in setting the strategic context for the sector.

The Committee believes that if these challenges are effectively addressed then the many economic and social benefits of the farmed salmon industry can grow as both the industry, and the communities it works with, continue to develop.

Impact of Brexit

The Committee recognises the negative impact that Brexit may have on the access to EU export markets. It is particularly concerned about the ability of Scotland's food and drink sector to deliver fresh produce to European markets to current timescales and the impact

tariffs may have on profitability.

The Committee also recognises concerns about the capacity of the salmon farming industry to retain and recruit staff given the likely loss of access to EU labour markets. The Committee notes that the industry may find it challenging to retain and attract the workers required, particularly in the salmon processing sector.

RECOMMENDATION 5

The Committee calls elsewhere in this report for the highest possible environmental and fish health regulatory standards to apply to the farmed salmon sector in Scotland. However, it is concerned that these standards could become technically misaligned with those in the EU post-Brexit and that this could lead to problems in accessing EU markets. It therefore calls on the Scottish Government to indicate how it intends to work with the UK Government to ensure that this issue is addressed.

Workforce, skills and infrastructure

The Committee acknowledges the findings of the HIE report highlighting a range of skills gaps and recruitment and retention issues facing the industry. It notes that the report suggests that there is a pressing need to address these and commends its recommendations on how improvements might be made in education and training, developing leadership skills and in recruitment.

RECOMMENDATION 6

The Committee also acknowledges the infrastructure constraints faced by the sector that were raised in evidence, particularly a lack of available housing, which can make it difficult to attract and retain staff. The Committee recognises that a lack of housing can cause difficulty for many businesses in rural and remote areas. It calls on the Scottish Government to work with enterprise agencies and local authorities to consider what work might be done to help ease this constraint.

Branding and accreditation

The Committee recognises the importance of the Scottish brand in selling a wide range of food and drink products, including salmon, both abroad and in the UK. This brand is built upon a high quality product and robust environmental and regulatory standards.

The Committee notes that the challenges referred to elsewhere in this report could and may be affecting consumer's perceptions of the product. To maintain the Scottish brand, Scotland's salmon farmers must excel in responsible and sustainable production methods and communicate this effectively to consumers, retailers and other stakeholders.

RECOMMENDATION 7

Many marketing and quality assurance accreditation schemes exist for farmed salmon. These often set more stretching environmental standards than are currently in place in Scotland. The Committee calls on the Scottish Government to take the requirements of existing accreditation schemes into account when considering regulatory change to establish where alignment might be appropriate and feasible.

RECOMMENDATION 8

The Committee calls on industry representatives, accreditation bodies, retailers and other stakeholders to work together to consider ways in which clarity and simplicity for consumers in a potentially confusing accreditation landscape can be provided.

Challenges facing the farmed salmon industry

Farmed salmon mortalities

The Committee understands that there will be a level of mortality in all livestock production. It recognises the challenges that the industry faces in managing a range of fish health and welfare issues that contribute to increasing mortality levels.

RECOMMENDATION 9

However, the Committee considers the current level of mortalities to be too high in general across the sector and it is very concerned to note the extremely high mortality rates at particular sites. It is of the view that no expansion should be permitted at sites which report high or significantly increased levels of mortalities, until these are addressed to the satisfaction of the appropriate regulatory bodies.

RECOMMENDATION 10

The Committee welcomes the statement in the Scottish Government's Fish Health Framework that ambitious targets should be agreed "to achieve a significant and evidenced reduction in mortality for salmon and trout" and that these should be world-leading. However, it is strongly of the view that practical action is also required and that there should be a process in place which allows robust intervention by regulators when serious fish mortality events occur. It considers that this should include appropriate mechanisms to allow for the limiting or closing down of production until causes are addressed.

The Committee is in no doubt that there needs to be far greater transparency in reporting mortality rates and disease outbreaks at salmon farms. Whilst it welcomes the publication by the SSPO of monthly mortality data for each salmon farm in Scotland in August 2018, it notes that this information is very limited and does not provide detailed information on the causes of mortality on each farm.

The Committee notes the Scottish Government's Fish Health Framework (FHF) proposal to develop a consistent reporting methodology for farmed salmon mortality, and to move towards the production of pro-active open site reporting of mortality statistics. It considers that this initiative provides an opportunity to develop proposals which will build on and enhance the information which the industry has recently started to provide on a voluntary basis.

RECOMMENDATION 11

The Committee considers it to be essential that this work delivers high levels of transparency that will provide confidence to all stakeholders. It therefore recommends that the information provided in future should provide an accurate, detailed and timely reflection of mortality levels including their underlying causes across the whole sector. It should also incorporate a mechanism for reporting where early harvesting has been carried out because of a disease outbreak.

RECOMMENDATION 12

The Committee calls on the FHF working group to seek the views of all industry, scientific, environmental and other stakeholders to ensure that the methodology that it is tasked with developing for reporting mortalities is sufficiently robust. It is strongly of the view that it should be a mandatory requirement for all farmed salmon producers to provide this data.

RECOMMENDATION 13

The Committee further recommends that there should be coordination with the data that is to be provided on sea lice infestation levels to ensure that a package of data is available which provides an up-to-date and comprehensive overview of all fish health, welfare and treatment issues across the sector.

The Committee notes the concerns expressed about the transportation and disposal of dead fish, and some members noted negative media reports on the matter. Whilst the Committee has not received any substantive evidence that points to any particular weakness or failing in the specific regulatory regime which covers such matters, it seeks reassurance that it is being both complied with by producers and properly enforced by regulators.

RECOMMENDATION 14

The Committee therefore recommends that a review should be conducted by the Animal and Plant Health Agency of the relevant regulatory and enforcement regime which applies to the transportation and disposal of dead fish to ensure that it remains fit for purpose. This recommendation is consistent with the Committee's general view that there should be a strengthening of regulation which applies to the farmed salmon sector.

Gill Health

The Committee does not underestimate the serious challenge which gill health disease presents to the industry. Indeed, it has difficulty in understanding how expansion of the industry can reasonably occur if this issue is not satisfactorily resolved.

The Committee notes that, as suggested by many witnesses, one of the primary factors contributing to the increase in the prevalence of gill disease is thought to be rising sea temperatures. It considers that the prevailing sea temperature may also become a discussion point around the location of salmon farms in future and whether siting these in deeper, colder water might assist in overcoming the challenge presented by complex gill disease.

The Committee welcomes the prominence given to the gill health issue by the Scottish Government in the Fish Health Framework and its focus on developing a clearer understanding of its causal factors and a treatment approach to mitigate its effect. However, given the acknowledged complexities of this disease and the limited knowledge which exists as to its causes, it would appear that this is not an issue that will be resolved easily or quickly.

Sea Lice

The Committee notes the variety of actions and interventions being undertaken by the sector to address the significant challenge presented by sea lice infestation. However, it is clear that the industry has not as yet identified a means to fully and effectively deal with

this parasite.

The Committee welcomes the wide-ranging proposals in the FHF sea lice workstream, such as the review of voluntary sea lice compliance policy, including reporting mechanisms; the development of sea lice modelling; and an exploration of the potential benefits of site consolidation.

RECOMMENDATION 15

The Committee notes the various views expressed in evidence relation to the different sea lice trigger levels and thresholds that are applied by the industry itself and by Marine Scotland for reporting and intervention purposes. It considers that the work of the FHF provides an opportunity to remove confusion around this issue and develop proposals that are appropriate both to the fish health management needs of the Scottish industry and to the regulatory regime. It considers, however, that these should be challenging and set a threshold that is comparable with the highest international industry standards.

RECOMMENDATION 16

Whilst the Committee recognises that it will take time for the outcomes of the FHF sea lice workstream to emerge, it is strongly of the view that there should in general terms be a move away from a voluntary approach to compliance and reporting with regard to sea lice infestation. The working group should therefore seek to bring forward proposals which make compliance and reporting a mandatory requirement.

RECOMMENDATION 17

The Committee notes the concerns expressed in evidence that enforcement action in relation to breaches of sea lice levels has not been sufficiently robust to date. It is therefore of the view that if the revised compliance policy is to be effective it must be robust, enforceable and include appropriate penalties.

RECOMMENDATION 18

The Committee also considers it to be essential that appropriate staff and financial resources are provided by Marine Scotland to ensure that compliance is effectively monitored and enforcement action taken where required.

Sea lice data

RECOMMENDATION 19

The Committee welcomes the recent voluntary commencement of sea lice data provision by the SSPO on an individual farm basis. However, it agrees with the ECCLR Committee's position that the provision of sea lice data should in future be mandatory for all salmon farms in Scotland.

RECOMMENDATION 20

The Committee notes that the SSPO produces sea lice data 3 months in arrears, whereas such data in Norway is produced weekly in arrears. It considers that sea lice data in Scotland should be published in a similarly timely fashion, as close as possible to the collection date.

RECOMMENDATION 21

The Committee also considers that it is essential that the data provided should be that which is required to inform the regulatory and enforcement regimes, as opposed to that which the industry itself takes it upon itself to produce.

RECOMMENDATION 22

The Committee is strongly of the view that, in order to increase transparency, there needs to be a significant enhancement in the way sea lice data and other key information related to the regulation of salmon farming is presented. It considers that a comprehensive, accessible reporting system of a similar standard to that which is already in operation in Norway should be introduced in Scotland.

RECOMMENDATION 23

If the industry has aspirations to develop and grow, having a comprehensive reporting system which is transparent, reliable and, above all, trusted can only serve it well. The Committee is therefore of the view that there should be a suite of data available covering mortality, sea lice infestation, medicine application and treatment information.

RECOMMENDATION 24

The Committee recognises that there would be a cost element in developing and operating such a system but is of the view that this should not preclude this work being taken forward. It considers that the associated costs should be borne by the industry, and calls on the Scottish Government to discuss with industry representatives how this might be achieved.

RECOMMENDATION 25

The Committee recommends that the working group charged with taking forward the FHF sea lice work stream should consider the production and presentation of sea lice data as an integral part of its work and bring forward proposals in line with the Committee's views.

Sea lice and the use of 'cleaner fish'

The Committee acknowledges the benefits that cleaner fish may have for the salmon industry. However, it recognises that these benefits can only be achieved through careful management of the environmental implications and sustainable use of cleaner fish stocks.

RECOMMENDATION 26

It endorses the ECCLR recommendations on cleaner fish and agrees that there is an urgent need for an assessment of future demand as well as all associated environmental implications of the farming, fishing and use of cleaner fish.

RECOMMENDATION 27

The Committee welcomes the Scottish Government's commitment to "assess whether management measures are appropriate and proportionate to the current and anticipated future levels of sustainable wild wrasse fishing in Scotland" as part of its Fish Health Framework. It would urge the Scottish Government to complete

this assessment as a matter of urgency.

RECOMMENDATION 28

The Committee strongly recommends that the Scottish Government consider the need for regulation of cleaner fish fishing to preserve wild stocks and avoid negative knock on impact in local ecosystems. (see paragraph 249) The Committee welcomes the recent developments in industry breeding programmes as it is aware of the long period required for wrasse to reach sexual maturity. It also welcomes the potential for international cooperation and knowledge sharing on this issue.

Environmental impact of salmon farming Waste

RECOMMENDATION 29

The Committee believes that it is essential that the issue of waste collection and removal is given a high priority by the industry, the Scottish Government and relevant agencies. It is clearly one of the main impacts on the environment and needs to be addressed as a matter of urgency.

RECOMMENDATION 30

The Committee is concerned that the announcement of SEPA's proposals for a new regulatory framework for managing the waste input to the marine environment from fish farm cages, as part of the outcomes of its wider sectoral review, was delayed until November 2018, shortly before this report was finalised. This meant that the Committee was unable to consider the proposals in detail. However, the Committee notes that the proposed new regulations are intended to more effectively manage the waste from salmon farms and avoid adverse impact on the seabed and the biodiversity of sea. The Committee calls on SEPA to keep it updated on the output from its consultation on the proposed framework and ultimately on the detail of how this will be implemented.

Medicine use

RECOMMENDATION 31

The Committee strongly believes in the benefits of transparency for the industry and those interacting with it. It endorses the ECCLR Committee's recommendation that any data and analysis gaps related to the discharge of medicines and chemicals into the environment should be addressed by both the industry and regulators.

The Committee recognises the need to ensure that the licensing regime for medicines is fit for purpose and sufficiently robust to prevent environmental damage or impact on other species. It notes and welcomes the Fish Health Framework workstream which is dedicated to the licensing of fish treatment.

The Committee recognises that as farmers the industry must use medicines to treat illness or disease in their stocks. However, it notes with concern the conclusion of the recent SEPA research which concluded that medicine from Scottish salmon farms "is significantly impacting local marine environments."

RECOMMENDATION 32

The publication of this research leaves the Committee in no doubt that effective regulation of medicine used by the farmed salmon industry is a requirement. In this regard, it welcomes the action by SEPA to the UK Technical Advisory Group (UK TAG) to make recommendations to the Scottish Government on new environmental standards for Emamectin Benzoate. It also calls on SEPA and the Scottish Government to similarly consider the environmental impact of other medicines by the industry.

RECOMMENDATION 33

The Committee also recommends that information and data on medicine use by the industry should be made publicly available, on the same platform as that relating to sea lice and mortality rates. Deterring marine predators The Committee notes the salmon farming industry's action to reduce the number of seals shot and shares the aspiration that this should be reduced to zero. It notes that a range of methods to deter seals are being applied by the industry including physical net barriers and shields.

RECOMMENDATION 34

The Committee shares the view of the ECCLR Committee that such physical barriers should be used ahead of deterrents such as Acoustic Deterrent Devices which potentially have a harmful impact on cetacean species such as whales and dolphins. The Committee considers it important that the use of such devices is fully assessed and it welcomes the fact that Marine Scotland has been asked to review the science to inform future policy in this area. It looks forward to an update on this from the Scottish Government in due course.

RECOMMENDATION 35

The Committee considers it to be important that this work results in the production of appropriate guidelines and best practice advice for use by the industry in responding to various scenarios, such as when seals are trapped in salmon farm cages or in nets. (see paragraph 312)

RECOMMENDATION 36

The Committee also looks forward to an update from the Scottish Government on its investigations into how the upcoming legislation change in the United States regarding seal shooting may negatively impact on its imports of Scottish salmon.

Wild fish/farmed fish interactions

The Committee has heard from the industry that escapes do not currently appear to be a significant issue in Scotland. However, it cautions against complacency on this issue as there is potential for even a single escape event to have a significant impact on the genetic integrity of wild salmon.

RECOMMENDATION 37

The Committee notes that strict penalties are in place in Norway to deal with escapes and recommends that appropriate sanctions should be developed and introduced in Scotland.

The Committee understands the concerns expressed by some in evidence that the presence of sea lice around salmon farms could be impacting on wild salmon migratory routes, in particular on smolts.

The Committee acknowledges that there are likely to be a range of factors that have contributed to the decline in wild salmon stocks over recent decades, and considers that it is possible sea lice attracted by the presence of salmon farms could be one. However, it also recognises that there is a lack of definitive scientific evidence on this issue.

The Committee welcomes the Scottish Government initiative to set up a working group to look at existing policy and advice governing these issues and to produce recommendations on how interaction between wild and farmed salmon can be taken forward in the future.

RECOMMENDATION 38

However, it suggests that there needs to be a recognition that any work taken forward on this issue in the short term may be hampered by a lack of scientific data. The Committee supports the proposal from the ECCLR committee for more research into the interactions between farmed and wild salmon, as a matter of priority, although it acknowledges the evidence heard which suggests that this may be difficult to deliver.

RECOMMENDATION 39

The Committee also encourages both the farmed salmon and wild salmon sectors to share information and data as transparently as possible in order to improve understanding as to why wild salmon stocks are decreasing.

RECOMMENDATION 40

Although there is a lack of definitive scientific evidence of the various factors that are contributing to the decline of wild salmon stocks, the Committee is nevertheless of the view that a precautionary approach should be taken which will seek to minimise the potential risk to wild salmon stocks wherever possible.

RECOMMENDATION 41

The Committee suggests that the siting of salmon farms is key to managing any potential risk to wild salmon stocks and ensuring that the sector is managed responsibly and sustainably.

RECOMMENDATION 42

The Committee notes concerns expressed in evidence that none of the existing regulatory bodies currently has responsibility for the impact of salmon farms on wild salmon stocks. The Committee believes that clarity must be provided by the Scottish Government as to how this apparent regulatory gap will be filled and which agency will assume responsibility for its management.

Collaboration between salmon farming and wild fisheries sectors

The Committee notes that significant friction exists between the farmed salmon and wild fisheries sectors in particular catchment areas close to wild salmon migratory routes, with

disagreements focussing on the impact of salmon farms on wild fish health and stocks.

Whilst the Committee understands why such friction and mistrust develops, it recognises that the situation is not helped by the fact that there is a distinct lack of scientific evidence and data to support or dismiss claims. This further highlights the need for more research to be conducted on the reasons behind the decline in wild salmon stocks and the potential contribution that salmon farming may have on these.

RECOMMENDATION 43

The Committee is of the view that there is a need for both sectors to co-exist and it considers it to be essential that there is greater collaboration to resolve local management issues and other areas of concern.

The Committee notes that there are examples of good relationships between the sectors in certain areas of Scotland. During its inquiry, the Committee was fortunate in being able undertake a fact-finding visit to hear at first hand about innovative and collaborative working between a fisheries board and a farmed salmon operator on a project which aimed to boost wild salmon stocks. It is in no doubt that if issues of mutual interest to both sectors are to be properly managed, there needs to be close, constructive and effective engagement between representatives of both sectors on a widespread basis. This needs to occur at both a local level, between local fisheries boards and farmed salmon operators and at a national, strategic level between the relevant representative groups.

RECOMMENDATION 44

The Committee recommends that mechanisms to encourage such collaboration between the sectors should be further developed and introduced. It further recommends that the Scottish Government's wild salmon interactions group should, as part of its work, address this matter as a priority.

Location of salmon farms

RECOMMENDATION 45

The Committee shares the view of the ECCLR Committee that the siting of farms in the vicinity of known migratory routes for wild salmon must be avoided.

The Committee understands that there is at present only limited empirical scientific evidence to suggest that wild salmon are infected by sea lice as they pass salmon farms. However, it is noted that the Norwegian Government has taken the decision to act decisively on this matter. It applies a strict precautionary approach and does not issue licences for salmon farms in the vicinity of wild salmon routes.

RECOMMENDATION 46

The Committee is of the view that a similar precautionary approach must be taken in Scotland to assist in mitigating any potential impact of sea lice infestation on wild salmon. It therefore recommends that there should be an immediate and proactive shift towards siting new farms in more suitable areas away from migratory routes and that this should be highlighted in the strategic guidance on the siting of salmon farms.

RECOMMENDATION 47

The Committee recognises that it will take time for the range of current activity by the Scottish Government (e.g. Fish Health Framework initiatives, consenting review) and regulatory bodies (e.g. SEPA finfish sector review) and action on the Committee's recommendations to be completed, with outcomes known, agreed and implemented.

Therefore, until this work is completed and the enhanced regulatory and enforcement regime is in place, the precautionary principle should be applied in a meaningful and effective manner in relation to applications for new sites and expansion of existing sites.

RECOMMENDATION 48

The Scottish Government should provide strong and clear leadership in ensuring that the precautionary principle is applied, producing appropriate policy and guidance documents as necessary. These should make clear that the potential impact on the environment, known wild salmon migratory routes and other species must be comprehensively and robustly assessed and fully taken into account as part of the consideration of salmon farm applications.

RECOMMENDATION 49

The Scottish Government should support and assist planning authorities by producing planning guidance which sets out clearly how the precautionary principle should be applied and managed.

RECOMMENDATION 50

Support should also be provided to local authorities to enable planning committees to have access to appropriate training resources so that decisions on applications for salmon farms can be better informed.

The Committee is in agreement with evidence which suggests that taking a more strategic approach to the siting of salmon farms in Scotland would be beneficial, not least in identifying the environmental suitability of both inshore and offshore locations for such developments.

RECOMMENDATION 51

It is therefore of the view that the Scottish Government should, as a matter of priority, initiate a spatial planning exercise with a view to developing strategic guidance specifying those areas across Scotland that are suitable or unsuitable for siting of salmon farms. This work should take full account of existing strategic documents such as the Marine Plan, and incorporate an assessment of the potential impact of salmon farms on Marine Protected Areas (MPAs) and Priority Marine Feature (PMFs) and the species which inhabit them.

The Committee recognises that such work will require input from the wide range of regulatory and advisory bodies which have responsibility for or engage with the sector and may therefore take some time to produce. However, it notes that Marine Scotland is already working to develop heat maps which would identify areas suitable for farmed salmon expansion and is of the view that this work might usefully inform a wider spatial planning exercise.

RECOMMENDATION 52

The Committee acknowledges the role of planning authorities in considering and deciding on planning applications for salmon farms, taking into account a range of social, economic and environmental factors. However, it is of the view that strategic guidance on the siting of salmon farms should also be viewed as a material consideration in planning terms, which would help guide the industry in making applications and planning authorities in deciding on these. The Committee calls on the Scottish Government to consider how this might operate in practice and to consider whether any changes in planning guidance might be required.

Potential relocation of existing sites

The Committee notes that as the salmon industry in Scotland has evolved in recent decades, farms may have been located in areas which are now recognised as being environmentally sensitive (such as MPAs or PMFs) or are less well-suited to production for a variety of reasons. It welcomes the fact that some operators are already actively looking to relocate poorly sited farms or to consolidate farms in less sensitive areas.

RECOMMENDATION 53

However, the Committee considers that there should be immediate dialogue with the industry to identify scope for moving existing poorly sited farms. It recommends that this should be led by Marine Scotland and encouraged with appropriate incentives for operators, such as giving favourable consideration towards allowing increased capacity at replacement sites that are known not to be environmentally sensitive. The Committee considers it to be important, however, that there is no deviation from due process in terms of granting approval for replacement sites.

Challenges of moving to more exposed sites

RECOMMENDATION 54

The Committee recommends that work to examine the scope for siting salmon farms in suitable offshore and other locations where there are higher energy water flows should also be treated as a high priority by the industry. It acknowledges that there are significant technological challenges associated with locating farms in these areas, as well as risks in terms of workforce health and safety. However, it also notes the benefits this could bring in terms of addressing fish health issues, reducing the environmental impact of waste and providing scope for the industry to develop higher capacity sites.

RECOMMENDATION 55

The Committee further recommends that the Scottish Government should consider how the regulatory framework which applies to the industry might need to be adapted to suit the particular circumstances of offshore aquaculture.

Closed containment

The Committee recognises that the development of closed containment facilities could have a significant positive impact on the farmed salmon industry and has the potential to address many of the environmental challenges it faces. However, it also recognises that the development of this technology has its own challenges in terms of large scale roll out. These include its physical footprint whether on land or at sea; energy costs; carbon output;

stock welfare issues; and the potentially negative impact on perceptions of provenance and quality.

RECOMMENDATION 56

The Committee endorses the ECCLR Committee's recommendation for urgent research on the subject and the consideration of ways to incentivise the industry to explore further use of the technology. However, it is aware that RAS is not the only closed containment option and would encourage wider research on alternative technologies.

Climate change

The Committee acknowledges the wider impact of climate change and the challenges it brings to both the wild and farmed salmon sectors. It welcomes the Scottish Government's focus on climate change in its Fish Health Framework and looks forward to receiving early feedback on its progress.

Research on the impact of salmon farming

RECOMMENDATION 57

The Committee notes that the ECCLR Committee's report identified a range of significant gaps in knowledge, data, analysis and monitoring around the adverse risk the sector poses to the environment. It strongly endorses the ECCLR Committee recommendation on the need for more research in these areas.

RECOMMENDATION 58

However, the Committee acknowledges the challenges inherent in the collection and processing of this data. It calls on the industry and all other relevant bodies and organisations to work together to overcome the barriers of the scale of the task and the challenge of securing appropriate funding for that research. In particular, it agrees that there should be a requirement for the industry to contribute finance, expertise and other relevant resources to independent research. The Committee calls on the Scottish Government to consider how an appropriate mechanism can be introduced.

Regulation and consent

The Committee notes the views provided by stakeholders on the efficacy of the current regulatory and consenting regime. Whilst some of those who have commented consider it to be adequate, the Committee shares the views of the majority of those who provided evidence who consider that a more robust and integrated regime is required.

From the evidence it has received, the Committee has gained the strong impression that the farmed salmon sector in Scotland has been subjected to what might be described as "light touch" regulation and enforcement to date as the relatively young industry has developed.

However, in recent years a range of fish health and environmental challenges have emerged and whilst it is clear that the industry is working hard to address these, the Committee is of the view that the regulatory regime has failed to keep pace with them.

RECOMMENDATION 59

The Committee also notes and shares the concerns expressed in evidence that the current consenting and regulatory framework which is spread across several regulatory bodies is confusing and is poorly coordinated. It is of the view that the co-ordination of and interaction between the various elements of the regulatory regime needs to be significantly improved. The Committee recommends that Marine Scotland should be tasked with taking responsibility in delivering the necessary improvements and in taking on an overarching co-ordinating role.

It is also clear to the Committee that the application of visible enforcement by regulatory bodies has been limited. It is of the view that robust enforcement of regulatory standards is absolutely essential if they are to meet their intended purpose.

The farmed salmon industry is of significant value to Scotland's rural and wider economy. If this value is to be maintained and the industry is to grow, the Committee is in no doubt that it must be seen by consumers and markets to be meeting highest international production, fish health and environmental standards. It notes that should other producing nations operate under significantly more robust regulatory frameworks designed to raise standards, this could provide them with an advantage in terms of provenance.

RECOMMENDATION 60

The Committee is therefore of the view that maintaining the status quo in terms of the regulatory regime in Scotland is not an option. It considers that there is a need to raise the bar in Scotland by setting enhanced and effective regulatory standards to ensure that that fish health issues are properly managed and the impact on the environment is kept to an absolute minimum. The Committee therefore recommends that a comprehensively updated package of regulation should be developed by Marine Scotland and other regulatory bodies, both to ensure the sector will be managed effectively and to provide a strong foundation on which it can grow in a sustainable manner.

The Committee is firmly of the view that a stricter regulatory and consenting regime - that is also fair and proportionate - can only benefit the sector, helping to drive improvement and giving it confidence that it is meeting its environmental responsibilities.

The Committee is aware that some of the larger salmon farming companies in Scotland are already operating under a stricter regulatory regime in Norway and suggests that they would have little difficulty in making a transition should stricter regulations come into force in Scotland. Indeed, the Committee notes that some producers indicated in evidence that they recognise the benefits of enhanced regulation relevant to Scotland and would not be opposed to it.

The Committee recognises that there are a range of current exercises such as the Scottish Government's consenting review; the consultation by SEPA on the new regulatory proposals set out in its draft Finfish Aquaculture Sector Plan; and the Fish Health Framework workstreams which provide an opportunity to make tangible improvements to the way in which the sector is operated and managed. It welcomes this package of work and considers it essential that the outcomes from it result in proposals for change in certain elements of the regulatory framework.

RECOMMENDATION 61

However, the Committee calls on the Scottish Government to conduct a review of those other aspects of the regulatory framework that are not covered by these exercises.

Role of SEPA in consenting and regulation

The Committee shares the view of the ECCLR Committee that the regulatory tools currently available to SEPA are neither adequate nor effective. It also endorses that Committee's concerns that SEPA has not been performing well in monitoring the environmental performance of the industry or in enforcing the regulations which relate to its responsibilities.

The Committee is concerned that the sector has shown very poor rates of compliance with SEPA's current standards. This is borne out by the results of its compliance assessment process for 2017 which showed an increase in the number of salmon farms which had failed to meet the required standards.

The Committee welcomes SEPA's acceptance that a strengthening of environmental protection measures is necessary and that proposals for delivering this feature in its draft Sector Plan. However, the Committee again states its concern that the publication of the sector plan was delayed and that it has therefore been unable to comment in detail on these proposals in this report.

RECOMMENDATION 62

The Committee considers it to be essential that SEPA introduces a significantly enhanced regulatory and monitoring regime under which it will robustly and effectively enforce compliance with environmental standards. It therefore welcomes the inclusion in SEPA's draft sector plan of consultation proposals to more effectively monitor the environmental performance of the industry and, improve compliance levels.

Regulator information and transparency

RECOMMENDATION 63

The Committee is of the view that a key part of any improvement in the enforcement of regulation should be the introduction of mechanisms to provide more open and transparent reporting of regulatory breaches. It is also strongly recommends that any changes to the enforcement regime should incorporate measures which will ensure that there is a move away from the self-assessment culture that appears to be prevalent at present.

Local authorities and the planning process

RECOMMENDATION 64

The Committee notes that the Scottish Government is currently undertaking a consenting review. It requests an update on this exercise, including details of whether the outcome is likely to impact on the role of planning authorities in considering applications for salmon farms.

Financing of regulation

The Committee considers effective enforcement with appropriate penalties to be of significant importance in ensuring the industry complies with regulatory standards. It is also of the view that this is a necessary requirement should the industry wish to expand in a sustainable manner without causing damage to the environment. The Committee notes that SEPA now has additional tools at its disposal to raise revenue through enforcement action. However, it is concerned that it has taken four years since the relevant statutory powers were granted for these tools to be introduced.

The Committee welcomes SEPA's statement in its draft Finfish Aquaculture Sector Plan that it will apply monetary penalties to those who fail to comply with its proposed strengthened regulatory standards.

RECOMMENDATION 65

The Committee notes the indication that consideration of licence auctions for farmed salmon sites will be included as part of the Scottish Government's consenting review. It also notes the Cabinet Secretary's suggestion that licence fee structures could be used in Scotland to incentivise the use of new technologies. However, the Committee cautions that careful thought would have to be given as to how the implementation of any such measures would ensure a fair market and avoid smaller operators and local communities being marginalised or excluded. The Committee calls on the Scottish Government to provide it with details of the outcomes of its consideration of these matters in due course.

Annexe B - Extract of minutes

Annexe B: Extract of minutes

16th Meeting, 2024 (Session 6), Wednesday 5 June 2024

Follow-up inquiry into salmon farming in Scotland: The Committee took evidence from— Sean Black, Senior Scientific Officer for Aquaculture, Royal Society for the Prevention of Cruelty to Animals; John Aitchison, Aquaculture Group, Coastal Communities Network; Sarah Evans, Aquaculture Policy Officer, Marine Conservation Society; and Rachel Mulrenan, Scotland Director, WildFish.

and then from— Dr Annette Boerlage, Research Fellow in Aquatic Epidemiology, School of Veterinary Medicine, Scotland's Rural College; Professor Simon MacKenzie, Head of the Institute of Aquaculture, University of Stirling; Professor Sam Martin, Director of Research, School of Biological Sciences, University of Aberdeen; Dr Helena Reinardy, Lecturer and Teaching Fellow, Scottish Association for Marine Science; and Professor Lynne Sneddon, Chair in Zoophysiology, Department of Biological and Environmental Sciences, University of Gothenburg.

17th Meeting, 2024 (Session 6), Wednesday 12 June 2024

Follow-up inquiry into salmon farming in Scotland: The Committee took evidence from— Charles Allan, Group Leader, Fish Health Inspectorate, Scottish Government.

Follow-up inquiry into salmon in Scotland (In Private): The Committee considered a work programme paper.

18th Meeting, 2024 (Session 6), Wednesday 19 June 2024

Follow-up inquiry into salmon farming in Scotland:

The Committee took evidence from— Professor Nick Owens, SSAC Member and Christine Lawson, Head of SSAC Secretariat, Scottish Science Advisory Council;

and then from— Lin Bunten, Chief Operating Officer, Regulation, Business and Environment and Mike Montague, Aquaculture Specialist, Scottish Environment Protection Agency.

19th Meeting, 2024 (Session 6), Wednesday 26 June 2024

Follow-up inquiry into salmon farming in Scotland: The Committee took evidence from— John Goodlad, Chair, Salmon Interactions Working Group;

and then from— Dr Alan Wells, Chief Executive, Fisheries Management Scotland.

22nd Meeting, 2024 (Session 6), Wednesday 18 September 2024

Follow-up inquiry into salmon farming in Scotland: The Committee took evidence from— Highland Council; Ronan O'Hara, Chief Executive, Crown Estate Scotland; and Dr Rachel Shucksmith, Marine Spatial Planning Manager, University of the Highlands and Islands.

24th Meeting, 2024 (Session 6), Wednesday 2 October 2024

Follow-up inquiry into salmon farming in Scotland: The Committee took evidence from— Ben Hadfield, Chief Operating Officer Farming Scotland, Ireland, Faroes and Atlantic Canada, Mowi Scotland; Tavish Scott, Chief Executive, Salmon Scotland; Dr Ralph Bickerdike, Head of Fish Health, Scottish Sea Farms; David Brown, Shetland Seawater Manager, Cooke Scotland; Kimberley McKinnell, Head of Health, Bakkafrost Scotland; and Constance Pattillo, Head of Farming Operations, Wester Ross Salmon.

28th Meeting, 2024 (Session 6), Wednesday 13 November 2024

Follow-up inquiry into salmon farming in Scotland: The Committee took evidence from— Mairi Gougeon, Cabinet Secretary for Rural Affairs, Land Reform and Islands, supported by Jill Barber, Senior Delivery Lead, Aquaculture Programme, Hazel Bartels, Senior Delivery Lead, Aquaculture Programme and Charles Allan, Senior Delivery Lead, Aquaculture, Fish Health and Biosecurity, Marine Directorate, Scottish Government.

30th Meeting, 2024 (Session 6), Wednesday 11 December 2024

Follow-up inquiry into salmon farming in Scotland (in private): The Committee considered a draft report.

31st Meeting, 2024 (Session 6), Wednesday 18 December 2024

Follow-up inquiry into salmon farming in Scotland (in private): The Committee considered a draft report. Various changes were agreed to. The Committee agreed to consider a revised draft at a future meeting.

1st Meeting, 2025 (Session 6), Wednesday 8 January 2025

Follow-up inquiry into salmon farming in Scotland (in private): The Committee considered a draft report. Various changes were agreed to. The Committee agreed to consider a revised draft at a future meeting.

2nd Meeting, 2025 (Session 6), Wednesday 15 January 2025

Follow-up inquiry into salmon farming in Scotland (in private): The Committee considered a draft report. Various changes were agreed to, and the report was agreed for publication.

Annexe C - Glossary

Animal and Plant Health Agency (APHA)	An executive agency with responsibilities for investigating and upholding animal welfare standards at salmon farms.
Animal Welfare Commission	A group of 12 commissioners tasked by the Scottish Government with assessing the welfare needs of sentient animals and considering possible legislative and policy actions to protect animal welfare
Crown Estate Scotland	A body that operates on behalf of the Monarch to manage land and property owned by the Crown. Crown Estate Scotland may licence the use of seabed to producers for the purpose of salmon farming in return for revenues generated through leasing agreements.
Coastal Communities Network	An alliance of community-based groups and local organisation with aims to environmentally protect marine and coastal areas in Scotland
Environmental Standards Scotland (ESS)	Public body established in the UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021 with the purpose of assessing the effectiveness of environmental law in Scotland and monitoring the performance of public bodies to ensure compliance with their environmental obligations.
Fish Health Inspectorate (FHI)	A department within the Scottish Government's Marine Directorate with responsibility for providing fish health surveillance at salmon farms to prevent the spread of listed diseases in aquatic animals.
Fisheries Management Scotland (FMS)	A representative body for Scotland's District Salmon Fishery Boards, the River Tweed Commission and charitable Rivers and Fisheries Trusts. Its website states that its members "work to conserve Scotland's valuable and iconic wild salmon and freshwater fish and fisheries and the aquatic environment on which they depend."
Marine Directorate	A Directorate of the Scottish Government with responsibility for the "integrated management of Scotland's Seas".
Marine Conservation Society	A UK-wide marine and wildlife conservation charity
NatureScot	Public body with responsibility for Scotland's natural heritage and biodiversity
RSPCA Scotland	The RSPCA is a charity that operates to reduce cruelty of animals. and promote high animal welfare standards.
Salmon Interactions Working Group (SIWG)	A working group set up in 2018 and comprised of representatives from aquaculture and wild fisheries sectors, Government and regulators. The group was tasked with examining current policies that governed interactions between wild salmonids and farmed salmon and recommending improvements to the Scottish Government. The group published its report in April 2020 which set out 42 recommendations including proposals to improve the enforcement and regulatory framework for governing the interactions and foster stronger relations between wild salmon and farmed salmon sectors.
Salmon Scotland	Trade body that represents the Scottish salmon farming sector
Scottish Association for Marine Science (SAMS)	An independent marine science organisation that conducts research and educational programmes that promote the sustainability of the marine environment.
Scottish Environment Protection Agency (SEPA)	An independent regulator with responsibilities pertaining to mitigating the environmental impacts of finfish aquaculture on the water environment in Scotland through Controlled Activities Regulation licences issued to developers.
Scottish Science Advisory Council (SSAC)	An independent science advisory body that provides policy advice and support to the Scottish Government based on the use of scientific evidence.
Wildfish	A UK-wide charity campaigning for wild fish and their environment
UK Technical Advisory Group (UKTAG)	A group tasked with considering scientific literature and providing policy advice on policy and regulation to Governments across the UK.