Review of the Report of the Salmon Interactions Working Group

May 2020

Executive summary

Salmon and Trout Conservation Scotland's 2016 Petition to the Scottish Parliament led to the 2018 ECCLR and REC Committee inquiries into salmon farming. The REC Committee identified that *"the 'status quo' in terms of regulation and enforcement of the fish farming industry is not acceptable*".

In response, the Scottish Government tasked the SIWG to look at the conclusions of the Committees, evaluate current policy and advice governing interactions and make recommendations. However, the requirement that the SIWG must reach consensus has prevented the SIWG from bringing forward recommendations that fully address the damage being caused to wild salmonids (salmon and sea trout) by fish farming.

The SIWG has also moved beyond the remit of wild/farmed salmon interactions, considering the wider conservation of wild salmonids and has adopted the 'narrative', pushed by Scottish Government and the fish farming industry since 2018, that the impact of fish farms is only one of a large number of pressures upon wild salmonids.

Linkages made by SIWG between reforming the regulation of fish farming and the wider funding of conservation and research into wild salmonids, and the resourcing of DSFBs and Fishery Trusts, are concerning.

Although the proposed move to licensing, and away from planning, as a means to control the impacts of fish farms on wild salmonids is welcome, overall, the recommendations made by SIWG do not amount to a licensing system that would yet be capable of being "robust, transparent, enforceable and enforced" (SIWG, 1.2).

The SIWG makes no reference to the precautionary approach recommended by both the REC and ECCLR Committees. The SIWG's proposed system of adaptive management, without precautionary underpinning, will fail to protect wild salmonids.

The SIWG's proposed system would mean that unless there is strong proof that damage is being caused to wild fish, no action needs be taken to improve fish farm performance in respect of sea-lice and diseases (SIWG, 2.2). The same principle would apply when considering closing poorly-sited existing farms (SIWG, 1.14).

There is no requirement for independent monitoring of sea lice number on farms, nor of wild fish.

The SIWG fails to recommend or set any precautionary 'backstop' limits for on-farm sea lice, to be set in line with best international standards.

The SIWG fails also to recognise the wider public interest in wild salmonid conservation beyond the interests of fishery proprietors as represented by the DSFBs.

The SIWG recommendations do not meet the rights of the public, guaranteed under the Aarhus Convention, to access to information and to participate in decision-making in environmental matters, in relation to the control of impacts of fish farms on wild fish.

In order to provide a proper basis on which the reform of fish farming regulation can proceed, S&TCS recommends that:

1. A strongly precautionary approach must be applied from the outset to the licensing of both new and existing farms, in line with the recommendations of both REC and ECCLR Committees.

2. There must be a back-stop adult female sea lice maximum on all fish farms, rigorously enforced by tough and prompt action, set at 0.5 per farmed fish, dropping to 0.1 during the period of wild smolt emigration, to set a precautionary ceiling on sea lice numbers , below which adaptive management can then be applied.

3. There must be full publication of all relevant data and information and, specifically, individual farm sea-lice numbers and treatment data must be published in as close to real time as possible.

4. There must be strong independence in both the monitoring of sea lice counts on-farm and of wild fish monitoring, and in the assessment of that data.

5. There must be provision for full and proper public participation in the licensing system and adaptive management processes envisaged by the SIWG.

1. Introduction

S&TCS has long been concerned about the proven negative effects of salmon and rainbow trout farming at sea on wild salmonids - both Atlantic salmon and sea trout. These concerns have been set out in great detail by S&TCS in the last two to three years in written and oral evidence to the both ECCLR and REC Committees during 2017 and 2018 and by numerous scientific reviews, both domestic and international[1].

To understand the context within which the SIWG has now produced its report, it is important to understand why and how the SIWG was set up.

It was S&TCS' Petition to the Scottish Parliament, lodged in February 2016, that led directly to the 2018 ECCLR and REC Committee inquiries and the two reports of those Committees. The REC Committee's Report, Recommendation 2:

"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".

In part of its response, the Scottish Government set up the SIWG and tasked it with the following (SIWG, Introduction, page 3):

> *"consider the evidence coming from the ECCLR and REC Committee inquiries (including the literature review undertaken by Scottish Association of Marine Science), and any other work, concerning the environmental impacts of salmon and trout farms on wild salmonids;*
>
> *review current Scottish Government policy and advice governing wild/farmed salmon interactions including, but not limited to, sea lice, pathogens and escapes;*
>
> *review the actions required to monitor and mitigate the impact of farmed salmon and trout on wild salmonids (including through Environmental Management Plans, or other future regulatory mechanisms) so that any impact is reduced in accordance with our international and domestic obligations;*
>
> *make recommendations, including a delivery plan of agreed actions and timescales, for a future interactions approach, including the need for any further research, changes to the regulatory regime, including planning advice and environmental monitoring; and the potential use of 'adaptive management' techniques, including the management of risk".*

It is noteworthy from the initial statement identifying the remit of the SIWG[2], that the role of the group changed over time. For example, the initial remit did not expressly mention 'adaptive

[1] See, for example, Thorstad, E.B. & Finstad, B. 2018. *Impacts of salmon lice emanating from salmon farms on wild Atlantic salmon and sea trout.* NINA Report 1449: 1-22. Trondheim, Norway, January 2018. Norwegian Institute for Nature Research

[2] See https://www2.gov.scot/Topics/marine/Salmon-Trout-Coarse/salmon

management', nor the literature review undertaken for the ECCLR Committee by Scottish Association of Marine Science[3], which promoted the adoption of adaptive management:

> *"A Salmon Interactions Workstream has been launched to look, in part, at the reasons behind the decline in Scottish Atlantic salmon….Initially, the Group will:*
>
> *Look at the conclusions and any emerging recommendations from the Parliamentary Inquiries into farmed salmon in Scotland*
>
> *Evaluate current Scottish Government policy and advice governing wild/farmed salmon sea lice interactions, and review the existing and planned projects around the interactions*
>
> *Make recommendations, including a delivery plan of agreed actions and timescales, for a future interactions approach".*

2. The requirement for consensus on the SIWG

It has to be recognised that the SIWG was very likely to fail to deliver sufficiently robust findings from its outset, because wild fishery interests, represented only by Fisheries Management Scotland, were required to find consensus with the fish farming industry.

There are a number of obvious reasons this was bound to come up short.

This was not a negotiation where both parties are causing damage to the each other's business or interests and so some 'middle ground' could be found by agreement.

Wild salmonids are a natural phenomenon. The wild fishery interests do not 'control' wild fish populations, in any sensible understanding of that word, nor do they 'own' them. The presence of wild fish populations is not, in any way, a controllable feature of the environment or something that should indeed be controlled to protect the fish farming industry. Importantly, there is no sense in which wild fishery interests on the SIWG, represented by FMS, are harming the activities of the fish farming industry.

The fish farming industry on the other hand owns and controls its operations and its farmed fish, but, as the REC and ECCLR Committees heard, operates in a way that fails to internalise the environmental costs associated with farmed fish production, whether those be from the release of huge quantities of organic wastes harming the sea bed, the release of chemical treatment residues harming non-target wild and harvestable shellfish species, the escape of farmed fish leading to genetic introgression of wild populations, or the release of sea lice at levels many orders of magnitude above what might be considered natural background levels, by virtue of the huge numbers of farmed salmon held at any one time in the cages, that kills wild salmonid fish.

The wild fishery interests on SIWG represent a massively under-resourced group of charitable Fishery Trusts, and the DSFBs dependent on an historic levy system which has, in the aquaculture zone, clearly failed to provide adequate resources.

The fish-farming industry, represented by the SSPO, is a group of significant multinational companies that operate globally, that have legal and public relations budgets that dwarf anything the wild

[3] Report available at https://www.parliament.scot/S5_Environment/General%20Documents/20180125_SAMS_Review_of_Environmental_Impact_of_Salmon_Farming_-_Report.pdf

fishery interests on SIWG can muster. It is naïve to suggest they have anything other than very strong commercial interests in continuing to operate as freely as they currently do, if not more so.

From the outset, therefore, it is clear that the SIWG was hamstrung by the Scottish Government's decision to give the fish farmers an effective veto on any SIWG recommendations which they did not like, or which went against their business interests.

This is the direct result of the Scottish Government failing to take the initiative to impose the necessary restrictions on the fish farmers to stop the unacceptable harm to wild salmonids. In short, for failing to govern. It seems that, for wider political reasons that are outside the scope of this Review, the Scottish Government had not wanted to allow a process to develop that would be restrictive to the fish farmers either in terms of the operation of its existing farms or in terms of the massive growth of the industry that is planned[4].

In that context, it is noteworthy that of the 25 meetings, shown below, that Cabinet Secretary Fergus Ewing MSP has had with the SSPO and the fish farming companies since May 2016, there have been no records kept of what was discussed or who attended, according to Marine Scotland because "*that it is not normal practice to keep written records of meetings between the Cabinet Secretary and the fish farm companies, because the parties attending these meetings do not consider it necessary*".

Organisation/Company/Group	Meetings
SSPO	4
Marine Harvest (now Mowi)	6
Scottish Salmon Company	3
Scottish Sea Farms	2
Loch Duart Limited	1
Dawnfresh Farming Limited	6
Greig Seafood	2
Cooke Aquaculture Scotland	1

3. The Government and industry's preferred narrative on wild salmonids

Far from keeping to its initial remit, as set out in the Introduction to its report, the SIWG has in fact moved far beyond that remit, dealing not just with wild fish/ farmed fish interactions, but considering the wider conservation of wild salmonids.

This has been necessary to allow the SIWG to adopt the new 'narrative', that has been pushed very hard in recent months by Scottish Government and the fish farming industry, that the impact of fish farms on wild salmonids is only one of a large number of pressures impacting upon and threatening wild salmonids, in order to downplay the significance of both the ECCLR and REC Committee reports and thereby reduce the response that the Scottish Government and fish farming industry needs to make those reports.

While, of course, there are other pressures and impacts on wild salmonids, their relative impact and therefore importance is not considered in this 'narrative'. However, the political and public relations

[4] See, for example, SAMS Report, page 1 http://www.parliament.scot/S5_Environment/General%20Documents/20180125_SAMS_Review_of_Environmental_Impact_of_Salmon_Farming_-_Report.pdf

advantages to the fish farming industry, of being able to point to a large number of other potential causes of the decline of salmon and sea trout in the aquaculture zone, are clear and obvious, even though there is little or no evidence for some of them having anything more than a trivial or insignificant impact to wild salmonids in the aquaculture zone of the west of Scotland and the islands.

The full list of potential pressures on wild salmonids identified by Scottish Government (see https://www2.gov.scot/Topics/marine/Salmon-Trout-Coarse/fishreform/licence/status/Pressures) is:

Exploitation
Illegal exploitation, legal commercial (which includes coastal netting) and rod and line
Predation / Competition
Piscivorous birds, piscivorous fish, seals and other
Fish health
Disease, sea lice and other parasites
Genetic introgression
Stocking, escapees
Invasive non-native species
Crayfish, fish - including pink salmon - and others
Habitat - Water quality
Acidification, point-source pollution, diffuse pollution, other pollution, changing rainfall patterns, eutrophication, oligotrophication
Habitat - Water quantity
Abstraction, flow regulation, upland / agriculture land-use and drainage, changing rainfall patterns, forestry drainage
Habitat - Thermal
Loss of shading, over-shading, changing temperature patterns, thermal discharge, impoundment modification and other
Habitat - Instream
Sedimentation, loss of sediment transfer, lack of, or excessive, large woody debris, canalisation / dredging/boulder removal
Habitat - Riparian
Loss of natural riparian vegetation, conifer afforestation
Barriers to migration
Upstream passage (consider cumulative impacts), downstream passage and other
Coastal and Marine
Inshore commercial fisheries, developments – including wind/wave/energy projects and others

Many of the other pressures have been somewhat 'subdivided', swelling the numbers of non-fish-farm related pressures. Many do not apply, greatly or at all, to rivers in the aquaculture zone, or are of far less significance to wild salmonids that fish-farm related impacts.

For example, commercial exploitation by netting has stopped, largely due to an S&TCS complaint to Europe Commission and the threat of infraction proceedings against the Scottish Government for failing to comply with EU law. Acidification, although it is a significant problem in the rivers of Dumfries and Galloway, is less of an issue elsewhere. Stocking with anything other than native fish is not permitted by any DSFB or by Marine Scotland anywhere in Scotland and, indeed, almost all stocking to try to enhance wild populations has ended, because overwhelmingly the evidence shows that it does not work and can do more harm than good. While many of the habitat issues listed apply

strongly to larger east coast rivers, again they will not carry the same influence on wild salmonids on the west coast and in the islands, relative to the pervasive impact of salmon and rainbow trout farms, as identified by both the REC and ECCLR Committees.

However, a cursory look at the list above will identify two serious pressures on the west coast and in the islands that are very strongly fish-farm related – fish health (farm-derived sea lice and disease) and genetic introgression (escapes of farmed fish). Nevertheless, the SIWG has allowed its report to play up to the 'narrative' that fish farming is only a minor or 'bit-part' player in the overall problems for wild salmonids in the aquaculture zone:

"The reasons for this [decline] are complex and not yet fully understood. The Scottish Government has identified twelve groups of hazards, including fish farming, that may contribute to the decline of wild salmonids" (SIWG, Chair's Forward, first line, page 2)

"It is recognised that a range of hazards have contributed to the decline of wild Atlantic salmon and the Scottish Government has identified 12 high level pressure groups that require further investigation" (SIWG, Introduction, page 3)

It appears the wild fishery interests on the SIWG have had no choice but to agree with this 'narrative', that *"The focus of fisheries management in Scotland is therefore to improve freshwater habitat and address issues that we can control, with a view to ensuring the maximum number of healthy, wild smolts leave our rivers*". (SIWG, Wild salmonids, page 11).

On aquaculture, instead of accepting the evidence that fish farming has a serious impact, the SIWG can only acknowledge that: "*It is well known that the interaction between aquaculture and wild salmonids is controversial and many strong views are held from different perspectives".* (SIWG, Chair's Forward, page 2)

It is perhaps not that surprising therefore that the SSPO, in its release on the SIWG report, on the day the report was published, commented:

"The Scottish Government has identified 12 potential pressures to wild salmonids in Scotland that it wishes to explore, of which wild/farmed salmon interactions is just one. However, as farmers, our members have an acute appreciation of the need to maintain and protect the natural balance of the habitats in which we live and work, and as such have been keen to lend their insights and experience from day one of discussions.

With the results of those recommendations now released, our hope is that these newly forged ties between the different stakeholders can continue, with both wild and farmed interests learning from the other. In particular, Scotland's salmon farmers have shown their commitment to best practice by going further with transparency and data reporting than almost all international counterparts. We would now like to see the wild fish sector match our level of transparency and frequency of reporting to help us all better understand what is really happening to Scotland's wild salmon stocks.

Equally, we look forward to governmental bodies addressing the other 11 identified pressures to wild salmon and trout in an equally thorough manner in the near future.

Amongst the 12 identified potential pressures to be explored are capture fisheries (netting, rod and line), habitat quality, predation and barriers to migration (hydro schemes).

The discussions over the past 18 months or so have been tough and complex but through our deliberations we have jointly developed a framework that demonstrates our determination to work with all those who genuinely have an interest in protecting, preserving and reviving wild Atlantic salmon stocks around Scotland's coasts."

4. The resourcing of wider wild salmonid conservation work, the Fishery Trusts and the District Salmon Fishery Boards

Of very real concern are the linkages also being made by SIWG between reforming the regulation of fish farming, the wider funding of conservation and research into wild salmonids generally (not just in relation to interactions with fish farms) and the resourcing of DSFBs and Fishery Trusts.

Although the Scottish Government's tasking of the SIWG made no reference to resourcing or funding of wider wild salmonids conservation work (see SIWG, Introduction, page 3), this theme nevertheless runs through the SIWG report.

Indeed, Section 5, on Wild Salmonids, is shot through with calls for resourcing of wild salmonid issues not related to salmon farming – *"the range of hazards which wild salmon face"* - issues beyond SIWG's stated remit.

"The SIWG considers that additional resources are required to support management of salmonids, particularly in west coast rivers and welcomes the commitment to produce a wild salmon strategy for Scotland" (SIWG, Wild salmonids, page 11)

"The SIWG acknowledges that resources to undertake this work are severely limited and declining. Therefore, the SIWG calls jointly for practical measures to ensure that potential hazards from salmonid aquaculture are maintained at the lowest possible levels and greater investment in conservation and restoration programmes that will demonstrably improve the wellbeing of indigenous populations of wild salmon and sea trout". (SIWG, Wild salmonids, page 11)

The SIWG 's final recommendation, at 5.9, is explicit that funding of DSFBs and Fishery Trusts is considered key to the agreement:
"Scottish Ministers should, in recognition of the significant resource required to manage wild-farmed interactions appropriately through joint working at a local level, urgently identify means to increase capacity within Fisheries Boards and Trusts in the aquaculture zone and in particular establish an appropriate mechanism for undertaking this function in Orkney and Shetland".

In the context of what the Scottish Government wants to achieve for the marine fish farming industry in this process, and in view of the 'narrative' of the twelve pressures (see above), this emphasis on the resourcing of other wild salmonid work, unrelated to fish farming, is of serious concern.

5. The 42 recommendations

With this backdrop in mind, this Review now examines the 42 recommendations (SIWG, Chair's Forward, page 2) which have been presented to the Scottish Government by the SIWG "*as a package of measures which we believe should be implemented in full".*

Recommendation 1.1
"Scotland's finfish aquaculture regulatory regime should be reformed to ensure that it is fit for purpose, comparable with the highest international and domestic regulatory standards and in line with the Scottish Regulators Strategic Code of Practice"

This Recommendation merely echoes and repeats the REC and ECCLR earlier general Recommendations but takes the issue no further on. Graeme Dey MSP, Convener of the ECCLR Committee, in delivering his report in March 2018, made it clear that:

"The current consenting and regulatory framework, including the approach to sanctions and enforcement, is inadequate to address the environmental issues. The Committee is not convinced the sector is being regulated sufficiently or regulated sufficiently effectively. This needs to be addressed urgently …"

Despite that call for urgency by Mr Dey's Committee, there has been over two years of further expansion of fish farming industry under that old regulatory system that ECCLR described as inadequate, and that is set to continue.

Recommendation 2 of REC Committee concurred, with that Committee stating that it "*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 59 of the REC Committee stated that: *"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"* and Recommendation 60 stated that *"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".*

In the context of raising the bar in Scotland to international standards, it is therefore little short of astonishing that the SIWG makes no reference to the inter-governmental North Atlantic Salmon Conservation Organisation (NASCO) – to which Scotland is a party. NASCO has long concluded that there are significant adverse impacts from salmon farming. The importance of NASCO's internationally agreed '*Guidance on Best Management Practices to Address Impacts of Sea Lice and Escaped Farmed Salmon on Wild Salmon Stocks*' which established goals for NASCO jurisdictions relating to containment and sea lice management should not be lost on SIWG. These goals are endorsed by FMS (see http://fms.scot/salmon-farming/).

For sea lice, NASCO best practice is for *"100% of farms to have effective sea lice management such that there is no increase in sea lice loads or lice-induced mortality of wild salmonids attributable to the farms".* For escapes, NASCO best practice is to ensure that *"100% of farmed fish are retained in both freshwater and marine production facilities".*

It is deeply regrettable that what SIWG proposes overall (see following Recommendations below) now appears to be back-tracking from NASCO, as what is envisaged cannot guarantee meeting NASCO's sea lice best practice.

The express reference in this Recommendation to the Regulators Strategic Code of Practice adds to the context of the Scottish Government not wanting to allow a process to develop that would be restrictive to the farmers either in terms of the operation of existing farms or in terms of the planned growth of the industry. That Code begins *"the 2011 Government Economic Strategy confirmed that the Purpose of the Scottish Government would continue to be to make Scotland a more successful country, with opportunities for all to flourish, through increasing sustainable economic growth. The Scottish Government is determined to promote in all Scottish regulators a broad and deep alignment with the Government's purpose. Sustainable economic growth means building a dynamic and growing economy that will provide prosperity and opportunities for all, while ensuring that future generations can enjoy a better quality of life too".*

Recommendation 1.2
The reformed regulatory system should protect wild migratory salmonids, proactively seek to understand and address any negative impacts detected through monitoring of wild salmonids, be fully resourced and meet the tests of being robust, transparent, enforceable and enforced.

In his covering letter, delivering his ECCLR Committee's report, in March 2018, Graeme Dey MSP, Convener of the ECCLR Committee, made no fewer than four references to the need to apply the precautionary principle to fish farming:

"there appears to have been too little focus on the application of the precautionary principle in the development and expansion of the sector"

"Scotland's public bodies have a duty to protect biodiversity and this must be to the fore when considering the expansion of the sector. We need to progress on the basis of the precautionary principle and agencies need to work together more effectively".

"adaptive management which takes account of the precautionary principle, (using real-time, farm by farm data) could have the potential to reduce environmental impacts, but additional detail is needed on how it would be applied in practice"

"the Committee is supportive of aquaculture, but further development and expansion must be on the basis of a precautionary approach and must be based on resolving the environmental problems. The status quo is not an option".

Recommendation 40 of the REC Committee's report concurred, stating that: "*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".*

However, the SIWG makes no reference here, or indeed anywhere else in its entire report, to the precautionary approach recommended by both the REC and ECCLR Committees.

The SIWG's proposed system of adaptive management, in the context of the insufficient scientific understanding of the negative interactions between farmed and wild fish, to be implemented without the underpinning of a robust and strict precautionary approach, is highly likely to fail to protect wild salmonids.

In a rejection of the precautionary approach, to which the Scottish Government has, at least in theory, been signed up in all matters of environmental protection for many years, the SIWG envisages the burden of proof being reversed, so that proof that there is damage being caused to wild fish is to be a pre-requisite to any action being taken to improve fish farm performance in respect of sea-lice and diseases.

The same is to apply when considering poorly-sited existing farms for relocation or any industry expansion plans.

However, it is clear that wild fish monitoring, particularly in the marine environment, is an imprecise science and is highly unlikely to produce clear and unambiguous results that are not open to multiple different interpretations of what might be occurring.

The SIWG requirement, that there be proof of harm before any action is taken, will mean any specific actions proposed under whatever mechanism of local engagement emerges, but not agreed by fish farmers, could be open to endless legal challenge by fish farmers who have the resources to fund such legal challenges and who will, quite naturally, be seeking to increase production and deny their activities are or could be having any impact.

A cursory examination of the various arguments raised by fish farmers on appeal to the DPEA in the very few recent cases, where planning permissions or CAR licences have been refused under the current regulatory system, shows the type of arguments likely to be raised by fish farmers to obfuscate any actions, flowing from the proposed system of adaptive management without a precautionary underpinning, that they do not like.

The SIWG states that it *"recognises that there are a number of gaps in our understanding relating to wild-farmed interactions. However, the SIWG is firmly of the view that filling these knowledge gaps is not a pre-requisite for taking forward regulatory reform"* (SIWG, Farmed and wild salmonid research, page 11)

While any lack of absolute understanding should not slow down *regulatory reform* – why would it anyway? - the SIWG fails to acknowledge that it is concrete action to restrain lice numbers, disease and escapes that should not wait for absolute understanding. However, adaptive management without a strict, robust and universally applied sea lice ceiling, as proposed by S&TCS, will make wild salmonids wait for understanding that may never come, and for knowledge gaps to be filled that can never, given the practical reality of marine science, be filled in any realistic timescale.

As to whether what the SIWG proposes can be robust, transparent, enforceable and enforced, this merely repeats concerns that the REC Committee voiced in 2018, per 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".

However, without a truly precautionary ceiling to sea lice numbers on farms, what SIWG proposes cannot hope to be robust enough to protect wild salmonids.

On transparency, see the review of Recommendation 1.12, 1.13, 3.2, 3.3 and 3.4 below. There are serious concerns over the transparency to the public of what is being proposed. For example, it is unclear how the Recommendation 1.13, that there be pre-application consultation on new development lends itself to transparency. The SIWG fails to recommend any system of effective public scrutiny of the proposed system of adaptive management, instead envisaging 'behind closed doors' pre-application consultation on fish farm applications and local engagement only between wild fishery managers (the DSFB, with their limited mandate) and fish farmers.

The wild fishery interests on the SIWG have failed to recognise that the public interest in salmonid conservation is much wider that the narrow interest of wild fishery proprietors as represented by the DSFBs. Atlantic salmon is a highly protected species under conservation law (Habitats Directive) and the species is a Biodiversity Action Plan priority species. The public interest cannot be properly represented by confining local liaison, scrutiny of wild fish monitoring and subsequent decision-making to the DSFBs. The system being proposed by SIWG does not meet public rights under the Aarhus Convention, to participate in decision-making in environmental matters, here in relation to the control of impacts of fish farms on wild fish outside the confines of those farms.

The SIWG also fails to deliver on freedom of information, studiously avoiding recommending 'as close to real-time as possible' publication of on-farm sea-lice data, sea-lice treatment data, farmed fish mortalities and disease information, as recommended by the ECCLR and REC Committees, although, strangely, it does recommend that wild fish catch and effort data should be subject to such real-time requirements.

Recommendation 1.3
The Scottish Government should holistically assess and review the approach to sea lice treatment, including access to medicines and the use of controls in their use, to deliver an evidence-based approach to sea lice control, whilst ensuring the protection of the wider environment and wild and farmed fish health and welfare.

The SIWG also "*recognises the vital importance of ensuring that a wide range of strategies for sea lice control (including medicinal and non-medicinal treatment) are available to the finfish farming industry, in order to ensure wild and farmed fish welfare and sea lice control, whilst ensuring protection of the wider environment*" (SIWG, Licensing and Enforcement, page 7)

In fact, review of chemical sea lice control for chemical or medicinal treatments carried out under a Controlled Activities Regulations licence issued by SEPA must already be reviewed periodically by SEPA pursuant to Regulation 21(1): "*SEPA must periodically review authorisations granted under regulations 7 and 8, and may do so at any time*".

Further, per section 30 of the Marine (Scotland) Act 2010, under which licences for chemical well-boat treatment are currently granted by Marine Scotland, the regulator already has had the power for ten years, per section 30(3), "*by notice [to] vary, suspend or revoke a licence granted by them if it appears to them that the licence ought to be varied, suspended or revoked for any of the following reasons—*
(a) because of a change in circumstances relating to the environment or human health,
(b) because of increased scientific knowledge relating to either of those matters,
….or
(d) for any other reason that appears to the Ministers to be relevant."

For any physical systems for treating lice, here too, section 3 of the Aquaculture Fisheries (Scotland) Act 2013 made provision some time ago for Scottish Government to prescribe technical standards for equipment used to prevent, control or reduce parasites:

Section 3 - Technical requirements for equipment used in fish farming
(1) The Scottish Ministers may, for a purpose mentioned in subsection (2), by regulations—
(a) prescribe technical requirements for equipment to be used for or in connection with fish farming,
(b) impose requirements on fish farm operators in relation to the training of their employees or agents in connection with the installation, maintenance or operation of equipment for which requirements are prescribed under paragraph (a), and
(c) make provision for ensuring compliance with the requirements prescribed or imposed by the regulations.
(2) The purposes are—…
(c) ***the prevention, control or reduction of parasites, pathogens or diseases****.*

It would be of some concern if Scottish Government and/or its public authority regulators have not already been keeping under regular review the use of both physical and chemical sea lice control to ensure the protection of the wider environment and wild fish health and welfare.

Recommendation 1.4
District Salmon Fishery Boards (DSFBs) should continue to be statutory consultees in the future regulatory regime. Where no DSFB is established a suitable alternative should be designated by Scottish Ministers where appropriate for the purpose of protecting wild salmonids;

The SIWG proposes that the DFSBs continue to be statutory consultees in any future regulatory regime.

If the proposed system of adaptive management is to be controlled by licence under the Controlled Activities Regulations, by SEPA, per Regulation 12 - Consultation with public authorities – SEPA is already required if it "*receives an application in respect of a controlled activity that it considers likely to have a significant adverse effect on the water environment or on the interests of other users of the water environment, it must consult any public authorities as appear to it to have an interest in the application*". That would include the DSFBs.

If the proposed system of adaptive management is however to be controlled by licence under the Marine (Scotland) Act 2010, then section 27(4) of that Act already requires Scottish Ministers "*in relation to each application, consult such persons or bodies as may be specified by them by order*" or "*consult any other person or body they consider appropriate*".

In other words, what SIWG recommends is already provided for in law, irrespective of whether the SIWG envisages the adaptive management system is controlled under licence by the Marine Scotland or by SEPA. Additionally, where no DSFB is established, while SIWG suggests a suitable alternative should be designated by Scottish Ministers where appropriate for the purpose of protecting wild salmonids, the current default position where no DSFB exists, is for Scottish Ministers (in the form of Marine Scotland) to perform the functions that the 'missing' DSFB would perform.

Recommendation 1.5
In advance of the delivery of a reformed finfish aquaculture regulatory system, Marine Scotland should take an overarching role to ensure consistency with respect to managing interactions at the

local level through the use of agreed standards for current, interim delivery of Environmental Management Plans.

Planning conditions for new or expanded fish farms now routinely require the drawing up of Environmental Management Plans (EMPs) before development can go ahead. In this way, planning authorities are seeking to meet their duties under the Nature Conservation (Scotland) Act 2004 in relation to the furthering of nature conservation and biodiversity, while still permitting expansion of the fish farming industry.

Councils have expressed their own strong reservations as to the effectiveness of these EMP conditions, not least in their evidence to the ECCLR and REC Committees in 2018. Like the Councils, S&TCS remains sceptical that EMP conditions can effectively plug the gap in relation to wild fish interactions.

The main reason for the scepticism is that there is no enforcement mechanism, with planning authorities often merely conditioning a planning permission with a requirement that an EMP should exist and be signed off, not that it should be adhered to. Even if they did, the current crop of EMPs are vague and imprecise as to what hard actions they can require of fish farmers and local planning officers simply do not have the expertise or resources to monitor and ensure compliance with EMPs or enforce such compliance.

Importantly, while Marine Scotland may be recommended to take an overarching role to ensure consistency in EMPs, it has no routine enforcement function with respect to planning.

Recommendation 1.6
A single lead body (with appropriate competence and capacity) should be assigned responsibility for regulating wild and farmed fish interactions and given appropriate powers for monitoring and enforcement;

The SIWG merely repeats the REC Committee's Recommendation 42 and earlier warnings:
"*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*".

That the SIWG has not proposed an answer to the question of which body should assume this role or cannot agree on such a fundamental feature of the proposed reform, is of very great concern.

Recommendation 1.7
The single lead body identified above, should be required to coordinate its activities with all regulatory bodies with responsibility for the range of pressures that wild salmonids face

Again, the SIWG plays to the industry's preferred 'narrative', addressing itself to the range of pressures that wild salmonids face, but in effect, this Recommendation is already provided for in Scottish law and has been since 2004.

Whichever regulatory body is charged with the new system of adaptive management, they are required to meet their duties under the Nature Conservation (Scotland) Act 2004 in relation to the furthering of nature conservation and biodiversity, which includes the conservation of both wild salmon and sea trout.

Section 1 of the 2004 Act states that "*it is the duty of every public body and office-holder, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions".*

The ECCLR Committee concluded that it was "*unclear if, in practice, all public bodies involved in the regulation of salmon farming have the biodiversity duty to the fore. The Committee is not convinced that the precautionary principle underpins the development and expansion of the sector….*
The Committee is not convinced the sector is being regulated sufficiently or regulated sufficiently effectively. The Committee is also concerned that the engagement and interaction of the relevant agencies is not as effective in the protection of the environment as it could be. There are too many regulators and too little effective regulation".

The fact is that all regulators have the same duty under the 2004 Act and should already be expected therefore to exercise their functions to conserve wild salmonids.

Recommendation 1.8
In managing the impact of aquaculture activities on the environment greater priority should be given to the protection of wild migratory salmonids balanced with more efficient protection of seabed and water quality in line with the Scottish Regulators Strategic Code of Practice.

The thrust of the Recommendation is also repeated later in the report - the "*SIWG recognises the vital importance of ensuring that a wide range of strategies for sea lice control (including medicinal and non-medicinal treatment) are available to the finfish farming industry, in order to ensure wild and farmed fish welfare and sea lice control, whilst ensuring protection of the wider environment"* (SIWG, Licensing and Enforcement, page 7).

This appears to be a thinly-coded demand for existing controls on chemical treatment residues to be reduced in order to allow more use of sea lice treatment chemicals, as if this was the inevitable trade-off required to protect wild fish.

The SIWG should recognise that protection of wild fish from sea lice emanating from fish farms – and protection of the seabed and water column – is not an "either-or" choice.

Recommendation 1.9
The existing legislative framework is used, wherever possible to deliver the required changes relating to wild-farmed interactions. Any changes to primary or secondary legislation necessary to support these changes should be made at the earliest possible opportunity.

It is common sense that existing law should be used where possible. Indeed, S&TCS has long proposed, including in evidence to REC and ECCLR, that the Water Environment and Water Services (Scotland) Act 2003 could be used to deliver the required changes if SEPA were to be the regulator charged with wild salmonid protection. Similarly, the Marine (Scotland) Act 2020 can be used to give the role to Marine Scotland. If there is any doubt, section 21(3) enables Scottish Ministers, by order, to amend subsection (1) so as to add or remove any activity from the list of licensable marine activities, so it can expressly add 'the operation of a marine cage fish farm' to that list.

The suggestion that any changes to primary or secondary legislation necessary to support these changes should be made at the earliest possible opportunity is welcome but this has already been missed by Scottish Government, for example, in relation to requiring publication of sea lice data by fish farmers in as close to real time as possible, once it became clear the industry would not do that voluntarily.

Recommendation 1.10
The appropriate scale for monitoring of impacts on wild fish is the farm management area or adjacent farm management areas in which sea lice connectivity modelling suggests that interactions with an existing area are likely. The farm management area is also the appropriate scale for local engagement and sharing of information;

Farming within an FMA is already a legal requirement. Section 4A of the Aquaculture and Fisheries (Scotland) Act 2007, as amended - Fish farm management agreements and statements – requires, at (1), that "a person who carries on a business of fish farming at a fish farm located within a farm management area must (a) be party to a farm management agreement, or prepare and maintain a farm management statement, in relation to the fish farm, and (b) ensure that the fish farm is managed and operated in accordance with the agreement or (as the case may be) statement".

An FMA must already, by law, include details of the arrangements for both fish health management and the management of parasites.

However, there is no requirement for FMAs or FMSs to be published, so what is proposed does not meet the requirements of public scrutiny. The envisaged local engagement by farm management area appears to be a matter between fish farmers, DSFBs and/or Fishery Trusts, without wider public engagement being provided for, to include nature conservation interests.

Recommendation 1.11
The review of farm management areas being undertaken through Farmed Fish Health Framework is welcomed but should be informed by the recommendations of the SIWG;

The Strategic Framework for Farmed Fish Health Working Group's Terms of Reference from 2017 note that *"while acknowledging that understanding the scale of any interactions between farmed and wild fish and addressing these is of importance, it is recognised that this is not the appropriate forum to consider these issues".*

It is therefore unclear what role the Farmed Fish Health Framework could or should have for wild fish. This Recommendation of the SIWG is opaque at best.

Recommendation 1.12
For the purposes of wild-farmed interactions the farm management agreement / statement should be a mechanism for the collation and coordination of adaptive actions to address adverse impacts on wild salmonids identified in the farm management area, in collaboration with wild fisheries managers;

As per Recommendation 1.10 above, farming with in an FMA is already a legal requirement, per section 4A of the Aquaculture and Fisheries (Scotland) Act 2007.

An FMA must already, by law, include details of the arrangements for both fish health management and the management of parasites.

However, there is no requirement for FMAs or FMSs to be published, so if fish farmers are to use FMAs as a "*mechanism for the collation and coordination of adaptive actions to address adverse impacts on wild salmonids identified in the farm management area, in collaboration with wild fisheries managers*", again, what is proposed simply does not meet the requirements of

transparency and allow public scrutiny of the actions to be required as result of adaptive management.

Recommendation 1.13
Local engagement mechanisms between finfish farmers and wild fishery managers should be established as a minimum, to engage in pre-application consultation, agree joint local management priorities and projects, act as a forum for information and data exchange, identify research priorities and request management action as appropriate.

This has been tried a number of times before. The purpose of the Tripartite Working Group, chaired by the Scottish Government some years ago, was to address issues between salmon farming and wild salmon fisheries and to seek solutions for ensuring the maintenance of healthy stocks of wild fish whilst at the same time promoting a sustainable aquaculture industry. By common consent, it failed.

There are more recent and specific examples of what local engagement mechanisms mean in practice. The Taranaish fish farm on Loch Roag, Isle of Lewis, was granted planning permission in 2015 subject to a planning condition that such local liaison occurred through a Loch Langavat SAC Management Group. That Group in fact never met.

In respect of transparency and being open to public scrutiny, the suggested pre-application consultation completely fails that test. The very definition of pre-application consultation, as both planning authorities and SEPA currently understand it, is that it is not open to public scrutiny.

The same point needs to be made again that conservation of wild salmon and sea trout is much wider than the remit of wild fishery managers alone. There is a clear and substantial public interest in the conservation of wild salmonids which cannot be shoe-horned under the remit of the DSFBs, which, by law, only represent wild fishery proprietors.

Recommendation 1.14
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 (see section 2 below);
• 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.

It is unclear what is meant by "*best scientific evidence*". Does this mean the 'best evidence currently available' or does it mean 'the strongest possible evidence'? Whatever it means, this approach is inconsistent with the precautionary approach advocated by both the REC and ECCLR Committees.

If it means the latter, this would mean that unless wild fish interests have detailed and incontrovertible evidence and can say that 'this farm killed or harmed those wild fish', there will be no way to enforce changes at any existing fish farm site, because the fish farmers will argue that the science is not certain – it is not "*best scientific evidence*". They can be expected to use any available appeal mechanism, presumably to the DPEA, to make sure no farm suffers a reduction in permitted biomass, or has to relocate, or harvest early, or even treat down to lower lice levels, if there is any doubt as to the interpretation of wild fish monitoring data.

Even if the wild fishery interests involved could demonstrate conclusively that there was adverse impact, in the first instance, all that would occur is another round of adaptive management (but still without a precautionary ceiling, as above).

While this Recommendation states that "*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*", it does not explain how or when this is to occur in practice.

The REC Committee's Recommendation 45 makes it clear that *"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 REC Committee also *"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 route"* and per Recommendation 46 took 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".*

The corollary of those REC Committee Recommendations is that existing fish farm sites on migration routes must not be licensed under any new system of licensing.

Also, the REC Committee has already stated that where relocation is to be undertaken, per Recommendation 53, "*the Committee considers it to be important, however, that there is no deviation from due process in terms of granting approval for replacement sites*".

In other words, relocation can never be a 'deal', with the fish farmers removing operations from damaging sites, on the promise of 'easy relocation' of their operations elsewhere. If an existing fish farm site is sufficiently damaging to warrant closure, it must simply be closed.

Recommendation 2.1
Robust conditions, based on an adaptive management approach, to safeguard wild salmonids should be contained within a license rather than through planning consent.

Although a shift to licensing (and away from using the planning system) is welcome, there has to be a genuinely precautionary approach to the licensing of salmon farms. Both the REC and ECCLR Committees could not have been clearer.

S&TCS agrees that the current system of one-off planning consent caters for public engagement at the grant of planning permission, but there is almost no on-going public engagement, transparency or public scrutiny possible as to how planning permission and planning conditions, such as those relating to Environmental Management Plans, are then enforced.

While a new system based on licensing can be an improvement, any new system of licensing must adopt a truly precautionary approach and not just adaptive management, where the burden of proof lies with those seeking to protect the wider environment and wild salmonids.

It must also be robust, transparent and with licences open to regular and on-going review and always subject to public scrutiny.

Further, any monitoring and enforcement as against those licences must be independent and must be seen to command public confidence and respect.

Recommendation 2.2

The licence should contain conditions relating to:
• Requirement for undertaking, recording and reporting of a weekly sea louse count;
• Trigger levels for sea lice intervention action specific to the farm management area (to be reviewed subject to adaptive management);
• Requirement to monitor lice levels in the environment and assess impacts on wild salmonids;
• Requirement to report on the results of such monitoring;
• Requirement to contribute to research to understand the migratory distributions of wild salmonids within the West Coast and Northern Isles context;
• The actions that are required to be taken where monitoring demonstrates adverse impacts on wild salmonids and the timeframe in which demonstrable actions should be successfully delivered;
• Requirement for the farm to be party to a farm management agreement for the farm management area;
• Monitoring for the presence of escaped farmed fish from freshwater open pen farms;
• Requirement for 100% of farmed fish to be retained in all production facilities;
• Minimum technical standards for prevention of escapes of farmed fish;
• Requirement for an Escape Mitigation plan to be in place prior to stocking;
• Notification to all relevant authorities, including to the local DSFB, of escapes or suspected escapes to be made within 24 hours of knowledge of the incident;
• Requirement for recording and reporting of escapes of farmed fish; and,
• Requirement to undertake an end of farm cycle review which informs the next production cycle process.

The language of this Recommendation is not as robust as it should be – that "*the licence should contain conditions relating to….*" is not necessarily the same as 'the licence must require…' - nevertheless, taking each bullet point in turn:

• Requirement for undertaking, recording and reporting of a weekly sea louse count;

The ECCLR Committee *"believe(d) the efforts of the industry have proven to be largely insufficient to address lice issues*" and that "*the industry should also be required to publish consistent and comparable weekly historic data sets on sea lice figures on a farm by farm basis from the time records are available. There should be no delay in the industry publishing this information so this should initially be published on a voluntary basis by the end of April 2018*".

That did not happen.

Recommendation 11 of the REC Committee Report, albeit dealing with mortalities, adopts the same tone as the ECCLR Committee considering it "*essential that this work delivers high levels of transparency that will provide confidence to all stakeholders*". REC Committee report recommendations 19 to 25 also address sea lice and other data and the mandatory reporting of such data in as close to real time as possible.

S&TCS agreed with both the ECCLR and REC Committees that this needed to be secured by regulation. The voluntary approach has failed to produce the real-time detailed data that the ECCLR Committee requested. S&TCS' preferred method of securing transparency, by way of full freedom of information and proactive publication, is by amending The Fish Farming Businesses (Record Keeping) (Scotland) Order 2008, itself drawn under section 1 of the Aquaculture and Fisheries (Scotland) Act 2007, requiring proactive publication of all relevant records which are already required to be kept by fish farmers (though not published) under the existing 2008 Order.

Currently the SSPO publishes average monthly data, two months in arrears, although for some unexplained reasons, data for two companies - The Scottish Salmon Company and Scottish Sea Farms – is being published late, beyond that two-month window. No data is published at all for marine rainbow trout farmers, such as Dawnfresh.

• Trigger levels for sea lice intervention action specific to the farm management area (to be reviewed subject to adaptive management);

Farm-specific trigger levels to be based on adaptive management only will fail to protect wild salmonids unless there is a strong precautionary backstop and a strong precautionary element applied to the results and data produced by all subsequent monitoring.

The introduction of an effective, robust and enforceable regulatory system for all salmon farms, to protect wild migratory fish and proactively address all and any negative impacts associated with salmon aquaculture, must include much stricter 'backstop' limits for on-farm sea lice numbers, coupled with independent monitoring and strict enforcement in the event of breaches, to curtail the damage being caused to wild salmon and sea trout by salmon farming.

The 'backstop' limits should be set at an average of 0.5 adult female lice per farmed fish on any particular farm, with the limit dropping to 0.1 during wild smolt emigration between February and June, but this would not prevent adaptive management requiring lower lice levels on particular farms if that was required. This would be in line with best international standards, per those applied in Norway and by the Aquaculture Stewardship Council.

• Requirement to monitor lice levels in the environment and assess impacts on wild salmonids;

Recommendation 63 of the REC Committee stated that "*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 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".*

Indeed, any licence condition that envisages any type of self-monitoring or self-assessment cannot be sufficient to protect wild salmonids and will be open to abuse. The wild fish monitoring, on which the proposed system of adaptive management is to be based, must be independently carried out and delivered, and there must be no close relationship between the body doing the monitoring and the fish farms. There can certainly be no direct financial relationship between those two parties.

S&TCS suggests such monitoring should be resourced from central Government funds, themselves replenished by a sufficient licence fee, with the regulator involved given the duty to bring forward an appropriate charging scheme that ensures that the costs of proper regulation, inspection monitoring and enforcement are covered by licence fees payable under the proposed charging scheme, as is normal practice for most other sector-specific regulation systems.

• Requirement to report on the results of such monitoring

While, patently, the results of monitoring must be reported, they must also be published and open to full public scrutiny as soon as they are reported.

There is a duty on all Scottish public authorities under the Environmental Information (Scotland) Regulations 2004 proactively to publish all environmental information they hold. This information – the result of monitoring - should be no different.

• Requirement to contribute to research to understand the migratory distributions of wild salmonids within the West Coast and Northern Isles context;

While more research is always welcome, importantly, the REC Committee's Recommendation 45 made it clear that "*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 REC Committee also "*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 route"* and, per Recommendation 46, took 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"*.

The corollary of that is that existing fish farm sites on migration routes must not, in any event, be licensed under any new system of licensing and, until there is definitive knowledge as to where migration routes are, a strict precautionary approach must be adopted as in Norway. If there is a reasonable judgment, based on existing science, that a farm lies on a migration route, it should not be licenced, whether it already exists or not.

• The actions that are required to be taken where monitoring demonstrates adverse impacts on wild salmonids and the timeframe in which demonstrable actions should be successfully delivered;

This is at the heart of what is wrong with the system as proposed by SIWG. The SIWG makes no reference to and fails to deliver on the precautionary approach as recommended by the REC and ECCLR Committees.

The SIWG's proposed system of adaptive management, in the context of the insufficient scientific understanding of the negative interactions between farmed and wild fish, to be implemented without the underpinning of a robust and strict precautionary approach, is highly likely to fail to protect wild salmonids.

In a rejection of the precautionary approach, to which the Scottish Government has been signed up in all matters of environmental protection for many years, the SIWG envisages the burden of proof being reversed, so that proof that there is damage being caused to wild fish is to be a pre-requisite to any action being taken to improve fish farm performance in respect of sea-lice and diseases. The same is to apply when considering poorly-sited existing farms for relocation, or any industry expansion plans.

The SIWG requirement, that there be proof of harm before any action is taken, will mean any specific actions proposed, but not agreed by fish farmers, will be open to endless legal challenge by fish farmers who will, quite naturally, be seeking to increase production and deny their activities are or could be having any impact.

• Requirement for the farm to be party to a farm management agreement for the farm management area;

The requirement to be party to an FMA is already a legal requirement on fish farmers, per section 4A of the Aquaculture and Fisheries (Scotland) Act 2007, as amended

An FMA must already, by law, include details of the arrangements for both fish health management and the management of parasites.

• Monitoring for the presence of escaped farmed fish from freshwater open pen farms;

It is unclear why SIWG has decided that this suggested condition is only relevant to freshwater farms. It is a major failing if the SIWG means this not to be applicable to marine cage farms, from which fish also regularly escape.

• Requirement for 100% of farmed fish to be retained in all production facilities;

This is a requirement of NASCO and has been for many years. While it is a statement of the obvious, without any independent monitoring for the presence of escaped fish, it will be unenforceable.

• Minimum technical standards for prevention of escapes of farmed fish;

This is existing law. Section 3 of the Aquaculture Fisheries (Scotland) Act 2013 made provision for Scottish Government to prescribe technical standards to prevent fish escapes.

Section 3 - Technical requirements for equipment used in fish farming
(1) The Scottish Ministers may, for a purpose mentioned in subsection (2), by regulations—
(a) prescribe technical requirements for equipment to be used for or in connection with fish farming,
(b) impose requirements on fish farm operators in relation to the training of their employees or agents in connection with the installation, maintenance or operation of equipment for which requirements are prescribed under paragraph (a), and
(c) make provision for ensuring compliance with the requirements prescribed or imposed by the regulations.
(2) The purposes are—
(a) the containment of fish,
(b) the prevention of escape of fish…

• Requirement for an Escape Mitigation plan to be in place prior to stocking;

The escapes record over many years shows that the mere existence of a plan does not prevent huge and persistent escapes of farmed fish.

Having a plan would seem to be the minimum expected to meet good practice and, in fact, the law has provided inspectors with the powers needed to rectify any absence of such a plan for at least 10 years.

Section 5 of the Aquaculture Fisheries (Scotland) Act 2007 has for over ten years enabled inspectors to "*carry out inspections of fish farms for any of the purposes mentioned in subsection (2)".* The purposes in subsection 2 are:
"(a) ascertaining the risk of escape of fish from the fish farm,
(b) ascertaining whether fish have escaped from the fish farm,
(ba) ascertaining the origin of fish known or believed to have escaped from the fish farm or any other fish farm,
(c) assessing the measures in place for—

(i) the containment of fish on the fish farm,
(ii) the prevention of escape of fish from the fish farm,
(iii) the recovery of escaped fish."

Subsection 3 then provides that an inspection under subsection (1) may include "*examining, and taking copies of, documents or records".*

The Fish Farming Businesses (Record Keeping) (Scotland) Order 2008 requires per Regulation 3 that *"a person who carries on a business of fish farming shall in respect of each site at which fish are farmed in the course of the business– (a) in relation to the prevention, control and reduction of parasites on fish farms, compile the records that are specified in Schedule 1; and*
(b) in relation to the containment, prevention of escape and recovery of fish from fish farms, compile the records that are specified in Schedule 2,
and in both cases shall retain the records for a period of 3 years".

Schedule 2, in relation to the containment, prevention of escape and recovery of fish from fish farms, then requires at 9 that "*a record of any contingency plan for preventing escapes of fish from fish farms and recovering any fish which have escaped prepared by a person carrying on the business of fish farming"* is kept.

• Notification to all relevant authorities, including to the local DSFB, of escapes or suspected escapes to be made within 24 hours of knowledge of the incident;

It is already a legal requirement, under the Aquatic Animal Health (Scotland) Regulations 2009; all fish farmers "*must immediately notify the Scottish Ministers of the circumstances on, or in the vicinity of, the fish farm which –*
(a) are believed by that person to have caused an escape of fish; or
(b) gave rise to a significant risk of an escape of fish."

As the Marine Scotland website already states - see https://www.gov.scot/publications/what-to-do-in-the-event-of-a-fish-farm-escape/: *"Any suspected escape from a fish farm, or circumstances which give rise to a significant risk of escape, must be reported to the Scottish Government (SG). Failure to notify Scottish Ministers of any suspected or confirmed escape of farmed fish may be an offence. All escapes, or suspected escapes, must be reported to the Scottish Ministers in writing immediately using the initial notification form, and authorisation for the emergency use of nets to affect recapture must be applied for.*
Completed notification forms should be emailed to the Marine Scotland mailbox - ms.fishhealth@gov.scot
As well as providing the initial notification to the Scottish Government, it is also important to provide early notification to other interested parties such as the relevant District Salmon Fishery Board and Fishery Trust and the Scottish Environment Protection Agency (freshwater farms only)"

• Requirement for recording and reporting of escapes of farmed fish; and,

This is also already a legal requirement – see above for recording and reporting requirements.

• Requirement to undertake an end of farm cycle review which informs the next production cycle process.

The SIWG is unclear as to who undertakes this review and what its purpose might be. It would be unusual if fish farms as businesses did not already undertake a review, from the perspective of their

production targets and costs of production etc., but there is no indication what content or purpose this proposed review, as a condition of a licence, would or must address. Nor does it specify who is involved or undertaking this review, nor the degree of transparency and public scrutiny to which such a review is then made subject, nor how any actions identified in the review would subsequently be enforced. Any end of cycle review process should give the licensing authority the power and opportunity to impose changes to the operation of individual fish farms, if required, such as a reduction in permitted biomass for subsequent cycles.

Recommendation 2.3
Scottish Ministers should direct all relevant statutory bodies to discharge their duties such that they fully take into account the health and welfare of wild salmonids and of farmed fish.

These duties already exist for all relevant Scottish public authorities in respect of wild salmonids, under the Nature Conservation (Scotland) Act 2004 in relation to the furthering of nature conservation and biodiversity. Section 1 of the 2004 Act states that it is the duty of every public body and office-holder, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions. Wild Atlantic salmon is already a highly protected species under conservation law (Habitats Directive) and the species is a Biodiversity Action Plan priority species, as are wild sea trout.

Recommendation 2.4
As a priority, the consenting of new developments should be managed within an adaptive spatial planning model which is risk based, of suitable resolution, underpinned by best available scientific evidence, and takes into account the cumulative effect of management practices of existing developments and impacts on wild salmonid fish;

It is not clear why the proposed application of spatial planning is limited to new developments only.

If such spatial planning is considered to be valid for new developments, then it must also be applied to existing fish farms.

Specifically, the REC Committee's Recommendation 45 makes it clear that "*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 REC Committee also "*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*" and per Recommendation 46 took 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*".

The corollary of that is that existing fish farm sites on migration routes must not be licensed under any new system of licensing and that spatial planning must also be applied retrospectively to identify those existing farms that would not now be granted planning permission and under any new licensing system, should not be licensed and need to be closed.

Recommendation 2.5
The SIWG recommends that the Technical Working Group should ensure that these principles are embedded in the spatial planning framework for sea lice which is due for public consultation;

The same comments as for 2.4 apply. Spatial planning must apply retrospectively to existing farms if spatial planning is to have any credibility.

Recommendation 2.6
An enforcement policy should be published, informed by existing controls, to include specific penalties and sanctions for breaching conditions but incorporating some flexibility to respond to specific local conditions;

All regulators will already have an enforcement policy. For example, SEPA's is at https://www.sepa.org.uk/media/219244/enforcement-policy.pdf. Marine Scotland's Fish Health Inspectorate says of its enforcement policy at https://www.gov.scot/publications/fish-health-inspectorate-service-charter/pages/what-you-can-expect/: *"as part of our duties we may be required to take enforcement action. Any enforcement activity will reflect the Government's principles on good regulation. Whenever possible we will advise and provide assistance to encourage compliance with the regulations, explaining clearly what constitutes best practice and what is a legal requirement. In situations where immediate action is necessary, we will explain why it is necessary, and confirm this in writing within five working days.*

We will ensure that:
Any enforcement action taken is proportional to the risks posed and the seriousness of the offence.
As far as the law allows, we will take account of the individual circumstances of the case.
Before formal enforcement action is taken, inspectors will provide an opportunity to discuss the circumstances of the case and, if possible, resolve points of difference unless immediate action is required.
Warning letters, Enforcement Notices and cautions may be issued. Where there are rights of appeal against formal action, advice on the appeal mechanism will be clearly set out in writing at the time the action is taken.
Where possible and the law permits, we will consider alternatives to prosecution. If a serious offence or persistent minor offences are considered to have taken place, we will investigate. If appropriate, a case for prosecution will be submitted to the Procurator Fiscal. If the case is proved, the penalties may include a fine.
Some offences can be discharged using a fixed penalty notice, and in some cases, these may be offered as an alternative to formal criminal proceedings"

Indeed, regulators of all types are also bound by the Scottish Regulators' Strategic Code of Practice, noting that the Regulatory Reform (Scotland) Act 2014 includes a duty on regulators to contribute to achieving sustainable economic growth.

Any enforcement policy adopted in relation to fish farms must clearly state that, in conjunction with the precautionary approach and backstop limits on sea lice numbers, prompt action will be taken – including ordering compulsory early harvest / culling out and / or a reduction in biomass to ensure sea lice limits are met.

SIWG's view that there should be "*some flexibility to respond to specific local conditions*" is unlikely to meet the requirement that the licensing system is robust, transparent and open to proper public scrutiny.

Recommendation 2.7
Appropriate fines, proportionate to the incident and scale of the escape, should apply to escapes of fish

It is of course, the role of Courts to impose fines, but it is welcome that the SIWG recognises that escapes, that are not currently illegal in Scottish law, should now be made unlawful.

Offences under the Aquaculture and Fisheries (Scotland) Act 2007, section 11, currently exist only in relation to failing, without reasonable excuse, to comply with a requirement imposed by an inspector, usually sometime after an inspection following an escape, or obstructing an inspector in the exercise of his powers to inspect a farm.

Recommendation 2.8
Where direct costs or nuisance resulting from an escape of farmed fish can be demonstrated there should be a legal requirement on the farm operator to fully compensate those costs

This is merely a statement of the existing Scottish common law.

Under their powers under section 45 of Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003, DSFBs may "*do such acts, execute such works and incur such expenses as may appear to them expedient for (a) the protection or improvement of the fisheries within their district; (b) the increase of salmon; or (c) the stocking of the waters of the district with salmon*".

A DSFB may also sue or be sued in the name of their clerk.

It is not clear why DSFBs have failed to take legal action, on behalf of the fishery proprietors they represent, to recover damages "*where direct costs or nuisance resulting from an escape of farmed fish can be demonstrated*".

Recommendation 2.9
Enforcement sanctions relating to sea lice and escapes, including the use of fixed and variable monetary penalties, should have a mechanism to allow monies to be invested into wild salmonid conservation work. Alternatively, this could be informed by the approach taken in Norway through OURO;

The Regulatory Reform (Scotland) Act 2014 has already strengthened the sentencing powers of the criminal courts in relation to environmental crime and has imposed a requirement on the courts to consider any financial benefit accrued as a result of offending in deciding the level of fines. Further, civil penalties are already provided for in Scottish law for offences committed under both the Marine (Scotland) Act 2010 and the Water Environment and Water Services Act 2003.

A type of civil penalty - enforcement undertakings - are also available which might be used to allow monies to be invested into wild salmonid conservation work directly. However, this type of diversion of money via civil penalties has been criticised as creating an unhealthy relationship between the interested parties involved and suggesting that the right to commit offences can, in some way, be bought.

In no way should the question of whether essential wild salmonid conservation work is done or not, be allowed to become dependent on the levels of fines or penalties being imposed, or undertakings offered, for environmental offences committed by fish farmers.

Recommendation 3.1
The SIWG recommends that the system for collection and reporting of catch data should be reviewed.

While this should be supported, it is difficult to understand how this falls into the stated remit of the SIWG and why reform of the regulation of fish farmers might be dependent on this occurring.

Recommendation 3.2
The SIWG recommends that Scottish Ministers invest in the appropriate infrastructure to collect and report catch and associated data, which maintains, as far as possible, the continuity of data since 1952, whilst allowing catch data to be reported in as close to real time as possible;

As for Recommendation 3.2, while this should be supported, it is difficult to understand how this falls into the stated remit of the SIWG and why reform of the regulation of fish farmers might be dependent on this occurring.

The REC Committee's Recommendation 20 stated that *"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*", echoing the ECCLR Committee findings that "*For that [fish farm] data to be most useful the Committee considers there should be no unreasonable delay in its publication, The industry should be required to publish it in real time. Data should be published in a consistent and comparable basis and should include numbers of fish and action taken in response. This information would advance the science and solutions available to the industry*".

It is notable that the SIWG does not now seek to apply the same requirement - as close to real time as possible - to fish farm data, as it does to wild fishery catch and effort data.

There must be full transparency on the environmental impact of fish farming, including the 'real time' publication of on- farm sea-lice, escapes of farmed fish, use of all treatment chemicals (whether on-farm or in well boats), farmed fish mortalities and disease information.

Recommendation 3.3
The wild and farmed sectors should publish the following historical data:
- **Results of wild fish monitoring including lice count data or observations on lice burden;**
- **Number of farmed fish per farm;**
- **Number of lice per farmed fish;**
- **Counts from fish counters, relevant electrofishing data and any other relevant catch assessment data operating on local rivers; and,**
- **Wild salmon and sea trout catch statistics and catch effort data.**

Yet again, while clarity and early publication of all data by DSFBs should be supported, it is difficult to understand how this falls into the stated remit of the SIWG and why reform of the regulation of fish farmers might be dependent on this occurring.

In respect of farmed fish data, this is already way behind what the ECCLR Committee recommended in early 2018, at 58:
"*The Committee believes the efforts of the industry have proven to be largely insufficient to address lice issues….. The industry should also be required to publish consistent and comparable weekly historic data sets on sea lice figures on a farm by farm basis from the time records are available. There should be no delay in the industry publishing this information so this should initially be published on a voluntary basis by the end of April 2018".*

Recommendation 3.4
The wild and farmed sectors, working collectively will provide a comprehensive package of data which should be placed on a mandatory footing and should include all data currently available on Scotland's Aquaculture website in addition to –
• Results of wild fish monitoring including lice count data or observations on lice burden;
• Farm management area sea lice load;
• Number of farmed fish per farm;
• Number of adult female lice and gravid female lice per farmed fish;
• Medicinal and physical treatments undertaken;
• Water temperature and salinity;
• Counts from fish counters, electrofishing data and any other catch assessment data operating on local rivers;
• Scottish Government assessments of wild fish conservation status (adult and juvenile fish); and,
• Official wild salmon and sea trout catch statistics and catch effort data.

As for the other Recommendations, while better transparency and early publication of wild fishery data should be supported, it is difficult to understand how this part of this Recommendation falls into the stated remit of the SIWG and why reform of the regulation of fish farms might be dependent on this occurring.

The industry already has access to whatever data is held by the DSFBs, which must be provided by DSFBs upon request, pursuant to the Environmental Information (Scotland) Regulations 2004, within 20 working days.

In respect of fish farm sea lice data, the REC Committee's Recommendation 20 stated that "*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*", echoing the ECCLR Committee findings that *"For that [fish farm] data to be most useful the Committee considers there should be no unreasonable delay in its publication, The industry should be required to publish it in real time. Data should be published in a consistent and comparable basis and should include numbers of fish and action taken in response. This information would advance the science and solutions available to the industry".*

It is notable that the SIWG does not now seek to apply the same requirement - as close to real time as possible - to fish farm data, as it does to wild fishery catch and effort data.

That "*the SIWG recognises… the continuing progress made by the sector in increasing transparency*", is unwarranted praise, given the failure of the industry to respond to the ECCLR Committee's recommendation that historic data be published by April 2018.

In any event, whichever public body is tasked with the responsibility for licensing fish farms and dealing with the interactions with wild salmonids, the Environmental Information (Scotland) Regulations 2004 will, in any event, place a duty on that body to proactively publish environmental information it holds as a result, such as that listed in Recommendation 3.4.

Recommendation 4.1
Scottish Government should commit resources to review the research priorities identified in the Aquaculture Science and Research Strategy under the Ministerial Group for Sustainable

Aquaculture and thereafter set out and commit to deliver a research strategy for wild salmonid research

While research into wild salmonids should be supported, it is difficult to understand how this falls into the stated remit of the SIWG and why reform of the regulation of fish farming might be dependent on this occurring.

Recommendation 4.2
Following an independent peer review, the work undertaken by Marine Scotland Science in 2018 to determine the baseline for current levels of genetic introgression should be expedited for publication

It is regrettable, but perhaps not surprising, that this work was not published in time for either the ECCLR or REC Committee inquiries. It should, of course, be published at once and not be subject to any 'political' editing.

Recommendation 4.3
Efforts should be made to refine or develop genetic analysis tools to allow recent introgression arising from farmed fish escapes to be distinguished from any introgression arising from historic stocking activities;

While it is important that efforts should be made to refine or develop genetic analysis tools to allow recent introgression to be distinguished from any historic stocking activities, it is surprising that this work has not been done already, particularly given the levels of introgression already reported elsewhere, such as in Norway.

The supposed introgression arising from historic stocking activities has often been raised as a reason why introgression being seen in salmon stocks cannot be attributed to escapee farmed salmon with any certainty, which of course has been helpful in shielding the fish farming industry from the likely claims under Scottish common law if it could be shown that such introgression was caused by fish farm escapes.

Recommendation 4.4
A mechanism should be developed to secure access to biological information from past (if possible), current and future farmed strains, in a secure and safe manner to safeguard commercial and competitive interests, whilst delivering essential support to collaborative genetic monitoring and evaluation work;

Powers already exist under the Aquaculture and Fisheries (Scotland) Act 2007 as amended, section 5A empowers inspectors to take samples of fish, material from fish etc for the purposes of assisting in any investigation into escapes of fish from fish farms or assessing the impact of the operations of fish farms on the environment, escapes of fish from fish farms on stocks of fish other than those on fish farms and developing methods of tracing the origins of fish that escape from fish farms.

The principle should be that, where farmed fish have the possibility to escape into the wild and interbreed with wild fish, there should be a strong requirement on fish farmers to enable such introgression to be identified and attributed to particular operators. Of course, in respect of much introgression, this recommendation comes far too late.

Nor should SIWG suggest that any purported commercial interests be allowed to prevent information being provided and widely published.

Note that the principle established by Regulation 10(6) of the Environmental Information (Scotland) Regulations 2004, which implemented part of the Aarhus Convention in Scotland, is that a Scottish public authority shall not be entitled to refuse to make available environmental information relating to anything released by a private operator into the wider environment (in this case, farmed fish) on the basis that the confidentiality of commercial or industrial information or the interests of the person who provided the information are damaged. That would be unlawful.

Recommendation 4.5
The reforms to the regulatory system should encompass provisions to secure investment into addressing strategic research and innovation questions relating to farmed/ wild salmonid interactions;

Of course, while investment into addressing strategic research and innovation questions relating to farmed/wild salmonid interactions should be welcomed, there should be no suggestion that providing financial support for such research should be a *quid pro quo* for the operation of any fish farms.

Whichever Scottish public authority is charged with managing the proposed new licensing system, charging for licences should be set under published charging schemes, in order both to cover the costs of the regulatory system and to enable the regulators to fill any research gaps that may persist in terms of strategic research into farmed/wild salmonid interactions. Arguably, it is the duty of Scottish Government and all Scottish public authorities under the Nature Conservation (Scotland) Act 2004 to exercise their functions to further the conservation of wild salmonids, and this must include seeking to fill the research gaps identified.

Recommendation 4.6
The SIWG acknowledges the importance of sea trout and recommends that further research is undertaken to understand sea and brown trout biology, the factors that influence anadromy in a population and the pressures affecting sea trout populations across Scotland including understanding the impact of sea lice and investigating whether any sea lice burdens are influenced by proximity to established farmed finfish sites.

This recommendation is astonishing in that it fails to appreciate the work that has already been done investigating whether sea lice burdens on sea trout are affected by proximity to fish farms. The work done over the last 20 years on Loch Shieldaig by Marine Scotland Science (and its predecessor, the Fisheries Research Services) has shown a close relationship between fish farms in the second year of production and sea lice numbers on sea trout.

That the SIWG merely recommends further research is undertaken to assess the impact of sea lice and "*whether any sea lice burdens are influenced by proximity to establish farmed finfish sites*" is therefore extraordinary.

The failure of the proposed adaptive management licensing system proposed by the SIWG properly to address sea trout impacts merely underlines how necessary a precautionary approach is, noting, as the Chair of the SIWG has stated in the first line of his Foreword that "populations of wild salmon and sea trout are at critically low levels" in Scotland.

Recommendation 5.1
Scottish Ministers should make salmonid conservation a national priority;

It is, of course, welcome that Scottish Ministers should make salmonid conservation a national priority. It is already a legal duty upon all Scottish Government departments and Scottish Ministers to further nature conservation under the Nature Conservation (Scotland) Act 2004 and that will include the conservation of wild salmon and sea trout.

Recommendation 5.2
The wild salmon strategy announced in the Programme for Government should explicitly identify and address the range of hazards which wild salmonids (salmon and sea trout) face, and which can be managed. The strategy should direct efforts to move beyond the status quo across the range of hazards which wild salmon face. It should clearly define the role of public bodies and future licensing and regulatory decisions should be made in accordance with the strategy.

While a commitment to a wild salmon strategy is to be welcomed and should indeed address the range of hazards which wild salmonids face, it is unclear why the SIWG, with its limited remit dealing with interactions between wild salmonids and farmed fish, should turn its consideration to the wider strategy.

In respect of the range of hazards which wild salmonids face, this recommendation plays again to the helpful 'narrative' that the industry and government currently supports, in trying to diminish the negative influence of the fish farming industry in the aquaculture zone in respect of damage to wild salmonids relative to other pressures.

Recommendation 5.3
Scottish Ministers should champion the delivery of the wild salmon strategy and ensure that sufficient resources are available to ensure that the range of hazards which wild salmonids face are effectively addressed.

Again, while it is important that the delivery of the wild salmon strategy is indeed brought forward with sufficient resources made available, this is a matter beyond the remit of the SIWG, but its inclusion here again plays to the narrative that the industry is seeking to promote, that the impacts caused by its fish farms are only a small proportion of a number of hazards faced by wild salmonids in the aquaculture zone.

Recommendation 5.4
The SIWG recommends that the wild salmon strategy should urgently consider and recommend the introduction of mechanisms to ensure that riverine and riparian habitat improvements are built into changes to the rural payments system.

Similarly, while it is welcome that the wild salmon strategy should indeed consider the introduction of mechanisms into rural payments systems to improve riparian and riverine habitats, that is nothing to do with salmon farming at sea and it is unclear why the SIWG has turned its attention to this recommendation, other than it continues the trend of playing to the narrative that the Scottish Government and industry seeks to promote.

Recommendation 5.5
Scottish Ministers should review the potential to further protect salmon within the context of the salmon conservation regulatory framework, particularly in relation to handling fish during catch and release

S&TCS welcomes the suggestion that Scottish Ministers should review the potential to further protect salmon within the context of salmon conservation regulations including in relation to

handling fish during catch and release, but again it is not clear what this has to do with marine cage fish farming and why the SIWG has turned its attention to this other than, yet again, to promote the narrative that the impact of the marine cage fish farming industry is just one of a large number of potential impacts in the aquaculture zone.

Recommendation 5.6
The SIWG recommend that the data available for conservation assessments is improved through investment in a strategic network of fish counters, improved information on fecundity and sex ratios, and the integration of juvenile data from the National Electrofishing Programme for Scotland into the conservation assessment process;

Similarly, to recommendation 5.5, S&TCS welcomes any investment in a strategic network of fish counters and improved information on fecundity and sex ratios etc in wild salmonid populations, but is unclear what this has to do with marine cage fish farming and the interactions between those wild salmonids and that industry, other than to promote the narrative described above.

Recommendation 5.7
Scottish Ministers should establish a working group, as part of the process of delivering the national salmon strategy to:
• Oversee the delivery of SIWG recommendations and coordinate with working groups established or to be established to oversee interactions with other sectors that may impact upon wild salmonids.
• Assess and review the performance of the reformed regulatory structure;
• Support local engagement structures and consider the results of local wild fish monitoring.

The proposed working group to deliver the national salmon strategy is of course welcome, but it should have no role in overseeing the delivery of SIWG recommendations in respect of fish farmers and the regulation of the fish farming industry, which has already been subject to two Parliamentary inquiries and the work of the SIWG and also of the Technical Working Group, as yet still to report.

At some point, Scottish Ministers have to take responsibility for regulating this industry, without always seeking the prior approval of further working groups drawn from the fish farming industry itself. Nor should the fish farming industry be involved in wider work relating to the national salmon strategy, that is unrelated to the impact of fish farms upon wild salmonids, any more than any other industry or member of the wider public.

Recommendation 5.8
Scottish Ministers should, in recognition of the lack of resources for salmonid management and conservation in Scottish waters, urgently explore new means to improve investment in Scotland's rivers. Experience from other countries should be used to inform a reformed funding mechanism for fisheries management in Scotland, to deliver restoration and conservation programmes to support natural populations of wild salmon and sea trout.

While it is undeniable that the lack of resources for salmonid management and conservation in Scottish waters exists and that new investment in rivers is required, it is unclear why the SIWG is addressing this issue.

It would be totally inappropriate for an industry, that has the potential to cause such damage, including irreversible damage to wild salmonid populations in and beyond the aquaculture zone, to be involved formally in respect of funding for projects to restore populations and deliver conservation programmes to support natural populations of wild salmon and sea trout in general.

If Recommendation 5.8 of the SIWG is designed to involve the fish farming industry formally in providing that funding, it cannot be supported.

It is clear why the industry might wish to have the opportunity to be seen to fund such work, in order to deflect attention from the damage it causes to the self-same populations of wild salmonids, but the SIWG and the Scottish Government should not facilitate such an opportunity.

Recommendation 5.9
Scottish Ministers should, in recognition of the significant resource required to manage wild-farmed interactions appropriately through joint working at a local level, urgently identify means to increase capacity within Fisheries Boards and Trusts in the aquaculture zone and in particular establish an appropriate mechanism for undertaking this function in Orkney and Shetland.

It is clear that resources within the DSFBs and Fishery Trusts in the aquaculture zone are insufficient to allow them to perform their current functions properly.

However, this Recommendation goes to the heart of whether or not DSFBs are now fit for purpose, particularly on the west coast, where they rely on a diminishing levy on fishery proprietors for their existence.

It is important to note that DSFBs do not represent the wider public interest in the conservation and protection of wild salmonids.

If DSFBs are to be given any significant role in the new licensing system applied to fish farms then they either need to take on more of the guise of mainstream Scottish public authorities, with central funding for their activities sufficient to deliver the functions given to them by the Scottish Parliament, or that role needs to be given to another Scottish public authority with adequate resources, as the recommendation appears to be suggesting for Orkney and Shetland.

In respect of Fishery Trusts in the aquaculture zone, these are independent charitable bodies and it would not be appropriate for Scottish Ministers to attempt to use trusts to deliver regulation of the fish farming industry and protection of wild salmonids, which are functions that properly lie with Scottish Ministers themselves.

Discussion and Recommendations

Despite the focus on the need for fundamental change in the regulation of fish farms highlighted by the S&TCS' 2016 Petition to the Scottish Parliament, and the clear findings of both the ECCLR and REC Committee inquiries, the SIWG Report falls a long way short of meeting the challenge laid out by REC Committee's Recommendation 2, that it:

"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".

The requirement that has been imposed on the SIWG by Scottish Government, that the parties must reach consensus on its recommendations, was an unnecessary restriction on the group. This

requirement for consensus has prevented the SIWG from bringing forward recommendations that can rectify damage being caused to wild salmonids by salmon farming.

Scottish Government should not have persisted with this search for consensus and it will continue to be to the detriment of the interests of wild salmonid fisheries and the conservation of wild salmonids, if the effective veto that has been given to the fish farmers continues. Scottish Government should have and should now focus on what it needs to do to deliver the changes the REC and ECCLR Committees so comprehensively laid out to protect wild salmonids, whether or not that requires changes that the fish farming industry opposes.

It is perhaps not surprising, given the need for consensus, that the SIWG, despite its role to addressing wild / farmed fish interactions, has adopted the unhelpful 'narrative' that the impact of fish farms is only one of a large number of pressures upon wild salmonids and has felt able to make recommendations that go far beyond the remit of wild/farmed salmon interactions that the group was given. This has involved the parties, including the fish farmers, in considering the wider conservation of wild salmonids, which is simply not appropriate. In that context, the linkages made by SIWG between reforming the regulation of fish farming, the wider funding of conservation and research into wild salmonids, and the resourcing of DSFBs and Fishery Trusts, are concerning, unhelpful and inappropriate.

Overall, the combined effect of the 'narrative', the requirement for consensus and the focus on resourcing of wider wild salmonid conservation work has been to downplay the significance of both the ECCLR and REC Committee reports and thereby reduce the response that the Scottish Government and fish farming industry then needs to make those reports.

Although the proposed move to licensing, and away from planning, as a means to control the impacts of fish farms on wild salmonids is welcome, overall, the recommendations made by SIWG do not suggest a licensing system that would yet be capable of being "robust, transparent, enforceable and enforced" as claimed (SIWG, 1,.2). It is also worth noting that some of the recommendations rehearse what the REC and ECCLR Committees have already concluded, while others merely reflect the existing law governing fish farming and are not new.

The fundamental failure of the SIWG is to have made no reference to, nor seek to apply the precautionary approach recommended by both the REC and ECCLR Committees. The SIWG's proposed system of adaptive management, without precautionary underpinning, will fail to protect wild salmonids. Unless there is strong proof that damage is being caused to wild fish, no action needs be taken to improve fish farm performance in respect of sea-lice and diseases (SIWG, 2.2). The same principle would apply when considering closing poorly-sited existing farms (SIWG, 1.14).

There is also no requirement for independent monitoring of sea lice number on farms, nor of wild fish. The SIWG fails to recommend or set any precautionary 'backstop' limits for on-farm sea lice, to be set in line with best international standards as the Missing Salmon Alliance has proposed.

The SIWG fails to recognise the wider public interest in wild salmonid conservation beyond the interests of fishery proprietors as represented by the DSFBs.

The SIWG's recommendations do not meet the rights of the public, guaranteed under the Aarhus Convention, to access to information and to participate in decision-making in environmental matters, in relation to the control of impacts of fish farms on wild fish.

In order to provide a proper basis on which the reform of fish farming regulation can proceed, S&TCS recommends that:

1. A strongly precautionary approach must be applied from the outset to the licensing of both new and existing farms, in line with the recommendations of both REC and ECCLR Committees.

2. There must be a back-stop adult female sea lice maximum on all fish farms, rigorously enforced by tough and prompt action, set at 0.5 per farmed fish, dropping to 0.1 during the period of wild smolt emigration, to set a precautionary ceiling on sea lice numbers , below which adaptive management can then be applied.

3. There must be full publication of all relevant data and information and, specifically, individual farm sea-lice numbers and treatment data must be published in as close to real time as possible.

4. There must be strong independence in both the monitoring of sea lice counts on-farm and of wild fish monitoring, and in the assessment of that data.

5. There must be provision for full and proper public participation in the licensing system and adaptive management processes envisaged by the SIWG.