What is wrong with Environmental Management Plans?

June 2021

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Executive Summary

The overwhelming body of scientific information indicates that sea lice from aquaculture can and do negatively affect populations of salmon and sea trout.

Following the Rural Economy and Connectivity Committee's Report, the Scottish Government is for the time being relying on planning authorities controlling impacts on wild salmonid fish from fish-farm derived sea lice by way of planning conditions requiring Environmental Management Plans (EMPs).

EMPs do not follow a precautionary approach, but in effect reverse the burden of proof, requiring that evidence of an impact on wild fish is shown before any adaptive management response on a fish farm is considered.

Typical EMPs require evidence of an impact on wild salmonid populations evidenced over a single production cycle, which renders the EMP process insufficiently responsive to real-world conditions.

EMPs contain no robust enforcement mechanisms that can be used, in practice, to compel a fish farmer to undertake on-farm adaptive management of sea lice control.

Planning authorities do not have the resources to undertake the required enforcement role.

EMPs are based on the premise that impacts on wild fish during a single year can be mitigated by changes on

the farm for subsequent production cycles, but this fails to recognise the cumulative impact of other fish farms and of other pressures on wild salmonid populations in Scotland.

There is an overall lack of transparency in the EMP process, with meetings closed and agreements being reached between the parties, some statutory, some non-statutory, that are not subject to wider public scrutiny.

The very strong public interest in the conservation of the protected species, Atlantic salmon and sea trout, is not recognised within the EMP process.

Overall, the EMP approach does not provide anything approaching the level of certainty that is required for effective mitigation of the likely effects on wild salmonid populations of sea lice emanating from fish farms in Scotland.

Recommendations are made to deal with the failings of the interim EMP-based system and to inform any future regulatory system to be applied to fish farms in Scotland.

1. Introduction

There is concern that wild salmonid fish populations (both salmon and sea trout) have been diminished dramatically by sea lice emanating from marine open-net salmon farms in Scotland and that the further anticipated expansion of the industry will exacerbate those negative impacts.

A 2018 review, commissioned by Salmon & Trout Conservation Scotland (S&TCS) from the Norwegian Institute for Nature Research (NINA)[1] examined all available research on the impact of sea lice, and concluded that "the combined knowledge from scientific studies provides evidence of a general and pervasive negative effect of salmon lice on salmonid populations in intensively farmed areas of Ireland, Norway and Scotland. … Levels of additional mortality by salmon lice as indicated in several scientific studies may result in salmon stocks not achieving river specific conservation limits and, if sustained over time, could result in significant cumulative reductions in adult salmon recruitment".

This is now widely accepted. Marine Scotland Science's latest 2021 summary of evidence paper[2] concludes that

[1] Thorstad EB and 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 at https://brage.bibsys.no/xmlui/handle/11250/2475746

[2] MSS (2021) Impacts of lice from fish farms on wild Scottish sea trout and salmon: summary of science, available at https://www.gov.scot/publications/summary-of-information-

"the body of scientific information indicates that there is a risk that sea lice from aquaculture facilities negatively affect populations of salmon and sea trout on the west coast of Scotland".

The issue at play here is that emigrating juvenile salmon smolts, as they migrate through coastal waters at the start of their long ocean journeys to their marine feeding grounds, are likely to be infested by sea lice emanating from the fish farms, where sea lice on farmed fish will likely breed and be released into the wider environment in numbers many orders of magnitude higher than any natural or background levels. That infestation will cause mortalities at sea in juvenile wild salmon, such that many fewer adults then return to breed in in subsequent years.

Sea trout, which generally remain in coastal waters during their periods at sea, will be vulnerable to sea lice infestation throughout these periods; sea trout mostly return to rivers in summer or autumn to spawn before returning to sea to feed where they are again exposed to renewed sea lice infestation risk.

As Marine Scotland Science acknowledges "in Scotland, salmon farms have been shown to be a much more important contributor than wild fish to the total numbers of sea lice in the Scottish coastal zone"…and that "concentrations of larval lice sampled in areas near farms relate to the local farm lice loads"[3].

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[3] MSS (2021) Impacts of lice from fish farms on wild Scottish sea trout and salmon: summary of science, at https://www.gov.scot/publications/summary-of-information-

In that context, Scotland needs to meet the objective of the 2009 North Atlantic Salmon Conservation Organisation (NASCO) 'Guidance on Best Management Practices to Address Impacts of Sea Lice and Escaped Farmed Salmon on Wild Salmon Stocks' that "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".

Further expansion of salmon farming in Scotland will make meeting the NASCO objective even less likely than is the case currently.

2. The role of planning authorities and typical planning conditions for EMPs

Following the Rural Economy and Connectivity Committee's inquiry and report 'Salmon Farming in Scotland', the Scottish Government suggested that, at least in the interim, planning authorities needed to ensure that wild fish impact caused by farm-derived sea lice was properly controlled:

"…we will take pragmatic action to ensure that the arrangements for regulating fish farm developments are strengthened to provide proportionate and precautionary management of the risk to wild fish based on an adaptive management approach. Thus, as part of any future request for planning advice from now on Marine Scotland will expect an Environmental Monitoring Plan

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to be delivered as a condition of any consents for marine aquaculture planning applications. This Plan will stipulate that an effective monitoring regime should be put in place in the identified aquaculture farming area and will detail what its key components should be….This approach will not only provide a swift strengthening of the protections in the planning process in the short and medium term but also a mechanism to inform the longer term determination of a regulatory framework in this area and thus become part of a staged approach to building a long-term set of arrangements to fill the current regulatory gap"[4].

This "regulatory gap" exists because the legislative powers conferred on the Fish Health Inspectorate by current legislation such as the Aquaculture and Fisheries (Scotland) Act 2007, as amended, are limited to the health and welfare of the fish within the cages and cannot be used to regulate any impacts on wild fish outside the cages. Similarly, in relation to the consideration that SEPA gives when consenting biomass, the impact of sea lice from that biomass on wild fish is not part of SEPA's remit.

However, under the Nature Conservation (Scotland) Act (2004), all public bodies in Scotland are required to further the conservation of biodiversity when carrying out their responsibilities. That includes planning authorities.

Therefore, given the perilous condition of west coast stocks of both salmon and sea trout, local planning authorities have had no choice but to try to mitigate the

[4] Letter from Fergus Ewing, Cabinet Secretary to Edward Mountain Chair REC Committee 29th January 2019

effects of new and expanded salmon farms, by way of planning conditions, requiring EMPs for all planning applications relating to fish farms.

This is not considered ideal by most parties, including Fisheries Management Scotland which has stated that "whilst monitoring of impacts on wild fish has become a condition of recent planning decisions through a requirement to produce an Environmental Management Plan, local authorities accept that this is an imperfect solution"[5].

Planning authorities too have expressed their own strong reservations as to the effectiveness of these EMP conditions, not least in their written and oral evidence to the ECCLR and REC Committees in 2018.

It is also apparent that, simply by engaging in the EMP process, District Salmon Fishery Boards are tacitly accepting that EMPs are sufficient mitigation, when they are not. The minutes for the Argyll District Salmon Fishery Board meeting in November 2020 record that "the Board almost always object to those farms but on the basis that these farms may go ahead the Board are then in negotiation regarding the EMP which leaves the Board in a compromised position".
Nevertheless, EMPs are now the 'norm' for new marine fish farms or expansion of existing farms, usually with planning permissions conditioned accordingly.

[5] Rural Economy and Connectivity Committee
Salmon Farming in Scotland - Submission from Fisheries Management Scotland 2018

A typical planning condition, this one for a farm on Mull (Geasgill), is shown below. Similar planning conditions have been applied in other planning permissions.

"6. Prior to any increase in biomass above 2091 tonnes, the site operator shall submit a revised Environmental Management Plan (EMP) for monitoring and managing the interactions between the operation of the farm and the wild fish environment to be approved in writing by the Planning Authority, in consultation with Marine Scotland and the Argyll District Salmon Fishery Board.

The EMP shall include the following information:

A. Details of the monitoring scheme which shall report on the level of lice released into the environment to include both farmed fish numbers and adult female lice numbers.
B. Identification of the likely area(s) of sea lice dispersal from the farm.
C. Details of how and what monitoring will be collected to assess potential interaction with wild fish.
D. Details on how this monitoring information will feed back to management practice.
E. Detail of a regular review process to ensure that the EMP remains fit for purpose.

Following the approval of the EMP by the Planning Authority in consultation with Marine Scotland and the Argyll District Salmon Fishery Board, the site shall be

operated, monitored, and managed thereafter in accordance with the duly approved EMP, or any subsequently approved variation thereof".[6]

3. What do typical EMPs require?

Firstly, it is important to understand that EMPs do not follow the precautionary approach and, in effect, reverses the burden of proof, requiring that evidence of a real impact is shown before any adaptive management response is required.

However, even on the non-precautionary basis, EMPs are flawed and will not work.

The basic premise of the adaptive management, as embodied in EMPs, is that monitoring of wild fish (usually wild sea trout) will show the sea lice pressure to which wild fish (including salmon smolts) are being subjected and, if deemed excessive, there will be a management response on the fish farm.

For example, the planning condition as applied at Geasgill provides for this in subsections C and D.

So, the EMP theory goes, if this farmed-derived sea lice pressure on wild fish reaches certain thresholds, shown by wild fish monitoring, then some form of adaptive

[6] Condition 6 of permission granted by the Argyll and Bute Council in December 2019 for the modification of salmon farm comprising the addition of two x 100 metre circumference cages and increase of biomass from 2091 tonnes to 2500 tonnes, Fish Farm Site Geasgill Loch Na Keal Isle Of Mull

management response is and will be required on salmon farms, to reduce the sea lice load being caused by those farms.

A recent application for a new farm at Millstone Point off Arran includes a typical example of an EMP.[7]

The Millstone Point EMP is stated to have been "designed to satisfy the EMP criteria set by Marine Scotland Science (MSS), and also to encompass the recommendations made by the Salmon Interactions Working Group (SIWG) (2020). The Local Planning Authority (LPA) regulates potential interactions between aquaculture and wild fisheries through planning powers afforded by the Town and Country Planning (Scotland) Act 1997, in addition to acting under its biodiversity responsibilities under the Nature Conservation (Scotland) Act 2004. Where this EMP is implemented by means of a Planning Condition, this provides the LPA with enforcement capabilities to ensure adherence by SSC to the environmental management commitments detailed within the EMP".

While this EMP, like most EMPs, repeats a great deal of what is supposed to be normal practice to deal with sea lice on-farm, per the industry's own Code of Good Practice, the detail of what an EMP seeks to achieve is found in what is required in terms of wild fish monitoring and feedback to on-farm practices.

[7] The Scottish Salmon Company (2020) Environmental Management Plan North Arran, FMA-XX, December 2020. Note that the planning application at Millstone Point was refused but on landscape grounds.

For example, in the Millstone Point EMP this is contained in Prescriptions 4.3 to 4.6, but this is typically what all EMPs require.

Prescription 4.3, on Continuous Operational Monitoring Feedback Loops, describes the basic premise: “the application of feedback loops, will help to inform the appropriate implementation of both preventative and reactive SLMS treatment measures. Ongoing monitoring measures on-site, and furthermore, monitoring in the wider marine environment will actively inform adaptive sea lice management decisions made during operations, as well as the longer-term management of preceding generations and production cycles”. Prescription 4.4 on Feedback from Wild Fish Monitoring commits the fish farmer “to meeting with all relevant parties twice per production cycle. It is expected that one meeting will occur mid-production cycle to discuss any themes resulting from the first year of the cycle, including monitoring results from the Wild Fisheries Sea Lice Monitoring Strategy and on-farm lice management. The second meeting will be reserved for the end of cycle review as detailed in Prescription 4.5, to take place during the fallow period prior to restocking of the Site”.

So, the EMP requires that there will be meetings and discussions mid cycle and during the typical 6 week fallow period at the end of a cycle.

Prescription 4.5 on End of Production Cycle Review then gets to the actual requirements that can flow from the EMP, namely that “following the completion of each production cycle, and ahead of fish being stocked to the Site for the next Production Cycle, a meeting will be held between SSC and all relevant parties to review all

relevant monitoring data collected through the Production Cycle. This monitoring data will be presented as an End of Production Cycle Report".

So, there will be a meeting to discuss a report produced by the fish farmer, which should include a review of the results of any wild fish monitoring.

Prescription 4.5 continues: The Scottish Salmon Company "shall identify and deploy outcome-focussed farm management measures designed to remedy impacts on wild salmonid populations caused by farming activity, if evidenced through the Wild Fisheries Sea Lice Monitoring Strategy in the previous Production Cycle. These may include, for example, a reduced cumulative area lice threshold for farms in the management area (see Prescription 1.1) or the implementation of alternative technologies (See Table 4). The WFSLMS will contain details of pre-defined triggers, as agreed by the relevant parties. The requirement to adapt current management measures will be assessed against these criteria".

So, the fish farmer will identify on-farm management efforts to be made to "remedy impacts on wild salmonid populations caused by farming activity, if evidenced through the Wild Fisheries Sea Lice Monitoring Strategy in the previous production cycle".

However, it is important to understand and appreciate that the wording of this EMP means that, for any action to be required here from the fish farmer to change on-farm practices, there has to be <u>evidence of an impact on wild salmonid populations, evidenced in the last production cycle.</u>

In reality, it is likely to take several production cycles to get anything like sufficient data to show population-level effects. The gathering of the detailed and intensive monitoring data, that would be required to show such an impact over a single production cycle, is a practical impossibility. It is very basic fisheries science that population effects will take more time to materialise.

Prescription 4.5 then requires that “the Site shall not be restocked until the alternative management actions identified by The Scottish Salmon Company, have been agreed by the LPA, in consultation with the relevant parties. This review process will also provide the opportunity to agree any potential changes to the EMP and supporting documents with the relevant parties”.

This does appear to give a planning authority some degree of control over a fish farm, but this can only be used if there is evidence of an impact on wild salmonid populations, evidenced in the last production cycle.

Finally, Prescription 4.6: Engagement Procedure describes how any engagement between the parties outside the two meetings per cycle is to occur:

“Outwith the formalised meetings described in Prescriptions 4.4 and 4.5, relevant parties on the EMP may contact another in the event that monitoring activities or risk assessment suggest that farming activity may be directly impacting wild salmonids. The engagement procedure will be undertaken as follows:

1. Either party (the ‘initiator’), notifies the other (the ‘recipient’) by email or in writing the reasons for initiating contact. This notification will include the necessary

information that has triggered the initiator to make contact for example, results of the wild fish monitoring that evidence impacts, or an increased risk, to wild salmonid populations resulting from farming activity. The notification will indicate a time frame in which management action is requested to be taken;

2. Examples of such information that may result in engagement include, but are not limited to: significantly elevated lice levels detected during monitoring; the notification of atypical management measures relating to either recreational fisheries or farm management; matters of urgency relating to biosecurity within the local environment; or matters of urgency relating to the health and welfare of fish which would benefit from the assistance of the other party. The notification should also include a statement of urgency and anticipated outcomes of the engagement;

3. The recipient will assess the evidence in the light of the aims of this EMP and indicate what management action needs to be taken and the metrics that will be used to review success within a suitable time frame;

4. Where the engagement cannot be concluded in writing and further action is required, that a meeting may be facilitated e.g. to accommodate the sharing or presentation of information/data; or to discuss further potential management actions; and

5. Any disputes regarding interpretation of this EMP or action arising out of the EMP shall be referred to an appropriate mediator as may be agreed by the relevant parties".

Importantly for the enforceability of actions here (indeed under the EMP as a whole) the effect of 5 above, is to allow the fish farmer to push any disagreement or dispute over what wild fish data is or is not showing, or what response there should be to that data, to mediation. In reality, there is no hard point against which a planning authority can require or force action.

Ultimately, if mediation is not undertaken quickly, or fails, the EMP is silent as to how adaptive management can be imposed on the fish farm, but note that the failure of mediation, or of a fish farmer to agree what wild fish monitoring data shows, or what adaptive management may or may not be required on-farm, is not a breach of the typical planning condition.

The inability of EMPs to compel changes on fish farms without the fish farm company's consent has been illustrated clearly in the recent decision, in February 2021, of the Comhairle nan Eilean Siar to grant planning permission for a major expansion of The Scottish Salmon Company's (TSSC's) farm at Plocrapol on the east side of Harris.

The EMP that forms part of the planning permission for that expansion was submitted to and accepted by Comhairle nan Eilean Siar without the applicant company consulting with the Western Isles District Salmon Fishery Board which confirmed that it "had no input in to the EMP referenced in the planning consent".

Importantly, that EMP emphasises that "the ultimate decision to undertake biomass reduction will be undertaken by TSSC veterinarians and senior TSSC management".

In other words, in the absence of agreement from the fish farm company, the other parties to the EMP cannot compel the company to undertake a reduction in on-farm biomass in order to protect wild fish from farm-derived sea lice.

4. Cumulative and other impacts on wild salmonid populations

Nor do EMPs take proper account of the already parlous state of wild salmonid populations and the multiple pressures they already face.

The Cabinet Secretary, in his response to the REC Committee Report[8], noted that Scottish Government "have jointly identified with Fisheries Management Scotland and its members 12 high level groups of pressures which, depending on local circumstances, impact on the conservation status of Scotland's wild salmon populations. These range from the impact of legal and illegal exploitation (including angling and netting); predation and competition; barriers to migration, either upstream and/or downstream; water quality, quantity and/or temperature; the habitat on both the river bank and river bed; invasive non-native species; coastal and marine developments to, as focused on by the Parliamentary inquiries, the potential impact of farmed sea lice and genetic introgression, such as resulting from farmed fish escapes".

[8] Letter from Fergus Ewing, Cabinet Secretary to Edward Mountain Chair REC Committee 29th January 2019

As SAMS had already concluded in its report for the ECCLR Committee "with the currently high marine mortality rate for wild salmonids, and threatened status of many river stocks, any additional pressure, such as increased sea lice burdens, is undesirable, and could further erode the conservation status of vulnerable wild populations"[9].

Fisheries Management Scotland has noted that "it is important to recognise that a small increase in marine mortality, due to sea lice, can result in losses of Atlantic salmon which may be the difference between a river meeting its conservation limits or not – this might be the difference between being categorised as Grade 2 rather than Grade 3, under the Scottish Government conservation measures. It is also important to emphasise that sea trout are a very important component of west coast fisheries and are Priority Marine Features in their own right"[10].

In that context, any additional pressure, even if exerted only on a single smolt emigration, is highly unwelcome.

However, as NatureScot has made clear in its responses to the Millstone Point application[11], the EMP process does not prevent elevated lice levels, even (in this case) when a population of wild salmon from a

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[9] SAMS Report to ECCLR Committee

[10] Environment, Climate Change and Land Reform Committee
Environmental impacts of salmon farming
Written submission from Fisheries Management Scotland

[11] Letter to Guy Linley-Adams, for Salmon and Trout Conservation Scotland 3rd February 2021.

Special Area for Conservation (the Endrick Water SAC) is likely to be impacted:

NatureScot has stated that “we consider that short term elevated lice levels will not compromise this conservation objective [of the Endrick Water SAC]. Persistent elevated live levels recurring during the smolt run period could in the long-term compromise this objective. The EMP process provides a framework to collect and review the relevant data required to assess the level of risk. This includes a commitment not to restock the site until the Local Planning Authority has agreed the review process, and is satisfied that should any elevated risk have been identified, that this risk can be addressed before the site is restocked. Should the LPA conclude that the risk has not been mitigated then they have a mechanism to prevent the farm from being restocked, providing an enforceable framework to remove risks…”

NatureScot appears to be arguing that, due to the naturally overlapping generations of wild salmonids, elevated lice levels in a single year (usually the second year of production on a fish farm) will not compromise wild salmonids and that the planning authority can address this at end of cycle by withholding consent for restocking the site.

However, as shown above, an EMP can only achieve that if there is evidence of an impact on wild salmonid populations, evidenced in the last production cycle.

Even if this were an acceptable position, which is doubtful, NatureScot fails to recognise that smolts in both previous and subsequent years have and will face

a range of other pressures that damage wild fish populations, as well as sea lice emanating from other fish farms, which will not necessarily be in synchronous production with the farm in question. In other words, if one farm on the migration routes out of the rivers is in the first year of production, with low lice levels, other farms on that route may well be in the second year with heavy lice loads impacting departing smolts. There is, in practical effect, no 'lice-free window' for emigrating smolts.

For example, consider where departing smolts from the Endrick Water SAC have to swim. They likely pass existing farms at Carradale (N &S) and Lamlash Bay off Arran. They will be exposed to the sea lice emanating from the Loch Fyne system, which holds ten fish farms. They will then, in all probability, though we are not sure on exact migration routes, pass through narrow pinch points such as the Sound of Mull, between Mull and Morven, and the Sound of Sleat, between Skye and the mainland, where lice from other farms will increase infective pressure on the departing smolts. The cumulative impact on smolts emigrating from Endrick Water is unknown, but is highly unlikely to be insignificant.

Therefore, any period of high sea lice levels on any farm on or within lice dispersion range of a wild salmon migration route will risk causing harm to wild salmon populations and, as NatureScot acknowledges, an EMP cannot prevent that.

5. Enforcement of EMPs

As the Missing Salmon Alliance position statement in March 2020 identified, “any adaptive management of fish farms, to be based on monitoring of wild fish, must be robust, independent, transparent and open to public scrutiny, with clear thresholds and deadlines for rapid action on-farm where problems are identified or suspected, and an appropriate regulator charged with enforcement of such management measures”[12].

However, for now, the policing of EMPs falls to already overstretched local planning authorities.

These authorities, by their own admissions, do not have the expert resources to consider wild fish monitoring data and what an appropriate response might be for a fish farm to what such data shows.

Nor can they consider the likely cumulative impacts on wild fish populations – that is simply not their statutory function – including those impacts that might be caused by fish farms in other authorities’ areas.

Planning authorities cannot realistically be expected to be involved in, and cannot, in any event, enforce on matters to do with the detailed or day-to-day implementation of the EMP.

Importantly, there is no general requirement for planning authorities to routinely inspect developments, including fish farms, in order to identify breaches of planning controls.

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[12] MSA March 2020

Planning authorities also have a general discretion as to the nature of enforcement action that they take, or decide not to take, including in relation to any breach of a planning condition, which could be the case with EMPs.

Most importantly, the reality of EMPs is that they lack any form of proper enforcement mechanisms that can be relied upon.

It is worth noting what the Skye and Wester Ross Fisheries Trust said very recently[13] on the use of EMPs:

"All new farms were required to submit an Environment Management Plan [EMP] to the Highland Council prior to the commencement of developments. The EMPs aim to ensure that wild fish populations in areas that could be affected by the new farm are monitored and that if sea lice levels exceed agreed thresholds, that actions will be taken to improve the situation through management intervention. However, so far, what those 'thresholds' would be has not been agreed. There is still uncertainty about the number of sea trout required to provide an adequate sample (if they can be caught) and the number of lice that would be required to be able to demonstrate that a 'threshold' had been crossed. Furthermore, given that in some areas there are many farms in close proximity from which larval sea lice will mix, it is not clear which farm(s) would be required to take action. Given recent WRASFB experiences with attempts to defend wild fish from salmon farm developments in Loch

[13] The Skye and Wester Ross Fisheries Trust Review (September 2020)

Torridon, one can imagine a series of increasingly expensive challenges if actions that might affect the profitability of a fish farm were to be proposed."

Disputes between the parties to an EMP, over what wild fish monitoring data shows and how this data should lead to responses in on-farm management practices, are highly likely.

If a fish farmer wishes to avoid restrictions on the operation of a farm (including any potential reduction in allowed biomass of farmed fish), all the fish farmer has to do is maintain a position that sea-lice from a particular farm are not, in his view, responsible for any high lice loads seen on wild fish.

Typically, it has been the usual response of fish farmers to blame high sea lice levels on wild fish on a variety of other factors, such as lice being a natural phenomenon, there being a lack of freshwater input to the sea lochs in any particular year, or high summer water temperatures being to blame etc. Nor do fish farmers generally accept the premise that farm-derived sea lice can harm wild salmonid populations.

As Marine Scotland Science has just concluded, "in view of uncertainties in available information, it is not a straightforward task to ascribe impact from a single farm to a specific wild salmonid population"[14]. However, it is

[14] MSS (2021) Impacts of lice from fish farms on wild Scottish sea trout and salmon: summary of science, at https://www.gov.scot/publications/summary-of-information-relating-to-impacts-of-salmon-lice-from-fish-farms-on-wild-scottish-sea-trout-and-salmon/

that premise – that an EMP can identify what adaptive management response is required on a particular farm in response to an evidence impact – that is at the heart of the EMP process.

In that context, as long as the fish farmer merely ‘stands his ground’ (and, if necessary, pushes matters to what might be long-winded mediation) they will not have breached their EMP commitments, and associated planning condition, leaving the planning authority unable to do anything to enforce change on a farm, both within a production cycle and in subsequent cycles, even where sea lice numbers on wild fish are very high.

In the face of such a position, even if the fish farmer is in a minority of one, the only place for the other parties to take the matter, under the EMP, is mediation. However, entering mediation can be a long and protracted process and has no guarantee of success. It is highly unlikely that mediations can be achieved in the typical 6 week fallow period between production cycles, even if the parties were all willing participants, which, in the case of fish farming, is unlikely.

In relation to the withholding of permission by planning authorities for re-stocking in the subsequent production cycle, it is highly unlikely indeed that any planning authority would take such a step, given that it can only be taken if there is evidence of an impact on wild salmonid populations, evidenced in the last production cycle. Given that impossible evidential burden, any decision to refuse consent for restocking by a planning officer would likely be met with an immediate (and probably successful) legal challenge by the fish farmer.

In that context, no reasonable planning authority would risk such an expensive outcome.

6. Transparency in EMP procedures

The EMP process, its meetings and how agreements are to be reached between the parties are far from transparent.

It is important to remember that the public interest in salmonid conservation is much wider than the narrow interest of wild fishery proprietors. Atlantic salmon is a highly protected species under nature conservation law 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 wild fishery bodies only.

The meetings envisaged, and data generated under the EMP process, are not required to be published. The rights of the wider public, guaranteed under the Aarhus Convention, to access to information and 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, are far from being met by the EMP process.

Note. In late 2020 S&TCS issued FOI requests regarding EMPs to most of the relevant Boards. The responses were unsatisfactory and/or inadequate and consequently S&TCS referred the majority to the

Scottish Information Commissioner. The latter's responses are awaited.

7. Conclusions

The overall approach of EMPs is quite contrary to that required by policy and law. What is required is certainty of prevention of impacts in accordance with the precautionary approach, but EMPs do not deliver that.

The approach set out in the EMP is explicitly not one of prevention, but of attempt to remedy impacts after the event. The EMP requires impact to be demonstrated before any action is taken.

The adequacy of data is uncertain. It is unlikely that sampling of sea trout over a large area during one production cycle would be adequate to demonstrate impact. The evidence must be of impacts on populations, and those must be "caused by farming activity" and "evidenced in the previous production cycle".

It is likely to take several cycles to get anything like sufficient data to show population level effects. The gathering of the detailed and intensive monitoring data, that would be required to show such an impact over a single production cycle short time period, is a practical impossibility. Basic fisheries science tells us that population effects will take more time to show themselves.

The conclusions to be drawn from the data are uncertain. There is no clear scientific evidence to

translate data relating to sea lice on sea trout to conclusions relating to the action required, in relation to which farms, so as to be certain that no impact is caused.

Local planning authorities are totally unequipped in terms of both expertise and funding to carry out the intended exercise. There is only a short period between the end of one production cycle and the beginning of the next in which they would have to demonstrate impact and justify the necessary measures against a background of potential legal action from the operator of the farm concerned.

Critically, enforcing effective and prompt action against an unwilling fish farmer is impossible under EMPs.

Overall, the EMP simply does not provide anything approaching the level of certainty that is required and is not therefore effective mitigation for the likely effects on wild salmonid populations of sea lice emanating from fish farms.

8. Recommendations

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

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

- there should be a back-stop adult female sea lice maximum on all fish farms, subject to a strict inspection and enforcement regime, set at 0.5 per farmed fish, dropping to 0.1 during the period of wild smolt emigration, below which adaptive management can, in time, be applied.

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

- there should be strong independence in both the monitoring of sea lice numbers on-farm and of wild fish monitoring, and in the assessment of that data.

- there should be provision for full and proper public participation in the licensing system and adaptive management processes envisaged[15].

In the meantime, S&TCS' position remains that before there can be any consideration given to expansion of salmon farming, the REC Committee's Recommendation 2 should be the guide for planners – that "urgent and meaningful action needs to be taken to address regulatory deficiencies …and environmental issues before the industry can expand".

[15] Salmon and Trout Conservation Scotland Briefing for MSPs November 2020