Public Document Pack

Argyll and Bute Council
Comhairle Earra-Ghàidheal Agus Bhòid

Executive Director: Douglas Hendry

Kilmory, Lochgilphead, PA31 8RT
Tel: 01546 602127 Fax: 01546 604435
DX 599700 LOCHGILPHEAD

24 November 2023

SUPPLEMENTARY PACK 1

PLANNING, PROTECTIVE SERVICES AND LICENSING COMMITTEE - ON A HYBRID BASIS IN THE COUNCIL CHAMBER, KILMORY, LOCHGILPHEAD AND BY MICROSOFT TEAMS on **TUESDAY, 28 NOVEMBER 2023** at **10:30 AM**

I enclose herewith supplementary report number 1 containing additional information in relation to **item 3 (MOWI SCOTLAND LTD: FORMATION OF FISH FARM (ATLANTIC SALMON) INCORPORATING TWELVE 120M CIRCUMFERENCE CIRCULAR CAGES AND SITING OF FEED BARGE: NORTH KILBRANNAN FISH FARM, NORTH OF COUR BAY, KILBRANNAN SOUND, EAST KINTYRE (REF: 20/01345/MFF))** which was not included on the Agenda for the above meeting.

Douglas Hendry
Executive Director

SUPPLEMENTARY REPORT NO. 1

3. MOWI SCOTLAND LTD: FORMATION OF FISH FARM (ATLANTIC SALMON) INCORPORATING TWELVE 120M CIRCUMFERENCE CIRCULAR CAGES AND SITING OF FEED BARGE: NORTH KILBRANNAN FISH FARM, NORTH OF COUR BAY, KILBRANNAN SOUND, EAST KINTYRE (REF: 20/01345/MFF) (Pages 3 - 48)

Report by Head of Development and Economic Growth

Planning, Protective Services and Licensing Committee

Councillor John Armour
Councillor Jan Brown
Councillor Kieron Green (Chair)
Councillor Daniel Hampsey
Councillor Mark Irvine
Councillor Paul Donald Kennedy
Councillor Luna Martin
Councillor Peter Wallace
Councillor Gordon Blair
Councillor Audrey Forrest
Councillor Amanda Hampsey (Vice-Chair)
Councillor Graham Hardie
Councillor Andrew Kain
Councillor Liz McCabe
Councillor Dougie Philand

Contact: Fiona McCallum Tel. No. 01546 604392

Argyll and Bute Council
Development and Economic Growth

Delegated or Committee Planning Application Report and Report of Handling as required by Schedule 2 of the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 relative to applications for Planning Permission or Planning Permission in Principle

---

Reference No:	20/01345/MFF
Planning Hierarchy:	Local Application
Applicant:	MOWI Scotland Ltd.
Proposal:	Formation of fish farm (Atlantic Salmon) incorporating twelve 120m circumference circular cages and siting of feed barge
Site Address:	North Kilbrannan Fish Farm, North of Cour Bay, Kilbrannan Sound, East Kintyre

---

SUPPLEMENTARY REPORT NO. 4

1.0 INTRODUCTION

The purpose of this report is

- To advise Members of late representations received since the initial Hearing date on 29th August 2023;
- To advise Members of further supporting information submitted by the applicant.
- To advise Members of the updated advice from NatureScot on the Endrick Water SAC following the adjournment of the previous Hearing in August.
- To advise Members of an updated consultation response from SEPA which contains advice on the wild swimming issue.
- To advise Members of consultation response from Natural England
- To provide a set of amended conditions and a revised Appropriate Assessment in light of updated consultation advice from NatureScot and SEPA.

2.0 LATE REPRESENTATIONS

Wildfish, c/o Rachel Mulrenan (email dated 6/9/23)

Query about wild fish monitoring data (2021 – 2022) collected as part of the Carradale North and South EMP not being available on the Council's planning portal.

The additional salmon smolt tracking data showed up smolts near the North Kilbrannan site that were from salmon SAC rives other than the Endrick SAC. I would therefore like to ask:

What advice has NatureScot given the Council on those non-Endrick water SAC smolts?

What advise has the Council requested and / or received from NatureScot and Natural England (in respect of English salmon SACs) as to the likelihood of smolts from SAC rives in south west Scotland (the Bladnoch) and north west England (the Derwent and Eden) being affected by the proposed development.

Comment: NatureScot has provided a revised response to the planning authority which includes consideration of the SACs noted above. These sites have also been included in the revised Appropriate Assessment.

River Doon District Salmon Fishery Board (dated 29th August 2023)

In relation to the proposed Hearing RDDFSB are happy to defer to the representations which they understand have and will be made by Argyll & District Salmon Fishery Board and Argyll Fisheries Trust who are best placed to identify the serious issues which could arise for Wild Atlantic Salmon and Sea Trout populations should this planning application be granted.

Comment: This point is noted.

G. H. F. S Nickerson, Cour Ltd., Carradale (dated 9/11/23)

Cour Ltd,. has previously contacted SEPA requesting that the CAR licence that they have issued for this site be revoked.

The objector is of the view that in the absence of the required evidence to prove that SEPA have fulfilled their statutory duty to assess the impact of licenced activities on other marine users, the Council must surely adopt the precautionary principle.

In respect of condition 16 (now proposed condition 17), the objector advises that we note that Dunstaffnage Fish Farm has finally provided their mitigation measures for hydrogen peroxide treatment, which the Council appear to have accepted. The proposal is to alert two Community Councils, two activity companies and to display a relatively small sign on the fish farm itself. The objector is of the view that the proposed sign will provide no protection at all, since it only states treatment is occurring, gives no indication that there is a hazard, nor what action to take and could only be read once the impacted person is already within the hazard area.

Based on figures from the neighbouring Carradale Farm, we understand that the North Kilbrannan Fish Farm is likely to create the following additional pollution annually: copper from nets: 0.7 tonnes, zinc from feed and nets; nitrogen as ammonia and urea; 17 tonnes, phosphorus from food and faeces: 23 tonnes; organic carbon from waste food and faeces: 543 tonnes (equivalent to dumping raw sewage from a town of 27,150 inhabitants) and antibiotics – oxytatracycline 54kg and tetracycline 14kg. It does not seen appropriate to licence the release of these pollutants in a recreational area where people swim. I would urge Argyll and Bute Council to apply the precautionary principle and wait until it has had time to take this latest data on post-smolt migration routes fully into account before making any decision on this application.

We are extremely concerned at the Council's approach to the evidence within the handling report. We disagree that there is sufficient comfort from the supporting information and consultation responses to conclude that the proposal would not have a significant adverse impact on human health which would provide a sustainable reason to refuse this planning application. It is impossible to see how this position can be upheld when we have submitted the responses from evert relevant authority on this subject, all of whom have clearly stated that no such evidence or expertise currently exists. Worse still, the original licensing of these chemicals never envisaged that they would be used in proximity to humans other than the operators for whom extreme protection measures are recommended. Therefore it is a matter of record that there is no official evidence that public safety will be ensures, the entire licensing process has been based on flawed assumptions about the circumstances in which the chemicals will be used and furthermore SEPA have admitted that they have not actually

conducted the necessary safety analysis at all which is their statutory duty. Under these circumstances, the precautionary principle must apply unless the systematic independent review recommended by the NHS has been carried out.

Comment: SEPA have advised that there is no evidence or likelihood of these substances posing a risk to wild swimmers. Please see further comments from SEPA below.

Derwent Owners' Association (dated 10/11/23)

Two scientific papers as a result of research work show, among other things, that Atlantic salmon smolts from the Cumbrian Derwent SAC have been detected on the west side of Arran in the Kilbrannan Sound. The original Habitat Regulations Assessment produced by NatureScot, stated that the proposed new fish farm at North Kilbrannan," if approved would not beyond reasonable scientific doubt, negatively impact on wild salmon …." This conclusion was based upon the information available at that time on sea lice dispersal modelling and evidence relating to smolt migration routes in the Firth of Clyde where no smolts had been detected on the west side of Arran. However, the researchers themselves acknowledged that further studies were required to determine the duration and potential risk of fish farm exposure to migrating smolts. In the light of this new information and data from Mowi's EMP for the nearby Carradale farm, I understand that NatureScot has updated its HRA. I would urge Argyll and Bute Council to apply the precautionary principle and wait until it has had time to take this latest data on post-smolt migration routes fully into account before making any decision on this application.

Comment: *NatureScot has provided a revised response to the planning authority which includes consideration of the SACs noted above. These sites have also been included in the revised Appropriate Assessment.*

Dennis Archer (email dated 16/11/23): I believe that all the same reservations regarding wild swimmers at this site apply as did those at Dunstaffnage. I do not believe that planning permission should be granted at North Kilbrannan, but if it is then there should be conditions attached imposing a Communications Plan which would apply whenever medicines or treatments are to be used at the site.

If this is to happen then the requirements of the Plan should be much more demanding than those which were agreed by the Council with Scottish Sea Farms at Dunstaffnage. They should require public notification of each and every treatment event. The Council may wish to consider carefully other conditions in light of experience at Dunstaffnage.

Comment: In light of SEPA's advice in relation to wild swimming, a monitoring and communications plan condition is no longer proposed. The requirement for mitigation in relation to public health effects upon wild swimmers is not considered.

Dr. Tom Appleby, The Blue Marine Foundation, 3rd Floor South Building, Somerset House, London WC2 R1LA (dated 20/11/23 and 22/11/23): Believe that the letter from NatureScot dated 13 November 2023 is legally defective.

Regulation 48(3) Conservation (Natural Habitats &c.) Regulations 1994 states:

"The competent authority shall for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority may specify."

Regulation 4(1) states:

"Subject to paragraph (2), in these Regulations "nature conservation body" means Natural England, the Countryside Council for Wales or Scottish Natural Heritage [SIC]; and references to "the appropriate nature conservation body" , in relation to England, Wales or Scotland shall be construed accordingly."

Unless Argyll and Bute Council have separately contacted Natural England (and potentially the National Parks and Wildlife Service in the Republic of Ireland) NatureScot's letter of 13th letter would appear to be defective for the following reasons:

1) Natural England, not NatureScot, is the appropriate nature conservation body under Regulation 48 for impacts on the River Derwent and Bassenthwaite Lake SAC.

2) In the event that our interpretation of Regulation 48 is incorrect, NatureScot failed to obtain appropriate information from Natural England to inform their HRA, in particular, beyond naming the conservation objectives, no additional data with respect to the River Derwent and Bassenthwaite Lake SAC has been incorporated into the HRA.

This failure to contact other interested nature conservation bodies means that recommendations contained as proposed conditions in the planning permission will themselves be defective. These proposed conditions state:

The site will not be stocked until the wild fish monitoring plan has been agreed, including a requirement to monitor the juvenile salmon population in coastal waters within a zone of 30km from the Management Area.

The site shall not be restocked until a review has been undertaken of relevant farming and wild fish monitoring data collected during the previous cycle, and the review has been agreed by Argyll and Bute Council, in consultation with NatureScot. The review must be completed and agreed sufficiently in advance of the following cycle, to allow timely restocking, and all relevant parties will agree on the review process in advance.

Both these proposed conditions would need the involvement and engagement of data from English and Irish authorities (since they hold the primary responsibility for collecting and collating such data in their jurisdictions). We don't see that NatureScot can agree these processes on its own and without site of appropriate information.

Please confirm that NatureScot's advice will be suspended and the planning hearing adjourned until appropriate consultation has taken place with these other nature conservation bodies.

Blue Marine Foundation (dated 22/11/23): We have received a response from NatureScot setting out further proposals for consultation with Natural England and are very grateful.

We look forward to hearing what Natural England has to say regarding the proposed HRA, and trust that the planning hearing will be postponed until Natural England has commented fully on the proposals and agreed the proposed conditions.

We also believe that the National Parks and Wildlife Service of the Republic of Ireland should be contacted and agreement sought.

As NatureScot rightly identify, there is potential impact on the River Boyne and River Blackwater SAC, which is designated for salmon. We set out our understanding of the legal position in the attached Annex. We appreciate the law in this area is particularly complex post Brexit, but it would appear that, with respect to marine conservation, Scotland remains part of the EU network and falls under attendant EU law as well as forming part of a new

Great Britain coherent network. Thus appropriate assessment under Article 6(3) of the Habitats Directive and Regulation 48 needs to be conducted to consider EU as well as UK sites.

From a purely pragmatic perspective, it is best too, to address any international concerns at the level of the application. It is very unusual for planning consents to have international implications, and thus on this occasion it is appropriate for competent authorities to reach out for comment.

As competent authority, it is for Argyll and Bute Council to ensure that the law has been complied with, and thus ensure appropriate consultation has taken place, and for NatureScot, Natural England and the National Wildlife and Parks Service to contribute appropriate advice.

This is a massive application, with multi-jurisdictional impacts, because the applicant has chosen to place their activity directly into the marine environment and without any physical containment. That is their choice and their commercial risk, but it comes with attendant multi-jurisdictional regulatory scrutiny because of its self-evident potential harm. This is particularly important at a time when wild salmon stocks face irreversible collapse, with attendant employment loss to those working in the wild salmon sector, financial loss to those who own the fishings and (from our perspective) an environmental tragedy on our watch for one of Scotland's most iconic species.

We look forward to receiving confirmation of the adjournment of the hearing and appropriate consultation and agreement of Natural England and the Republic of Ireland's National Parks and Wildlife Service.

Comment: The Argyll and Bute Planning Service have received confirmation from Natural England that they would be minded to agree with the outcome of the Habitat Regulations Assessment: Likely significant effect but information provided shows that the effect on integrity can be avoided with mitigation.

With regard to the SAC in the Republic Of Ireland (ROI). NatureScot have considered this SAC in their shadow Appropriate Assessment. The Planning Authority has adopted this advice and is recommending conditions that will mitigate the risks to migrating post-smolts. For the avoidance of doubt, the Republic of Ireland is not covered by the Conservation (Natural Habitats &c.) Regulations 1994.

N.B All representations can be read in full on the Council's Planning Portal www.argyll-bute.gov.uk

3.0 FURTHER SUPPORTING INFORMATION FROM APPLICANT

MOWI submitted a letter dated 21st November 2023 providing comment on the letter from Cour Ltd. dates 9/11/23 (noted above under late representations).

"To reiterate, to address the concerns being raised, Salmon Scotland commissioned a study, by recognised independent experts, to assess the potential health risk to open-water swimmers in the vicinity of fish farms in Scotland looking specifically at three medicinal treatments used at fish farms. This study concluded that there was no risk at all from two of the medicines. Minimal risk from a third (hydrogen peroxide) was potentially identified, but only if swimming at the edge of a fish pen immediately after, and for an extended period following treatment. In the context of this application, this would mean a person swimming continuously 200m offshore for a 2-hour period in a strongly tidal environment where

currents are in excess of 1 knot. Additionally, Cour Bay is 1300m away from the fish farm, far outside the area where any potential minimal risk may exist.

Medicines use at fish farms is infrequent and treatments are only undertaken with veterinary justification and supervision. There is continued reference to Mowi's neighbouring Carradale fish farm in an attempt to `evidence and link` the concerns. As previously stated, we have confirmed that analysis of a 5-year period of farming operations at Carradale showed that hydrogen peroxide treatments were only carried out on 12 days.

The latest representation now introduces `figures` on likely pollutant load from Mowi's Carradale fish farm. The figures are not referenced, but it is assumed they have been sourced from The Scottish Pollutant Release Inventory (SPRI). This data is publicly available, and details officially reported annual releases of specified pollutants to air and water from a wide range of SEPA regulated sectors. Operators of sites carrying out specific activities above defined capacity thresholds are obliged to report under SPRI on an annual basis. The activities and thresholds are largely determined by national and European emission reporting requirements. For marine pen fish farms, the emissions reported are theoretical and largely derived from assumptions from feed usage that are then converted into a pollutant load. It is worth noting that the assumptions used by SEPA for SPRI marine pen fish farm reporting purposes date from 2004 and do not reflect the advance and evolution in fish feed diets since. Notwithstanding, it is wrong to present the SPRI figures as demonstrating pollution or presenting a risk to human health. This is misrepresentation of publicly available data being reported for other purposes.

The SPRI data is not a substitute for the Environmental Impact Assessment that was carried out for the development proposal. The Environmental Impact Assessment Report (EIAR) submitted in support of the application presents a detailed and comprehensive assessment of the potential effects from the proposed development. This included assessment of risk to protected species and seabed habitats; risk of impacts arising from organic (carbon) deposition; risk of impacts arising from medicines and risk of impacts to water column nutrients. The EIAR concluded that any effects will be limited, localised, and will be appropriately mitigated through a range of established management measures and good husbandry practices which were concluded to be acceptable (by statutory consultees). SEPA have also issued a CAR permit for the development after carrying out their own independent environmental assessment of the proposal which supports the EIAR conclusions.

The respondent is entitled to the belief that SEPA and the local authority have flawed processes in respect of licensing, to disagree with evidence and indeed maintain an extreme and irrational stance on the issue of risk to human health from fish farming related activities. As I have outlined within this response, that position is not supported by any reasonable analysis of the scientific evidence that has been presented throughout the determination of the planning application, and the continued nature of the representations being submitted by the respondent damages their credibility in relation to this issue."

4.0 UPDATED ADVICE FROM NATURESCOT

NatureScot (dated 12/10/23): We can confirm that we would be content for the following proposed planning conditions to be applied should this planning application be approved:

1. The site will be fallow between the 15th March and 1st June each alternate year, coinciding with the second year of production; and

2. MOWI will notify the Local Authority in writing within 14 days of the site being stocked and fallowed.

In addition, we have previously agreed the following conditions with MOWI:

3. The site will not be stocked until the wild fish monitoring plan has been agreed, including a requirement to monitor the juvenile salmon population in coastal waters within a zone of 30km from the Management Area.

4. The site shall not be restocked until a review has been undertaken of relevant farming and wild fish monitoring data collected during the previous cycle, and the review has been agreed by Argyll and Bute Council, in consultation with NatureScot. The review must be completed and agreed sufficiently in advance of the following cycle, to allow timely restocking, and all relevant parties will agree on the review process in advance.

We consider that these planning conditions would, in our opinion, address the potential risks to Atlantic salmon feature of the Endrick Water SAC.

Since the Application was submitted in 2020, MOWI have made us aware that the format of their EMPs has been updated and therefore we would be happy to be consulted on the final EMP as part of the conditions process, prior to the site being stocked, provided the current commitments in the EMP as submitted are retained.

We are aware that a hearing session is scheduled to take place on the 28th November 2023 and we will update our HRA and response accordingly and provide this to the Council in due course.

NatureScot (dated 13th November 2023): Following new material information received by NatureScot on 25th August 2023, we wish to take the opportunity to update our advice on the North Kilbrannan Fish Farm. Please note that this letter supersedes our response issued to you on 25th February 2001.

The proposal could be progressed with appropriate mitigation. However, because it could affect internationally important natural heritage issues, we object to the proposal unless it is made subject to conditions so that works are done strictly in accordance with the mitigation detailed.

In our view, this proposal is likely to have a significant effect on the Atlantic salmon qualifying interest of the Endrick Water SAC. Consequently, Argyll and Bute Council, as competent authority, is required to carry out an appropriate assessment in view of the site's conservation objectives for its qualifying interest. In our view and on the basis of the information provided to date, if the proposal is undertaken strictly in accordance with the planning conditions specified, then it will not adversely affect the integrity of the site.

NatureScot (dated 23rd November 2023): Email clarifying NatureScot's interpretation of the Habitat Regulations. Reg 48 states that a competent authority must carry out an appropriate assessment for any project that is likely to have a significant effect on a European site in Great Britain, and in doing so must consult the appropriate Nature Conservation Body (NCB). Argyll and Bute Council (A&BC) has consulted NatureScot as the appropriate NCB in Scotland. As part of A&BC's consultation with NatureScot, we have committed to producing a shadow HRA that A&BC can adopt as their own, should they so wish. In doing so, NatureScot has considered the implications for the River Derwent and Bassenthwaite Lake SAC and has assumed the responsibility for consulting Natural England as part of this process. It is our view that the ongoing consultation between appropriate NCBs is acceptable and satisfies the requirements for consultation with the appropriate NCBs, as set

out in Reg 48. However, as highlighted in our response to Dr Appleby, as the competent authority, it will ultimately be up to A&BC to reach a decision on whether they are satisfied the consultation between NatureScot and Natural England is sufficient to satisfy the requirements as set out in the Reg 48.

Finally, just to let you know that we have again contacted Natural England today. They have confirmed that they will provide written advice on their position in relation to NatureScot's assessment against the River Derwent and Bassenthwaite Lake SAC conservation objectives. While I can't give a definitive timescale, we do expect to receive this advice within the next couple of days and we will share this with you as soon as we are in receipt of it.

5.0 UPDATED ADVICE FROM SEPA

SEPA (email dated 23/11/24): In their email SEPA enclosed a copy of a letter issued to Mr Nickerson in relation to his objection about wild swimming and other pollution issues. In SEPA's response it is noted that

"SEPA reviewed the potential risk to human health from azamethiphos, deltamethrin and hydrogen peroxide discharges from fish farms. In doing so, we considered the information in the report prepared by the consultancy, WCa, and Salmon Scotland.

Based on the available evidence, we are satisfied that the discharges of the bath medicines from the proposed North Kilbrannan farm would not pose a risk to the health of wild swimmers in Cour Bay.

For the review, we considered a range of swimming times; different sized swimmers; and, where relevant, the effect of post-discharge dispersion on environmental concentrations.

The review concluded that:

- *Only hydrogen peroxide is potentially discharged above no effects levels.*
- *However, concentrations of hydrogen peroxide will reduce rapidly (i.e., within minutes) after discharge and within a short distance from the farm (i.e., 10s of metres rather than 100s of metres) because of dispersion and dilution.*
- *The average concentration in the discharge plume over the first 2 hours after discharge will not exceed the 2-hour no effect levels calculated for people of a range of different sizes.*

To put this in further context, the calculated no effects level for someone weighing 40 kg (e.g., a 12- to 13-year-old) would not be exceeded even if they were exposed to maximum treatment strength hydrogen peroxide concentrations for over 30 minutes. It is not possible because of dispersion and dilution for a swimmer in the sea to be exposed to anywhere near maximum treatment strength concentrations for 30 minutes.

The WCa and Salmon Scotland report incorporated the following precautionary assumptions:

- *No breakdown of hydrogen peroxide occurs in a treatment bath before discharge.*
- *There is very limited vertical dispersion of hydrogen peroxide once discharged.*

In practice, we would expect some breakdown of hydrogen peroxide in the treatment bath. Being heavier than water, we would also expect hydrogen peroxide to tend to sink as it disperses. These effects will lead lower environmental concentrations than those modelled."

SEPA also responded to Mr Nickerson's concerns about discharges of other substances from the proposed farm, including copper, nitrogen compounds, phosphorus, organic carbon in fish faeces and antibiotics. They have confirmed that all of these substances are discharged at considerably lower rates than the rate at which hydrogen peroxide is likely to be discharged after a bath treatment and that there is no evidence or likelihood that permitted discharges of these substances pose a risk to wild swimmers in Cour Bay. SEPA also attached an Annex with further information about discharges which can be viewed on the Council's planning portal www.argyll-bute.gov.uk

6.0 CONSULTATION RESPONSE FROM NATURAL ENGLAND

Natural England were consulted in relation to the River Derwent and Bassenthwaite Lake SAC.

Natural England (email dated 24/11/23):

Background: Having reviewed the Habitat Regulations Appraisal proforma for the Endrick Water SAC and consulted with the Natural England officer responsible for the River Derwent and Bassenthwaite Lake SAC, Natural England have the following comments:

The document states:

- 'four River Derwent and Bassenthwaite Lake SAC post-smolts that were detected in the Firth of Clyde amounted to 9.75% of the total that made it to sea from that site (N= 41)'
- 'Given the proportion of smolts from the River Derwent and Bassenthwaite Lake SAC that were detected in the Clyde, we can conclude that, in some years at least, the proportion of post-smolts navigating into the Firth of Clyde on their migration north may not be insignificant. We therefore conclude that in addition to the Endrick Water SAC, there is also an LSE on the Atlantic salmon feature of the following SACs: River Derwent and Bassenthwaite Lake SAC (England)'.

Considering the above, it is Natural England's opinion that the link between the project (North Kilbrannan fish farm) and features of the River Derwent and Bassenthwaite Lake SAC is clearly evidenced. On this basis Natural England welcome our opportunity to be consulted on the proposal.

The proforma provides a number of references to uncertainty around both fish movements and sea lice loading which require further modelling to better inform the decision making process, however, the outcomes of this research will not be available prior to the commencement of the project. Taken at face value this could be considered a weakness in the assessment process, however, this uncertainty is acknowledged within the mitigation proposals.

To mitigate for the inherent uncertainty a 2 year production cycle has been agreed which includes a fallow period. The purpose of the fallow period is to reduce lice load during the 2nd production year when it may be expected to reach its maximum load. The fallow period is also timed to coincide with post-smolt migration. Intuitively this feels a sensible approach and may be expected to provide considerable protection to fish migrating through Kilbrannan Sound.

The mitigation package also includes monitoring. Under normal circumstances monitoring would not be considered as mitigation, however, in this case it is used to inform and tailor the production process / the actions that may be taken to reduce lice loading at the site.

Natural England have a remaining concern that the monitoring may be focused on wild fish populations and if this is the case, risks to wild fish will only potentially be recognised after they have begun to manifest themselves.

Outcome: On balance Natural England would be minded to agree with the outcomes of the HRA:

Likely significant effect but information provided shows that the effect on integrity can be avoided with mitigation

7.0 REVISED APPROPRIATE ASSESSMENT

The updated advice from NatureScot has required some changes to be made one of the Appropriate Assessments which was contained as an Appendix to the original Report of Handling. This because NatureScot received additional information which they considered was material to their advice. The revised Appropriate Assessment can be found in Appendix 2 of this report.

8.0 RECOMMENDATION

It is recommended that planning permission be approved subject to a pre-determination hearing and the revised conditions listed in Appendix 1 supplementary report no. 4.

Author of Report: Sandra Davies **Date:** 24/11/23

Reviewing Officer: Peter Bain **Date:** 24/11/23

Fergus Murray
Head of Development and Economic Growth

Appendix 1

CONDITIONS AND REASONS RELATIVE TO APPLICATION REF. NO. 20/01345/MFF

Standard Time Limit Condition (as defined by Regulation)

Additional Conditions

1. The development shall be implemented in accordance with the details specified on the application form dated 29/7/20, the Environmental Impact Assessment Report dated 2020 (and subsequent addendum); and, the approved drawings listed in the table below unless the prior written approval of the planning authority is obtained for an amendment to the approved details under Section 64 of the Town and Country Planning (Scotland) Act 1997 (as amended).

   The developer and subsequent operator(s) shall at all times construct and operate the development hereby permitted in accordance with the provisions of the Environmental Statement accompanying the application with mitigation measures adhered to in full, and shall omit no part of the operations provided for by the permission except with the prior written approval of the Planning Authority.

Plan Title.	Plan Ref. No.	Version	Date Received
Location Plan	1 of 12	-	25/8/20
Supplementary Location Plan	2 of 12	-	25/8/20
Site Coordinates	3 of 12	-	12/8/20
Plans and Elevations Typical Pen Design Top Net Support	4 of 12	-	12/8/20
Feed Barge	5 of 12	-	25/8/20
Underwater Lighting Technical Sheet	6 of 12	-	25/8/20
Plans and Elevations Typical Net Design	7 of 12	-	12/8/20
Plans and Elevations Typical Mooring Design	8 of 12	-	12/8/20
Plans and Elevations - Proposed Site Configuration	9 of 12	-	12/8/20

Plans and Elevations Typical Pen Design	10 of 12		12/8/20
Admiralty Chart Extract	11 of 12		25/8/20
Site Plan	12 of 12		25/8/20

Reason: For the purpose of clarity, to ensure that the development is constructed and operated in the manner advanced in the Environmental Impact Assessment Report, upon which the environmental effects of the development have been assessed and determined to be acceptable.

2. **Biomass**

The development hereby approved shall not be operated other than with a biomass of 2475.54 tonnes or less.

Reason: The environmental effects of this proposal have been assessed against this maximum biomass.

3. **Acoustic Deterrent Devices**

Notwithstanding the details given in the Predator Mitigation Plan, no Acoustic Deterrent Devices (ADDs) shall be deployed at the site hereby approved.

Reason: In the interests of nature conservation. This planning application has been determined on the basis that ADDs will not be used. The use of ADDs would be regarded as a material change to the proposal.

4. **Wild Fish Monitoring Plan**

The site shall not be stocked until the wild fish monitoring plan has been agreed which shall include a requirement to monitor the juvenile salmon population in coastal waters within a zone of 30km from the Management Area.

Reason: In the interests of nature conservation.

5. **End of Cycle Review**

The site shall not be restocked until a review has been undertaken of relevant farming and wild fish monitoring data collected during the previous cycle, and the review has been agreed with Argyll and Bute Council, in consultation with NatureScot. The review must be completed and agreed sufficiently in advance of the following cycle, to allow timely restocking, and all relevant parties will agree on the review process in advance.

Reason: In the interests of nature conservation.

6. **Drift Nets etc.**

There shall be no use of drift nets, vertical static nets or gill nets to recapture escaped fish.

Reason: In order to avoid putting marine birds, including guillemots, shags, divers and others at risk.

7. **Fallowing**

The site hereby approved shall be fallowed between the 15th March and 1st June each alternate year coinciding with the second year of production. Any changes to the production strategy shall be agreed in writing with the Planning Authority in consultation with NatureScot prior to these changes being implemented.

Reason: In the interests of nature conservation.

8. **Notification of Stocking and Fallowing**

The operator shall notify the Planning Authority in writing within 14 days of the site being stocked and fallowed.

Reason: In the interests of nature conservation.

8. **Specification of Nets**

The pole mounted top net system hereby approved shall be as noted below unless otherwise agreed in writing with the planning authority in consultation with NatureScot:

	Height (m)
Perimeter Pole Support	Maximum height of 5m above the water surface
	Mesh Size (mm)
Sidewall netting from the bottom to 2m height	25
Ceiling net panel and remaining sidewall netting	100
Colour	Dark grey to black

This shall be subject to review, underpinned by systematic monitoring. The Planning Authority shall be immediately notified in the event of emergence of patterns of entanglement or entrapment of marine birds.

Reason: *To minimise the risk to all bird species and to ensure that there are no significant effects on the qualifying interests of the Ailsa Craig Special Protection Area.*

9. **Wildlife Recording and Reporting**

The proposal shall be undertaken strictly in accordance with the following criteria:

(a) Operators shall maintain daily records of wildlife entanglement / entrapment using a standardised proforma which shall be submitted to the planning authority and copied to NatureScot at 6 monthly intervals or other specified period to be agreed in writing with the planning authority in consultation with NatureScot. The first proforma shall be submitted 6 months after the development is brought into use unless otherwise agreed in writing with the planning authority in consultation with

NatureScot.

(b) In the event of any significant entrapment or entanglement of gannets, and any other SPA interests identified as relevant to a particular fish farm (e.g involving three or more birds of any named species in any one day and / or a total of ten or more birds in the space of any seven day period and / or repeat incidents involving one or more birds on four or more consecutive days), the operators shall immediately notify both the planning authority and NatureScot;

(c) Adaptive management approaches should be agreed in writing with the planning authority in consultation with NatureScot in advance of these being implemented.

Reason: In order to ensure that there are no significant effects on the qualifying interests of the Ailsa Craig Special Protection Area. Gannet have an extensive range and would have the potential to become entangled in nets.

10. **Environmental Management Plan**

The site shall be operated, monitored and managed in accordance with the Kilbrannan Sound Environmental Management Plan (EMP) attached to the planning portal on 22 December 2022 and subsequent approved variation thereof. Prior to the commencement of development, a revised Environmental Management Plan (EMP) shall be submitted to and approved in writing by the Planning Authority which includes a commitment that outputs of the modelling and risk assessment process generated under the SEPA's proposed Sea Lice Risk Framework will feed into and influence the first end of cycle review.

Reason: In the interests of nature conservation.

11. **Sea Lice Management and Efficacy Report**

The site shall be operated in accordance with the North Kilbrannan Sea Lice Management and Efficacy Report dated 2020 or any subsequent updates of this document which shall be submitted to and approved in writing by the planning authority.

Reason: In the interests of nature conservation.

12. **North Kilbrannan Containment and Escapes Contingency Plan**

The site shall be operated in accordance with the North Kilbrannan Containment and Escapes Contingency Plan dated 2020 and the North Kilbrannan Inspection and Maintenance Schedule with the exception of any proposed actions contained within these documents limited by other conditions on this planning permission. Any subsequent updates of these documents shall be submitted to and approved in writing by the planning authority.

Reason: In order to minimise the risk of escapes in the interests of nature conservation.

13. **Removal of Equipment**

In the event that the development or any associated equipment approved by this permission ceases to be in operational use for a period exceeding three years, the equipment shall be wholly removed from the site thereafter, unless otherwise agreed in writing by the Planning Authority.

Reason: In the interest of visual amenity and to ensure that redundant development does not sterilise capacity for future development within the same water body.

14. **Colour of Equipment**

The finished surfaces of all equipment above the water surface, excluding the feed barge, but inclusive of the surface floats and buoys associated with the development hereby permitted (excluding those required to comply with navigational requirements) shall be non-reflective and finished in a dark recessive colour in accordance with the details provided in the EIAR unless otherwise agreed in advance in writing by the planning authority.

Reason: In the interest of visual amenity.

15. **Lighting**

All lighting above the water surface and not required for safe navigation purposes should be directed downwards by shielding and be extinguished when not required for the purpose for which it is installed on the site.

Reason: In the interest of visual amenity.

16. **Waste Management Plan**

Prior to the commencement of development a further Waste Management Plan shall be submitted to and approved in writing by the planning authority. This shall include details of the arrangements for the storage, separation, and collection of waste from the site including proposals for uplift from areas where fish farm equipment has become detached from the site.

Reason: *To ensure that waste is managed in an acceptable manner.*

17. **Water Supply**

No development shall commence until an appraisal of the wholesomeness and sufficiency of the intended water supply and system required to serve the development has been submitted to and approved by the Planning Authority.

Reason: In the interests of public health and in order to ensure that an adequate water supply in terms of both wholesomeness and sufficiency can be provided to meet the requirements of the proposed development and without compromising the interests of other users.

18. **Noise**

The Noise Rating Level attributable to the operation of the approved fish farm operation shall not exceed background noise levels by more than 3dB(A) at any residential property measured and assessed in accordance with BS4142:2014.

Reason: In order to protect the amenities of the area from noise nuisance

Appendix 2

HABITATS REGULATIONS 'APPROPRIATE ASSESSMENT'

HABITAT DIRECTIVE 92-43-EEC

THE CONSERVATION (NATURAL HABITATS AND C.) REGULATIONS 1994

AS AMENDED

Endrick Water Special Area of Conservation (Scotland)
River Bladnoch SAC (Scotland)

River Derwent and Bassenthwaite Lake SAC (England)

River Boyne and River Blackwater SAC (Republic of Ireland)

PURPOSE OF THE DESIGNATION

The Habitats Directive aims to conserve biodiversity by maintaining or restoring species to favourable conservation status. The Endrick Water was classified as a Special Area of Conservation for three species of freshwater fish in 2005. The primary qualifiers for this site are brook lamprey (Lampetra planeri) and river Lamprey (Lampetra fluviatilis). Atlantic salmon (Salmo salar) are a secondary qualifier for this site. Neither brook nor river lamprey will be impacted by the proposal.

The purpose of the designation is to avoid deterioration of the habitats of the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation staus for each of the qualifying features; and:

- To ensure for the qualifying species that the following are maintained in the long term:
- Population of the species, including range of genetic types for salmon, as a viable component of the site;
- Distribution of the species within site
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species;
- No significant disturbance of the species.

N.B The full conservation objectives for all SACs that have potential connectivity are not listed here. Instead the key conservation objectives for each site that need to be assessed further are listed. It is considered that any conservation objectives not listed will not be undermined by the key pressures associated with this Proposal (i.e. sea lice and escaped farmed stock / genetic introgression):

River Bladnoch SAC

- Restore the population of the species, including range of genetic types for salmon, as a viable component of the site.

River Derwent and Bassenthwaite Lake SAC (England)

- Maintaining or restoring the populations of qualifying species.

River Boyne and River Blackwater SAC (Republic of Ireland)

To restore the favourable conservation condition of Atlantic Salmon (Salmo salar) in River Boyne and River Blackwater SAC, which is defined by the following list of attributes and targets:

- Out-migrating smolt abundance: No significant decline: Smolt abundance can be negatively affected by a number of impacts such as estuarine pollution, predation and sea lice (Lepeophtheirus salmonis);
- Adult spawning fish: Conservation limit (CL) for each system consistently exceeded; and
- Salmon fry abundance: Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling.

CONSEQUENCES OF THE DESIGNATION

In circumstances where European Protected Species could be subject to significant effects as a consequence of development proposals, the competent authority, in considering whether development should be consented, is required to undertake an 'appropriate assessment' to inform its decision-making process, on the basis that where unacceptable effects are identified, or in cases of 'reasonable scientific doubt', then permission ought not to be granted.

An 'appropriate assessment' is required to be undertaken in cases where any plan or project which:

(a) Either alone or in combination with other plans or projects would be likely to have significant effect on a European site designated for nature conservation; and

(b) Is not directly connected with the management of the site.

It is considered by NatureScot that the proposal is likely to have a significant effect on the Atlantic Salmon qualifying interest of the site. The proposed site lies approximately 70km to the south-west of the boundary of the SAC as the crow flies. However, wild salmonids and Atlantic salmon smolts emigrate through the Firth of Clyde. As a consequence, Argyll and Bute Council has conducted an 'appropriate assessment', as per the Conservation (Habitats and C.) Regulations 1994 (as amended), having regard to the anticipated effects of development and the conservation objectives for the site's qualifying interests. This assessment is detailed below.

NatureScot has advised that other sites are potentially affected . Recent salmon smolt tracking work (undertaken in 2021/22) detected post-smolts from the River Derwent and Bassenthwaite Lake SAC (England) and the River Boyne and River Blackwater SAC (Republic of Ireland). It is also possible that in some years smolts from the River Bladnoch to the south, may also stray to the Firth of Clyde on their northward migration to open sea. As there is evidence that demonstrates connectivity NatureScot has also considered post-smolts from these SACs.

CHARACTERISTICS OF THE DEVELOPMENT

The proposal is for the equipping and operation of a marine fish farm with farmed fish to be contained in 12 pens, comprising nets supported from flotation rings secured to a mooring grid with associated feed barge. The proposal is likely to have a significant effect on the Atlantic salmon feature of the Endrick Water SAC due to:

- The risk posed as a result of the potential impacts of sea lice on Atlantic salmon smolts emigrating through the Firth of Clyde; and
- Genetic introgression should farmed Atlantic salmon escape into the wild.

Brook lamprey and river lamprey will not be directly impacted by the Proposal.

A number of SACs supporting Atlantic salmon as a protected feature are located in areas to the south of the River Clyde and its Firth. These include the River Bladnoch SAC (Scotland), the River Derwent and Bassenthwaite Lake SAC (England) and the River Boyne and River Blackwater SAC (Republic of Ireland).

It is possible that Atlantic salmon post-smolts from these SACs could stray into the Firth of Clyde on their migration north towards open sea. Tracking data from 2021 indicates that this did occur, as acoustic arrays in the Firth of Clyde detected four post-smolts tagged in the River Derwent and Bassenthwaite Lake SAC and one from the River Boyne and River Blackwater SAC in the Republic of Ireland. There is therefore connectivity between the Proposal and Atlantic salmon post-smolts originating from these SACs.

It seems reasonable to conclude that post-smolts migrating north from the SACs to the south will be at lower risk than those migrating south from the Endrick Water SAC, all of which must pass through the Firth of Clyde. However, it is also important to highlight that the four River Derwent and Bassenthwaite Lake SAC post-smolts that were detected in the Firth of Clyde amounted to 9.75% of the total that made it to sea from that site (N= 41). Two post-smolts from River Boyne and River Blackwater SAC were detected in Kilbrannan Sound, however only one was free swimming (the other was strongly suspected to be inside a predator). This single fish constituted 1.1% of the 84 tagged post-smolts fish which exited the River Boyne and River Blackwater SAC.

Given the proportion of smolts from the River Derwent and Bassenthwaite Lake SAC that were detected in the Clyde, NatureScot conclude that, in some years at least, the proportion of post-smolts navigating into the Firth of Clyde on their migration north may not be insignificant. We therefore conclude that in addition to the Endrick Water SAC, there is also an LSE on the Atlantic salmon feature of the following SACs:

- River Bladnoch SAC;
- River Derwent and Bassenthwaite Lake SAC (England); and
- River Boyne and River Blackwater SAC (Republic of Ireland).

ASSESSMENT

The following assessment against the conservation objectives focuses on the Atlantic salmon feature of the Endrick Water SAC. However, the relevant conservation objectives

from the following SACs are also highlighted below to provide an audit trial of our consideration of the Atlantic salmon feature of these SACs:

- River Bladnoch SAC
- River Derwent and Bassenthwaite Lake SAC (England)
- River Boyne and River Blackwater SAC (Republic of Ireland)

Any conservation objectives that are not explicitly identified in the assessment below have been screened out on the basis that there is no connectivity with the key pressures arising from this Proposal (sea lice and escapes/genetic introgression).

Conservation Objective 1 - To avoid deterioration of the habitats of the qualifying species (Atlantic salmon • Brook lamprey • River lamprey) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained;

Taking account of the advice of NatureScot it not considered that the operation of the Proposal will result in a deterioration of the habitat resource available for qualifying species in the Endrick Water SAC.

Based on the assessment provided below it is not considered that the operation of the Proposal will result in a disturbance to the qualifying species of the Endrick Water SAC.

It is concluded that this conservation objective will not be compromised.

Conservation Objective 2 - To ensure for the qualifying species that the following are maintained in the long term:

- **Population of the species, including range of genetic types for salmon, as a viable component of the site.**

N.B The assessment and mitigation outlined in NatureScot's assessment against the above conservation objective of the Endrick Water SAC will also be applicable to any post-smolts migrating north from the Atlantic salmon SACs to the south. The assessment and mitigation outlined in the following section will also apply to the following SACs / conservation objectives:

River Bladnoch SAC

1. To ensure that the qualifying feature of the River Bladnoch SAC is in favourable condition and makes an appropriate contribution to achieving favourable conservation status;

2. To ensure that the integrity of the River Bladnoch SAC is restored by meeting objectives 2a, 2b and 2c for the qualifying feature; and

2a. Restore the population of the species, including range of genetic types, as a viable component of the site.

River Derwent and Bassenthwaite Lake SAC (England)

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- **The populations of qualifying species.**

River Boyne and River Blackwater SAC (Republic of Ireland)

To restore the favourable conservation condition of Atlantic Salmon (Salmo salar) in River Boyne and River Blackwater SAC, which is defined by the following list of attributes and targets:

- **Out-migrating smolt abundance: No significant decline: Smolt abundance can be negatively affected by a number of impacts such as estuarine pollution, predation and sea lice (Lepeophtheirus salmonis);**
- **Adult spawning fish: Conservation limit (CL) for each system consistently exceeded; and**
- **Salmon fry abundance: Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling.**

The potential effects of sea lice dispersed from the fish farm and genetic introgression, should escaped farmed salmon breed with wild salmon from the Endrick Water SAC, need to be mitigated to ensure that there is confidence that this conservation objective will not be compromised.

NatureScot have advised that they are content that the risk of genetic introgression with wild Atlantic salmon can be mitigated by ensuring that the proposed equipment used to contain and transport fish is fit for purpose and meets with the appropriate standards as set out by the Technical Standard for Scottish Finfish Aquaculture.

Marine Directorate (MD) are the lead statutory consultee for assessing adequacy of equipment. We note that MD requested further clarification from the Applicant (Mowi) regarding aspects of the proposed design. This request specifically related to potential crossover of barge and pen mooring lines, which is believed to be central to the equipment failure that occurred at Carradale in 2021. Mowi provided further information to this effect on 21st of February 2021, by way of a technical document providing detail on the layout and design of moorings and equipment. Mowi followed this up with a further response on 5th March 2021, to which MD responded on the 30th March 2021. In their response, MD confirmed that they were satisfied that Mowi had provided adequate detail for them to assess the risk and they therefore required no further information. On this basis, NatureScot have advised that they are content that Mowi, at the request of MD as the key statutory consultee, has provided sufficient information to assess the risk of equipment failure. Furthermore, appropriate protocols will be in place to ensure that a dynamic assessment of risk will take place as part of the operational management of the farm.

It is acknowledged that the 2020 equipment failure at Carradale fish farm resulted in a significant escape incident. However, following this escape an extensive genetic study was undertaken in 2020 and 2021. The study collected samples from salmon obtained from rivers in areas of Scotland and England considered as having likely connectivity with the escaped salmon from Carradale. The authors of the study concluded that there was no indication that the escape resulted in any significant interbreeding of escaped farmed fish with wild stocks in the 2020 spawning season in the months immediately after the escape.

The escape at Carradale occurred due to a mooring failure, which it is understand was due human error when installing the equipment, rather than to inadequacy of the equipment itself. NatureScot have advised that they are satisfied that Mowi have demonstrated that sufficient consideration has been given to this aspect of their Proposal and that measures are in place to minimise the risk of this occurring at the proposed site in the future.

Based on the information provided to date and the expert judgement of MD, NatureScot have advised that they are satisfied that the measures taken are adequate to address the risk of significant escapes incidents occurring at the site in the future. It is therefore concluded that the risk of genetic introgression will not compromise the following conservation objective: Population of the species, including range of genetic types for salmon, as a viable component of the site.

In order to assess the potential risk that sea lice pose to the Atlantic salmon feature of the SAC, a range of information sources need to be considered and these are appraised below.

Site Condition Monitoring

Site condition monitoring of the Endrick Water SAC, completed in 2012, assigned an unfavourable recovering status. The monitoring and assessment carried out established the following in relation to the population of the site:

- Juveniles: When the densities of 0+ and 1++ juvenile Atlantic salmon were considered against quintile distributions for regional juvenile densities developed by Godfrey (2005), for both fry and parr, the Endrick Water SAC had sites spread across most of the quintile bands. Assessed separately, fry were considered to be in favourable status while parr were considered to be in unfavourable status. Based on these data, it is suggested that the overall Cycle 2 assessment is that juvenile populations are in unfavourable status within the SAC.

- Adults: The overall picture for Atlantic salmon total rod catch within the Clyde District (for the Endrick Water SAC) over the period 1952-2010 showed a small, increasing, trend. This was driven by an improving autumn rod catch against a backdrop of marginal declines in spring and summer catches over the same period. Reported rod catches for the Clyde District should, however, be considered with caution given concerns about the suspected level of under-reporting. In addition, it should be noted that the adult rod catch assessments and analyses have used records for the River Clyde District as a whole, because robust records for the Endrick Water SAC are not available. Rod catches from the Clyde District are assumed to be representative of the Endrick Water, though this has not been demonstrated to be the case and no definite relationship between the catch of the Endrick and the Clyde District has been established.

Application of the NASCO rod catch assessment tool to the recorded catches over the 20 year period (1991-2010) indicate that no reduction in exploitation is required and no investigations into the existence of local problems are necessary for the summer and autumn run-time components. However, a reduction in exploitation and commencement of investigations into local problems is suggested as necessary for the spring stock. When rod catch trends for each run-time component are considered individually over the same period, no significant changes were detected in either the spring or summer rod catches. A significant increase in the autumn catch was evident.

The Loch Lomond Fisheries Trust suggest that the main activities which have a negative impact on Atlantic salmon within the Endrick Water catchment are:

- Point and agricultural diffuse/sedimentation pollution;
- Physical habitat degradation; and
- Riparian grazing pressure.

It is acknowledged that a range of pressures exist in addition to those highlighted above. These include conifer afforestation; instream works; loss of riparian vegetation; changing temperature patterns & loss of shading, eutrophication, abstraction and flow regulation, extreme high flow events, non-native fish, obstacles to migration and stocking.

However, it is important to highlight that this monitoring is now eleven years old and may therefore be of limited relevance in understanding the current health of the population. The more recent conservation gradings (summarised below) provide a better indication of the status of the overall Atlantic salmon stock, although it is not possible to describe the different stock components (i.e. grilse vs MSW fish and within the MSW fish, the spring, summer and autumn run-types) using the conservation gradings.

Wider Monitoring of the Endrick Water SAC

In 2022, Mowi commissioned monitoring of juvenile salmon populations in the Endrick Water SAC to provide a baseline against which to assess future trends as part of their Environmental Management Plan (EMP). Monitoring was extended to include a number of non-SAC rivers and tributaries including the River Leven, the River Blane and multiple non-designated tributaries of the Endrick Water SAC.

The Scottish National Classification Scheme derived from Godfrey (2005) is a simple system for grading rivers based on their salmonid populations and data from over 1600 sites surveyed between 1997 and 2002. In Scotland, regional variation in salmonid population density is incorporated in the grading system.

Applying the Scottish National Classification Scheme, contractors sampled eight sites within the Endrick Water SAC. For salmon fry, four were classed as excellent, three moderate and one absent. For salmon parr, two sites were classed as excellent, one site was good, one site was very low and four sites were absent. These results broadly mirror the findings of the last SCM carried out in 2012.

The National Electrofishing Programme (NEPS) 2021 also highlighted a trend of declining parr in the Endrick Water SAC. The same monitoring noted that fry populations appear to have remained stable since the last monitoring carried out in 2019.

Proposed Endrick Water SAC Conservation Limit for the 2024 Season

In 2016, the Scottish Government introduced Salmon Conservation Regulations with the aim of determining whether or not salmon stocks can support exploitation by fisheries. Each stock is assessed by setting an egg requirement for the stock and estimating whether or not this requirement is met. The egg requirement is set to maintain the sustainability of a stock, rather than maximise juvenile output or other alternate measures used by local managers. Assessments are undertaken for each river, except in those areas where fishery catch cannot be assigned to individual rivers. In such cases, rivers are combined to form assessment groups.

In the case of the Endrick Water SAC, the proposed river classification for the 2024 season is grade 2. This classification has remained unchanged since 2019, at which point Marine Directorate upgraded from a category 3 to a category 2 river.

However, it is important to note that the current five-year average (2018 to 2022) assigns a 60.2% chance of meeting the egg requirement, which is on the lower limit of grade 2.

Figure 1 below presents annual classifications for the Endrick Water. It is evident that 2021 was a very poor year, reflected in the 18.4% chance of meeting conservation limits. Conversely, 2019 and 2020 were good years (81.7 and 84.9% chance of meeting conservation limits, respectively).

Based on the five-year average, the Endrick Water has remained a grade 2 river since 2019 (Figure 1). However, given the poor year recorded in 2021 and the good years recorded in 2019 and 2020, it is possible that the five-year average will reduce in the coming years. As a result, it is possible that Marine Directorate could downgrade the river to grade 3, once the favourable years in 2019 and 2020 drop out of the 5-year average.

It is also of note that since at least 2018, the River Leven, which all smolts from the Endrick Water must migrate through, has consistently met the annual requirements for a grade one river. Based on the current five-year average (2018-2022), the River Leven has an 86.3% chance of meeting the egg requirements (Figure 2).

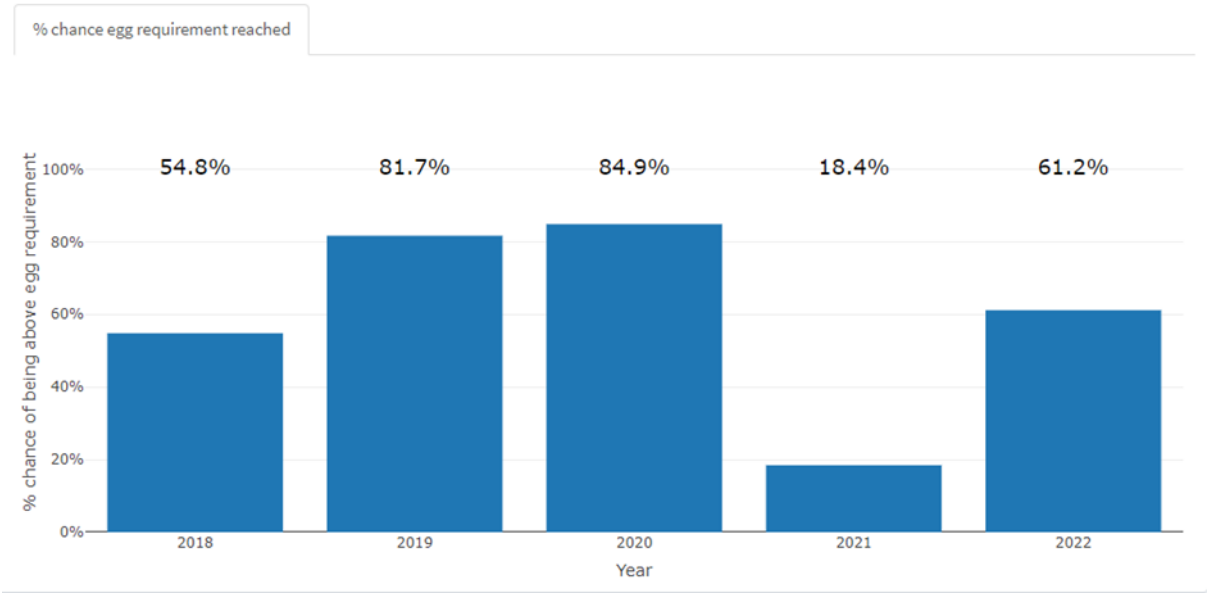


Figure 1. Endrick Water probability of meeting egg deposition targets over the last five years.

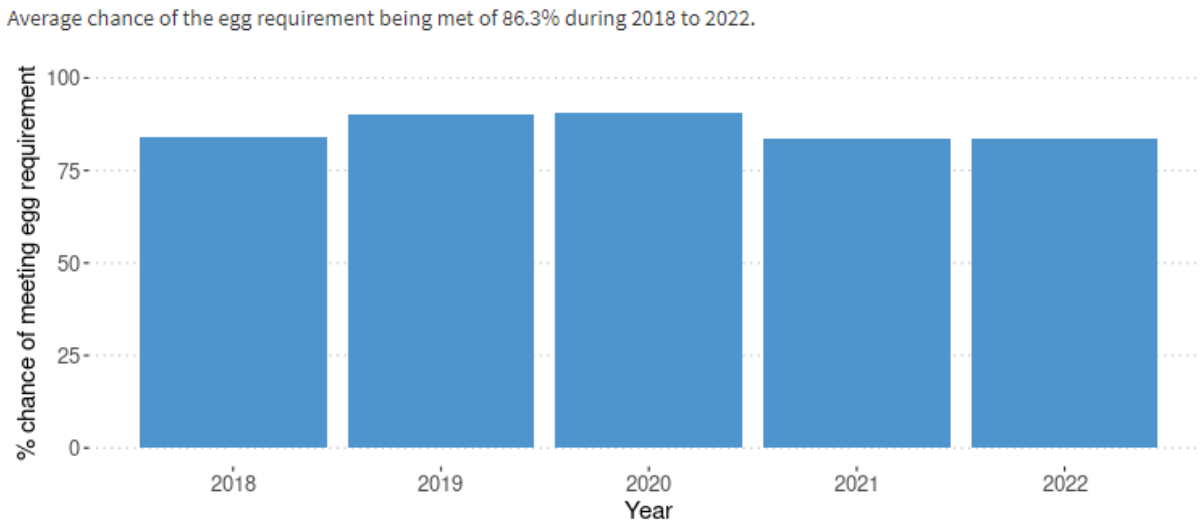


Figure 2. River Leven probability of meeting egg deposition targets over the last five years.

Sea Lice Modelling

Various parties have carried out sea lice modelling for the Firth of Clyde area (see Figures 3 - 6 below), either directly or indirectly associated with this Proposal. This includes modelling carried out by Mowi, third party organisations / individuals and SEPA. While each model contains differences, largely due to varying input parameters and underlying hydrodynamic models, they all appear to identify Kilbrannan Sound as a higher risk area due to potential cumulative sea lice exposure. The modelling carried out to date indicates that the additional biomass associated with the Proposal is likely to increase the level of risk for post-smolts passing the north of Arran and/or through Kilbrannan Sound.

The available modelling carried out to date indicates that sea lice densities in the outer Firth of Clyde area are comparatively low. However, risk posed by sea lice is a function of predicted lice density and the predicted time it takes a smolt to travel through the area.

The modelling provided to date relates to sea lice density and prevalence under different scenarios. As far as we are currently aware, the only modelling that has incorporated fish movements through the area is that of SEPA's, which forms the basis of their proposed risk-screening tool.

As part of SEPA's initial risk-screening process, they have modelled migratory routes for fish leaving the River Fyne, which is at the head of Loch Fyne. It is possible that the risk profile for any post-smolts from the Endrick Water SAC migrating anticlockwise around Arran, passing through Kilbrannan Sound, could be significantly different to that of post-smolts migrating from the head of Loch Fyne. We understand that SEPA have not yet modelled fish leaving the Endrick Water. However, it is likely this will be key information to determine the level of risk posed to any Endrick Water post-smolts that migrate through Kilbrannan Sound.

SEPA have provided verbal advice that the modelling they have carried out to date indicates that post-smolts travelling through the outer Firth of Clyde to the east of Arran are at low risk of sea lice exposure. Our understanding is that they base this conclusion on the modelled prediction that an exposure threshold below 0.75 sea lice /m2 for a 24 hr period will present a low risk to migrating post-smolts.

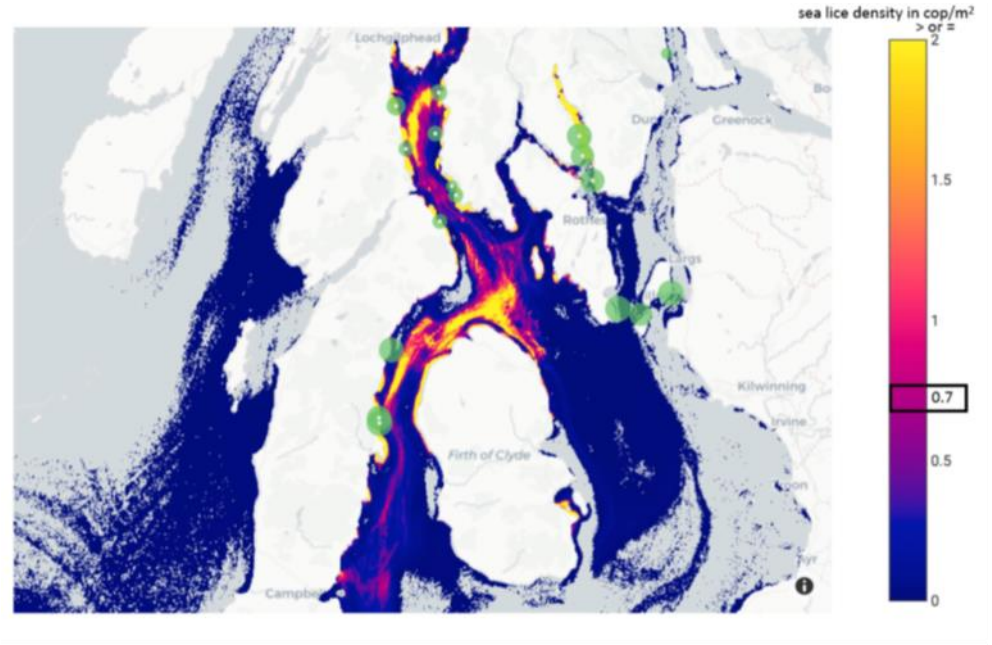


Figure 3. Sea lice modelling – existing sites second year of production (excluding upper Loch Fyne) – all sites modelled at 0.5 lice/fish (MTS-CFD on behalf of Coastal Communities Network, May 2022)

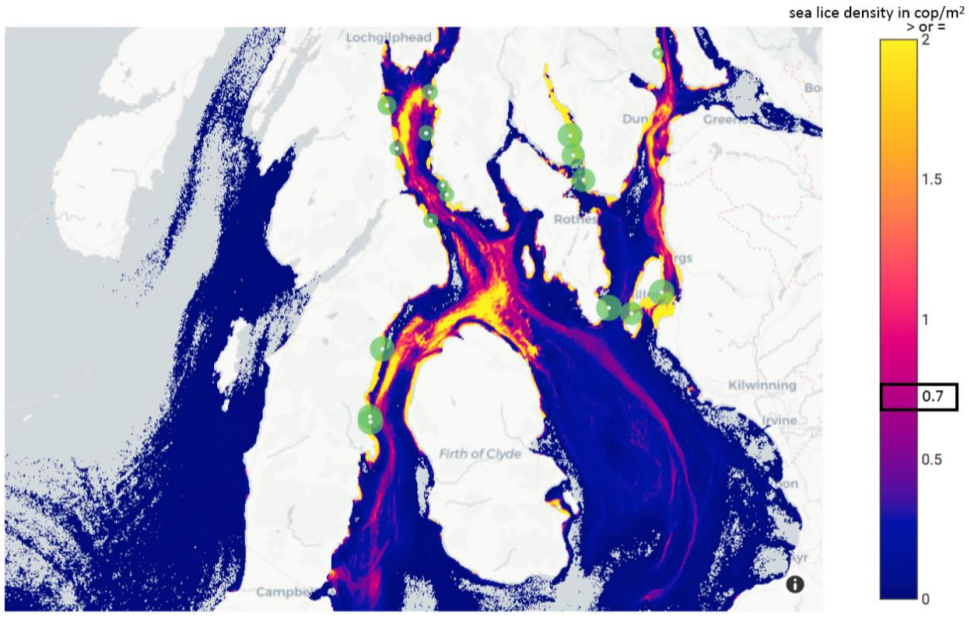


Figure 4. Sea lice modelling – existing and proposed sites in second year of production (excluding upper Loch Fyne) – all sites modelled at 0.5 lice/fish (MTS-CFD on behalf of Coastal Communities Network, May 2022)

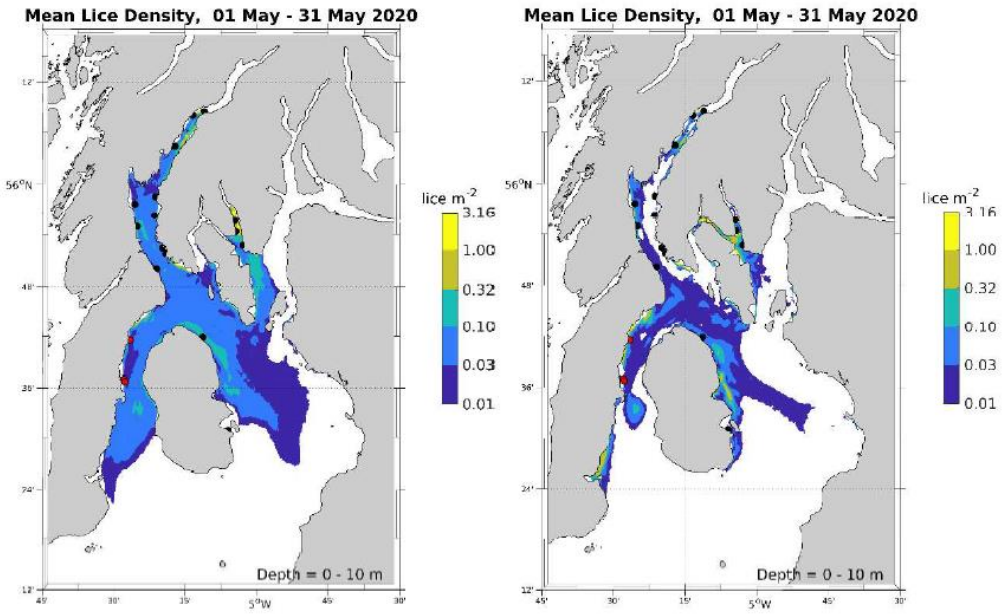


Figure 5. Cumulative modelling with vertical movement of lice (left) and no vertical movement of lice (right) (Millstone Point included in model which is a significant overrepresentation of biomass) (Mowi, April 2021)

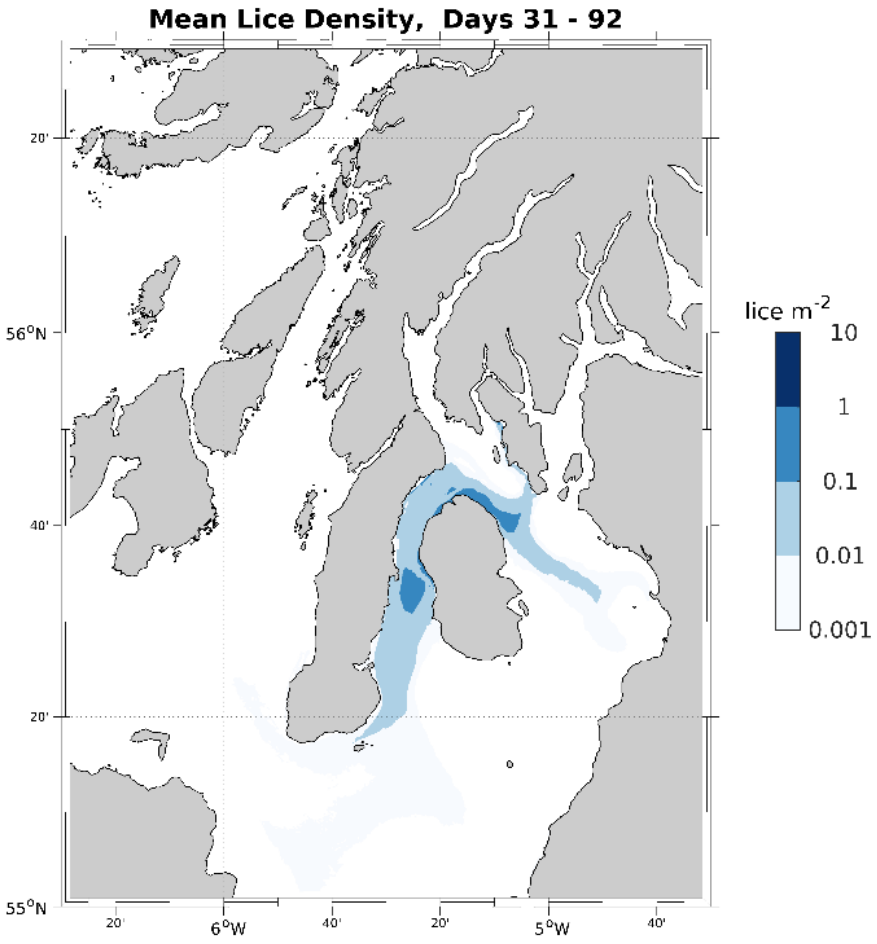


Figure 6. Predicted mean infective lice density for April – May. Lice released from the Mowi sites at Carradale and North Kilbrannan, with all sites assumed to be at maximum biomass (7500 tonnes in total) with an average adult female lice count of 0.5 AF per fish (Mowi, Kilbrannan Sound EMP, December 2022)

Firth of Clyde Post-Smolt Tracking Project

Data on post-smolt migration routes in the Firth of Clyde was gathered over two years in 2021 and 2022.

Data gathered in 2021 (Lilly et al. 2022), the first year of the project, indicated that very few post-smolts from the Inner Clyde were detected by the acoustic receiver array in the Kilbrannan Sound (note that no post-smolts from the Endrick Water SAC were detected whilst three from the Gryffe Water (a non-designated river) were detected).

However, receivers deployed in the second year of the tracking project (2022) detected a number of post-smolts from the Endrick Water passing through Kilbrannan Sound (see Figure 7). The second year of data shows that:

- Number of Endrick Water SAC Atlantic salmon smolts tagged in 2022 - 178 (all released in River Leven)

- Number of Endrick Water SAC Atlantic salmon smolts detected at or beyond Cumbrae in 2022 - 75 (count includes fish detected by the following arrays: Clyde West, Clyde East, Arran West, Arran East)

- Number of Endrick fish detected in Kilbrannan Sound - 6 (3.3% of the total number tagged and 8% of those detected at or beyond the Cumbraes).

In the second year of the work, an additional array of receivers were deployed to the east of Arran. The data from this new array found that:

- Number of Endrick fish detected to the east of Arran - 41 (23% of the total number tagged and 54.7% of those detected at or beyond the Cumbraes.

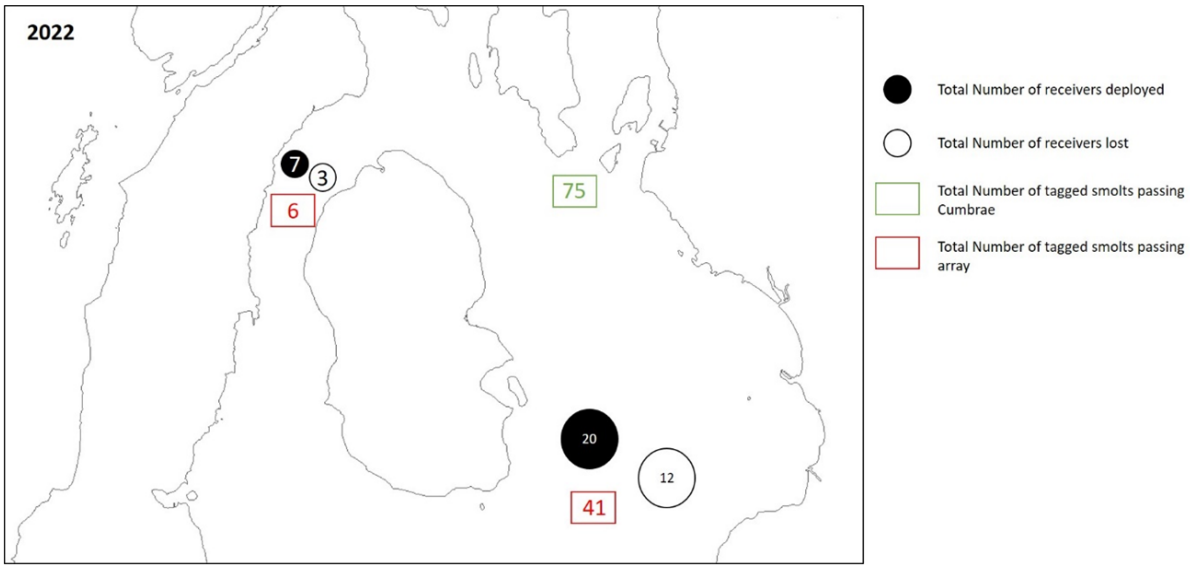


Figure 7. Key data from the 2022 smolt tracking work in the Firth of Clyde (SeaMonitor Clyde (2023), unpublished).

The data over the two years of the post-smolt tracking work suggests that there is significant inter-annual variation in terms of the migration routes taken by post-smolts from the Endrick Water SAC. The data also suggests that the majority of post-smolts exiting the Endrick Water SAC are most likely to be following a migratory route that passes to the east of the Arran. However, in some years at least, the data suggest that of post-smolts successfully passing through the Cumbrae narrows, the proportion that migrate through Kilbrannan Sound is not insignificant.

Lice dispersion modelling indicates that there is likely to be an elevated risk due to sea lice exposure where post-smolts pass through the more restricted Kilbrannan Sound. In comparison, modelling suggests that the risk to post-smolts may be comparatively low where migrating south through the relatively unconstrained wider Firth of Clyde to the east of Arran.

Based on the available evidence we can conclude that the majority of smolts from the Endrick Water are likely to migrate through the Firth of Clyde to the east of Arran, through a relatively low risk area, where they are unlikely to encounter potentially harmful levels of sea lice. However, in some years a considerable proportion of smolts from the Endrick Water that successfully migrate beyond the Cumbrae narrows, do migrate anticlockwise around Arran, passing through Kilbrannan Sound. During these years, it is possible that these post-smolts could be exposed to a greater risk of sea lice exposure while passing through Kilbrannan Sound, especially if lice levels on the farms are elevated.

	Year	
	2021	2022
Total fish tagged	144	175
Fish detected at or beyond the Cumbraes (% of total tagged)	38 (26.4%)	75 (42.9%)
Arran West Array		
Total Endrick Water fish detected in Kilbrannan Sound	0	6
Receivers lost (% of total)	2 (25%)	3 (42%)
% of total fish tagged	0	3.3%
% of total fish detected at or beyond the Cumbraes	0	8%
Arran East Array		
Total Endrick Water fish detected to the east of Arran	-	41
Receivers lost (% of total)	-	12 (60%)
% of total fish tagged	-	23%
% of total fish detected at or beyond the Cumbraes	-	54.7%

Figure 8. Summary of key data from the smolt tracking work in the Firth of Clyde (2021 and 2022)

Carradale Environmental Management Plan (EMP) Monitoring

The existing Carradale EMP places a requirement on Mowi to undertake a range of monitoring and reporting. A key aspect of the monitoring that is of particular interest to the Proposal relates to monitoring of sea trout in the wild and their associated lice loads. There are currently two years of data available, 2021 and 2022. A summary of the available data is as follows:

2022 Sweep Netting

A summary of the monitoring data is as follows:

- In 2022, monitoring carried out as part of Carradale EMP sampled 29 wild sea trout.
- Of the fish sampled, none were detected with loads greater than 0.068 lice/gram. The average load was 0.010 lice / gram.
- Samples were gathered during two days in 2022 (16th June and 12th July).

- At the start of June 2022, biomass at South Carradale was reported as 1918T and North Carradale 2326T (combined biomass 4244T).
- In June 2022 reported average weekly lice levels were very low, ranging from 0.01-0.02 lice per fish (average 0.01 lice per fish).
- No lice were detected on any fish sampled in June (a total of 7 fish were sampled).
- At the start July 2022, biomass at South Carradale was reported as 2188T and North Carradale 2491T (combined biomass 4679T).
- In July 2022 lice levels on farmed fish were also very low, ranging from 0.01 – 0.04 lice per fish (the average between 04/07/22 - 25/07/22 was 0.025).
- In July 2022, 22 fish were sampled, 14 were found to have lice present. Levels were generally very low. Of the fish sampled, none were detected with loads greater than 0.068 lice/gram. The average load was 0.013.

2021 Sweep Netting

- In 2021, monitoring carried out as part of Carradale EMP sampled 31 wild sea trout.
- Of the fish sampled, none were detected with loads greater than 0.514 lice/gram. The average load was 0.08 lice / gram.
- Samples were gathered across two days in 2021 (28th May and 25th June).
- At the start of May 2021, biomass at South Carradale was reported as 2610T and North Carradale 0T (combined biomass 2610T).
- Over a 4 week period in May 2021 (WC 03/05 – WC 24/05) reported average weekly lice levels ranged from 1.03-2.49 lice per fish (average 1.6 lice per fish).
- In May, 18 fish were sampled (13 of which were carrying lice).
- Lice levels on the wild sea trout ranged from 0 – 0.54 lice / gram (average 0.12 lice per gram).
- At the start June 2021, biomass at South Carradale was reported as 2071T and North Carradale 0T (combined biomass 2071T).
- In June 2021, lice levels on farmed fish ranged from 1.23 – 1.44 lice per fish (the average between 07/06 – 28/06 was 1.31).
- In June 2021, 19 sea trout were sampled, 15 of which were found to have lice present.
- Of the fish sampled, none were detected with loads greater than 0.24 lice/gram. The range was zero – 0.24 lice / gram. The average load was 0.05 lice / gram.

	Combined biomass	Lice per fish range (farmed)	Average lice per fish (farmed)	Sampled fish (wild)	Lice / gram range (wild)	Average lice / gram (wild)
Jul 22	4679	0.01 – 0.04	0.025	22	0 – 0.07	0.01
Jun 22	4244	0.01 – 0.02	0.01	7	0	0
Jun 21	2071	1.23 – 1.44	1.31	19	0 – 0.24	0.05
May 21	2610	1.03 – 2.49	1.6	18	0 – 0.54	0.12

Figure 9. Summary of EMP monitoring data from Carradale EMP

The limited data that is available through the Carradale EMP appears to show some correlation between the levels of lice on the farmed fish and the levels detected on the wild sea trout in the area. It is important to note that during the sampling period in 2021, only one fish farm was in production, so cumulative biomass was significantly lower than would normally be expected in the second year of production.

As part of EMP monitoring, sea trout are used as a proxy for Atlantic salmon post-smolts. However, it is acknowledged that their movements in the marine environment are very different and direct parallels cannot be drawn between observed lice levels on sea trout and predicted lice levels on Atlantic salmon post-smolts.

The science regarding potentially damaging levels of lice on Atlantic salmon post-smolts has progressed in recent years and there are now broadly (though not universally) accepted thresholds against which potential risk of harm can be assessed.

These thresholds are set out in SEPAs consultation document, which states:

"Infections of around 0.08 sea lice per gram of salmon post-smolt (i.e., more than 1 louse on an average 20-gram post-smolt) cause serious physiological effects with potential to result in indirect mortality . The probability of mortality, including mortality resulting directly from the infestation, increases with the lice burden. At around 0.1 sea lice per gram (2 lice on an average 20-gram post-smolt), the probability of mortality is likely to be up to 20 % . At around 0.24 sea lice per gram of post-smolt, the probability of mortality is estimated to be 50 %."

It is clear from the wild fish monitoring carried out as part of the Carradale EMP, that a number of the sea trout sampled were carrying lice loads exceeding 0.08 lice / gram. It is also evident that there appears to be some correlation with lice levels on farmed fish at the Carradale fish farms and the levels recorded on sea trout in the area. However, it is not possible to attribute any elevated lice levels observed on the sea trout sampled in Carradale Bay, with lice originating from the Carradale fish farms.

The EMP for Kilbrannan Sound currently identifies risk levels for post-smolts based on work by Taranger et al. (2014). The deemed risk to small salmonid post-smolts (<150 g body weight) arising from sea lice is set out in Figure 10 below.

Sea lice (all stages) g^{-1} fish weight	*Risk category*	*Lice related mortality*
>0.3 lice g^{-1} fish weight	High	100%
0.2 - 0.3 lice g^{-1} fish weight	Medium	50%
0.1 - 0.2 lice g^{-1} fish weight	Low	20%
<0.1 lice g^{-1} fish weight	Minimal risk	0%

Figure 10. Deemed risk due to sea lice mortality as set out in North Kilbrannan EMP

The EMP scores the risk to wild salmonids to help assess population level effects of sea lice related mortality. They calculate increased mortality risk as the sum of the increased mortalities in the sample, reflecting the distribution of the intensity of salmon lice infection of the different individuals sampled. This is set out in Figure 11 below.

Increased mortality risk at population level	*Population regulating effect*
>30% of fish have >0.1 lice g^{-1} fish weight	High
10%-30% of fish have >0.1 lice g^{-1} fish weight	Medium
<10% of fish have >0.1 lice g^{-1} fish weight	Low

Figure 11. Risk of population regulating effect due to sea lice pressure

In 2021, the Carradale EMP monitoring sampled 37 fish over the period. Of these, nine fish had lice levels exceeding 0.1 lice / gram, which equates to ~24%, suggesting a medium risk of a 'population regulating effect'. If we consider the same data in the context of SEPA's slightly more precautionary figure of 0.08 lice/gram, ten fish sampled would have exceeded this limit, which equates to 27% of the sample.

Carradale Sea Lice Management

Mowi have published data relating to site-specific lice levels at the existing Carradale North and South sites since January 2019.

As would be expected, the available data appears to suggest there is a correlation between maximum biomass (associated with the second year of production) and elevated lice levels on the farms.

From 2019 to 2022, average lice levels generally peaked at around 1.5 lice/fish, noting 2019 was slightly higher, peaking at around 1.8 lice/fish. The exception to this was in 2021 when, due to gill disease, Mowi were not able to administer treatments to the fish. During this period, lice levels peaked at 2.5 lice/fish. However, it is also important to highlight that the biomass at this time was approximately half the level that it could have been (Figure 12). This was due to an equipment failure incident that occurred, resulting in one of the sites ceasing production.

Of the data available since January 2019, it is clear that lice levels have become elevated for periods during the second year of production. Fortuitously, these periods of elevated lice have largely fallen outside the most sensitive period for migrating smolts (mid-Mar – end of May), though there was a spike in 2023, which briefly took average lice levels on the farms above 0.5 lice/ fish during the most sensitive period (Figure 13).

However, the key exception to this occurred in 2021, when lice levels remained elevated throughout the sensitive period. As highlighted above, it is almost certain that a gill disease outbreak on the farm made this situation worse, due to the inability of Mowi to treat their fish during the period.

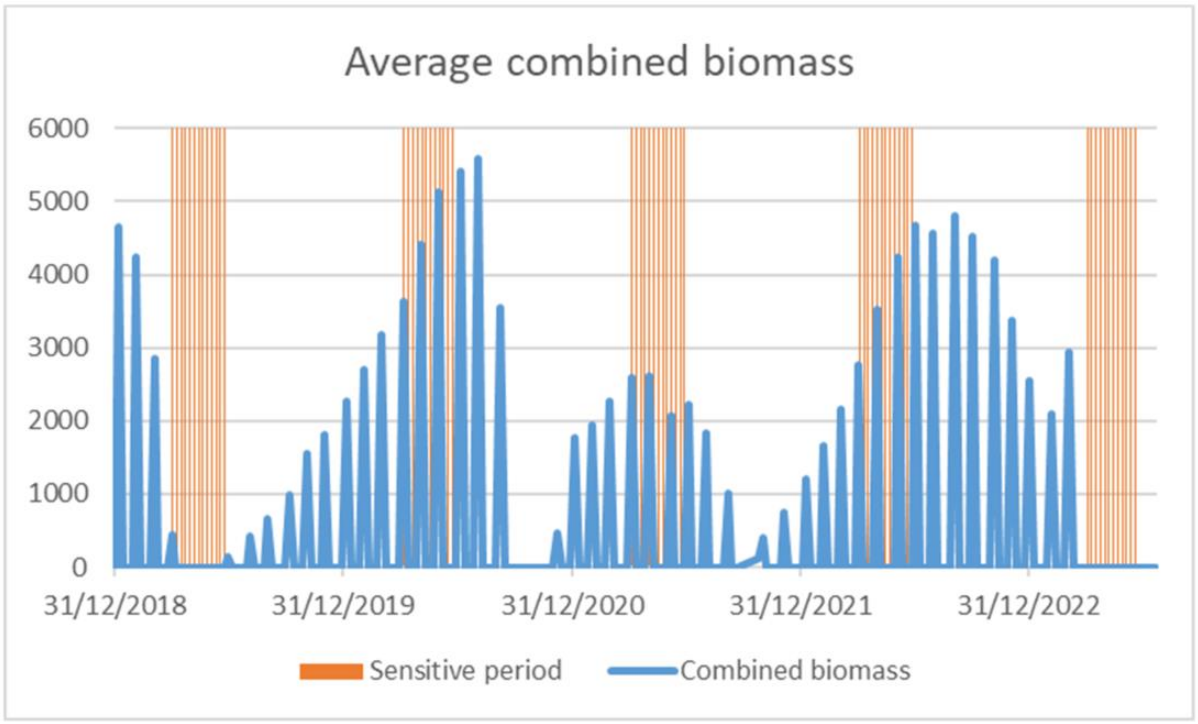


Figure 12. Average combined biomass and sensitive smolt period

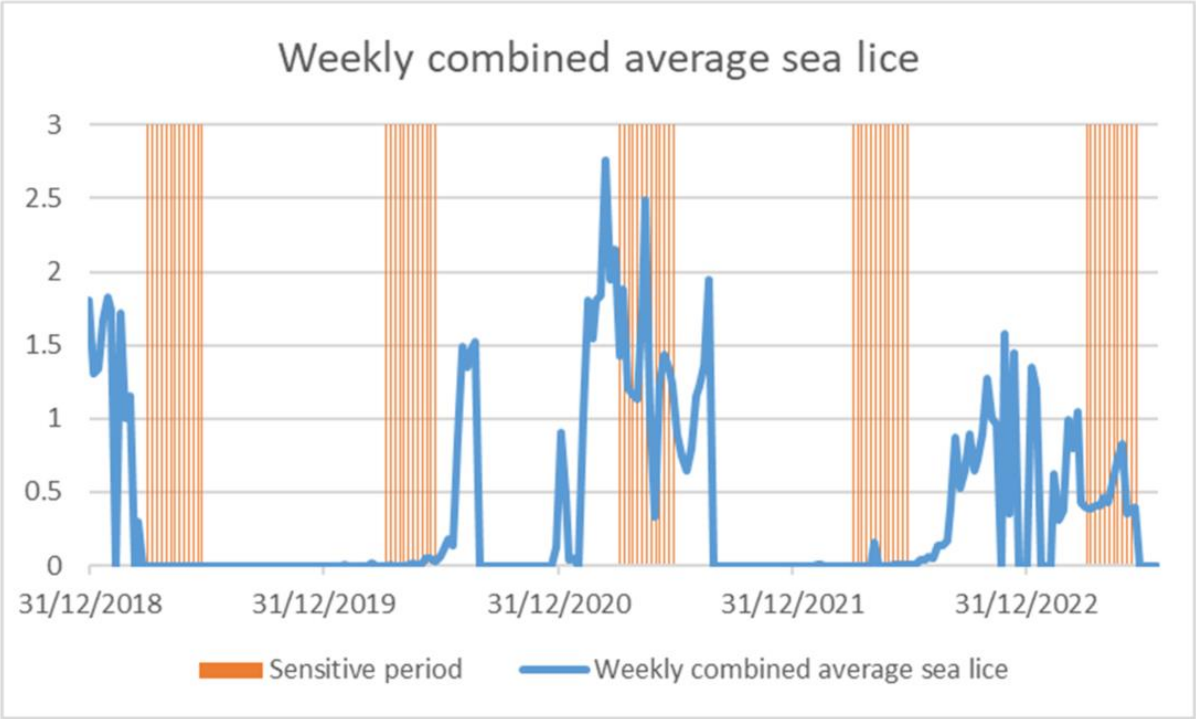


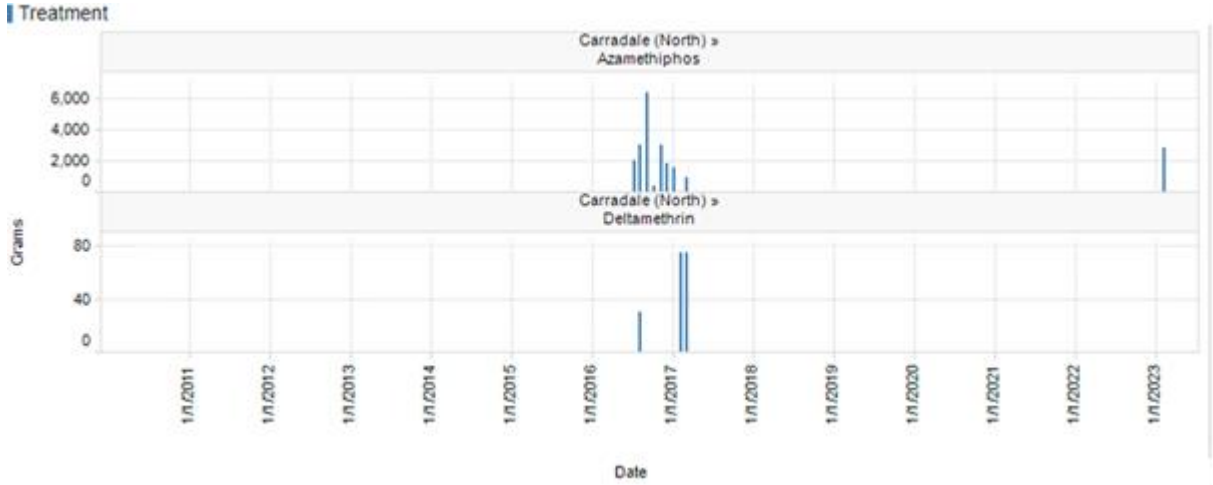
Figure 13. Weekly combined average lice levels and sensitive smolt period

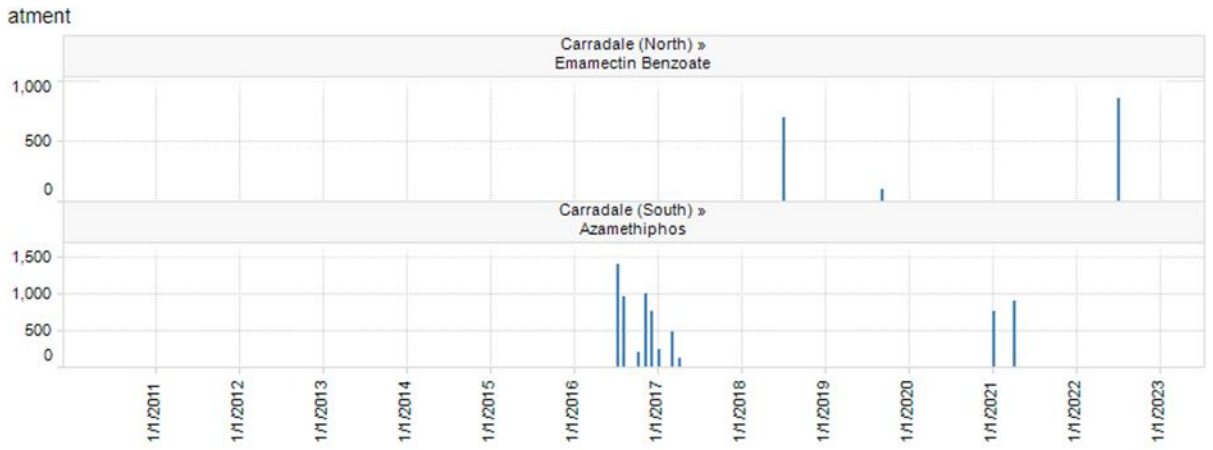
Data relating to sea lice levels and biomass at the existing Carradale sites indicate that, with the exception of 2021, periods of elevated lice on the farms have largely avoided overlap with the most sensitive periods for Atlantic salmon post-smolts (see Figure 12). However, it is also important to note that lice levels have become elevated on a regular basis, albeit not to the levels experienced in 2021. As highlighted above, this pattern largely coincides with the second year of production at the sites. It is unclear to what degree the minimal overlap between elevated lice on the farm and the sensitive period for migrating Atlantic salmon smolts has been a result of intervention by Mowi. However, the reported data suggests that minimal sea lice intervention has been taken place at these sites in recent years (see Figure 14).

Since the start of 2019, when sea lice data began being reported, only one application of the bath treatment azamethiphos has taken place at Carradale North (occurring in 2023) and two applications of the infeed treatment, emamectin benzoate (occurring in 2019 and 2022). At Carradale South, only two applications of azamethiphos have taken place (both occurring in 2021) and two applications of emamectin benzoate (occurring in 2019 and 2022). In addition to these chemical treatments, the data indicates that only one non-chemical treatment has taken place since 2019. This occurred in May 2021 and is recorded as a physical treatment, though no further details of the form of treatment are provided.

Based on the available data, it appears as though Mowi have taken minimal intervention measures to control sea lice at their existing farms at Carradale since at least 2019. This suggests that Mowi may have the ability to control lice at their sites in Kilbrannan Sound at more stringent levels than they have achieved historically. However, Mowi's ability to take prompt action to manage sea lice effectively will of course be dependent on the availability of suitable treatments/treatment vessels. Critically, Mowi's ability to treat fish will also depend

on the health of the fish at their sites. As was the case in 2021, the occurrence of certain fish health issues can limit Mowi's ability to administer treatments and in these instances, it is possible that lice levels could become significantly elevated. In cases where episodes of elevated on-farm lice overlap with the key sensitive period for migrating Atlantic salmon post-smolts, and where these post-smolts pass through Kilbrannan Sound, it is reasonable to conclude that lice densities could reach levels that are potentially damaging to Atlantic salmon post-smolts from the Endrick Water SAC. When this occurred in 2021, it was fortunate that only one site was in production, limiting biomass and associated lice levels in the marine environment. However, if a similar event were to occur in the future with the combined biomass of Carradale North, Carradale South and North Kilbrannan (7500T rather than 2500T in 2021), this could present a significant risk. However, the exact level of risk is almost impossible to quantify without the detailed modelling work that is currently being progressed by SEPA.





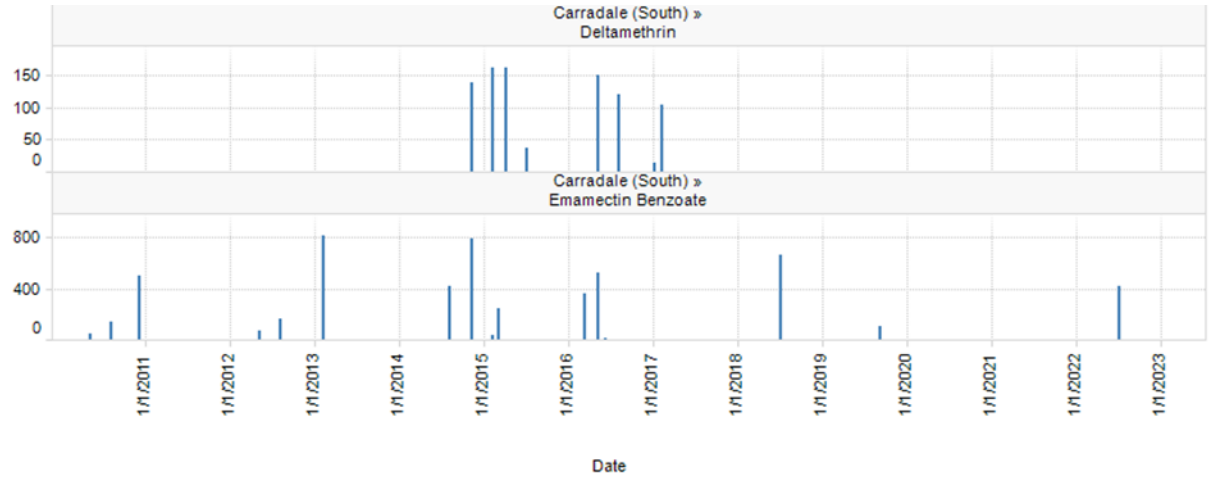


Figure 14. Chemical treatments administered at Carradale North and South

Cumulative Risk

The various sea lice modelling exercises carried out to date indicate that the Kilbrannan Sound is likely to represent an area of higher risk in terms of cumulative exposure to sea lice (i.e. as a result of sea lice emanating from multiple farms).

A number of proposed open cage fish farms exist in the Inner Clyde area. Many of these proposals currently have a CAR licence but no planning permission. These include the following sites: South Bute; Cumbrae; Little Cumbrae and Ardentinny. No planning applications for any of these proposals are currently in the planning system. Modelling carried out to date suggests that the existing level of production in the Inner Clyde area does not appear to be resulting in a significantly elevated risk to post-smolts migrating south from the Endrick Water. However, some model outputs suggest that if consented, the currently proposed farms could elevate the risk of cumulative exposure in the Inner Clyde area significantly.

SEPA has not yet developed a virtual post-smolt tracking model for the Endrick Water SAC. Without this, it is not possible to predict whether cumulative exposure thresholds could be exceeded, either by the existing level of biomass or by the additional biomass that the Proposal would introduce.

However, based on the sea lice modelling that has been carried out, a crude assessment of risk, using the exposure threshold of 0.75 lice/m2/24hrs and predicted post-smolt swim speeds, it does appear as though, under some of the modelling scenarios, there may be potential for the cumulative exposure threshold to be breached.

In order to understand the level of risk fully, SEPA first need to develop a virtual post-smolt tracking model for the Endrick Water SAC. Subsequently, this model needs to be applied in combination with refined sea lice dispersion modelling. This requires SEPA's expertise, both in terms of developing a virtual post-smolt tracking model and for the validation of a refined sea lice model, which the operator will be required to carry out under SEPA's proposed framework.

It is not yet certain how SEPA will apply the final framework to the Proposal. However, under current proposals SEPA will treat the Proposal as an existing site. Because of this, SEPA will not introduce any limits to reduce sea lice levels, should they be required, until they have completed a programme of modelling and monitoring to determine if the existing sites are having an adverse impact on wild salmon post-smolts. This programme of modelling and monitoring could take several production cycles to complete. In this scenario, the introduction of the framework will not immediately address potential cumulative risk to the Endrick Water SAC.

Local Authorities (LAs), such as Argyll and Bute Council, have previously relied upon EMPs to provide an enforceable framework, which can address any elevated risk identified through the associated EMP monitoring. While the EMP process will continue to have a role to play through planning, NatureScot have always acknowledged that in some instances, where the level of risk is too high, the EMP approach is not appropriate.

In the case of North Kilbrannan, the level of risk remains uncertain. However, evidence exists to suggest that in some circumstances Kilbrannan Sound may be an area of higher cumulative risk for post-smolts migrating from the head of Loch Fyne. Until we have any evidence to suggest otherwise, it is precautionary to assume that it may also be an area of higher cumulative risk for post-smolts migrating from the Endrick Water SAC. In the context of this uncertainty, it seems unlikely that the EMP approach alone will be adequate to reach a conclusion of no adverse effect on site integrity (NAESI).

Following further discussions with Mowi, they have modelled alternative production strategies at North Kilbrannan. Following this exercise they have confirmed that they are able implement a production strategy at North Kilbrannan that ensures the site will be empty every other year, during the most sensitive period for migrating Atlantic salmon post-smolts (15th March – 1st June). Our understanding is that this will be based on stocking taking place in Q3 (Oct-Dec), followed by a 15-17 month growth cycle, with the site being harvested out by 15th March.

It is also worth highlighting that production cycles are changing, with a general trend towards a reduced length of production cycle. This trend is likely to continue in the future. There are also a greater number of operators incorporating novel production systems, such as the use of 'nursery' sites, which some producers are using in the initial stages of production before moving fish on to grow-out sites at other locations. These innovations have provided industry with greater flexibility in terms of how they manage sites and in some cases, this has helped to address site-specific challenges faced.

Sea lice levels on farmed fish are highest during the second year of production, while levels during the first year are generally very low, which is reflected in the available sea lice reporting for the existing sites at Carradale north and south. By removing all biomass from site before 15th March, Mowi can ensure that the Proposal will not contribute to cumulative lice loads over this sensitive period during the second year of production, when risk is greatest.

By making this a binding commitment through an agreed planning condition, the planning authority will have a mechanism to ensure that the farm will not contribute to an increased cumulative risk for smolts migrating from the Endrick Water SAC during the second year of production when the risk is known to be greatest. Any changes to the proposed production strategy should also be agreed with Argyll and Bute Council and NatureScot. These measures will also address the risk that the Proposal could contribute to cumulative risk posed or any other SAC river to south of the Firth of Clyde that also includes Atlantic salmon

as a protected feature. This includes River Bladnoch SAC (Scotland), River Derwent and Bassenthwaite Lake SAC (England) and River Boyne and River Blackwater SAC (Republic of Ireland).

SEPA Proposed Sea Lice Risk Framework

For smolts passing through Kilbrannan Sound, when lice levels are elevated on the farms in Kilbrannan Sound there will be a corresponding elevated risk to the wild smolts passing through the area. The level of risk will depend on the cumulative lice load (lice/m2) in the waterbody and the time it takes the post-smolt to pass through the area. We can carry out a crude assessment of this and make a judgement regarding potential risk. However, where sea lice dispersal is complex, such as in Kilbrannan Sound, a detailed modelling approach is required, as is proposed as part of the SEPA risk framework.

Without this, it is not possible to state definitively what the level of risk is as a result of the existing sites in Kilbrannan Sound and Loch Fyne, nor can we say definitively what additional risk the Proposal might pose or what acceptable sea lice limits to manage the risk effectively would be.

SEPA have modelled post-smolt migration from the head of Loch Fyne and have concluded that Kilbrannan Sound is an area of elevated risk for those smolts (see Figure 15). As we understand it, modelling predicts that the Proposal contributes a high relative contribution of infective stage sea lice (see Figure 16 below). They have not yet modelled exposure to sea lice to post-smolts from the Endrick Water, so it is impossible to say definitively whether Kilbrannan Sound will pose the same level of risk to post-smolts originating from the SAC. The risk profile for smolts migrating from the head of Loch Fyne could potentially be very different to those migrating from the Inner Clyde area, so we cannot draw direct parallels and associated conclusions regarding the level of risk posed to post-smolts migrating from the Endrick Water SAC.

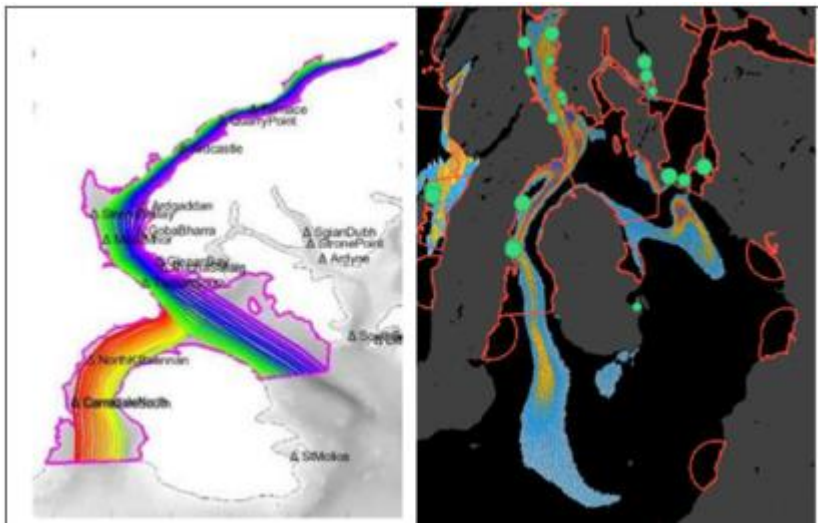


Figure 15. Simulated routes of virtual salmon post-smolts through the Loch Fyne WSPZ (left) and average lice/m2 concentrations shown against sites and WSPZs

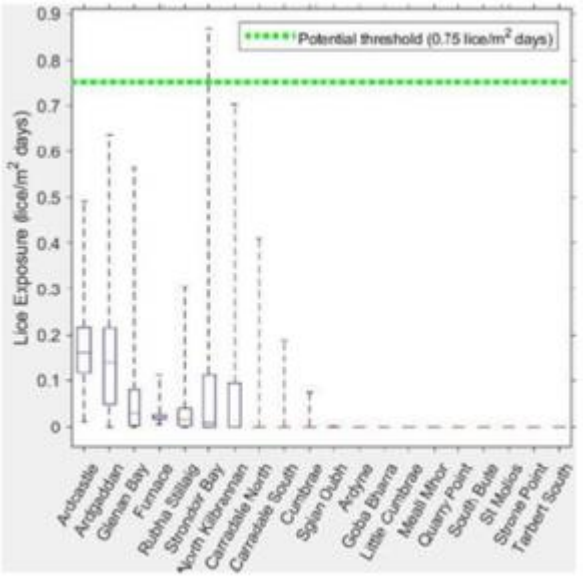


Figure 16. Modelled relative contributions of different farms to exposure of virtual salmon post-smolts to infective stage sea lice in spring 2021

In terms of how SEPA will apply the framework in the future, under the current proposal as North Kilbrannan already has a CAR licence, SEPA will treat it as an existing site. This is significant as it means that initially any sea lice limits placed on the farm will focus on avoiding 'deterioration' i.e. preventing lice management from getting any worse. SEPA will assess this by establishing 'typical' levels at the farm. SEPA will base this on average site-specific sea lice levels at the farm over the past 6 years. In the case of North Kilbrannan, which has no past performance to base this on, this will most likely involve using the sites at Carradale as a proxy.

It is currently proposed that for existing sites, where modelling predicts there is a substantial risk to Atlantic salmon smolts, SEPA will only introduce limits / conditions to reduce sea lice levels after a detailed modelling and monitoring program has been carried out to confirm that the modelled risk is reflected in the real world environment. The SEPA framework consultation document suggests this monitoring program could take several production cycles to complete. On this basis, it is possible that it could take SEPA many years to address elevated risk at existing sites.

In relation to North Kilbrannan, this means that should the Argyll and Bute Council grant planning permission and subsequently find that Mowi are not able to control sea lice effectively at the site, it may take many years before SEPA introduce conditions/limits to reduce the risk.

Mowi consulted with NatureScot during the development of the current EMP for the Proposal (December 2020). Further discussion also took place in April 2021 surrounding the wording of conditions in relation to wild fish monitoring and the end of cycle review process and the following condition wording was agreed by both parties:

- The site will not be stocked until the wild fish monitoring plan has been agreed, including a requirement to monitor the juvenile salmon population in coastal waters within a zone of 30km from the Management Area.

- The site shall not be restocked until a review has been undertaken of relevant farming and wild fish monitoring data collected during the previous cycle, and the review has been agreed by Argyll and Bute Council, in consultation with NatureScot. The review must be completed and agreed sufficiently in advance of the following cycle, to allow timely restocking, and all relevant parties will agree on the review process in advance.

SEPA Framework and Integration with EMP

The available modelling suggests the Proposal could contribute to an elevated risk for smolts passing the north of Arran and through Kilbrannan Sound. The available data suggests that the majority of smolts migrating south through the Firth of Clyde from the Inner Clyde area, including those from the Endrick Water, will pass through the wider Firth of Clyde channel to the east of Arran. Modelling suggests that there may be some sea lice dispersion in to this area from Loch Fyne and Kilbrannan Sound; however, it is not likely to result in significant accumulations of sea lice in the area to the east of Arran, where smolts from the Endrick Water are most likely to pass.

As highlighted previously, it is now understand that there can be inter-annual variation, in terms of the routes taken by post-smolts migrating out of the Firth of Clyde. It is known that in some years at least, the number of post-smolts from the Endrick Water that pass through Kilbrannan Sound is not an insignificant proportion of those that successfully migrate past the Cumbrae narrows (at least 8% in 2022).

NatureScot are content that the measures proposed by Mowi, by way of their alternative production strategy, will remove any increased risk posed to post-smolts from the Endrick Water during the second year of production, when the risk is greatest. However, production at the site will overlap with the sensitive smolt migration period during the first year of production. There is therefore a risk that the site could contribute to cumulative risk to post-smolts during its first year of production. It is therefore important that the Local Authority maintain a mechanism to monitor risk and influence on-farm management in future production cycles, should they deem this to be required to address any risk that they identify.

The EMP approach was developed to address the complex issue of lice management through the planning process. The EMP is an iterative process that uses monitoring data gathered over the course of a production cycle to assess the level of risk posed to migrating post-smolts. Where relevant, the Local Authority has a mechanism to ensure that appropriate management is put in place to address any risk that is identified. Furthermore, by ensuring that the EMP incorporates an end of production review and by requiring a condition that the site shall not be restocked until that review process is complete, the Local Authority is provided with an enforceable mechanism to address any elevated risk that is identified. This would only be required if they conclude that it is no longer possible to mitigate the risk through alternative management measures.

We are confident that the mitigation proposed is sufficient for the Local Authority to reach a conclusion of NAESI. However, nonetheless it is important to acknowledge that the SEPA framework will introduce a new assessment process in the future that will further improve our ability to predict risk and identify appropriate limits to address any risk. It is our view that the Local Authority should seek a mechanism that allows them to consider any new information arising through the proposed SEPA framework. As highlighted above, uncertainty remains regarding how SEPA will treat existing sites under the proposed framework. As such, it is important that the Local Authority, in their role as competent authority, has the ability to act

on any new information that arises, where the information suggests any existing sites operating under an enforceable EMP may be posing an elevated risk to an SAC.

We are of the view that the Local Authority should seek to incorporate a mechanism through the EMP review process that allows them to take account of new information arising through SEPA's proposed framework as part of the EMP review process. This, combined with a commitment not to restock until the review is complete, will ensure the LA will can maintain the ability to take account of any new information arising through SEPA's sea lice risk framework in the future.

Summary of NatureScot's assessment against conservation objective: Population of the species, including range of genetic types for salmon, as a viable component of the site:

- Evidence exists to suggest that Kilbrannan Sound may be an area of higher cumulative risk, due to sea lice exposure, for post-smolts migrating from the head of Loch Fyne.
- Uncertainty remains regarding the level of risk posed to post-smolts migrating from the Endrick Water. Without further refined and verified sea lice modelling and virtual post-smolt tracking from the Endrick Water, it is not possible to assign risk or identify appropriate sea lice limits to manage risk.
- We now know that in some years, the number of post-smolts from the Endrick Water that pass through Kilbrannan Sound is not an insignificant proportion of those that successfully migrate past the Cumbrae narrows (8% in 2022).
- Based on the above points, we cannot rule out the possibility that the Proposal could contribute to a cumulative risk to post-smolts from the Endrick Water SAC.
- In the context of the uncertainty surrounding the level of risk posed to post-smolts from the Endrick Water SAC, it seems unlikely that the EMP approach alone will be adequate for the LA to reach a conclusion of NAESI.
- Following further discussions with Mowi, they have modelled alternative production strategies at North Kilbrannan. Following this exercise they have confirmed that they are able implement a production strategy at North Kilbrannan that will ensure the site is fallow every other year during the most sensitive period for migrating Atlantic salmon post-smolts (15th Mar – 1st June). This fallowing will coincide with the second year of production, during which period we know that the risk is greatest.
- By removing the biomass from the site before 15th March, Mowi can ensure that during the second year of production, when risk is greatest, the Proposal will not contribute to cumulative lice loads during the sensitive post-smolt migration period.
- By making this commitment a binding planning condition, the Local Authority has a mechanism to ensure that the farm will not contribute cumulative risk during the second year of production.
- We are of the view that the EMP approach is adequate to manage any remaining risk during the first year of production, as the level of risk posed will be very low. We base this conclusion on our understanding of industry practices and on evidence related to lice levels in the first year of production at Carradale north and south.

Based on the above appraisal, NatureScot are satisfied that provided the mitigation as outlined below is conditioned as part of any planning approval, then it is concluded that the

Proposal will not compromise the following conservation objectives of the Endrick Water SAC:

- *To maintain the population of the species, including range of genetic types for salmon, as a viable component of the site.*

In addition to the above conservation objective for the Endrick Water SAC, NatureScot also conclude that the mitigation outlined below will also ensure that the following conservation objectives for each relevant site will not be compromised:

River Bladnoch SAC

1. *To ensure that the qualifying feature of the River Bladnoch SAC is in favourable condition and makes an appropriate contribution to achieving favourable conservation status.*

2. *To ensure that the integrity of the River Bladnoch SAC is restored by meeting objectives 2a, 2b and 2c for the qualifying feature:*

   2a. Restore the population of the species, including range of genetic types, as a viable component of the site

River Derwent and Bassenthwaite Lake SAC (England)

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- *The populations of qualifying species.*

River Boyne and River Blackwater SAC (Republic of Ireland)

To restore the favourable conservation condition of Atlantic Salmon (Salmo salar) in River Boyne and River Blackwater SAC, which is defined by the following list of attributes and targets:

- *Out-migrating smolt abundance: No significant decline: Smolt abundance can be negatively affected by a number of impacts such as estuarine pollution, predation and sea lice (Lepeophtheirus salmonis).*
- *Adult spawning fish: Conservation limit (CL) for each system consistently exceeded.*
- *Salmon fry abundance: Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling.*

The mitigation outlined below is required in order to ensure beyond reasonable doubt that the conservation objectives for each relevant site will not be compromised by the proposed development.

Below is a summary of NatureScot's appraisal of the remaining conservation objectives for the Endrick Water SAC:

- Distribution of the species within the site.

NatureScot do not consider the operation of the Proposal will result in a change to the distribution of the species within the site of the Endrick Water due to the physical separation distance between the SAC and the Proposal.

This conservation objective will not be compromised.

- Distribution and extent of habitats supporting the species

NatureScot do not consider the operation of the Proposal will result in a change to the distribution and extent of habitats supporting the species of the Endrick Water due to the physical separation distance between the SAC and the Proposal.

This conservation objective will not be compromised.

- Structure, function and supporting processes of habitats supporting the species.

We do not consider the operation of the Proposal will result in a change to the Structure, function and supporting processes of habitats supporting the species of the Endrick Water due to the physical separation distance between the SAC and the Proposal.

This conservation objective will not be compromised.

- No significant disturbance of the species.

We do not consider the operation of the Proposal will result in significant disturbance of the species of the Endrick Water due to the physical separation distance between the SAC and the Proposal.

This conservation objective will not be compromised.

To conclude, we consider that, with the implementation of mitigation, all of the conservation objectives will not be undermined for the Atlantic salmon qualifying interest for the following sites:

- Endrick Water SAC;
- River Bladnoch SAC;
- River Derwent and Bassenthwaite Lake SAC (England); and
- River Boyne and River Blackwater SAC (Republic of Ireland).

On this basis, we are confident to conclude there will be no adverse effect on the integrity of the above SACs from the Proposal either on its own or in-combination with other developments.

NatureScot's advice above on the Endrick Water SAC also applies to the Endrick Water Site of Special Scientific Interest.

Recommended mitigation to be secured by planning condition, should permission be granted.

NatureScot advise that on the basis of the appraisal carried out to date, if the proposal is carried out strictly in accordance with the following mitigation, the Proposal will not adversely affect the integrity of the identified SACs.

1. The proposal is undertaken strictly in accordance with the revised EMP (December 2020) or any further updated version that is agreed prior to the site being stocked.

Reason: To provide Argyll and Bute Council with an enforceable framework to ensure that any elevated risk to the Atlantic Salmon feature of the Endrick Water SAC can be mitigated before any adverse effect on site integrity can occur.

2. The site shall not be restocked until a review has been undertaken of relevant farming and wild fish monitoring data collected during the previous cycle, and the review has been agreed by the Local Authority, in consultation with NatureScot. The review must be completed and agreed sufficiently in advance of the following cycle, to allow timely restocking, and all relevant parties will agree on the review process in advance.

Reason: To provide Argyll and Bute Council with an enforceable framework to ensure that any elevated risk to the Atlantic Salmon feature of the Endrick Water SAC can be mitigated before any adverse effect on site integrity can occur.

3. The site will not be stocked until the wild fish monitoring plan has been agreed, including a requirement to monitor the juvenile salmon population in coastal waters within a zone of 30km from the Management Area.

Reason: To provide Argyll and Bute Council with an enforceable framework to ensure that any elevated risk to the Atlantic Salmon feature of the Endrick Water SAC can be mitigated before any adverse effect on site integrity can occur.

4. The site will be fallow between the 15th March and 1st June each alternate year, coinciding with the second year of production at the site. Any proposed changes to the production strategy should be agreed with the Local Authority and NatureScot.

Reason: To ensure the site does not contribute to any cumulative risk to post-smolts migrating from the Endrick Water during the second year of production.

5. Mowi will notify the Local Authority in writing within 14 days of the site being stocked and fallowed.

Reason: To ensure that Argyll and Bute Council have a mechanism to monitor compliance with the planning condition.

Conclusion

The potential impacts of the development in relation to the conservation objectives cited in the SAC designation have been considered in the light of the above and it has been concluded that with identified mitigation measures in place the impacts arising from the operation of the development as proposed, in combination with the operation of other farms nearby will not have a significant impact upon qualifying interests, and accordingly there is no reason to withhold permission on European nature conservation grounds.

Sandra Davies

Argyll and Bute Council - Major Applications Team Leader

24th November 2023