

## APPENDIX B TO APPLICATION 11/01066/MFF

### HABITATS REGULATION APPRAISAL – ARGYLL AND BUTE COUNCIL

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| <b>Date</b>                 | February 2013                                    |
| <b>Development proposal</b> | Relocation of Ardmaddy salmon farm in Seil Sound |
| <b>Natura site(s)</b>       | Firth of Lorn Special Area of Conservation       |

#### A. INTRODUCTION

This document is a record of the full Habitats Regulation Appraisal, undertaken by Argyll and Bute Council in respect of the above development proposal to assess the implications on the Firth of Lorn Special Area of Conservation.

Planning authorities are advised by Scottish Government not to duplicate the regulatory roles of other regulatory bodies. Had a CAR licence been granted for this development prior to a planning application being submitted, Argyll and Bute Council would not have considered the potential environmental impacts covered by SEPA's CAR process and SNH would not have advised that an Appropriate Assessment would have been required. Therefore the Council is only undertaking an Appropriate Assessment for this application as the planning process had started prior to the determination of the CAR licence by SEPA.

The focus of the Appropriate Assessment below (see **Section 6**) is identical to that undertaken by SEPA in their determination of the CAR licence for this application, and relates to aspects of the development proposal which are controlled by SEPA through the CAR licence process. Therefore, the Council have based the assessment and overall conclusions on SEPA's Appropriate Assessment which is attached as **Annex 1**.

#### B. PROJECT AND SITE DESCRIPTION

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|----------|---|
| <b>1</b> | <b>Brief description of the project</b>   |
|          | <p>The development proposal is to relocate the existing Ardmaddy salmon farm site approximately 900m south within Seil Sound and to increase the maximum licensed biomass from 1300 to 2500 tonnes. In line with an increase in biomass the applicant has applied to SEPA for an increase in the amount of sea lice treatment chemicals that can be discharged. If granted the existing Ardmaddy site will be relinquished.</p> <p>SEPA have granted a CAR licence for the proposed site for the maximum biomass of 2500 tonnes and an increase in the amount of sea lice treatment chemicals. This CAR licence was granted following the completion of an appropriate assessment, which concluded that the proposal would not have an adverse impact on site integrity of the Firth of Lorn SAC.</p> |
| <b>2</b> | <b>Relevant natura site(s)</b>  |
|          | <p>The proposed development is not situated within any European marine sites but is sited approximately 1.8km to the east of the Firth of Lorn Special Area of Conservation.</p>  |

### Qualifying interests for the natura site and conservation objectives for each interest

#### Qualifying interests

(see <http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030041>)

The natural heritage interests of the Firth of Lorn SAC for which the site is designated are:

Annex I habitats that are a primary reason for selection of this site:

- *1170 Reefs*

This well-defined, discrete area encompasses a complex group of islands, sounds and inlets characterised by some of the strongest tidal streams in the UK. The area is moderately exposed to wave action with very sheltered pockets enclosed by islands and skerries. Reefs extend from the shallow depths between the islands and mainland into depths of over 200m, in many places close inshore. The varied physical environment is reflected in the variety of reef types and associated communities and species, which are amongst the most diverse in both the UK and Europe. These range from those characteristic of conditions sheltered from waves and currents, to those influenced by extreme tidal streams. A rapid transition in communities occurs with the deceleration of the tidal streams. Species present include some which are normally characteristic of deeper water (the sponges *Mycale lingua* and *Clathria barleii*, and the featherstar *Leptometra celtica*), and others which are considered scarce (including the brown alga *Desmarestia dresnayi*). Many species occurring here have either a northern or southern-influenced distribution and reach their geographic limits in this area, for example, the southern cup-coral *Caryophyllia inornata*, the nationally scarce brittlestar *Ophiopsila annulosa*, and the northern bryozoans *Bugula purpurotincta* and *Caberea ellisii*.

Annex I habitats present as a qualifying feature, but not a primary reason for the selection of this site:

- Not applicable.

Annex II species that are a primary reason for the selection of this site:

- Not applicable.

Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Not applicable.

#### Conservation Objectives

(see [http://gateway.snh.gov.uk/sitelink/documentview.jsp?p\\_pa\\_code=8256&p\\_Doc\\_Type\\_ID=29](http://gateway.snh.gov.uk/sitelink/documentview.jsp?p_pa_code=8256&p_Doc_Type_ID=29))

To avoid deterioration of the Annex I habitats (listed above) thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the habitats; and

To ensure for the Annex I habitats (listed above) that the following are maintained in the long term:

- extent of the habitat on site
- distribution of the habitat within site
- structure and function of the habitat
- processes supporting the habitat
- distribution of typical species of the habitat
- viability of typical species as components of the habitat
- no significant disturbance of typical species of the habitat.

### C. IS AN APPROPRIATE ASSESSMENT REQUIRED?

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| <b>4</b> | <b>Is the proposal directly connected with, or necessary to, conservation management of the site?</b>  |
|          | No.  |
| <b>5</b> | <b>Is the proposal likely to have a significant effect on the site (either alone or in combination with other plans or projects)?</b>  |
|          | <p>SNH were consulted by the Council as a statutory consultee on the planning application and Environmental Statement for this proposal. SNH advised that the proposal will have a likely significant effect on the qualifying interest of the Firth of Lorn Special Area of Conservation (SAC) and recommended that Argyll and Bute Council undertake an appropriate assessment for the proposal in view of the site's conservation objectives.</p> <p>This view was based on the potential of the proposed development to affect the qualifying interest of Firth of Lorn SAC from the deposition of organic waste and chemo-therapeutants transported into the SAC by tidal currents.</p> |

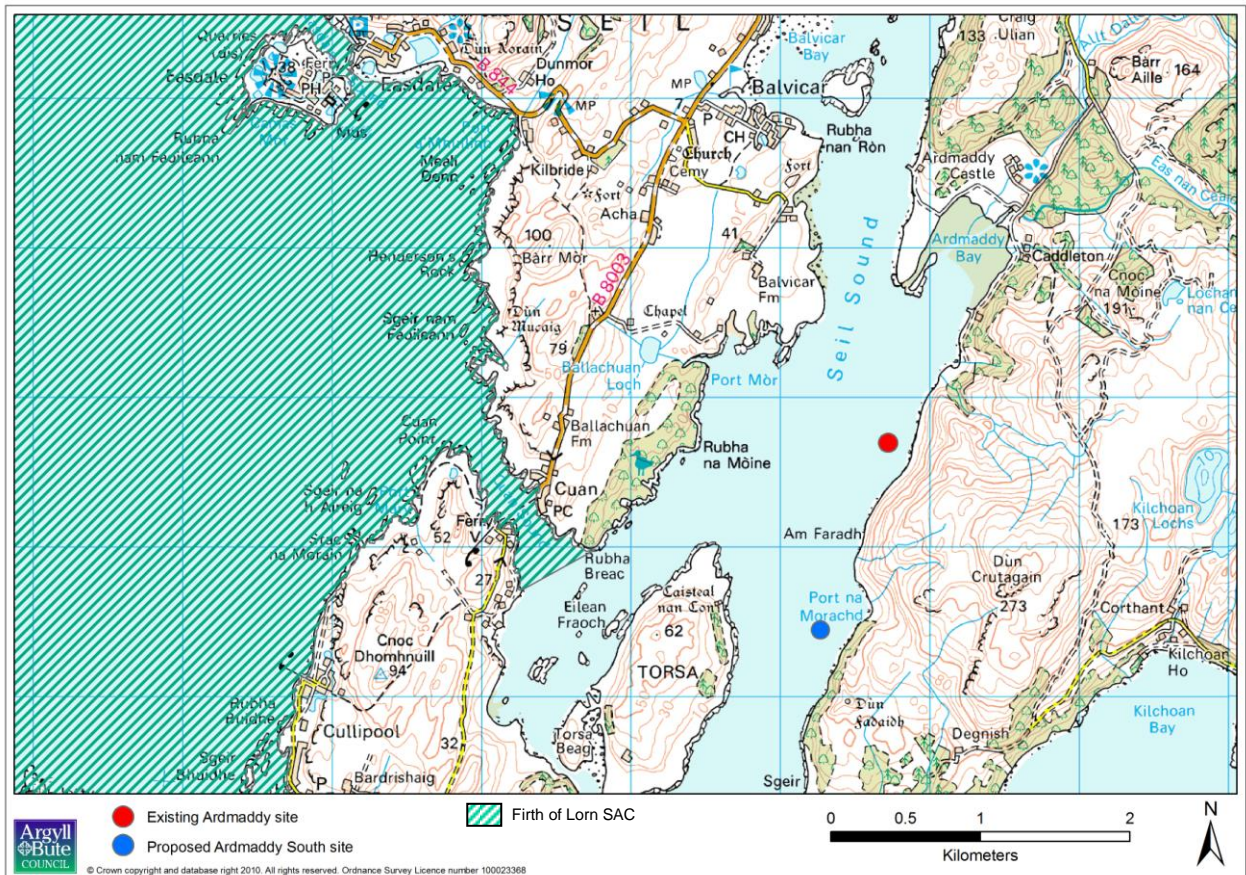
### D. APPROPRIATE ASSESSMENT

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| <b>6</b> | <b>Scope of the Appropriate Assessment</b>  |
|          | <p>SNH advice is that the Appropriate Assessment should be based on an appraisal of the following:</p> <ul style="list-style-type: none"> <li>• The transport of organic waste by tidal currents from the proposed development site to its eventual resting place or area of dispersal and therefore its effect on the interest of the Firth of Lorn SAC; and</li> <li>• The transport of chemo-therapeutants by tidal currents from the proposed development site to their eventual resting place and therefore a resulting effect on the interest of the Firth of Lorn SAC.</li> </ul> <p>The AA should be undertaken in view of the site's conservation objectives as listed in Part C above.</p> <p>It is the view of Argyll and Bute Council that the Appropriate Assessment should focus only on the qualifying features of the Firth of Lorn SAC, in this case 'reef' habitat, and not on other habitats and species listed under Annex I and II of the Habitats Directive which are not qualifying features of the SAC. This view is in line with SNH's interpretation of the Habitats Directive.</p> <p>As the development proposal is out with the Firth of Lorn SAC, potential physical disturbance of qualifying reef habitat from cage anchors and moorings is not relevant and is therefore not considered further.</p> |
| <b>7</b> | <b>Elements of development proposal relevant to the scope of the Appropriate Assessment</b>   |
|          | <p>The following elements of the development proposal are considered relevant to the scope of the AA:</p> <ul style="list-style-type: none"> <li>• relocation of site in Seil Sound from Ardmaddy, approximately 900m south, to Ardmaddy South;</li> <li>• change in the amounts of in-feed and bath sea lice treatments; and</li> <li>• increased biomass from 1300t to 2500t.</li> </ul> <p>The potential hazards of the development upon the qualifying reef interest are likely to be individually or in combination: (a) smothering, (b) chemical treatments, and (c) cumulative nutrient enhancement. These pressures will be controlled through the CAR licence already granted by SEPA (CAR/L/1099909).</p>   |

**8 SAC features in the vicinity of the proposal**

Both the proposed and existing site are outwith the SAC boundary, however, the proposed site is approximately 300m closer to the nearest part of the SAC boundary at Cuan Sound. The existing site is 2.1km away and the proposed site 1.8km away from the SAC. The existing and proposed cage locations and SAC boundary can be seen in Figure 1 below.

**Figure 1. Proposed cage locations (red circles) and SAC boundary for the proposed Ardmaddy South and existing Ardmaddy fish farm sites**



Within or near (less than 3km) to the Firth of Lorn SAC there are seven licensed marine fin fish farms producing salmon at Port nan Seannag (Lunga) (CAR/L/1000811), Ardmaddy (CAR/L1010472), Bagh Lachlainn (CAR/L/1025495), Port na Cro (CAR/L/1000810), South West Shuna (CAR/L/1025496), Bagh Dail nan Ceann North & South (CAR/L/1004226), and Ardifuir (CAR/L/1021927). These sites are authorised by SEPA under the Controlled Activity Regulations (CAR) and allowed to use certain listed chemicals for such activities as fish health, net anti-fouling and bio security.

**9 Direct and indirect effects on qualifying reef habitat**

As discussed in Section 6 above, this Appropriate Assessment focuses on the potential impacts of the development proposal from:

- The transport of organic waste by tidal currents from the proposed development site to it’s eventual resting place or area of dispersal and therefore its effect on the interest of the Firth of Lorn SAC; and
- The transport of chemo-therapeutants by tidal currents from the proposed development site to their eventual resting place and therefore a resulting effect on the interest of the Firth of Lorn SAC.

**Sensitivity of qualifying reef habitat**

SEPA’s Appropriate Assessment identifies that few studies have been undertaken to evaluate the effects

of different levels of solids flux on reef organisms. In terms of the CAR assessment process, the solids flux:ITI relationship has been empirically determined specifically for benthic infauna, and therefore is not directly applicable to reef fauna. However, it is considered likely that some reef fauna will be more sensitive to solids flux.

SEPA's Appropriate Assessment (see **Annex 1 - Section 5 'Effects on reef species'**) identifies relevant reef organisms to which AMBI (AZTI Marine Biotic Index) scores have been assigned. The taxa noted from the SAC in the site description (see **Section 3** above) with AMBI scores assigned, e.g. *Dendrodoa grossularia*, *Corynactis viridis*, *Caryophylla inornata*, *Ophiopsila annulosa*, all fall into group I of the AMBI scores, identified as species very sensitive to organic enrichment and present under unpolluted conditions.

The MarLIN website [www.marlin.ac.uk](http://www.marlin.ac.uk) has assessed available information on the sensitivity of different species and habitats to various anthropogenic factors. Relevant to this assessment are the factors – 'smothering'; 'increase in suspended sediment'; 'synthetic compound contamination'; 'hydrocarbon contamination'; and 'changes in nutrient levels'. For those species listed in the qualifying interests, no information is available or they are not listed.

Information is however available for the following four types of reef habitat (biotopes) which are likely to be found in the SAC, and is presented in **Table 1**:

- *Antedon* spp., solitary ascidians and fine hydroids on sheltered circalittoral rock (Biotope - CR.LCR.BrAs.AntAsH) <http://www.marlin.ac.uk/habitatsensitivity.php?habitatid=313&code=2004>
- *Neocrania anomala* and *Protanthea simplex* on very sheltered circalittoral rock (Biotope - CR.LCR.BrAs.NeoPro) <http://www.marlin.ac.uk/habitatsensitivity.php?habitatid=5&code=2004>
- *Ophiothrix fragilis* and/or *Ophiocomina nigra* beds on slightly tide-swept circalittoral rock or mixed substrata (Biotope - CR.MCR.EcCr.CarSp.Bri) <http://www.marlin.ac.uk/habitatsensitivity.php?habitatid=278&code=2004>
- Faunal and algal crusts, *Echinus esculentus*, sparse *Alcyonium digitatum* and grazing-tolerant fauna on moderately exposed circalittoral rock (Biotope - CR.MCR.EcCr.FaAlCr.Pom) <http://www.marlin.ac.uk/habitatsensitivity.php?habitatid=337&code=2004>.

**Table 1. MarLIN sensitivity information**

|  | Assessment details   | Sensitivity information  |
|--|--|--|
| <i>Smothering</i>  | The biotopes have been assessed against smothering by 5cm of sediment for one month.   | MarLIN indicates that the biotopes CR.LCR.BrAs.AntAsH, CR.LCR.BrAs.NeoPro and CR.MCR.EcCr.CarSp.Bri will have a moderate sensitivity to smothering, due to their high intolerance but moderate recoverability. The habitat CR.MCR.EcCr.FaAlCr.Pom has an intermediate intolerance to smothering, but a low sensitivity due to its high recoverability. |
| <i>Suspended sediment</i>                                  | The biotopes were assessed against 100mg/l for one month.  | MarLIN indicates that the above biotopes are not sensitive or have a very low sensitivity to an increase in suspended sediment. This is due to their low intolerance and either immediate or very high recoverability.   |
| <i>Synthetic compounds &amp; hydrocarbon contamination</i> | For synthetic compounds and hydrocarbon contamination, the biotopes were assessed against mass mortality (both short- and long-term), a reduction in | MarLIN indicates that the biotopes CR.LCR.BrAs.AntAsH and CR.MCR.EcCr.FaAlCr.Pom have a moderate sensitivity to synthetic compound contamination, due to a high intolerance but high recoverability. There is insufficient information for the biotopes CR.LCR.BrAs.NeoPro and CR.MCR.EcCr.CarSp.Bri, however they are also                            |

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|                            | abundances, and sub-lethal effects such as a reduced reproductive potential. | <p>expected to show a moderate sensitivity, high intolerance and high recoverability.</p> <p>For hydrocarbon contamination, MarLIN indicates the biotope CR.LCR.BrAs.AntAsH will have a moderate sensitivity, due to a high intolerance but high recoverability. There is insufficient information for the biotope CR.LCR.BrAs.NeoPro, but this is expected to show a similar response to CR.LCR.BrAs.AntAsH. The biotopes R.MCR.EcCr.CarSp.Bri and CR.MCR.EcCr.FaAlCr.Pom are both listed as having a low sensitivity, due to their low or intermediate intolerance and high recoverability.</p> |
| Changes in nutrient levels |  | <p>For changes in nutrient levels, MarLIN indicates the biotopes CR.LCR.BrAs.AntAsH, CR.LCR.BrAs.NeoPro and CR.MCR.EcCr.CarSp.Bri will have a low sensitivity or are not sensitive, due to a high recoverability and low intolerance. The biotope CR.MCR.EcCr.FaAlCr.Pom will have a moderate sensitivity, due to a high intolerance but high recoverability.</p>   |

**Assessment of effects from solid waste**

The deposition of waste feed and faecal particles has the potential to smother reef habitat and associated species. SEPA uses the bespoke particle-tracking model AutoDepomod to determine the sea bed deposition footprint of particles leaving the cages and also any re-suspension of deposited material to the wider area.

SEPA's Appropriate Assessment has provided a detailed assessment of the impacts from the likely deposition of solids waste within the Firth of Lorn SAC, in relation to qualifying reef habitat. This assessment has been based on the detailed modelling and information considered during their consideration of the CAR licence.

Argyll and Bute Council have reviewed SEPA's assessment on 'Solid Flux Impact' (see **Appendix 1 – Section 5**) and agree with the summary conclusions set out below.

**Summary of solids flux impacts**

*The proposed changes in solids flux may give rise to a likely significant effect. This likely significant effect is due to the predicted export of solids emanating from the proposed fish farm being transported into the Firth of Lorn SAC, through both the Cuan Sound (67%) and the southern boundary (2%).*

*However, the above assessment leads to the conclusion that the proposal will result in a relatively small (<3%) increase of solids from fish farms in the general area of the SAC. The reported natural sedimentation rates in the SAC are relatively high, and the increase in sedimentation in the SAC, resulting from the proposal, represents 0.00001% of the natural background rates.*

*The levels of smothering and sedimentation are negligible compared with those used for the MarLIN sensitivity assessments for relevant reef habitats, and the increase in solids flux over the background levels would not be effectively measurable. This combined with the generally dispersive nature of the SAC and beyond, means it is reasonable to conclude that the proposed changes in solids flux will not give rise to a likely significant effect on the SAC designated features.*

*This means it is reasonable to conclude that any potential impacts due to changes in solids flux on the SAC designated features will be negligible and will not compromise the site's Conservation Objectives. This conclusion is based upon the most up-to-date scientific research, and best available rigorous modelling.*

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|    | <p><b>Assessment of effects from chemical treatments</b></p> <p>Sea lice medicine residues, both in the water column and in the sediment, have the potential to be toxic to reef habitat and associated species. The principal materials that may affect sea bed fauna are the sea lice bath treatments azamethiphos, cypermethrin and deltamethrin and the in-feed treatments emamectin benzoate and teflubenzuron. These products are licensed by SEPA for use against sea lice infestations on salmon farms.</p> <p>SEPA's Appropriate Assessment has provided a detailed assessment of the impacts from the likely transport of chemotherapeutics into the Firth of Lorn SAC, in relation to qualifying reef habitat. This assessment has been based on the detailed modelling and information considered during their consideration of the CAR licence.</p> <p>Argyll and Bute Council have reviewed SEPA's assessment on 'Toxic effects from sea lice treatments' (see <b>Appendix 1 – Section 5</b>) and agree with SEPA's summary conclusions set out below.</p> <p><b>Summary of sea lice treatment impacts</b></p> <p><i>The proposed changes in the use of licensed sea lice treatments may give rise to a likely significant effect. The MarLIN sensitivity assessments do not examine the effects of specific sea lice treatments on reefs, but tests on the most sensitive taxa have been used to determine the Environmental Quality Standards (EQS).</i></p> <p><i>For bath treatments, the likely significant effect is due to the treatment plumes dispersing from the proposed fish farm and being transported into the Firth of Lorn SAC, mainly through the Cuan Sound. However, the modelling indicates that the dispersal plumes are not taken directly toward the SAC, and therefore the 0.5km<sup>2</sup> mixing zone will not extend into the SAC. This means that bath treatment levels within the SAC will all be below the Environmental Quality Standards (EQS). This combined with the generally dispersive nature of the SAC and beyond, allows the above assessment to lead to the conclusion that any potential impacts resulting from the proposed changes in licensed bath treatments will be negligible and will not compromise the site's Conservation Objectives. This conclusion is based upon the most up-to-date scientific research, and best available rigorous modelling.</i></p> <p><i>For in-feed treatments, the likely significant effect is due to the predicted export of sea lice treatment residues emanating from the proposed fish farm, being exported into the Firth of Lorn SAC, through both the Cuan Sound (67%) and the southern boundary (2%). However, the above assessment leads to the conclusion that the proposal will result in a very small (&lt;1%) increase of sea lice residues. This amount is not statistically significant (at the 1% or 5% levels), and is well within the margins of error for sampling, analysis and the model. Furthermore, the increase in the SAC is equivalent to 0.03% of the far field Environmental Quality Standard (EQS) of 0.763µg/kg. Such an increase is not effectively measurable, and this combined with the generally dispersive nature of the SAC and beyond, means it is reasonable to conclude that any potential impacts resulting from the proposed changes in licensed in-feed treatments will be negligible and will not compromise the site's Conservation Objectives. This conclusion is based upon the most up-to-date scientific research, and best available rigorous modelling.</i></p> |
| 10 | <p><b>Cumulative effects</b></p> <p><b>Solid waste</b></p> <p>As discussed in Section 10 above, SEPA's assessment of the effects from deposition of exported solid waste identified that:</p> <ul style="list-style-type: none"> <li>• the increase in solids exported from the proposed Ardmaddy South site is negligible when compared to the amounts already exported from neighbouring fish farms in the Seil Sound and Sound of Shuna area;</li> <li>• any solids exported into the SAC will be widely distributed, both within the SAC and beyond; and</li> <li>• the predicted amounts of solids entering the SAC resulting from nearby fish farms are many orders of magnitude below the natural sedimentation rates, and can thus be considered insignificant.</li> </ul>   |

SEPA's Appropriate Assessment identifies that the increase in exported solids represents less than 3% of the total solids exported from all of the fish farms within, or near to the SAC boundary and within Seil Sound and the Sound of Shuna. This increase represents 0.00001% of the natural background sedimentation rates which makes the predicted total sedimentation from the export of solids from all adjacent farms, including the proposed Ardmaddy site, equivalent to less than 0.00033% of the background sedimentation rates. The Council, therefore consider that cumulative deposition of exported solids will be negligible and will not compromise the site's conservation objectives.

### **Sea lice treatments**

#### Bath treatments

As identified in Section 10 above, SEPA modelling indicates that the dispersal plumes for bath treatments are not taken directly towards the SAC and therefore the 0.5km<sup>2</sup> mixing zone will not extend into the SAC. This means that the levels of bath treatment residues within the SAC will be below SEPA Environmental Quality Standards and therefore not present a risk to the SAC qualifying features.

The amount of bath treatment chemicals licensed by SEPA for the proposed site is less than that which was consented for the existing Ardmaddy site. As there is no increase in use of bath treatments it is concluded that there can be no cumulative impact resulting from the new proposal.

#### In-feed treatments

The use of in-feed treatments, as licensed by SEPA for the new Ardmaddy site, will result in a very small (<1%) increase in sea lice residues, which represents 0.03% of the far field Environmental Quality Standard within the SAC. This increase is not statistically significant or effectively measureable and therefore it is considered that the proposed changes in use of licensed sea lice treatments will not result in cumulative impacts on the SAC.

### **Nutrient enhancement**

The Scottish Government's "[Locational Guidelines for the Authorisation of Marine Fish Farms in Scottish Waters](#)" categorise sea lochs, voes and embayments into 3 categories based on predictions of the impacts from the existing scale of development. Models predicting the nutrient enhancement of the water column and the proportion of sea bed likely to be degraded are used to identify areas more likely to be able to support additional farmed fish biomass. Currently, no further increases in maximum biomass are permitted in Category 1 areas. Increases are more likely to be permitted in Category 2 and 3 areas (subject to site-specific assessment through EIA and CAR). Neither the Sound of Seil or Loch Shuna have been categorised due to their complex, open nature.

In support of the planning application the applicant provided an assessment of the predicted cumulative nutrient enhancement of the existing and proposed fish farms in Seil Sound and Loch Shuna. The Council has reviewed this assessment and agrees with the estimated ECE value from all fish farms of 13.37µg/l.

As advised by SEPA, the estimated input from the existing and proposed farms should be assessed against OSPAR and UKTAG reference or background levels by adding the calculated Equilibrium Concentration Enhancement (ECE) for all farms in the water body to the reference/background level and then the result assessed as to whether it breaches the threshold of 50% above the reference value. Nutrient enhancement calculations according to a Equivalent Concentration Enhancement (ECE) model are described on the [Marine Science Scotland website](#).

The coastal waters of Seil Sound and Loch Shuna can be classified as 'Coastal waters' where Dissolved Inorganic Nitrogen (DIN) normalised to a salinity of 32ppt has a reference value of 12µM (168µg/l) and a threshold of 18µM (252µg/l). Adding the ECE value for all fish farms (13.37µg/l) to the reference value (168µg/l) gives a value of 181.37µg/l, which is below the 252µg/l threshold.

It is therefore considered unlikely that nutrient inputs from this development in combination with other fish farms will have a detrimental effect on water quality or upon primary productivity in Loch Shuna and Seil Sound, in terms of nutrient enhancement.



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| 11 | <p><b>Enforceable conditions on CAR licence which manage the risk of environmental impact, relevant to this Appropriate Assessment</b></p> <p>As identified in Section 7 of SEPAs Appropriate Assessment, the CAR licence that has been granted for this development proposal contains site-specific numeric limits for the maximum biomass and sea lice treatments, such that the solids flux and use of sea lice treatments will not be predicted to exceed the modelled Environmental Quality Standards (EQS). Environmental monitoring is built into the licence and enforcement action is taken if these are exceeded.</p> <p>These limits are there to protect the environment, and their thresholds are set to protect the most sensitive fauna using a well-tried and tested process of EQS setting and additional inbuilt safety factors. SEPA believes that the above will provide appropriate mitigation to help avoid impacts on the site's integrity with respect to its conservation objectives.</p>  |
| 12 | <p><b>Conclusion of Appropriate Assessment</b></p> <p><b>Can it be ascertained beyond reasonable scientific doubt that the proposal will not adversely affect the integrity of the SAC/SPA?</b></p> <p>The following text, lifted directly from SEPAs appropriate assessment (<b>Annex 1</b>) provides a detailed conclusion as to whether the development proposal will affect each conservation objective for the Firth of Lorn SAC. Given that our assessment above (<b>Section 10</b>) has been based on SEPA's consideration of the CAR licence for this proposal, Argyll and Bute Council have used these conclusions for each conservation objective to form our overall conclusion of the Appropriate Assessment.</p> <p><i><u>Distribution of the habitat within site</u></i></p> <p><i>The proposal will result in changes in solids flux in the SAC of 3% of the total due to fish farms, and 0.0001% of the natural background rates. These changes are within the margins of error for sampling, analysis and modelling, and are not effectively measurable. Thus the effects of smothering are not expected to affect this conservation objective.</i></p> <p><i>The proposed use of sea lice bath treatments will not result in any exceedance of the Environmental Quality Standards (EQS) in the SAC. The modelling indicates that the dispersal plumes will not extend into the SAC, and thus the effects of bath treatments are not expected to affect this conservation objective.</i></p> <p><i>The proposal will result in changes in sea lice treatment residues in the SAC of amounts of &lt;1%, which equates to 0.03% of the far field Environmental Quality Standard (EQS). These changes are within the margins of error for sampling, analysis and modelling, and are not effectively measurable. Thus the effects of sea lice medicines are not expected to affect this conservation objective.</i></p> <p><i><u>Structure and function of the habitat</u></i></p> <p><i>The proposal will result in changes in solids flux in the SAC of 3% of the total due to fish farms, and 0.0001% of the natural background rates. These changes are within the margins of error for sampling, analysis and modelling, and are not effectively measurable. Thus the effects of smothering are not expected to affect this conservation objective.</i></p> <p><i>The proposed use of sea lice bath treatments will not result in any exceedance of the Environmental Quality Standards (EQS) in the SAC. The modelling indicates that the dispersal plumes will not extend into the SAC, and thus the effects of bath treatments are not expected to affect this conservation objective.</i></p> <p><i>The proposal will result in changes in sea lice treatment residues in the SAC of amounts of &lt;1%, which equates to 0.03% of the far field Environmental Quality Standard (EQS). These changes are within the margins of error for sampling, analysis and modelling, and are not effectively measurable. Thus the effects of sea lice medicines are not expected to affect this conservation objective.</i></p> |

Processes supporting the habitat

*The proposal will result in changes in solids flux in the SAC of 3% of the total due to fish farms, and 0.0001% of the natural background rates. These changes are within the margins of error for sampling, analysis and modelling, and are not effectively measurable. Thus the effects of smothering are not expected to affect this conservation objective.*

*The proposed use of sea lice bath treatments will not result in any exceedance of the Environmental Quality Standards (EQS) in the SAC. The modelling indicates that the dispersal plumes will not extend into the SAC, and thus the effects of bath treatments are not expected to affect this conservation objective.*

*The proposal will result in changes in sea lice treatment residues in the SAC of amounts of <1%, which equates to 0.03% of the far field Environmental Quality Standard (EQS). These changes are within the margins of error for sampling, analysis and modelling, and are not effectively measurable. Thus the effects of sea lice medicines are not expected to affect this conservation objective.*

Distribution of typical species of the habitat

*The proposal will result in changes in solids flux in the SAC of 3% of the total due to fish farms, and 0.0001% of the natural background rates. These changes are within the margins of error for sampling, analysis and modelling, and are not effectively measurable. Thus the effects of smothering are not expected to affect this conservation objective.*

*The proposed use of sea lice bath treatments will not result in any exceedance of the Environmental Quality Standards (EQS) in the SAC. The modelling indicates that the dispersal plumes will not extend into the SAC, and thus the effects of bath treatments are not expected to affect this conservation objective.*

*The proposal will result in changes in sea lice treatment residues in the SAC of amounts of <1%, which equates to 0.03% of the far field Environmental Quality Standard (EQS). These changes are within the margins of error for sampling, analysis and modelling, and are not effectively measurable. Thus the effects of sea lice medicines are not expected to affect this conservation objective.*

Viability of typical species as components of the habitat

*The proposal will result in changes in solids flux in the SAC of 3% of the total due to fish farms, and 0.0001% of the natural background rates. These changes are within the margins of error for sampling, analysis and modelling, and are not effectively measurable. Thus the effects of smothering are not expected to affect this conservation objective.*

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*The proposal will result in changes in sea lice treatment residues in the SAC of amounts of <1%, which equates to 0.03% of the far field Environmental Quality Standard (EQS). These changes are within the margins of error for sampling, analysis and modelling, and are not effectively measurable. Thus the effects of sea lice medicines are not expected to affect this conservation objective.*

No significant disturbance of typical species of the habitat

*The proposal will result in changes in solids flux in the SAC of 3% of the total due to fish farms, and 0.0001% of the natural background rates. These changes are within the margins of error for sampling, analysis and modelling, and are not effectively measurable. Thus the effects of smothering are not expected to affect this conservation objective.*

*The proposed use of sea lice bath treatments will not result in any exceedance of the Environmental Quality Standards (EQS) in the SAC. The modelling indicates that the dispersal plumes will not extend into the SAC, and thus the effects of bath treatments are not expected to affect this conservation objective.*

*The proposal will result in changes in sea lice treatment residues in the SAC of amounts of <1%, which equates to 0.03% of the far field Environmental Quality Standard (EQS). These changes are within the margins of error for sampling, analysis and modelling, and are not effectively measurable. Thus the*

*effects of sea lice medicines are not expected to affect this conservation objective.*

**Overall Conclusion**

As a competent authority, Argyll and Bute Council has undertaken a Habitats Regulations appraisal and appropriate assessment in consultation with SNH and SEPA. This assessment has been based on SEPAs determination of a CAR licence for the development proposal, including their detailed Appropriate Assessment (**Annex 1**) which is based on high-quality and extensive scientific data.

**Having given consideration to the distance of the development proposal to the SAC boundary and qualifying reef habitat; the proposed changes in deposition of solid waste and use of chemical treatments from the existing Ardmaddy site; and cumulative nutrient enhancement, Argyll and Bute Council conclude that the development proposal will not adversely affect the integrity of the Firth of Lorn SAC, in light of its conservation objectives.**