

**Stulaigh South Fish Farm
Proposed New Marine Site
Consultation and Features of Ecological Importance
January 2023**

1 Introduction

Mowi Scotland (Mowi) operate successful seawater sites in South Uist and throughout the wider Western Isles, including Stulaigh Fish Farm which was authorised in 2011. The area is proven to be a viable farming area and so, the company propose to establish a new marine salmon farm between Lochboisdale and Stulaigh Island (E83355, N822127). Operations would be able to start at the proposed site in 2023, subject to site assessments and the appropriate authorisations being issued.

Farming in this region is an important part of our business. The creation of a new farm would support the local island economy and represents our company strategy of working in remote open water regions where potential environmental impacts are more easily prevented and mitigated. The proposal also reflects the company's strategy to use fewer larger pens at its sites, by proposing 6 pens of 200m circumference.

This document summarises the consultation process carried out prior to this application – see Section 1.1. An Environmental Impact Assessment has also been carried out to accompany a concurrent planning application, and this includes an assessment of potential impacts to features of ecological importance arising from increases in carbon deposition and in-feed residues. The EIA concludes that the potential impacts to features of ecological importance are not significant. Section 1.2 provides an overview of the baseline and Section 1.3 summarises the results of the EIA.

1.1 Consultation

Historical Consultation

Previous proposals at the development site progressed to a formal screening-scoping response issued by the Comhairle nan Eilean Siar (CNES) in 2018. Given the time lapsed and changes to the site design, the consultation process re-started in 2021 and the steps taken are described here and summarised in Table 1.1. The stakeholders contacted and the guidance issued as part of the historical consultation, was reviewed and provided a basis for draft proposals and subsequent consultation.

2021 Pre-Application Consultation

Initial pre-application engagement was undertaken in Spring 2021 during the gradual easing of restrictions and presented two draft site designs. To manage the risk presented by Covid-19, letters were sent electronically to the regulatory authorities and stakeholders listed in Table 1.1, and these letters invited comments on the proposal to establish a new marine finfish site and provided an opportunity to discuss the plans further via telephone or virtually.

2021-2022 Screening-Scoping Consultation

Mowi requested a Screening opinion from the Local Planning Authority at the end of 2021 for two potential site designs. Consultees contacted by the authority during the formal Screening-Scoping process are listed in Table 1.1. Specific issues/topics and agreement of the scope and content of individual surveys and assessments were followed up in email correspondence, meetings or telephone discussions, and the summary is expanded in the individual sections.

2022 Aquaculture Modelling Screening Risk Identification Report

An Screening Report for the proposal was published by SEPA in 2022. This provides an indicative assessment of the likely impact on the surrounding area, and guides the assessment of potential benthic & water column impacts as part of the planning & CAR process.

2022 Community Engagement

Given the Covid-19 restrictions and the associated risk during the 2021 pre-application process, Mowi wrote to the Community Councils and Storas Uibhist again in April 2022, to provide an update and a second opportunity for a virtual or physical consultation/meeting event to be determined by the community. The Screening and Risk Identification Report published by SEPA was also distributed to Community Councils and the Community Landowner providing a further opportunity for discussion. The stakeholders did not request further engagement and the pre-application consultation with the community was concluded at this point, with a willingness to discuss the proposal again at a later date if requested.

Commercial Fisheries

Mowi recognised the concerns raised by WIFA at the pre-application stage and during the screening-scoping consultation, and as a consequence has carried out additional consultation with commercial fisheries.

Table 1.1. Consultation Summary (Pre-App, Screening-Scoping, and Additional Processes). Note. Responses from consultations and how they have been addressed in the EIA are provided in the individual assessments.

Regulatory Authority	Mowi Pre-Application Consulted ✓ Response ✓	CNES Screening Scoping Consulted ✓	Additional
The CNES Planning Authority	✓✓	✓	A Modelling Screening & Risk Identification Report was issued by SEPA in April 2022.
Scottish Environment Protection Agency (SEPA)			
Marine Scotland Science (MSS)			
NatureScot (NS) (previously Scottish Natural Heritage);			
Historic Environment Scotland			
Fisheries Officer			
Environmental Health (Uists & Barra)			
Stakeholder or Organisation			
The Crown Estate Scotland	✓		Lease Option Agreement in place prior to 2021 pre-application
Northern Lighthouse Board (NLB)	✓✓	✓	The Area Manager for Uist & Barra met with the Harbour Master representing Storas Uibhist in May 2022 no concerns were raised that required action within the EIA/licencing process.
Western Isles Fishermen's Association (WIFA)			
Western Isles District Salmon Fisheries Board (WIDSFB)			
Outer Hebrides Fisheries Trust (OHFT)	✓✓		Additional consultation has been completed with commercial fisheries stakeholders, via consultant Poseidon, between Mowi and the Western Isles Fisheries Association, and is ongoing directly with relevant stakeholders
Scottish White Fish Producers Association (SWFPA)			
Ministry of Defence (MOD)			
Lochboisdale Harbour			
Harbour Master	✓✓	✓	Community groups were offered the opportunity of a community engagement meeting/event in 2022. SEPAs Screening and Risk Identification Report was distributed for comment in May 2022.
Royal Yachting Association (Scotland)			
Bornish Community Council	✓✓		
Lochboisdale Community Council	✓		
Storas Uibhist	✓		
MP ██████████ & MSP ██████████	✓		
Councillors ██████████	✓✓		Mowi spoke with the Councillors in 2021 to explain the plans, assessment, and application process.
Councillor ██████████, Councillor ██████████, and Councillor ██████████,	✓		Mowi sent the Councillors details of the proposal following election in May 2022.

1.2 Baseline Environment

1.2.1 Anthropogenic Activities

Aquaculture

There are three active farms within a 10km radius of the proposed farm known as Stulaigh (MB 2,850t km >2km), An Camus (1,471t, >4km), and Marulaig (2,400t >5km), and these are owned and operated by Mowi. Cumulative considerations will be based on the proposal and the existing Stulaigh site only, based on the findings and guidance in the screening report issued by SEPA.

Historical Compliance

The proposal is for a new site and consequently compliance history does not exist for Stulaigh South. However, Table 10.5.1a provides a summary of compliance history at a neighbouring site known as Stulaigh. The licenced equipment and biomass has changed since the farm was first established, and SEPA has consistently classified the monitoring results as “Satisfactory” with the latest survey in 2020 passing pen edge and area standards. The latest SEPA benthic compliance survey was carried out in 2020 and Mowi voluntarily sampled to the standards set out in the new regulatory framework which increases the number of transect to 4 and presents results as IQI.

*Table 1.2.1a Summary of recent compliance history at Stulaigh Salmon Farm (*note the licenced equipment and biomass has changed since the site was established and the new regulatory framework applied at the site when surveyed in 2019. The new process takes samples from 4 transects and results presented as IQI. Surveys prior to 2019 were based on two transect and presented as ITI scores.*

Survey Year	Maximum Biomass (T)	Site Configuration	AZE	Pen Edge	SEPA Monitoring Classification
Current production cycle	2,850	Current consent 14 x 120m pens	To be sampled once relevant maximum biomass reached		
2020	2,850	Current consent 14 x 120m pens	Pass	Pass	Unclassified just outside of sampling period*
2019	2,500	8 x 120m pens	Pass	Pass	Satisfactory
2017	2,500	12 x 100m pens	Pass	Pass	Satisfactory
2015	2,500	12 x 100m pens	Pass	Pass	Satisfactory
2013	2,295	12 x 100m pens	Pass	Pass	Satisfactory

Fisheries

Four local vessels which routinely dredge the development area for king scallops, year on year, and a wider regional scallop fishery fleet. A potting fishery is also present consisting of local vessels operating from Lochboisdale, as well as the Uists and Barra, together with a small number of regional vessels based throughout the Western Isles. The fishing activity at the site is likely to have had an effect on the baseline environment due to the nature of potential pressures, the predicted level of activity, and the long-term presence.

1.2.2 Protected Sites and Priority Marine Features

Protected Sites – Scoped Out

The proposal and associated Zol study area is outside and distant from protected areas designated for the conservation of marine seabed features.

Priority Marine Features

SEPA Aquaculture Modelling Screening and Risk Identification report has identified the following features of interest:

1. Maerl Beds, PMF Habitat, at risk from sediment influence; and
2. Northern Sea Fan and Sponge Communities, PMF Habitat at risk from sediment influence.

The Geodatabase of Marine features adjacent to Scotland (GeMS) was used to identify known records of species and habitat PMFs¹. **There are no records upon the GeMS database within the predicted Zol and consequently these features/records were scoped out from further consideration.** However, features recorded within a wider 3km study area are shown in Figure 1.2.2. In brief, 6 PMFs are recorded within 3km of the site: Kelp beds, Kelp and seaweed communities on sublittoral sediment, Maerl beds, Maerl or coarse shell gravel with burrowing sea cucumbers, Tide-swept algal communities, and Northern sea fan and sponge communities. 15 further biotopes were recorded upon the GEMs database and include a large cluster of records 500m+ southeast of the proposed pens. These features are not specified as PMFs or within PMF descriptions, however they are recognised as Annex I of the Habitats Directive. All of the records listed upon the GEMs database are >500m from the proposed pens, >180m from the proposed moorings, and the majority are >1km away located in the shallower channels off Stulaigh Island.

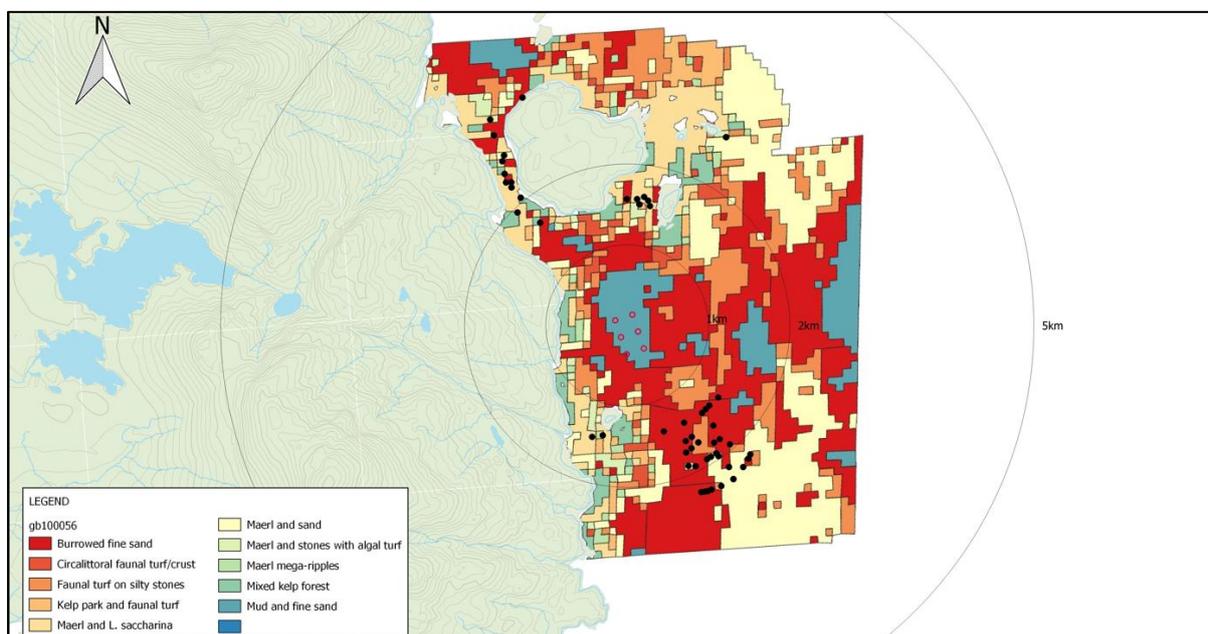


Figure 1.2.2. GeMS point records within a 3km study area superimposed over predictive habitat modelling by Davies & Foster-Smith (1997). Note. The original source image has been georeferenced to improve positioning relative to land but should still be viewed in light of its uncertainties. The 1997 source report clearly states that judgements must take account of the limitations of the mapping technique.

Some of the GeMS records within the initial 3km study area originated from a 1997 mapping study by Davies & Foster-Smith, which collected survey data and used modelling to predict the seabed habitat. Figure 1.2.2 maps the modelling predictions. This baseline information was highlighted by NatureScot during the pre-application consultation and used at an early stage to locate the proposed pens away from seabed features, including possible PMF features and to inform further assessment. However, the 1997 report clearly states that judgements must take account of the limitations of the mapping technique. Given the uncertainty associated with the modelling predictions by Davies & Foster-Smith, a more accurate baseline was obtained by two field surveys at and in proximity to the farm (see Section 1.2.3 below).

¹ Geodatabase of Marine features adjacent to Scotland (GeMS) (Updated 17/08/2021). Available at: <https://gateway.snh.gov.uk/natural-spaces/dataset.jsp?dsid=GEMS-PMF>. Accessed 09/11/2021

1.2.3 Video Surveys

A copy of the technical baseline reports are attached with the application. The key findings are briefly summarised below.

- Baseline Habitat and Maerl Assessment 2019

The 2019 field survey found four main habitat/sediment types categorised as: bedrock, mixed sediment, coarse sand, and fine-medium sand. The presence of maerl was limited to the channel between Stulaigh Island and South Uist, outside the predicted ZoI. This included both living and dead maerl thalli, the occurrence of which was highly variable. The greatest coverage was found at the southern extent of the channel at station Channel #5 and would be considered a maerl bed under current NatureScot guidelines (SNH, 2019). The presence of burrowing macrofauna and the bioturbated nature of the seabed may indicate elements of the biotope SS.SMu.CFiMu.SpMmeg within the Fine to Medium Sand; this was subsequently scoped out by the July 2022 survey results detailed below.

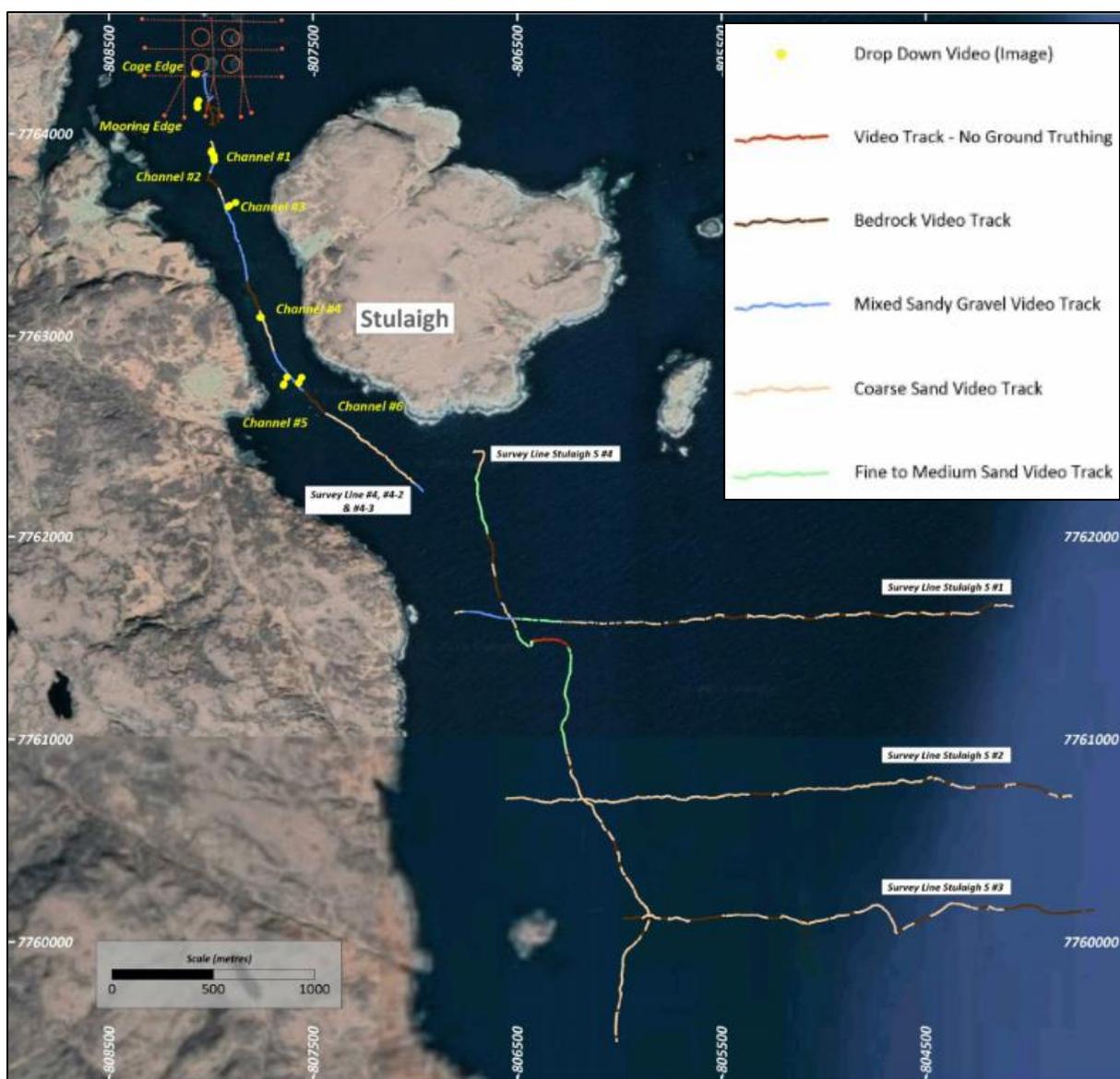


Figure 1.2.3a. 2019 Baseline Summary - Summary of Habitats at each Seabed Image Location. The original images at full scale can be found the technical Appendix.

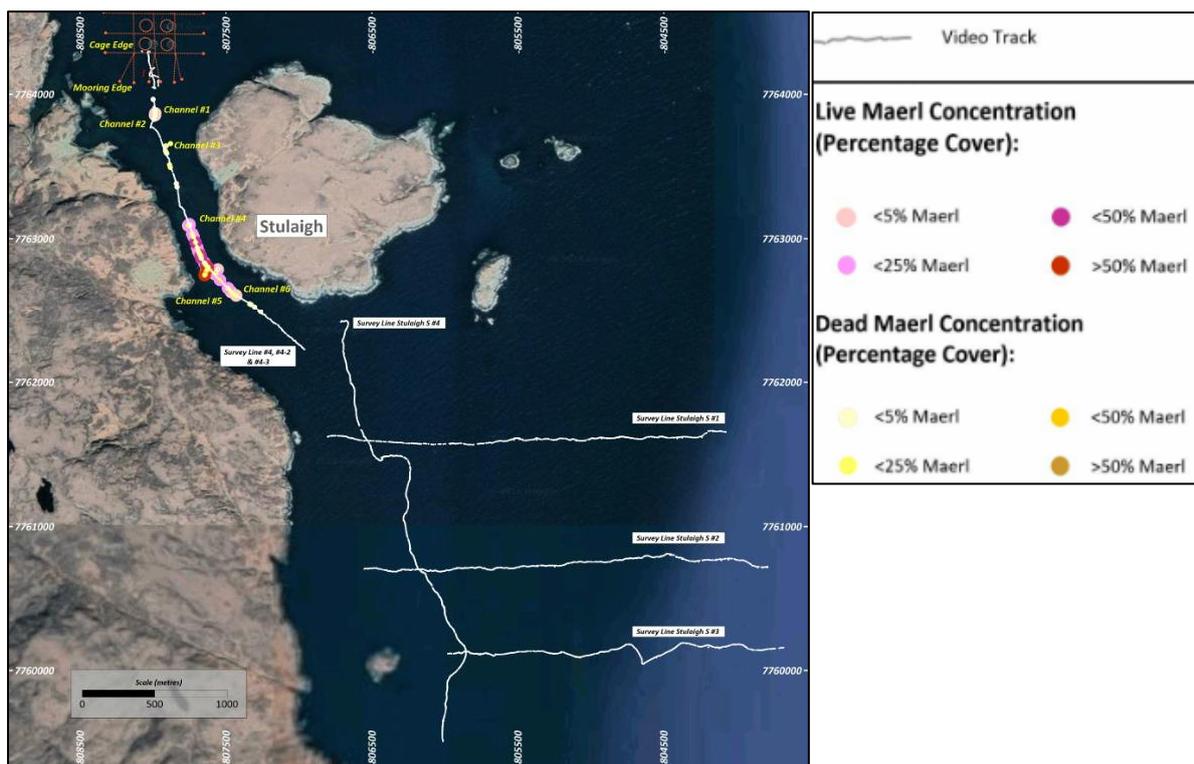


Figure 1.2.3b. 2019 Baseline Summary - Maerl Coverage. The original images at full scale can be found in the technical appendix.

- Environmental Baseline Study and Habitat Investigation July 2022

The 2021 field study found the seabed is prominently comprised of gravelly muddy sand with patches of bedrock, and identified three species which have designated legislative protection:

- Dead and occasionally live maerl were constituents of the mixed sediment. Areas within the predicted Zol would not be classified as a maerl bed under current NatureScot guidelines due to <5% coverage.
- The Ocean quahog and *Devonia perrieri* were also found in very low numbers, but records are extensive across Scotland.

Bedrock meeting criteria for Annex I reef and ‘possible reef’ was common and this habitat is widespread across the UK and extensive off the coast of Scotland . The community surveyed is best described by CR.LCR.BrAs.AmenCio however, the low number of important characterising species prevented this level 5 classification.

The sediment and consistent epifaunal community across all camera transects showed conformance with biotope SS.SMx.CMx.CIlloMx and macrofauna data conformed to a lesser extent with SS.SMx.CMx.KurThyMx. The classification concluded ‘Circalittoral Mixed Sediment and that “this area would not be considered a ‘Seapen and BurrowingMegafauna community’, according to JNCC (2014) guidance”. Based upon the particle size data, underwater footage and the absence of distinct characteristic species that would be expected within this habitat, the Scottish PMF habitat of ‘Burrowed mud’ can also be ruled out for the area surveyed. Therefore Burrowed Mud PMF has been Scoped out.

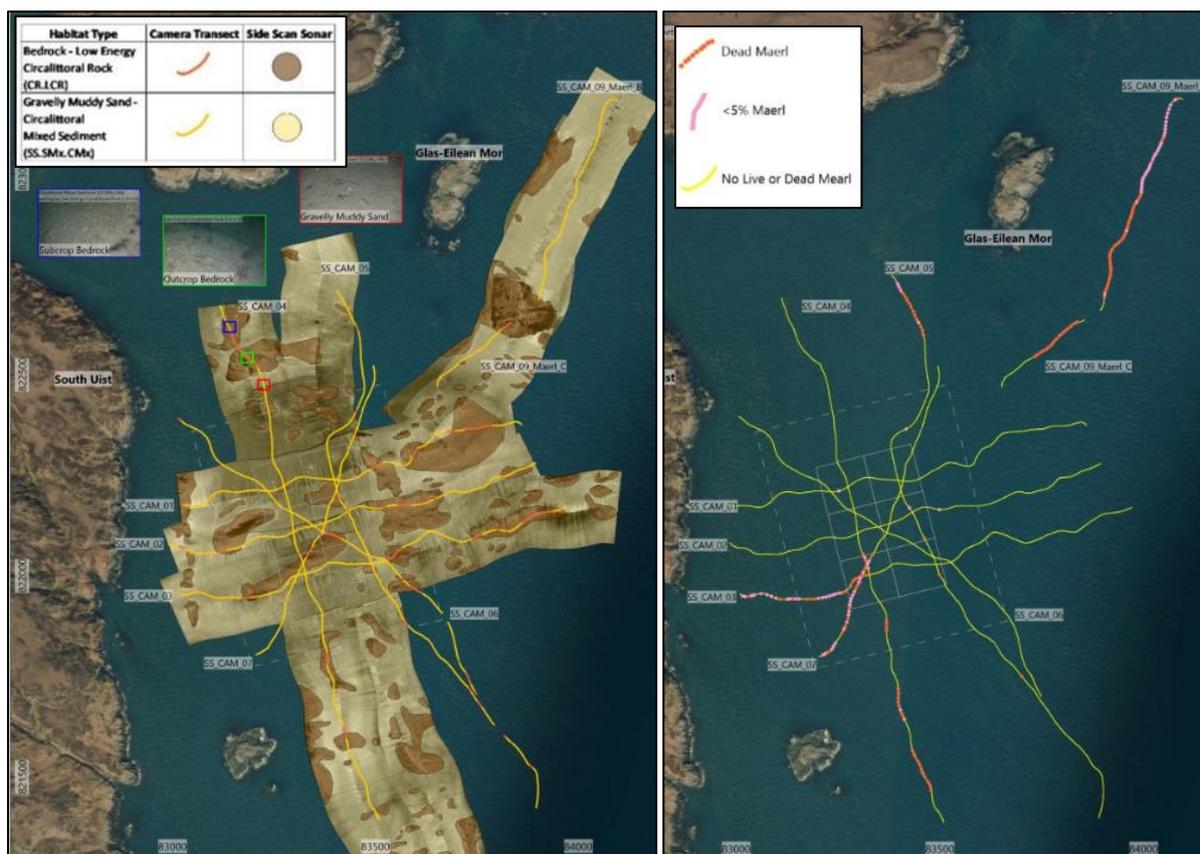


Figure 1.2.3c. 2022 Baseline Summary of a) Maerl Coverage & b) Habitats across the Stulaigh South Survey Area.

1.3 Zone of influence (Zol)

1.3.1 Carbon Deposition

The Zol is defined as the extent of the carbon deposition footprint generated from modelling using UnPTRACK coupled with the HD model, see Figure 1.3.1a. The Zol is complemented with NewDepomod modelling which provides figures for intensity and mixing zone areas.

The footprint predicted by UnPTRACK is considered to be more accurate spatially than the NewDepomod footprint, however the output is not directly comparable with a 250 g/m² area generated by NewDepomod. The predicted footprint in Figure 1.3.1a is considered to be highly precautionary, showing deposition at very low levels of 10g/m². Whereas the EQS standard of 0.64IT₁ is highly likely to equate to a much higher rate of deposition and therefore a smaller area. For comparison, typical background (i.e. plankton burial) levels of particulate carbon deposition on the continental shelf west of Scotland are about 24 gC/m²/yr (Wakelin et al., 2012).

The critical threshold of deposition equating to an IQI of 0.64 can be determined and modelled once the site is operational using seabed monitoring results. However, Stulaigh South is a proposed new site. In the absence of site specific monitoring, modelling outputs for the neighbouring Stulaigh Fish Farm are considered a reasonable proxy; results predicted by UnPTRACK, coupled with a HD model, and calibrated with monitoring results, equate to a more realistic critical deposition threshold of 1,490g/m² for the mixing zone criteria of 0.64 IQI. This contour has been applied to the modelling outputs for the proposed new site and is shown in Figure 1.3.1b.

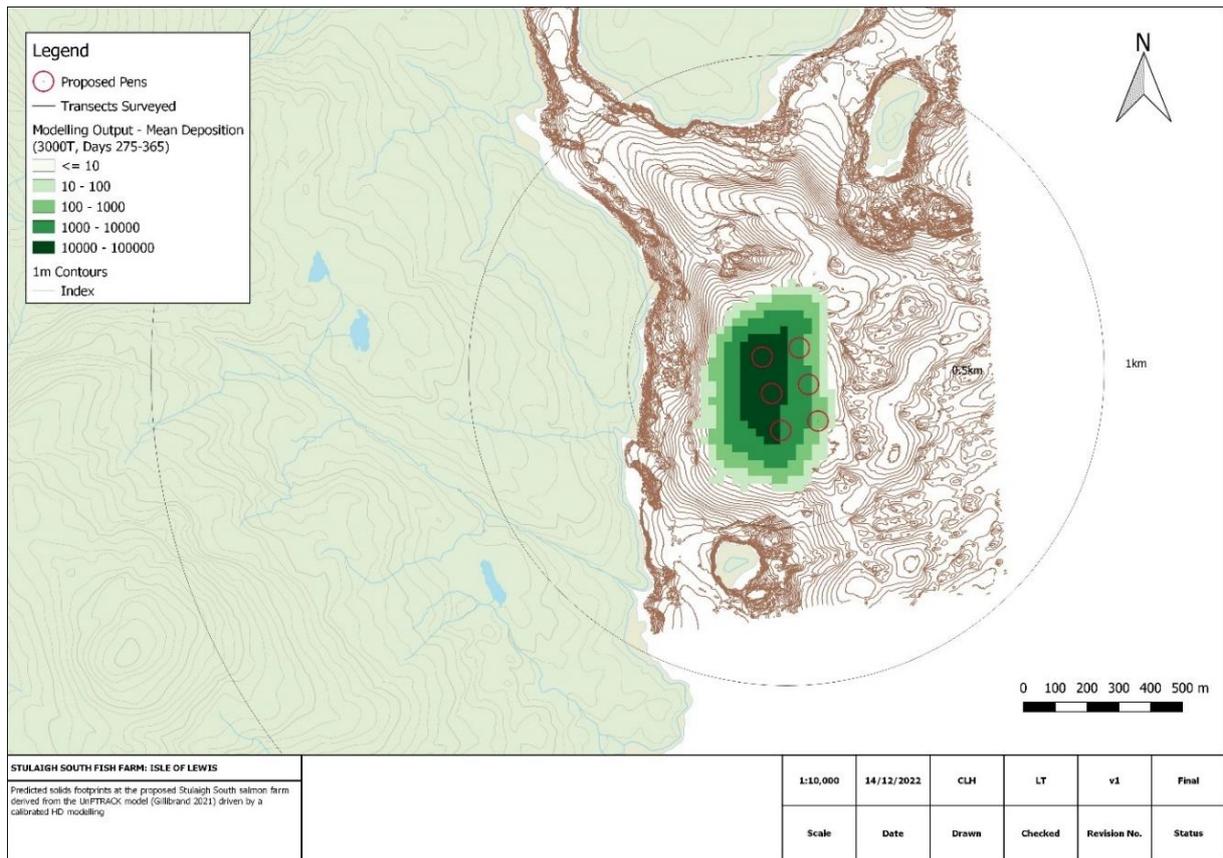


Figure 1.3.1a. Predicted solids footprints at proposed Stulaigh South derived from the UnPTRACK model (Gillibrand 2021) driven by a calibrated HD modelling

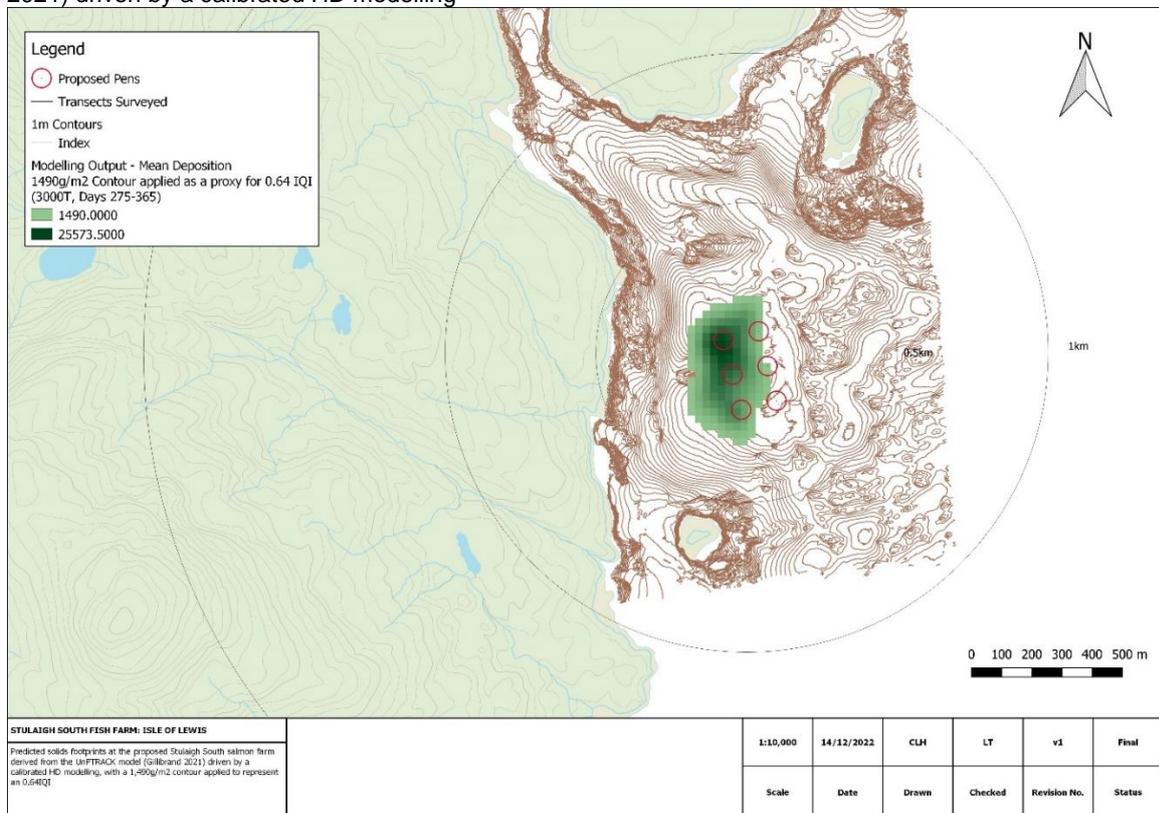


Figure 1.3.1b. Predicted solids footprints at the proposed Stulaigh South derived from the UnPTRACK model (Gillibrand 2021) driven by a calibrated HD modelling, with a 1,490g/m2 contour applied representing a 0.64IQI.

Cumulative Modelling

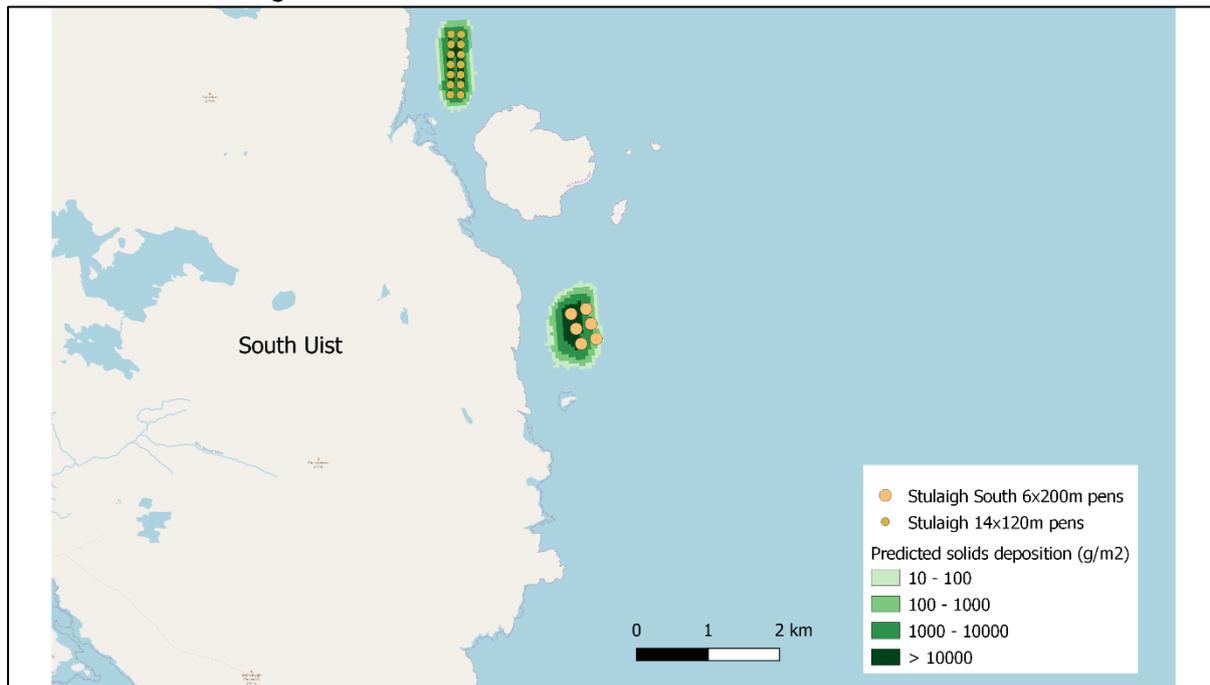


Figure 1.3.1c. Cumulative Results - Predicted solids footprints at the proposed Stulaigh South salmon farm and the nearby Stulaigh site derived from the UnPTRACK model (Gillibrand 2021) driven by a calibrated HD modelling

Cumulative modelling was undertaken to assess potential interactions between discharges from Stulaigh Fish Farm and the proposed site at Stulaigh South. Initially, each site was modelled independently using NewDepomod for a one year period using the standard default approach. The outputs do not suggest cumulative interactions, however a considerable proportion of the particulate waste from Stulaigh South was exported from the modelled area. Therefore, UnPTRACK coupled with a HD model has been used to predict cumulative benthic footprints for the two sites (Figure 1.3.1c). The results indicate that, as expected, due to the dynamic nature of the sites, particulate carbon is dispersed over a wide area at very low levels. The seabed benthic health is unlikely to be detrimentally affected by the low levels of deposition from the farms, and thus cumulative Impacts are concluded as **not significant**.

Mitigation

Key mitigation is site selection and micro-siting of the farming equipment away from known features of conservational importance. The site has been selected for its highly flushed environment. SEPA's preliminary Screening Modelling and Risk Identification Report concludes the proposed site is in an area of high dispersion and the sediment influence is likely to have a low influence on the surrounding sea area.

The proposal is also located outside designated protected areas and the equipment has been positioned to avoid marine features found by early baseline work and recorded in publicly available data, such as GEMS. Other mitigations relate to the selection of fewer larger pens, feed conservation, monitoring and fallowing. Finally, SEPA's regulatory regime includes monitoring requirements and provide a mechanism for the regulator to enforce biomass cuts at the site if an EQS is not met.

1.3.2 In-feed Medicine Residues Zone of influence (Zoi)

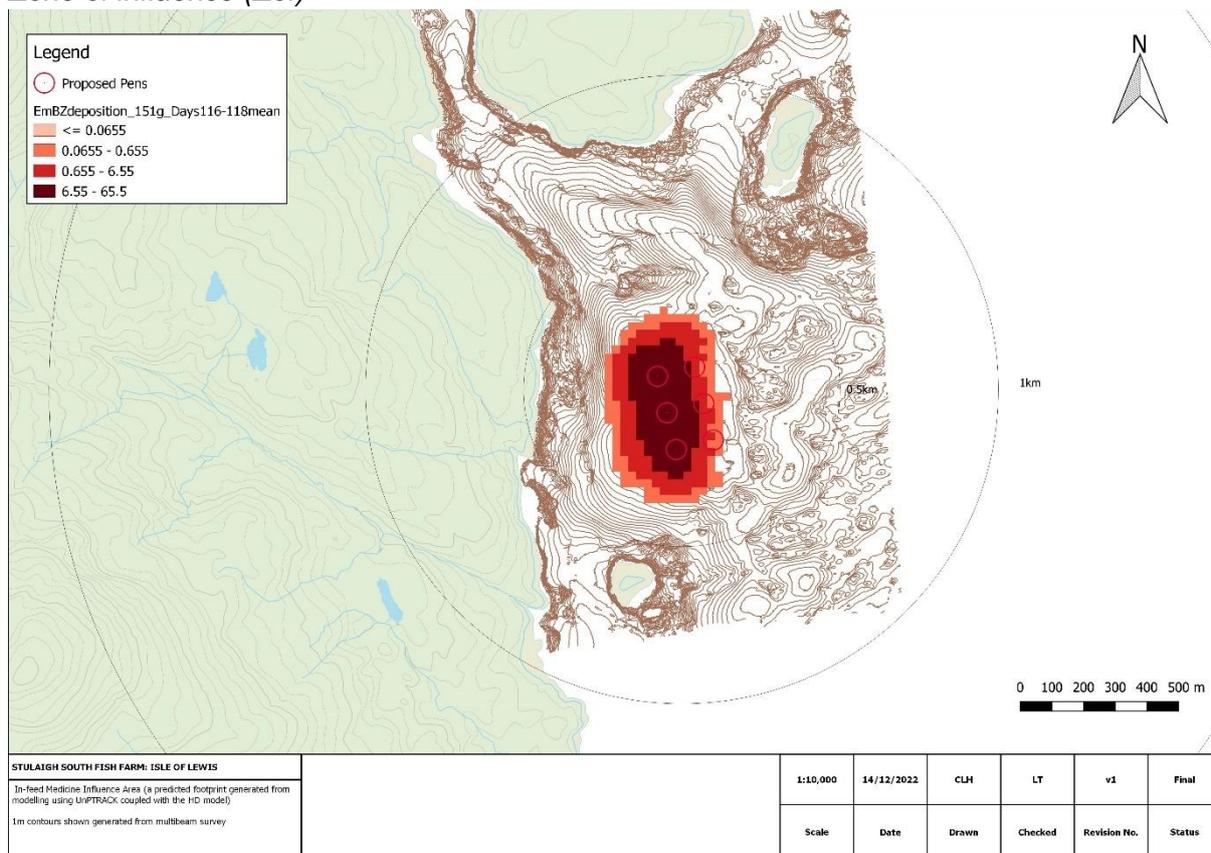


Figure 1.3.2a. Predicted mean EmbZ deposition over days 116 – 118 following a treatment of 151.0 g at the proposed Stulaigh South salmon farm derived from the UnPTRACK model (Gillibrand 2021) driven by a calibrated HD model.

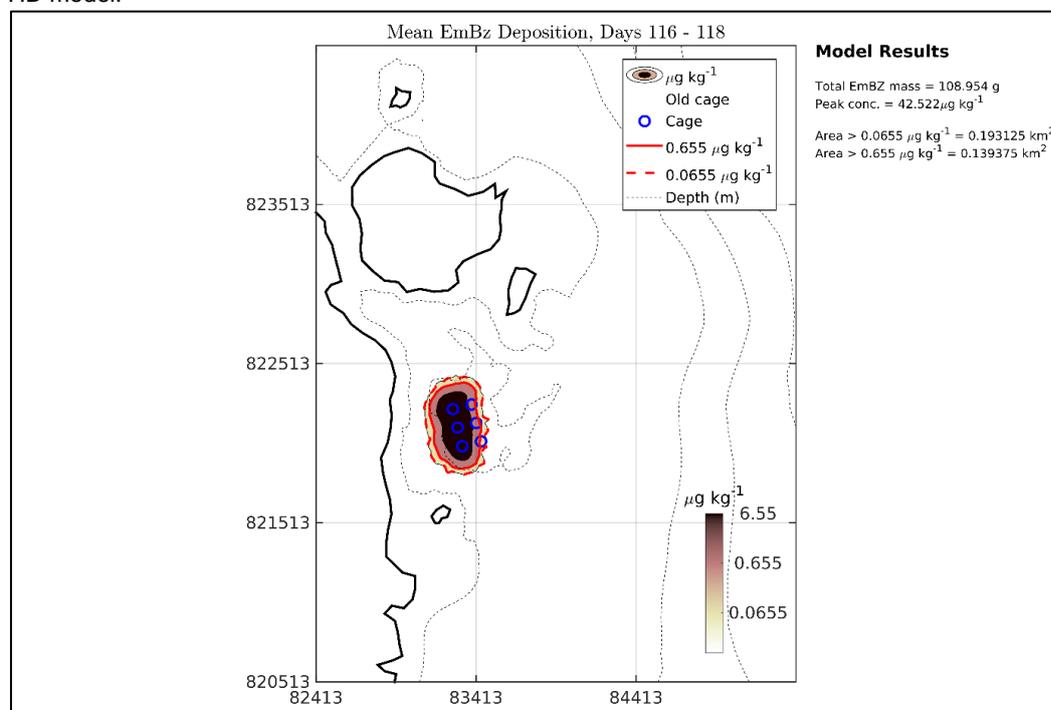


Figure 1.3.2b. Predicted mean EmbZ deposition over days 116 – 118 following a treatment of 151.0 g using the marine modelling approach derived from the UnPTRACK model (Gillibrand 2021) driven by a calibrated HD model.

The in-feed medicine model of NewDepomod was run to determine a compliant deposition area less than the mixing zone and this achieved a treatment quantity of 151.0g for EmBZ. However, NewDepomod ran using the SEPA standard default method applies a flat bathymetry and a single-point current meter dataset. Therefore, a hydrodynamic model coupled with a particle tracking model has been used to predict the deposition of EmBZ. The Zol is defined as the extent of the predicted footprint for a treatment quantity of 151g, using UnPTRACK coupled with the HD model, see Figure 1.3.2a.

Cumulative Impacts

Cumulative modelling was undertaken to assess potential interactions between discharges from Stulaigh Fish Farm and the proposed site at Stulaigh South (Treatment Quantity 151g) using the marine modelling approach (hydrodynamic model coupled with a particle tracking model). EmBZ residues are localised to each farm and the results do not indicate interaction between the two sites. Therefore, the health of the benthos is unlikely to be detrimentally affected away from the localised Zols, and thus cumulative Impacts are concluded as **not significant**.

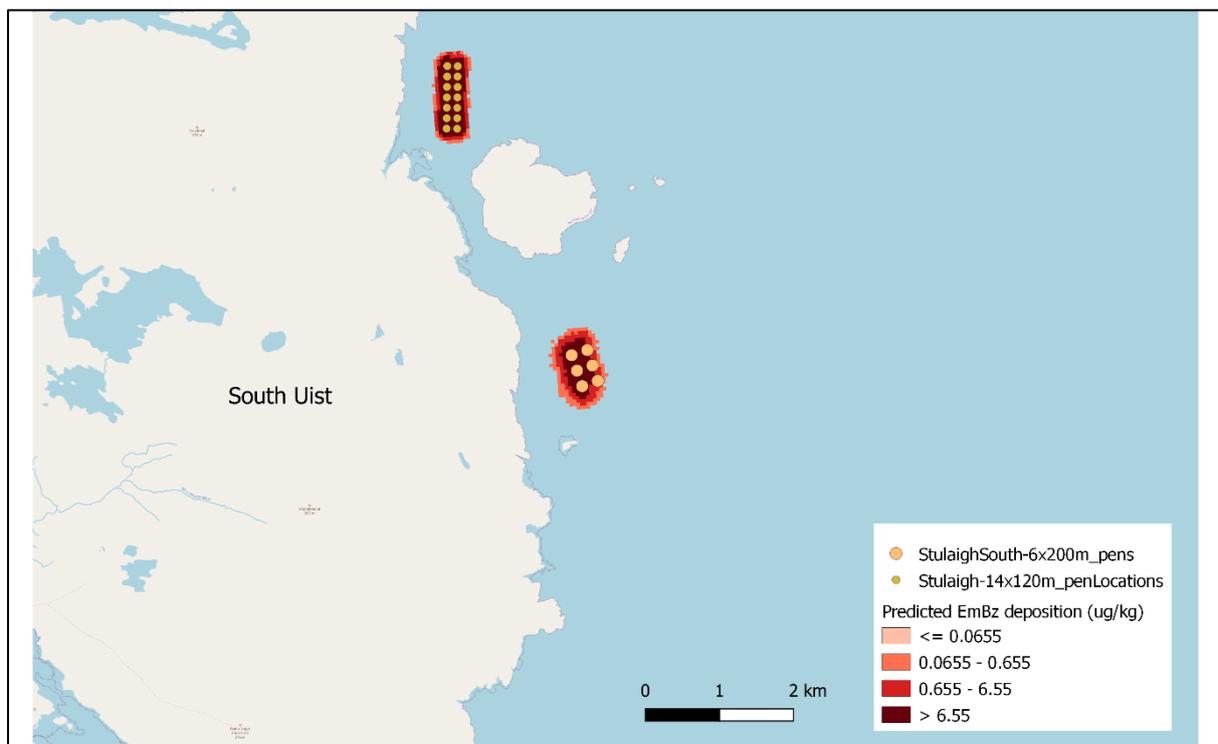


Figure 1.3.2c. Cumulative Results - Predicted mean Emamectin Benzoate deposition over days 116 – 118 following a treatment of 151.0 g at the proposed Stulaigh South salmon farm and the nearby Stulaigh site derived from the UnPTRACK model (Gillibrand 2021) driven by a calibrated HD modelling.

Mitigation

Key mitigation is site selection and micro-siting of the farming equipment away from known features of conservational importance. The proposal is located outside designated protected areas and the equipment has been positioned to avoid impacts to marine features found by early baseline work and recorded in publicly available data, such as GEMS.

SEPA’s regulatory regime issues licences which set levels of use, monitoring requirements, and includes mechanisms for enforcement action if EQS are not met. Historically, data for the toxicity of EmBz to marine benthic organisms has been limited. The current EQS is based on a review of scientific evidence by the UK Technical Advisory Group (UKTAG) including

relevant marine datasets from ecotoxicity testing. Multiple levels of precaution have been applied when determining the EQS and a higher EQS is arguable for marine species. For example, the review applied an assessment factor of 10 and the EQS was derived from a freshwater species because this was identified as the most sensitive species from the available dataset.

Modelling has been undertaken to established proposed treatment quantity, which meets regulatory standards. The strict EQS levels limit the spatial extent of potential impacts and promotes the use of non-medicinal treatment options. A range of pro-active and intervention tools are available to mitigate and manage sea lice.

1.3.3 Bath Treatment Area - Topical (bath) Scoped Out

Direct impacts on seabed features from the use of medicinal treatments as topical bath medicinal treatments have been **scoped out** because predictive modelling results demonstrate compliance with regulatory standards and SEPA have not specified any features of sensitivity to medicines during the screening process.

1.4 EIA Summary of Results

Baseline & Features of Ecological Importance

A baseline was established using: pre-application and consultation guidance; public data recorded on the GeMS database; and the results of two extensive field surveys at the site. The proposal is located outside of a designated protected areas. The baseline results were compared with the modelling predictions; the assessment concludes that features of ecological importance are present within the predicted footprints/zoi but those identified are of **Local Low or Very Low importance** because of their low abundance, low quality, and/or low contribution to an otherwise widespread feature. For example, common maerl was present but did not represent a maerl bed due to its <5% coverage and was often classed as dead. Therefore, overall the seabed is considered to be of **Local Low Importance**.

Table 1.4a. Summary of Important Ecological Features. Note. Features identified in the baseline were scoped out from further consideration if they are not located within the Zone of Impacts

Species	Description	Importance & Legislative Protection	Rationale
Common maerl (<i>Phymatolithon calcareum</i>)	Dead and occasionally live maerl were recorded within the Zol. The survey showed <5% maerl coverage in all areas where live maerl was present and would not be classified as a maerl bed under current NatureScot guidelines.	National, reduced to Local/Very Low (Uist) Species FOCI, UK Post-2010 Biodiversity, Scottish Biodiversity List	The national importance of this species is recognised by its presence on the Scottish Biodiversity List, however the 2021 survey shows it is present as dead or low density maerl (<5%) and is not present as a PMF maerl bed habitat reducing its contribution nationally. Records on the National Biodiversity Network Atlas (NBNA) show its distribution across the west coast of Scotland. This is combined with existing commercial dredging presence. Therefore, Common Maerl at the site is classified as an example of local importance and of a negligible national importance.

Ocean quahog (<i>Arctica islandica</i>)	One adult and one juvenile <i>A. islandica</i> individuals were found in the macrofauna at stations SS_Grab_05 and SS_Grab_10. No live individuals of <i>A. islandica</i> were observed during analysis of seabed video footage and still photographs from the Stulaigh South survey area.	National, reduced to Local/Very Low (Uist) Species FOCI, OSPAR List of Threatened and/or Declining Species, Scottish Priority Marine Feature	The national importance of these species is recognised by its PMF status. However the PMF description states this is “found around all Scottish coasts” ² . The low number of occurrences in the survey results suggests their presence is of little conservation value to the national population and this is combined with an existing pressure from a commercial dredging presence. The status of this feature at the site is therefore defined to be of local importance .
<i>Devonia perrieri</i>	A single individual was recorded at two grab stations (SS_Grab_04 and SS_grab_10). The mollusc is an ectosymbiotic bivalve which lives attached to the holothurian <i>Leptosynapta</i> and is considered a rare mobile species in Scottish waters (NatureScot, 2022a ³).	National, reduced to Local/Very Low (Uist) Scottish Biodiversity List The species is listed on the SBL but conservation action is not required (NatureScot, 2022a).	The national importance of this species is recognised by its presence on the Scottish Biodiversity List. However, the National Biodiversity Data Atlas shows records around the UK and across the west coast of Scotland ⁴ . The SBL also states a “Watching brief only” ⁵ . The survey results suggests the population is of little to no conservation value to the national population due to very limited presence. The status of this feature at the site is therefore defined to be of local importance .
Substrate & JNCC / EUNIS Habitat	Description	Importance	Rationale
Bedrock Low Energy Circalittoral Rock (CR.LCR) / MC12	Bedrock (CR.LCR /MC12) was common and generally recorded as a continuous structure with numerous fractures. The habitat and faunal community found on the bedrock in 2021 is best described by the level 5 biotope ‘Solitary ascidians, including <i>Ascidia mentula</i> and <i>Ciona intestinalis</i> , on wave-sheltered circalittoral rock’ CR.LCR.BrAs.AmenCio due to the presence of numerous charactering species. However, level 5 has not been assigned	International, reduced to Local (Uist) Annex I of the Habitats Directive – Possible Reefs (Bedrock) Legislative Protection of biotope CR.LCR.BrAs.AmenCio has not been identified	Reefs are rocky marine habitats or biological concretions that rise from the seabed, and are very variable in form and in the communities that they support. The international importance of this habitat is implied by its listing on Annex 1 of the Habitats Directive - reef. The site is outside of a protected area, and the survey results could not be assigned to a

²Tyler-Walters, H., James, B., Carruthers, M. (eds.), Wilding, C., et al (2016). Descriptions of Scottish Priority Marine Features (PMFs). Scottish Natural Heritage Commissioned Report No. 406. Available at: <https://www.nature.scot/sites/default/files/Publication%202016%20-%20SNH%20Commissioned%20Report%20406%20-%20Descriptions%20of%20Scottish%20Priority%20Marine%20Features%20%28PMFs%29.pdf> pg 92

³ NatureScot. 2022a. Scottish Biodiversity List. [online] Available at: <<https://www.nature.scot/landscapes-and-habitats/habitat-types/coast-and-seas/marine-habitats/maerl-beds>> [Accessed 8 June 2022].

⁴https://records.nbnatlas.org/occurrences/search?q=lsid:NBNSYS0000174900&fq=occurrence_status:present&bn_loading=true#tab_mapView

⁵ <https://www.nature.scot/doc/scottish-biodiversity-list>

	<p>due to the low number of important characterising species.</p> <p>Given the elevation and extent of the bedrock formations, the areas delineated would classify as JNCC Annex I reefs. However, the epifaunal community seen would qualify the structures as 'possible reef' as per the Golding et al., (2020) criteria.</p> <p>The 2019 survey also identified bedrock and stated the combination of the habitat and faunal community is best described by the biotope of CR.MCR.EcCr – echinoderms and crustose communities.</p>		<p>biotope of importance in its own right.</p> <p>The bedrock and Annex I reef is widespread across Scotland and the two biotopes identified found across the west coast of Scotland.</p> <p>The bedrock is <u>not</u> considered an example of national value. The status of this feature at the site is therefore defined to be of local importance.</p>
<p>Gravelly Muddy Sand</p> <p>Circolittoral Mixed Sediment</p> <p>(SS.SMx.CMx) / MC42</p>	<p>Gravelly muddy sand (SS.SMx.CMx/MC42) was the predominant seabed sediment across the survey area. The sediment and consistent epifaunal community across all camera transects showed conformance to the level 5 biotope 'Cerianthus lloydii and other burrowing anemones in circolittoral muddy mixed sediment'</p> <p>SS.SMx.CMx.CIlOmx. Additionally, the macrofauna data revealed conformance to 'Kurtiella bidentata and Thyasira spp. in circolittoral muddy mixed sediment'</p> <p>SS.SMx.CMx.KurThyMx. Due to the uncertainty in mapping the extent of these two level five biotopes, the area mapped remained to a level 4 habitat classification of 'Circolittoral Mixed Sediment'</p> <p>Pockets of Maerl were present see "Common Maerl" in this table for further details.</p>	<p>International, reduced to Local/Very Low (Uist)</p> <p>Annex I of the Habitats Directive - Possible Sandbanks which are slightly covered by sea water all the time. (Mixed sediments)</p> <p>SS.SMx.CMx.CIlOmx & SS.SMx.CMx.KurThyMx has not been identified.</p>	<p>The international importance of this habitat is implied by its possible listing on Annex 1 of the Habitats Directive - Sandbanks which are slightly covered by sea water all the time – Mixed Sediment. However, the site is outside of a protected area and the survey results could not be assigned to a biotope of importance in its own right.</p> <p>SS.SMx.CMx habitat is widespread around Scotland's coastline. The status of this feature at the site is therefore defined to be of local importance.</p>

Results

The EIA assesses the potential impacts to features of ecological importance within the modelled footprints arising from carbon deposition and EmBZ residues. Images are provided in Annex A which show the predicted Zol relative to seabed features identified in the baseline.

Carbon - Modelling outputs generated using a calibrated and validated hydrodynamic model has produced a precautionary Zol of 229,375m² (equating to >10 g/m²) located under and proximity to the proposed pens. A deposition rate of equivalent to the EQS threshold of 0.64 IQI was restricted to a smaller area of 108,125m² and is considered a more realistic Zol. Sensitivity to carbon varied between features, but effects are likely to be: localised in extent and less likely moving away from the pens.

In-feed - SEPA applies an EQS of 65.5 ng per kg of sediment (dry weight) of (wet weight, equivalent to 131 ng/kg dry weight) at the mixing zone edge. Modelling using a calibrated and

validated hydrodynamic model has produced an area of 0.193125km² at >0.0655 ug kg⁻¹. Sensitivity to in-feed medicines for all features was undefined, but assumed within the areas based on the EQS.

The impact of carbon deposition and EmBz residues on each feature, and the benthos in general, has been assessed as **minor (locally), negligible (nationally) and not significant**, given the localised extent of likely effects and limited importance attributed to the species, habitats, and benthic environment present.

In-Combination Effects

The predicted carbon and in-feed medicine Zols cover a very similar area and location. The combined impact of carbon deposition and in-feed medicines has been assessed as **minor (locally), negligible (nationally) and not significant** as a result of the localised overlapping extent of likely effects and the limited importance (associated with quality, presence, and wider distribution) attributed to the benthos, and specific features of ecological importance.

Commercial Fisheries – Four local vessels routinely dredge the development area. This activity is likely to have had an effect on the baseline environment due to the nature of the activity and the long-term presence. The proposed moorings would exclude abrasion and the removal of species etc by preventing dredging within the site boundary. Conclusions in this assessment have been determined from the potential effects from aquaculture in isolation.

Table 1.4b. Impact Assessment Summary of Results. Note. Some positive benefits are expected for all features listed in this table across the whole moorings area, by removing commercial dredging operations. However, the results are based on the proposed farm only.

Increased carbon deposition directly altering benthic habitats and reducing species diversity				
Species or Substrate & JNCC / EUNIS Habitat	Importance	Sensitivity	Magnitude of Impact	Significance
Common maerl (<i>Phymatolithon calcareum</i>)	National, reduced to Local/Very Low (Uist)	High	Low	Minor (Locally) Negligible (Nationally) Insignificant
Ocean quahog (<i>Arctica islandica</i>)		Very Low	Medium	
Devonia perrieri				
Bedrock	International, reduced to Local (Uist)	Medium-Low	Low (Locally)	Minor (Locally) Negligible (Nationally) (Insignificant).
Low Energy Circalittoral Rock (CR.LCR) / MC12				
Gravelly Muddy Sand Circalittoral Mixed Sediment (SS.SMx.CMx) / MC42	International, reduced to Local/Very Low (Uist)			
Direct impacts on seabed features from the use in-feed medicinal treatments				
Species or Substrate & JNCC / EUNIS Habitat	Importance	Sensitivity	Magnitude of Impact	Significance
Common maerl (<i>Phymatolithon calcareum</i>)	National, reduced to Local/Very Low (Uist)	Undefined Very Low Resilience Assumed	Low	Minor (Locally) Negligible (Nationally) Insignificant
Ocean quahog (<i>Arctica islandica</i>)		Undefined, but Sensitive within the Zoi based on EQS	Medium (Locally)	
Devonia perrieri				
Bedrock	International, reduced to Local (Uist)	Medium-Low	Low (Locally)	Minor (Locally) Negligible (Nationally) Insignificant
Low Energy Circalittoral Rock (CR.LCR) / MC12				
Gravelly Muddy Sand Circalittoral Mixed Sediment (SS.SMx.CMx) / MC42		Undefined, But Sensitive Within The Zoi Based On Eqs		

Annex A. Features of ecological importance superimposed over the Sediment Influence Area and In-feed Influence Area

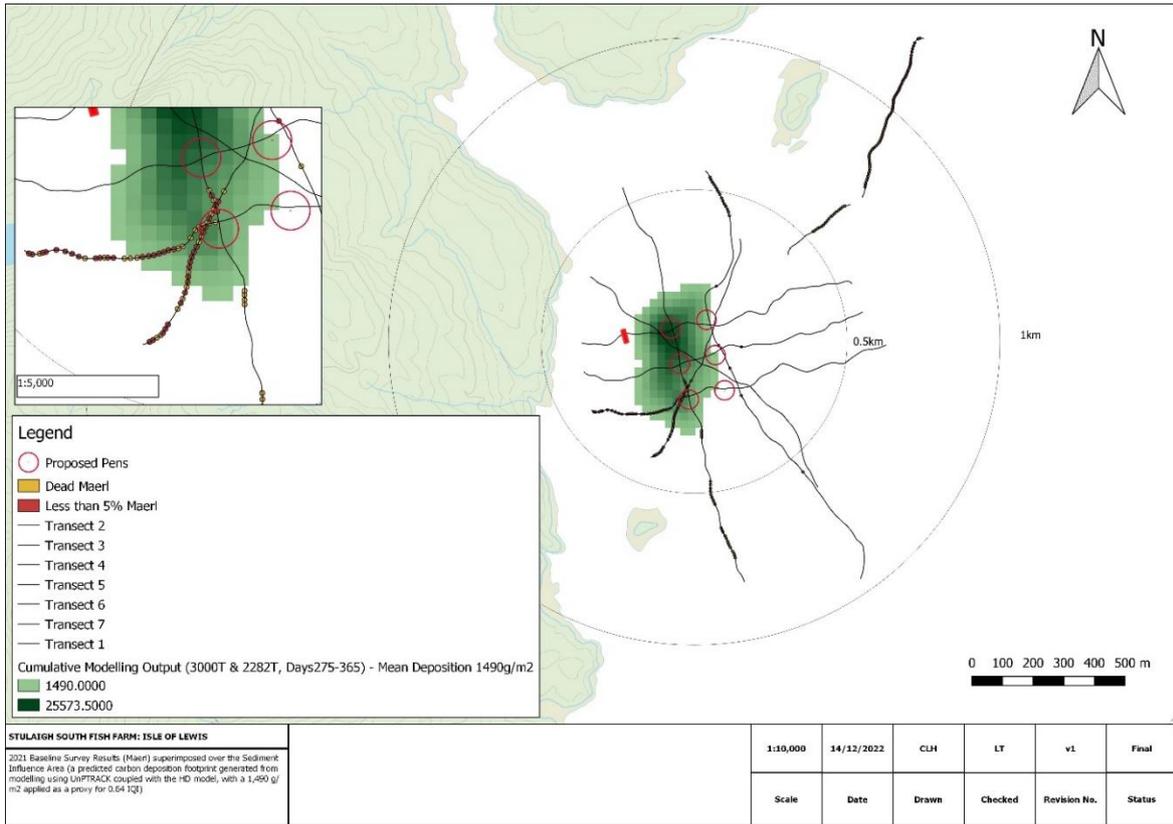


Figure A1. 2021 Baseline Survey Results (Maerl) superimposed over the Sediment Influence Area (a predicted carbon deposition footprint generated from modelling using UnPTRACK coupled with the HD model, with a 1,490 g/m2 applied as a proxy for 0.64 IQI).

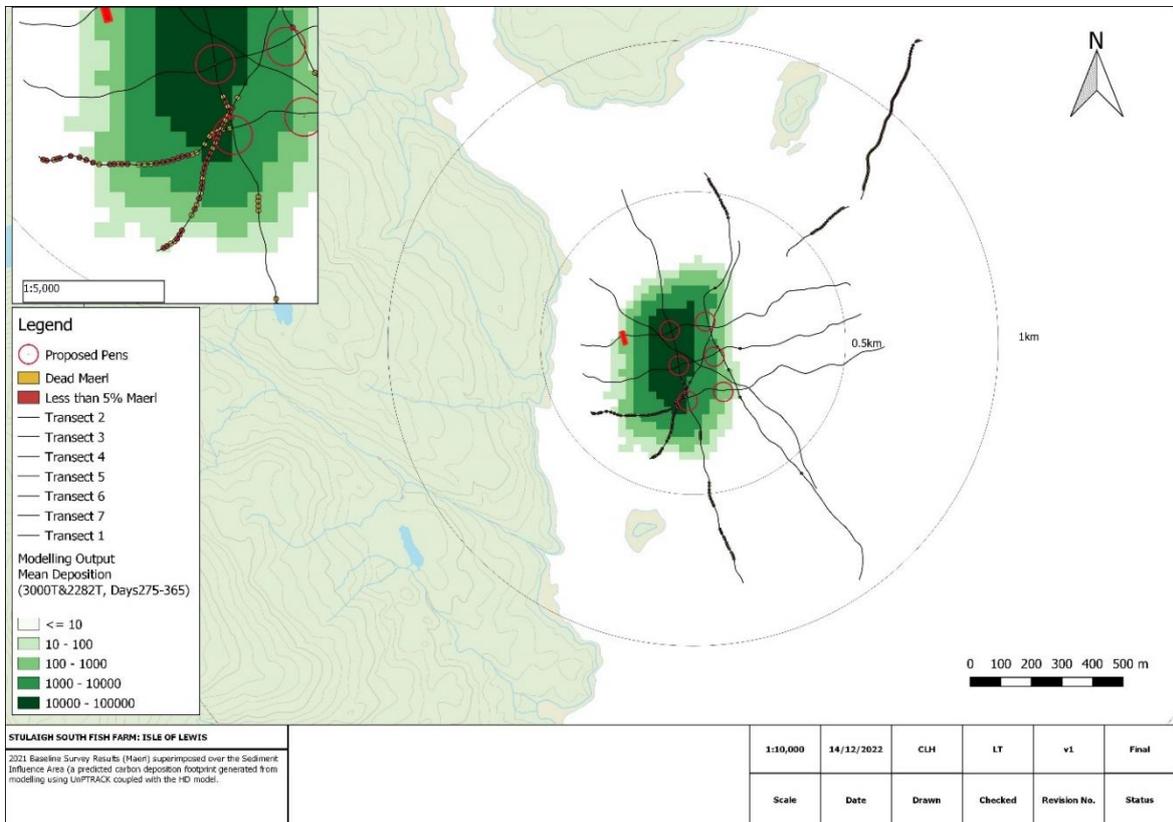


Figure A2. 2021 Baseline Survey Results (Maerl) superimposed over the Sediment Influence Area (a predicted carbon deposition footprint generated from modelling using UnPTRACK coupled with the HD model).

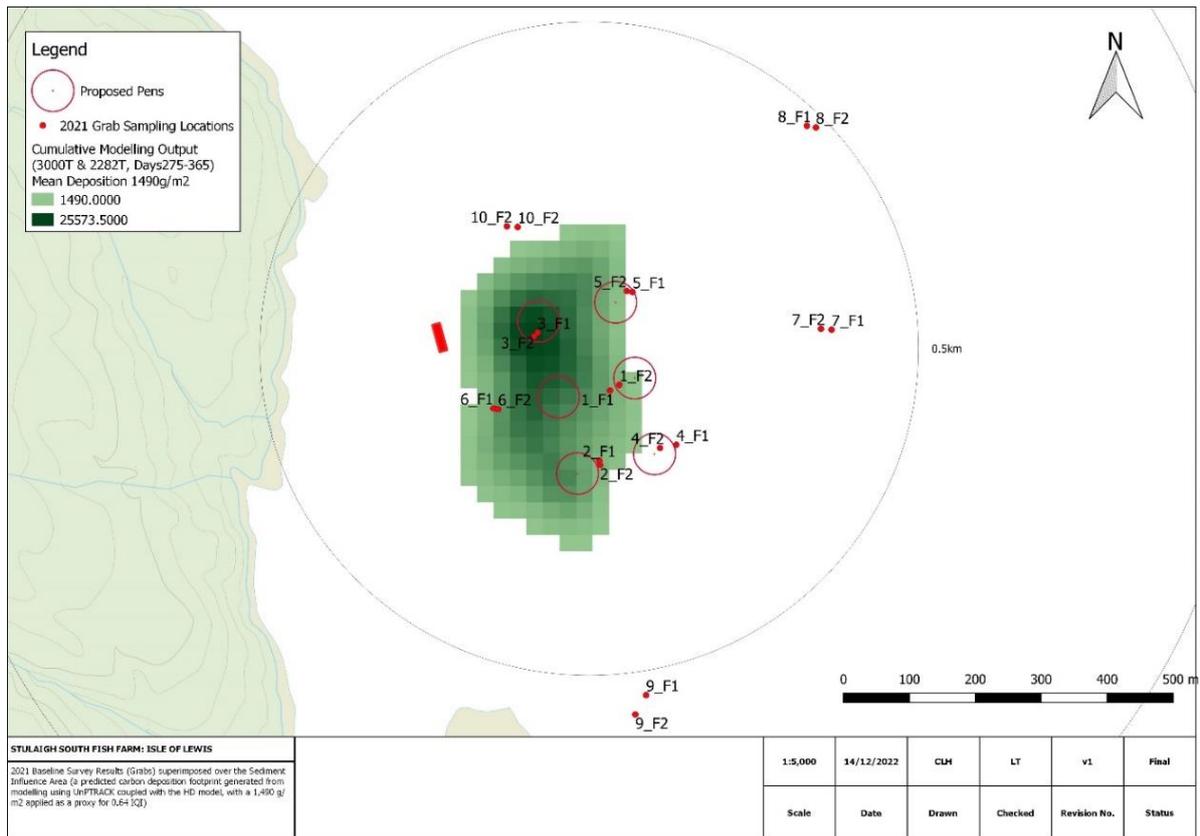


Figure A3. 2021 Baseline Survey Results (Grab Positions) superimposed over the Sediment Influence Area (a predicted carbon deposition footprint generated from modelling using UnPTRACK coupled with the HD model, with a 1,490 g/m² applied as a proxy for 0.64 IQI). Ocean Quahog recorded in grabs 10 & 5 and *Devonia perrieri* recorded in grabs 10 & 4.

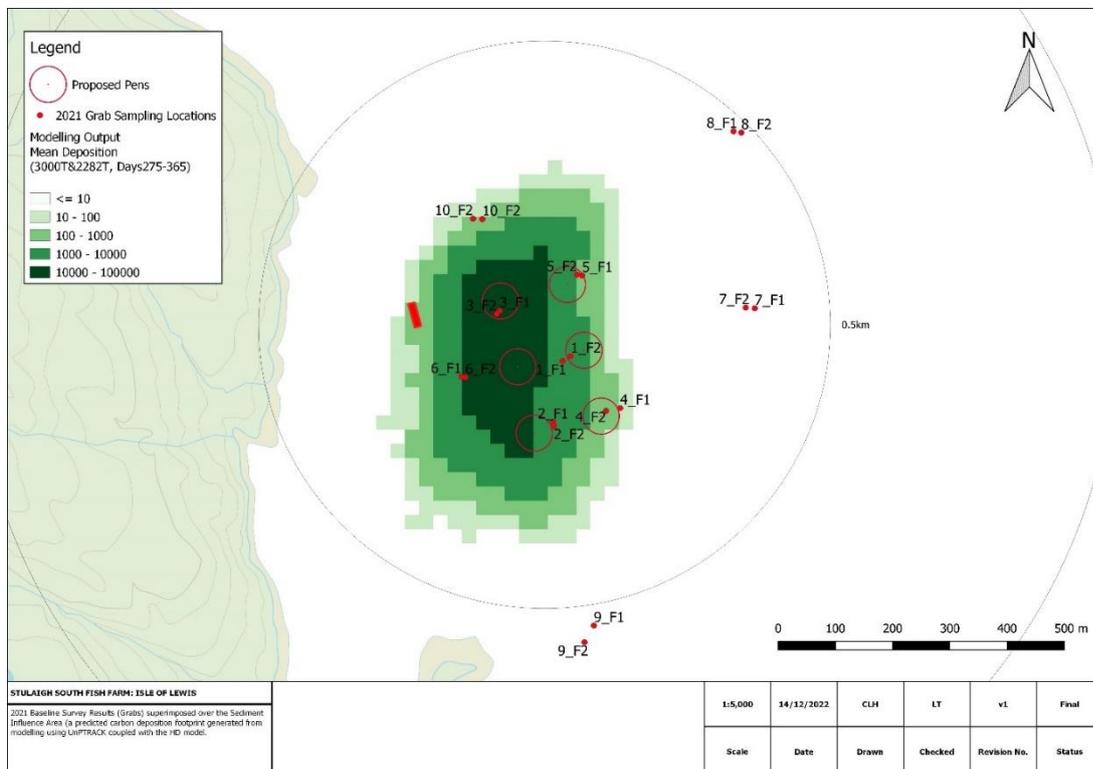


Figure A4. 2021 Baseline Survey Results (Grab Positions) superimposed over the Sediment Influence Area (a predicted carbon deposition footprint generated from modelling using UnPTRACK coupled with the HD model). Ocean Quahog recorded in grabs 10 & 5 and *Devonia perrieri* recorded in grabs 10 & 4.

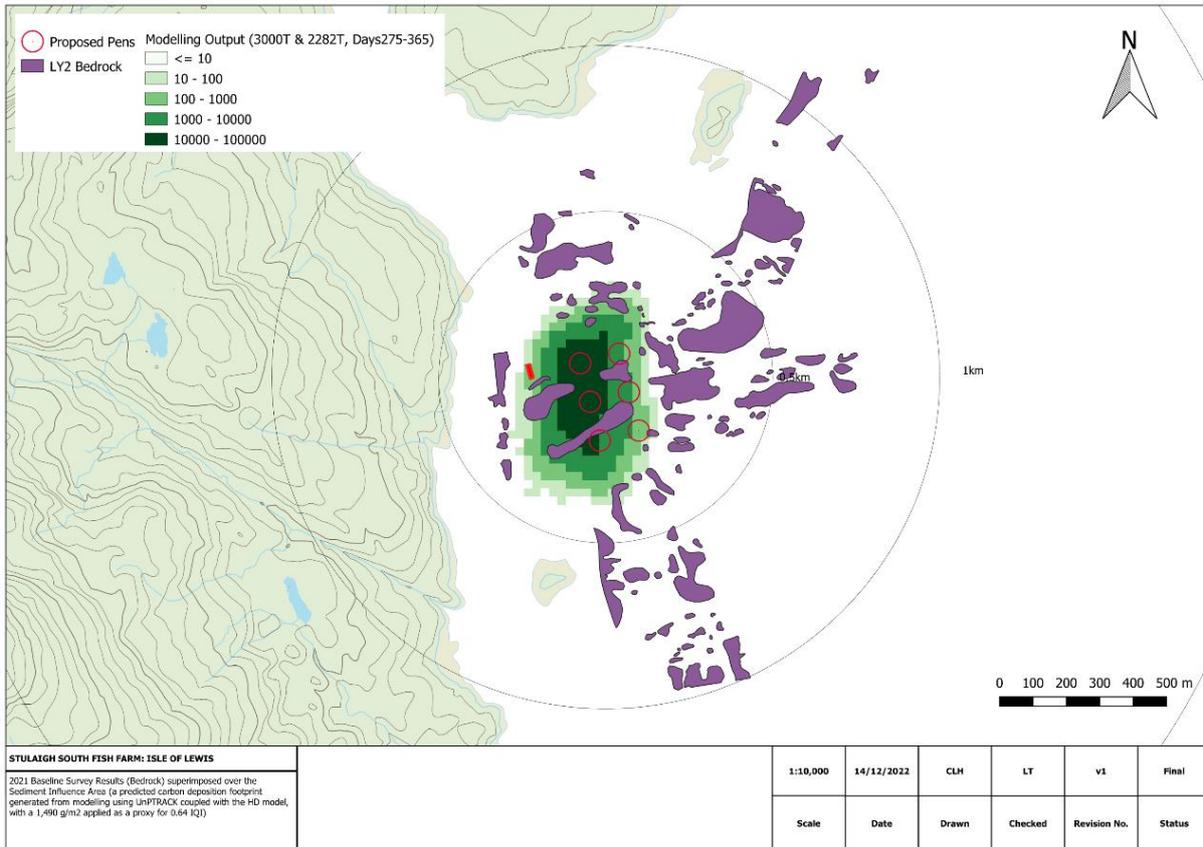


Figure A5. 2021 Baseline Survey Results (Bedrock) superimposed over the Sediment Influence Area (a predicted carbon deposition footprint generated from modelling using UnPTRACK coupled with the HD model).

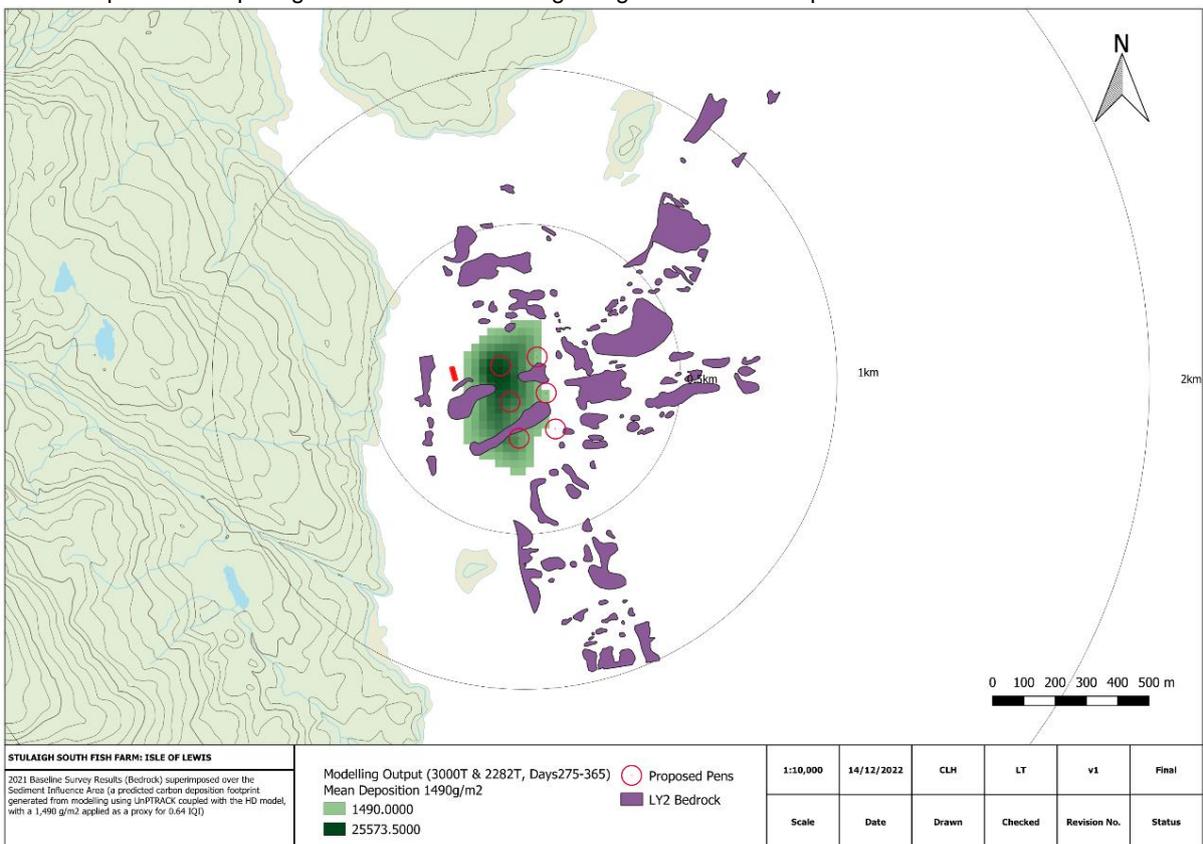


Figure A6. 2021 Baseline Survey Results (Bedrock) superimposed over the Sediment Influence Area (a predicted carbon deposition footprint generated from modelling using UnPTRACK coupled with the HD model, with a 1,490 g/m² applied as a proxy for 0.64 IQI).

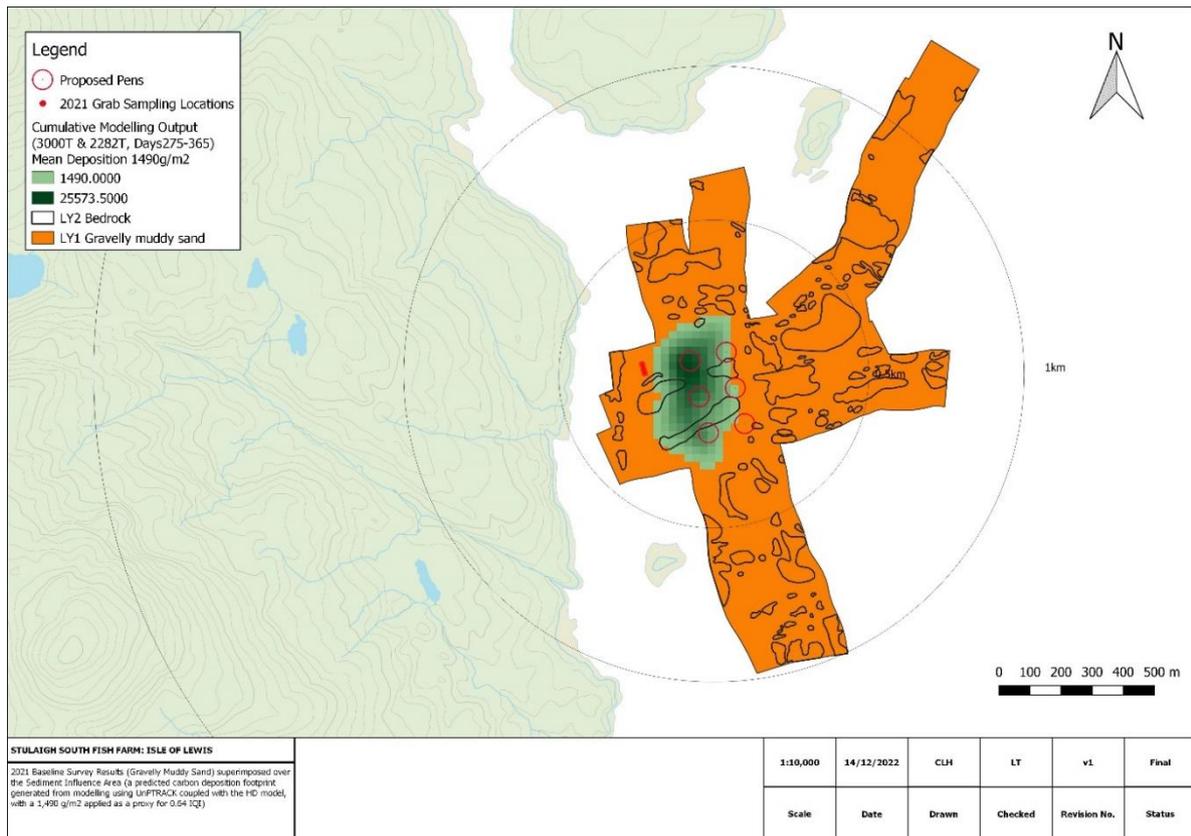


Figure A7. 2021 Baseline Survey Results (Gravelly Muddy Sand) superimposed over the Sediment Influence Area (a predicted carbon deposition footprint generated from modelling using UnPTRACK coupled with the HD model, with a 1,490 g/m2 applied as a proxy for 0.64 IQI).

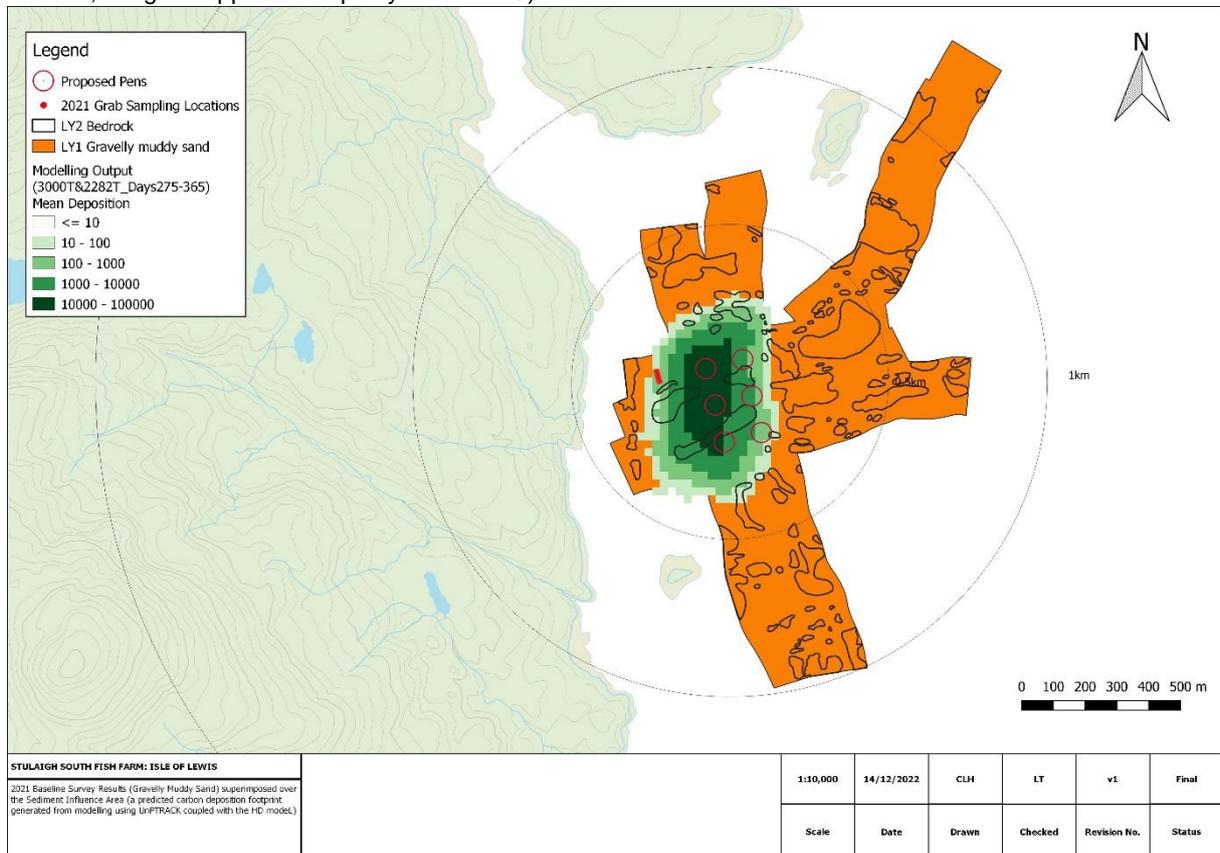


Figure A8. 2021 Baseline Survey Results (Gravelly Muddy Sand) superimposed over the Sediment Influence Area (a predicted carbon deposition footprint generated from modelling using UnPTRACK coupled with the HD model).

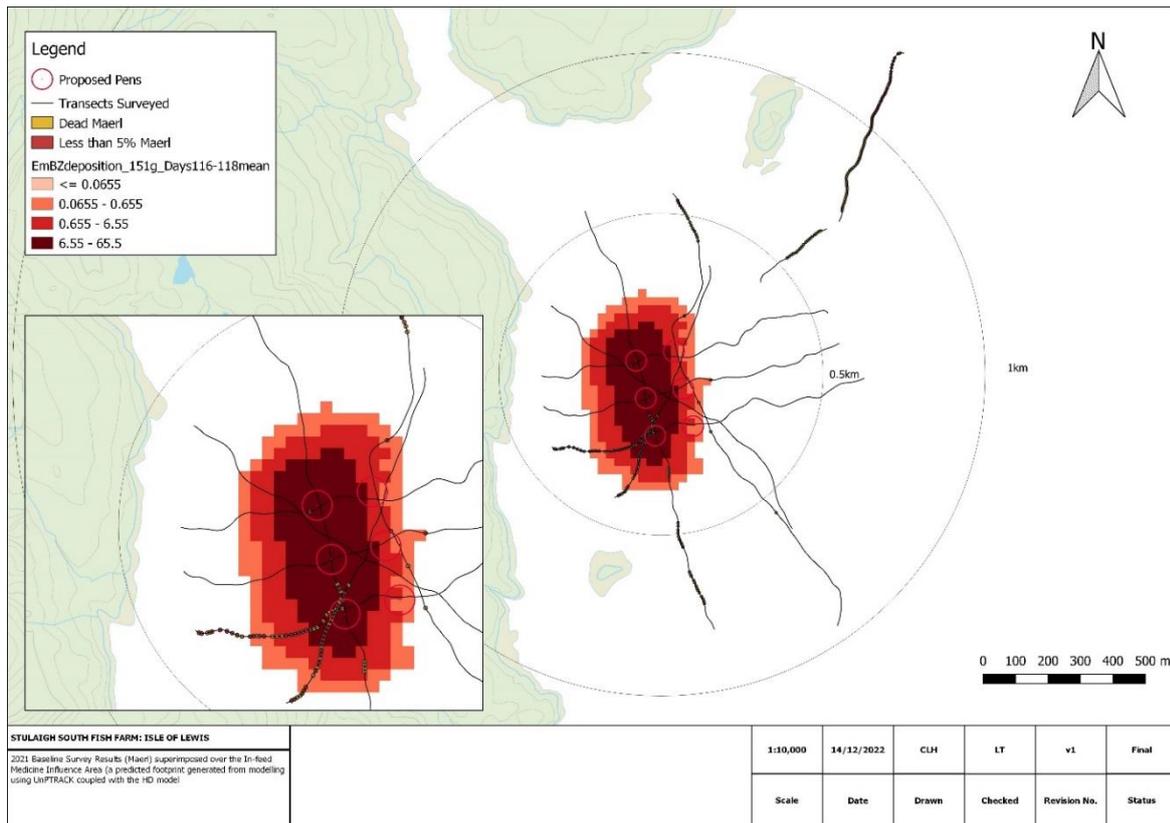


Figure A9. 2021 Baseline Survey Results (Maerl) superimposed over the In-feed Influence Area (predicted mean Emamectin Benzoate deposition over days 116 – 118 following a treatment of 151.0 g, generated from modelling using UnPTRACK coupled with the HD model).

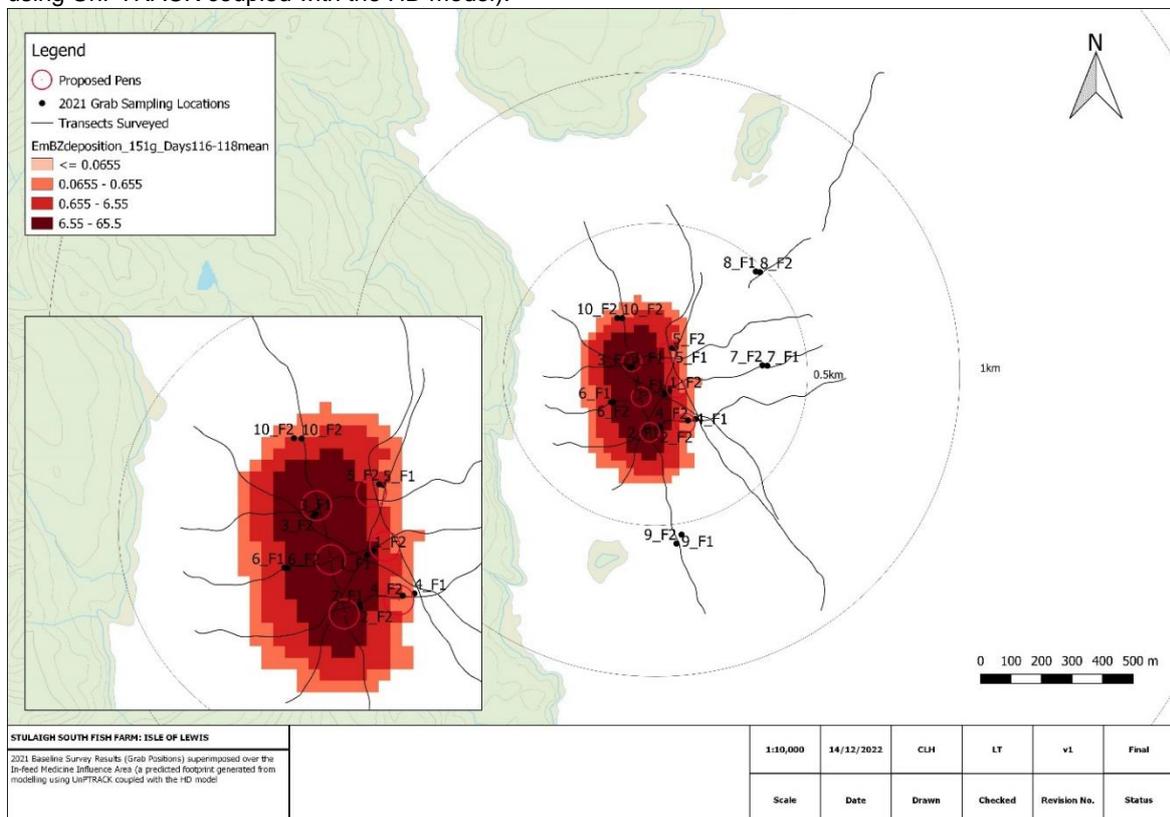


Figure A10. 2021 Baseline Survey Results (Grabs) superimposed over the In-feed Influence Area (predicted mean Emamectin Benzoate deposition over days 116 – 118 following a treatment of 151.0 g, generated from modelling using UnPTRACK coupled with the HD model). Ocean Quahog recorded in grabs 10 & 5 and Devonia perrieri recorded in grabs 10 & 4.

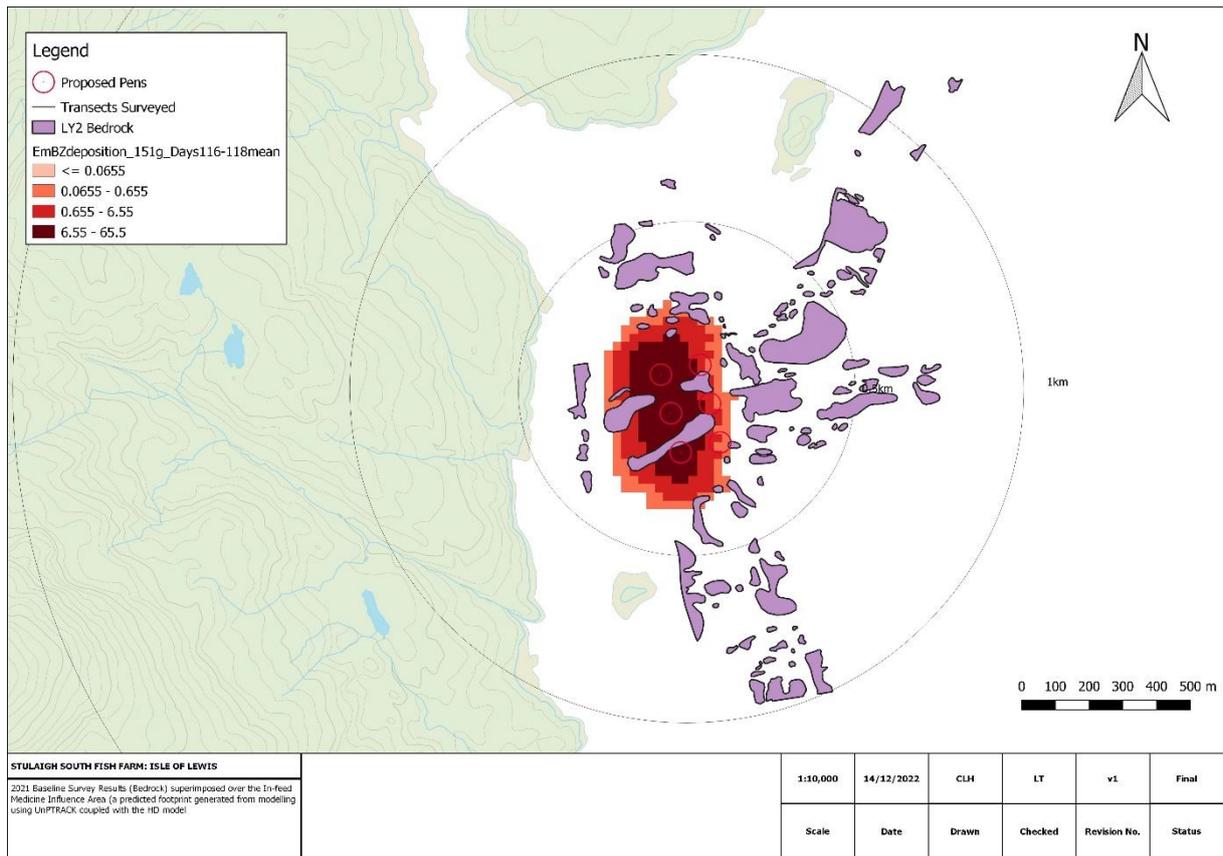


Figure A11. 2021 Baseline Survey Results (Bedrock) superimposed over the In-feed Influence Area (predicted mean Emamectin Benzoate deposition over days 116 – 118 following a treatment of 151.0 g, generated from modelling using UnPTRACK coupled with the HD model).

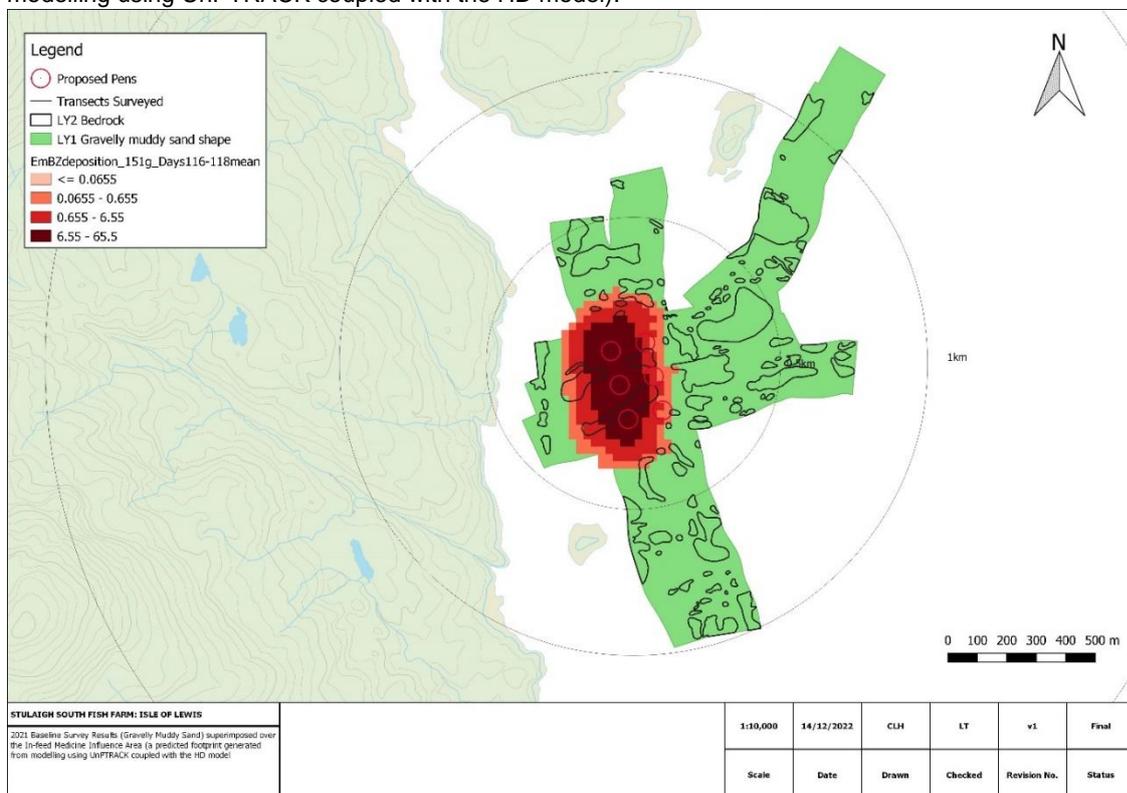


Figure A12. 2021 Baseline Survey Results (Gravelly Muddy Sand) superimposed over the In-feed Influence Area (predicted mean Emamectin Benzoate deposition over days 116 – 118 following a treatment of 151.0 g, generated from modelling using UnPTRACK coupled with the HD model).