Marine Aquaculture Site Macleans Nose

SEPA CAR Application for variation

Additional Information

[redacted]

July 2021

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Macleans Nose SEPA CAR Variation July 2021

Additional Information

This application is being submitted as a proposal to vary the biomass at the Macleans Nose Salmon Farm from 3000t to 3500t, with no change to equipment or medicine amounts.

In 2018 Mowi applied for a CAR licence with a proposed environmentally sustainable maximum biomass based on results from a new modelling procedure that has led to the introduction of hydrodynamic modelling (HD) in Mowi. A suitable HD model was validated for the site and used in conjunction with NewDEPOMOD sequentially, in line with the recently published Regulatory Modelling Process and Reporting Guidance for the Aquaculture Sector (https://www.sepa.org.uk/media/450278/regulatory-modelling-process-and-reporting-guidance-for-the-aquaculture-sector.pdf).

Hydrographic analysis, and both Hydrodynamic and NewDepomod modelling were carried out for the 2018 CAR application. In this prior application the requested biomass was also 3500t, however the site did not reach the previously licenced maximum biomass of 2500t, therefore did not have compliance sampling to indicate sustainability at that level, so a licence was granted for 3000t. Compliance sampling showing continued sustainability of the site was completed in 2020, and as such Mowi is reapplying to vary the biomass to the previously requested amount of 3500t. Given this is the same requested biomass as in the 2018 application, the prior modelling will be assumed to be relevant and pertinent here also unless advised otherwise by SEPA.

1. Location of the Macleans Nose salmon farm site and pens

The following are the existing pen locations, as Eastings and Northings

Existing 120m circumference pens:

E152294	N762332	56° 41' 12.629"N	6° 2' 47.425"W
E152337	N762271	56° 41' 10.744"N	6° 2' 44.693"W
E152380	N762209	56° 41' 8.825"N	6° 2' 41.958"W
E152233	N762289	56° 41' 11.126"N	6° 2' 50.852"W
E152276	N762228	56° 41' 9.240"N	6° 2' 48.120"W
E152319	N762166	56° 41' 7.322"N	6° 2' 45.385"W
E152466	N762087	56° 41' 5.054"N	6° 2' 36.494"W
E152509	N762026	56° 41' 3.168"N	6° 2' 33.763"W
E152552	N761964	56° 41' 1.249"N	6° 2' 31.027"W
E152405	N762044	56° 41' 3.550"N	6° 2' 39.921"W
E152448	N761983	56° 41' 1.664"N	6° 2' 37.189"W
E152491	N761921	56° 40' 59.746"N	6° 2' 34.454"W
E152595	N761903	56° 40' 59.364"N	6° 2' 28.296"W

E152638	N761841	56° 40' 57.445"N	6° 2' 25.561"W
E152534	N761860	56° 40' 57.860"N	6° 2' 31.722"W
E152577	N761798	56° 40' 55.942"N	6° 2' 28.987"W

Chart showing location and site infrastructure

No change to the existing permitted site layout shown in Figure 1 is requested.

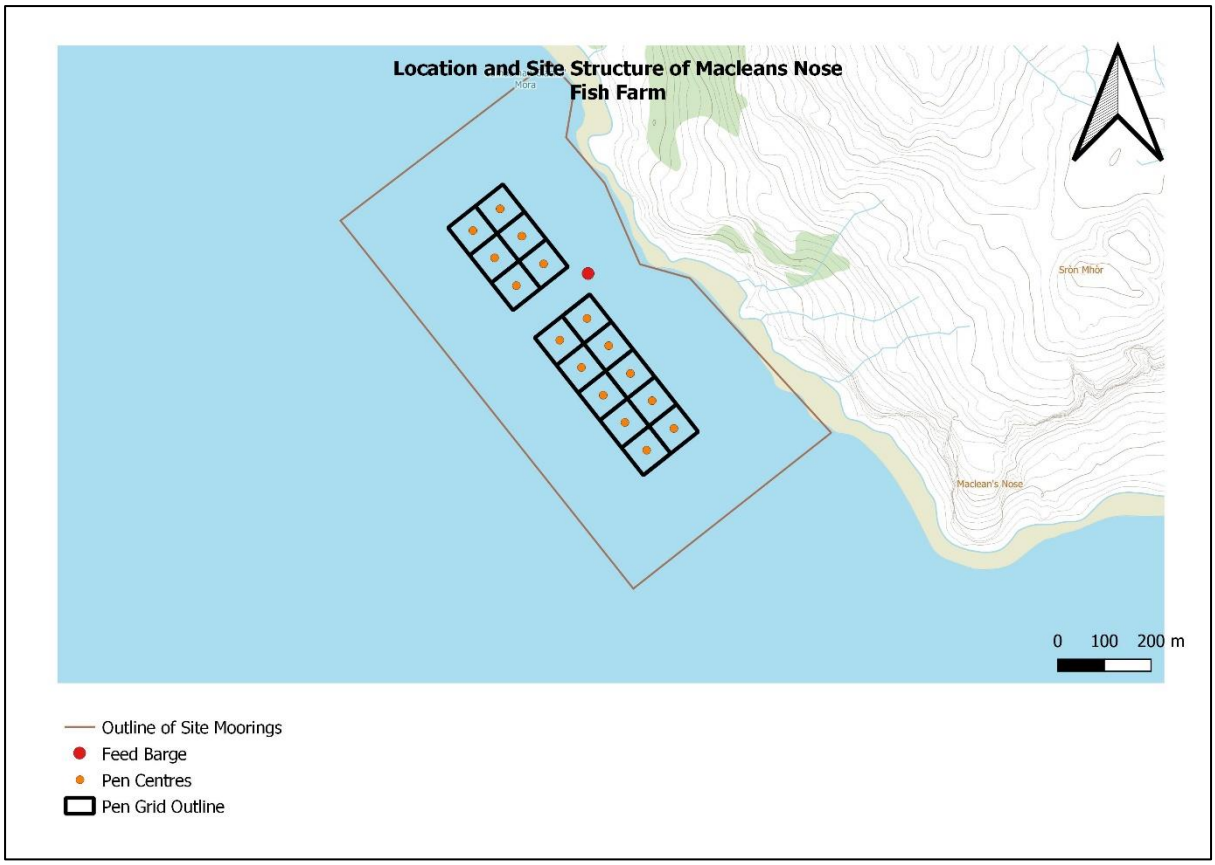

Figure 1: Detailed Macleans Nose site plan showing the existing infrastructure

2. Maximum weight of fish and Modelling

The maximum weight of fish will be 3500t of biomass.

As referenced above, Hydrographic analysis and HD and NewDepomod modelling were done for the previous CAR application for the Macleans Nose site in 2018, and since the total biomass requests were the same as in this application, the same modelling will be referenced both here and in a final CAR submission unless guided otherwise by SEPA.

3. Maximum Feeding Rate

Previously modelled proposed feed load 8942 t/yr.

4. Maximum treatment quantities of bath and in-feed medicines (active ingredients)

The maximum treatment quantities of in-feed medicines (active ingredients) will be the lesser of:

a) 556.47g of EmBz (278,235g Slice or Quinafish)
b) 50µg EmBz (25mg Slice or Quinafish)/kg of fish/day, for 7 days

The maximum quantities of bath medicines (active ingredients) will be:

a) Cypermethrin 3Hr – 0.175g
b) Deltamethrin 3Hr – 17.50g
c) Azamethiphos 3Hr – 401.13g
d) Azamethiphos 24Hr – 1605g

These numbers refer to the quantities most recently licenced and no change to these are requested.

5. Additional information

5.1 Community engagement

As this is a repeat of a previous application, with no change to the visual aspect or daily operations to the farm it is not considered to be a significant variation, however, a letter has been sent by email to the community council to share the proposal with them and invite comments or questions. No response has been received at the time of application submission.

5.2 Current meter data

ADCP current data collected in 2017 was validated and completed. This data was used for modelling 3500t to support the application submitted in 2018. Two deployments were made at two different sites, the dates of which are detailed below:

Table 1. Details of current data validated for modelling.

Current data ID	Data collection periods	Number of days of data
Macleans Nose North	22/03/2017 to 04/05/2017 And 05/05/2017 to 03/07/2017	102
Macleans Nose South	22/03/2017 to 04/05/2017 And 05/05/2017 to 03/07/2017	102

Table 2. Selected cells and depths for the two deployments at Macleans Nose North

Deployment Date	Water Depth (m)		Cell Number	Cell Depth (m)
22nd March – 4th May 2017	37.1	Surface	30	5.4
		Middle	19	16.4
		Bottom	1	34.3
5th May – 3rd July 2017	37.3	Surface	30	5.6
		Middle	20	15.6
		Bottom	1	34.6

Table 3. Selected cells and depths for the two deployments at Macleans Nose South

Deployment Date	Water Depth (m)		Cell Number	Cell Depth (m)
22nd March – 4th May 2017	45.0	Surface	37	6.3
		Middle	27	16.3
		Bottom	1	42.3
5th May – 3rd July 2017	43.9	Surface	36	6.2
		Middle	26	16.2
		Bottom	1	41.2

HG sheets showing the analysis of the data have been submitted with this application.

5.3 Benthic Sampling

A baseline survey of benthos at Maclean's Nose was undertaken in 2013 where both video and sediment surveys were undertaken and reported. The biology of the seabed was described to consist of sparsely burrowed circalittoral fine mud with frequent observations of the tall seapen (*Funiculina quadrangularis*), the Phosphorescent seapen (*Pennatula phosphorea*) and an auger shell (*Turritella communis*). Infrequently the following were observed: tube anemone (*Cerianthus lloydii*), the Norwegian lobster (*Nephrops norvegicus*), a burrowing mud shrimp (*Callianassa subterranea*), a fireworks anemone (*Pachycerianthus multiplicatus)* and the hermit crab (*Pagurus bernhardus*). Overall, the habitat is classified as circalittoral fine mud with sea pens (**SS.SMu.CfiMu.SpnMeg**), the habitat quality of which is likely to be classed as medium to low; sea pen appearance is frequent, there is not a thick coverage and there is only one occurrence of a firework anemone and of one Norwegian lobster in the three transects, indicating that this is not an important area for either of these species.

Locational guidelines published by Marine Scotland Science designate semi-enclosed areas such as lochs and voes on the basis of predictive modelling techniques to estimate nutrient enhancement and benthic impacts. MacLean's Nose is located approximately 1km from the closest Locational Guidelines boundary at Loch Sunart in an open water site, and consequently is not categorised under the Locational Guidelines. A methodology to characterise the nutrient contribution based on calculation on the proposed nutrient budget, the Equilibrium Enhancement Contentration (ECE) and a Cumulative ECE assessment was undertaken and reported in the Environmental Impact Assessment Report. The nutrient contributions from Maclean's Nose represent 5.6% of background value, below the UKTAG trigger and are assessed as not significant. Similarly, the cumulative nitrogen contribution is assessed to contribute less than 1% of the background value and were assessed to be not significant.

A Seabed and Water Quality Monitoring Plan that details the compliance sampling required at MacLeans Nose under the new SEPA framework, was agreed in 2019 and is reflected by the sampling carried out in 2020. Unless otherwise directed by SEPA the sampling plan (SWMP/CAR/L/1002965) will be deemed relevant for this application.

The most recent environmental monitoring compliance report issued by SEPA in 2020 indicated no breaches of Environmental Limit Conditions and an overall interim classification of 'Satisfactory'. Details of the survey are as follows:

Survey date – 13/04/2020

Number of transects – 4

Pen edge result – Pass

Allowable Mixing Zone result – Pass

IQI <0.64 area (% of AMZ) - 34

IQI results indicate compliance (the area of ellipse is only 34% of the allowable mixing zone as noted above). This most recent report follows a classification of 'satisfactory' in the two prior reports. Figures 2 and 3 show the sample points, the allowable mixing zone for the site, and the ellipse generated from the 0.64 IQI value as a percentage area of the mixing zone. In terms of site performance then, there is evidence from the compliance sampling, of continued sustainability.

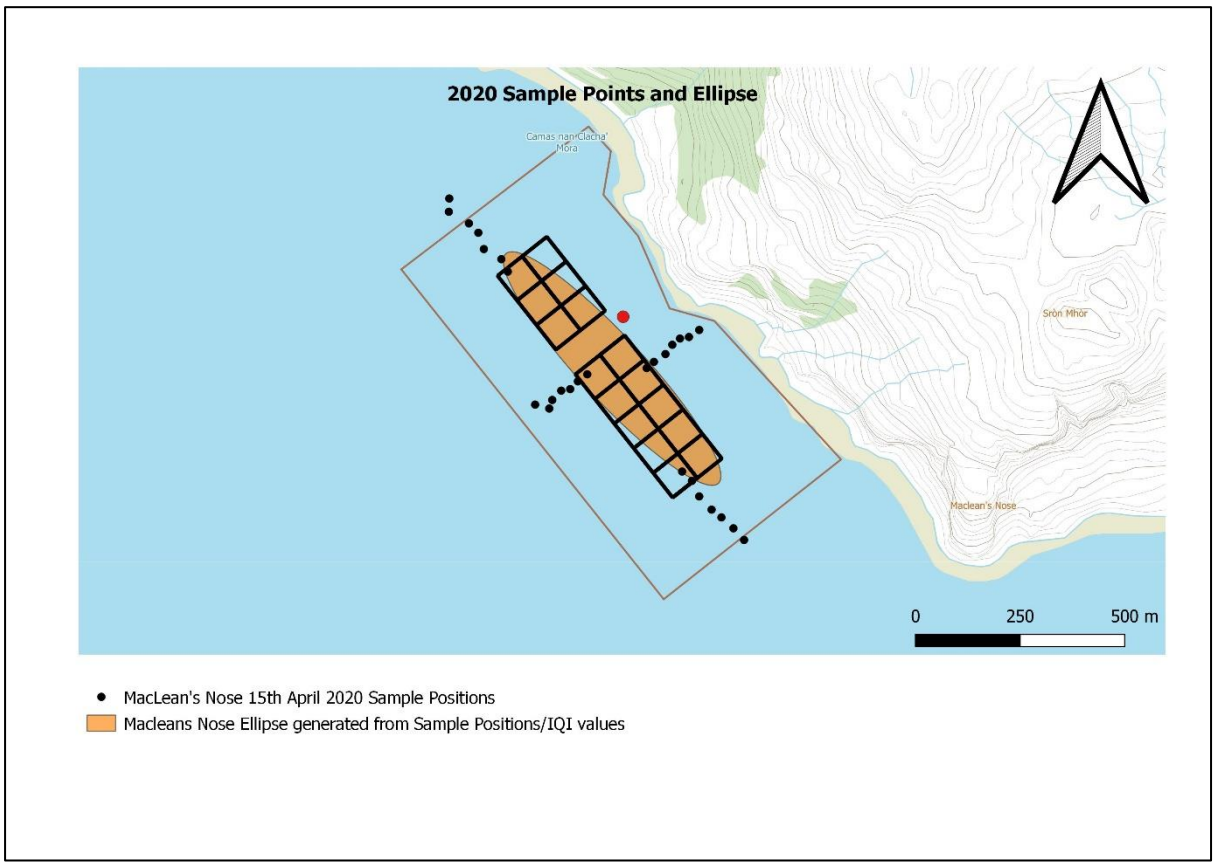

Figure 2. 2020 sample positions and ellipse

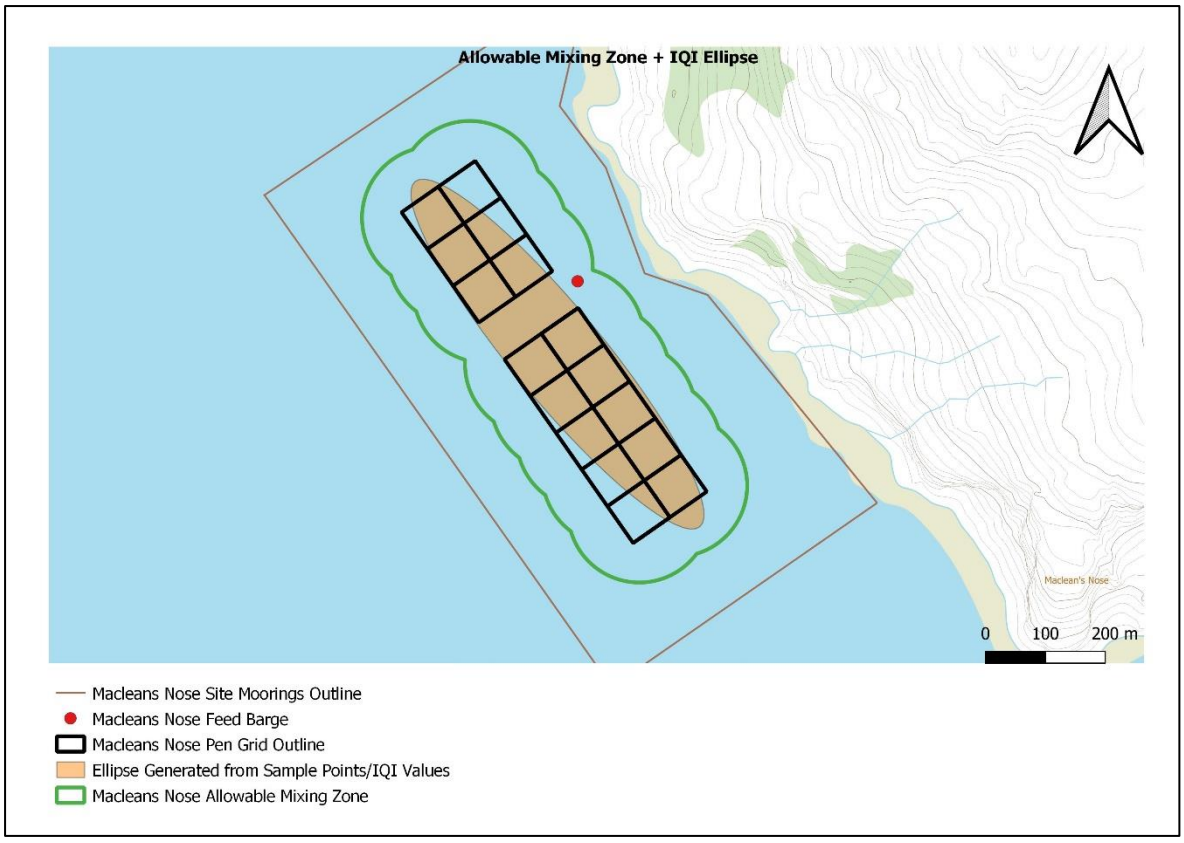

Figure 3: Allowable Mixing Zone and Ellipse

5.4 Designated conservation areas on and near Macleans Nose

A number of protected sites and designated areas are relevant to the proposals at Maclean's Nose:

- Sunart SAC lies adjacent to the Maclean's Nose and is designated on the basis of a range of terrestrial and marine Qualifying Features including includes otters (*Lutra lutra*) and reefs.
- Maclean's Nose is located within the Loch Sunart to Sound of Jura MPA, designated on the basis of presence of Flapper skate (Dipturus intermedius), and geodiversity features (channels and troughs).
- Loch Sunart Nature Conservation Marine Protected Area (MPA): the site is located adjacent to the MPA, which supports a range of Priority Marine Features (PMFs) including aggregations of the rare organ pipe worm (*Serpula vermicularis*), northern feather star aggregations (*Leptometrica celtica*) and flame shells (*Limaria hians*).
- Sunart Special Site of Scientific Interest (SSSI)) is situated adjacent to Maclean's Nose and is notified for a range of marine species extending from the mean low tide water mark including egg wrack (*Ascophyllum nodosum*), rocky shores, eel grass beds and otters (*Lutra lutra*).

In addition, Maclean's Nose lies within 15 km of both the Ardnamurchan Burns SAC and Mingarry Burn SAC, both designated for freshwater pearl mussel (*Margaritifera margaritifera*) populations, however impacts from discharges are not anticipated to impact the qualifying features of these designations. Similarly, the Inner Hebrides and Minches cSAC, designated

for Harbour porpoise populations, is also not predicted to be impacted by discharges arising from the development.

As a note here, it is anticipated that of the features above, it will be the two MPAs which will be of particular relevance to this application, containing as they do features which may be affected by seabed deposition.

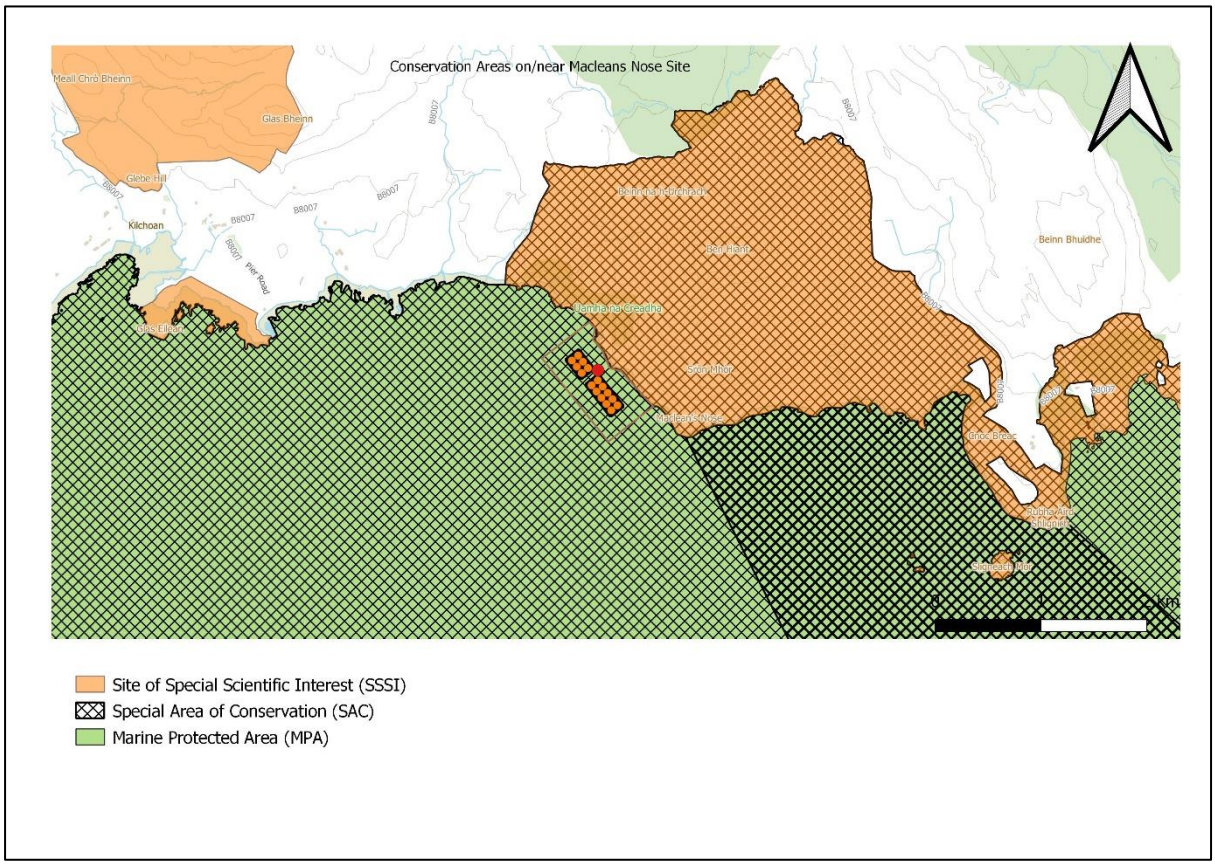

Figure 4: Conservation areas on/near the Macleans Nose site

MacLean's Nose Video Survey 2013

On the 19th of May 2013 a video survey was carried out at MacLean's Nose. Three transects were recorded; transect 1 and 2 were in a North East to South West direction and were approximately 386m and 359m in length respectively. Transect 1 and 2 intersect the inner 50% of transect 3; transect 3 being in a North West to South East direction and approximately 726m in length.

The video footage was then saved to a DVD and played back in order to identify species occurring on the seabed. A screen shot was taken of each species identified and a frequency estimate recorded; where a species occurs frequently a brief description of its occurrence was provided instead. Occurrence of priority marine features or the components of such were analysed and a summary of their likely quality given. The biotope type and a summary of the species are also provided.

There were no species identified in the MacLean's Nose video survey that are Priority Marine Features in their own right. Some species identified were component species of the priority marine feature burrowed mud.

The MacLean's Nose seabed consists of sparsely burrowed circalittoral fine mud. There are frequent observations of the tall seapen (*Funiculina quadrangularis*), the Phosphorescent seapen (*Pennatula phosphorea*) and an auger shell (*Turritella communis*). Infrequently the tube anemone (*Cerianthus lloydii*), the Norwegian lobster (*Nephrops norvegicus*), a burrowing mud shrimp (*Callianassa subterranea*), a fireworks anemone (*Pachycerianthus multiplicatus)* and the hermit crab (*Pagurus bernhardus*) occur on the MacLean's Nose seabed. These are all characterizing species or species accepted as being indicative of the biotope **SS.SMu.CfiMu.SpnMeg**, the habitat quality of which is likely to be classed as medium to low. With the presence of the tall seapen the biotope could also be classified as SS.Smu.CfiMu.SpnMeg.Fun, however the tall seapen can occur in large numbers under ideal conditions, where the population forms a forest of seapens on the seabed, at MacLean's Nose the population is small and although appearance is frequent there is not a thick coverage of seapens, therefore under the habitat classification of **SS.Smu.CfiMu.SpnMeg.Fun** the habitat quality would likely be low to poor. There is only one occurrence of a firework anemone and of a Norwegian lobster in the three transects. This indicates that this is not a key area for either of these species.

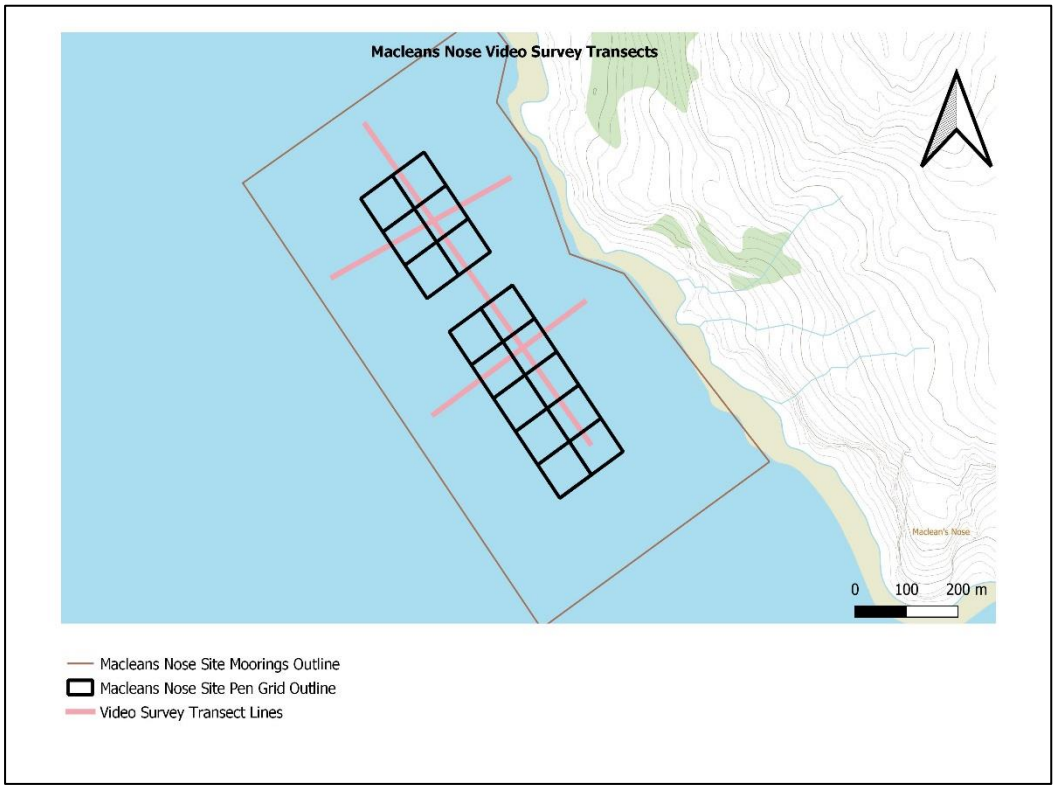

Figure 5: 2013 Video Survey Transects