



Scottish Sea Farms

Environmental Monitoring Plan – West of Burwick

Company	SSF Shetland Ltd
Company address(es)	Laurel House, Laurelhill Business Park, Stirling, Scotland FK7 9JQ
Site name	West of Burwick
Site address	The Deeps, Scalloway Area, Shetland Islands
Licence	CAR/L/1003059
EMP Version	Version 4.0
Date	01/12/2022
Prepared by /Contact	Callum Tait (Environmental Modeller)

Statement

In accordance with SEPA's current monitoring guidance '*Marine Finfish Farms: Seabed environmental standards: Demonstrating compliance: Guidance for operators Version 19 January 2022*' this Environmental Monitoring Plan (EMP) has been prepared for Scottish Sea Farms Shetland Ltd. (SSF-S), site at West of Burwick. This EMP will accompany a license to expand the site, replacing the current 10x90m cages with 10x120m cages and so is designed based on the proposed layout for the site.

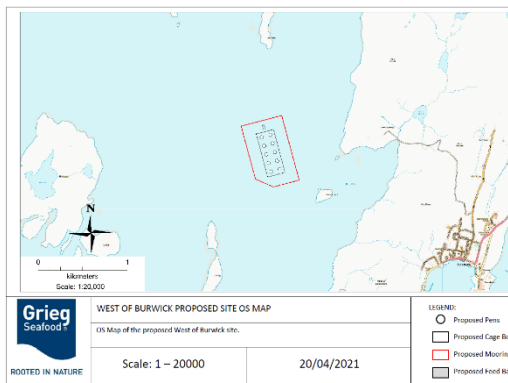
SSF-S Ltd, as licence holder, undertakes to carry out sampling as detailed in the following plan and in the site permit. This plan takes into account previous benthic and visual monitoring information collected at the site and subsequent discussions with SEPA.

Site details

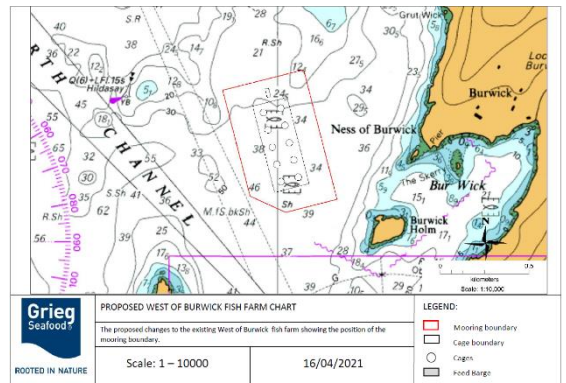
Site Name	West of Burwick
Operator	Scottish Sea Farms Shetland Ltd
Permit/Licence	CAR/L/1003059 (12/05/2017)
Site address	The Deeps, Scalloway Area, Shetland Islands
Species	Atlantic Salmon (<i>Salmo salar</i>)
Permitted Biomass	2613.07
Pen array details	2 x 5 pens (120m circumference) in a grid of 75m x 75m cells (grid dimensions 75m x 75m)
100m Mixing Zone Area	200,064m ²

See Appendix for larger images of all maps, charts and plots.

1. OS Map showing site location



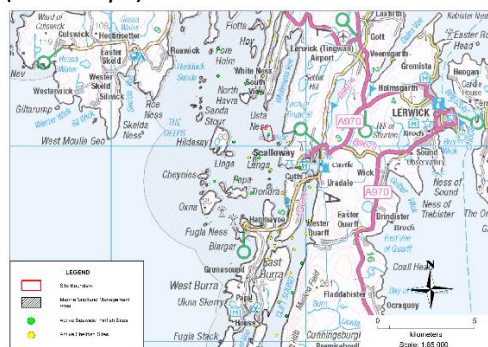
2. Chart of lease area and pen configuration



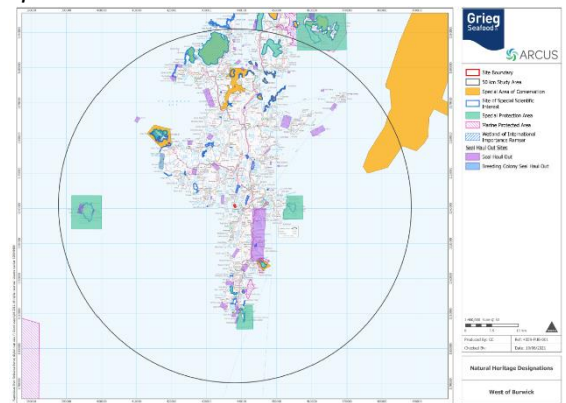
3. Table of group corner positions and group centre.

Group Position	Corner	Lat	Long	Easting	Northing
1		60°09.128' N	001°18.843' W	438186	1141047
2		60°08.736' N	001°18.639' W	438382	1140321
3		60°08.697' N	001°18.952' W	438093	1140246
4		60°09.746' N	001°19.170' W	437871	1142191
5		60°09.066' N	001°19.338' W	437729	1140927
Group Centre		60°08.933' N	001°18.867' W	438167	1140686

4. Map or Chart showing Neighbouring sites and sites sharing this water body (The Deeps)



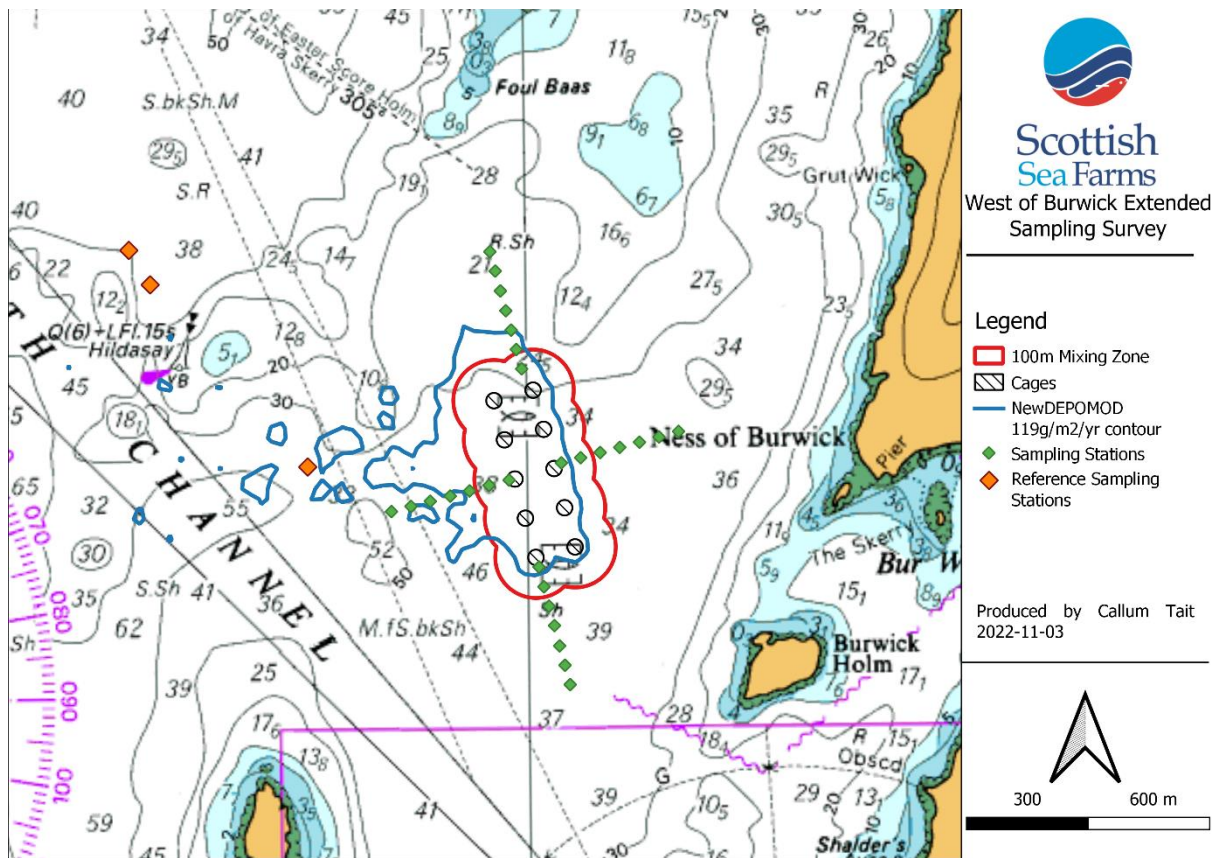
5. Areas of concern: PMFs, protected species or habitats



Environmental Monitoring Survey

As recommended by SEPA's current monitoring guidance, a four transect survey is proposed. Orthogonal transects will be a minimum of 150m in length, with seven stations on each transect spaced at least 20m apart. Each transect will be long enough to reach background environmental conditions. These will be designed to provide sufficient data to demonstrate compliance with relevant environmental quality standards (EQS).

6. Modelled output for the site using NewDEPOMOD, with the 119g/m²/yr contour taken to represent the 0.60 IQI contour, overlaid with the site 100m Mixing Zone. The relationship used here between deposition and IQI was established through calibrated modelling for the site as well as reference stations that indicate the background IQI of the area is 0.6. The proposed sampling transects as well as these reference stations are also displayed.



7. Table showing proposed sampling station positions.

Transect	Orientation	Bearing (°T)	Distance	Station Number
1	W	255	300	7
2	N	345	300	7
3	E	75	300	7
4	S	165	300	7

Rationale for proposed sampling stations:

- Orthogonal transects are proposed in line with pen array orientation
- Transect lengths were 300m to give best indication of any deposition outside the modelled zone of impact and 100m mixing zone.

Reference Station Sampling

As part of the calibrated NewDEPOMOD modelling process used to predict the sites environmental impact, a relationship between deposition and IQI of $119\text{g}/\text{m}^2/\text{yr} = 0.6$ IQI was determined. Three reference stations in closest proximity to the site were used as part of this, reflecting a background IQI of 0.6. As part of the ongoing sampling of the site, reference station samples will continue to be taken as part of an ongoing investigation into the background IQI of the Scalloway area, and this sampling will follow guidance issued in the permit for the site.

8. Table showing positions of reference stations.

Reference Station	Lat	Long
1	60.1534°N	1.3343°W
2	60.15263°N	1.33337°W
3	60.14857°N	1.32645°W

Survey Timing and Sampling

Survey work will be timed as recommended in SEPA's monitoring guidance and in the permit for the site. Sampling will also be as recommended and will be carried out by an approved sampler. Any additional sampling such as residue sampling for Emamectin Benzoate will also comply with SEPA's guidance and the license permit. SEPA PSs will be followed during sampling and analysis of samples; these are MACS-FFA-PS-01, MACS-FFA-PS-02 and MACS-FFA-PS-03.

Data Analysis and Reporting

Data analysis and reporting will be carried out by an approved sampler and results will be submitted in a suitable template according to SEPA guidance and the site permit, demonstrating whether samples comply with environmental standards recommended by the SEPA guidance.