MARINE FISH FARM MONITORING REPORT

Report From   **Marine Ecology Aquaculture Advice**
Report To   **Operations**

SITE DETAILS

Company	**Marine Harvest (Scotland) Ltd**
Location	**Bagh Dail nan Ceann**
Receiving Water	**Sound of Jura**
Cage Group	
Licence	**CAR/L/1004226**
NGR	**NM 7750 0457**
Team	**West Highland & Argyll**
Site ID	**FFMC54**

SURVEY DETAILS

Monitoring Method	**Benthic**
Survey Type	**Self Monitoring**
Survey Date	**20/12/2017**
Received Date	**22/04/2018**
Report Date	**26/04/2018**
Biomass (t)	**1320**
Maximum Biomass (t)	**2100**
Survey ID	**N 4444**

CLASSIFICATION: **Borderline**	Cage Edge Result
	Borderline
Reported by **Ann Paterson**	AZE Result
Reported by **Mhairi Wilson**	**Pass**

SUMMARY

Evaluated against quality criteria stated in SEPA's Fish Farm Manual according to NWM/MAR/010

Depth: 26–43m.
Sediment Description: Soft, dark grey mud and clay.

Biology:
Enrichment was evident at the cage edge (west) station as numbers of taxa and richness and diversity scores were very low, the ITI score of <1 indicated a very degraded community, and the dominant taxa were the enrichment polychaetes Capitella sp and Malacoceros fuliginosus. However, this station passed the benthic criteria as there were 2 species of enrichment polychaetes in sufficient abundances (2,105/m2) to rework the sediment.

A slightly impoverished community was present at the cage edge (start of transect) station as numbers of taxa and richness and diversity scores were very low, the ITI score of 2 indicated a degraded community, and the dominant taxa were the enrichment polychaetes Malacoceros fuliginosus and Capitella sp. This station failed the benthic faunal criteria for within the AZE as although there were 2 species of enrichment polychaetes present, they were in insufficient abundances (540/m2) to rework the sediment.

Conditions were much improved at the AZE stations which all passed 3 of the benthic criteria for outwith the AZE. Numbers of taxa and richness and diversity scores were relatively high, and the ITI scores of 50, 47 and 45 indicated changed communities. The predominant taxa were those common to muddy sediments, i.e. the molluscs Kurtiella bidentata, Thyasira flexuosa and Hyala vitrea. Although all 3 stations failed the criterion for abundances of enrichment polychaetes, abundances were very low.

Multivariate analyses split the cages into 3 distinct groups - the cage edge stations, the AZE stations and the reference stations. The cage edge stations were least similar to the other stations (sharing ~10% similarity). The AZE stations were most similar to one another (sharing ~62–72% similarity) and were more similar to the reference stations than to the cage edge station (sharing ~33% similarity).

Chemistry:
Redox potential: All stations passed the SEPA action levels for redox. However, redox values were negative throughout all depths at the 2 cage edge stations and at depth at the AZE-10 and AZE stations. In contrast, the AZE+10 and reference stations were positive throughout all depths.

Organic carbon (OC): All stations passed the SEPA action level for OC. Values were low and ranged from 1–2%.

Particle Size Analysis: According to UKSeaMap, the sediment at this site was classified as mud and sandy mud.

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There were 10 x 120m cages on site at the time of the survey.

The site was stocked on the 07/10/2016 after minimum fallow.

DATA QUALITY

Max biomass of 2494t was held on site in Oct '17, remained at over 90% in Nov, with sampling carried out in Dec when biomass was ~64% of the max; this is in accordance with the requirements of the licence MPS.

AZE modelled at 105m bearing 222o
AZE sampled at 194m/204m/213m bearing 210o
However, as in 2016, the cages are approximately 90m north of the modelled location.

COMMENTS/RECOMMENDATIONS

The discrepancy in distance between the location of the cages from the modelled location should be address as part of the pending variation.