37. Offshore Circalittoral Rock and Biogenic Reef

Background

Offshore circalittoral rock includes habitats of bedrock, boulders and cobbles which occur at depths between 30m to 200m. This habitat supports a wide range of species, and the community assemblages will vary depending on a number of physical factors such as wave action, tidal stream strength, salinity, turbidity, the degree of scouring and rock topography. The sensitivity analysis was based on the characterising species listed under circalittoral rock due to lack of information on characterising species in the offshore circalittoral rock habitat.

Table 1. Offshore Circalittoral Rock characterising species

	Characterising species	
Group 1(a)	**Erect, longer-lived epifaunal species with some flexibility**	
	Eunicella verrucosa	https://www.marlin.ac.uk/species/detail/1121
Group 1(b)	**Erect, shorter lived epifaunal species**	
	Tubularia indivisa	
	Sertularia argentea	
	Nemertesia antennina	
	Sertularella gayi	
	Nemertesia ramosa	https://www.marlin.ac.uk/species/detail/1318
	Abietinaria abietina	
	Flustra foliacea	https://www.marlin.ac.uk/species/detail/1609
Group 1(c)	**Soft-bodied epifaunal species**	
	Cylista elegans	
	Alcyonium digitatum	https://www.marlin.ac.uk/species/detail/1187
	Alcyonidium diaphanum	
	Amphilectus fucorum	
	Urticina felina	https://www.marlin.ac.uk/species/detail/1392
	Actinothoe sphyrodeta	
	Corynactis viridis	
	Halichondria panicea	
	Myxilla incrustans	
	Pachymatisma johnstonia	
	Metridium senile	
	Axinella infundibuliformis	

	Cliona celata	
	Dysidea fragilis	
	Haliclona viscosa	
	Polymastia boletiformis	
	Parasmittina trispinosa	
	Pentapora foliacea	https://www.marlin.ac.uk/species/detail/1389
	Stelligera montagui	
	Suberites carnosus	
	Alcyonium glomeratum	
	Hemimycale columella	
	Tethya aurantium	
	Stelligera stuposa	
	Porella compressa	
	Phakellia ventilabrum	
	Axinella dissimilis	https://www.marlin.ac.uk/species/detail/1380
Group 1(d)	**Small epifaunal species with hard or protected bodies**	
	Balanus crenatus	https://www.marlin.ac.uk/species/detail/1381
	Spirobranchus triqueter	https://www.marlin.ac.uk/species/detail/1794
	Calliostoma zizyphinum	
Group 3	**Mobile predators and scavengers**	
	Asterias rubens	https://www.marlin.ac.uk/species/detail/1194
	Cancer pagurus	https://www.marlin.ac.uk/species/detail/1179
	Henricia oculata	https://www.marlin.ac.uk/species/detail/1131
	Luidia ciliaris	
	Marthasterias glacialis	
	Stichastrella rosea	
Group 8(b)	**Surface dwelling Echinoids**	
	Echinus esculentus	https://www.marlin.ac.uk/species/detail/1311
Group 8(c)	**Free living interface suspension/deposit feeders: Ophiuroidea**	
	Ophiothrix fragilis	https://www.marlin.ac.uk/species/detail/1198

*Within each group species (shown in bold) with a good evidence base were selected for specific sensitivity assessment to ensure that the range of biological traits or habitat preferences expressed by species within that ecological group were represented.

Rationale for spatial protection in the Irish Sea

Offshore circalittoral rock and biogenic reef habitats were included in the features list as it is an MSFD priority habitat and is a broadly distributed feature of ecological importance within the Irish Sea. This habitat hosts a wide range of species, contributing to the biodiversity of Irish waters. In the current project, a decision was made to include this MSFD priority habitat given that there are no Natura designations for 'reef' in the offshore region of the western Irish Sea. This is not the case for biogenic reef, so in this project the sensitivity analysis focussed on the characterising species for offshore circalittoral rock.

Sensitivity Assessment

*Sensitivity scores and the ecological groups associated were similar among MSFD habitats.

Offshore circalittoral rock is highly sensitive to pressures associated with the construction and operation of offshore renewable infrastructure. Loss or change of the physical habitat could lead to a loss of biodiversity and lead to changes in the community structure associated with this biotope (high confidence). A change to sedimentary substrata would result in the loss of suitable substratum for *Eunicella verrucosa*. Based on the loss of suitable habitat for the species, resistance to this pressure is assessed as '**none**' and resilience is assessed as '**very low**' as the pressure benchmark refers to a permanent change. Sensitivity is, therefore, assessed as '**high'** (medium confidence)(Readman & Hiscock, 2017). In addition, the characterising species within group 1(a) has a high sensitivity to a change in habitat structure through extraction of the substratum (medium confidence). *Eunicella verrucosa* is epifaunal, occurs on rock, and would be sensitive to the removal of the habitat.

Offshore circalittoral rock is highly sensitive to pressures associated with the fishing sector. Ecological group 1(a) is highly sensitive to abrasion of the substratum (low confidence). *Eunicella verrucosa* is sessile epifauna and is likely to be severely damaged by heavy gears, such as scallop dredging (MacDonald *et al.*, 1996). This biotope is also moderately sensitive to a number of chemical pressures associated with the fishing sector.

Offshore circalittoral rock is moderately sensitive to pressures associated with the shipping sector. A number of characterising species were assigned a medium sensitivity to chemical pressures associated with the shipping sector (high confidence). Asterias rubens, *Ophiothrix fragilis and Echinus esculentus* have a medium sensitivity to hydrocarbon and PAH contamination while *Urticina felina, Cancer pagurus, Flustra foliacea, Echinus esculentus and Balanus crenatus* have a medium sensitivity to synthetic compound contamination. Lastly, *Echinus esculentus* has a medium sensitivity to transition elements and organo-metal contamination.

Further research needs

As with the other MSFD broadscale habitats, a better evidence base is needed as to the actual suite of species, particularly characterising species present in the habitats in the western Irish Sea. In addition, several of the pressures in the analyses for the broadscale habitats are scored based on the sensitivity of a small number of characterising species due to a lack of evidence

for others. Further research is needed to assess the sensitivity of the full list of characterising species present to provide a more comprehensive analysis for each biotope.

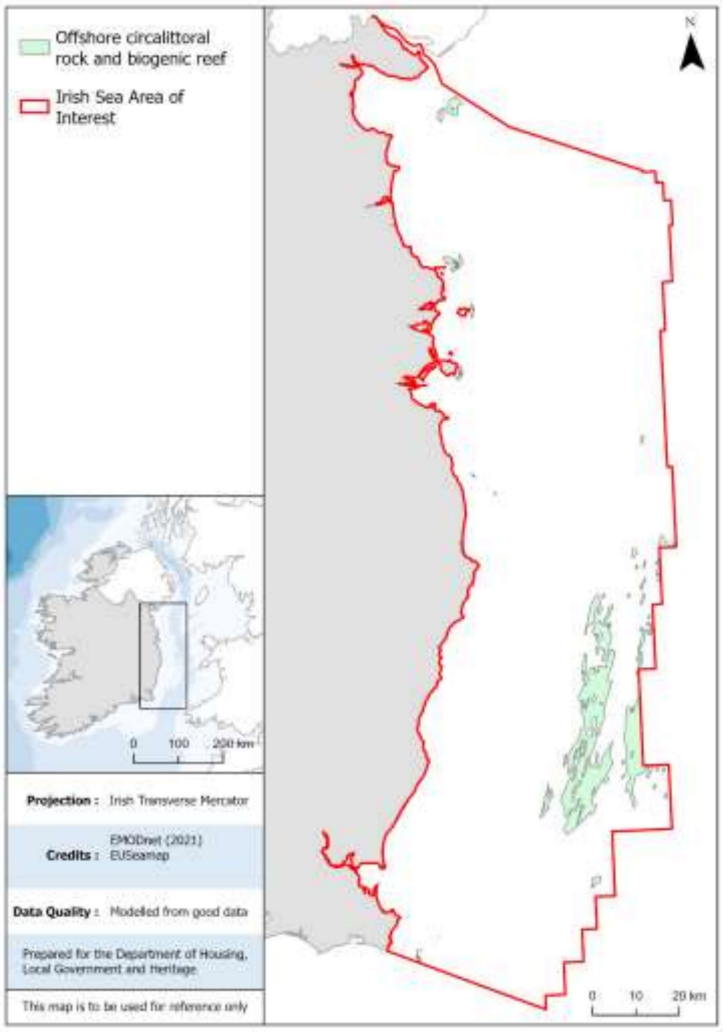

Figure 1. Data available for offshore circalittoral rock and biogenic reef in the western Irish Sea.

Data sources and quality

Dataset Name	Data Owning Organisation	Dataset Quality	Metadata URL	Comments
EUSeaMap EMODnet Benthic Broadscale Habitat Types	EMODnet	Modelled from good data	EUSeamap (2021)	

Information on the sensitivity assessment above has been sourced from:

Tillin, H.M. & Tyler-Walters, H. 2014. Assessing the sensitivity of subtidal sedimentary habitats to pressures associated with marine activities: Phase 2 Report – Literature review and

sensitivity assessments for ecological groups for circalittoral and offshore Level 5 biotopes. JNCC Report 512B

References

JNCC (2022) The Marine Habitat Classification for Britain and Ireland Version 22.04. Available from: https://mhc.jncc.gov.uk/

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Readman, J.A.J. & Hiscock, K. (2017). *Eunicella verrucosa* Pink sea fan. In Tyler-Walters H. and Hiscock K. *Marine Life Information Network: Biology and Sensitivity Key Information Reviews*, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 04-05-2023]. Available from: https://www.marlin.ac.uk/species/detail/1121

Tillin, H, Tyler-Walters, H. (2013). Assessing the sensitivity of subtidal sedimentary habitats to pressures associated with marine activities. Phase 1 Report: Rationale and proposed ecological groupings for Level 5 biotopes against which sensitivity assessments would be best undertaken JNCC Report No. 512A

Tillin, H.M. & Tyler-Walters, H. (2014). Assessing the sensitivity of subtidal sedimentary habitats to pressures associated with marine activities: Phase 2 Report – Literature review and sensitivity assessments for ecological groups for circalittoral and offshore Level 5 biotopes. JNCC Report 512B