

## 36. Offshore Circalittoral Sand

### Background

Offshore (deep) circalittoral habitats with fine sands or non-cohesive muddy sands occur between depths of 20m-200m. Very little data is available on these habitats however they are likely to be more stable than their shallower counterparts and characterised by a diverse range of polychaetes, amphipods, bivalves and echinoderms (JNCC, 2022).

**Table 1. Offshore Circalittoral Sand characterising species defined by Tillin & Tyler-Walters (2013).**

	Characterising species	MarLIN Links
<b>Group 4</b>	<b>Infaunal very small to medium sized suspensions and/or deposit feeding bivalves</b>	
	<i>Nuculoma tenuis</i>	
<b>Group 5</b>	<b>Small-medium suspension and/or deposit feeding polychaetes</b>	
	<i>Chaetozone setosa</i>	
	<i>Levinsenia gracilis</i>	
	Maldanidae ( <i>Maldane sarsi</i> )	
	<i>Owenia fusiformis</i>	<a href="https://www.marlin.ac.uk/species/detail/1703">https://www.marlin.ac.uk/species/detail/1703</a>
	<i>Scoloplos armiger</i>	
<b>Group 7</b>	<b>Very small-small, short lived (&lt;2 years) free-living species</b>	
	<b><i>Eudorelloopsis deformis</i></b>	
<b>Group 8(c)</b>	<b>Free living interface suspension/deposit feeders: Ophiuroidea</b>	
	<b><i>Amphiura filiformis</i></b>	<a href="https://www.marlin.ac.uk/species/detail/1400">https://www.marlin.ac.uk/species/detail/1400</a>

\*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 Sand 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. These broadscale habitats do not have existing protection or management but Ireland has a legal obligation under MSFD to protect them and they are amenable to spatial protection.

## Sensitivity Assessment

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

**Offshore circalittoral sands are highly sensitive to pressures associated with the construction of offshore wind farms (high confidence).** Loss of the physical habitat will result in a loss of biodiversity and lead to changes in the community structure associated with this biotope (high confidence). This biotope has a moderate sensitivity to the operation of ORE (medium confidence). Ecological groups 4, 5 and 8(c) are moderately sensitive to habitat structure change (low confidence). The process of extraction will remove all members of these ecological groups as they either live on the surface or are shallowly buried and resistance is assessed as **‘none’**. Recovery for each of the groups is expected to occur within 2-10 years (resilience is **‘medium’**), resulting in a medium sensitivity. Group 4 is also moderately sensitive to a change in suspended solids. This ecological group is not predicted to be sensitive to acute changes in turbidity. However at the pressure benchmark the change is chronic and sustained for a year. This is predicted to have negative impacts on growth and fecundity by reducing filter feeding efficiency and imposing costs on clearing and producing pseudofaeces for the filter feeders (Tillin & Tyler-Walters, 2014).

**Offshore circalittoral sands are moderately sensitive to pressures associated with the fishing sector (medium confidence).** Ecological groups 4 and 8(c) have a medium sensitivity to surface abrasion and penetration of the substratum (medium confidence). Species of group 4 are infauna found close to the sediment surface. This life habit provides some protection from abrasion at the surface only, however it was considered that surface abrasion may damage and kill a proportion of the population. Members of this ecological group will also be directly impacted by penetration and disturbance of the substratum below the surface. Abrasion at the surface of the sediment has the potential to directly impact ecological group 8(c). Many of the species represented by this group are epifaunal and would be directly exposed to any source of abrasion and subsurface penetration. *Amphiura* species are shallow burrowers but extend arms above the surface to feed, these would be directly exposed. In some structurally complex habitats, individuals beneath stones or in crevices may avoid this pressure (Tillin & Tyler-Walters, 2014).

**Offshore circalittoral sands are moderately sensitive to pressures associated with the shipping sector (medium confidence).** It must be stressed that this assessment is based on one characterising species only due to a lack of evidence on the remaining species. *Amphiura filiformis* has a medium sensitivity to hydrocarbon and PAH contamination (medium confidence) and a medium sensitivity to synthetic compound contamination (low confidence).

## 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, a number 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.

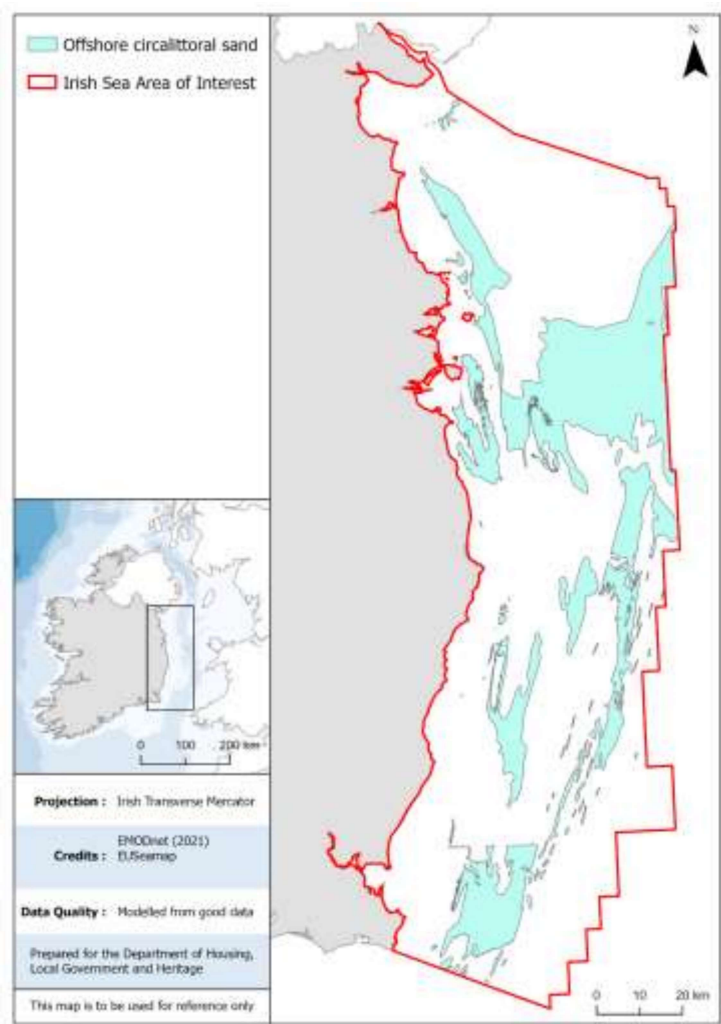


Figure 1. Data available for offshore circalittoral sand in the western Irish Sea.

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	<a href="#">EUSeamap (2021)</a>	

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/>

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