

## 20. Seapens and Burrowing Megafauna



Figure 1: *Pennatula phosphorea* and *Turritella communis* © Joint Nature Conservation Committee (JNCC)

### Background

Plains of fine mud, at water depths ranging from 15- 200m or more, which are heavily bioturbated by burrowing megafauna with burrows and mounds typically forming a prominent feature of the sediment surface. The habitat may include conspicuous populations of seapens, typically *Virgularia mirabilis* and *Pennatula phosphorea*. The burrowing crustaceans present may include *Nephrops norvegicus*, *Calocaris macandreae* or *Callinassa subterranea*. The burrowing activity of megafauna creates a complex habitat, providing deep oxygen penetration (OSPAR Commission, 2010).

### Rationale for spatial protection in the western Irish Sea

Seapens and burrowing megafauna communities were nominated for inclusion with particular reference to its listing under OSPAR. This biotope is considered to be in decline and/or threatened in OSPAR regions II and III. This biotope is not currently protected or conserved in the western Irish Sea but is amenable to spatial protection.

### Sensitivity assessment

**Seapens and burrowing megafauna are highly sensitive to pressures associated with the construction and operation of ORE (high confidence).** All marine habitats and benthic species are considered to have a resistance of ‘None’ to physical loss (to land or freshwater habitat) and to be unable to recover from a permanent loss of habitat (resilience is ‘Very Low’)(high confidence)(Tyler-Walters et al., 2018). This biotope also has a high sensitivity to physical change to the seabed (high confidence) and sediment type (medium confidence).

If sedimentary substrata were replaced with rock substrata the biotope would be lost, as it would no longer be a sedimentary habitat and would no longer support seapens and burrowing megafauna. Additionally, seapens have a narrow range of sediment type preferences and given that this pressure is a permanent change, resilience is very low (Hill et al., 2022).

**Seapens and burrowing megafauna have a high sensitivity to bottom trawling and dredging/beam trawling (high confidence) and a medium sensitivity to pelagic and static gear fishing (low confidence).** As mentioned above, this biotope also has a high sensitivity to physical change to the seabed (high confidence) and sediment type (medium confidence). This biotope has a medium sensitivity to abrasion (low confidence) but a high sensitivity to penetration of the substratum (low confidence). *Virgularia mirabilis* and *Pennatula phosphorea* can avoid abrasion by withdrawing into the sediment, but a frequent disturbance will probably reduce feeding time and hence viability. Penetrative gear is likely to remove a greater proportion of the seapen population, as it may remove them from their burrows, within the footprint of the activity (Hill et al., 2022).

Pressures associated with **Shipping** were ‘Not Assessed’ and further information is needed on the sensitivity of Seapens and burrowing megafauna to these pressures.

### **Further research needs**

There is insufficient evidence on the effects of chemical pressures on seapens and burrowing megafauna to form an assessment. The pressures requiring more research include transition elements and organo-metal contamination, hydrocarbon and PAH contamination, synthetic compound contamination and introduction of other substances. No direct evidence on the effect of non-native species on seapen and burrowing megafauna communities was found but further research is required.

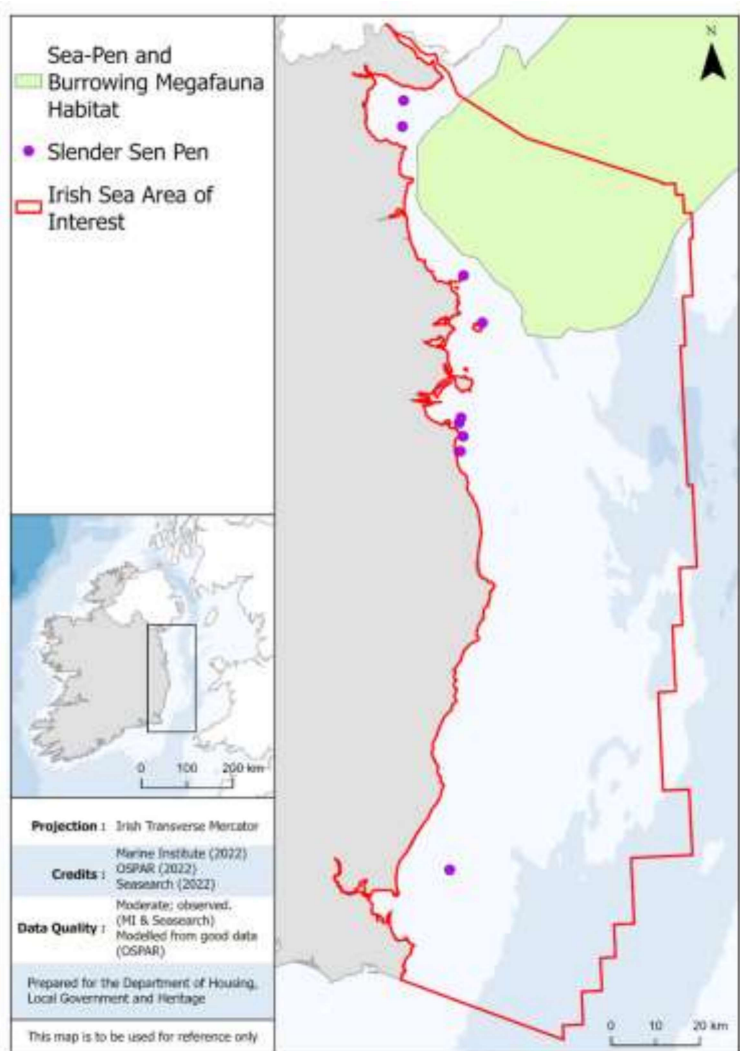


Figure 2. Data available for Seapens and burrowing megafauna in the western Irish Sea.

### Data sources and quality

Dataset Name	Data Owning Organisation	Dataset Quality	Metadata URL	Comments
OSPAR Seapens and Burrowing Communities	OSPAR	Modelled from good data		

### References

Hill, J.M., Tyler-Walters, H. & Garrard, S. L. 2022. Seapens and burrowing megafauna in circalittoral fine mud. In Tyler-Walters H. *Marine Life Information Network: Biology and*

*Sensitivity Key Information Reviews*, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 26-04-2023]. Available from:  
<https://www.marlin.ac.uk/habitat/detail/131>

OSPAR Commission (2010) Background document for Seapens and Burrowing megafauna communities. OSPAR Commission, United Kingdom.

Tyler-Walters, H., Tillin, H.M., d'Avack, E.A.S., Perry, F., & Stamp, T. (2018). *Marine Evidence-based Sensitivity Assessment (MarESA) – A Guide*. Marine Life Information Network (MarLIN). Marine Biological Association of the UK, Plymouth.  
<https://www.marlin.ac.uk/assets/pdf/MarESA-Sensitivity-Assessment-Guidance-Rpt-Dec2018.pdf>