

BS 22: Bembridge rMCZ

Seasearch Site Surveys 2017

This report summarises the results of surveys carried out during 2017 by Seasearch divers in the Bembridge recommended Marine Conservation Zone (rMCZ). The site is located in the East Solent adjacent to the south-eastern corner of the Isle of Wight and covers an area of approximately 94 km², as shown in the figure below. The main aim of the 2017 surveys was to continue to add detailed records of the habitats and species found within the area. Particular attention was paid to the Habitat and Species FOCI identified in the Ecological Guidance on the designation of MCZs¹ and subsequently reviewed by JNCC and Natural England at the request of Defra in 2014^{2 3} (the latter review underpins the Tranche 3 process).



Physical Features of the Area

The north of the rMCZ is dominated by soft, heavily bioturbated mud and lies adjacent to the sheltered anchorage in St Helens Road and the East Solent pilot boarding area. This mud environment (broadscale habitat (BSH) 'mud habitats in deep water' and habitat of conservation importance (HOCl) 'seapens and burrowing megafauna') is regionally extremely scarce and is included on both the UK BAP (Biodiversity Action Plan) and Natural Environment & Rural Communities Act 2006 Habitats & Species of Principal Importance lists.

Ledges (limestone and chalk), reefs and shoals extend out from the point at Bembridge Foreland while Sandown Bay consists of mixed and coarse sediments including gravel (extracted for aggregates). Littoral chalk communities (formerly 'intertidal chalk') and subtidal chalk are both priority habitats identified in the aforementioned lists, supporting rich and diverse algal and invertebrate communities.

Features of the Marine Life

Bembridge rMCZ is a hotspot of biodiversity. Maerl, a priority species and habitat of conservation importance (in the form of maerl beds) has been recorded around Culver Spit in Sandown Bay, as have the nests of black bream (*Spondyllosoma cantharus*)⁴. Bembridge Ledges represent the easternmost known extent of the rare brown alga *Padina pavonica* while seagrass beds here have been mapped and monitored for a number of years by Hampshire and Isle of Wight Wildlife Trust. Stalked jellyfish and seahorse (both species) records also exist.

Survey Dive Details

Two days of survey dives were planned for Bembridge rMCZ, targeting the mud habitats in the north of the site and the reefs and maerl beds in Sandown Bay respectively. Unfortunately the second survey day was cancelled due to strong winds. Sandown Bay with the maerl habitat remains as a high priority target.

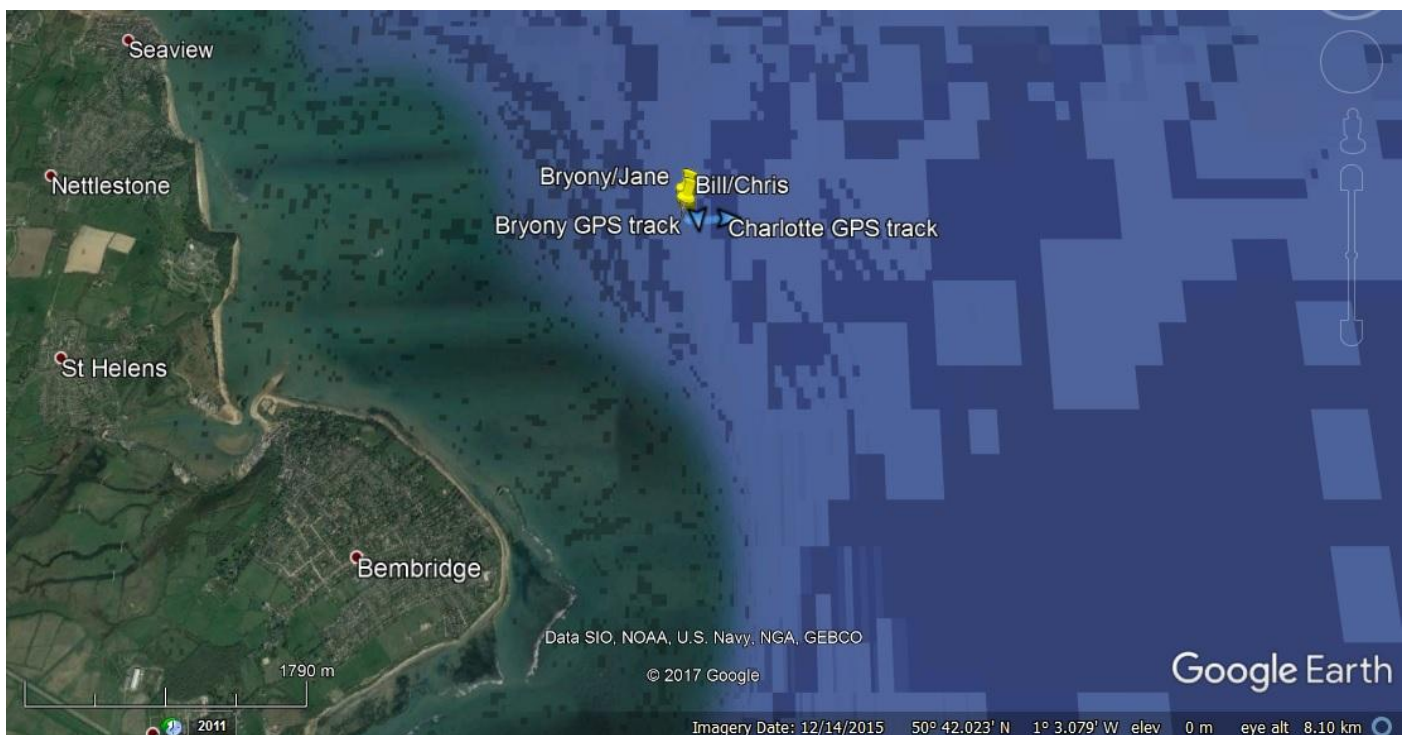
¹ <http://jncc.defra.gov.uk/page-4881>

² See http://jncc.defra.gov.uk/pdf/20160512_MCZReviewFOCI_v7.0.pdf

³ <http://jncc.defra.gov.uk/page-7119>

⁴ See <http://www.seasearch.org.uk/downloads/HantsIOWSummary2011.pdf>

The mud area of St Helens Road (approx. 1 mile ENE of St. Helens on the Isle of Wight) was dived on a gently flooding tide (running approximately to the south-east) to maximise the distance covered in the time available. Five buddy pairs of divers were deployed in a line running north-south with the boat GPS used to mark the entry point. The pairs at each end of the line tracked their dives with a GPS attached to the SMB (surface marker buoy). No GPS mark was taken for the 'end' position of the middle three pairs of divers. The surveys covered an area of approximately 2km² (100m by 200m) as shown on the plot below:



All divers recorded a very similar habitat - very soft mud with numerous burrows and mounds and spoonworm 'tongues' (probosces) lying across the surface of the mud with a covering of silt. While spoonworms (*Maxmuellaria lankesteri*, a species of Echiuran worm) are not listed specifically as a feature of this rMCZ, the species is a key component of the BSH and HOCl mentioned above. The population appears to be persistent as records exist dating from the late 1980s. These terraforming animals were the dominant fauna of this habitat based on visual

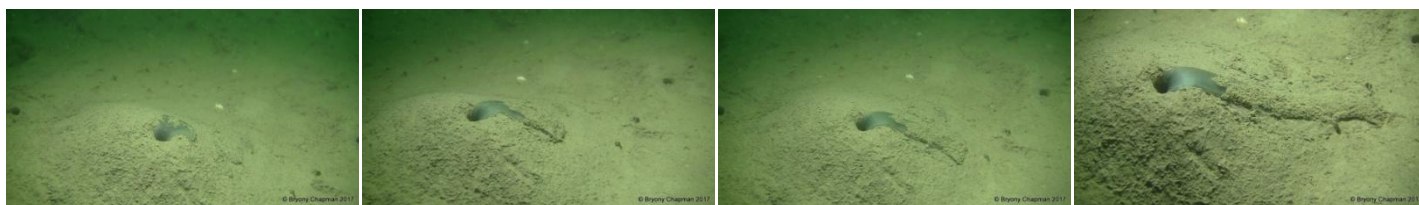
observations, and are a characterising species for a biotope rarely recorded in English seas: Burrowing megafauna and *Maxmuelleria lankesteri* in circalittoral mud (SS.SMu.CFiMu.MegMax).

Spoonworm burrows (holes) – neatly rounded and about 1-1.5cm across, apparently vertical – were recorded in close proximity to each other (so that some probosces were almost touching). Some of the holes with tongues emerging from them were on flat seabed, while others were on top of the mounds of mud. Below the surface layer of silt, the mud was black and anoxic.



Spoonworm probosces shown on flat mud (top left) and mounds (top right, showing exposure of the anoxic layer below the surface), and in close proximity (bottom).

Some Echiuran probosces retreated into burrows on exposure to video lights, but others remained on the surface undisturbed, and even emerged while being filmed. Adjacent animals behaved differently, so the differences didn't appear to be related to the amount or angle of light or pressure waves experienced. A tongue was observed and filmed emerging from the top of a mound, with the tip moving slowly down the side of the mound, slicing off the top silty particles from the sediment surface, leaving a layer covering most of the tongue (only the top 1-2cm clean (shiny, translucent green) immediately outside the hole):



Probosces observed retreating into holes were seen to curl both sides up along the length, taking the silt covering down into the burrow with the tongue (photo below right). A plume of fine sediment was observed emerging from a hole on a mound, appearing like a thin wisp of smoke (photo below left). Some tongues appeared broad and

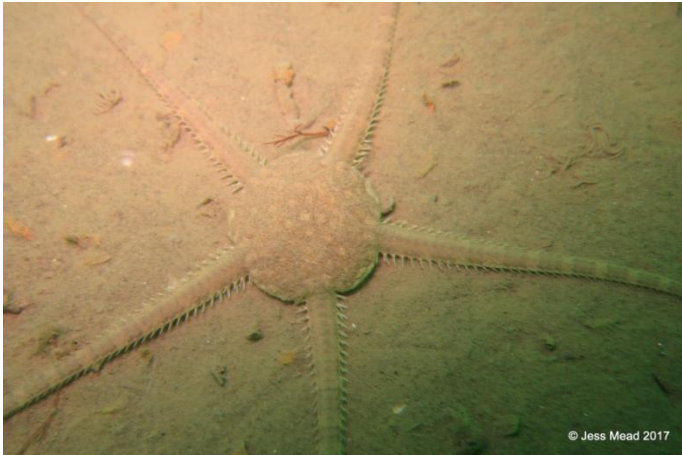
emerged only a short distance from their holes, while others were stretched out more thinly, about 1cm wide and up to about 15cm out of their holes. All appeared flared at the tip.



Scattered sparsely throughout the dive were a few larger burrows with rough edges and angled relative to the surface of the seabed, with disturbed broken up bits of coagulated muddy sediment beside them (photos below). These are believed to originate with the angular crab, *Goneplax rhomboides*, which was recorded on the dives albeit at Rare abundance (the photo bottom left shows a dead crab being scavenged by a common whelk, *Buccinum undatum*).



There appeared to be an absence of stones or hard surfaces within the silty sediment and other species recorded were generally mobile, including large active brittlestars (*Ophiura* sp.), small spider crabs (*Macropodia* sp. and *Inachus* sp.), hermit crabs (Paguridae), smaller gastropod molluscs (*Tritia* sp.) and Rare fish (e.g. sole *Solea solea*, greater pipefish *Syngnathus acus*, small gobies *Pomatoschistus* sp., dragonets, *Callionymus* sp. and two rays (probably *Raja clavata*). Burrowing anemones (e.g. *Cerianthus lloydii*, *Sagartiogeton* sp.) were recorded as Rare.



Acknowledgements

This report has been compiled by Charlotte Bolton of the Marine Conservation Society with input from Bryony Chapman of Kent Wildlife Trust, based on Seasearch survey records made by Charlotte Bolton, Bryony Chapman, Matt Ferguson, Bill Hughes and Cath Quick, and Seasearch Observation records made by Chris Bohea and Mike Rushworth. Photos as credited; copyright is retained by the photographers.

Seasearch would like to thank the volunteer divers for their records and also Dave Wendes of Wight Spirit Diving Charters (wightspirit.co.uk) for taking us to the site.

The funding received from The Crown Estate specifically for focused surveys in potential Tranche 3 MCZ sites is gratefully acknowledged. Without this funding it is unlikely that these survey dives in the East Solent would have taken place.

Seasearch is a partnership between the Marine Conservation Society (MCS), The Wildlife Trusts, statutory nature conservation bodies and others, co-ordinated nationally by MCS and co-ordinated and delivered locally in England by Wildlife Trust and MCS local co-ordinators. For more information on Seasearch and to see all of the partners involved nationally, please visit www.seasearch.org.uk or email info@seasearch.org.uk



Technical Appendix

This Appendix contains more detailed information about the surveys undertaken and records made. It includes:

- dive details
- biotope list
- species list

The data have been validated, verified and entered into the Marine Recorder database by Lin Baldock. It is available in Snapshot format on request.

MR Survey Name:

“2017 Seasearch Survey of Bembridge Spoonworms”

MR Survey Reference:

MRLRC0180000000C

Dive details

Date	Site Name	Surveyor(s)	Form(s)
29/08/2017	St Helen's Roads, Bembridge rMCZ, East Solent	Chris Bohea, Charlotte Bolton, Bryony Chapman, Matt Ferguson, Bill Hughes, Jane Maddocks, Jess Mead, Cathryn Quick, Mike Rushworth, Hugh Waite	5 survey forms, 2 observation forms

Sublittoral Habitats/Biotopes recorded

Description	MNCR 15.03 Biotope Code [†]	EUNIS code [‡]
Burrowing megafauna and <i>Maxmuelleria lankesteri</i> in circalittoral mud	SS.SMu.CFiMu.MegMax	A5.362

[†] The Marine Habitat Classification for Britain & Ireland (v15.03): jncc.defra.gov.uk/marinehabitatclassification .

[‡] See <http://jncc.defra.gov.uk/page-3365> and links within; also eunis.eea.europa.eu/habitats-code-browser.jsp .

The broad scale habitats and HOCI listed at the top of this page were recorded on these dives. The biotope “SS.SMu.CFiMu.MegMax” is recognised as a component part⁵ of the HOCI “Seapens and burrowing megafauna”.

Species List

No. of unique taxa recorded (not all to species level) = 33

1. Porifera (sponges)

Scientific name	Common name	Notes
Porifera indet. crusts	Sponge crusts	

2. Cnidaria (anemones, hydroids, corals)

Scientific name	Common name	Notes
<i>Cerianthus lloydii</i>	Burrowing anemone	
<i>Sagartiogeton</i> sp.		
<i>Sagartia troglodytes</i>		

⁵ For further information about mud habitats please consult

http://jncc.defra.gov.uk/pdf/Advice_Document_MudHabitats_FOCIdefinitions_v1.0.pdf

3. Annelida (segmented worms)

Scientific name	Common name	Notes
<i>Oxydromus flexuosus</i>		
<i>Sabellaria spinulosa</i>	Ross worm	Uncertain record
<i>Sabella pavonina</i>	Peacock worm	
Terebellidae		

4. Echiura (spoonworms)

Scientific name	Common name	Notes
<i>Maxmuellaria lankesteri</i>		

5. Crustacea (crabs, lobsters, barnacles)

Scientific name	Common name	Notes
Amphipoda (tubes)	Amphipods	
<i>Goneplax rhomboides</i>	Angular crab	
Inachidae		
<i>Inachus sp.</i>	Sponge spider crab	
<i>Macropodia sp.</i>	Long-legged spider crab	
Paguridae	Hermit crabs	
<i>Pagurus</i>	A hermit crab	
<i>Pagurus bernhardus</i>	Common hermit crab	

6. Mollusca (snails, bivalves, nudibranchs)

Scientific name	Common name	Notes
<i>Aequipecten opercularis</i>	Queen scallop	
<i>Philine quadripartita</i> (eggs)	Lobe shell	
<i>Euspira</i> (eggs)	Necklace shell	
<i>Buccinum undatum</i>	Common whelk, buckie	
<i>Nassarius reticulatus</i>	Reticulated dog whelk	

7. Bryozoa (sea mats/mosses)

Scientific name	Common name	Notes
<i>Cellepora pumicosa</i>	Orange pumice bryozoan	

8. Echinodermata (echinoderms)

Scientific name	Common name	Notes
<i>Asterias rubens</i>	Common starfish	
<i>Ophiura ophiura</i>	Sand brittlestar	

9. Tunicata (sea squirts)

Scientific name	Common name	Notes
<i>Aplidium punctum</i>	Club sea squirt	
<i>Dendrodoa grossularia</i>	Gooseberry sea squirt	
<i>Styela clava</i>	Korean sea squirt	Non-native species

10. Pisces (fish)

Scientific name	Common name	Notes
<i>Callionymus sp.</i>	Dragonet	
<i>Pomatoschistus sp.</i>	Small (sediment) goby	
<i>Raja clavata</i>	Thornback ray	OSPAR/Wales S42/Scottish Biodiversity List

Scientific name	Common name	Notes
Soleidae	Sole	
<i>Syngnathus acus</i>	Greater pipefish	

11. Algae (seaweeds)

Scientific name	Common name	Notes
<i>Chorda filum</i>	Mermaid's tresses	



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