

Dorset Marine Biodiversity Audit 2021



By *Dorset Wildlife Trust*
For the Dorset Local Nature Partnership

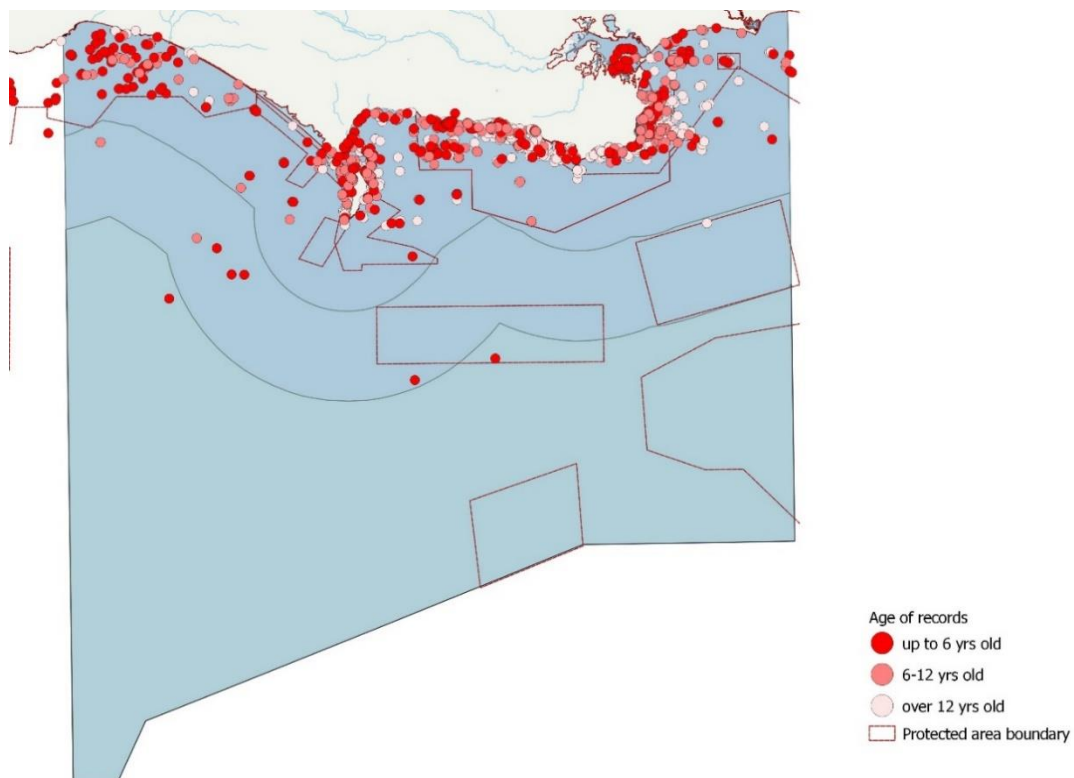


Dorset Biodiversity Audit – Marine Habitats

This document is a reflection of the state of knowledge of the marine environment as much as the state of the environment itself. While we have vastly greater knowledge than we did even a decade ago, the sea remains a challenging and expensive environment to study and much of the data we do hold relates to a large number of discrete points unevenly spread over a vast area, leaving a great deal of unsurveyed seabed, to say nothing of the water column – these gaps are more obvious further offshore.

The increasing availability and usefulness of autonomous and remotely operated underwater vehicles – now cheaper than underwater cameras were 20 years ago – could open up a new era of underwater survey.

Much of the recording effort over the last 10 years has concentrated on areas either proposed or designated as Marine Protected Areas – this now comprises a significant part of Dorset’s waters. Recent Marine Conservation Zone (MCZ) site surveys have taken place in Poole Rocks, South Dorset, Chesil Beach and Stennis Ledges, Studland Bay and South of Portland. The Lyme Bay reefs’ protection from mobile fishing gear has stimulated a lot of research into recovery of seabed habitat following protection. A proposal for an offshore windfarm crossing the Dorset/Hampshire boundary produced a significant amount of new data in the east of the county, providing evidence for the Albert Field MCZ and the environmental survey associated with exploratory oil drilling, in 2019, added to the knowledge of Poole Bay and the extent of *Sabellaria spinulosa* reefs. Southern IFCA routinely gather data on a number of species and habitats to fulfil their fisheries management and conservation duties. Citizen science projects, such as Dorset Seasearch and dolphin and seal recording schemes, also continue to add to the sum of knowledge. Dorset Seasearch particularly stands out, with over 2000 surveys carried out by trained volunteer divers since 1995, amounting to well over 3,000 hours spent underwater.



Map 1: Location of Dorset Seasearch dive events since 1995

The Southeast Regional Coastal Monitoring Programme published a coastal habitat map (east of Portland Bill) in 2017 based on 2008 and 2013 aerial photography, which included intertidal priority habitats, but a number of these were not identifiable from aerial photography alone. There would be great value in extending this exercise to the western boundary of the county and undertaking some ground-truthing to map those habitats that could not be distinguished from the photographs.

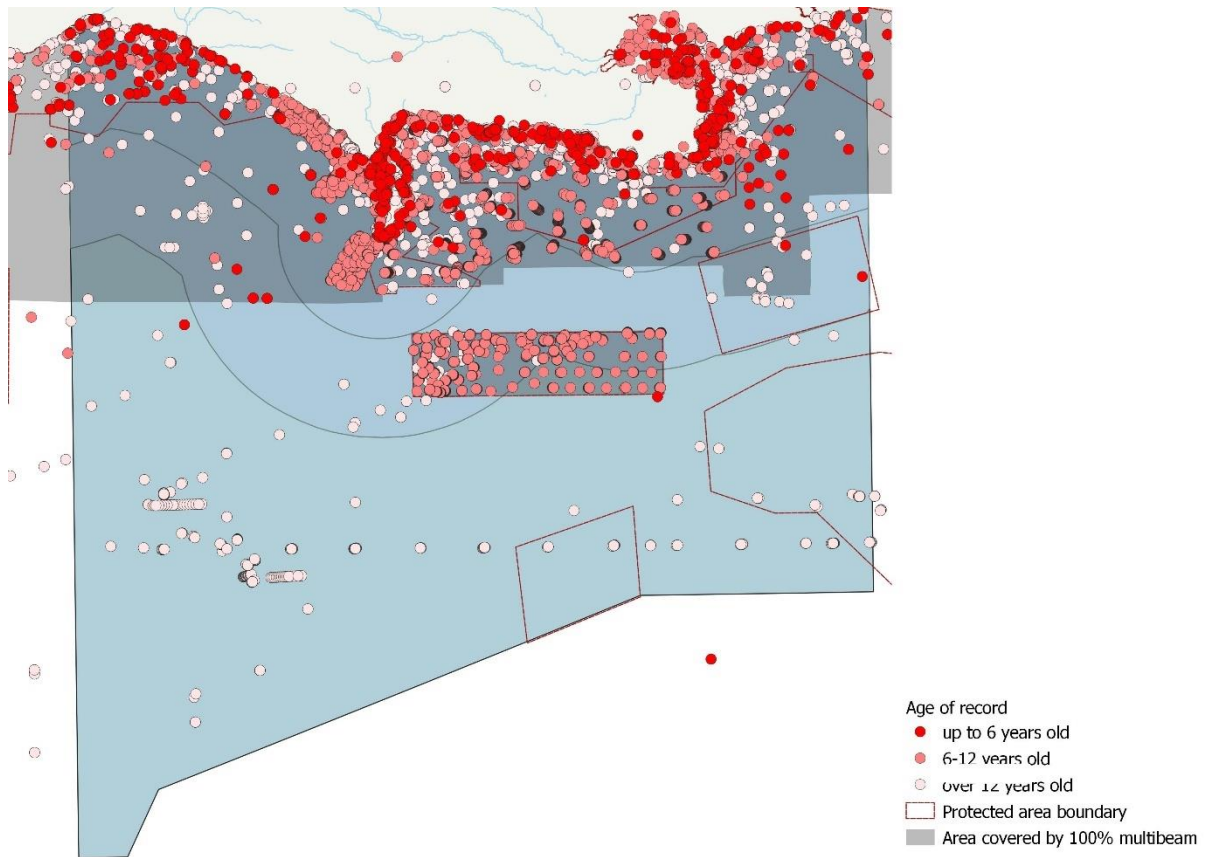
A number of studies were carried out in the early 2000s, assisted by the Dorset Biodiversity Partnership fund – relatively small amounts of money were able to support a number of investigations, often supported by universities and skilled volunteers. The re-establishment of such a fund, perhaps as a means of distributing biodiversity enhancement duties arising from marine/coastal developments, could prove fruitful in supporting future research.

Beginning with the DORIS survey in 2008, virtually the whole of the Dorset seabed out to 6nm has now been covered by detailed multibeam survey, giving a good indication of the distribution of seabed types across the county. A large scale seabed texture map was produced for each of the major hydrographic surveys, giving an indication of the distribution and extent seabed substrate types, but each of these has been interpreted slightly differently, with non-matching categories. Distribution maps of some individual seabed types (e.g. Annex 1 reef) have been produced from these texture sheets. A single uniform seabed texture map would be advantageous.

Reporting on marine habitats is particularly challenging as many habitat extents and distributions have to be inferred from species and/or physical data – older records will not have a biotope code assigned (about 20% of the samples in the Dorset Marine Biodiversity Database have no biotope code assigned) and more recent records may have the biotopes applied inconsistently or not at all, so a simple search for a biotope code will rarely give a reliable result. This is compounded by a complex correlation between biotope codes and priority habitats.

Recent records have more validity than historical ones – Natural England and JNCC published evidence protocols during the MCZ selection process which effectively down-grades the confidence in records after 6 and again after 12 years.

The Dorset Marine Biodiversity Database holds a great deal of data from the above sources but a lot of recent data are held in a number of other places and a range of formats – this audit is based on datasets we are aware of and have been able to access. It is strongly recommended that, where possible, datasets should be translated to a common format (based on Marine Recorder Snapshot) and held in a single, centrally accessible, GIS-friendly database.



Map 2: Map showing distribution of records held in the Dorset Marine Biodiversity Database
Note that records appearing to be on land are mostly those associated with 10km grid squares, where the dot marks the centre of the square.

List of Dorset Priority Marine Habitats

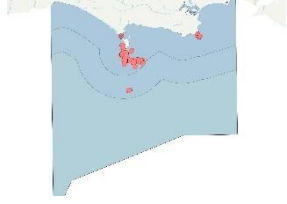

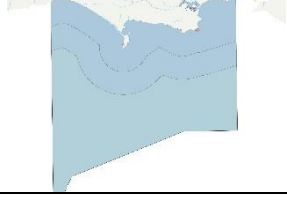
	FOCI/Priority Habitat occurring in Dorset	UK/Dorset Priority Habitat		ha
Blue Mussel Beds	?	UK	Mussel beds on rock excluded from UK priority habitat – probably applies to most Dorset examples	
Estuarine rocky habitats	?	UK	Difficult to map, but probably present in Poole Harbour and Portland Harbour	
Fragile sponge and anthozoan communities on subtidal rocky habitats	Yes	UK		
Intertidal mudflats	Yes	UK		2049
Intertidal underboulder communities	Yes	UK	The extent of boulders on the shore can often be determined from aerial photographs but ground-truthing is necessary to determine species richness	50?
Littoral chalk communities	Yes	UK		
Maerl beds	Yes	UK		
Sea-pen and burrowing megafauna communities	?	UK	Uncertainty over which mud biotope applies in Portland Harbour	
Native oyster (<i>Ostrea edulis</i>) beds	No	UK	Individual oysters widespread, but not at sufficient density to form a bed	
Peat and clay exposures	Yes	UK		

Honeycomb worm (<i>Sabellaria alveolata</i>) reefs	Yes	UK		
Ross worm (<i>Sabellaria spinulosa</i>) reefs	Yes	UK		
Seagrass beds	Yes	UK		476
Sheltered muddy gravels	Yes	UK	Includes peacock worm "forests" in Poole Harbour	
Subtidal chalk	Yes	UK		
Tide-swept channels	?	UK		
Ampelisca mats	Yes	Dorset		
Brittlestar beds	Yes	Dorset		
<i>Neopentadactyla</i> aggregations in maerl gravel	Yes	Dorset		
Black bream nesting sites	Yes	UK		

HABITAT ACCOUNTS

Blue mussel beds

Theme: Marine

Biotope Code	Biotope description	Biotope records in database
CR.MCR.CMus.CMyt	<i>Mytilus edulis</i> beds with hydroids and ascidians on tide-swept exposed to moderately wave-exposed circalittoral rock – note this is not considered to qualify as UK Priority Habitat.	
SS.SBR.SMus.MytSS	<i>Mytilus edulis</i> beds on sublittoral sediment	
MCR.M	Mussel beds	

Note – the UK Priority Habitat is “Blue mussel beds on sediment”. Much of the Dorset mussel beds are most likely on rock though there will inevitably be a build-up of sediment beneath the mussel layer.

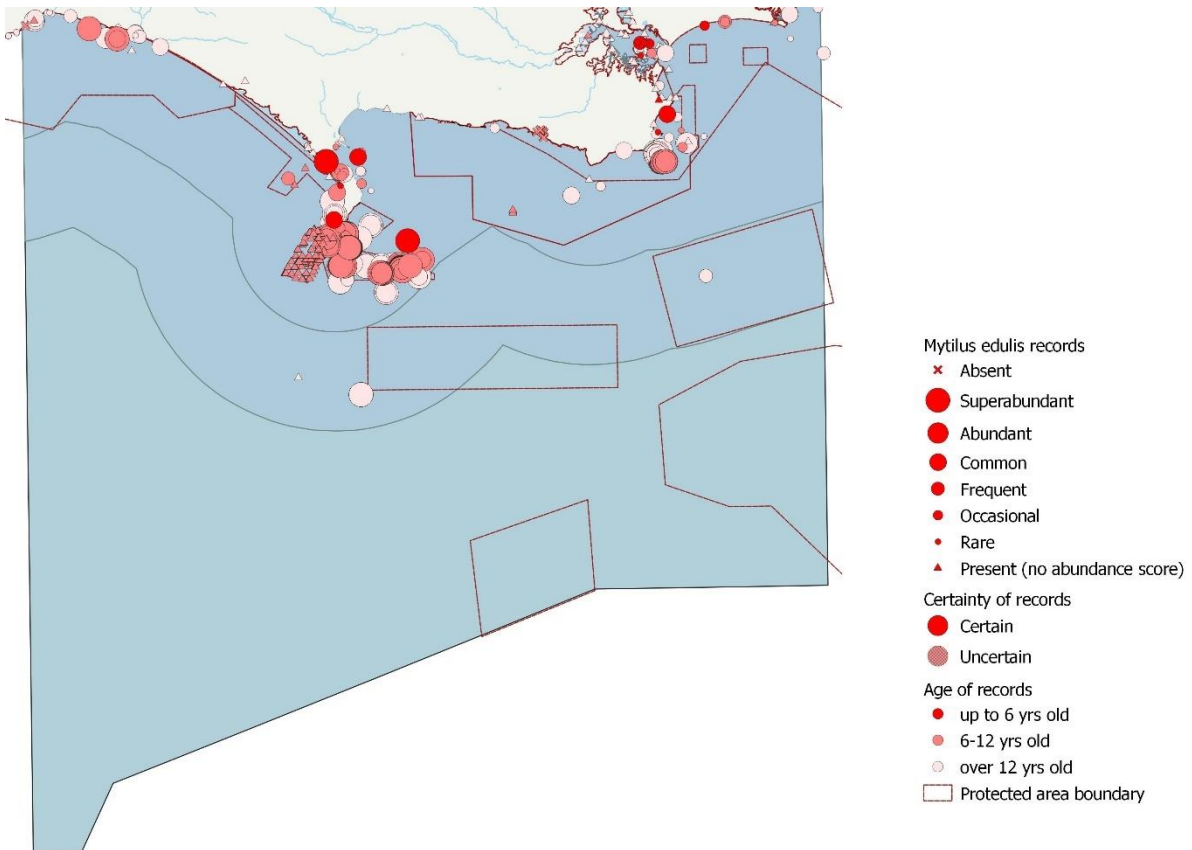
Dense blue mussel (*Mytilus edulis*) beds can form in areas of strong tides on a variety of substrata. As the reefs get thicker, the stability of the clumps deteriorates, and large clumps are frequently washed off. Bare areas are usually quickly re-colonised by a new spatfall so extensive beds are often a mosaic of dense clumps of mixed-age mussels and patches of recently settled small mussels. Predation by fish and invertebrates is high.

Established beds can be very persistent but are vulnerable to extreme weather events or intense predation/harvesting – the beds off Anvil Point declined considerably in the late 1990s. There are anecdotal reports of mussel beds in the 1960s on Swanage Pier and Broad Bench, Kimmeridge – these no longer exist. The full extent of the Portland mussel beds has yet to be determined – a Southern IFCA estimate in 2011 suggests an area of almost 50km² with greater than 10% mussel cover. The Portland beds were severely affected by the 2013/14 winter storms – a 2014 survey by Southern IFCA reported an “almost complete absence of the larger 4-8cm mussels” previously found but “good levels of recent spatfall” on rock left bare by the storms.

Following the designation of the Studland to Portland SAC, the Portland mussel beds are being monitored by Southern IFCA as part of the management of a seed mussel fishery that has been operating here for over 20 years.

Unusually large dog-whelk (*Nucella lapillus*) shells have been reported between Swanage and Kimmeridge Bay may be associated with sublittoral mussel beds.

Key species:
 Mytilus edulis
 Asterias rubens
 Nucella lapillus
 Urticina felina



Map 3: Map shows all species records of Mytilus edulis.



State of knowledge:

The mussel beds associated with the Portland section of the Studland to Portland SAC are well studied, particularly as a result of Southern IFCA survey and monitoring as part of the management of the seed mussel fishery. The full extent of these beds is probably greater than is currently mapped. A re-survey of the Anvil Point mussel beds would be useful.

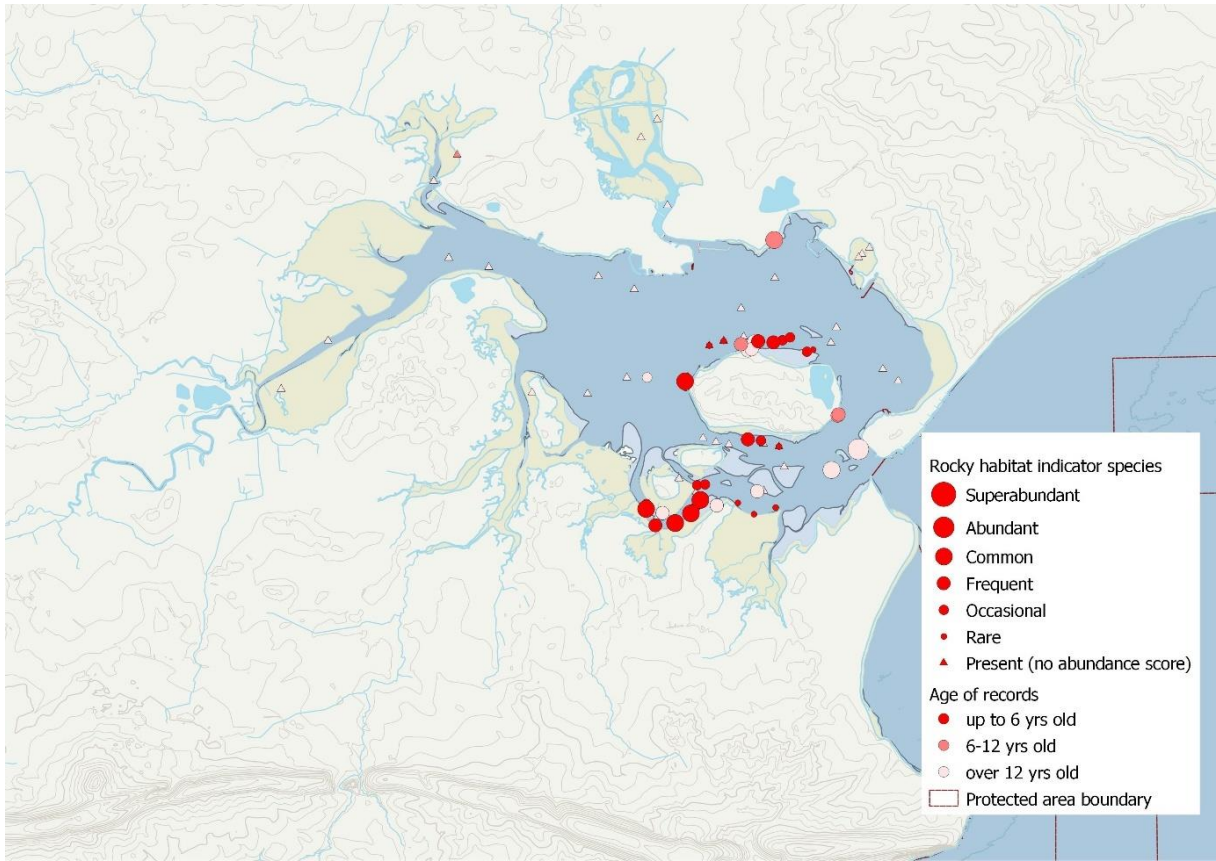
HABITAT ACCOUNTS

Estuarine Rocky Habitats

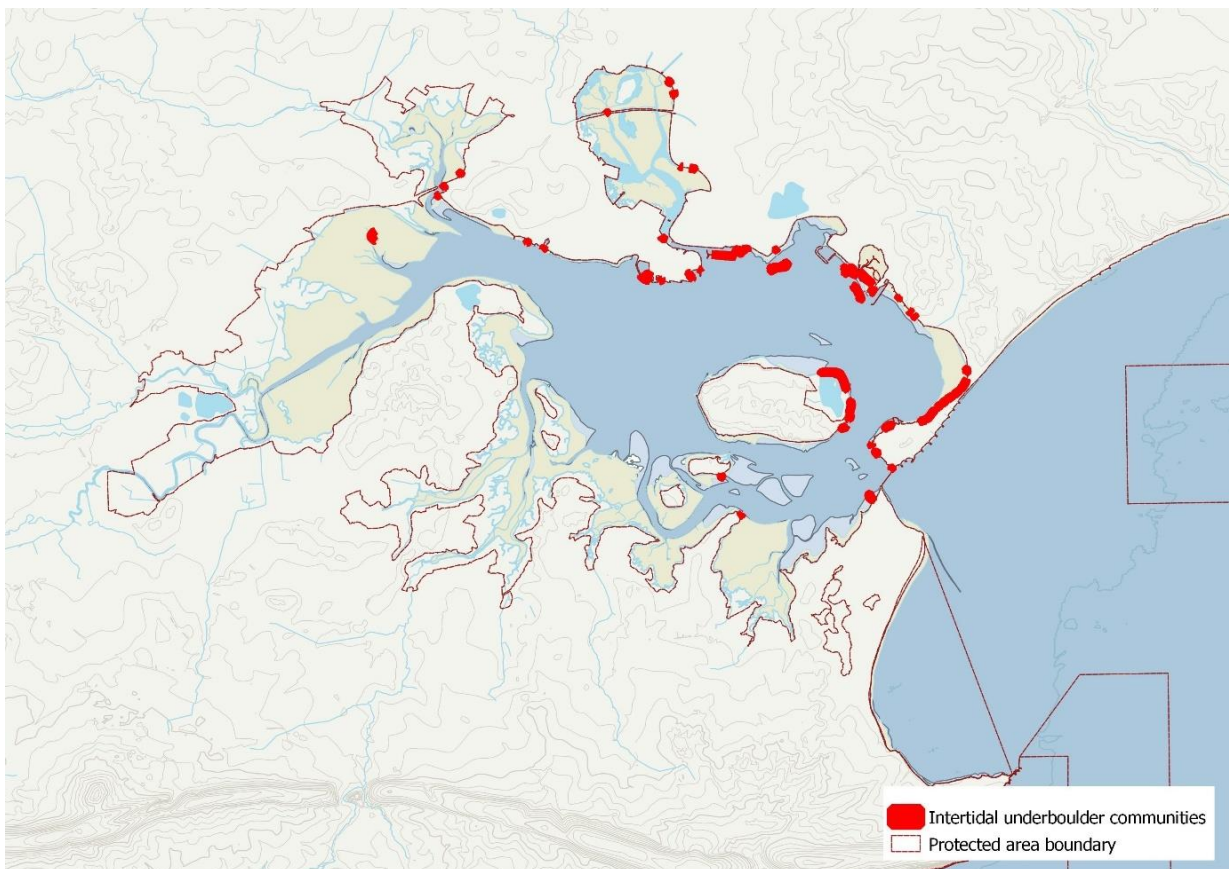
Theme: Marine

Biotope Code	Biotope description	Biotope records in database
LR.LLR.FVS	Fucoids in variable salinity	
IR.LIR.KVS	<i>Kelp in variable or reduced salinity</i>	

Poole Harbour is the most significant estuarine area in Dorset and is mostly sediment dominated, with large areas of mudflats and muddy seabed. There are a number of records of species associated with rocky habitats found in the Harbour, indicating there is some rocky seabed, particularly around Brownsea Island and Green Island. Communities in estuaries can be quite different to those on the open coast as the plants and animals are adapted to conditions of low wave energy, reduced and variable salinity and murky water. There are also a number of records of sheltered, variable salinity intertidal and shallow infralittoral rocky biotopes from the edges of Portland Harbour.



Map 4: Distribution of rocky habitat indicator species in Poole Harbour.



Map 5: Distribution of intertidal boulders in Poole Harbour, from aerial photographs – indicates potential estuarine rocky habitats.

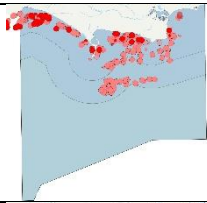
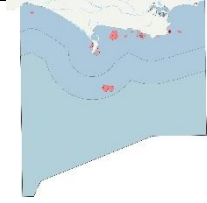
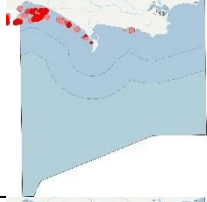

State of knowledge:

This habitat is not well mapped but the distribution of rocky shore species in Poole Harbour suggests some survey work in this area would be useful.

HABITAT ACCOUNTS

Fragile sponge and anthozoan communities

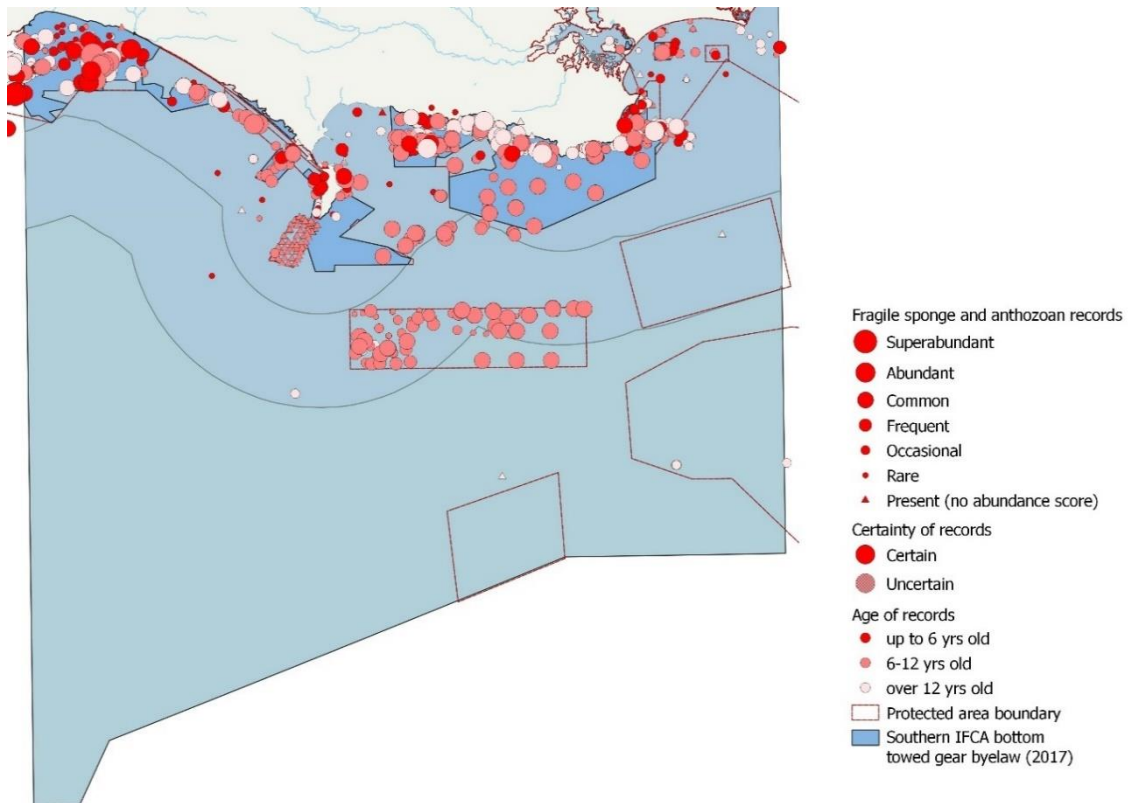
Theme: Marine

Biotope Code	Biotope description	Biotope records in database
CR.HCR.XFa.ByErSp	Bryozoan turf and erect sponges on tide-swept circalittoral rock	
CR.HCR.XFa.ByErSp.DysAct	Mixed turf of bryozoans and erect sponges with <i>Dysidia fragilis</i> and <i>Actinothoe sphyrodeta</i> on tide-swept wave-exposed circalittoral rock	
CR.HCR.XFa.ByErSp.Eun	<i>Eunicella verrucosa</i> and <i>Pentapora foliacea</i> on wave-exposed circalittoral rock	
CR.HCR.XFa.ByErSp.Sag	Mixed turf of bryozoans and erect sponges with <i>Sagartia elegans</i> on tide-swept circalittoral rock	

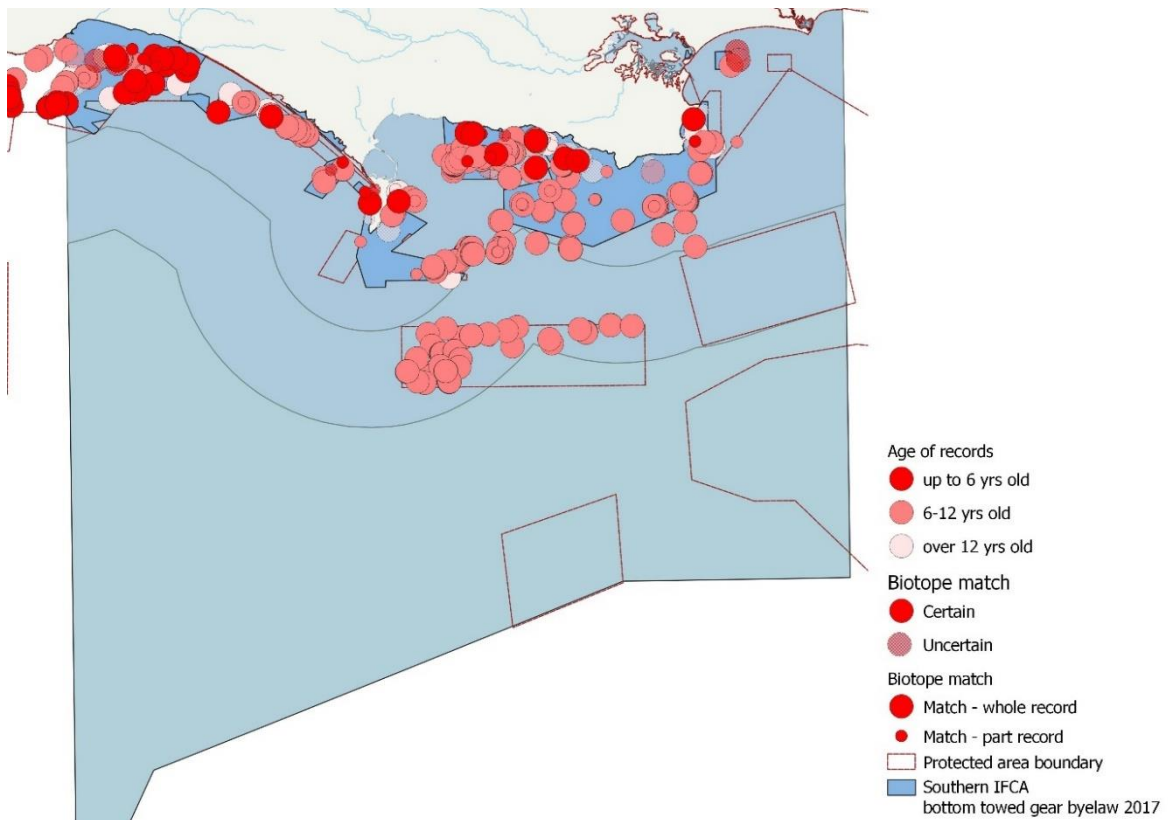
Stable rock, boulders and, in the right circumstances, even cobbles and pebbles, can develop a complex, 3-dimensional covering of filter-feeding animals, extending 10s of cm above the seabed. Many of these, particularly sponges and seafans, but also bryozoans such as *Pentapora foliacea*, are fragile and particularly sensitive to physical disturbance, be that man-made or natural.

The 2014 storms had a significant effect on this habitat – many reefs appear to have been cleared of large seafans, for example, but there is evidence that recruitment after 2014 has been good, with fairly dense cover of fans up to 4 yrs old documented in 2018.

The mobile gear byelaw introduced by Southern IFCA (updated in 2017) will protect this habitat (where it is within a MPA and is well mapped) from future damage due to mobile fishing gear. While this habitat is widespread across Dorset, the occurrence of concentrations of pink seafans is mostly limited to the west of Portland Bill.



Map 6: Map of species records of *Eunicella verrucosa*, *Pentapora foliacea*, *Axinella* spp., *Polymastia* spp. and *Tethya* spp. from Dorset Marine Biodiversity Database. Southern IFCA mobile gear byelaw (2017) closed areas in blue.



Map 7: Map of occurrence of biotope CR.HCR.XFa.ByErSp – bryozoan turf and erect sponges on tide-swept circalittoral rock.



Image of seafans ranging from 2018 recruits to 4-yr old fans. Taken Oct 18 on Stennis Ledges ©Mike Markey

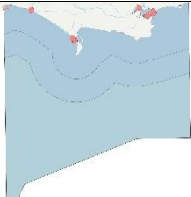
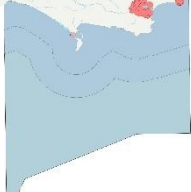
State of knowledge:

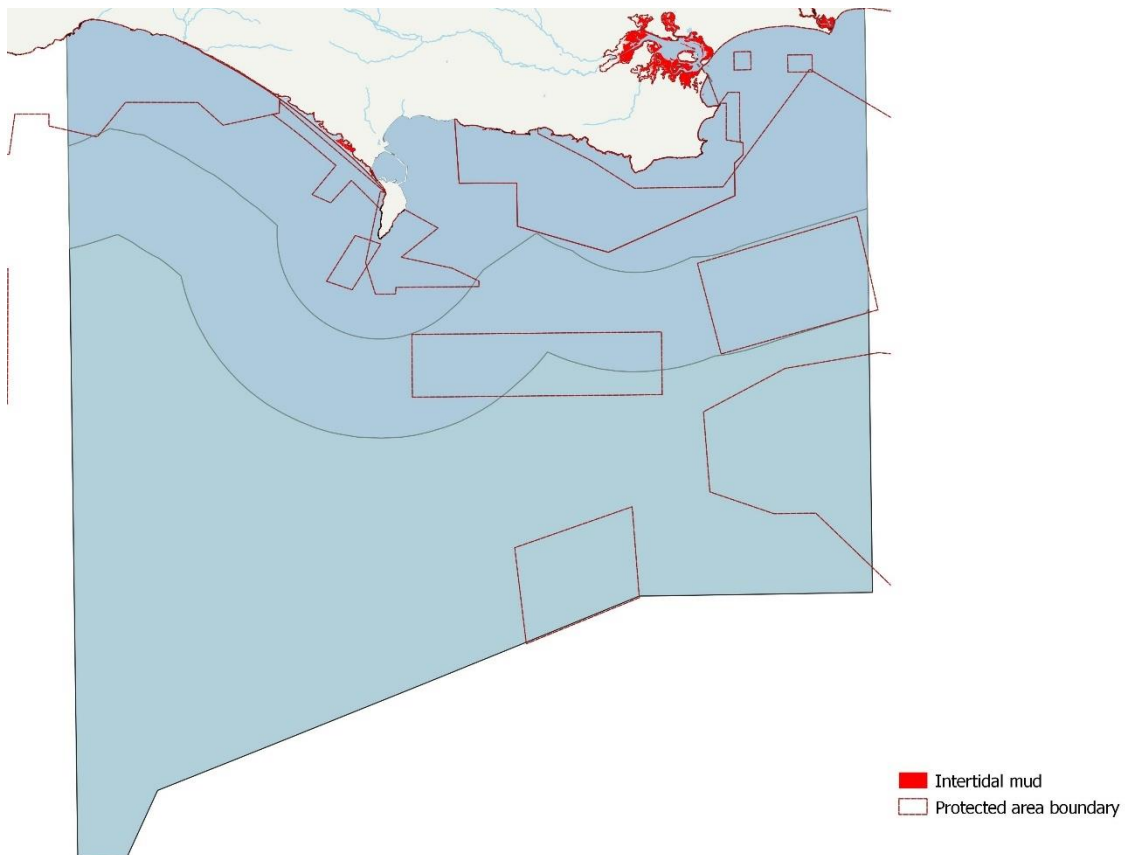
There is a fairly detailed and widely agreed distribution map of reef habitat in the inshore waters and below the infralittoral/circalittoral divide, this is a reasonably good indicator of the extent of this habitat. Where this occurs within MPAs it is generally a protected feature and has therefore been the subject of a reasonable amount of survey effort, including studies of recovery following closure to mobile fishing gear. There is some uncertainty, both in the interpretation of seabed texture from hydrographic surveys, and in determining habitats from visual surveys, in defining the boundary between reef habitat and surrounding sediment. Undisturbed sediment adjacent to reefs can develop reef-like communities and many low-lying reef areas are covered in a thin veneer of often mobile sediment, which may have reef species growing through it.

HABITAT ACCOUNTS

Intertidal mudflats

Theme: Marine

Biotope Code	Biotope description	Biotope records in database
LS.LSa.MuSa	Polychaete/bivalve dominated muddy sandy shores	
LS.LMu	Polychaete/oligochaete dominated mid estuarine mud shores	



Map 8: Distribution of intertidal mud habitat


State of knowledge:

East of Portland Bill this habitat has been mapped in detail from 2013 aerial photographs, producing a figure of 1,825ha of mudflats in Poole Harbour and 104ha in Christchurch Harbour. An additional 120ha is mapped in the Fleet.

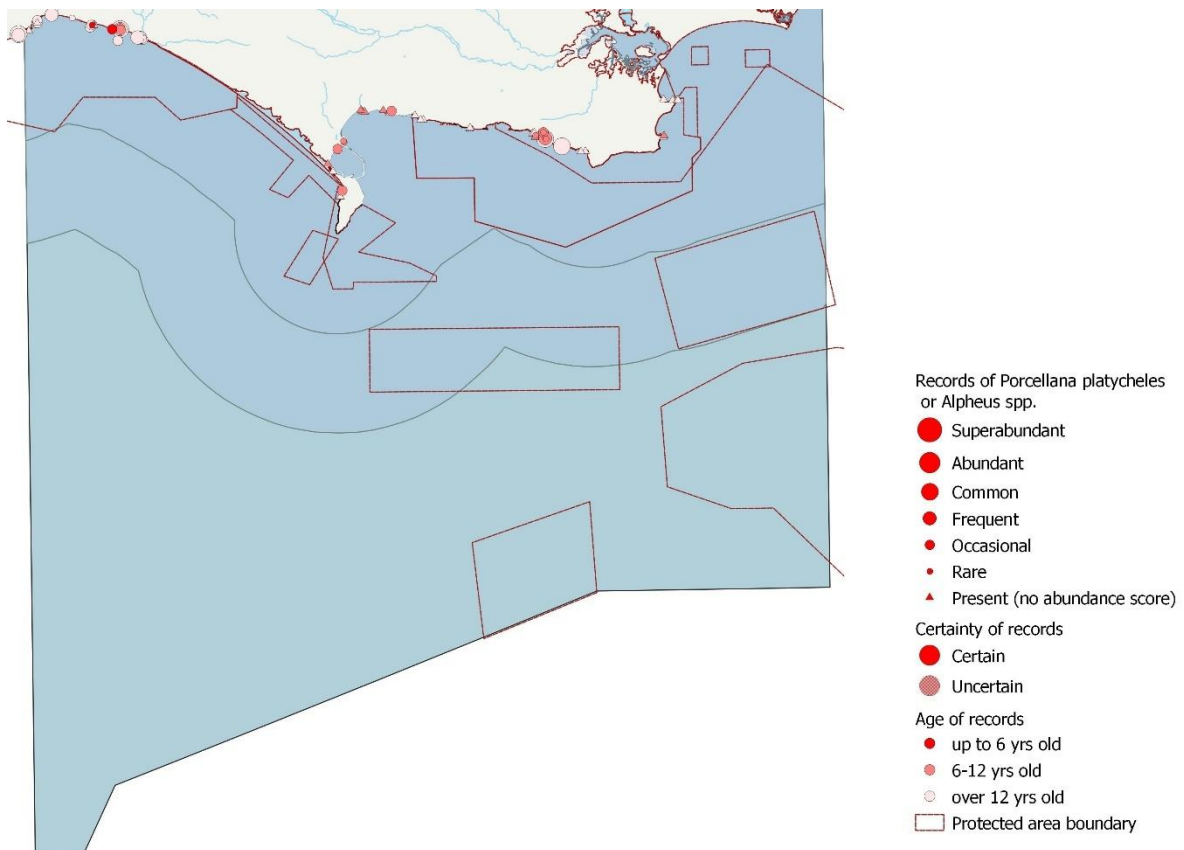
HABITAT ACCOUNTS

Intertidal underboulder communities

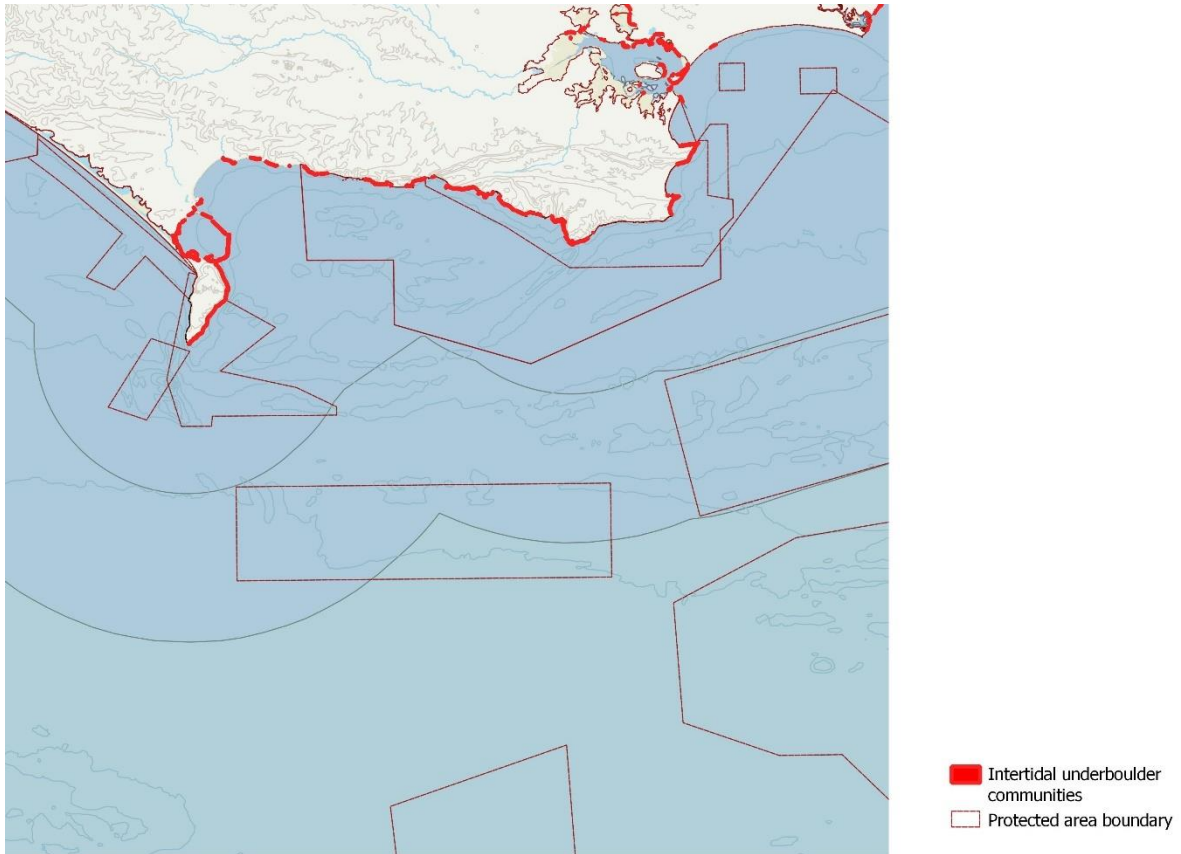
Theme: Marine

Biotope Code	Biotope description	Biotope records in database
LR.MLR.BF.Fser.Bo	<i>Fucus serratus</i> and under-boulder fauna on exposed to moderately exposed lower eulittoral boulders	

Where rocky shores are comprised of relatively stable boulders, or have a significant boulder component, the underboulder community can add to the species richness of the shore. The map below shows records of two species likely to be recorded by turning boulders – the snapping prawn, *Alpheus* and the broad-clawed porcelain crab, *Porcellana platycheles*.



Map 9: Map of species records of *Alpheus* spp. and *Porcellana platycheles*



Map 10: Distribution of potential intertidal underboulder community as identified by the Southeast Coastal Monitoring Programme – indicates presence of boulders on shore, but not species richness.

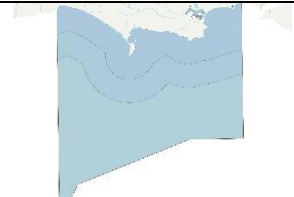


State of knowledge:

There is considerable potential for this habitat along the Dorset coast - a dedicated survey to assess the richness of underboulder communities, targeting the areas highlighted in the above map, would be desirable.

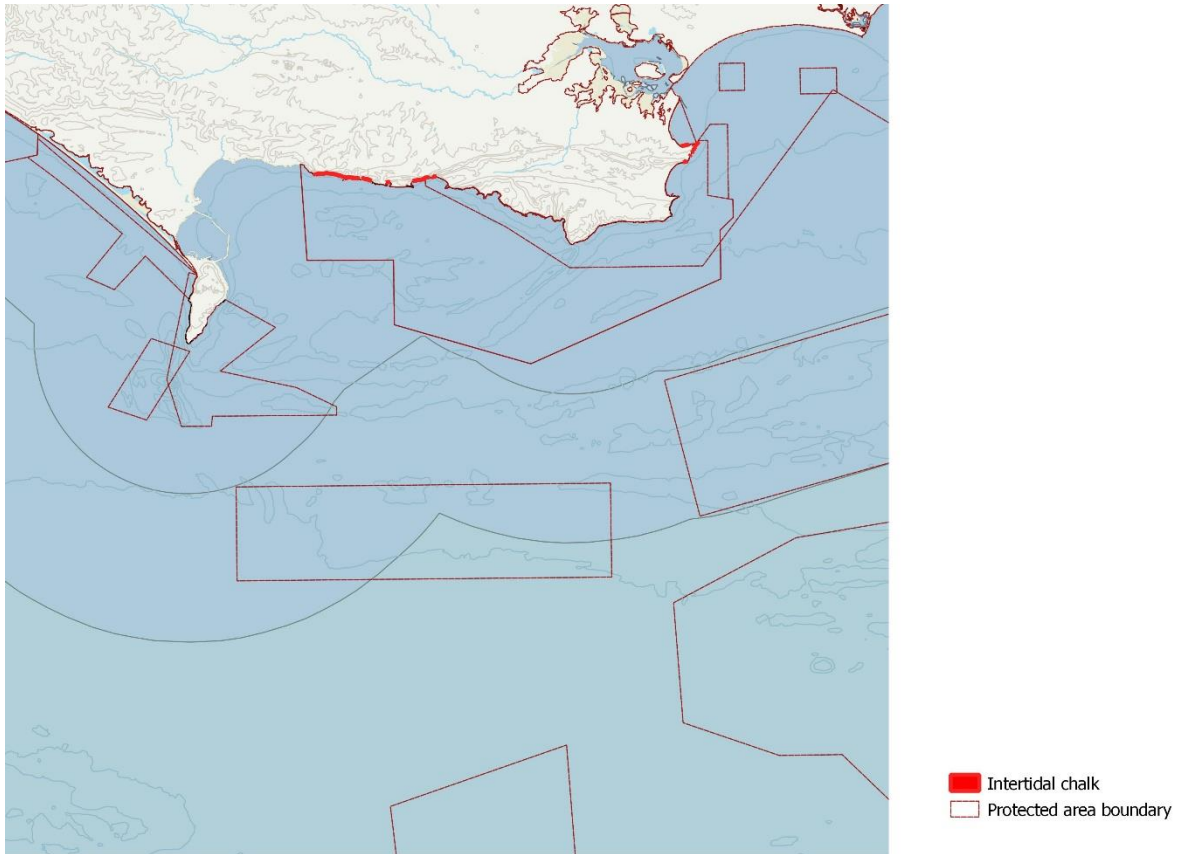
HABITAT ACCOUNTS

Intertidal chalk communities

Theme: Marine

Biotope Code	Biotope description	Biotope records in database (none)
LR.FLR.CvOv.ChrHap	Chrysophyceae and Haptophyceae on vertical upper littoral fringe soft rock	
LR.FLR.Lic.Bli	Blidingia spp. on vertical littoral fringe soft rock	
LR.FLR.Lic.UloUro	<i>Ulothrix flacca</i> and <i>Urospora</i> spp. on freshwater-influenced vertical littoral fringe soft rock	

Chalk as a coastal habitat is rare in Europe, with the southern and eastern coasts of England contributing over 50% of this habitat type. Chalk is a soft, pure limestone that is easily eroded by seawater. Unique communities of seaweeds occur above the high water mark



Map 11: The map shows where chalk is found on the shoreline in Dorset, derived from the BGS 1:50,000

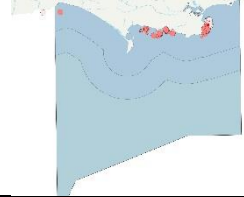
State of knowledge:

The distribution and extent of chalk in the intertidal is well understood but there is little information on the associated biological communities. In part this is due to difficulties in accessing the shoreline.

HABITAT ACCOUNTS

Maerl beds

Theme: Marine

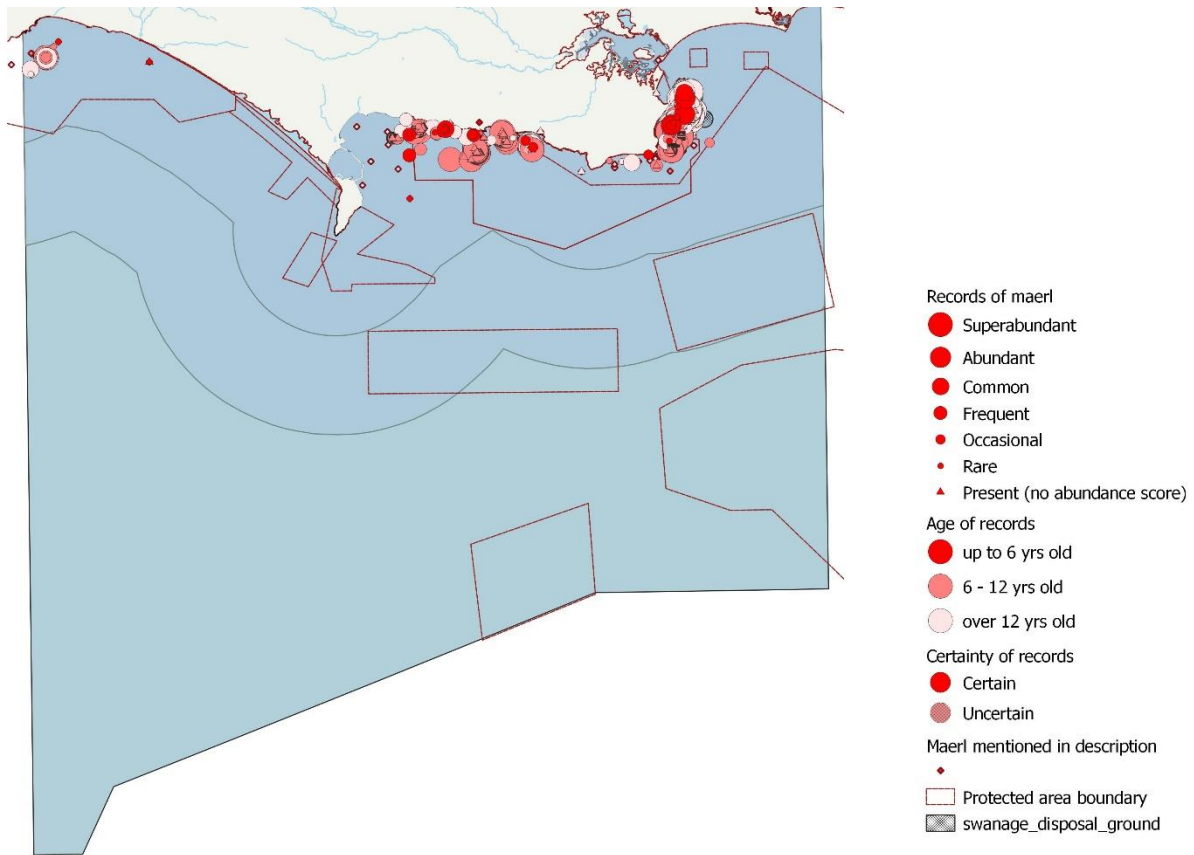
Biotope Code	Biotope description	Biotope records in database
SS.SMp.Mrl/IGS.Mrl/IMX.MrIMx	Maerl beds	

Maerl is the collective name for nodules of unattached coralline red algae – in Dorset this is mostly *Phymatolithon calcareum*. Though slow-growing, maerl can form dense beds of coralline algal gravel, containing a mixture of live rhodoliths (nodules) and their dead remains. The 3-dimensional structure of the maerl nodules creates a more open gravel.

The greatest quantities of live maerl in Dorset have been found off Ballard Down and around Ringstead, but deep drifts of dead maerl gravel can be found between these two sites (from diver observations). Recent diver surveys have confirmed the presence of maerl and dead maerl gravel across much of the Purbeck Coast Marine Conservation Zone, with significant deposits off Ringstead. Maerl is now a designated feature of Purbeck Coast MCZ.

Live maerl is dependent on sunlight – the cut-off depth in Dorset is around 20-25m. Maerl is very slow-growing and individual nodules are very long-lived – some maerl beds are 1000s of years old. The gravel sea-cucumber (*Neopentadactyla mixta*) has been recorded at very high densities in maerl gravel in Dorset.

Though slow-growing, maerl is long-lived and does not break down quickly due to its calcium carbonate skeleton. Some maerl beds could be several thousand years old – this makes them of interest as a potentially long-lasting carbon sink. There are uncertainties, however as to the role of calcification as a net carbon source or sink as the chemistry of calcification in seawater is complex.



Map 12: Map based on species records, including “maerl indet”, *Lithothamnion corallioides* and *Phymatolithon calcareum* and mentions of “maerl” in habitat or sample descriptions. Close inspection of the seabed is required to identify maerl gravel, either a diver observation, drop camera within a metre of the seabed, or a grab sample.

State of knowledge:

The maerl bed off Ballard Down was the subject of a lot of study in the early 2000s. More recently, Seasearch divers have reported significant quantities of live maerl and dead maerl gravel further west. Further studies on the extent, density and productivity of these beds is recommended.



Key species:

Phymatolithon calcareum
Capnea sanguinea (Imperial anemone)
Neopentadactyla mixta
 (gravel sea-cucumber)

HABITAT ACCOUNTS

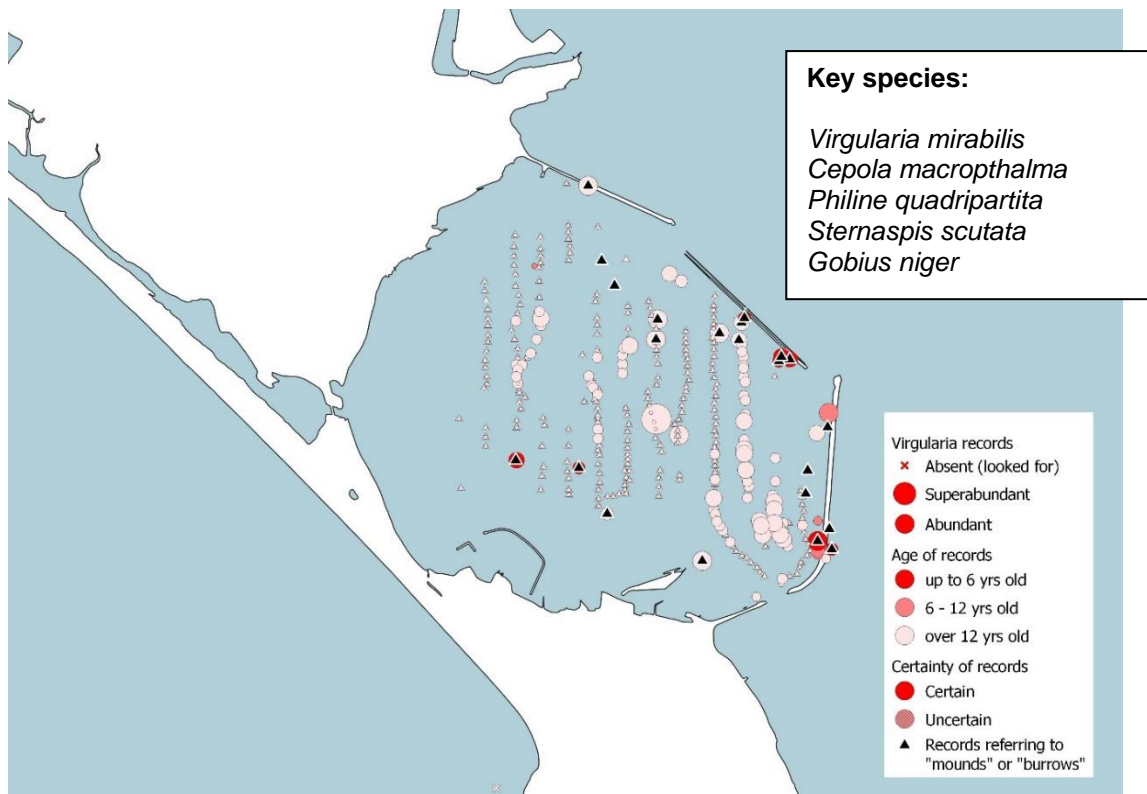
Seapens and burrowing fauna in fine mud

Theme: Marine

Biotope Code	Biotope description	Biotope records in database
SS.SMu.CFiMu.SpnMeg	Seapens and burrowing megafauna in circalittoral fine mud	
SS.SMu.IFiMu.PhiVir	<i>Philine aperta</i> and <i>Virgularia mirabilis</i> in soft stable infralittoral mud	

There are a number of related biotopes describing communities of sea-pens and burrowing organisms in deep soft mud. Biotopes qualifying as priority habitats are generally understood to include “Seapens and burrowing megafauna in circalittoral fine mud” but not “*Philine aperta*¹ and *Virgularia mirabilis* in soft stable infralittoral mud”. The latter better describes the mud habitat found in Portland Harbour (shallow water, abundant *Philine*) but the Portland Harbour mud habitat does also appear to be heavily bio-turbated, with many burrows and mounds. The burrows are variously attributed to *Cepola macrophthalma* (red bandfish), *Nephrops*, and *Gobius niger*. On the grounds of the bioturbation and the rareness of this habitat in the south of the UK, it is proposed that the Portland Harbour seapen-dominated mud is considered a Habitat of Principal Importance.

¹ note – Records of *Philine aperta* in the UK are now considered to be *Philine quadrpartita*



Map 13: Map showing distribution and abundance of *Virgularia mirabilis* in Portland Harbour – from Collins


State of knowledge:

The Collins survey of Portland Harbour in 2000 documented the widespread occurrence of slender sea-pens in Portland Harbour. Further study to establish the degree of bio-turbation and the population of *Cepola* would be useful to support the proposal that this qualifies as a Habitat of Principal Importance

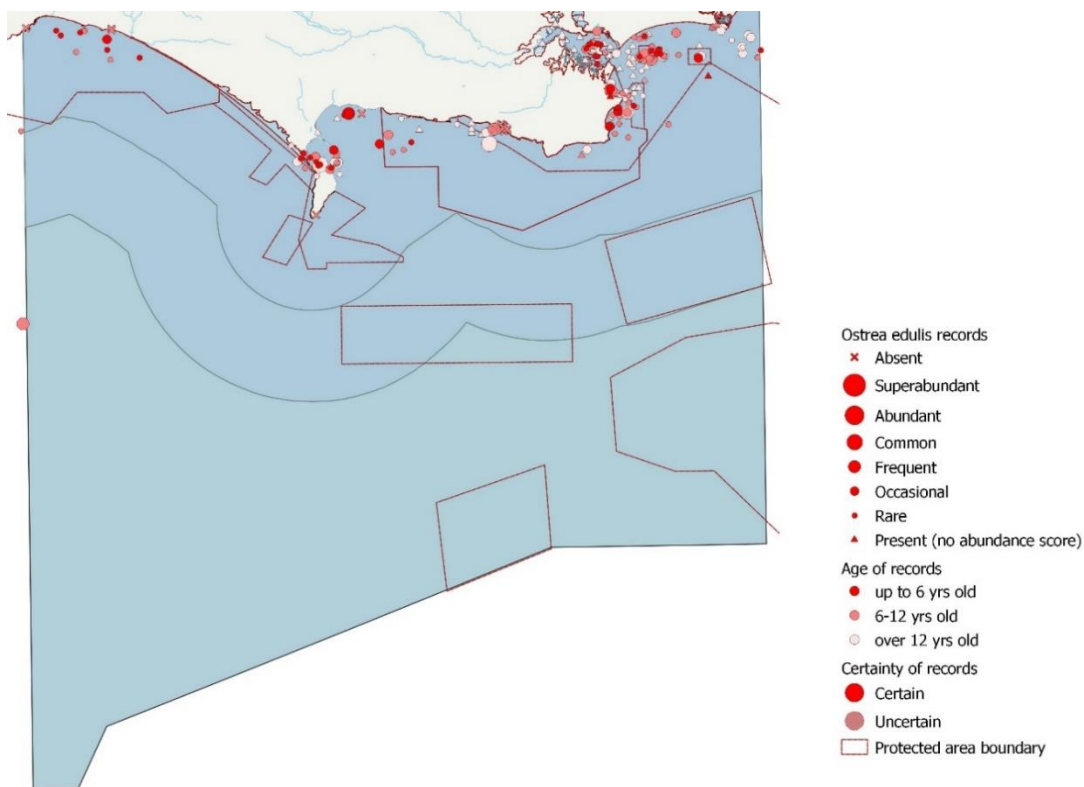
HABITAT ACCOUNTS

Native Oyster beds

Theme: Marine

Biotope Code	Biotope description	Biotope records in database (none)
SS.SMx.Imx.Ost	Ostrea edulis beds on shallow sublittoral muddy mixed sediment	

The native oyster *Ostrea edulis* is a bivalve mollusc with a preference for estuarine and shallow coastal waters. It has suffered a great decline through disease, pollution, overfishing and competition from the invasive/non-native Pacific oyster *Crassostrea gigas* and slipper limpet *Crepidula fornicata*. The OSPAR definition of an oyster bed requires a minimum of 5 oysters per square metre of - there is nowhere in Dorset where the density of native oysters is currently sufficient to qualify as a habitat – the map below shows records of the species, not the habitat. The native oyster (as a species FOCI) is a feature of two designated MCZs – Chesil Beach and Stennis Ledges and Poole Rocks where they are recorded as individuals. In Poole Rocks, oysters are recorded throughout the site.



Map 14: Map of occurrences of *Ostrea edulis*



Native oyster © Paul Naylor

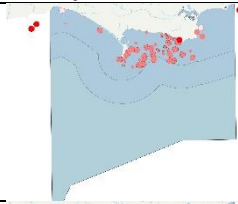
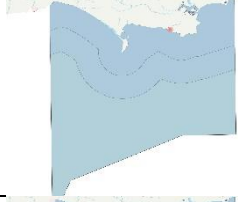

State of knowledge:

There is no evidence for oyster beds as a natural habitat in Dorset, though the species seems widely distributed. It would be useful to document the historical extent of oyster beds within the county - this would help determine the feasibility of any future reintroduction/restoration projects.

HABITAT ACCOUNTS

Peat and Clay exposures

Theme: Marine

Biotope Code	Biotope description	Biotope records in database
CR.MCR.SfR.Pid	Piddocks with a sparse associated fauna in sublittoral very soft chalk or clay	
LR.HLR.FR.RPid	<i>Ceramium sp.</i> and piddocks on eulittoral fossilised peat	
IR.MIR.KR.Ldig.Pid	<i>Laminaria digitata</i> and piddocks on sublittoral fringe soft rock	

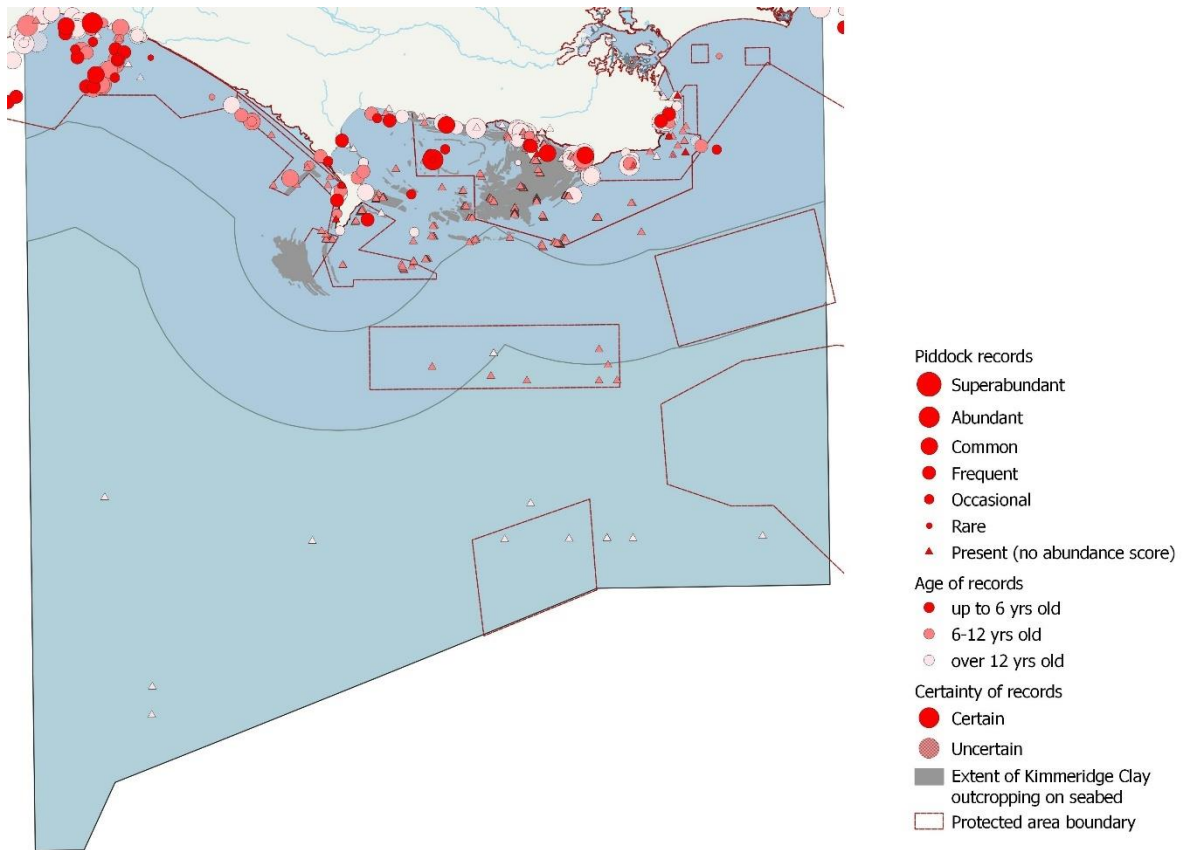
Most of the rock layers exposed on the seabed in Dorset are soft enough to be bored by piddocks – bivalve molluscs that carve out a tunnel in soft rock in much the same way as burrowing bivalves do in sand and mud. Piddocks are therefore widespread, though probably under-recorded as little of the animal is visible. This FOCI habitat is limited to rocks soft enough to restrict the attachment of many of the filter-feeding animals normally associated with sublittoral rock, resulting in an impoverished epifauna. The softest rocks are in the Kimmeridge Clays and the Lias Mudstones. The map below shows the area of exposed Kimmeridge Clay as revealed by the DORIS survey. These rocks contain some fairly resistant bands of dolomite but these are interspersed with layers of soft, friable shale/clay suitable for this habitat. The Liassic clays in Lyme Bay are also heavily bored by piddocks where they outcrop on the surface.

Blocks of peat are occasionally washed up onto Chesil Beach at Abbotsbury, indicating an eroding peat habitat somewhere just offshore

Key species:

Pholas dactylus

Polydora ciliata



Map 15: Map showing records of boring bivalves along with outcrops of Kimmeridge Clay formation on the seabed.

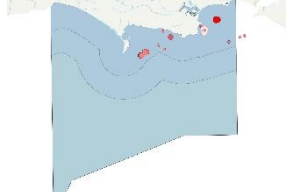
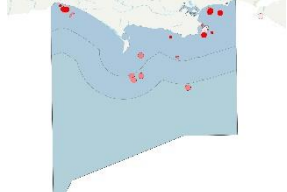
State of knowledge:

The likely extent of this habitat can be inferred from the known extent of soft rock. The seabed geology is known in sufficient detail to trace individual rock strata from the cliff out to sea, so it would be possible to identify specific soft layers within the Kimmeridge Shales, for example. The eroding peat exposure off Chesil Beach has not been located.

HABITAT ACCOUNTS

Sabellaria spinulosa (Ross worm) reefs

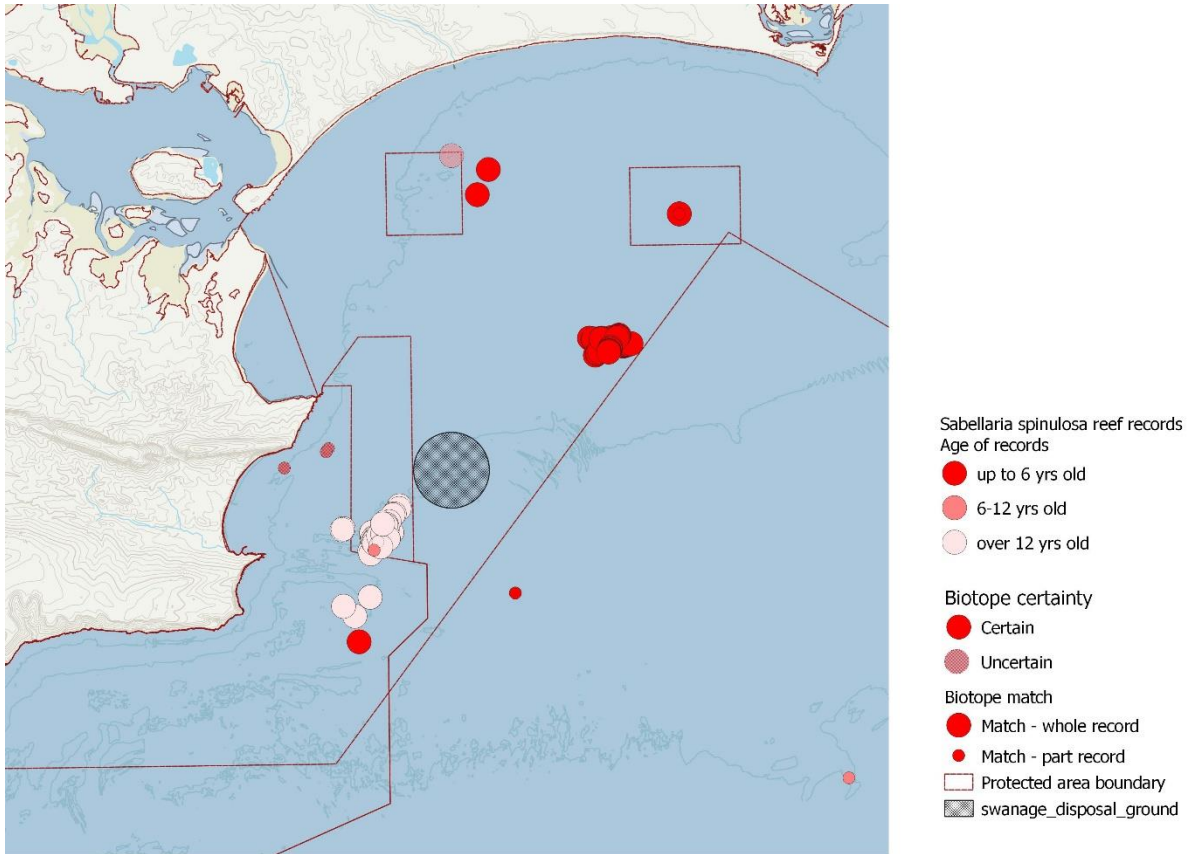
Theme: Marine

Biotope Code	Biotope description	Biotope records in database
SS.SBR.PoR.SspiMx	<i>Sabellaria spinulosa</i> on stable circalittoral mixed sediment	
CR.MCR.CSab	Circalittoral <i>Sabellaria</i> reefs (on rock)	

Sabellaria spinulosa is a small, tube-building polychaete worm, commonly found encrusting on shells and stones on the seabed around the UK. Given the right conditions (including sufficient water movement and an adequate supply of coarse sediment for tube-building), *S. spinosa* can form solid, though fragile, reef structures, rising 10s of centimetres above the seabed. The worms appear to be tolerant of poor water quality, but the reef structures are particularly fragile and will be affected by physical damage, such as from mobile fishing gear or aggregate dredging. The level of natural variation in the extent and condition of *S. spinulosa* reefs is not well known.

An area of *Sabellaria spinulosa* boulders was discovered by divers east of Swanage in 2000, close to the Swanage Bay licenced disposal ground. Divers revisiting this area in 2013 found only scattered, broken *Sabellaria* pieces. The Navitus Bay windfarm ecological survey reported some *Sabellaria* boulders further offshore in 2012 and an ecological survey further west in Poole Bay reported significant *Sabellaria spinulosa* boulders in 2017, including reef structures up to 30cm high and up to 200m across.

There are other records of *Sabellaria* crusts in Lyme Bay and in South Dorset MCZ, but these are not forming reef structures.



Map 16: Map based on records of the biotope. This feature is currently only known from a few distinct areas in Poole Bay. The more recent discovery near the oil exploration drilling site suggests there may be more to be found.



Key species:
Sabellaria spinulosa


State of knowledge:

Current knowledge is based on chance observations and will certainly underestimate the current or potential distribution. An understanding of the ecological requirements of boulder-forming *Sabellaria* clusters along with knowledge of seabed types and sediment mobility might identify potential areas for some targeted survey work. *Sabellaria* boulders are vulnerable to physical disturbance and the natural variation in the integrity of these structures is not well understood

HABITAT ACCOUNTS

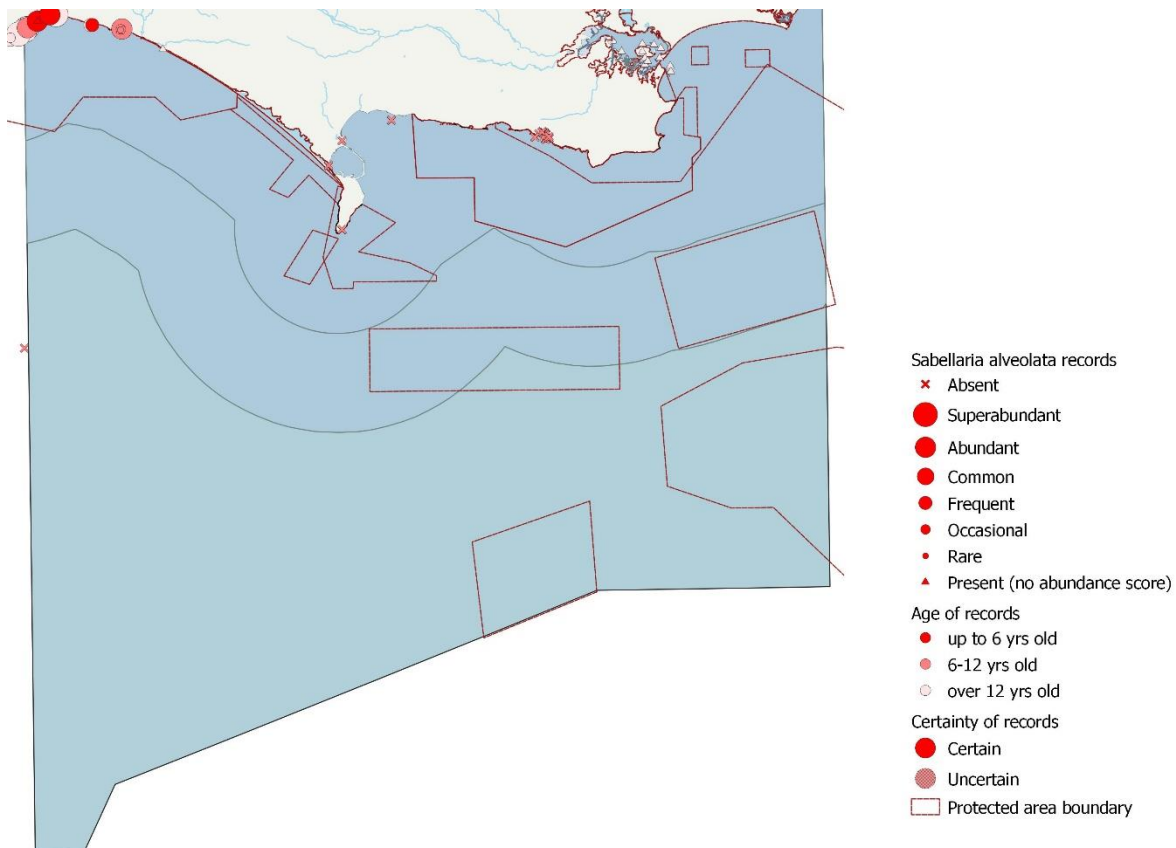
Sabellaria alveolata (Honeycomb worm) reefs

Theme: Marine

Biotope Code	Biotope description	Biotope records in database
LS.LBR.Sab.Salv	<i>Sabellaria alveolata</i> reefs on sand-abraded eulittoral rock	

Honeycomb worm reefs are formed by the polychaete, *Sabellaria alveolata* on lower intertidal boulders and bedrock with a nearby supply of sand. The reefs can bind together otherwise unstable boulders into large structures several metres across. This habitat is only found in the very west of the Dorset coastline. The last significant survey for *S. alveolata* in Dorset was carried out in 2001 but it was also recorded during a wider intertidal survey in 2012-2014 and during a Porcupine Marine Natural History Society field trip in 2018. There is likely to have been some damage to this habitat during the 2013/14 winter storms but this has not been documented.

There are some records of *S. alveolata* from Dyrinda's Poole Harbour surveys in the 1980s but these have not since been verified and are likely to be misidentified.



Map 17: Map showing records of *Sabellaria alveolata* reef in Dorset Marine Biodiversity database



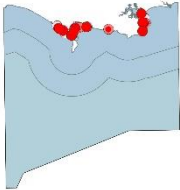

State of knowledge:

This habitat appears to be restricted to the far west of the county, where its distribution was adequately mapped in the 2001. There are some more recent records from 2018, but a comprehensive re-survey is recommended.

HABITAT ACCOUNTS

Seagrass beds

Theme: Marine

Biotope Code	Biotope description	Biotope records in database
SS.SMp.SSgr.Zmar	<i>Zostera (Zostera) marina</i> beds on lower shore or infralittoral clean or muddy sand	
LS.LMp.LSgr.Znol	<i>Zostera (Zosterella) noltei</i> beds in littoral muddy sand	

Seagrasses are flowering marine plants able to stabilise sediment and protect the coastline through a complex stem and root system. Dorset species include *Zostera marina* and *Zostera noltei*. Seagrass suffered a severe decline because of disease in 1930's, virtually disappearing from the open coast, but has since recovered.

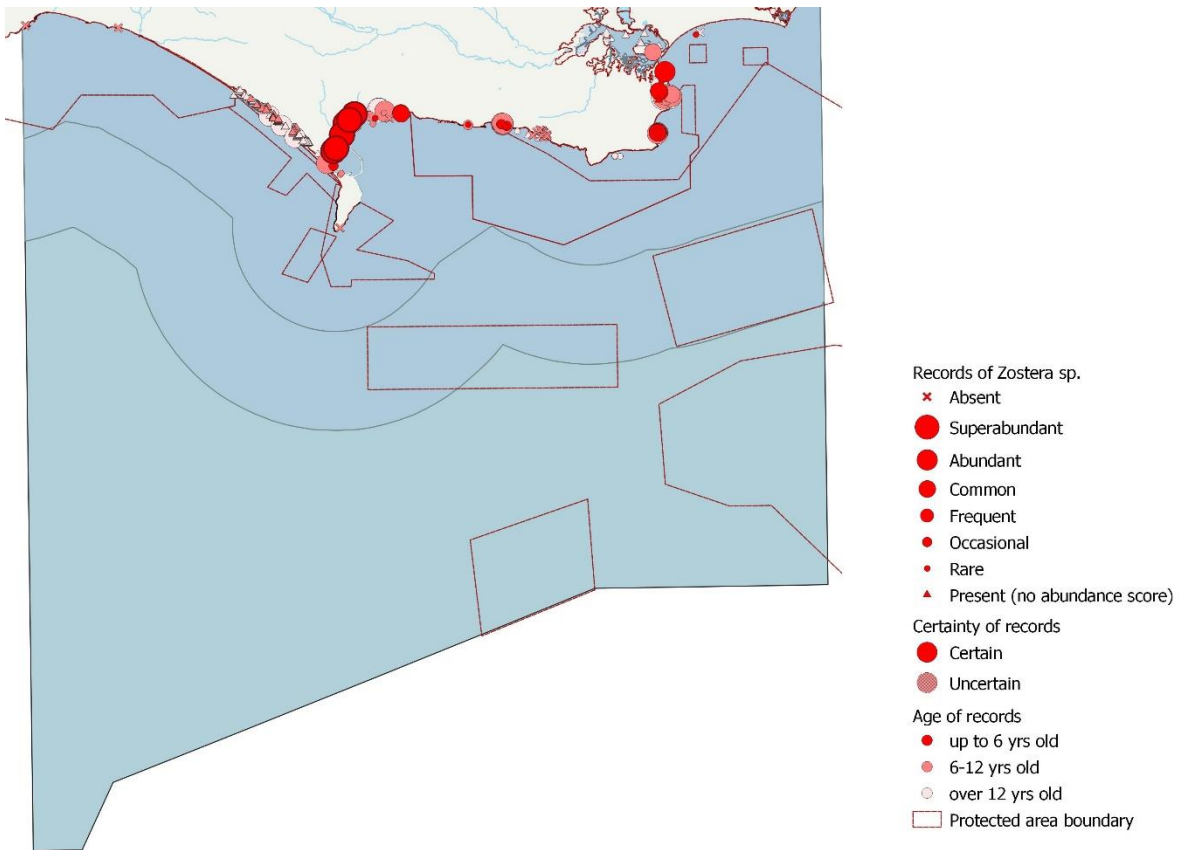
The best known seagrass beds in Dorset are in Studland Bay and the Fleet, but the habitat is also found in Weymouth Bay, Portland Harbour, Ringstead, Worbarrow Bay, Poole Harbour and near Swanage Pier

Seagrass beds offer a nursery area for many commercially important species. In Studland, these include bass, pollack and black seabream. All six UK species of pipefish are recorded in Studland along with the Spiny seahorse *Hippocampus guttulatus* and the short-snouted seahorse *Hippocampus hippocampus*.

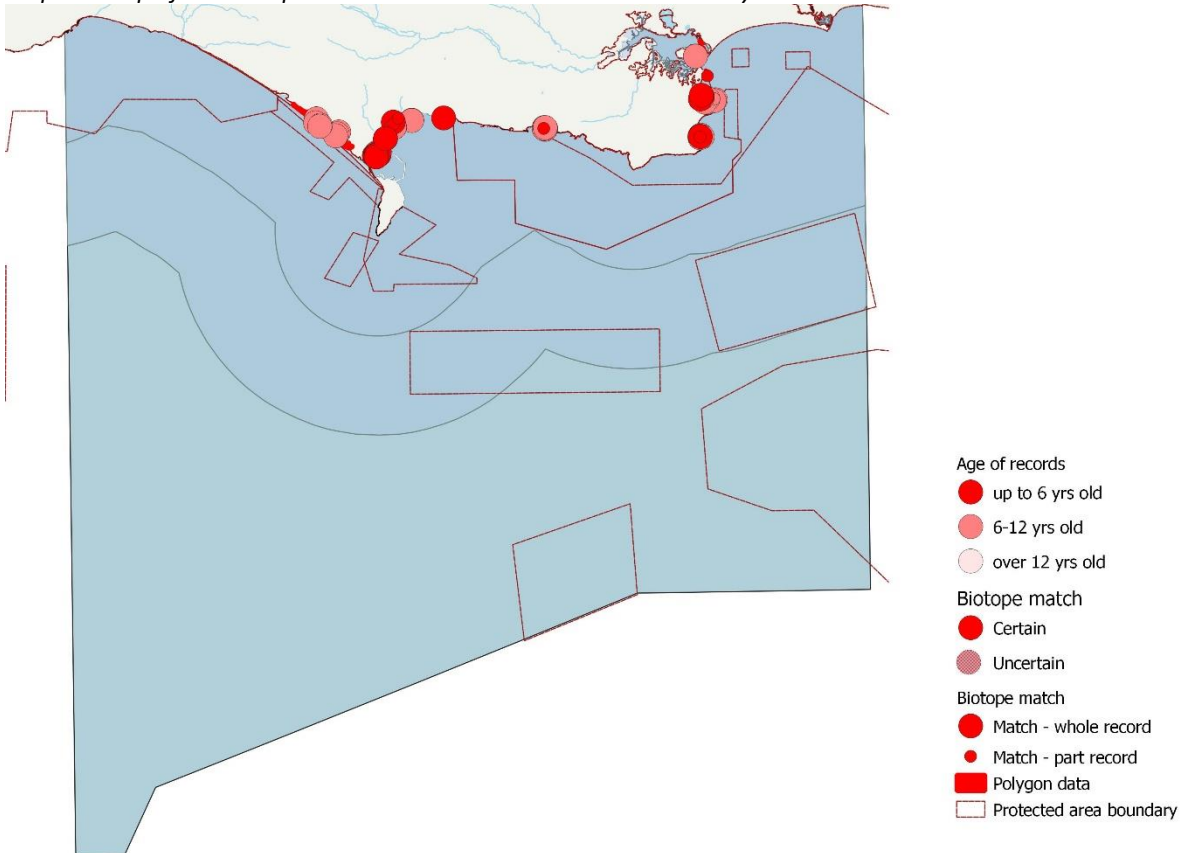
In 2015, seagrass beds in Whitley Lake, Poole Harbour and in the Fleet were protected under the Southern IFCA bottom towed fishing byelaw and the Prohibition of Gathering (Sea Fisheries Resources) in Seagrass Beds.

Key species:

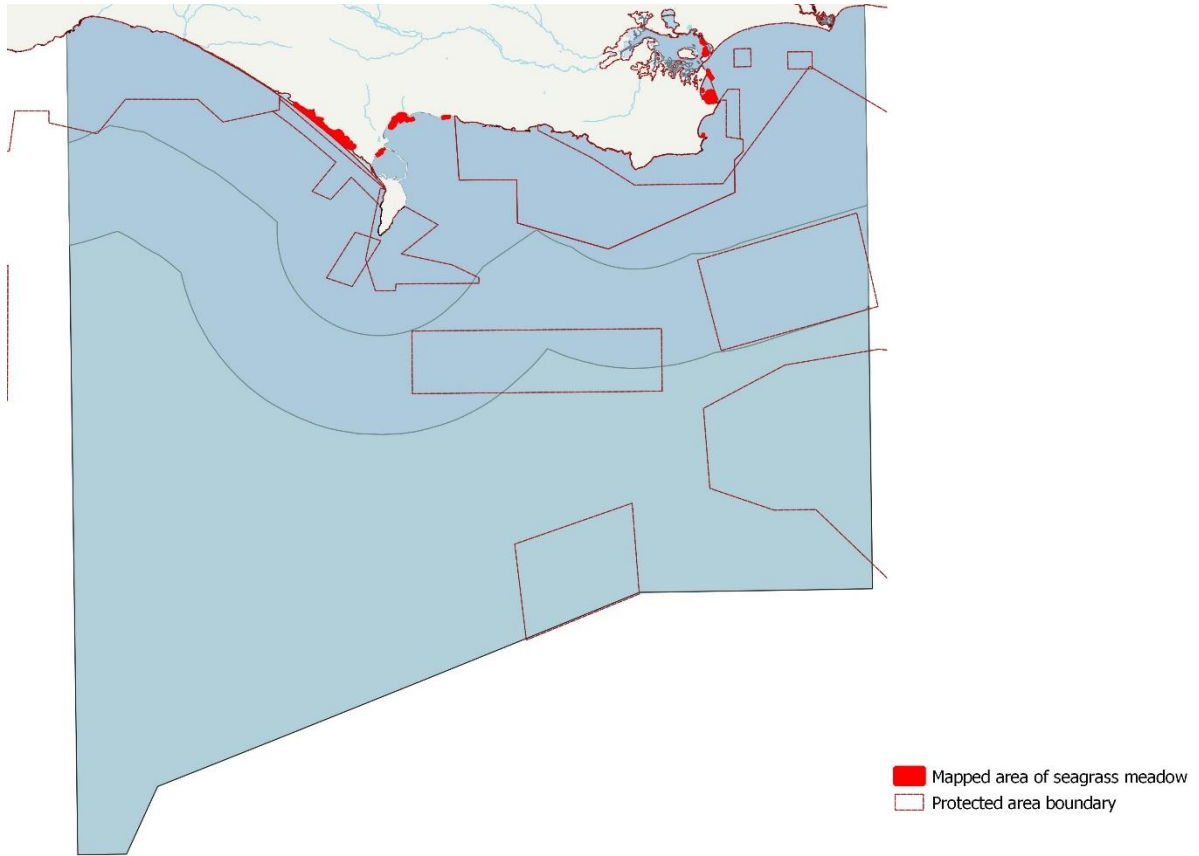
Seahorse *Hippocampus spp.*
 Razor clam *Ensis spp.*
 Stalked jellyfish *Stauromedusae*
 Brent goose *Branta bernicla*
 Widgeon *Anas penelope*



Map 18: Map of *Zostera* species records in Dorset Marine Biodiversity Database



Map 19: Map of *Zostera* biotope records in Dorset Marine Biodiversity Database



Map 20: Mapped areas of seagrass in Dorset



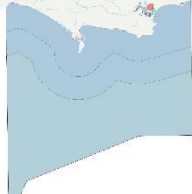
State of knowledge:

An inventory of Devon and Dorset eelgrass beds was published in 2004. Since then, the beds in Poole Harbour and Studland Bay have been mapped and the Community Seagrass Initiative has looked at the condition of seagrass beds in Weymouth Bay and Portland Harbour.

HABITAT ACCOUNTS

Sheltered muddy gravels

Theme: Marine

Biotope Code	Biotope description	Biotope records in database
SS.SMx.IMx.SpavSpAn	<i>Sabella pavonina</i> with sponges and anemones on infralittoral mixed sediment	
SS.SMx.IMx/ SS.SMx.CMx	Infralittoral/circallittoral mixed sediment	
LS.LMx.Mx	Species-rich mixed sediment shores	

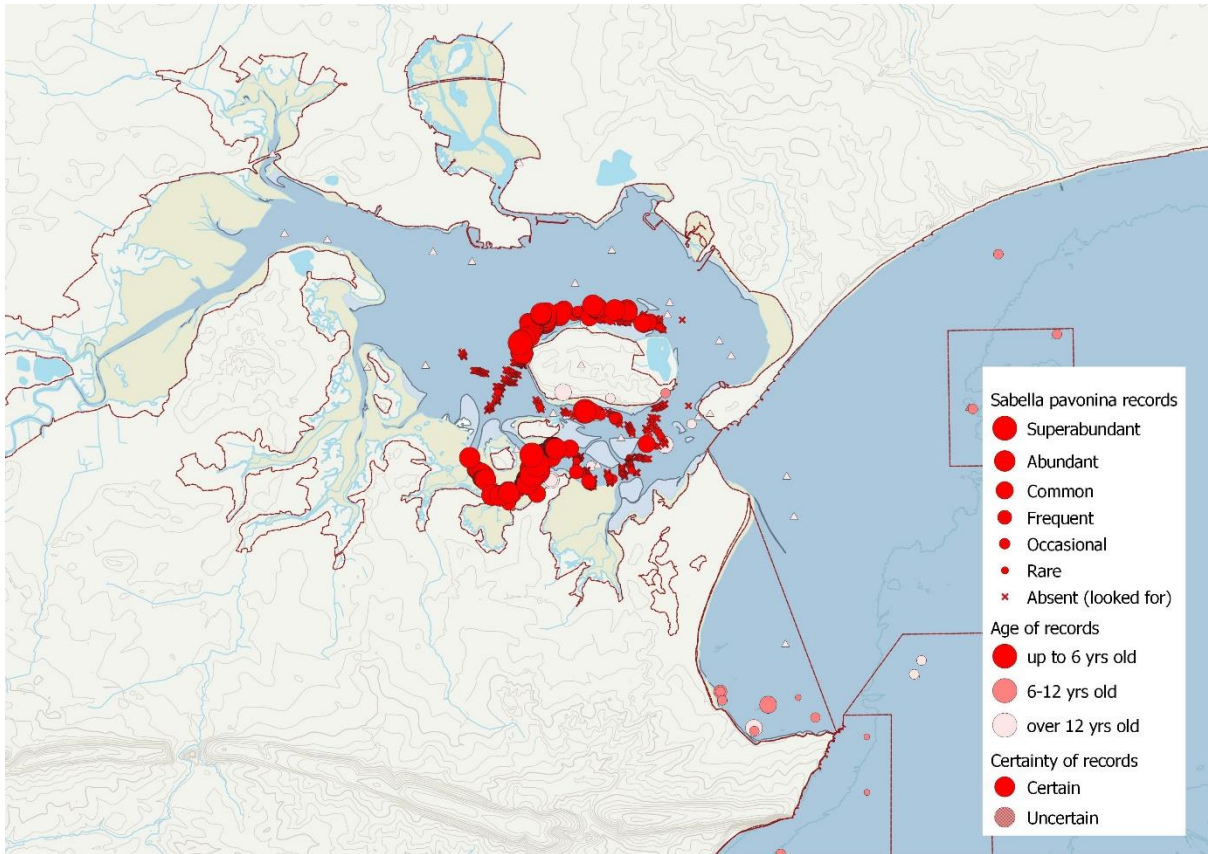
***Sabella pavonina* “forests”**

Parts of Poole Harbour, including the Wych Channel, South Deep and Blood Alley, support communities dominated by dense populations of the peacock worm, *Sabella pavonina*. This feature is listed in the Poole Harbour SSSI citation. A 2015 survey carried out by Southern IFCA reported similar distribution of this habitat across Poole Harbour to that reported by Dyrinda in 1984/85.

As is the case throughout Poole Harbour, invasive non-native species (INNS) are notable in this habitat, including *Crepidula fornicata*, *Botrylloides diagenese* and *Undaria pinnatifida*. *Sabella pavonina* is found across Dorset but the dense forests are only known from Poole Harbour.

Key species:

Sabella pavonina
Suberites massa
Rostanga rubra



Map 21: Map showing distribution and abundance of *Sabella pavonina* in Poole Harbour

State of knowledge:

Apart from the *Sabella* “forests”, which have been well mapped in Poole Harbour, these biotopes are poorly recorded. There are a number of other biotopes that could qualify under this priority habitat and might be found in Poole Harbour, Weymouth Bay or Portland Harbour/The Fleet.

HABITAT ACCOUNTS

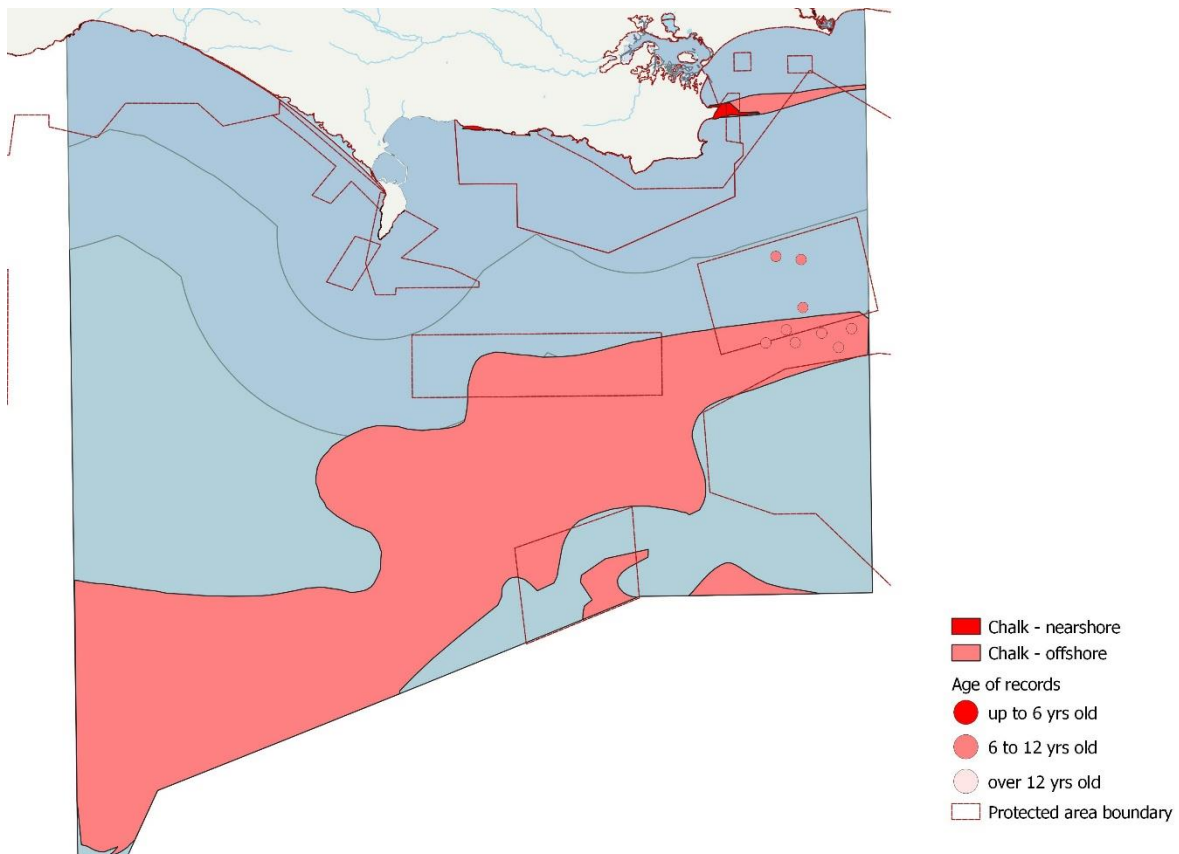
Subtidal chalk communities

Theme: Marine

Biotope Code	Biotope description
IR.MIR.KR.Ldig.Pid	<i>Laminaria digitata</i> and piddocks on sublittoral fringe soft rock
IR.MIR.KR.HiaSw	<i>Hiatella arctica</i> with seaweeds on vertical limestone / chalk
CR.MCR.SfR.Hia	<i>Hiatella</i> -bored vertical sublittoral limestone rock
CR.MCR.SfR.Pol	<i>Polydora</i> sp. tubes on moderately exposed sublittoral soft rock

Chalk as a coastal habitat is rare in Europe, with the southern and eastern coasts of England contributing over 50% of this habitat type. Chalk is a soft, pure limestone that is easily eroded by seawater and bored by piddock, sponges and worms.

The distribution of nearshore subtidal chalk is accurately mapped. Further offshore the 1:250,000 scale BGS data shows areas of chalk bedrock in the Channel (not necessarily outcropping on the seabed), some of this is backed up by survey data.



Map 23: Potential distribution of subtidal chalk – from BGS 1:250,000 seabed geology. Does not indicate exposure of chalk bedrock on the seabed.

State of knowledge:

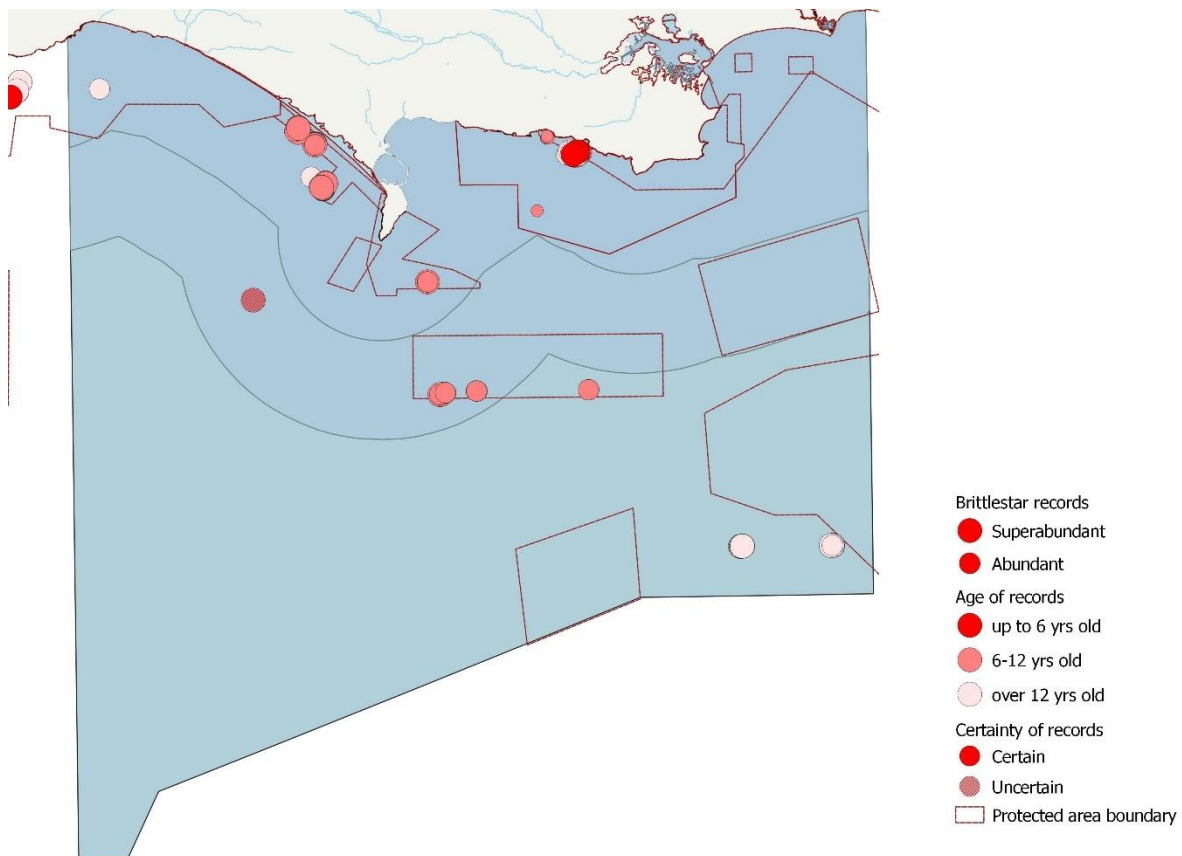
The South Dorset MCZ was selected to contribute to the target for subtidal chalk within the MPA network – the hydrographic survey showed the presence of bedrock, compatible with chalk, that correlated with the BGS geology map, but the geology of the bedrock was not confirmed in that survey. Further to the east, the Environmental Survey for the proposed Navitus Bay offshore windfarm confirmed the presence of chalk bedrock on the seabed.

HABITAT ACCOUNTS

Brittlestar beds

Theme: Marine

Two species of brittlestar – *Ophiothrix fragilis* and *Ophiocomina nigra* are occasionally found in dense carpets on flat seabed, with up to thousands of individuals per square metre. These dense aggregations confer greater stability in strong current (where individual animals would be swept away). Some of these beds are very persistent – the Kimmeridge beds have been recorded continuously for over 30 years. The beds are considered to be of scientific interest as an example of an “anachronistic community”, common in the Paleozoic and early Mesozoic eras, but becoming less common due to the subsequent increase in large mobile predators, such as teleost fish and decapod crustaceans. (Hughes, 1998). Brittlestar beds are not rare in the UK but are highly local and individual beds may not recover if lost.



Map 24: Map showing records of *Ophiothrix fragilis* or *Ophiocomina nigra*, where abundance is recorded as Superabundant or Abundant

State of knowledge:

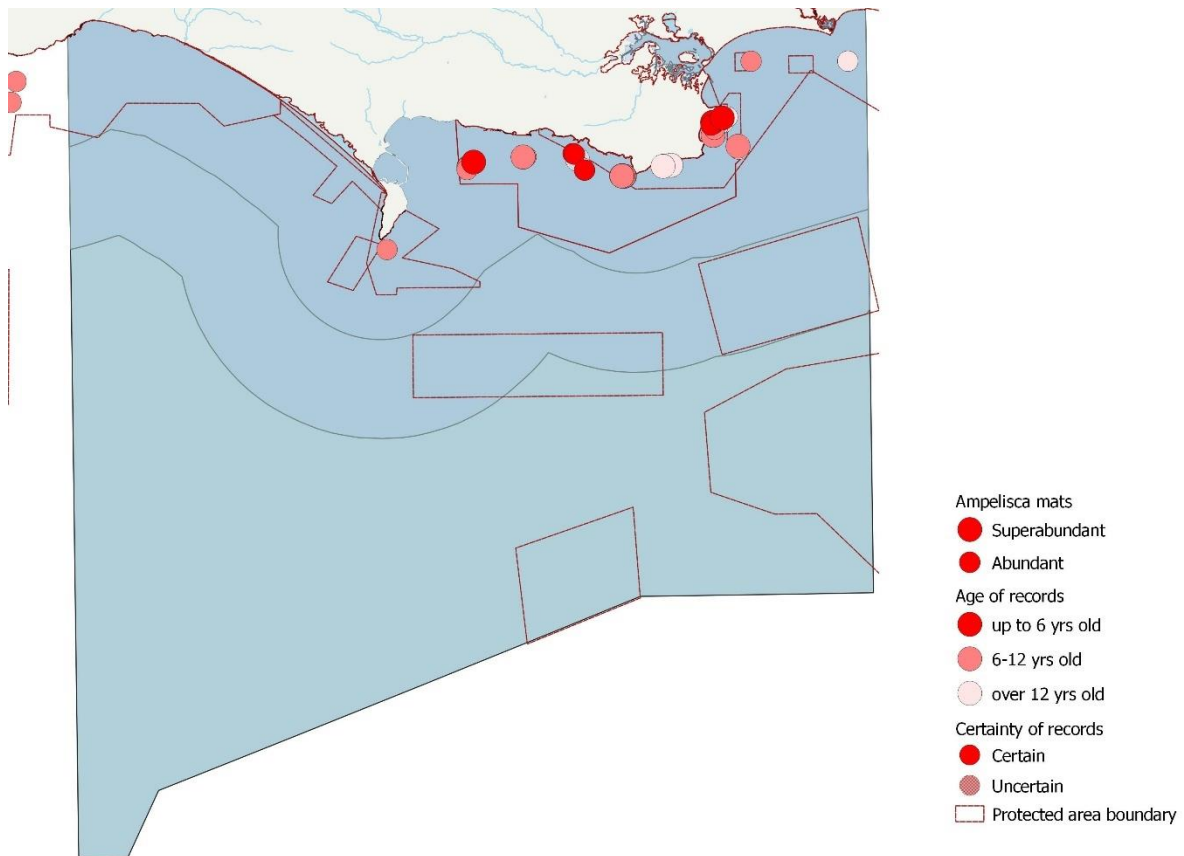
Some very persistent brittlestar beds, such as those near Kimmeridge, have been fairly well mapped

HABITAT ACCOUNTS

Ampelisca mats

Theme: Marine

Tiny tube-building amphipods of the genus *Ampelisca* occasionally form extensive mats, completely covering the underlying seabed. The tubes and underlying silt can be up to 30cm deep. A sample collected from a mat in Swanage Bay contained mostly *Ampelisca spinipes* and a bed off the Isle of Wight was found to be *Ampelisca brevicornis*.



Map 25: Map showing species records of *Ampelisca* spp. where abundance is recorded as Superabundant or Abundant

Key species:
Suberites ficus (in association with hermit crab)
Cancer pagurus

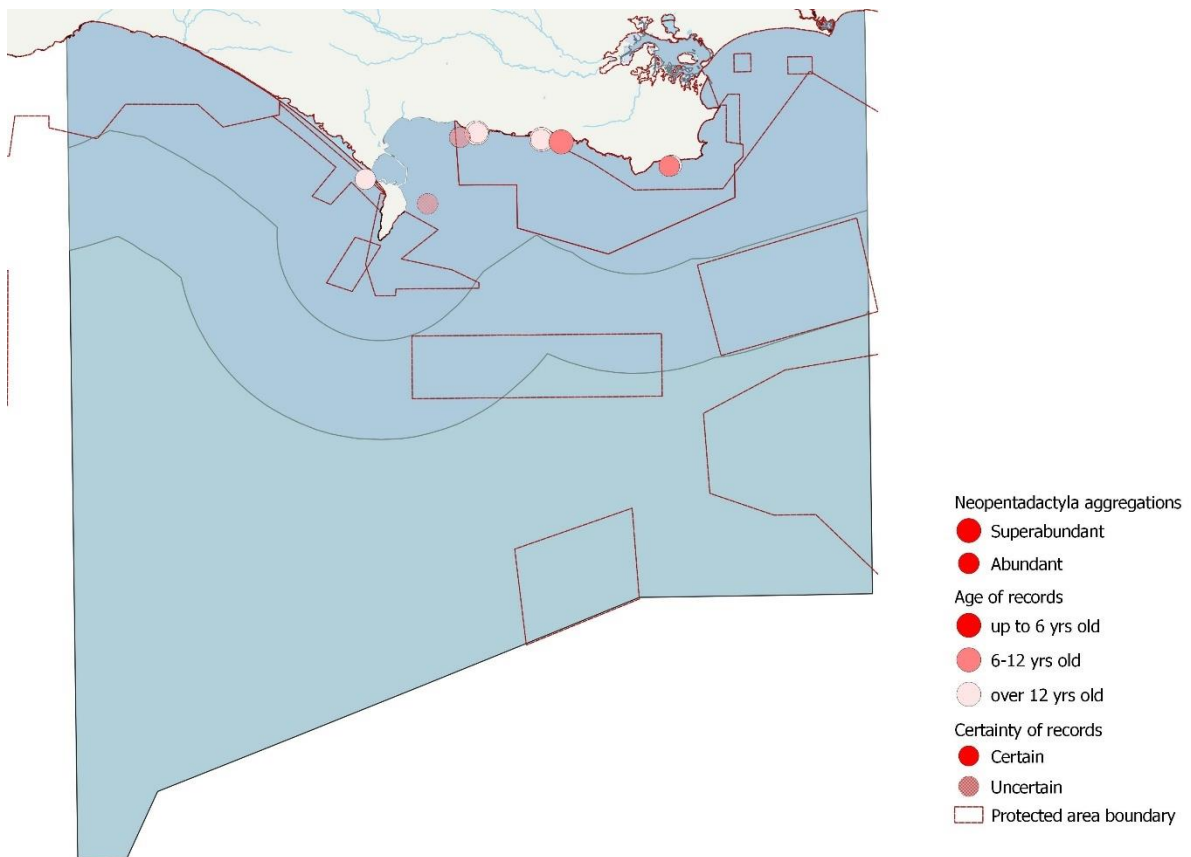
The importance of this feature is not well understood and study into the ecology of *Ampelisca* mats is encouraged.

HABITAT ACCOUNTS

Neopentadactyla mixta aggregations

Theme: Marine

Clean gravel, including shell and stone gravel and maerl (living and dead) can form significant deposits, often with frequent gravel sea-cucumbers - *Neopentadactyla mixta*. *Neopentadactyla* can occur in extreme densities, up to 400 individuals per square metre – such aggregations have been recorded within the Studland to Portland SAC. The persistence of these aggregations in Dorset is not known.



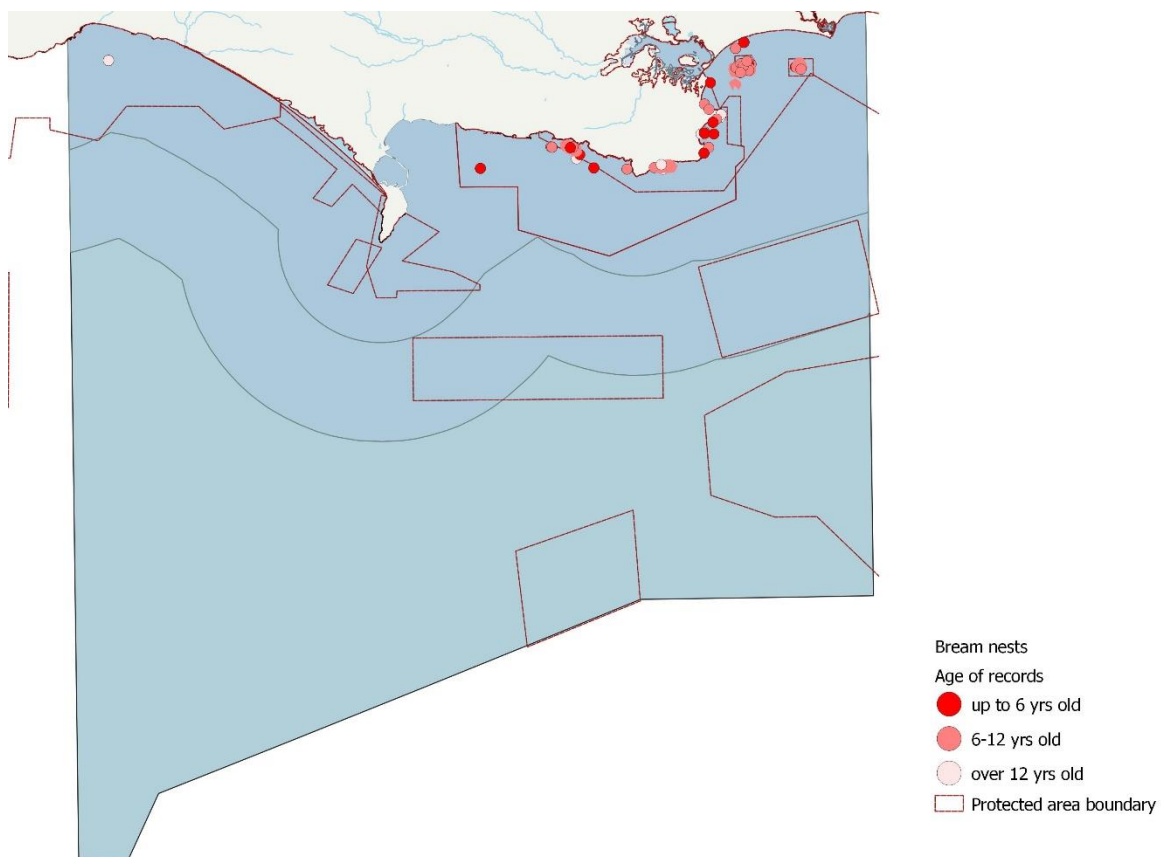
Map 26: Map showing species records of *Neopentadactyla mixta*, where abundance is recorded as Superabundant or Abundant

HABITAT ACCOUNTS

Black bream nesting sites

Theme: Marine

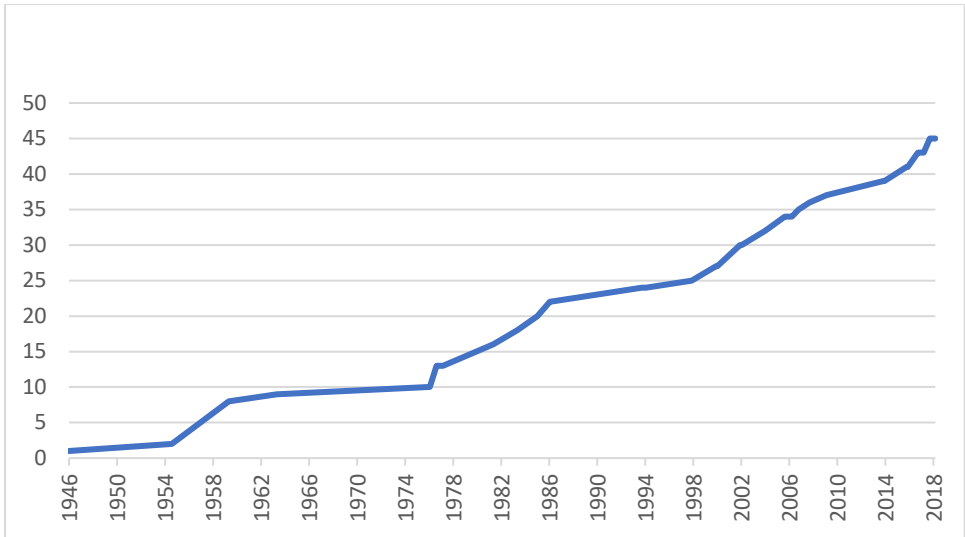
Black bream, *Spondyliosoma cantharus*, form spawning aggregations in inshore waters in Dorset in the spring. The males excavate 1-2m² craters in thin gravel, exposing underlying bedrock. Female black bream lay sticky eggs in a thin layer on the cleared substrate. The full extent of suitable nesting habitat is not known – the map below shows records of black bream nests reported by Seasearch divers and some areas identified by some small sidescan sonar surveys in 2010.



Map 27: Records of black bream nests

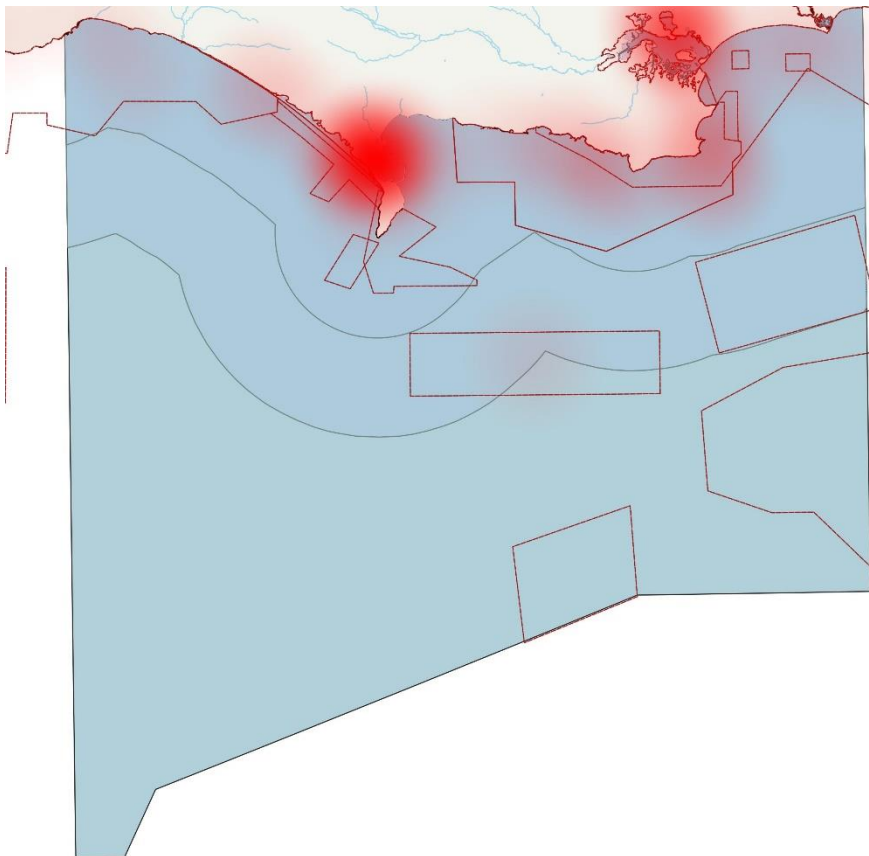
Non-native species

The list of non-native marine species recorded in Dorset continues to grow, currently standing at 45. The exact number is slightly uncertain as the status of some species is uncertain.



Number of non-native marine species in Dorset, based on earliest records in the Dorset Marine Biodiversity database.

The map below reflects the location of the first records of non-native species in the county. There is a distinct hotspot around Portland Harbour/The Fleet and a slightly less intense one around Poole Harbour. This is partly a reflection of these ports being likely arrival points and a concentration of effort here to spot new arrivals.



Map 28: Heatmap of location of first record of non-native species in Dorset