



Poole Harbour SSSI Dorset

Supporting Information

A supplement to the notification document

Issued by Natural England's Dorset, Hampshire and the Isle of Wight Area Team on **24 May 2018**

Contact points and further information

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Summary

Poole Harbour was last notified as a Site of Special Scientific Interest (SSSI) on 7 December 1990. The SSSI has been extended to include four areas of additional land. By far the largest is the estuarial open water below the Mean Low Water mark (MLW), which extends to the Harbour mouth in the east and westwards to where the estuary meets the Rivers Piddle and Frome. The other three areas comprise saltmarsh, wetland and supporting habitats around the fringes of Lytchett Bay and Holes Bay.

The SSSI continues to be of special interest for its estuarine habitats, including marshes, mudflats and subtidal communities; fringing terrestrial habitats, including heathlands and grasslands; and species supported by these habitats, including breeding and wintering birds, lichens, rare invertebrates and red squirrel *Sciurus vulgaris*.

All four areas of additional land support estuarine habitats and wintering wildfowl and waders for which the site is of special interest. The areas lying below MLW also support other features for which the site is of special interest including foraging habitat for breeding seabirds and subtidal benthic (seabed) habitats (such as peacock worm *Sabella pavonina* and eelgrass *Zostera marina* beds). Coastal and marine geomorphological processes (including hydrodynamics, sediment movements and tidal inundation) also operate within this area and these natural processes are essential for the maintenance of the estuarine habitats, such as saltmarshes and intertidal mudflats.

1. Information used to support the extension of Poole Harbour SSSI

Feature	Data Source	Author(s)	Date	Content
General	Guidelines for the Selection of Biological SSSIs. Part 1: Rationale, Operational Approach and Criteria for Site Selection. Joint Nature Conservation Committee (JNCC), Peterborough http://jncc.defra.gov.uk/pdf/SSSI_GuidelinesPart1_PUBLICATION_Dec2013v2.pdf	Bainbridge, I., Brown, A., Burnett, N., Corbett, P., Cork, C., Ferris, R., Howe, M., Maddock, A. & Pritchard, S. (eds)	2013	National selection guidelines for biological SSSIs
Birds	Estuary birds of Britain & Ireland. Poyser, Calton.	Prater, A.J	1981	Evidence of the importance of lower intertidal habitat for birds foraging
	<i>Coastal Birds of east Dorset</i> . Nature Conservancy Council (NCC) report commissioned by BP Petroleum Development Ltd http://jncc.defra.gov.uk/page-2385	Aspinall, S. & Tasker, M.L.	1990	Includes tern sighting data within and outside of Poole Harbour
	Bird life of coasts and estuaries. Cambridge University Press, Cambridge	Ferns, P.N.	1992	Evidence of the importance of lower intertidal habitat for birds foraging
	Gulls of Poole Harbour. Published online at http://www.birdsofpooleharbour.co.uk/sites/default/files/Gulls%20of%20Poole%20H%20copy.pdf	Hopper, N.	2008	Roost sites for black-headed gull in open water outside the previously notified SSSI boundary
	Quantifying usage of the marine environment by terns <i>Sterna</i> sp. around their breeding colony SPAs. JNCC Report No 500 http://jncc.defra.gov.uk/page-6644	Wilson, L.J., Black, J., Brewer, M.J., Potts, J.M., Kuepfer, A., Win, I., Kober, K., Bingham, C., Mavor, R. & Webb, A.	2014	Modelled foraging area used by tern breeding colonies from Poole Harbour
	Guidelines for the selection of biological SSSIs. Part 2: Detailed Guidelines for Habitats and Species Groups. Chapter 17: Birds. JNCC, Peterborough http://jncc.defra.gov.uk/pdf/SSSI_Chptr17_Birds2015June.pdf	Drewitt, A.L., Whitehead, S. & Cohen, S.	2015	Guidelines for selection of biological SSSIs for bird features
	Wetland Bird Survey (WeBS) data 2010/11-2014/15 for Poole Harbour. Report from WeBS database	British Trust for Ornithology (BTO)	2015	Data on bird usage of Poole Harbour

Feature	Data Source	Author(s)	Date	Content
	Waterbirds in the UK 2013/14: The Wetland Bird Survey. BTO/RSPB/JNCC, Thetford. https://www.bto.org/sites/default/files/wituk-2013-14.pdf	Holt, C.A., Austin, G.E., Calbrade, N.A., Mellan, H.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. & Musgrove, A.J.	2015	Annual report from wetland bird survey
	Waders and Seafoal Roost survey of Poole Harbour, Dorset – Winter 2014/15. Report to Natural England https://www.researchgate.net/publication/280014490_Wader_and_Seafoal_Roost_Survey_of_Poole_Harbour_Dorset_-_Winter_201415	Morrison, S.	2015	Water bird roost sites including Round Island outside the previously notified SSSI boundary
	Tern verification surveys for marine sites. Final Report by ECON Ecological Consultancy Limited to Natural England http://publications.naturalengland.org.uk/publication/6688364374786048	Perrow, M.R., Harwood, A.J.P. & Caldow, R.W.G	2015	Verification that terns forage in busy areas such as docks and marinas
	Use of marinas and channels by terns in Poole Harbour: Verification survey for Poole Harbour pSPA. Footprint Ecology report to Natural England	Liley, D	2017	Observations of the use by terns of various parts of Poole Harbour
	RSPB Lytchett Fields peak waterbird counts 2013-15 and 2016/17.	S. Robson <i>in litt.</i>	2017	Waterbird counts from Lytchett Fields
	Specialist support for the notification of additional land in the Poole Harbour SSSI	Rowell, H.	2018	Support for the notification from Natural England's ornithologist
Estuary	Guidelines for the Selection of Biological SSSIs. Part 2: Detailed Guidelines for Habitats and Species Groups. Chapter 1a. Coastlands. NCC, Peterborough http://jncc.defra.gov.uk/pdf/SSSIs_Chapter01.pdf	NCC	1989	National selection guidelines for biological SSSIs (re-published online by JNCC in 2012)
	<i>Nature conservation and estuaries in Great Britain.</i> Peterborough, NCC http://jncc.defra.gov.uk/page-2563	Davidson, N.C., Laffoley, D.d'A., Doody, J.P., Way, L., Gordon, J., Key, R., Pienkowski, M.W., Mitchell. R. & Duff, K.	1991	Review of estuaries in Britain, their attributes and their conservation
	Benthic Habitats and Species of Conservation Interest. Report to NCC	Dyrynda, P.	1991	Status and distribution of <i>Suberites massa</i> and <i>Sabella pavonina</i> beds in Poole Harbour

Feature	Data Source	Author(s)	Date	Content
	The Ecology of Poole Harbour: 8. Subtidal ecology of Poole Harbour – an overview. <i>Proceedings in Marine Science</i> 7: 109-130.	Dyrynda, P.	2005	Distribution and status of subtidal benthic (seabed) marine communities
	Poole Harbour <i>Sabella pavonina</i> verification survey using Underwater Video Techniques 2015	Southern Inshore Fisheries and Conservation Authority	2015	Underwater video survey of <i>Sabella pavonina</i>
	Poole Harbour Subtidal Survey - <i>Sabella pavonina</i> & <i>Suberites massa</i> . Field Work Update. Interim report to Natural England	Baldock, L.	2016	Subtidal surveys of Poole Harbour
	Specialist support for the notification of additional land in the Poole Harbour SSSI	Hiorns, N	2018	Support for the notification from Natural England's senior marine specialist

2. Explanation of how the notification of additional land at Poole Harbour meets the SSSI selection guidelines

This section explains how the information listed in section 1 has informed our decision to notify the additional land, according to the *Guidelines for the selection of Biological SSSIs. Part 1: Rationale, Operational Approach and Criteria for Site Selection* (JNCC, 2013) and *Part 2: Detailed guidelines for habitats and species groups*, hereafter referred to as 'the Guidelines'.

2.1 Seaward extension to include estuarial waters below Mean Low Water mark (MLW)

This element of the additional land supports a number of the special interests of the SSSI, including the estuary itself, subtidal and intertidal habitats, breeding and wintering birds.

2.1.1 Estuarine habitats

The Guidelines (Part 1, Section 8.2) state that:

'SSSI boundaries should be drawn to encompass the special features of the site and all land necessary to ensure the sustainability of those features. Consideration should be given to the inclusion of whole management units, entire ecological units and supporting processes (such as hydrology or sediment supply). Boundaries should take account of dynamic processes (such as active coastal and floodplain geomorphology).'

For coastal habitats, the Guidelines (Part 2, Chapter 1a, section 10.2) state:

'Combinations of these sedimentary habitats may also be important because they form significant geomorphological units of national or international importance. It is essential therefore that estuaries are not selected solely for their ornithological value but are recognised for this combination of interests. Site integrity therefore becomes an important concept in defining the boundaries of extensive sites.'

The previous seaward boundary of the SSSI was drawn to MLW and subtidal estuarial waters and lower shore intertidal mudflats were not included. Coastal and marine geomorphological processes (including hydrodynamics, sediment movements and tidal inundation) occur over the entire Harbour and are essential for the maintenance of the estuarine habitats (such as saltmarshes and intertidal mudflats). Notification of the additional land ensures the SSSI includes all the areas within which these key supporting natural processes occur.

The narrow entrance in relation to the size and shape of the estuary means that it is a relatively self-contained and well defined ecological unit (see aerial view in photograph 11, section 6).

Moreover, the microtidal regime¹ of Poole Harbour means that the extent of the estuarial open water area relative to the intertidal is much greater than for other English estuaries (which are predominantly mesotidal and macrotidal). Thus the additional land below MLW is highly significant in relation to these natural estuarine processes.

The estuarine habitats readily define the seaward and upstream boundaries of the extended SSSI. The seaward boundary follows the limit of estuarine waters which forms a straight line at the Harbour mouth, as mapped by the Environment Agency. Similarly, the upstream limits of estuarine waters (again as mapped by the Environment Agency) on the Rivers Frome and Piddle mark the upstream limits of the extended SSSI.

The estuarial waters support important subtidal benthic (seabed) habitats in some locations, although it is important to note that these are not found across the entire Harbour. The subtidal benthic habitats of particular importance are described below with maps and descriptions of their current known locations.

High density beds of the peacock worm *Sabella pavonina* (see photographs 1 and 2 in section 6) are particularly widespread within certain mid-stream areas of the subtidal channels and are of particular conservation interest as a habitat for other species (Dyrynda 1991). The species itself is not rare but Poole Harbour is the best known example where it forms high density beds with a substantial associated fauna. These beds exhibit a high species richness and diversity, with the tubes colonised by seaweeds, sponges (including the rare *Suberites massa*, see photographs 3 and 4 in section 6), bryozoans and ascidians, while crabs and fish are also associated with them (Dyrynda 1991). A verification survey using underwater video was undertaken in 2015 (Figure 1). This shows that peacock worm beds were recorded in a couple of locations above MLW (for instance, at the entrance of Newton Bay) but are predominantly found below MLW.

The sponge *Suberites massa* is listed as Nationally Rare² in the Guidelines (Chapter 1a). It has been recorded recently in a number of locations associated with artificial structures, in particular within the Blackwater channel in Holes Bay. It was also recorded as common in a restricted area in South Deep on the north-west side of Goathorn Point, associated with American slipper limpet *Crepidula fornicata* shells (Baldock 2016).

The remaining key estuarine habitat within the additional land is the intertidal sediments, which comprise a range of biotopes (including areas supporting seagrass beds of eelgrass *Zostera marina*) relating to different substrate types, salinities and degrees of wave exposure. No nationally scarce species or biotopes have been recorded within the intertidal sediments; rather their value and importance lies in the abundance and biomass of annelid worms and bivalve molluscs. These invertebrates are a key prey resource for waterfowl (Herbert *et al.* 2010). The lower shore intertidal sediments extend significantly seaward beyond MLW at certain tides (Figure 3).

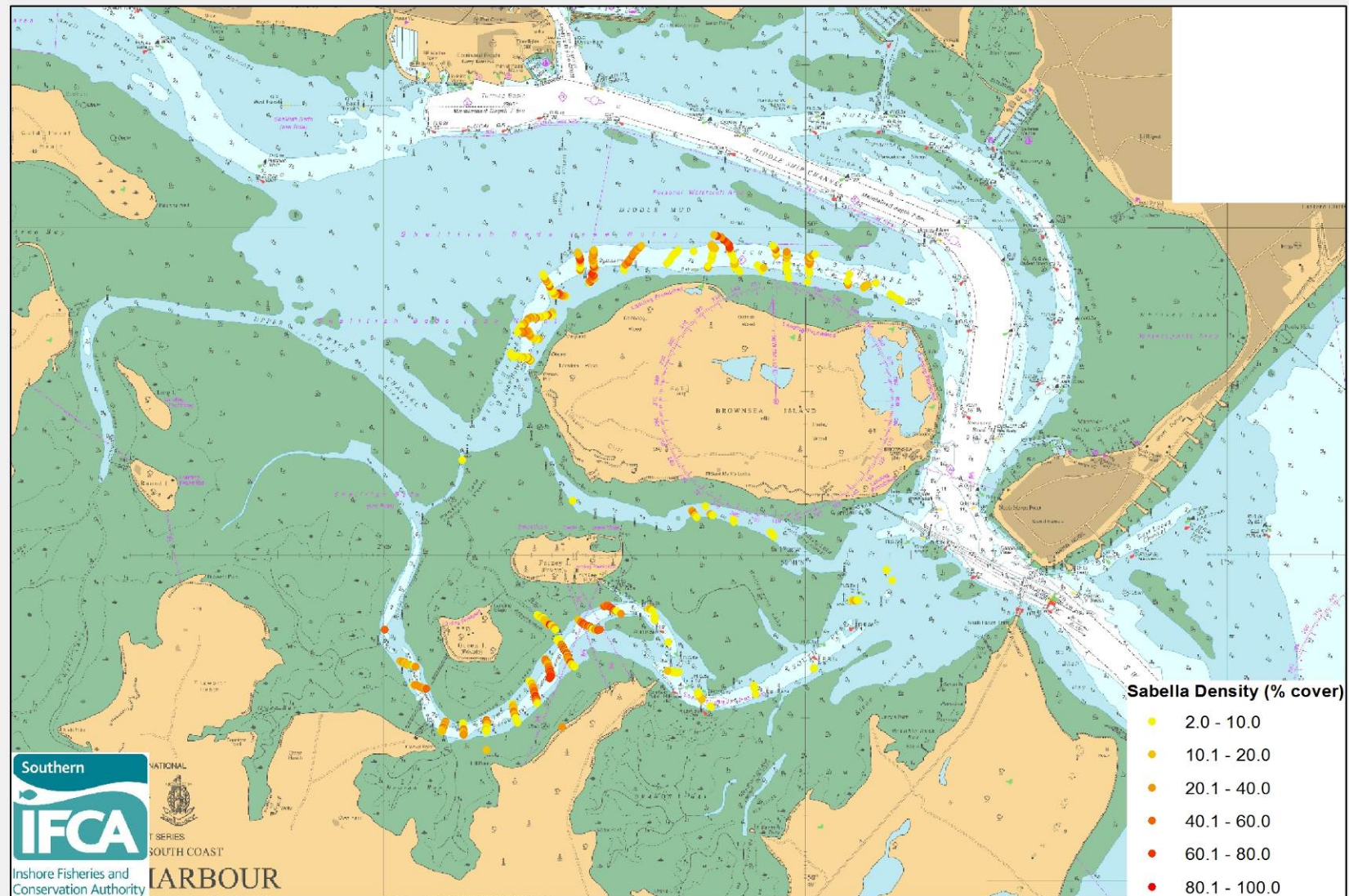
Figure 2 shows the locations of the two main seagrass beds in Poole Harbour, which are an important habitat of the intertidal estuarine sediments, particularly for fish-eating birds. These seagrass beds were previously excluded from the SSSI (as shown in Figure 2) as they occupy the lowest parts of the intertidal zone below MLW which are only exposed on certain tides.

The additional land includes all of the channels supporting peacock worm beds and the sponge *Suberites massa* below MLW (Figure 1) and the lower shore intertidal areas supporting important intertidal sediments (Figure 3), including those with seagrass beds (Figure 2).

¹ Microtidal estuaries have a tidal range of less than 2 metres; whilst for mesotidal and macrotidal estuaries, the tidal range is 2-4 metres and greater than 4 metres, respectively.

² Nationally Rare species are those found in 1-15 10km x 10km squares of the British National Grid.

TEN0115 Southern IFCA Sabella Survey of Poole Harbour 2015



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Figure 1: Density of peacock worm *Sabella pavanina* as percentage cover based on an assessment of screenshots taken from video footage.

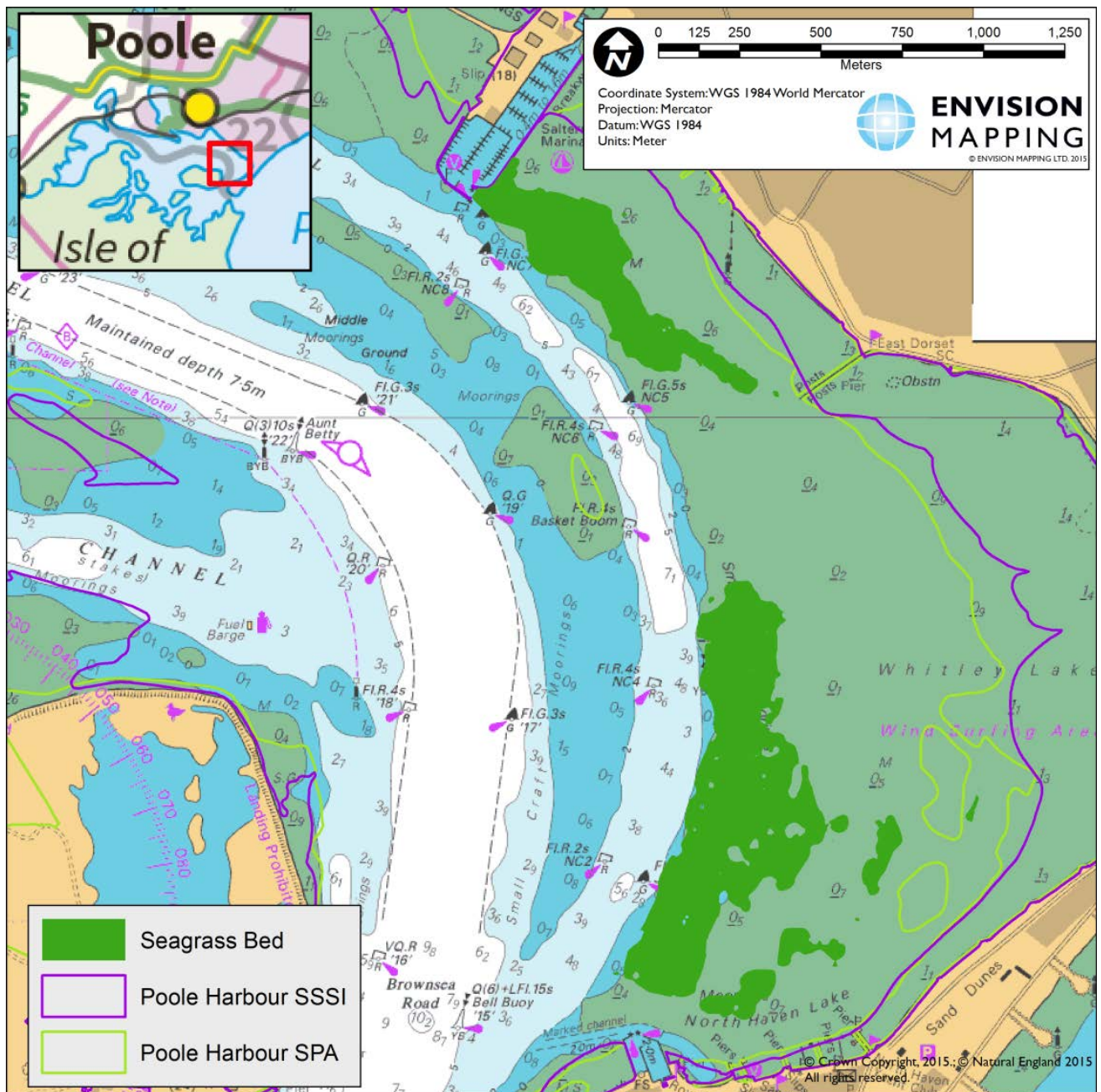


Figure 2: Seagrass beds determined from towed video footage (Envision, 2016). Note that the 'Poole Harbour SSSI' and 'Poole Harbour SPA' boundaries depicted in this map relate to the previously notified SSSI (prior to the current additions) and the SPA prior to the extensions classified in 2017.

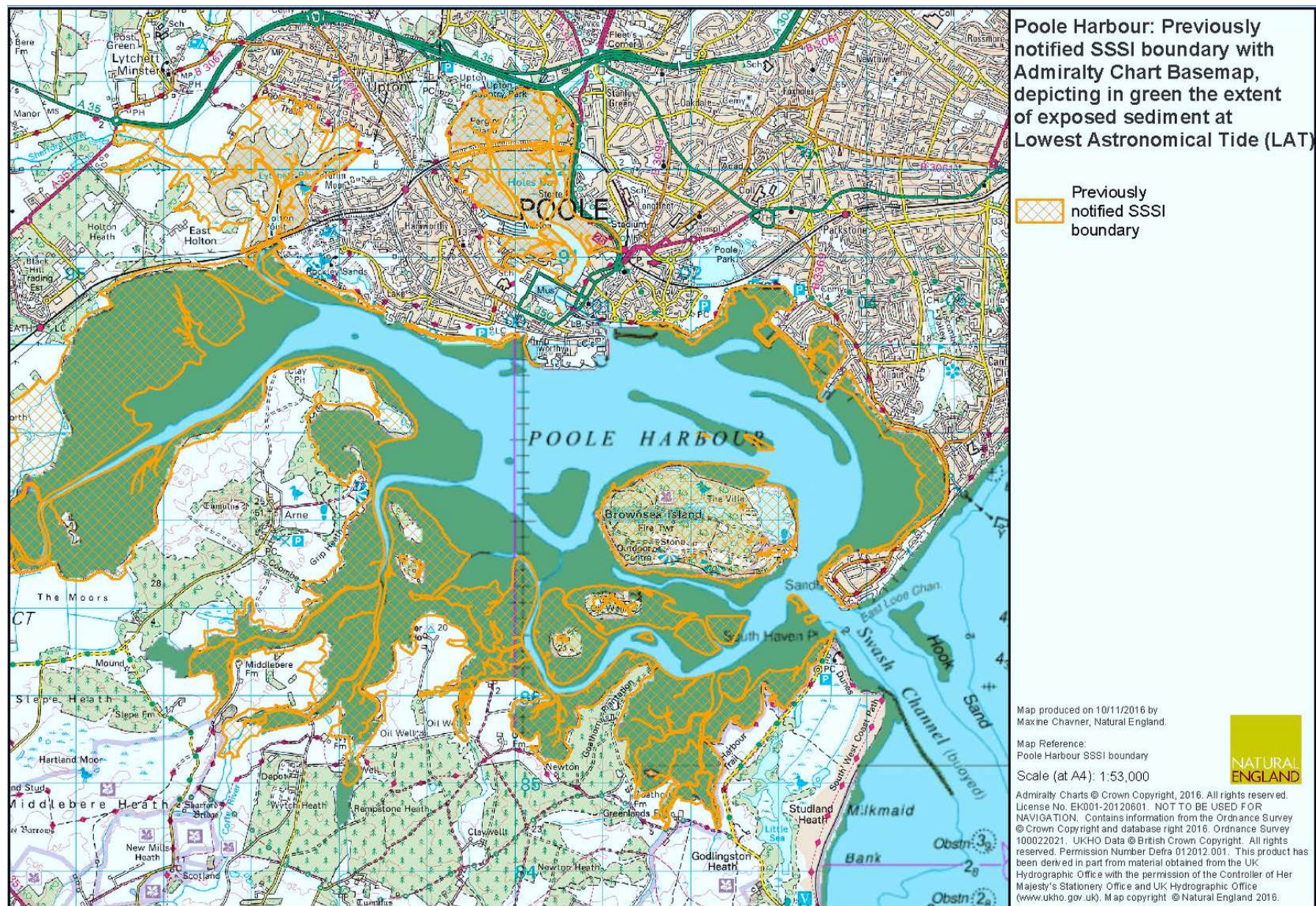


Figure 3: Intertidal sediments exposed on the lowest tides that lie outside the previously notified Poole Harbour SSSI boundary

2.1.2 Birds

The Guidelines (Part 2, Chapter 17, sections 3.2 and 3.3) state that:

'Localities which regularly support 1% or more of the total British non-breeding population of any native species in any season and non-breeding waterbird assemblages of over 20,000 individuals will qualify for SSSI selection.'

'Localities which regularly support 1% or more of the total British breeding population of any native species and seabird colonies of over 10,000 breeding pairs will qualify for SSSI selection.'

The Guidelines (Part 2, Chapter 17, section 3.8) state that:

'Localities which support an especially good range of bird species characteristic of a particular habitat, as defined by an index value, will qualify for SSSI selection.'

The SSSI (including the additional land) continues to be of special interest for its important numbers of at least 14 species of wintering wildfowl and wader, for breeding grey heron *Ardea cinerea* and redshank *Tringa totanus* and for its assemblages of breeding birds associated with lowland open waters and their margins, sand dunes and saltmarsh.

The Guidelines (Part 1, section 8.9) state that:

'Intertidal areas...usually present relatively few problems in boundary definition...Ornithological requirements usually reinforce the need to select the whole of major systems'

The Guidelines (Part 2, Chapter 17, Section 3.2) state that:

'Any site considered should normally be large enough to include all the areas required by the individuals concerned.'

The assessment of the special interest of the SSSI for wintering wildfowl and waders is based largely on the Wetland Bird Survey (WeBS) which monitors non-breeding waterbirds in the UK. WeBS counts cover the whole Harbour and do not distinguish between birds using the additional land and the previously notified SSSI, because many of the count sectors overlap between the two.

As shown in Figure 3 large areas of intertidal mudflats lie below MLW and at certain tides these will provide an additional area of food resource for wintering waders (such as black-tailed godwit *Limosa limosa*, dunlin *Calidris alpina* and curlew *Numenius arquata*) and many of the breeding waterbirds (including redshank) that forage on intertidal mud. Many birds maximise their limited time on these lower shore habitats by foraging along the edge of the tide as it recedes (Prater 1981; Ferns 1992).

In addition the areas of estuarial water below MLW are essential for fish-eating species to feed and to rest (such as wintering goldeneye *Bucephala clangula*, red-breasted merganser *Mergus serrator* and cormorant *Phalacrocorax carbo*). WeBS counts undertaken at low tide recorded these three species to be widespread in the Harbour. A key nocturnal roost site for wintering wildfowl is found off Round Island, with large numbers of red-breasted mergansers, goldeneye and great crested grebes *Podiceps cristatus* forming dense aggregations over this area of open water (Morrison 2012), which is within the additional land.

Black-headed gulls *Chroicocephalus ridibundus*, one of the breeding birds of sand-dunes and saltmarshes, form roosts on the open water in areas within the additional land (Hopper 2008).

Common and Sandwich terns are also part of the notified breeding bird interest of the SSSI and are known to forage extensively in the open water within the Harbour, as well as in the open sea outside the Harbour entrance (Aspinall & Tasker 1990). Recent research by JNCC (Wilson *et al.* 2014) has generated statistical models which predict the areas of Poole Harbour exploited by breeding common and Sandwich terns. These models predict that terns forage in open waters throughout the Harbour up to the Mean High Water mark (MHW). Surveys in locations elsewhere have confirmed that they will forage in narrow enclosed waterbodies including docks and marinas (Perrow *et al.* 2015). More recent work in Poole Harbour itself (Liley 2017) has shown that both

common and Sandwich terns make regular use of waters within the confines of areas such as marinas, harbours and boatyards. The modified and enclosed nature of these areas does not preclude foraging terns from searching for food there and levels of use were no lower than more open, immediately adjacent, Harbour waters.

2.2 Landward extension at Lytchett Fields

The low-lying land at Lytchett Fields would once have been part of the marshes fringing the Harbour but it has been separated for many years from the Harbour and a Harbour tributary, the Sherford River, by an artificial embankment. Until recently this embankment prevented any tidal inundation of the land. Although most of the embankment is still in place, significant natural breaches have recently occurred so that most of the additional land is now subject to tidal inundation (see photograph 5 in section 6). There are no plans to repair the embankment or to prevent further inevitable deterioration in its condition. Thus the additional land is now functionally part of the wider estuary and the Guidelines quoted above (see section 2.1.1) that concern boundary definition of estuaries and the need to select whole ecological units, apply equally here.

Intertidal areas are present within the additional land but because tidal inundation has only recently begun (see photograph 6 in section 6), intertidal habitats have not yet fully developed to the stages represented within the wider Harbour, though they are expected to do so over time. Similarly with saltmarsh, some saline species are present (such as saltmarsh rush *Juncus gerardii*, glassworts *Salicornia* spp. and sea-spurreys *Spergularia* spp.) but saltmarsh communities with a full suite of species have not yet developed (see photographs 7-9 in section 6). There are also small areas of brackish grazing marsh, reedbed and marsh supporting plant communities that are part of the mosaic of wetland habitats for which the SSSI is notified.

In addition to the main area of Lytchett Fields that is subject to tidal inundation, the additional land includes three adjoining areas:

- a small area of swamp vegetation continuous with similar vegetation in the previously notified SSSI, which provides suitable habitat for wetland breeding birds;
- a field adjacent to the Harbour including a depression that is seasonally wet and attracts Harbour birds. It is well known to local ornithologists because it frequently holds rare and scarce species. Although waterfowl rarely use areas of the field other than the wet depression, the quality of the wet area depends on the summer grazing management of the whole field; and
- an area of improved grassland where the margins of the field are now subject to tidal influence. These wet areas are starting to be colonised by saltmarsh species.

Lytchett Fields has been used by wintering wildfowl and waders that are part of the Poole Harbour population for many years. It was previously managed as predominantly freshwater grazing marsh but since it became subject to tidal inundation in summer 2013, it has increasingly been used by foraging and roosting birds that are part of the populations for which the SSSI is notified. The use of this area by birds may change as intertidal foraging habitats and saltmarsh continue to develop and therefore the precise nature of its contribution to supporting the bird populations of the Harbour is also likely change. Table 1 shows the use of the additional land by wintering waterbird species for which the SSSI is of special interest.

Table 1 Lytchett Fields and Poole Harbour SSSI waterbird counts 2010/11 – 2016/17

Species	Lytchett Fields peak count 2013-15 (date)	Lytchett Fields peak count 2016/17 (date)	Poole Harbour 5 year peak mean 2011/12-2015/16 (and 1% GB threshold)	% Peak Lytchett count (2013-2017) as a % of Poole Harbour 5 year peak mean
Black-tailed godwit <i>Limosa limosa</i>	553 (09/13)	1031 (08/16)	1,993 (430)	51.7%
Curlew <i>Numenius arquata</i>	13 (11/13)	43 (01/17)	1,167 (1,400)	3.7%
Dunlin <i>Calidris alpina</i>	141 (12/14)	622 (12/16)	2,510 (3500)	24.8%
Greenshank <i>Tringa nebularia</i>	12 (09/13)	17 (09/17)	19 (6)	89.5%
Redshank <i>Tringa totanus</i>	180 (11/14)	204 (08/16)	1,083 (1,200)	18.8%
Shelduck <i>Tadorna tadorna</i>	50 (05/14)	194 (05/16)	1,419 (610)	13.7%
Teal <i>Anas crecca</i>	432 (11/13)	991 (10/16)	3,683 (2,100)	26.9%
Spoonbill <i>Platalea leucorodia</i>	8 (03/15)	12 (02/17)	33 (1)	36.4%

Lytchett Fields supports significant proportions of the SSSI populations of several nationally important species of wintering wildfowl and wader. The figures are not directly comparable as those for Poole Harbour are the average of peak counts for each count year over a five year period whereas those for Lytchett Fields are simply highest counts recorded in each of two time periods since the saline inundation started to occur in the summer of 2013. Nevertheless, they demonstrate unequivocally the importance of this part of the site for the waterbird features of Poole Harbour SSSI and the contribution that the additional land makes to the special interest. Peak Lytchett Fields counts exceeded 10% of the Poole Harbour five year peak mean for all but one of the species in the above table and in the case of black-tailed godwit, greenshank and spoonbill, were also over the 1% GB population threshold.

The inclusion of Lytchett Fields is consistent with the Guidelines quoted above in section 2.1.1 regarding the definition of SSSI boundaries for birds in estuaries. The additional land extends to the embankment protecting the A35 which provides a well-defined boundary.

2.3 Landward extensions in Holes Bay

There are two separate areas of additional land along the western fringes of Holes Bay.

The northernmost of these is mostly saltmarsh, similar to adjacent saltmarshes that are included in the previously notified SSSI (see photograph 10 in section 6). The land mainly supports the lower saltmarsh communities of the National Vegetation Classification (NVC) type SM6 small cord-grass *Spartina anglica* saltmarsh, as well as locally, smaller areas of SM15 sea rush *Juncus maritimus* – sea arrowgrass *Triglochin maritima* saltmarsh. The landward boundary is where the saltmarsh abuts an area of amenity grassland.

This additional land in Holes Bay supports habitats that are notified features of the SSSI and are part of the estuary. The Guidelines quoted above (see section 2.1.1) that concern boundary definition of estuaries and the need to select whole ecological units, apply equally here.

The southern area of additional land comprises a small area along the edge of the Harbour. Below MHW this comprises reed that forms a fringe around the Harbour saltmarsh. Above MHW there is an area of grassland and reed. Inland from this grassland on the Harbour margins there is a small area of scrub and woodland up to the SSSI boundary which is the edge of the developed urban

area (here school playing fields). The previous SSSI boundary in this area did not follow any recognisable feature either on the map or on the ground so part of the justification for this small extension is a boundary revision so that where possible the boundary now follows distinctive physical features (SSSI guidelines Part 1 8.8) that follow the edge of the semi natural habitat. This is consistent with the approach to boundary definition advocated in the Guidelines (Part 1, section 8.8, p.36), which state that:

“...it is often necessary to draw at least some of the boundaries through semi-natural areas, sometimes with few helpful features on the ground. Where there are distinctive physical features, such as fences, walls, streams, or even tracks or roads, these should be used as appropriate.”

3. Assessment of the current condition of Poole Harbour SSSI

The previously notified SSSI was divided into 56 site units, of which 28 have been assessed as being in a ‘favourable’ condition, 16 are in ‘unfavourable – recovering’ condition, one is ‘unfavourable – no change’ and 11 are in ‘unfavourable – declining’ condition (position as it was on 5 March 2018).

The additional land is within three new units, the current condition of which is shown below.

Site unit*	Interest features	Reported condition**	Date of last assessment
Unit 65 (Poole Harbour Channels and Open Water) – area below MLW, all newly notified	Estuarine habitats; breeding terns and other breeding birds (foraging area); wintering birds	Favourable	8 October 2016
Unit 66 (Lyttchett Fields) – comprises newly notified extension + old units 21 (Slough Lane) and 28 (Lyttchett Bird Field), both now archived	Estuarine habitats; fens; grassland; breeding and wintering birds	Favourable	8 October 2016
Unit 67 (Holes Bay, Upton Lake mud and saltmarsh) – comprises newly notified extensions + old units 11 (Holes Bay West) and 12 (Holes Bay South), both now archived	Estuarine habitats, breeding and wintering birds	Unfavourable – declining	14 July 2017

* **Site units** are divisions used by Natural England for administrative purposes only.

** Reported condition

SSSIs are notified because of special biological or geological features. When these features are being managed so that their special nature conservation interest is being maintained they are reported to be in a favourable condition. This is a United Kingdom standard and the terminology and definitions are more fully described in *A Statement on Common Standards Monitoring*, produced by the Joint Nature Conservation Committee (JNCC) in 1998.

Reasons for adverse condition

Unit 67 in Holes Bay, Upton Lake mud and saltmarsh is assessed as being in an ‘unfavourable – declining’ condition due to saltmarsh loss, excessive cover of algal mats on intertidal sediments and saltmarsh, reed encroachment and declines in the numbers of wintering shelduck. All of these are indicative of adverse effects arising as a result of high nutrient loads in the water. In addition, saltmarsh loss may also be exacerbated by coastal squeeze as a result of sea level rise, while shelduck declines may be partly attributable to disturbance in Holes Bay.

The remedies required to address the adverse water pollution factors are:

- Nutrient reduction – actions are identified in a ‘nutrient management plan (NMP) from 2013’, including catchment sensitive farming, developer contributions to offset impacts from

new developments and improvements to sewage treatment works but these are no longer considered likely to be effective in achieving the necessary reduction in nutrient inputs to the Harbour. Moreover, implementation so far has been inadequate to address the scale of the problem. Implementation of a full range of additional measures at a catchment level and greatly increased scale is required.

- In addition, disturbance effects need improved public awareness, better management of visitor access and use of wardens in the most sensitive locations at key times. As compensation against the combination of sea level rise and the hard sea defences along parts of the Harbour shoreline, in another part of the Harbour a large managed realignment scheme is proposed to allow saltmarsh and mudflat habitats to re-establish landward of current sea defences.

4. Selection of 'Operations Requiring Natural England's Consent'

Natural England selects operations from a master list when determining the list of operations requiring consent for individual SSSIs. The selection is based on the likelihood that the operations may cause damage to the special features that are the reasons for notification of the SSSI. As well as selecting operations from the master list, the precise wording of each operation may be tailored to suit the particular circumstances at the site.

It is not possible to predict every possible eventuality that may arise on a site but the aim is to identify all operations where it is reasonably predictable that, if carried out at certain times or in a particular manner somewhere within the SSSI, they are likely to damage the special interest features. The table below records at least one reason justifying the inclusion of each operation in the list for the additional land in the Poole Harbour SSSI. It is not intended to be exhaustive and in most cases there will be other ways in which the specified operation is likely to cause damage.

Standard reference number	Type of operation	At least one reason for listing
1.	Cultivation, including ploughing, rotovating, harrowing, and re-seeding.	Important habitats could be destroyed.
2.	The introduction of grazing or changes in the grazing regime (including type of stock or intensity or seasonal pattern of grazing and cessation of grazing).	Important habitats sensitive to over-grazing.
3.	The introduction of stock feeding.	Could lead to localised nutrient enrichment or poaching which would damage important habitats.
4.	The introduction of or changes in the mowing or cutting regime (including hay making to silage and cessation).	Inappropriate mowing can damage or destroy the structural diversity of important habitats.
5.	Application of manure, fertilisers and lime.	Important habitats sensitive to nutrient enrichment.
6.	Application of pesticides, including herbicides (weedkillers).	Important habitats and associated flora/fauna all sensitive to these.
7.	Dumping, spreading or discharge of any materials.	Risk of obscuring/smothering important habitats.
8.	Burning.	Burning could damage or destroy features of interest.
9.	The release into the site of any wild, feral or domestic animal, plant or seed.	Can lead to damage to important habitats and disruption of key species.
10.	The killing or removal of any wild animal, including pest control.	Could lead to changes in community composition or direct loss of key species.

Standard reference number	Type of operation	At least one reason for listing
11.	The destruction, displacement, removal or cutting of any plant or plant remains including tree, shrub, herb, hedge, dead or decaying wood, moss, lichen, fungus, leaf-mould, turf.	Risk of direct or incidental damage to important habitats.
12.	Tree and/or woodland management (including afforestation, planting, clear and selective felling, thinning, coppicing, modification of the stand or underwood, changes in species composition, cessation of management).	Risk of direct and incidental damage to habitats and features of interest.
13a.	Drainage (including use of mole, tile, tunnel or other artificial drains).	Could directly damage or destroy wetland features.
13b.	Modification of the structure of watercourses (e.g. rivers, streams, springs, ditches, dykes, drains), including their banks and beds, as by re-alignment, re-grading and dredging.	Maintenance of water supply is crucial to the conservation of ditch systems and wetland habitats.
13c.	Management of aquatic and bank vegetation for drainage purposes.	Risk of direct and incidental damage to interest features and adjacent habitats.
14.	The changing of water levels and tables and water utilisation (including irrigation, storage and abstraction from existing water bodies and through boreholes).	Maintenance of water supply is crucial to the conservation of ditch systems and wetland habitats.
15.	Infilling of ditches, drains, ponds, pools or marshes.	Could directly damage features or lead to changes in hydrology.
16a.	The introduction of freshwater fishery production and/or management including sporting fishing and angling.	Risk of incidental damage or disturbance to key habitats and species, as well as changes in wetland community composition.
16b.	Coastal fishing or fisheries management and seafood or marine life collection including the use of traps or fish cages.	Risk of incidental damage or disturbance to important habitats and species.
17.	Reclamation of land from sea, estuary or marsh.	Loss of important habitats and disruption of coastal processes.
18.	Bait digging in intertidal areas.	Disturbance of water birds.
19.	Erection of sea defences or coast protection works, including cliff or landslip drainage or stabilisation measures.	Direct loss of important habitats and disruption of estuarial processes.
20.	Extraction of minerals, including peat, shingle, clay, sand and gravel, topsoil, shells and spoil.	Could directly damage features or lead to changes in hydrology.
21.	Construction, removal or destruction of roads, tracks, walls, fences, hardstands, banks, ditches or other earthworks, or the laying, maintenance or removal of pipelines and cables, above or below ground.	Direct loss of or incidental damage to important habitats and associated flora/fauna.
22.	Storage of materials.	Risk of obscuring/smothering important habitats and associated flora/fauna.
23.	Erection of permanent or temporary structures, or the undertaking of engineering works, including drilling.	Direct loss of or incidental damage to important habitats and associated flora/fauna.

Standard reference number	Type of operation	At least one reason for listing
24.	Modification of natural or man-made features, clearance of boulders, large stones, loose rock or scree and battering, buttressing or grading rock-faces and cuttings, infilling of pits and quarries.	Could lead to direct loss of or incidental damage to important habitats.
26.	Use of vehicles or craft likely to damage or disturb features of interest.	Damage to soils and vegetation and disturbance of key species.
27.	Recreational or other activities likely to damage features of interest.	Risk of damage to important habitats and disturbance of associated species.
28.	Introduction of or changes in game and waterfowl management and hunting practice.	Inappropriate location and types could damage important habitats, lead to unforeseen changes in community composition and disturb species.

5. Site unit map

The map on the following page shows the boundaries of the site units, which are divisions used by Natural England for administrative purposes only. The additional land is within units 65, 66, and 67.

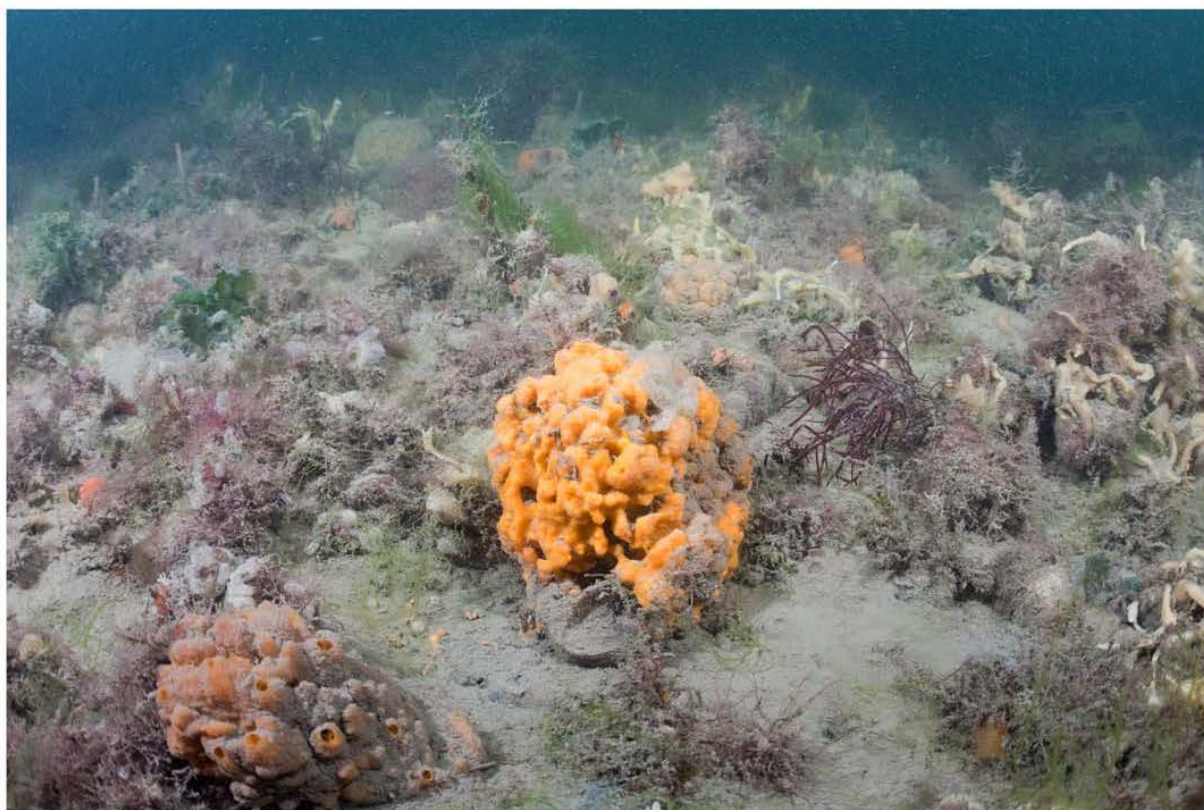
Insert site unit map here

6. Photographs

Photographs 1 & 2: Dense peacock worm *Sabella pavonina* beds in South Deep and Cleavel Point
(Copyright Lin Baldock, 2016)



Photographs 3 & 4: Sponge community in South Deep including rare *Suberites massa* (Copyright Lin Baldock, 2016)



Photograph 5: Lytchett Fields (Copyright Tormod Amundsen, Biotope)



Photograph 6: Part of Lytchett Fields affected by tidal inundation



Photographs 7-9: Saltmarsh species colonising tidal inundation areas at Lytchett Fields

7: Glasswort *Salicornia* species



8: Sea-spurrey *Spergularia* species



9: Sea arrowgrass *Triglochin maritime*



Photograph 10: Saltmarsh in Holes Bay

