

Chesil and the Fleet Special Area of Conservation/Chesil Beach and the Fleet Special Protection Area

Evidence Pack

First published August 2022

Natural England Technical Information Note TIN187

Chesil and the Fleet Special Area of Conservation/Chesil Beach and the Fleet Special Protection Area – Evidence Pack

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Project details

This report should be cited as: WOOD, A., WAKE, H. and MCKENDRICK-SMITH, K. 2022. *Evidence Pack – Chesil the Fleet Special Area of Conservation/ Chesil Beach and the Fleet Special Protection Area*. Natural England Technical Information Note. TIN187. Natural England.

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Keywords

Natural England, Nutrient Neutrality, Strategic Solutions, Chesil and the Fleet SAC, Chesil Beach and the Fleet SPA

Further information

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Acknowledgements

Thanks are given to Douglas Kite for his assistance and information he was able to provide on Chesil The Fleet SAC/SPA.

Contents

Chesil and the Fleet Special Area of Conservation/Chesil Beach and the Fleet Special Protection Area – Evidence Pack	2
Project details	3
Natural England Project manager.....	3
Author.....	3
Keywords.....	3
Acknowledgements	3
1. Site Details	5
2. Reason for European Site Designation	6
3. Nutrient Pressures and Water Quality Evidence	6
4. Additional Information.....	9
Appendix.....	11
Bibliography.....	13
List of abbreviations.....	13

1. Site Details

From Chesil and the Fleet Special Area of Conservation Citation:

The Fleet is the largest example of a lagoonal habitat in England and has features of both lagoonal inlets and percolation lagoons. It is bordered by the fossil shingle barrier beach structure of Chesil Beach, through which sea water percolates into the lagoon, but most of its water exchange occurs through the narrow channel that links it to Portland Harbour. A low freshwater input produces fully saline conditions throughout most of the Fleet, with reduced salinity occurring only in the west. The lagoon is extremely sheltered from wave action and has weak tidal streams, except in the eastern narrows and entrance channel. The tidal range is much smaller and temperature range far greater than on the open coast. The lagoon supports extensive populations of two species of eelgrass *Zostera* and three species of tasselweed *Ruppia*, including the rare spiral tasselweed *R. cirrhosa*, and a diverse fauna that includes a number of nationally rare and scarce species.

The 28 km-long shingle bar of Chesil Beach, with the contiguous Portland Harbour shore, is an extensive representative of perennial vegetation of stony banks, and most of it is relatively undisturbed by human activities. Much of the shingle bar is subject to wash-over and percolation in storm conditions and is therefore sparsely vegetated. It supports the most extensive occurrences of the rare seakale *Crambe maritima* and sea pea *Lathyrus japonicus* in the UK, together with other grassland and lichen-rich shingle plant communities typical of more stable conditions, especially towards the eastern end of the site. The inner shore of the beach supports extensive drift-line vegetation dominated by sea beet *Beta vulgaris* ssp. *maritima* and orache *Atriplex* spp. This community exists in a dynamic equilibrium with Mediterranean saltmarsh scrub, which it replaces in areas subject to disturbance, and is in turn displaced by the scrub after disturbance ceases. Mediterranean saltmarsh scrub occurs as a band of shrubby sea-blite *Suaeda vera* and sea-purslane *Atriplex portulacoides*. The largest extent of this community lines much of the 13 km length of the seaward margin of the Fleet. The community forms a clear zone between the Fleet and the shingle vegetation of Chesil Bank.

Chesil Beach and the Fleet Special Protection Area:

Birds rely on several intertidal, subtidal and terrestrial habitat types for nesting, loafing, resting and foraging. The shingle bank provides nesting for internationally important populations of breeding little tern *Sternula albifrons*, and although not features of the site, it also supports increasing numbers of breeding common tern *Sterna hirundo* and a small number of breeding ringed plover *Charadrius hiaticula*. The Fleet provides important foraging for internationally important populations of wigeon *Anas penelope* via extensive seagrass communities, comprising *Zostera marina* var. *angustifolia* and *Z. noltii* and two species of tasselweed, *Ruppia maritima* and the rare spiral tasselweed *R. cirrhosa*, which are found in the lower, mid- and west Fleet but are absent from Abbotsbury embayment and the fast-flowing Narrows eastward.

There are also extensive stands of Phragmites reedbed grading to wet meadows behind at the Abbotsbury embayment and in places along the west and east Fleet hinterland shore. Areas of mudflats occur in the east Fleet and along the hinterland shoreline, and saltmarsh habitats occur as thin linear features throughout. The Fleet is an important nursery ground for a number of fish species and is a designated sea bass nursery. As such, it provides an important food source for little tern, foraging over the Fleet for small fish. Whilst not an SPA feature, the site currently supports internationally important over-wintering populations of dark-bellied brent goose *Branta bernicla*, which winter around the Fleet and rely on the seagrass meadows for feeding habitat, and also populations of pochard *Aythya ferina*, red-breasted merganser *Mergus serrator*, little egret *Egretta garzetta* and Mediterranean gull *Larus melanocephalus*, which occur at the site in numbers exceeding the British nationally important thresholds. In addition, the site supports the largest resident mute swan *Cygnus olor* population in Britain, which graze predominantly on the seagrass beds (Frost et al., 2021).

2. Reason for European Site Designation

The Special Area for Conservation (SAC) is designated for the following features:

- H1150 Coastal lagoons
- H1210 Annual vegetation of drift lines
- H1220 Perennial vegetation of stony banks
- H1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- H1420 Mediterranean and thermo-Atlantic scrubs (*Sarcocornetea fruticosi*)

The Special Protection Area (SPA) is designated for the following features:

- Little Tern (*Sterna albifrons*)
- Wigeon (*Anas penelope*)

Links to Conservation Advice:

- [Chesil and the Fleet SAC Conservation Objectives](#)
- [Chesil Beach and The Fleet SPA Conservation Objectives](#)

3. Nutrient Pressures and Water Quality Evidence

The nutrient pressure(s) for which the site is unfavourable for:

- Nitrogen
- Phosphorus

Table 1 – Site attributes with water quality parameters and targets

Attribute	Water quality parameter	Water quality target
Supporting processes: water quality – nutrients (habitat)	Soluble reactive Phosphorus (SRP)	Less than 10µ/l annual mean
	Total Phosphorus (TP)	Less than 50µg/l annual mean
	Nitrate nitrogen	Less than c. 0.10mg/l annual mean

Mean values for phosphorus and dissolved available inorganic nitrogen (DAIN) at monitoring sites along the Fleet lagoon over the 3-year period 2010-2012 (Kite, 2016).

Table 2 – Sites with annual mean nutrient concentrations

Annual mean concentration 2010-2012				
(winter mean 2009/10-2011/12)				
Monitoring site	Ortho P annual mean	Estimated TP annual mean	DAIN annual mean	DAIN winter mean
West Fleet at Abbotsbury Swannery (Abbstbury Embayment)	87.0	150	530	1016
West Fleet 'strait' at Clouds Hill	56.9	92	380	966
West Fleet at Langton Hive Point (or Gore Cove)	30.6	49	300	742
East Fleet at Chickerell Hive Point (or Butterstreet Cove)	16.0	26	230	572
East Fleet at the Narrows (mid-channel)	20.4	33	150	230
East Fleet at Small Mount (lagoon seaward entrance)	16.8	27	130	201

Condition assessment of the Fleet lagoon as a marine SAC was completed in 2018 (Natural England, 2018). This identified most of the SAC to be in unfavourable condition (70% declining and 11% no change). The part of the lagoon closest to its entrance was assessed as favourable. The coastal lagoon feature failed the requirements for favourable condition (following the attributes which best describe the site's ecological integrity) on

species composition, presence and spatial distribution of seagrass communities, eutrophication of sediments, sediment contaminants and water quality nutrients.

SSSI condition assessment of the Fleet lagoon, subdivided into 5 assessment units, was updated in the period 2018-21 from that in the Diffuse Water Pollution Plan (DWPP). The two West Fleet units (Abbotsbury Embayment to Moonfleet) are both assessed to be in unfavourable declining condition. Unfavourable condition was due to decline in the abundance and distribution of seagrasses and foxtail stonewort, combined with supporting evidence of both water quality and biological indicators of a eutrophication affecting the ecology (excessive turbidity, inorganic nitrogen, soluble reactive phosphorus, phytoplankton (chlorophyll) and macroalgae).

The East Fleet was assessed to be in favourable condition for the designated features. However, this assessment was borderline owing to evidence of periodic seagrass loss and trend of decline in wintering wigeon population combined with water quality and biological indication of a eutrophication pressure on the ecology (notably excessive inorganic nitrogen).

The two SSSI assessment units closest to the entrance of the Fleet, both last assessed to be in favourable condition, have not been re-assessed since the DWPP.

4. Additional Information

Habitat type impacted by nutrients – Estuarine/Coastal.

Chesil and The Fleet SAC is legally underpinned by three SSSIs – Chesil and the Fleet SSSI, Portland Harbour Shore SSSI, West Dorset Coast SSSI.

Chesil Beach and The Fleet SPA is legally underpinned by Chesil and The Fleet SSSI

SSSI features of interest include:

Chesil and the Fleet SSSI:

- Aggregations of breeding birds - Little tern, *Sterna albifrons*
- Aggregations of breeding birds - Mute swan, *Cygnus olor*
- Aggregations of breeding birds - Ringed plover, *Charadrius hiaticula*
- Aggregations of non-breeding birds - Wigeon, *Anas penelope*
- Coastal vegetated shingle (SD1-3)
- EC - Bathonian
- EC - Callovian
- EC - Kimmeridgian
- EC - Oxfordian
- ED - Bathonian
- IA - Coastal Geomorphology
- Lowland calcareous grassland (CG2)

- Lowland calcareous grassland (CG3-5)
- Population of RDB cricket - *Pseudomogoplistes squamiger*, Scaly Cricket
- Population of Schedule 5 sea anemone - *Nematostella vectensis*, Starlet Sea Anemone
- Saline coastal lagoons
- SM4-28 - Saltmarsh
- Vascular plant assemblage

Portland Harbour Shore SSSI:

- EC - Jurassic - *Cretaceous Reptilia*
- EC - Kimmeridgian
- EC - Oxfordian
- SM4-28 - Saltmarsh

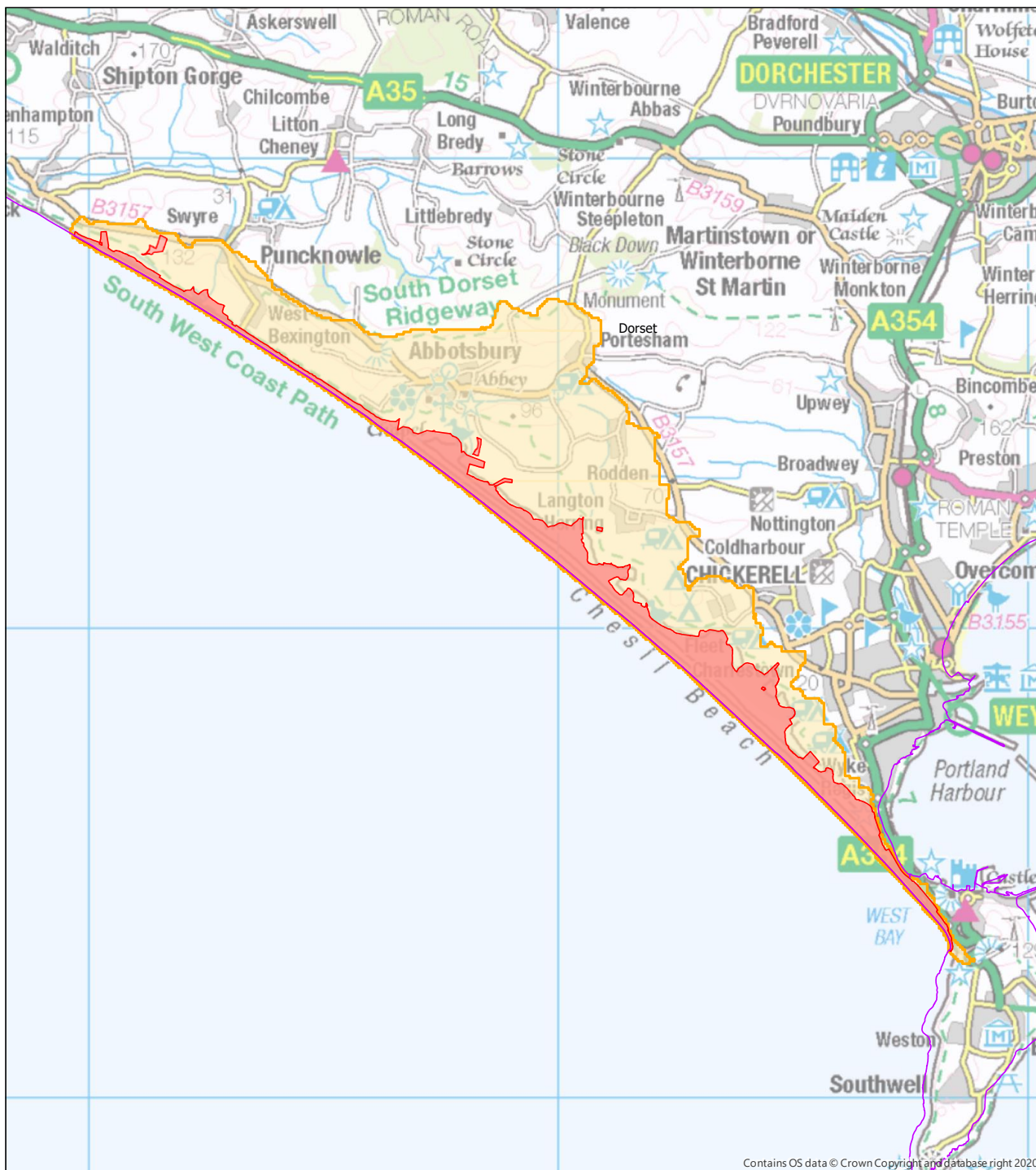
West Dorset Coast SSSI

- EC - Aalenian - Bajocian
- EC - Bathonian
- EC - Hettangian Sinemurian and Pliensbachian
- EC - Jurassic - Cretaceous Reptilia
- EC - Mesozoic - Tertiary Fish/Amphibia
- EC - Mesozoic Mammalia
- EC - Palaeoentomology
- EC - Toarcian
- IA - Coastal Geomorphology
- IA - Mass Movement
- Lowland calcareous grassland (CG3-5)
- Lowland dry acid grassland (U1b,c,d,f)
- Lowland dry acid grassland (U4)
- Lowland dry acid grassland (U4/20)
- Lowland dry heath
- Lowland meadows
- Lowland mire grassland and rush pasture
- Lowland mixed deciduous woodland
- Lowland neutral grassland (MG5)
- Nationally scarce plant - *Alopecurus bulbosus*, Bulbous Foxtail
- Nationally scarce plant - *Poa bulbosa*, Bulbous Meadow-grass
- Nationally scarce plant - *Puccinellia rupestris*, Stiff Saltmarsh-grass
- Spring/flush fen (lowland)
- Wet woodland

Appendix

Chesil and the Fleet SAC/Ramsar/SPA

Map of component SSSIs of Chesil and the Fleet SAC/Ramsar/SPA



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Scale: 1:80,000

European protected sites requiring nutrient neutrality strategic solutions
**Component SSSIs of
 Chesil and the Fleet SAC/Ramsar/SPA**

- Local Authorities
- SSSI subject to nutrient neutrality strategy
- Nutrient neutrality SSSI catchment
- National Parks

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Bibliography

Natural England 2014. Site Improvement Plan Chesil Beach & The Fleet.

FROST, T.M., CALBRADE, N.A., BIRTLES, G.A., HALL, C., ROBINSON, A.E., WOTTON, S.R., BALMER, D.E. and AUSTIN, G.E. 2021. Waterbirds in the UK 2019/20: The Wetland Bird Survey. BTO/RSPB/JNCC. Thetford.

KITE, D.J. 2016. The Fleet Diffuse Water Pollution Plan, Part 2: Evidence Base. Natural England report, 67pp.

List of abbreviations

DAIN – Dissolved Available Inorganic Nitrogen

DWWP – Diffuse Water Pollution Plan

SAC – Special Area for Conservation

SPA – Special Protection Area

SRP – Soluble Reactive Phosphorus

SSSI – Site of Special Scientific Interest

TP – Total Phosphorus

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Catalogue code: TIN187

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