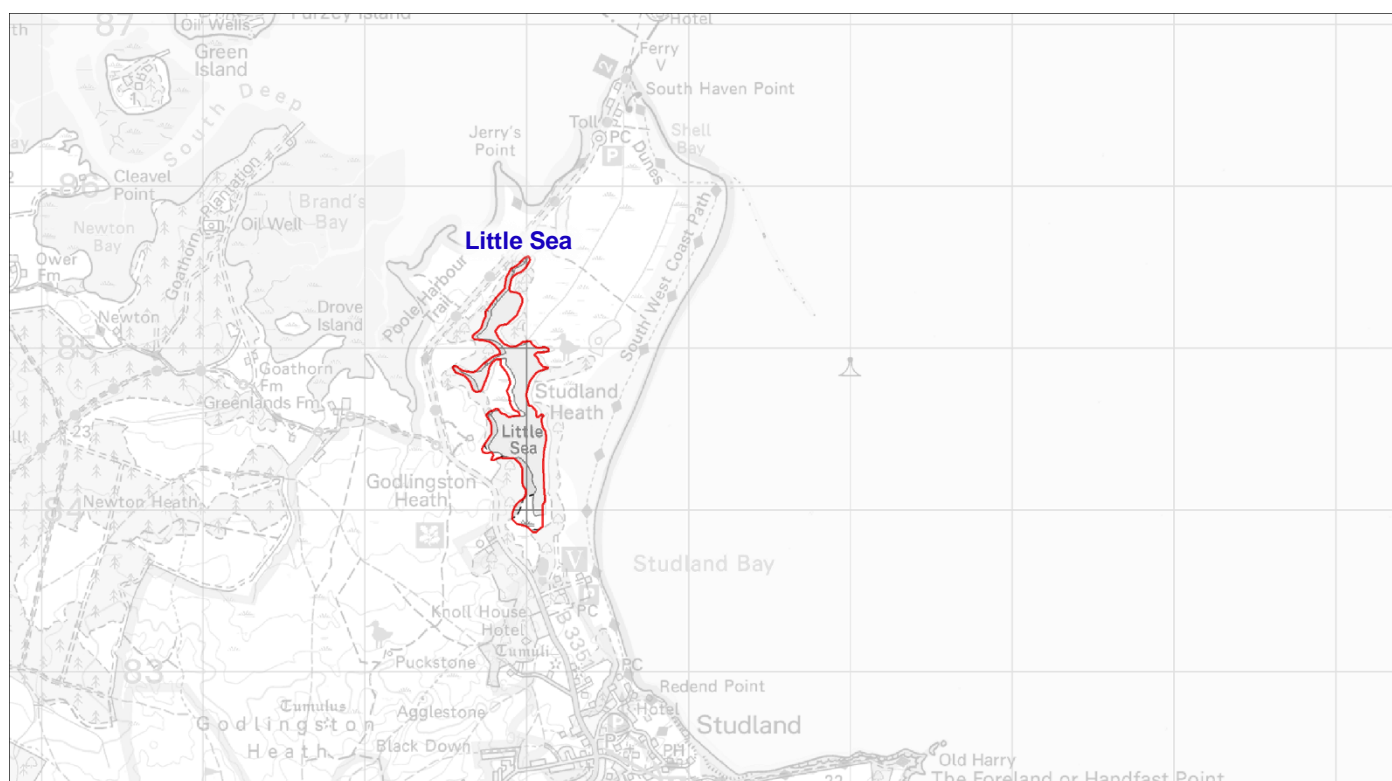




## Little Sea



Map of the Little Sea catchment

Key

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Catchment boundary

## Introduction

Unlike all other 'catchments' in the West Dorset Rivers & Coastal Streams operational catchment, which are based around rivers, Little Sea is a still water. It is in fact classed as a lowland oligotrophic lake, with low plant nutrients and acid in character, and important habitat for wildfowl.

The entire catchment is in the Dorset Area of Outstanding Natural Beauty and the coastal strip, known as the Jurassic Coast, has been designated a UNESCO World Heritage site.

<b>Surface area</b>	31.4 ha
<b>Catchment area</b>	93.25 ha
<b>Geology</b>	Overlays the Bracklesham Group and Barton Group

No waterbody in England is in pristine condition, and it is the responsibility of the Environment Agency to monitor how far from pristine the condition of our waterbodies has deviated. It is up to us to tackle the issues affecting Little Sea and make a difference on the ground (because if we don't work together and make a difference, who will?). By conserving and enhancing existing habitats of importance, restoring habitats where possible and working with natural process, it is possible to make meaningful improvements



to the condition of the water environment, and ultimately the wellbeing of communities living within the catchment.

The next sections explores the state of the lake and wider catchment, the areas that have been identified as at risk from the Environment Agency and from local people, and potential areas to explore that will help deliver our aim of improving the condition of Little Sea.

This document should be seen as a starting point for discussion and is not meant to be comprehensive. We can work with communities to explore opportunities to help improve the river and wider catchment.

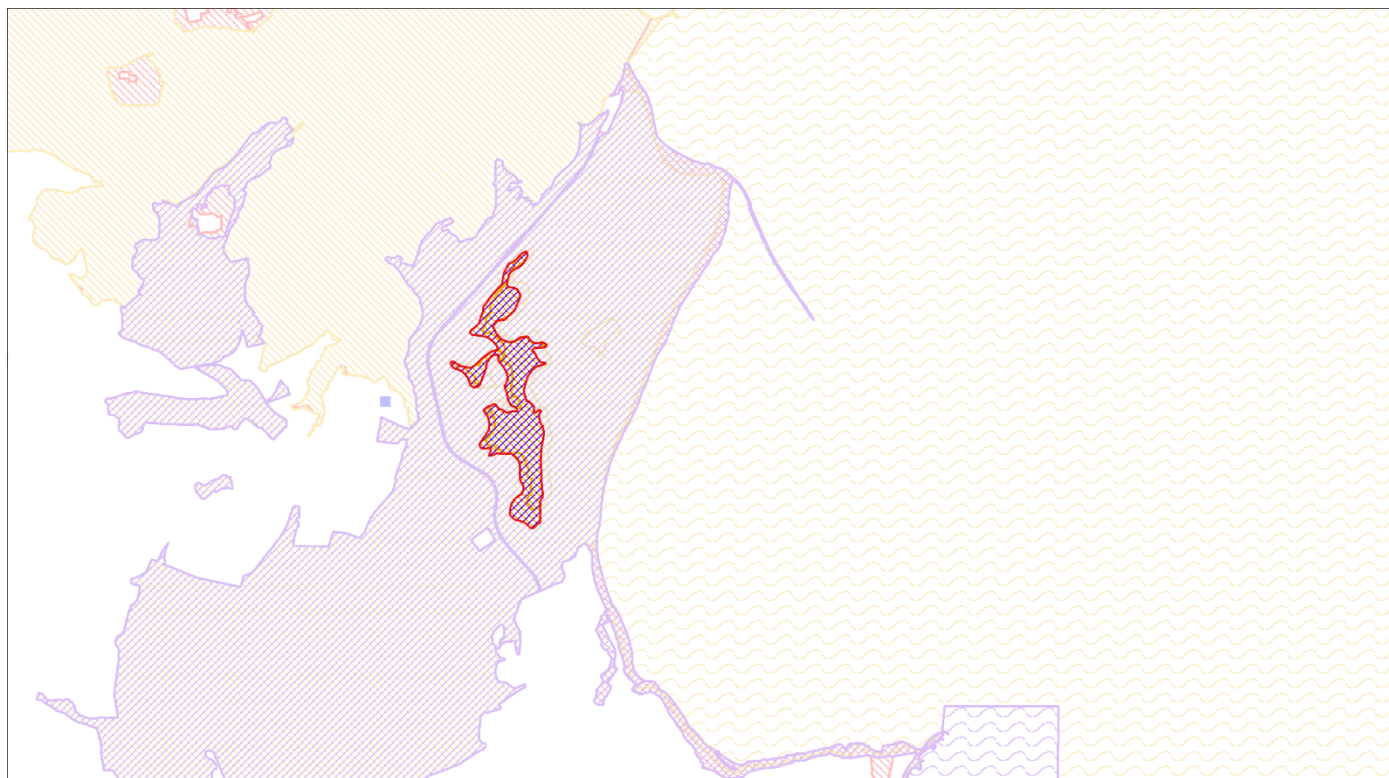


## Environment

The geology under Little Sea is made up of the Broadstone Clay Member bedrock and superficial deposits of clays, silts, sands and gravels. The Broadstone Clay Member was deposited in a coastal fluvial or shallow marine environment some 41 to 48 million years ago, and so are relatively young compared to other rocks in the catchment. The superficial deposits that impart their character on the lake were deposited 3 million years ago in a subaerial environment.

The Joint Nature Conservation Committee describe the shallow lake as of recent origin (<500 years old), formed as a large body of seawater became landlocked by the growing sand dunes (hence the name Little Sea). This water is now fresh and is replenished by acidic, oligotrophic water draining off the adjacent heathland, which then flows through the dune slacks and into the sea. The submerged vegetation is characterised by communities of alternate water-milfoil *Myriophyllum alterniflorum*, shoreweed *Littorella uniflora* and spring quillwort *Isoetes echinospora*, together with bladderwort *Utricularia australis* and less frequently six-stamened waterwort *Elatine hexandra*.

The lake sits within a network of designated sites: it is part of Studland & Godlingston Heaths Site of Special Scientific Interest, Dorset Heaths (Purbeck & Wareham) & Studland Dunes Special Area of Conservation, Poole Harbour Special Area of Conservation and Dorset Heathlands Ramsar Site



Map of the Little Sea environmental designations

Key

Catchment boundary



Sites of Special Scientific Interest  
(national)



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Special Area of Conservation  
(international)



Special Area of Conservation  
(international)



Sites of Nature Conservation Interest –  
point (local)



## Issues & Impacts

### Water Framework Directive assessment:

The Environment Agency classify waterbodies such as Little Sea into categories that reflect their overall condition. These are **High** > **Good** > **Moderate** > **Poor** > **Bad**. Little Sea is categorised as **Moderate**. The aim is to have waterbodies classed as Good, so the lake is currently considered to be a failing watercourse. It was classified as Moderate in 2014, 2015 and 2016 and Good in 2013.

The areas that the Environment Agency monitor to come up with their classification are summarised below. There is more detail behind these categories, which is available from the Catchment Data Explorer website<sup>1</sup>.

Classification area		Condition assessment category
Overall		Moderate
Ecological	Biological	Moderate
	Hydromorphological	High
	Physico-chemical	Moderate
	Specific pollutants	Moderate
Chemical	Priority substances	Good
	Other pollutants	Good
	Priority hazardous substances	Bad

The specific elements that are currently failing are:

- Phytoplankton
- Total Phosphorus
- Iron
- Polybrominated diphenyl ethers (PBDE)
- Mercury and its compounds

The impacts on the biology of the lake are increased algal growth which, when it breaks down, will limit oxygen availability in the lake for other forms of plants and animals. The diversity and abundance of phytoplankton is less than you would expect from a lake of this type. Little is currently known about the impacts of the hazardous substances on wildlife, and this an area of further work for the Environment Agency.

The Environment Agency have identified the following threats to Little Sea:

- Intermittent sewage discharge leading to elevated levels of phosphate
- Nutrient enrichment from stocked fish.
- More information is needed to understand the sources of PBDE and Mercury.

### Local assessment:

<sup>1</sup> <https://environment.data.gov.uk/catchment-planning/WaterBody/GB30846102>



To get a local perspective, we carried out consulted other stakeholders about their views on the threats facing Little Sea, including Dorset Council, Wessex Water and the Environment Agency, amongst others. We did this in 2015 and updated it in 2021. The main issues are invasive species, particularly *Crassula helmsii*.

The combined areas of most concern, as identified by the Environment Agency and local stakeholders are:

1. Invasive species
2. Nutrient enrichment



## Action

Through our engagement with organisations and individuals over the winter of 2020, several potential opportunities were highlighted for the Little Sea catchment. These are highlighted below:

- Wessex Water are developing Drainage and Waste Water Management Plans<sup>2</sup> that set out how Wessex Water will enhance their assets and networks to ensure they continue to deliver for their customers and the environment in a sustainable and affordable way and in the face of future challenges such as population growth and climate change. Combined Sewage Overflows have discharged a number of times over the past three years, but not above a threshold where further action would take place.
- Litter Free Coast & Sea<sup>3</sup> are working with agencies, businesses and local groups to engage with communities surrounding beach locations and find collaborative solutions that improve everyone's enjoyment of Dorset beaches. Currently this does not include Swanage Beach but may do in the future.
- There are funding options available to farmers to help them manage their land better for the water environment. New schemes will be starting in 2024 that will have a greater focus on managing for the water environment but up until then existing Countryside Stewardship schemes are open for new applications and extensions, along with opportunities outlined in the Agricultural Transition Plan<sup>4</sup>. Of particular interest / relevance are:
  - Farming in Protected Landscapes: a grant programme to help farmers deliver projects that benefit, nature, climate, people and place. It runs until March 2024<sup>5</sup>.
  - Catchment Sensitive Farming<sup>6</sup>

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<sup>2</sup> <https://wessexwater.maps.arcgis.com/apps/MapSeries/index.html?appid=e371301c24ca4228b36db3a3a6ba8560>

<sup>3</sup> <https://www.litterfreecoastandsea.co.uk/current-projects-and-campaigns/beach-profiles/>

<sup>4</sup>

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/954283/agricultural-transition-plan.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/954283/agricultural-transition-plan.pdf)

<sup>5</sup> <https://www.dorsetaonb.org.uk/resource/farming-in-protected-landscapes/>

<sup>6</sup> <https://www.gov.uk/guidance/catchment-sensitive-farming-reduce-agricultural-water-pollution>