Hornsea Mere Special Protection Area

Evidence Pack

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Further information

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1. Site Details

Hornsea Mere Special Protection Area

Hornsea Mere is the largest freshwater lake in Yorkshire, situated less than 1 km from the sea on the East Yorkshire coast in northern England. It is of glacial origin, shallow (1-2m deep), eutrophic and fringed with reedbeds, fen and carr. Its shallowness has encouraged the development of extensive marginal swamps of Common Reed *Phragmites australis*, Bulrush *Typha latifolia* and Common Club-rush *Schoenoplectus lacustris*. These are best developed at the west end of the mere, where they grade into Alder *Alnus glutinosa* and willow *Salix spp*. carr. There are also fen communities, rich in plant species, as well as aquatic plants of open water such as Canadian Waterweed *Elodea canadensis*, Fennel Pondweed *Potamogeton pectinatus*, Spiked Water-milfoil *Myriophyllum spicatum*, Rigid Hornwort *Ceratophyllum demersum* and Yellow Water-lily *Nuphar lutea*. Dense algal blooms occur in summer as a result of eutrophication. The reedbeds, swamp communities and wet woodland support a diverse invertebrate fauna. Hornsea Mere supports breeding and wintering waterbirds, which feed on the open water and use the marginal vegetation for feeding and roosting.

2. Reasons for European Site Designation

The Special Protection Area (SPA) is designated for:

- Gladwell *Anas strepera*
- Mute Swan *Cygnus olor*

Links to Conservation Advice:

- Conservation Objectives
- Conservation Objectives Supplementary Advice

3. Nutrient Pressures and Water Quality Evidence

Nutrient pressure(s) for which the site is unfavourable:

- Nitrogen
- Phosphorus

In the In the Conservation Objectives Supporting Advice for Hornsea Mere Special Protection Area (SPA) it states **'Where the supporting habitat of the SPA feature are dependent on surface water ensure water quality and quantity is restored to a standard which provides the necessary conditions to support the feature'.**

Water Quality data is reported against the relevant Site of Special Scientific Interest (SSSI) units within the SPA.

Table 1 – Site attribute with water quality targets

Unit Name	SSSI Unit	Monitoring Point ID	WQ Target		WQ Monitoring Data[1]		Compliance with target – Pass/Fail and % reduction needed to achieve the WQ Target	
			TP (µg/l)	TN (µg/l)	TP (µg/l)	TN (µg/l)	TP (µg/l)	TN (µg/l)
The Mere	10	Hornsea Mere at Sailing Club – NE-49000082	50	0.8	528.0	3.69	FAIL 91% reduction needed	FAIL 78% reduction needed

The condition of the waterbody and the habitats which support the designated features are in part dependent on the water quality within them.

Where excessive nutrients are present in a system this can lead to the occurrence of eutrophication, impacting on aquatic macrophyte flora and changes in water chemistry.

[1] Water Quality Monitoring data from EA WIMS database. Nutrient concentrations reported as an annual mean (March 2019 – March 2020) for Total Phosphorus (TP) and Total Nitrogen (TN).

Recent water quality measurements show Hornsea Mere to be exceeding the targets for Total Phosphorus (TP) and Total Nitrogen (TN). There is also evidence of an abundance of filamentous algae, resulting from eutrophication. Any nutrients entering the catchment upstream of the locations which are exceeding their nutrient targets, will make their way downstream and have the potential to further add to the current exceedance. Therefore, the whole upstream catchment of Hornsea Mere is included within the catchment map.

4. Additional Information

Habitat Type impacted by nutrients – Standing Water.

The SPA is underpinned by Hornsea Mere

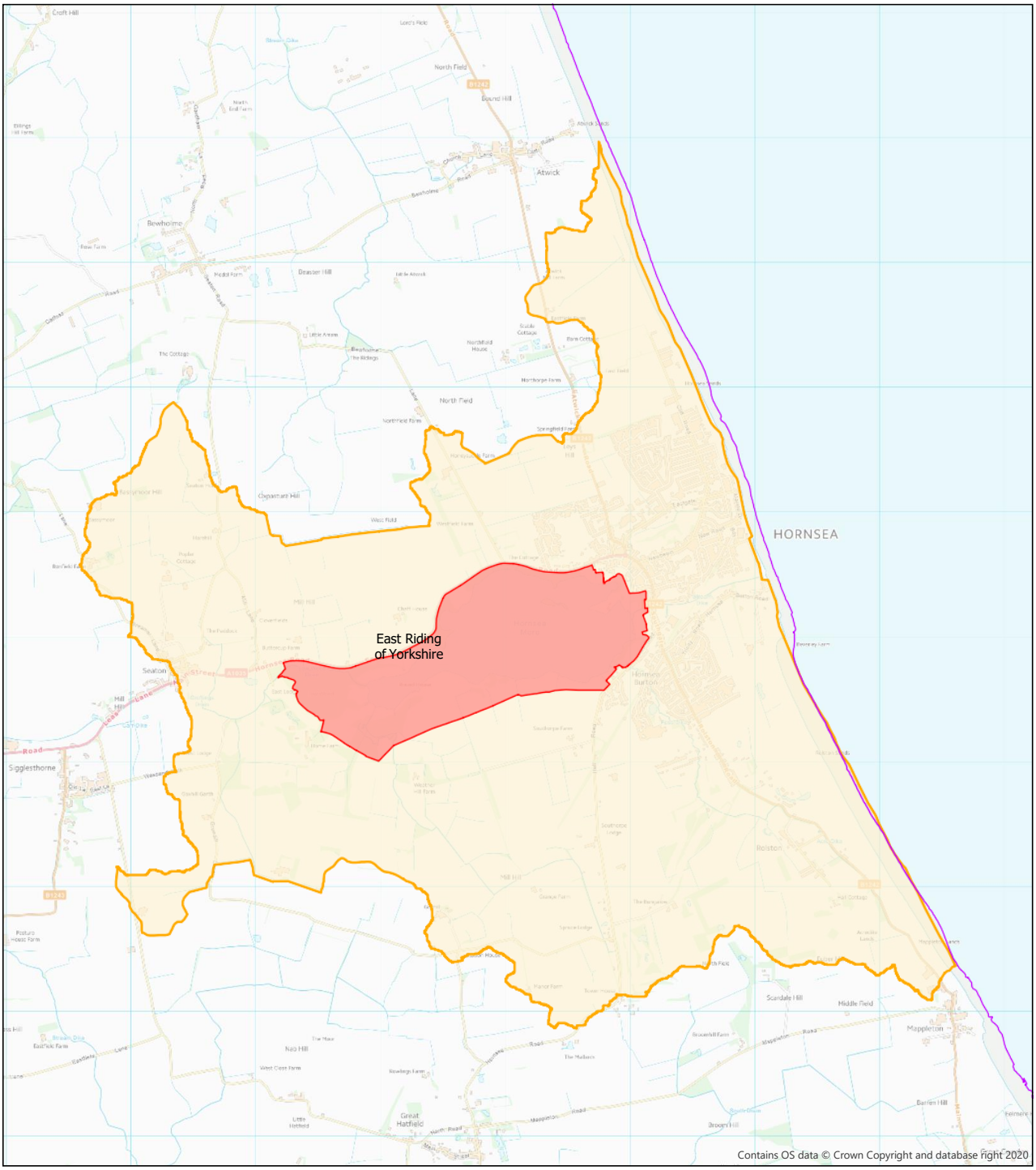
SSSI features of interest include:

- Reed Warbler *Acrocephalus scirpaceus*
- Gadwall *Anas strepera*
- Goldeneye *Bucephala clangula*
- Pochard *Aythya ferina*
- Shoveler *Anas clypeata*
- Tufted duck *Aythya fuligula*
- Eutrophic lakes
- Lowland wetland including basin fen, valley fen, floodplain fen, waterfringe fen, spring/flush fen and raised bog lagg
- Wet Woodland

Appendix

Component SSSIs of Hornsea Mere SPA

Map of component SSSIs of Hornsea Mere SPA



European protected sites requiring nutrient neutrality strategic solutions

Scale: 1:30,000

Component SSSIs of
Hornsea Mere SPA

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

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List of abbreviations

SPA – Special Protection Area

SSSI – Site of Special Scientific Interest

TN – Total Nitrogen

TP – Total Phosphorus

WQ – Water Quality

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