

Designated Site Name:

The Broads SAC / Broadland Ramsar

Site Details:

From The Broads SAC citation:

The Broads in East Anglia contain several examples of naturally nutrient-rich lakes. Although artificial, having been created by peat digging in medieval times, these lakes and the ditches in areas of fen and drained marshlands support relict vegetation of the original Fenland flora, and collectively this site contains one of the richest assemblages of rare and local aquatic species in the UK.

The stonewort – pondweed – water-milfoil – water-lily (*Characeae – Potamogeton – Myriophyllum – Nuphar*) associations are well-represented, as are club-rush – common reed *Scirpo – Phragmitetum* associations. The dyke (ditch) systems support vegetation characterised by water-soldier *Stratiotes aloides*, whorled water-milfoil *Myriophyllum verticillatum* and broad-leaved pondweed *Potamogeton natans* as well as being a stronghold of little whirlpool ram's-horn snail *Anisus vorticulus* and Desmoulin's whorl snail *Vertigo moulinsiana* in East Anglia. The range of wetlands and associated habitats also provides suitable conditions for otters *Lutra lutra*.

The Broads is the richest area for stoneworts (charophytes) in Britain. The core of this interest is the Thur ne Broads and particularly Hickling Broad, a large shallow brackish lake. Within the Broads examples of *Chara* vegetation are also found within fen pools (turf ponds) and fen and marsh ditch systems. The Broads supports a number of rare and local charophyte species, including *Chara aspera*, *C. baltica*, *C. connivens*, *C. contraria*, *C. curta*, *C. intermedia*, *C. pedunculata*, *Nitella mucronata*, *Nitellopsis obtusa*, *Tolypella glomerata* and *T. intricata*.

The complex of sites contains the largest blocks of alder *Alnus glutinosa* wood in England. Within the complex complete successional sequences occur from open water through reedswamp to alder woodland, which has developed on fen peat. There is a correspondingly wide range of flora, including uncommon species such as marsh fern *Thelypteris palustris*.

This site contains the largest example of calcareous fens in the UK. The great fen-sedge *Cladium mariscus* habitat occurs in a diverse set of conditions that maintain its species richness, including small sedge mires, and areas where great fen-sedge occurs at the limits of its ecological range. The habitat type forms large-scale mosaics with other fen types, fen meadows (with purple moor-grass *Molinia caerulea*), open water and woodland, and contains important associated plants such as fen orchid *Liparis loeselii*, marsh helleborine *Epipactis palustris*, lesser tussock-sedge *Carex diandra*, slender sedge *C. lasiocarpa* and fibrous tussock-sedge *C. appropinquata*.

There are also areas of short sedge fen (both black bog-rush – blunt-flowered rush *Schoenus nigricans – Juncus subnodulosus* mire and bottle sedge – moss *Carex rostrata – Calliargon cuspidatum/giganteum* mire), which in places form a mosaic with common reed – milk-parsley *Phragmites australis – Peucedanum palustris* fen. The Broads also contain examples of transition mire, that are relatively small, having developed in re-vegetated peat-cuttings as part of the complex habitat mosaic of fen, carr and open water.

Reason for European Site Designation:

The Broads Special Area of Conservation is designated for the following features :

- H3140 Hard oligo-mesotrophic waters with benthic veg of *Chara* spp.
- H3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*
- H6410 *Molinia* meadows on calcareous, peat or clay-silt soil
- H7140 Transition mires and quaking bogs
- H7210 Calcareous fens with *C. mariscus* and species of *C. davallianae*
- H7230 Alkaline fens
- H91E0 Alluvial woods with *A. glutinosa*, *F. excelsior*
- S1016 Desmoulin's whorl snail, *Vertigo moulinsiana*
- S1355 Otter, *Lutra lutra*
- S1903 Fen orchid, *Liparis loeselii*
- S4056 Little ram's-horn whirlpool snail, *Anisus vorticulus*

The Broadland Ramsar is designated for the following features:

- Bewick's swan, *Cygnus columbianus bewickii* - Wintering
- Floodplain alder woodland
- Floodplain fen
- Gadwall, *Anas strepera* - Wintering
- Shoveler, *Anas clypeata* - Wintering
- Wetland invertebrate assemblage
- Wetland plant assemblage
- Wigeon, *Mareca penelope* – Wintering

Links to Conservation Advice:

[Conservation Objectives](#)

[Conservation Objectives Supplementary Advice](#)

[JNCC Ramsar Information Sheet](#)

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

Nitrogen
Phosphorus

Water Quality Evidence:

In the Conservation Objectives Supporting Advice for the Broads SAC it states for phosphorus to 'maintain and, where necessary, restore stable nutrient levels appropriate for lake type' and for nitrogen it states to 'maintain and restore a stable nitrogen concentration'.

Water Quality data is reported against the relevant SSSI units within the SAC for the five SSSIs within the Broads SAC where there is currently good evidence that they are unfavourable due to nutrients.

Ant Broads and Marshes

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 (ug/l)	TN (mg/l)	TP (ug/l)	TN (mg/l)	TP	TN
Barton Broad	33	BARTON BROAD (R.ANT) AN-ANT160	30	1.07	64	1.9	FAIL 53% reduction needed	FAIL 44% reduction needed
Instead Holmes	34	No monitoring	30	1.07			Unknown	Unknown
Catfield broad	35	No monitoring	30	1.07			Unknown	Unknown
Cromes Broad	36	CROMES BROAD EDGE SAMPLE FROM SHORE AN-ANT170E	30	1.07	44	1.7	FAIL 30% reduction needed	FAIL 58% reduction needed
Reedham Water	37	No monitoring	30	1.07			Unknown	Unknown

¹ Water Quality Monitoring data from EA WIMS database. Nutrient concentrations reported are the 2019 annual mean for Total Phosphorus (TP) and Total Nitrogen (TN).

Bure Broads and Marshes

Unit name	SSSI Unit	Monitoring point ID	WQ Target		WQ Monitoring Data ²		Compliance with target – Pass/Fail and % reduction needed to achieve the WQ Target	
			TP (ug/l)	TN (mg/l)	TP (ug/l)	TN (mg/l)	TP	TN
Decoy Broad	4	DECOY BROAD R.BURE AN-BUR158	30	1.07	74	3.04	FAIL 60% reduction needed	FAIL 65% reduction needed
Hoveton Great Broad	10	HOVETON GREAT BROAD AN-BUR158	30	1.07	70	2.5	FAIL 57% reduction needed	FAIL 57% reduction needed
Hudson's Bay	11	HUDSON'S BAY, HOVETON GREAT BROAD, R.BURE AN-BUR158HB	30	1.07	104	1.79	FAIL 72% reduction needed	FAIL 40% reduction needed
Ranworth Broad	12	RANWORTH BROAD AN-BUR170A	30	1.07	94	2.99	FAIL 68% reduction needed	FAIL 64% reduction needed
Cockshoot Broad	13	COCKSHOOT BROAD AN-BUR160A	30	1.46	49	1.37	FAIL 39% reduction needed	PASS
Ranworth Flood	14	Ranworth Flood AN-BUR170RF	30	1.07	1017*	3.16*	FAIL 97% reduction needed	FAIL 68% reduction needed

² Water Quality Monitoring data from EA WIMS database. Nutrient concentrations reported are the 2019 annual mean for Total Phosphorus (TP) and Total Nitrogen (TN).

*TP Data for Ranworth Flood is a mean of 7 samples for TP and 4 samples for TN taken in 2017

Trinity Broads SSSI

Unit name	SSSI Unit	Monitoring point ID	WQ Target		WQ Monitoring Data ³		Compliance with target – Pass/Fail and % reduction needed to achieve the WQ Target	
			TP (ug/l)	TN (mg/l)	TP (ug/l)	TN (mg/l)	TP	TN
Filby Broad	20	FILBY BROAD AN-FIL010	30	1.07	42	0.89	FAIL 29% reduction needed	PASS
Lily Broad	21	Lily Broad AN-LIL010	30	1.07	78**	1.19**	FAIL 62% reduction needed	FAIL 10% reduction needed
Ormesby Broad	22	ORMESBY BROAD AN-ORM010	30	1.07	52	1.24	FAIL 42% reduction needed	FAIL 14% reduction needed
Ormesby Little Broad	23	ORMESBY LITTLE BROAD AN-ROL020	30	1.07	50	0.94	FAIL 40% reduction needed	PASS
Rollesby Broad Sailing Club	24	ROLLESBY BROAD SAILING CLUB AN-ROL010	30	1.07	39	1.01	FAIL 23% reduction needed	PASS

³ Water Quality Monitoring data from EA WIMS database. Nutrient concentrations reported are the 2019 annual mean for Total Phosphorus (TP) and Total Nitrogen (TN).

** Data for Lily Broad is the mean of 5 (TN) and 8 (TP) samples from 2017.

Upper Thurne Broads and Marshes

Unit name	SSSI Unit	Monitoring point ID	WQ Target		WQ Monitoring Data ⁴		Compliance with target – Pass/Fail and % reduction needed to achieve the WQ Target	
			TP (ug/l)	TN (mg/l)	TP (ug/l)	TN (mg/l)	TP	TN
Heigham Sound	15	HEIGHAM SOUND (R.THURNE) AN-THRO40	30	1.07	54	1.97***	FAIL 44% reduction needed	FAIL 45% reduction needed
Hickling Broad	16	HICKLING BROAD (R.THURNE) AN-THRO30A	30	1.07	52	1.6	FAIL 42% reduction needed	FAIL 33% reduction needed

Horsey Mere	17	HORSEY MERE (R.THURNE) AN-THR020	30	1.46	51	2.22	FAIL 41% reduction needed	FAIL 34% reduction needed
R. Thurne Martham Broad	18	R.THURNE MARTHAM BROAD AN-THR060	30	1.07	33	No data	FAIL 9% reduction needed	Unknown
Martham South Broad	19	MARTHAM SOUTH BROAD (R.THURNE) AN-THR061	30	1.07	33	1.11***	FAIL 9% reduction needed	FAIL 4% reduction needed

⁴Water Quality Monitoring data from EA WIMS database. Nutrient concentrations reported are the 2019 annual mean for Total Phosphorus (TP) and Total Nitrogen (TN).

*** TN data is the mean for May 2019- Mar 2020.

Yare Broads and Marshes

Unit name	SSSI Unit	Monitoring point ID	WQ Target		WQ Monitoring Data ⁵		Compliance with target – Pass/Fail and % reduction needed to achieve the WQ Target	
			TP (ug/l)	TN (mg/l)	TP (ug/l)	TN (mg/l)	TP	TN
Surlingham Broad	11	No monitoring point					Unknown	Unknown
Rockland Broad	15	ROCKLAND BROAD OUTFLOW (SHORT DIKE) AN-YAR31010	30	1.07	217 (Jan– Dec 2019)	7.65 (Jan– Dec 2019)	FAIL 86% reduction needed	FAIL 86% reduction needed
Bargate broad	24	No monitoring point					Unknown	Unknown
Wheatfen Broad	25	WHEATFEN BROAD AN-YAR305	30	1.07	326 Feb– Dec 2017)	2.68 May– Dec 2017)	FAIL 91% reduction needed	FAIL 60% reduction needed
Strumpshaw Broad	26	STRUMPSHAW BROAD AN-YAR225	30	1.07	353 Feb– Dec 2017)	2.47 May– Dec 2017)	FAIL 92% reduction needed	FAIL 57% reduction needed
Buckingham Broad	27	No monitoring point					Unknown	Unknown
Hassingham Broad	28	No monitoring point					Unknown	Unknown

⁵Water Quality Monitoring data from EA WIMS database.

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The condition of the waterbody and the habitats which support the designated features is 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.

Recent Water Quality data shows Ant Broads and Marshes, Bure Broads and Marshes, Trinity Broads SSSI, Upper Thurne Broads and Marshes and Yare Broads and Marshes are exceeding (overall) the targets for Total Phosphorus and Total Nitrogen. Within these areas four units are achieving the target for TN: Cockshoot Broad, Filby Broad, Ormesby Little Broad and Rollesby Broad Sailing Club.

The water quality targets for the water bodies are also required for the water input into the wetland habitats and dyke features to avoid changes in species composition and the loss of characteristic and sensitive species.

Additional Information:

Habitat type impacted by nutrients – Standing Water

The Broads SAC and Broadland Ramsar are underpinned by multiple SSSIs. The component SSSIs being considered here include;

- Ant Broads and Marshes
- Bure Broads and Marshes
- Trinity Broads
- Upper Thurne
- Yare Broads and Marshes

SSSI interest features include:

Ant Broads and Marshes SSSI

- Assemblages of breeding birds - Lowland open waters and their margins
- Ditches
- Eutrophic lakes
- Floodplain fen (lowland)
- Invert. assemblage W211 open water on disturbed sediments
- Invert. assemblage W313 moss & tussock fen
- Invert. assemblage W314 reed-fen & pools
- Lowland mire grassland and rush pasture
- Ponds
- Population of Schedule 8 plant - *Liparis loeselii*, Fen Orchid
- Vascular plant assemblage
- Wet woodland

Bure Broads and Marshes SSSI

- Assemblages of breeding birds - Lowland fen without open water
- Eutrophic lakes
- Floodplain fen (lowland)
- Invert. assemblage W126 seepage
- Invert. assemblage W211 open water on disturbed sediments
- Invert. assemblage W313 moss & tussock fen
- Invert. assemblage W314 reed-fen & pools
- Lowland mire grassland and rush pasture
- Vascular plant assemblage
- Wet woodland

Trinity Broads SSSI

- Aggregations of breeding birds - Marsh harrier, *Circus aeruginosus*
- Aggregations of breeding birds - Pochard, *Aythya ferina*
- Aggregations of breeding birds - Shoveler, *Anas clypeata*
- Aggregations of breeding birds - Tufted duck, *Aythya fuligula*
- Aggregations of non-breeding birds - Bittern, *Botaurus stellaris*
- Aggregations of non-breeding birds - Pochard, *Aythya ferina*
- Aggregations of non-breeding birds - Shoveler, *Anas clypeata*
- Aggregations of non-breeding birds - Tufted duck, *Aythya fuligula*
- Assemblages of breeding birds - Lowland open waters and their margins
- Floodplain fen (lowland)
- Lowland wetland including basin fen, valley fen, floodplain fen, waterfringe fen, spring/flush fen and raised bog lagg
- Mesotrophic lakes
- Otter, *Lutra lutra*
- Vascular plant assemblage
- Wet woodland

Upper Thurne Broads and Marshes SSSI

- Aggregations of breeding birds - Avocet, *Recurvirostra avosetta*
- Aggregations of breeding birds - Bearded tit, *Panurus biarmicus*
- Aggregations of breeding birds - Bittern, *Botaurus stellaris*
- Aggregations of breeding birds - Marsh harrier, *Circus aeruginosus*
- Aggregations of breeding birds - Pochard, *Aythya ferina*
- Aggregations of non-breeding birds - Bewick's swan, *Cygnus columbianus bewickii*
- Aggregations of non-breeding birds - Gadwall, *Anas strepera*
- Aggregations of non-breeding birds - Shoveler, *Anas clypeata*
- Aggregations of non-breeding birds - Teal, *Anas crecca*
- Assemblages of breeding birds - variety of species
- Charophyte assemblage
- Ditches
- Floodplain fen (lowland)
- Invert. assemblage W314 reed-fen & pools
- Lowland mire grassland and rush pasture
- Mesotrophic lakes
- Nationally scarce plant - *Potamogeton coloratus*, Fen Pondweed
- Nationally scarce plant - *Thelypteris palustris*, Marsh Fern
- Nationally scarce plant - *Thyselium palustre*, Milk-parsley
- Vascular plant assemblage
- Wet woodland

Yare Broads and Marshes SSSI

- Aggregations of breeding birds - Cetti's warbler, *Cettia cetti*
- Aggregations of breeding birds - Gadwall, *Anas strepera*
- Aggregations of breeding birds - Marsh harrier, *Circus aeruginosus*
- Aggregations of non-breeding birds - Bean goose, *Anser fabalis*
- Aggregations of non-breeding birds - Hen harrier, *Circus cyaneus*
- Aggregations of non-breeding birds - Wigeon, *Anas penelope*
- Assemblages of breeding birds - Lowland open waters and their margins
- Ditches
- Eutrophic lakes
- Floodplain fen (lowland)
- Invert. assemblage W313 moss & tussock fen
- Invert. assemblage W314 reed-fen & pools

- Lowland mire grassland and rush pasture
- Vascular plant assemblage
- Wet woodland