

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