

Introduction

This Action Plan relates primarily to still or very slow flowing open water habitats including, lakes, ponds and seasonal flashes. It also covers species-rich ditches.

Open waters can be categorised by their nutrient status. This can be nutrient poor (oligotrophic), moderately nutrient rich (mesotrophic) or nutrient rich (eutrophic). Scarborough has no oligotrophic lakes; as these tend to occur on more acid geology, which, within the local plan area, is very limited. They occur more frequently within the North York Moors. It does though have both eutrophic and mesotrophic waters.

Our objective for Open Water is:

To maintain the current range, extent and diversity of wildlife rich ponds, water bodies and ditches throughout the area and encourage the sympathetic management of them and their adjacent habitat.

Nationally, mesotrophic lakes are uncommon being dependent both on the chemistry of the underlying rocks and a low level of pollution. They are very sensitive to changes in nutrient levels and fertiliser and other runoff can alter their status, making them more eutrophic. Thus in an intensively agricultural rural area, eutrophic waters are more common and would cover the majority of ponds in the area.

Where conditions are suitable however, such as on the fringes of the Moors and along the coastal slope where run off is limited, mesotrophic waters do occur.

Both eutrophic and mesotrophic waters can be very diverse, each with its own range of common and less common species.

Mesotrophic waters tend to be spring fed and are characterised by clear water throughout the year. Algal blooms rarely occur and they have a number of characteristic plants such as Water Crowfoot, Bogbean,

Bladderwort and some rarer Potamogeton pondweeds. Marginal vegetation can also be distinctive with floating mats of sphagnum supporting a diverse flora with species such as Broad-leaved Cotton Grass.

This botanical interest is matched by the invertebrate populations and includes a number of rarer species.

Eutrophic waters tend to have extensive algal blooms in summer with dense stands of Water Milfoil. Larger sites often have considerable bird interest.

All types can hold extensive areas of other habitat types such as Hornwort beds and dense fringing vegetation such as reed bed, swamp, fen and marsh. Larger sites tend to have more limited amphibian interest due to the presence of fish stocks and large numbers of birds.

Ponds are largely eutrophic waters and are scattered throughout the area. There are though, several on the coastal slope which could be marginally mesotrophic and are therefore of interest.

They vary in origin from field ponds and dew ponds to fishponds, village ponds and garden ponds. Ponds on the coastal slope are of particular interest, being created though natural slumping and are therefore relatively short lived.

Their wildlife interest also varies enormously depending on how much nutrient enrichment occurs. Farm ponds and village ponds that have large numbers of ducks and geese or receive large amounts of enrichment from slurry etc. or are managed intensively for fishing tend to be very poor. Other, often more isolated ponds can hold extensive stands of aquatic vegetation and are of considerable interest. Ponds of the greatest significance tend to be clear, with extensive aquatic and emergent vegetation.

This can include various pondweeds, crowfoots, Water Plantain, various sedges, Marsh Cinquefoil, and many more. Some can also have more unusual species such as Tubular Water Dropwort, Greater Spearwort or Great Water Dock. Such ponds are also likely to have a significant invertebrate interest.

Open Water



Otter:
(Photograph by Whitfield Benson)

Links to Habitat and Species Action Plans and Guidance Notes.

Priority habitats and species associated with this HAP:

Water Vole, Great Crested Newt and other Amphibians, Greater Spearwort, **Bats**, Reed Bunting, **Otter**, **Water Violet**

Action Plans have been prepared for those in bold.

Many ponds also hold populations of amphibians, including Great Crested Newt. Interestingly, whilst Smooth Newt and Great Crested Newt can occur in all water types, Palmate Newt, at least in the Scarborough area, appears to prefer mesotrophic or more acidic conditions. Their distribution is therefore very restricted.

Clusters of ponds are likely to be of more significance, particularly for amphibians, than individual, isolated ones.

Mature ponds that are beginning to dry out and seasonal ponds can also be of considerable wildlife interest, providing habitat for some rarer invertebrates and can significantly enhance areas as part of a wetland mosaic. They can also be of value to amphibians, depending on the period they remain wet.

It should be noted that some aquatic species are as dependent on the surrounding habitat as for the water body itself, such as amphibians and dragonflies. All sites need therefore to be considered and managed in the context of their surrounding land to ensure that their value is maximised.

Ditches are a more difficult group to deal with, as they can be both slow flowing and relatively fast flowing. Ditches in lowland wet areas are wet throughout the year and can be of great interest. This interest will vary depending on the rate of flow and water source. Some can be akin to streams and may in fact be canalised stream or river courses taking calcareous spring water. Others are drainage ditches within peat areas and are very slow flowing.

Their species interest is also difficult to define and they can hold species from both still and flowing water. However, in Scarborough they can hold Water Violet and Common Reed stands. Other unusual species seem to occur in association with more calcareous ditches within the Vale of Pickering although they are not strictly wetland or aquatic plants. Notable amongst these is Spurge Laurel, which occurs along some ditches at Flixton and Folkton.

Ponds, ditches and lakes can also be of great value for Water Vole. Their isolation from, for example, main rivers possibly provides protection from mink populations. Ditches in the Vale of Pickering seem particular strongholds.

Both ponds and ditches are a much under recorded habitat both for vegetation and invertebrates.

Large mesotrophic and eutrophic standing waters are Priority habitats in the UK BAP.

There are 8 lakes or lake complexes of any size in the Scarborough area. Four would be considered eutrophic lakes and 4 mesotrophic. These are shown in table below.

Water Body, Type and Size

Water Body	Type	Size
Scarborough Mere	Eutrophic	8.21 ha
Hunmanby Clay Pit	Eutrophic	4.03 ha
Primrose Valley Lake	Eutrophic	0.92 ha
Throxenby Mere	Mesotrophic	1.76 ha
Brompton Mill Pond	Mesotrophic	0.28 ha
Wykeham Pits	Mesotrophic	10.76 ha
Burton Riggs	Mesotrophic	8.68 ha
Filey Dams	Eutrophic	2.41 ha

All of these lakes are man made, although two, Throxenby Mere and Scarborough Mere, are very old and may have been developed around natural water bodies. Their distribution is therefore dependent largely on man-made factors. The gravel pits being associated with the presence of underlying glacial gravel deposits and the clay pits at Hunmanby and Primrose Valley being located on good brick quality clay. Scarborough Mere, Brompton Mill pond and Throxenby Mere were associated with suitable water supplies to supply power for medieval industry and as fishponds.

Filey Dams is the only water body created specifically for wildlife purposes.

Within the region as a whole, large water bodies are limited although the resource has not been fully assessed. There are though, no regionally significant water bodies in the Ryedale, Scarborough, North York Moors and Wolds area.

What you can do to help:

Avoid leaving litter, eg: fishing tackle.

Don't collect frogs, toads and newts from wild ponds.



Filey Dams:
(Photograph by Graham Megson)

Throxenby Mere, a mesotrophic lake on the edge of the North York Moors National Park. This lake has a diverse, submerged and marginal fringe flora with a floating sphagnum bog and willow carr at the western end. As is typical of such sites, there is also a rich invertebrate fauna. Other mesotrophic sites are at Brompton (base rich) where the mill ponds are fed from a spring running from the calcareous grits on the fringe of the Moors and Wykeham Pits and Burton Riggs Gravel Pits, which are both aquifer fed. Neither of the latter two have an extensive marginal nor submerged flora, being deep and steep sided, with limited shallows.

Of the eutrophic waters, the Mere is probably the most significant. Records would suggest that this was once a mesotrophic water that has become increasingly eutrophic through increasing nutrient levels, as is common with such waters. Previously the lake was known to contain Bladderwort and a number of other species normally found in such waters, such as Rigid Hornwort. These were lost in the 1950's. A few such species still remain, notably Bogbean still grows as a small and stunted relict population on the margin of the central main island. Water quality analysis now shows high phosphorus and nitrogen levels that create extensive algal blooms in summer and Water Milfoil and Common Rigid Hornwort are the dominant submerged species.

The marginal fringe also includes Common Reed. This is now limited in the Mere, although it used to have a moderately extensive fringe at the southern end, holding several pairs of Reed Warbler. At the time, in the 1990's this was the most northerly breeding site in Britain. Although they still breed here, the reed fringe is much reduced due to incorrect assessment of the impact of dredging adjacent to it. Attempts have been

Other waters occur as variously sized ponds. No estimate has been made of the number of ponds within the BAP area; the number though is likely to be high. Similarly, the extent of ditches has not been ascertained.

The distribution of ponds and ditches is largely dependent on more natural factors, notably the surface geology.

There is no regional assessment of ponds but, as for the Scarborough area, these will occur throughout.

Lakes

Of the larger water bodies, the best of these in wildlife terms is, by far,

made to compensate for this by allowing Common Reed to spread inland on the adjacent lake edge. This has though, only been partially successful. Reed Warbler still breed here but are now known to breed further north as far as Tyneside, perhaps a further indication of our changing climate.

Because of its extensive interest, Throxenby Mere is designated as a SINC. Its status is such that it is potentially of SSSI quality.

Scarborough Mere, and Brompton Mill Pond are also considered to be of SINC status as are the Wykeham and Burton Riggs Pits*.

The gravel pits are though, limited by their deep, steep sided nature. This not only makes survey difficult but also restricts plant growth. A further problem is the fluctuating water levels, again reducing the plant-growing zone. They are though of ornithological interest.

The Filey Dams area was created specifically for birds on a formerly seasonally flooded site and it is of great ornithological significance. For plants it is of more limited value, being a recent creation. It is though of major, possibly international, significance for Great Crested Newt.

Of the other lakes, both Primrose Valley and Hunmanby Pit are considered to be of limited interest due to their intensive fishing use.

[* - Burton Riggs doesn't qualify as a SINC for its plants or habitats, but may do under other criteria such as those for birds]

Ponds

Although ponds occur throughout the area, their distribution is concentrated on areas of clay where drainage is impeded and grazing is or was the primary land use. Therefore the coastal strip from Filey through to Scarborough hold the vast majority of ponds. On areas such as the Wolds, where the underlying rock is porous, the numbers are very limited and are restricted to a few dew ponds. Surprisingly though ponds are also rare in the Vale of Pickering. Probably this is because much of the land is now drained peatland used for arable and therefore not conducive to pond creation.

Dew ponds are a special case and are of interest in the historical context although their wildlife interest can be limited. No data is available for the

extent and interest of dew ponds in the Scarborough area.

Ditches

Ditches occur throughout the area but are only really of any significant interest within the Vale of Pickering. Here they may be diverted and canalised streams flowing from springs that flow from both sides of the Vale, although primarily from the chalk. Others are drainage ditches set within the peat and are variable in their water quality.

Little data is available on them but it is interesting to note that some of the more unusual relic species occur in association with ditches which used to form part of the original channel for the River Hertford or for streams flowing off the chalk.

Maintenance has a very powerful impact on the floristic interest of ditches and those which are not intensively managed are of substantial value. A new ditch cut adjacent to the Star Carr site is developing a rich and extensive flora of species known to have been present in the area but largely reduced in extent due to the increased maintenance necessary for arable production. The low management levels almost certainly are enabling this flora to flourish. Elsewhere, largely where grassland is still the primary land use, dense Common Reed filled ditches can be found of great value for species such as Reed Bunting, which are very local in the Scarborough area and a species that is nationally in decline. Similarly the extent of the Water Violet has been severally reduced in the past 10 years due to increased cleaning or slubbing out of the ditches that has occurred in recent years.

There is little data available for ditches as a whole in the area and only one has been designated as a SINC. Almost certainly others are of similar value, particularly in association with other habitats such as hedgerows. A number from the Brompton area are known to have considerable interest containing species such as blue and pink Water Speedwell and Water Vole.

Threats

These are many and numerous relating to increasing nutrient levels, pollution, infilling and management. The exact extent of the threat though varies from site to site and depending on what the water body is.

All sites are potentially threatened by pollution. Water courses and ponds that receive water from residential and industrial areas are under the highest threat but rural ponds etc can be severely affected by pollution from farms and agricultural practices, for instance from slurry pits or pesticide spillages.

Similarly, most sites are threatened by eutrophication, the process of increasing the nutrient levels within water. This can come from a number of sources, including the use of nitrate and organic fertilisers for agriculture and fishing, discharges of treated water from sewage works and large numbers of birds such as wildfowl and gulls. This is an especially important problem for mesotrophic waters as exemplified by the loss of species from the Mere in Scarborough.

Aside from the problems of eutrophication, large numbers of waterfowl can have a severe impact on the vegetation through trampling and grazing and this will have a knock on effect on both amphibian and invertebrate populations. This has especially been the case at both Seamer Mere and Throxenby Mere.

Fish stocking/overstocking is also a problem, particularly through the introduction of fish stocks to previously fish free ponds or the introduction of Carp and Bream. These latter species have a significant impact because, as bottom feeders, they disturb bottom silts and so increase nutrient levels in the water. The introduction of fish can be especially detrimental to amphibian populations and is the likely cause of the reduction in Great Crested Newt numbers recorded at Burton Riggs. Surveys in 2002 and 2003 indicate that Great Crested Newt may no longer be present at this site.

Infilling or, in the case of ditches, culverting, has been responsible for large-scale reductions in the resource, particularly through the last century. No figures are available for the Scarborough area but studies elsewhere have shown there has been at least a 30-40% decline in the number of ponds through infilling. This has largely been due to changing agriculture with pasture being converted to arable and to the use of piped water reducing the need for natural water supplies. This latter has especially affected dew ponds in the Wolds. Siltation of ponds can occur through agricultural run-off.

No ponds have been designated as SINC's in their own right although some are covered within other sites as part of habitat mosaics. This reflects the paucity of data available and needs to be addressed. Some are likely to be of SINC status simply for their amphibian status.

Management has also had its impact, either through neglect, allowing ponds and ditches to silt up and dry out, or through increased maintenance to ensure ditches drain arable land thoroughly. Unsympathetic management is also a problem, with management not taking account of the individual specific interest of each pond. Thus seasonal ponds may be deepened or densely vegetated ponds may be cleaned out without consideration of the individual interest of that pond. In such cases it may be that it is better to create a new pond close by than clean out the old pond that is drying out. This highlights the need for careful consideration of the resource on a site by site basis.

On larger water bodies, recreational use can also have a detrimental effect by increasing disturbance, stirring up of sediments or direct destruction of habitat.



Ditch at Royal Oak: (Photograph by Steve Wilson)

Invasive alien species can have a devastating effect on the water environment and be very difficult and costly to control. Himalayan Balsam is a particularly extensive problem, with dense stands around ponds and watercourses swamping the native vegetation. Other species though are also a considerable threat, with Australian Stonecrop and Floating Pennywort being particularly significant. Floating Pennywort can, when established grow at a rate of 0.5m/day and totally take over a pond. This plant was inadvertently introduced at Throxenby Mere in 1997 and its control is still being undertaken now. Often such introductions are from well-meaning individuals cleaning out garden ponds and putting material into natural ones without realising the harm that can be done. This is equally the case with frogspawn where introduced spawn from garden ponds can also introduce disease and other less welcome species.

A final problem may well be global warming. This is likely to impact on the water environment at an early stage due to the sensitivity of the species to change.

Potential for Enhancement

There are probably more opportunities to enhance the open water environment than for any other habitat.

Pond and ditch creation, management and restoration, including bankside treatment, are one of the most popular features of agri-environment schemes, and are included within the new Entry Level Scheme for Environmental Stewardship. This provides grants to encourage such work but outside of this, grant availability is limited.

Basic advice on pond and ditch management can substantially increase their value without necessarily having a detrimental effect on farming practices.

Option for margins along ditches in Entry Level Scheme, to buffer water courses.

The extension of gravel workings and the mitigation provided as part of any consent can significantly enhance the overall resource, not only for ponds and water bodies but for other wetland habitats as well.

Such mitigation/enhancement should target specific habitats and species to maximise benefits to biodiversity.

Where possible landowners should be encouraged to create pond clusters to provide opportunities to help develop meta-populations of amphibians and reduce the likelihood of local extinctions.

Care with drainage systems such as the development of Sustainable Urban Drainage Systems (SUDS) can not only help protect existing open water but create new water bodies as part of their construction.

Similarly, the development of 'natural' sewage filter systems will again both protect existing water and create new habitats.

Water quality improvement can relatively quickly improve the habitat and allow a more diverse flora and fauna to develop.

Gravel workings restoration should have target habitats and species, eg. provision of suitable banks for Water Voles, to increase the chances of maximising biodiversity gain.

Current Action

- Through advice to landowners and the use of agri-environment schemes, new ponds etc are being created.
- A number of the larger water bodies, such as Throxenby Mere, Wykeham Pits and Burton Riggs are being managed with wildlife in mind.
- Planning and mineral consents are incorporating pond and wetland creation as part of their mitigation proposals.
- The Star Carr and Cayton Meadow proposals include the establishment and management of ditches and pools specifically for their wildlife value. One new section of ditch has already been created to allow the development of a rich flora and fauna.
- Some limited ecological surveys have been carried out.
- Local Plan policies are relevant to the protection, enhancement and creation of open water habitats and species associated with them.