

Scottish Borders  
**STANDING OPEN WATER**  
HABITAT ACTION PLAN



Our Scottish Borders  
Your environment



# STANDING OPEN WATER in Scottish Borders

## Extent

The Scottish Borders contains a wide variety of standing open waters from the large natural lochs and water supply reservoirs characteristic of the west and south of the area to the networks of small ponds and fishing pools scattered throughout the Borders region. These bodies of water have many uses ranging from fire ponds, cattle drinking, potable water, sailing, angling, and aesthetic. Standing open water is a relatively rare habitat in the Scottish Borders however, particularly in the eastern part of the region. Only 75 bodies of water of 1ha or more in size are present, and the total area is likely to be less than 1,500ha. Many of the larger bodies of water are either completely artificial or have been modified to allow control of water levels.

## Definition

This habitat type includes natural systems such as lakes, meres and pools, as well as man-made waters such as reservoirs, canals, ponds and gravel pits. It includes the open water zone which may contain submerged, free floating or floating-leaved vegetation, and water fringe vegetation. It also includes adjacent wetland habitats with contiguous water levels that are less than 0.25ha. Ditches with open water for at least the majority of the year should also be included in this type. Small areas of open water in a predominantly terrestrial habitat such as bog pools or temporary pools on heaths should be included in the appropriate terrestrial broad habitat type.

## Current Status

The LBAP area is characterised by a large diversity of morphological and trophic types of standing open water, examples of which are shown in box 1 below.

Water body type	Description	Examples in Borders Region
Eutrophic open water	High levels of plant nutrient, turbid water caused by high plankton levels. Coarse fish generally dominant. In natural state support high levels of biodiversity. Often important wildfowl sites	Yetholm Loch SSSI, Hoselaw Loch SSSI/RAMSAR, Coldingham Loch
Mesotrophic open water	Intermediate nutrient status, high biodiversity with a characteristic ecology. Where geology provides a source of basic chemicals (e.g. lime), can become marl lochs which are important in a local/ national context.	Faldonside Loch, Megget and Talla reservoirs, Branxholme Easter and Wester Lochs, St Mary's Loch/ Loch of the Lowes
Oligotrophic open water	Low levels of plant nutrients, clear water, sparse plankton. Salmonid fish generally dominant.	Cauldshiels Loch, Portmore Loch, Stantling Craig reservoir
Dystrophic open water	Highly acidic, brown stained water caused by peat drainage, low productivity.	Gameshope Loch

## Ponds: an important habitat

Ponds are defined as standing open water bodies of <2ha size. They are important habitats for the following reasons:

- These sites remain exceptionally important for biodiversity, – supporting a very high proportion of freshwater species, including some more rare species.
- Where pond catchments are predominantly semi-natural (e.g. non-intensively managed grassland, heathland, woodland, moorland), one in four supports Red Data Book species.
- Support rich and diverse freshwater communities, significantly enhancing catchment aquatic biodiversity.
- Sustain populations of rare and protected freshwater species, including the 65 Biodiversity Action Plan (BAP) species that occur in ponds.
- Because ponds have small catchment areas it is possible to create clean ponds with semi-natural surrounding catchments in all parts of Britain, even intensively managed agricultural landscapes.

*Adapted from: The Million Ponds Project: Phase 1 - 2008 - 2012. Ponds Conservation*

## Examples of probable high quality ponds in the Borders area

Dowlaw loch  
Selkirk skating pond  
Lindean Moor pond network

Annex (1) from the “Priority lake list”  
[http://www.lakeshap.org.uk/index.php?option=com\\_content&task=view&id=23&Itemid=29](http://www.lakeshap.org.uk/index.php?option=com_content&task=view&id=23&Itemid=29)

shows the condition and status of standing open waters over 1ha in Scottish Borders. Table 1 summarises the number of lochs in each status category.

## Table (1) STANDING OPEN WATER Condition in the Borders

Lake Type	Tier 1 No.*	Tier 2 No.*	Tier 3 No.*
Oligotrophic	0	0	21
Mesotrophic	1	3	27
Eutrophic	7	0	16

Tier 1 - conservation of best sites

Tier 2 - restoration of damaged sites which have biodiversity interest and the capacity to respond to measures

Tier 3 - prevention of deterioration

Tier 1 sites are lochs of known conservation importance known to be close to their natural state, based on their macrophyte communities and water chemistry. They are contained within SSSIs or SACs with aquatic interest and with at least one record for a BAP priority species.

Tier 2 sites are also of known conservation importance but there is evidence that they are degraded and lost biodiversity. However, these sites have the capacity to be restored through appropriate measures.

Tier 3 sites are not necessarily damaged sites, but there is insufficient data to assess them. Further data is required to establish their baseline condition and biodiversity value.

Further data collection is needed at the 64 Tier 3 lochs to establish biodiversity interest and condition. Of the remaining eleven, three are degraded (Tier 2) and would benefit from restoration measures, while eight have been recently monitored and are not degraded. Little is known about the status, number and condition of smaller water bodies in Scottish Borders. (Source: SEPA)

Notable in the Borders are marl lochs which are base rich through the gradual accumulation of minerals over a long period of time. These include a rare example of a deep, glacially excavated loch in the south of Scotland, and several glacially relict networks of ponds and small pools. Mesotrophic water bodies are especially well represented in the Borders and generally contain the highest biodiversity.

# Biodiversity of Standing Open Water

UKBAP Broad habitat type: Standing Open Water

Associated UKBAP Habitat Priority types:

- Mesotrophic Standing Open water
- Eutrophic Standing Open Water

**Plants:** Aquatic plants are well represented in the habitats present in the area. Several nationally scarce stoneworts (a complex form of aquatic algae) are found in meso-oligotrophic standing open waters of all sizes throughout the Borders. Pondweeds (*Potamogeton* spp) are also present including nationally scarce species. Fen, carr and fringing plant communities are supported at the margins of both upland and lowland lochs, with one or two outstanding examples of nationally scarce species such as narrow small reed and Scottish small reed present.

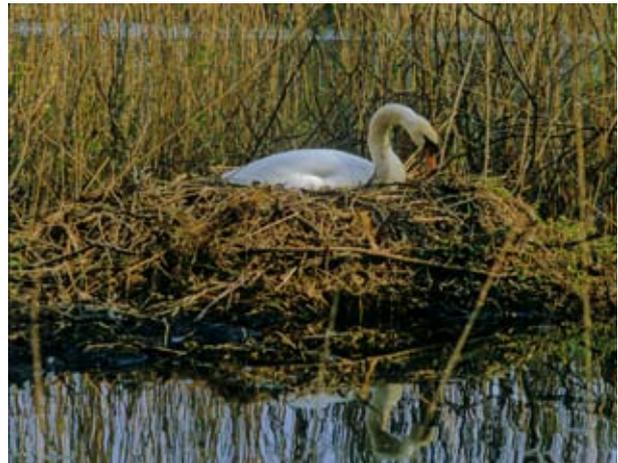
**Invertebrates:** This habitat type supports a rich invertebrate fauna in Scottish Borders. Especially interesting are the glacially relict aquatic beetles and a rare snail, together with many other insect, mollusc and crustacean species that are probably under recorded. Dragonflies and damsel flies are poorly represented but further species seem to be colonising.

**Fish:** Typically, many waters contain a salmonid dominated fish fauna – in most cases brown trout. Pike, perch, eels and minnows are also widespread. Arctic charr were once present in St Mary's loch but were driven to extinction by over fishing. Populations were introduced to Megget and Talla as refuges for a threatened population. It is not known whether they have re-colonised St Mary's Loch from Megget reservoir.

**Amphibians:** All three newt species are present in the Borders, together with common toad and common frog. The status and distribution of these species are uncertain. However, it is thought that the loss of ponds and habitat connectivity have adversely impacted numbers.

**Birds:** Several of the waterbodies in the region are important fishing sites for Ospreys. While a number of lochs provide roosting sites for wintering wildfowl, notably pink footed geese and whooper swans. A small population of black-necked grebes, a nationally rare breeding species, occurs at one waterbody. Black-headed gulls formerly bred in large numbers, with a particularly large, regionally important colony at one site, but their numbers have declined significantly in recent years for unknown reasons.

**Mammals:** This water body type is used by both otter and water vole.



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## Species of Conservation Concern associated with Standing Open Water

Preferred Name	Common Name	Group
<i>Chara aspera</i>	Rough Stonewort	Stoneworts
<i>Chara curta</i>	Lesser Bearded Stonewort	Stoneworts
<i>Chara pedunculata</i>	Hedgehog Stonewort	Stoneworts
<i>Chara rudis</i>	Rugged Stonewort	Stoneworts
<i>Nitella flexilis</i>	Smooth Stonewort	Stoneworts
<i>Nitella translucens</i>	Translucent Stonewort	Stoneworts
<i>Tolypella glomerata</i>	Clustered Stonewort	Stoneworts
<i>Nitella opaca</i>	Dark Stonewort	Stoneworts
<i>Cephalozia pleniceps</i>	Blunt Pincerwort	Liverworts
<i>Cephalozia loitlesbergeri</i>	Scissors Pincerwort	Liverworts
<i>Fossombronina fimbriata</i>	Fragile Frillwort	Liverworts
<i>Atrichum tenellum</i>	Slender Smoothcap	Mosses
<i>Ephemerum serratum serratum</i>	Serrated Earth-moss	Mosses
<i>Cinclidium stygium</i>	Lurid Cupola-moss	Mosses
<i>Pseudobryum cinclidioides</i>	River Thyme-moss	Mosses
<i>Drepanocladus vernicosus</i>	Varnished Hook-moss	Mosses
<i>Rorippa islandica sens.str.</i>	Northern Yellow-Cress	Vascular Plants
<i>Cicuta virosa</i>	Cowbane	Vascular Plants
<i>Potamogeton coloratus</i>	Fen Pondweed	Vascular Plants
<i>Potamogeton praelongus</i>	Long-Stalked Pondweed	Vascular Plants
<i>Potamogeton friesii</i>	Flat-Stalked Pondweed	Vascular Plants
<i>Rana temporaria</i>	Common Frog	Amphibians
<i>Gyrinus natator</i>	whirligig beetles	Beetles
<i>Gyrinus opacus</i>	whirligig beetles	Beetles
<i>Helophorus flavipes</i>	a mud beetle	Beetles
<i>Anacaena limbata</i>	a mud beetle	Beetles
<i>Laccobius minutus</i>	a mud beetle	Beetles
<i>Enochrus quadripunctatus</i>	a mud beetle	Beetles
<i>Chaetarthria seminulum</i>	a mud beetle	Beetles
<i>Limnebius nitidus</i>	a beetle	Beetles
<i>Stenus niveus</i>	a rove beetle	Beetles
Preferred Name	Common Name	Group
<i>Dryops anglicanus</i>	a beetle	Beetles
<i>Hydromus alismatis</i>	a weevil	Beetles
<i>Eubrychius velutus</i>	a weevil	Beetles
<i>Limonia ventralis</i>	a cranefly	True Flies
<i>Anasimyia transfuga</i>	a hoverfly	True Flies
<i>Salvelinus alpinus</i>	Charr	Fish
<i>Anguilla anguilla</i>	Eel	Fish
<i>Triturus</i>	a newt	Amphibians
<i>Triturus cristatus</i>	Warty Newt	Amphibians
<i>Triturus vulgaris</i>	Smooth Newt	Amphibians
<i>Triturus helveticus</i>	Palmate Newt	Amphibians
<i>Bufo bufo</i>	Common Toad	Amphibians
<i>Podiceps auritus</i>	Slavonian Grebe	Birds
<i>Podiceps nigricollis</i>	Black-Necked necked Grebe	Birds

Preferred Name	Common Name	Group
<i>Botaurus stellaris</i>	Bittern	Birds
<i>Cygnus olor</i>	Mute Swan	Birds
<i>Cygnus columbianus</i>	Bewick's Swan	Birds
<i>Cygnus cygnus</i>	Whooper Swan	Birds
<i>Anser fabalis</i>	Bean Goose	Birds
<i>Anser brachyrhynchus</i>	Pink-Footed footed Goose	Birds
<i>Anser albifrons</i>	White-Fronted fronted Goose	Birds
<i>Anser anser</i>	Greylag Goose	Birds
<i>Branta leucopsis</i>	Barnacle Goose	Birds
<i>Tadorna tadorna</i>	Shelduck	Birds
<i>Anas penelope</i>	Wigeon	Birds
<i>Anas strepera</i>	Gadwall	Birds
<i>Anas crecca</i>	Teal	Birds
<i>Anas acuta</i>	Pintail	Birds
<i>Anas querquedula</i>	Garganey	Birds
<i>Anas clypeata</i>	Shoveler	Birds
<i>Aythya ferina</i>	Pochard	Birds
<i>Aythya marila</i>	Scaup	Birds
<i>Bucephala clangula</i>	Goldeneye	Birds
<i>Pandion haliaetus</i>	Osprey	Birds

A full list of the specoes associated with Standing Open Waters in Scottish Borders can be found at:

<http://www.scottishborders.gov.uk/life/environment/naturalheritage/2715.html>

## Pressures Affecting the Habitat

Hydrological Alteration is one of the biggest issues facing standing open waters in Scottish Borders. Larger water bodies are often created and managed for drinking-water supply and rivers may experience sudden, rapid and unpredictable changes in water levels, while smaller bodies can be easily damaged by in-filling, draining and loss of connectivity to the hydrological cycle through land use changes. However, habitat is also created as a result of drainage abandonment (Folly Loch), amenity and sporting uses (e.g flight ponds, St Boswells boat club pond), pollution control (Cardrona golf course SUDs, FC silt control at Craik), and conservation initiatives (Ponds for Biodiversity, Tweed Forum Great Crested Newt initiative). Sympathetic management is possible, especially where organisations such as Scottish Water or Forestry Commission Scotland are responsible for land and water management or where it is a condition of a grant to a landowner.

Pollution from point sources to standing waters is largely under control via regulation whereas diffuse pollution from run off, groundwater and supplying burns is still a major concern. Standing waters are especially vulnerable because of their long retention times which concentrate and amplify pollutants such as nutrients (which can change species composition and cause algal blooms), silt (which smothers plants and animals, fills in small bodies and excludes light) or toxic pollutants (such as pesticides or herbicides). Ponds created specifically to ameliorate pollution (such as SUDs), while adding to biodiversity, may not be as biologically rich as unpolluted ponds, but can still have conservation value.

Introduction of non-native species can have devastating effects on natural ecosystems and fisheries interest. Introduced fish (native and non-native) can impact upon native species and cause ecosystem change. Accidental introductions of signal crayfish have taken place and accidental releases of other organisms can cause damage via competition and parasitism.

## Threats

**Climate change** While the precise effects of climate change are uncertain it is likely that major changes in the hydrological cycle and temperature will occur through alterations to the balance of precipitation and evaporation. Species ranges are likely to change, with some gaining and others losing habitat.

Connectivity of habitat is vitally important for most standing water species, many of which disperse and form meta-populations via networks of suitable water bodies. Connectivity is especially important in light of climate change which may force important species to move as their ranges change.

Information availability and quality is vitally important in any attempt to conserve, enhance and restore communities and habitats. Table 1 shows that information, even on the larger water bodies in the area is lacking. Much of the data collection thus far has been biased towards the interests of the recorders such as aquatic beetles whilst knowledge of other groups is limited by the need for more people with the specialist identification skills.

## Current Action/Initiatives

**Ponds for biodiversity:** Over 60 ponds were created under this Leader+ funded project led by Tweed Forum and Borders FWAG.

**Constructed wetlands project for diffuse pollution control:** 11 constructed wetlands have been created under this Tweed Forum/ Borders FWAG project. These wetlands, mainly ponds, are a low cost, low maintenance means of treating lightly contaminated water from farm steading run off from beef and dairy units and are now helping to protect the River Tweed system. The project has been funded by SNH, SEPA and Leader+funding. The ponds are being used as demonstration sites to encourage uptake elsewhere.

**Great Crested Newt pond project:** Tweed Forum has created 13 ponds specifically designed for great crested newt and sited within the Central Borders core area for great crested newts to provide connectivity between known occupied ponds. Linked to this, the Borders Amphibian and Reptile Group has been set up to monitor in the region. A new site for great crested newt was discovered in 2007 in east Berwickshire, distant from other known sites.

**River Tweed Commissioners:** Under article 47 of The Scotland Act 1998 (River Tweed) Order 2006, which came into force in November 2006, it is now an offence for any person to introduce fish, or the eggs or spawn of fish, into the inland waters of the Tweed District without the prior, written consent of the Commission. The River Tweed Commission is anxious to make the process of consent on the Tweed as transparent and straightforward as possible and has adopted a policy for the regulation of stocking which it will implement in considering applications for consents. The essence of the policy is that there should be no further stocking of "open" waters i.e. the River and tributaries and that any stocking to ponds should only be to those which are properly screened, so that fish cannot escape to the River, and that they should only be of fish that cannot breed.



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**Solway-Tweed River Basin Management Plan:** The Solway-Tweed River Basin Management plan is being produced by SEPA in consultation with a broad range of statutory and non-statutory partners. The River basin Management Plan will guide the implementation of the Water Framework Directive in the region. Safeguards for ground water dependent and surface water dependent waterbodies will be a component of this plan.



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**Tweed Catchment Management Plan:** Tweed Forum co-ordinate the Tweed Catchment Management Plan. The Wetlands & Riparian Habitat working group incorporates the LBAP Wetland Group and oversees projects that deliver wetland biodiversity objectives including those for standing open waters.

**Forestry Commission Scotland:** Craik Lochs - field survey carried out and management recommendations produced for a series of linked wetland sites. An overview vegetation survey to map the extent of priority Habitats and NVC communities present at Crooked Goose, Windy law and Black Lochs. This will guide restoration and management of mesotrophic lochs and surrounding upland flush, fen swamp and 6 blanket bog priority habitats. Occurrence of rare plants such as *Calmogrostis Stricta* will be recorded.



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**Bird Monitoring:** Wetland Bird Survey (WeBS) are carried out at a number of sites in Scottish Borders counts, goose roost counts and ringing and monitoring of mute swans is also being carried out. Most of this work is carried out by volunteer ornithologists, many linked to the Scottish Ornithologist Club.

**Aim: 'To conserve, restore, expand and, where appropriate, enhance the full range of standing open waters found in the Scottish Borders'**

**Objective 1: Maintain the condition of Scottish Borders standing open water priority sites judged to be in favourable condition.**

Target O1T1: Ensure all Tier (1) Standing open waters, and those where Habitat quality indicator species, Flagship Species and Borders Species of Conservation Concern are present but not threatened are maintained in their present condition.

Target O1T2: Identify all Tier (3) Standing open waters in favourable condition, and carry out further surveys to identify waters where Habitat quality indicator species, Flagship Species and Borders Species of Conservation Concern are present and are in favourable condition.

**Objective 2: Initiate action to restore to favourable condition (typical plant and animal communities) of other important Scottish Borders standing open water sites that have been damaged by human activity.**

Target O2T1: Develop a targeted programme to ensure all Tier (2) Standing open waters, and those where Habitat quality indicator species, Flagship Species and Borders Species of Conservation Concern are known to be present and populations/habitats known to be damaged are restored to favourable condition.

Target O2T2: Identify all Tier (3) Standing open waters which have been damaged but have restoration potential and carry out further surveys to identify waters where Habitat quality indicator species, Flagship Species and Borders Species of conservation concern are present but populations are under threat.

**Objective 3: Ensure that further high quality habitat is created at a sufficient rate to counteract historic and current rate of loss and to maintain, restore and enhance connectivity between habitats.**

Target O3T1: Complete a comprehensive open water inventory and catalogue known information about each water body

Target O3T2: Identify suitable areas for habitat creation using Borders Wetland Vision software, and predict priority areas for creation based on connectivity.

Target O3T3: Create high quality habitat at a rate sufficient to meet 'Million Pond Project' targets.

**Objective 4: Increase education and awareness of standing open waters and their importance as an asset to the communities of the Borders.**

Target 04T1: in combination with other wetland habitats, establish a public awareness programme focussing on the priority species, and sustainable use of standing open waters by 2009.

Target 04T2: Ensure a sufficient reserve of knowledge both within environmental organisations and communities to allow identification and survey of standing water species of all groups.

Target 04T3: Involve local communities in the monitoring, restoration and creation of standing water in their environs.

**General targets:**

05T1: Work towards WFD quality standards and ensure that qualifying standing open water sites in Scottish Borders meet these standards by 2015

05T2: Ensure that there are sufficient data on standing open water species and habitats to inform sustainable management practices.







4.4. Develop and implement a proposal to survey and assess condition of SEPA Tier 3 lochs.	SEPA LBAP Wetland HWG				*							1, 2
5. Communications & Publicity	Lead and Partners	2008	2009	2010	2011	2012	2017					Meets Objectives
5.1 Develop a register of standing open water sites identifying designation, potential threats and biodiversity importance	SEPA SBBRC			*								3
5.2 Host and event promoting the natural heritage interest of standing open waters	LBAP Wetland HWG				*							4
5.3 Raise awareness of important standing open water sites with appropriate interpretation and guided walks for public and schools	LBAP Wetland HWG		*	*	*	*						4
6. Plan Monitoring	Lead and Partners	2008	2009	2010	2011	2012	2017					Meets Objectives
6.1 Review Standing Open water HAP annually and revise every five years	LBAP Wetland HWG		*	*	*	*	*					*

## Abbreviations

LBAP Wetland HWG	- Local Biodiversity Action Plan Wetland Habitat Wetland Group
RTC	- River Tweed Commissioners
SEPA	- Scottish Environment Protection Agency
SGRPID	- Scottish Government Rural Payment and Inspections Directorate
SBC	- Scottish Borders Council
SBBRC	- Scottish Borders Biological Records Centre
SNH	- Scottish Natural Heritage
T FORUM	- Tweed Forum
T FOUND	- Tweed Foundation

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It is also available on our website:

[www.scottishborders.gov.uk/life/environment/naturalheritage/2715.html](http://www.scottishborders.gov.uk/life/environment/naturalheritage/2715.html)



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