

Standing Open Water Action Plan

Habitat Definition

This habitat takes in all standing open water including ponds, but excluding canals and saline lagoons, which are covered by separate action plans. The marginal habitat around standing waters is also included in this action plan, along with the 'open water' habitat.

Current Status

The Falkirk area has approximately 160ha of standing water. This includes pools, ponds, reservoirs, lochs and canals (for canals see the Canal Habitat Action Plan). A recent (1993) survey identified 58 ponds and lochs within the Falkirk area (including reservoirs, man-made ponds and saline lagoons). Only about 10 of these were absent from aerial photographs taken in 1988/89. The most recent edition of the Ordnance Survey 1:25000 Explorer map appears to show a large increase in the number of standing waters in the Falkirk Area, particularly on the Slamannan Plateau. Most of the small pools and ponds are scattered throughout the area and consist mainly of urban ponds, gravel pits, and pools within bog habitats, although others such as woodland ponds and farm ponds occur occasionally.

There are currently 5 reservoirs within the Falkirk area totalling about 28ha. The largest of these are Drumbowie Reservoir (13ha) and Little Denny Reservoir (10ha), both situated to the west of Denny. Falkirk also has two large natural lochs: Loch Ellrig (15ha) and Black Loch (40ha). Both of these lie to the south west of Falkirk on the Slamannan Plateau.

Scotland has a large number of standing waters, with a recent count of over 27,000 lochs large enough to appear on the Ordnance Survey 1:50,000 maps, and an estimated 8200 of more than 1ha. Nationally the extent of standing open water within the Falkirk area is of limited significance. However, locally standing water habitats are an important and valued element of the environment.

HABITAT PROFILE



Falkirk Council

Status:

Broad Habitat

Protection:

In summary the important environmental and natural heritage legislation with regard to biodiversity and standing open water is:

Control of Pollution Act 1974 (as amended)

Reservoirs Act 1975

Salmon and Freshwater

Fisheries Act 1975

Wildlife and Countryside Act 1981

Control of Pollution (Amendment) Act 1989

Environmental Protection Act 1990

Town and Country Planning (Scotland) Act 1997

Natural Heritage (Scotland) Act 1991

Conservation (Natural Habitats) Regulations 1994

Environment Act 1995

Key Sites:

Little Denny Reservoir

Drumbowie Reservoir

Stenhousemuir Pond

Fankerton Pond

Denovan Pond

Dunmore Park Pond

Faughlin Reservoir

Pineapple Pond

St. Helen's Loch

Loch Ellrig

Black Loch

Carron Dams SSSI

Associated Habitat and Species Action Plans

Habitats:

Fen, marsh and swamp,
Gardens, Raised and
intermediate bogs

Species:

Bean goose *Anser fabilis*
Common frog *Rana temporaria*
Common toad *Bufo bufo*
Daubenton's bat *Myotis
daubentonii*
European otter *Lutra lutra*
Great crested grebe *Podiceps
cristatus*
Great crested newt *Triturus
cristatus*
Greylag goose *Anser anse*
Ivy-leaved water crowfoot
Palmate newt *Triturus helveticus*
Pillwort *Pilularia globulifera*
Pink-footed goose *Anser
brachyrhynchus*
Reed bunting *Emberiza
schoeniclus*
Smooth newt *Triturus vulgaris*
Ranunculus hederaceus
Water rail *Rallus aquaticus*
Water vole *Arvicola terrestris*

Ecology

Scotland's water bodies provide important and very rich habitats, particularly for aquatic invertebrates, standing water and wetland plants and amphibians. They are also used by a variety of mammals, birds and fish. The habitat around standing waters is also very significant in biodiversity terms and is included in this action plan, along with the 'open water' habitat. Many Scottish standing waters have a high quality riparian habitat, with a transition from open standing water, through shoreline and wetland habitats, to drier terrestrial habitats. The overall biodiversity of a standing water depends on the maintenance of this transition, which provides many specialised habitats (e.g. strand-line, seasonal pools, wet grassland, alder carr etc).

The importance of standing waters and surrounding habitat in supporting rare species is underlined by the dependence on lochs or smaller standing water bodies of a number of priority species in the UK Biodiversity Action Plan (BAP). In Scotland, these include great crested newt and pillwort. For other BAP species such as

water vole, otter and reed bunting, standing waters may provide a substantial component of their habitat requirements.

Falkirk's standing waters also have an important visual and aesthetic value and in some cases considerable amenity value. The amenity use of standing waters includes activities such as bathing, fishing, shooting, boating and other watersports.

Larger standing open waters are often described according to their "trophic" (plant nutrient) status, based on the concentrations of phosphorus and nitrogen, which can change naturally over time. The trophic status affects

which species of plants are likely to be found, the richness of species in a standing water, and its overall biological productivity. Trophic categories of standing water include:

Oligotrophic: Standing waters with a low nutrient status. Their waters are clear, and the biomass of plants and animals is typically lower than in more nutrient-rich waters. Most common in upland areas.



Naturally mesotrophic: Standing waters with a moderate nutrient status. Mesotrophic standing waters tend to have clear water and typically support a diverse mixture of submerged water plants and associated animal life. Potentially, they have the highest biodiversity of any standing water type. No mesotrophic standing waters are known to occur in the Falkirk area.

Naturally eutrophic: Standing waters with a high nutrient status. More typical of lowland environments and naturally rich in plant nutrients, they typically support a high abundance of vegetation and a high diversity of animals. Many are important breeding, roosting and wintering sites for waterfowl.

These definitions each cover a range of nutrient concentrations along a continuum. Other distinct standing water types include marl lochs, which are lime-rich and nutrient poor, and dystrophic standing waters, which have highly acidic, brown stained water caused by peat drainage, with generally low biological productivity.

Current Factors Affecting the Habitat

There are many pressures upon the aquatic environment resulting from population, industry, agriculture, forestry, mining and other human activity. One or more of the following threats may cause a reduction in biodiversity in standing water habitats:

- Eutrophication (changes resulting when inorganic nutrient concentrations increase as a result of human activities).

Eutrophication is mainly of concern where it results from pollution caused by the release of nutrients (e.g. sewage treatment works effluents, runoff from farmland and urban areas). In all cases eutrophication leads to increased algal growth. Effects on other plant and animal life depend on the initial condition of the waterbody. As well as shading out light, leading to reductions in abundance or even losses of submerged aquatic plants, algal blooms can have significant impacts on the amenity value of standing waters.

- Acidification

Acidification of Scottish freshwaters is mainly caused by the deposition of acidic sulphur and nitrogen compounds from the atmosphere ('acid rain'), derived from the burning of fossil fuels. These inputs are augmented by nitrogen compounds from agricultural sources. Acidification can be exacerbated by coniferous forests, which remove acidic particles from the atmosphere more efficiently than non-wooded habitats. In fresh waters, acidification results in the loss of plant and animal species sensitive to, or intolerant of, the change in pH.

- Other pollution

Other types of pollution may be a significant threat to standing water biodiversity, arising from, for example:

- activities which increase turbidity & reduce photosynthesis
- Urban diffuse pollution,
- Point source discharges including sewage effluent, fish farms and thermal discharges,
- Rubbish dumping and litter accumulation.

- Catchment land use

Poor management and changes in surrounding land use can alter the water table, change the pollutant loading or degrade or remove valuable adjacent habitats.

- Change in water levels/hydrology

Water level fluctuations may result from the routine operation of drinking water supply reservoirs, or abstraction of surface or ground water upstream, and changes in river flow regime of rivers draining into the standing water.

Changes in water levels, particularly rapid or extended lowering of levels can seriously affect the near-shore habitat of standing waters (and more particularly, reservoirs) and, in the case of lowered water levels, significantly reduce shoreline biodiversity.

- Non native species

Introduction of non-native, invasive plant species (aquatic and terrestrial), may have serious impacts on native plant assemblages in standing waters. Vigorous growing non-native species can take over a smaller water body, out-competing native species and leading to an overall reduction in plant biodiversity. They may be deliberately introduced, be washed from garden ponds into river systems (and thence to standing waters) by floods, or be carried on the feet or in the feathers of ducks from garden ponds, garden centres, etc.

- Recreation

Increasing recreational pressures, such as boating and watersports, may cause erosion to the banks of popular standing waters, as well as disturbance to particular species, such as breeding wildfowl.

- Climate Change

Long-term effects of climate change on Scottish standing waters will depend on many interacting factors, including the extent and rate of change of rainfall patterns and hydrology, the effects on species distributions and effects on land use.

Current Action and Opportunities

A survey of several ponds within the Falkirk area was carried out in 1993. In addition loch surveys were carried out for St Helen's Loch, Carron Dams, Faughlin Reservoir and Black Loch in 1997.

While several sites with standing water receive active management and/or monitoring e.g. Carron Dams SSSI (by SWT) and Standburn Wildlife Site (by the Drumbowie Environmental Action Group), many standing open waters in the Falkirk area currently receive little or no management.

Objectives and Targets

Objective 1

Maintain the extent of standing open waters supporting semi-natural assemblages of animals and plants in both the 'open water' and surrounding habitat.

Target 1.1

- Ensure no net loss or reduction of standing water habitat in the Falkirk area by year 2010.

Objective 2

Maintain, and where possible improve, the ecological quality of standing waters supporting semi-natural assemblages of animals and plants.

Target 2.1

- Secure "excellent" or "good" water quality in the Falkirk area's key standing waters by 2010.

Target 2.2

- Identify and improve, on a site by site basis, the factors impairing appropriate biodiversity, including the quality of the physical structure, water quality, and the impact of non-native species. To be completed on 5 key sites by 2012.

Target 2.3

- Encourage enhancement of all standing open waters supporting semi-natural plant and animal assemblages through provision of appropriate advice to all relevant landowners and managers. By 2005.

Objective 3

Increase the biodiversity value of standing waters not currently supporting semi-natural plant and animal assemblages.

Target 3.1

- Encourage management of standing open waters not supporting semi-natural plant and animal assemblages (including any garden and public ponds) to enhance their value for biodiversity, through the promotion of good management and enhancement practices. Ongoing.

Target 3.2

- Promote the application of good practice in the use and design of SUDs to enhance their value for biodiversity. Ongoing.

Action	Potential Deliverers		Year to be completed or in place						Meets objective
	Lead	Partners	2003	2004	2005	2006	2007	2012	
A. Policy and Legislation									
1. Ensure that this habitat is afforded adequate consideration and, where possible, protected from damaging development through the planning process by: a) Developing appropriate policies within local and structure plans and other strategies as they are written and reviewed. (Ongoing).	Falk C (DS)	WWAG	✓	✓	✓	✓	✓	✓	1,2,3
2. Ensure that this habitat is afforded adequate consideration and, where possible, protected from damaging development through the planning process by: b) Production of supplementary planning guidance.	Falk C (DS)	WWAG	✓						1,2,3
3. Encourage the adoption of SUDS (Sustainable Urban Drainage Systems) as part of developments and public schemes via the planning process. (Via action A2).	Falk C (DS)	SEPA	✓	✓	✓	✓	✓	✓	1,2,3
4. Promote the adoption of SUDS in new developments and the application of SEPA good practice to ensure they are designed to enhance biodiversity.	SEPA		✓	✓	✓	✓	✓	✓	1,2,3
5. Promote opportunities through development proposals and public schemes, for rehabilitation and restoration of physically degraded areas on or around standing waters. (Via action A2).	Falk C (DS)	WWAG	✓	✓	✓	✓	✓	✓	1,2,3
B. Site Safeguard and Management									
1. Ensure that all statutory water quality and discharge consent standards are maintained.	SEPA, SW		✓	✓	✓	✓	✓	✓	2
2. Prepare and implement action plans to improve water quality in downgraded standing waters belonging to Scottish Water (as identified in D1 and D2).	SW				✓				2,3
3. Work with site owners to prepare and implement action plans to improve water quality in downgraded standing waters (as identified in D1 and D2, other than those covered in B2).	SEPA	WWAG			✓				2,3
4. Agree and implement appropriate management regimes for standing waters and their associated riparian habitats within council ownership (especially any identified in D5).	Falk C				✓				1,2
5. Prepare and implement a catchment management plan for the catchment of Millhall Reservoir, where diffuse pollution is a potential problem.	SW	Falk C (DS), SEPA, SNH				✓			2

Action	Potential Deliverers		Year to be completed or in place						Meets objective
	Lead	Partners	2003	2004	2005	2006	2007	2012	
C. Advisory									
1. Promote application of the Forestry and Water Guidelines.	FC		✓	✓	✓	✓	✓	✓	2,3
2. Promote best practice in the management of standing water habitats on farmland, and the watercourses that drain into them. Using the Farming and Watercourse Management Handbook where appropriate.	FWAG, SAC	SEPA, SNH	✓	✓	✓	✓	✓	✓	3
3. Promote the creation of farm ponds of value to biodiversity via agri-environment schemes.	FWAG, SAC		✓	✓	✓	✓	✓	✓	1
4. Promote better management of riparian habitats/strips (including opportunities to increase buffer strip widths), where possible via agri-environment schemes.	FWAG, SAC	SEPA, SNH	✓	✓	✓	✓	✓	✓	2
D. Research and Monitoring									
1. Using existing data and in consultation with local experts identify key standing water sites likely to be priorities for monitoring and protection/enhancement activities.	WWAG			✓					1,2
2. Review existing data to try to establish current water quality and habitat condition at Falkirk's key standing water sites (see D1), and to try to identify causes of water quality downgrading (particularly where biodiversity priorities may be important) and any required management action. (By 2005).	WWAG	BW, SW, SNH, SEPA			✓				2
3. Secure surveys of any of the key sites (identified in D1) for which there is inadequate data.	WWAG	Falk C			✓				1,2
4. Investigate the potential designation of any currently undesignated sites identified and surveyed in D1 and D2.	Falk C (DS),	WWAG, SWT			✓	✓			1,2
5. Identify priority areas on publicly owned and managed land where habitat enhancement proposals can be promoted.	Falk C (DS), Falk C (CS)	SEPA, SNH		✓					2,3
6. Secure ongoing monitoring of key sites (as identified in D1), as far as possible by the site owners or managers.	WWAG					✓			1,2
7. Identify additional ponds that should be the subject of survey and management and have not yet been prioritised by this plan.	WWAG						✓		1,2,3

Action	Potential Deliverers		Year to be completed or in place						Meets objective
	Lead	Partners	2003	2004	2005	2006	2007	2012	
E. Communication and Publicity									
1. Raise awareness and report good practice management for biodiversity in standing water habitats through existing newsletters and publications. (At least one article a year).	WWAG	EARAG	✓	✓	✓	✓	✓	✓	1,2,3
2. Use the 'Water' topic in the Eco-schools programme to help promote water habitats and biodiversity during work with schools.	EARAG		✓	✓	✓	✓	✓	✓	1,2,3
3. Organise an event for landowners, land managers and other relevant groups to promote good practice in the protection, enhancement and management of standing waters and available support and funding for such activities. (Combined with action E1 in the fen, marsh and swamp action plan).	WWAG	FWAG, Falk C (DS), FABP			✓				1,2,3
4. Promote the provision of wildlife friendly garden ponds via the '10 steps for garden biodiversity' and wildlife gardening campaign.	EARAG	UAG	✓	✓					3
5. Include this habitat in the local biodiversity awareness raising and education strategy.	EARAG		✓	✓	✓	✓	✓	✓	1,2,3
F. Plan Monitoring and Review									
1. Monitor the implementation of actions in this plan annually.	WWAG	All partners	✓	✓	✓	✓	✓	✓	1,2,3
2. Monitor completion of actions in detail and review this plan every five years to ensure continued effectiveness, starting in 2007.	WWAG	All partners					✓	✓	1,2,3

Abbreviations

BW	- British Waterways	SAC	- Scottish Agricultural College
EARAG	- Education and Awareness Raising Action Group	SEPA	- Scottish Environment Protection Agency
FABP	- Falkirk Area Biodiversity Partnership	SNH	- Scottish Natural Heritage
Falk C (CS)	- Falkirk Council Community Services	SW	- Scottish Water
Falk C (DS)	- Falkirk Council Development Services	UAG	- Urban Action Group
FC	- Forestry Commission	WWAG	- Water and Wetland Action Group
FWAG	- Farming and Wildlife Advisory Group		

Key contacts

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