

**Conservation Management – Update on Practical Work and Monitoring with  
specific reference to Hickling**

Report by Head of Construction, Maintenance & Environment

**Summary:** This report summarises the practical conservation work delivered by the Authority from its revenue budgets and operational workforce during the 2016/17 financial year. Conservation practical work, and other work requiring ecologically sensitive delivery, is planned and managed by the Environment & Design Team in the Operations Directorate. The significance of routine fen management in the annual work plan is highlighted, as is the integrated nature of construction and maintenance work delivering a range of corporate priorities and projects. The key work areas for delivery in 2017/18 are also outlined.

**Recommendation:** That members note this update on the Authority's practical conservation work and the current practice regarding Hickling Broad.

## **1 Practical Conservation Overview**

1.1 Routine practical conservation work delivered by the Authority's Construction, Maintenance & Environment section focusses primarily on management of fens, with invasive species control and waterbody restoration work also featuring on an annual basis. To bring the time allocation of Construction & Maintenance staff in line with the revenue budgets available for project delivery, their work time is split between the Authority's three statutory purposes. The current allocation, as of 2016/17, is:

- 20% - Conserving and enhancing the natural beauty, wildlife and cultural heritage of the Broads (Conservation)
- 10% - Promoting opportunities for the understanding and enjoyment of the special qualities of the Broads by the public (Recreation)
- 70% - Protecting the interests of navigation. (Navigation)

A 20% allocation of Operations Technicians time is currently devoted to work focussed on achieving the Authority's conservation activities. At current staffing levels of Operations Technicians and Apprentice, there are 22.6 full time equivalents (FTE's). This equates to 820 person work days per year on conservation work. This work is supported and planned by the Environment Officers, of which there are 3.6 FTE's.

- 1.2 As a brief overview of practices, practical conservation work in the fen habitat involves grazing by ponies or mechanically cutting the tall vegetation, including reeds, grasses and sedges; clearing drainage dykes of silt and plants; and removing trees and scrub from the open fen areas. The work is guided by the [Biodiversity & Water Strategy](#), with on-site planning and decision making made by the Environment Officers. Invasive plant species that the Authority actively controls includes Himalayan balsam, Japanese knotweed, giant hogweed, Australian swamp stonecrop, parrot's feather and floating pennywort. Where the Authority chooses to actively manage invasive species is reviewed annually, with priority sites being those managed by the Authority, those adjacent to highly sensitive conservation sites and where there are hazards to the public. Current restoration and management work in the broads and rivers, aimed at improving ecological features and water quality, ranges from small scale fish removal work (biomanipulation) to erosion protection to restore vegetated edges and islands.
- 1.3 Draft income and expenditure associated with practical conservation work areas is summarised for the last financial year 2016/17 in Table 1 below.

Table 1. 2016/17 income and expenditure for practical conservation

	External Income £	Draft annual costs (to end Mar 2017) £
Fen management	113,580	198,310
Invasives control	0	21,400
Lake/Riverbank management	10,000	75,280
Total	123,580	294,990

a – costs = operations technicians & Environment & Design Team time; BA plant costs; revenue budget expenditure

External income for fen management came from the Authority's Higher Level Stewardship schemes, and via management agreements with landowners. The £10,000 for lake restoration work came from the Environment Agency and their partnership with the Authority for the Hickling Broad Enhancement work.

## 2 2016/17 Summary of Conservation Management by the Broads Authority

- 2.1 On a staff time and revenue budget expenditure basis, the fen work is the largest part of the practical conservation programme. It is also the largest source of regular income, being funded primarily through agri-environment scheme payments direct to the Authority or via management agreements with third party landowners.

Table 2. Annual income from practical management on fen sites 2016/17

Site	Scheme/Contribution	Annual amount £
How Hill, Ludham (BA freehold)	HLS (Higher Level Stewardship)	45,350
	SPS (Single Payment Scheme)	4,500
Horning Marsh Farm, Horning (Essex & Suffolk Water)	HLS held by Broads Authority	7,900
	Landowner annual contribution	3,500
	Capital work payment	6,000
Cary's Meadow, Thorpe (BA freehold)	HLS (Higher Level Stewardship)	850
	SPS (Single Payment Scheme)	1,600
Whitlingham Marsh, Anglian Water	Individual Management Agreements with Broads Authority	28,140
Decoy Carr, Acle		
Mill Marsh, Barton Turf		
Stanley Carr, Aldeby		
Snipe Marsh, Ludham		
Common Fen, Smallburgh		
Lamb's Marsh, Irstead		
Hulver Ground, Horning		
Hall Fen, Irstead		
Burgh Common, Fleggburgh		
Little Reedham, Ludham		
Ludham Marshes & Rollesby Poors land	Natural England funded	6,190
Third party fen sites in the Broads	Contracted work with fen harvester	9,550
<b>Total income</b>		<b>£113,580</b>

The Authority itself holds three Higher Level Stewardship (HLS) schemes, at How Hill and Horning Marsh Farm. The Authority's grazing land at How Hill, Locks Meadow, Geldeston and Cary's Meadow, Thorpe St Andrew, also attract Single Payment Scheme (SPS) income. Other management agreements exist for an additional 11 priority biodiversity fen sites owned by a variety of third parties, typically holding their own HLS agreements. The annual work programming, budget planning and monitoring is carried out by the Environment & Design Team, with individual Environment Officers having responsibility for the sites listed in Table 2.

- 2.2 Plant monitoring and mapping in the priority fen and open water broads forms an integral part of the active management work delivered in-house. Monitoring to enhance knowledge and evidence of the success of management actions,

or identifying site trends in habitat quality, is carried out as part of the annual work programme.

- 2.3 Currently 238 hectares of fen habitat are regularly managed by the Broads Authority under the management agreements set out in Table 2, with additional areas managed on a one-off or contractual basis. Table 3 below gives the areas and lengths of fen and dykes managed in 2016/17.

Table 3. Areas and lengths of fen management work in 2016/17

Fen Harvester	11.6 ha
Hand mowing (staff)	6.0 ha
Hand mowing (contractors) <sup>a</sup>	6.7 ha
Scrub Clearance	1.7 ha
Scrub Roguing	1.0 ha
Pony Grazing	61.1 ha
Heath Restoration	0.13 ha
Dyke clearance & reprofiling	1.2 km

a – not including commercial cutting

- 2.4 Commercial cutting by reed and sedge cutters is a management feature of nearly all the fen sites actively managed by the Authority. Where it is possible to restore areas for commercial harvest, the work to regain the quality and consistency of the beds is funded as part of the routine management. On the Authority's own land, a target of 30 – 40% management by commercial cutters is aimed for, though the figure is more guided by the site conditions and the overarching management aim to have a diversity of management and habitat types within each site.
- 2.5 Fen harvester activity over 2016/17 included routine rotational cutting at Hulver Ground (Horning), Locks Lane Meadow (Geldeston), Anglian Water's Marsh (Whitlingham) and How Hill (Ludham). Contracted work was also carried out at Oulton and Whitecast Marshes for Suffolk Wildlife Trust, Upton Fen for Norfolk Wildlife Trust and at Burgh Common (Fleggburgh) for the Poors Trustees. The high productivity and ability to take all the cut material off the sensitive fen areas has meant this machine has been in high demand, with new applications and sites coming through steadily.
- 2.6 Delivery of actions arising from the Authority's strategic lake management work was mainly focussed on Hickling in 2016/17. Funding was primarily through an increase in revenue budgets in this year, both from navigation and National Park sources, to allow the Hickling Enhancement work to progress. The project outcomes were the restoration of two reedswamp areas on the margins of Hickling Broad, completed in March 2017 and dredging in the marked channel. Reed rhizome excavated from adjacent dykes has been used on the front edge of the restored reedswamp areas. In addition to the direct recreation of reedswamp, a 170 m length of vegetated margin has also been protected by installation of a PVC curtain wave barrier with an integral "goose guard". This floating structure deployed just out from the reed margin

will help protect against wave erosion and bird grazing. Long term monitoring by drone images shall be used to assess the effectiveness of this technique.

- 2.7 Invasive non-native plant species control work has focussed on areas where the Authority's input has multiple benefits, or protects the conservation value of sites we directly manage. Giant hogweed control has now largely been completed in the priority areas; with co-ordinated and continual herbicide treatment over the past ten years have a high rate of success. The known locations of Japanese knotweed have also been subject to a similar treatment regime and spread has been prevented from these sites. Tackling the aquatic invasive non-native species of swamp stonecrop (*Crassula*) and parrot's feather has been less effective. New locations arise continually and work is hampered by difficulties in achieving effective control when the plants are hidden in underwater where herbicide treatments are ineffective. At Snipe Marsh (Catfield) next door to How Hill, both swamp stonecrop and parrot's feather are present. The Authority has assisted the landowner in covering roughly 120 m of dyke with black plastic, which cuts out the light. This treatment will be in place for at least six months, as swamp stonecrop is specialised in growing in low light levels, so needs a long time to kill it off. The success of this technique will be assessed later in the year.
- 2.8 Control of invasive, non-native animals has focussed on American mink, which are particularly effective predators on water voles and ground nesting birds. The Authority has a series of live capture traps around the Broads which alert Environment Officers when a trap has been activated. Working in partnership with the Norfolk Mink Project, volunteers and private landowners, the Authority's efforts have removed ten mink in 2016/17, with most activity experienced on the River Yare between Whitlingham and Rockland.

### **3 2017/18 Conservation Work Programme**

The fen programme for 2017/18 includes:

- 3.1 Approximately £35,000 value of contracts for fen management work is to be delivered by reed and sedge cutters across a range of the Authority's own land and other management agreement sites. In addition to the commercial harvest on sites, the cutters are highly effective contractors for delivering a range of conservation work, including long rotation fen mowing and scrub removal. The Authority has a Standing List of Contractors with many of the Broads commercial cutters. At the Authority meeting 13/05/16, item 13.2 set out the process for selecting and approving contractors for this work. This direct engagement with reed and sedge cutters aims to support the local industry, preserve skills, deliver high quality conservation work and contribute towards the Authority's duty to have regard to the needs of agriculture and forestry and the economic and social interests of those who live or work in the Broads in discharging its functions.
- 3.2 Rotational management in 2017/18 on fen sites managed by the Authority is planned for:
- Hand mowing at Common Fen (Smallburgh)

- Dyke clearance at Barton Fen (Barton Turf)
- Hand mowing and dyke clearance work at Burgh Common (Fleggburgh)
- Fen harvester cutting and pond maintenance at Buttle Marsh (Ludham)
- Hand mowing at Decoy Carr (Acle)
- Hand mowing and scrub clearance at Mill Marsh (Barton Turf)
- Dyke clearance and hand mowing at Little Reedham Marsh (Ludham)
- Dyke clearance, scrub roguing and hand mowing at Horning Marsh Farm (Horning)
- Dyke clearance and hand mowing at Hulver Ground (Horning)
- Fen harvester, scrub clearance, dyke clearance and hand mowing at How Hill (Ludham)
- Scrub roguing and invasive plant control at Snipe Marsh (Catfield)
- Hand mowing at Stanley Carr (Aldeby)
- Fen harvester, scrub clearance and dyke clearance Anglian Water's Marsh (Whitlingham)
- Management of the grazing pony herd at How Hill, Snipe Marsh, Decoy Carr and Hickling.

3.3 Additional work with the fen harvester is already set up, with contract based work with Broads partners planned for:-

- Burgh Common – assisting the Poors Trustees with reducing vegetation growth across this large site;
- Ward Marsh (Ranworth) – long fen rotational cut on this hard to reach site. The fen harvester will be transported by river on our new NATO floats.
- Hickling and Upton fens for Norfolk Wildlife Trust;
- Whitecast and Oulton marshes for Suffolk Wildlife Trust.

3.4 A week's trial of the fen harvester with one of our operators has also been arranged in August with the National Trust at Wicken Fen, Cambridgeshire. As there are no demonstration models of this type of machine available, the Trust have agreed to pay all transport and the Authority's internal costs for this usage. If the machine works well for the Trusts requirements, they are looking to make the capital investment and purchasing a similar model.

## **4 Integrated Conservation Management 2017/18**

4.1 Integration of multiple benefits into all practical work areas is high priority in the planning and management of routine and project work delivered by our operational staff and contractors. Examples for completion during 2017/18 include:

4.2 Enhancement of reed ronds – work by the Rivers Engineer and Environment Officers has identified areas of the Lower Bure where reed ronds, not highly valued for commercial reed harvest, can be temporarily used for sediment arising from dredging operations. The material will then be removed when drier and easier to handle with excavators for re-use in future flood bank strengthening and top -up work. The rond areas are then to be restored with

a more favourable land level and drainage regime, which will benefit future commercial harvests. The guidance we have produced for use by Authority staff, or our partners, is publically available [via this weblink](#).

- 4.3 Hickling Broad Enhancement Project – The final work element for the two restored reedswamp areas is to be planted with a species mix of ready grown “plug” plants in the early summer. The additional direct planting will help ensure rapid colonisation and stabilisation by the plants before next winter.
- 4.4 Given the vigorous growth of water plants in Hickling Broad in the western bays of Hickling Broad over the past two summers, an increased amount of surveying and data sharing with the waterspace users has been arranged. The first hydroacoustic survey is planned for the first week of May to reveal the extent and height of early growth. The Authority is seeking assent from Natural England to either perform closely monitored cutting trials in the protected stonewort beds, or if more common species are those impacting navigational activities, then cutting of these species in a priority area for sailing is requested. This opportunity for enhanced water plant monitoring also gives a valuable opportunity to ask more fundamental ecological questions about the level of water plant growth in Hickling Broad, and its intimate relationship with water clarity and quality. This increased understanding will assist in future management decisions on the site, as this level of evidence on likely ecological impact is required by Natural England, before any plant cutting outside the marked channel can be carried out.

Background papers:

Biodiversity & Water Strategy [http://www.broads-authority.gov.uk/\\_data/assets/pdf\\_file/0003/416487/Broads-Biodiversity-and-Water-Strategy-watermark-removed.pdf](http://www.broads-authority.gov.uk/_data/assets/pdf_file/0003/416487/Broads-Biodiversity-and-Water-Strategy-watermark-removed.pdf)

Environmental Standard Operating Procedure – Sediment re-use on Ronds [http://www.broads-authority.gov.uk/\\_data/assets/pdf\\_file/0006/910968/26-Reed-Rond-Disposal-and-Reuse-ESOP.pdf](http://www.broads-authority.gov.uk/_data/assets/pdf_file/0006/910968/26-Reed-Rond-Disposal-and-Reuse-ESOP.pdf)

Broads Authority 15/05/16 Finance report [http://www.broads-authority.gov.uk/\\_data/assets/pdf\\_file/0007/756979/Financial-Performance-and-Direction-ba130516.pdf](http://www.broads-authority.gov.uk/_data/assets/pdf_file/0007/756979/Financial-Performance-and-Direction-ba130516.pdf)

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Broads Plan Objectives: BD4; BD6 Biodiversity  
NA3 Management of the navigation area  
TR1 Tourism, recreation and access

Appendices: None  
Enclosures: A powerpoint presentation will complement this report