

**Review of actions taken to achieve the objectives of the Biodiversity
Action Plan of the River Stour (Kent) Internal Drainage Board
(2010 – 2015)**



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1.0 Introduction

Over the last six years the River Stour (Kent) Internal Drainage Board has been committed to achieving the objectives laid out in its Biodiversity Action Plan published in 2010. Working in conjunction with the Kentish Stour Countryside Partnership (KSCP) they have surveyed all of the watercourses within the drainage district, acted on recommendations to change the management of watercourses to improve biodiversity and undertaken some enhancements of channels.

This review analyses the achievements of the last few years and focuses on where work is needed in the future to ensure that the Internal Drainage Board's managed watercourses reach their potential for drainage and biodiversity and continue to be an essential part of a healthy landscape.

1.1 What were the original objectives of the RSIDB Biodiversity Action Plan?

The original objectives of the BAP were:

- To ensure that habitat and species targets from the UK Biodiversity Action Plan and the LBAP are translated into effective action, as appropriate, in respect of IDB designated watercourses.
- To identify targets for other habitats and species of local importance within the drainage district.
- To develop effective local partnerships to ensure that programs for biodiversity conservation are maintained in the long term.
- To raise awareness within the IDB and locally of the need for biodiversity conservation, and to liaise with landowners, occupiers and their representatives on biodiversity and inland water management.
- To consider opportunities for conservation and enhancement of biodiversity throughout the IDB's operations.
- To monitor and report on progress in biodiversity conservation.

From these aims a number of objectives were created for the IDB to work towards.

DC1. Assess the ecological condition and management of IDB maintained watercourses and produce management prescriptions in the context of the wider wetland ecosystem.

DC2. Maintain the condition of IDB watercourses assessed as being in favourable condition, particularly within or adjacent to designated sites.

DC3. Restore IDB watercourses assessed as being in unfavourable condition, prioritising those (if any) in designated sites.

DC4. Incorporate biodiversity gains into new capital works wherever possible.

DC5. Ensure, where possible, that any future proposals for managed realignment of coasts and flood defences do not result in net loss of drainage channel habitats.

DC6. Ensure that management practices are bio-secure.

DC7. Raise awareness of the importance of channels as wildlife habitats and the work the IDB is doing to conserve them.

Within these broad targets were a number of other IDB objectives focussing on the needs of particular habitats and species.

A summary of generic tasks showed that by achieving the broad objectives the IDB would be contributing to achieving the specific objectives for habitats and species which were special and/or of conservation concern.

There were also a range of partnership objectives which would be worked towards by outside agencies in conjunction with the IDB. The IDB were not expected to be lead partner in achieving these objectives.

2.0 Implementing the objectives

Objective DC1, Ecological Assessment

Following the production of the BAP, the RSIDB agreed to fund a six year programme of work by the Kentish Stour Countryside Partnership which would include an ecological assessment of the drainage district and production of individual management sheets for each IDB watercourse.

A methodology for the assessment was agreed. This would involve;

1. Choosing a selection of watercourses spread across the drainage ditches to be surveyed each year.
2. Conducting a desk survey of each watercourse prior to field survey. This would highlight;
 - BAP priority habitats and species historically present.
 - Stewardship agreements on the surrounding land.
 - Statutory designations for habitats or archaeology.
 - Floristically important channels.

The desk study would ensure that all available information was to hand when conducting the field survey and to help understand the relative importance of the ditch and the surrounding land management.

3. Walking the entire length of each watercourse and completing a survey form and map. The survey would look at:
 - **Physical Features:** width and depth of channel, height and slope of bank, water velocity, clarity.
 - **Vegetation along the channel:** Dominant vegetation types analysed using the DAFORN scale, floristic diversity noted and evidence of BAP priority species.
 - **Fauna along channel:** Indicator species present – water voles, amphibians, dragonflies, water beetles. Evidence of Bap priority species.
 - **Management:** Evidence of recent management, threats to conservation value, opportunities for enhancement.
 - **Nitrogen & Phosphate Levels:** These were tested to give a result of milligrams of each per litre. A simple portable test kit was used.
 - **Surrounding land use:** Condition of boundary and linear features including hedgerows. Surrounding wetland features and interconnectivity with IDB watercourse.
4. Analysing the survey results to ascertain the current biodiversity value of each watercourse using the following criteria;

Good ditches for biodiversity were considered to be those with;

- Abundance of natural features on near natural watercourses.
- Floristically diverse banks.
- Presence of water voles, dragonflies, frogs, water beetles.
- Well managed boundary and linear features.
- Acceptable levels of nitrogen and phosphorus.
- Good connectivity with surrounding wetland habitats.
- Diverse emergent vegetation.
- Diverse in-channel vegetation.

Ditches in unfavourable condition for biodiversity were considered to be those with;

- Lack of water or low water levels.
- Lack of natural features.
- Lack of floristic diversity or abundance of rank vegetation.
- Invasive species.
- Absence of water voles, dragonflies, frogs, water beetles.
- Poorly managed boundary and linear features.
- High levels of nitrogen and phosphorus.
- Poor connectivity with surrounding wetland habitats.
- No emergent vegetation or emergent vegetation choking ditch.
- In-channel vegetation shows excessive algal growth or unbroken carpet of duckweed.

5. Creating a management prescription sheet for each watercourse. The prescriptions would;

- Summarise the characteristic features of the watercourse.
- Give recommendations for changes to the bank and weed cutting regime.
- Suggest long term enhancements to the watercourse, such as berm and pool creation.
- Show opportunities for enhancing surrounding land.

6. Producing maps for each watercourse to be used by the contractors when cutting the ditches. These would show:

- The cutting standards to be used.
- Locations of plants or breeding birds of importance.
- Locations for long term management options such as pool creation at junctions.

To complement the ecological assessment, partnerships were created with specialist recorders. Will Hirstle of Clarity Consultants analysed the relative importance of channels for dragonfly and damselflies and conducted some surveys along channels.

Sue Buckingham, County Recorder for pondweeds, was invited to survey some channels to provide up to date records of plants of local and national importance.

This additional survey work has been conducted at no cost to the IDB.

All survey records were submitted each year to Kent and Medway Biological Record Centre and the British Trust for Ornithology. Improving knowledge of the drainage district by partner organisations will lead to better protection and management of the habitats and species of the area.

Objective DC2. Maintain the condition of favourable channels.

Following the ecological assessment, watercourse management sheets were produced for each channel which included advice on recommended management. Recommendations looked at where management should remain unaltered in order to continue to support a healthy aquatic system and also gave advice on where improvements could be achieved. **Specific Watercourse Management Sheets are available on request at enquiries@riverstouridb.org.uk.**

The IDB reviewed these recommendations in correlation with its own knowledge of the drainage needs of the district and considered where recommendations could be implemented. Where there were concerns about flood, weed growth or maintenance of structures then it was decided that existing management regimes would remain and the situation would be reviewed in the future.

Where it was considered necessary and possible, then management has been altered to either maintain or improve the condition of channels of high importance.

It is felt that, overall, the IDB is meeting this objective. However, further survey work will need to be conducted to establish whether recommendations for changes in management are ensuring watercourses stay in favourable condition or improve.

It should be recognised that some factors affecting the health of a watercourse are outside the direct control of the IDB. Issues such as diffuse pollution, soil run-off, changes to land management etc. could damage the condition of the channel even if the IDB's management is favourable.

Objective DC3. Restore unfavourable channels.

The ecological assessment identified those channels which were in unfavourable condition and recommended actions to improve them. Actions recommended fell into the following categories:

Opportunities for enhancement. These were mainly in-channel enhancements which could be implemented when the channel is desilted or tree management which could be achieved during the annual maintenance programme.

Surrounding land use. Generally these were objectives for partnership organisations to focus on but where the IDB could play an active role. Many of these recommendations focussed on advising landowners on issues such as bank management or diffuse pollution but also identified enhancement opportunities such as restoring surrounding wetland habitats.

Bio-security issues. Invasive non-native plants were noted and action recommended.

Nitrate and Phosphate pollution. Levels of nitrate and phosphate were recorded. High levels were noted and possible causes and solutions suggested.

The IDB has begun work to achieve this objective. It has improved bio-security within the drainage district and taken a number of steps to enhance watercourses as part of the de-silting programme.

Objective DC4. Incorporate biodiversity gains into new capital works wherever possible.

Several enhancement projects have taken place in partnership with the Kentish Stour Countryside Partnership during the period since the BAP was written. These include:

IDB2 Pumping Station Dyke. This channel suffered from invasive species, excessive shading, a uniform channel bottom, dumping of litter and inappropriate revetments. Volunteers helped manage trees and remove litter from the channel and work took place to scallop silt.

IDB27 Waterbrook Dyke. An overly shaded channel with low flows was improved by the addition of berms to improve floristic diversity and pools to provide deep water refuges for fish and aquatic invertebrates.

IDB170 South Poulders Main Stream. A silty and overly wide channel flowed through hard revetments. Here the channel was narrowed and naturalised by creating artificial berms with stakes and faggots and backfilled with silt from the channel. The work has resulted in more natural banks and increased flow through the central channel which should alleviate problems with silt and improve biodiversity.

There are many more opportunities to improve channels at little or no cost as part of the programme of de-silting and more focus should be put on achieving this objective in the future.

Objective DC5. Ensure, where possible, that any future proposals for managed realignment of coasts and flood defences do not result in net loss of drainage channel habitats.

The current policy within the Isle of Grain to South Foreland shoreline management plan is ‘hold the line’ for the short term. However, the medium to long term policy will involve managed realignment. The IDB should therefore ensure the potential loss of drainage channels and associated habitats are properly considered.

Objective DC6. Ensure that management practices are bio-secure.

The IDB has taken good steps to improve biosecurity within the drainage district. Invasive non-native species have been identified and biosecurity action plans have been created for each species to ensure contractors are aware of the measures they need to put in place when working on these channels.

It is recognised that removing non-native invasive species can be costly and time consuming but it may prove cost effective in the long term to take action to tackle invasives where their presence may fundamentally affect the biodiversity value of a drainage channel or whole area or where they may reduce the drainage capacity of a channel and block structures.

DC7. Raise awareness of the importance of channels as wildlife habitats and the work the IDB is doing to conserve them.

During the time span covered by this review, the IDB regularly published updates of its work within Stour Valley News, the newsletter of the Kentish Stour Countryside Partnership. Publicity was also gained from regional newspapers for enhancement projects such as the work on South Poulders Dyke.

Board Members were given an annual appraisal of the findings of the surveys and the need to conserve habitats and species within the drainage district.

A draft newsletter was created, intended to further publicise the biodiversity work of the IDB but time constraints prevented a completed newsletter being produced.

It is intended for further publicity to be sought to raise awareness of the work of the IDB.

3.0 What were the successes?

3.1 Increased knowledge.

The investment of the IDB in achieving the objectives of the BAP has resulted in a greatly improved understanding of the biodiversity of the drainage district, which channels are in favourable condition and where improvements need to be made. It has also highlighted potential biosecurity and flood risk issues.

3.2 Improved Management

The changes to the annual maintenance of channels should improve the biodiversity of the drainage district but the benefits of these changes will be better understood after a programme of ongoing monitoring.

3.3 Positive Working Relations

Much positive work has been achieved in the area through the good working relationships built up between IDB staff, KSCP staff, outside contractors and the IDB's main maintenance contractor, Rhino Plant. Good partnership working has ensured that Rhino Plant staff have been fully engaged in the process and have had opportunities to discuss management and clarify the reasons behind the work.

Rhino Plant contractors have been open minded and engaged in the process and their willingness to embrace different working practices has been one of the reasons for the success of the programme.

In addition, the IDB Members and Chairman have been supportive of the process. The Board has received an annual update on progress at the IDB AGM and has expressed its satisfaction with the work.

3.4 Engagement of Landowners

In the main, landowners have also been satisfied and accepting of the changes in management of the drainage channels. All landowners have given access to the surveyor and have had an opportunity to ask questions or express concerns.

Many landowners have been interested to find out the results of the survey and better engagement with landowners could be one of the aims for future work.

3.5 Partnership Working

Partnership working with specialist recorders and outside agencies has also resulted in increased understanding of the biodiversity of the drainage district and more accurate advice on management.

Sharing of species records with the Kent and Medway Biological Record Centre and British Trust for Ornithology has allowed these organisations to advise on targeting efforts to maintain and increase biodiversity and will continue to improve habitat quality in the long term.

Working with organisations such as Natural England, the Royal Society for the Protection of Birds and the Environment Agency has also helped co-ordinate management of channels and work to ensure opportunities for improvements are not missed.

3.6 Positive Enhancements

During the last six years some positive enhancements to channels have also been achieved through the de-silting programme. These projects have provided a template for what can be achieved in other channels.

3.7 Better Biosecurity

The ecological assessment has identified where problem species occur within the drainage district and increased awareness among contractors of the measure to be taken when working on channels. This has resulted in better biosecurity and a reduction in the likelihood of unwanted species spreading.

4.0 A Programme for the Future

The RSIDB is committed to taking forward the recommendations of the Biodiversity Action Plan into the future. Following the successful completion of the first phase of works to establish an ecological baseline for the drainage district and recommend changes to cuts and opportunities for enhancement it will be necessary to provide ongoing monitoring to ensure that the changes have been effective and to continue enhancement work.

It is suggested that the IDB focuses on achieving the following programme of work over the next six years:

- 4.1 Ongoing survey work.
- 4.2 Continue to review recommended maintenance.
- 4.3 Enhance channels in unfavourable condition.
- 4.4 Engage with landowners.
- 4.5 Implement a programme of tree management.
- 4.6 Work to improve flows.

4.1 Ongoing survey work

A baseline understanding of the biodiversity of all the drainage channels prior to changes in management has now been established. It is necessary to understand if the recommendations put forward in the watercourse survey sheets have had a positive impact.

Therefore it is recommended that the IDB commits to a programme of ongoing survey work.

Ideally all channels would be re-surveyed to ensure that changes to management have had a positive effect and to improve recommendations in light of the lessons learnt over the last few years. It would also be beneficial to monitor changes in land use, habitat and species distribution and problems with pollution, invasive species or inappropriate channel management by landowners.

However, a reduced programme of monitoring could be implemented, focussing on channels of the highest value, channels where major problems have been identified and channels where changes to annual maintenance might have the greatest impact.

Ideally survey work should be conducted prior to the channel being cut and, in some circumstances, around six weeks after the cut. This will ensure that a surveyor gets an accurate idea of the channel's biodiversity and an accurate idea of the recommended cut and how this might affect drainage issues.

4.2 Continue with recommended maintenance and periodically review.

Changes to annual maintenance have been suggested across a range of channels to increase desirable species, improve water velocity, create self-scouring conditions to move silt out of the system or maintain favourable conditions.

It is recommended that the IDB continues to implement the recommended management and review situations where changes have not been possible.

Ongoing monitoring on selected channels will also help better inform whether changes are having a positive effect on the drainage district as a whole and where management recommendations could be improved.

The use of large digger buckets in small channels should also be reviewed. Use of machines in narrow channels, especially those with gravel beds can result in scraping to banks, removal of gravel, over deepening of channels and the creation of a uniform channel bed. These effects need to be avoided if the channels are not to deteriorate.

It is recommended that, where possible, narrow and gravel lined channels should be cut and de-silted manually in order to protect against damage and maintain diversity.

Channels with reed breeding birds should be cut later in the season where possible in order to ensure that late broods have fledged. Channels with rare flora should also be cut later in order for these plants to set seed. However, it is recognised that there are many other factors affecting the timing of channel cuts and it will not always be necessary to accommodate this change.

4.3 Enhance channels in unfavourable condition.

Where necessary channel enhancements have been suggested. These changes could often be implemented with little cost during the de-silting programme.

It is recommended that the IDB works with contractors to ensure recommendations are taken into account as channels come up for de-silting.

Other enhancement options such as creating self-scouring channels by constructing artificial berms or installing woody debris to increase velocity may require more time and commitment but could create long term cost savings by reducing the need for de-silting.

This work could possibly be carried out in conjunction with the Kentish Stour Countryside Partnership who run volunteer groups experienced in this work.

4.4 Engage with landowners

The IDB is working to improve the management of the drainage district for biodiversity but achieving favourable condition on some channels is hampered by the management of surrounding land.

It is recommended that the IDB actively discusses results of the ecological assessment with landowners and seeks improvements. This could be achieved either through IDB staff or outside contractors.

Issues such as soil run-off, excess bank poaching and diffuse pollution are causing channels to deteriorate. These issues cannot be tackled by the IDB alone but result in additional costs for the IDB as more frequent and vigorous weed cutting and de-silting programmes are needed to tackle excessive vegetation growth and in-channel silt.

Other issues such as badly positioned culverts, inappropriate revetments, unofficial weirs and impoundments and dumping of garden debris are increasing flood risk.

It is possible that work to advise land managers could be funded by the Countryside Stewardship Facilitators Fund, a new scheme which seeks to bring landowners together to make change on a landscape scale.

4.5 Improve Tree management

Excess shading is a problem for many channels within the drainage district.

It is recommended the IDB increases selective management of bankside trees along watercourses.

Pockets of scrub and isolated trees have great benefit for wildlife within the drainage district but long tunnels of scrub cut out sunlight and prevent the growth of marginal vegetation.

In addition inappropriate planting of trees by landowners is having an effect on water levels on channels already suffering from low flows.

The drainage district has many old willows of great landscape and biodiversity value and these would also benefit from pollarding in some instances. It may be more appropriate for this work to be carried out by a partnership organisation.

4.6 Improve flows

Many channels suffer from low flows. Low flows not only reduce the ability of fish and aquatic invertebrates to survive but also increase the concentration of chemical pollution and reduce oxygen.

It is recommended that the IDB continues to work with landowners to reduce abstraction and improves flows in its channels.

5.0 Summary

The River Stour (Kent) Internal Drainage Board has made significant steps forward in working towards the original objectives of the Biodiversity Action Plan. The ecological assessment has greatly increased the knowledge about habitats and species in the drainage district and the new cutting regimes should benefit the biodiversity of the area.

In the future ongoing monitoring will be needed to really understand the effect of management changes and more focus should be placed on capitalising on opportunities for enhancing channels during de-silting and other maintenance operations.

Overall, the Board, its staff and contractors should be congratulated on their positive attitude to biodiversity within the drainage district and should be seen as an example to other drainage authorities.