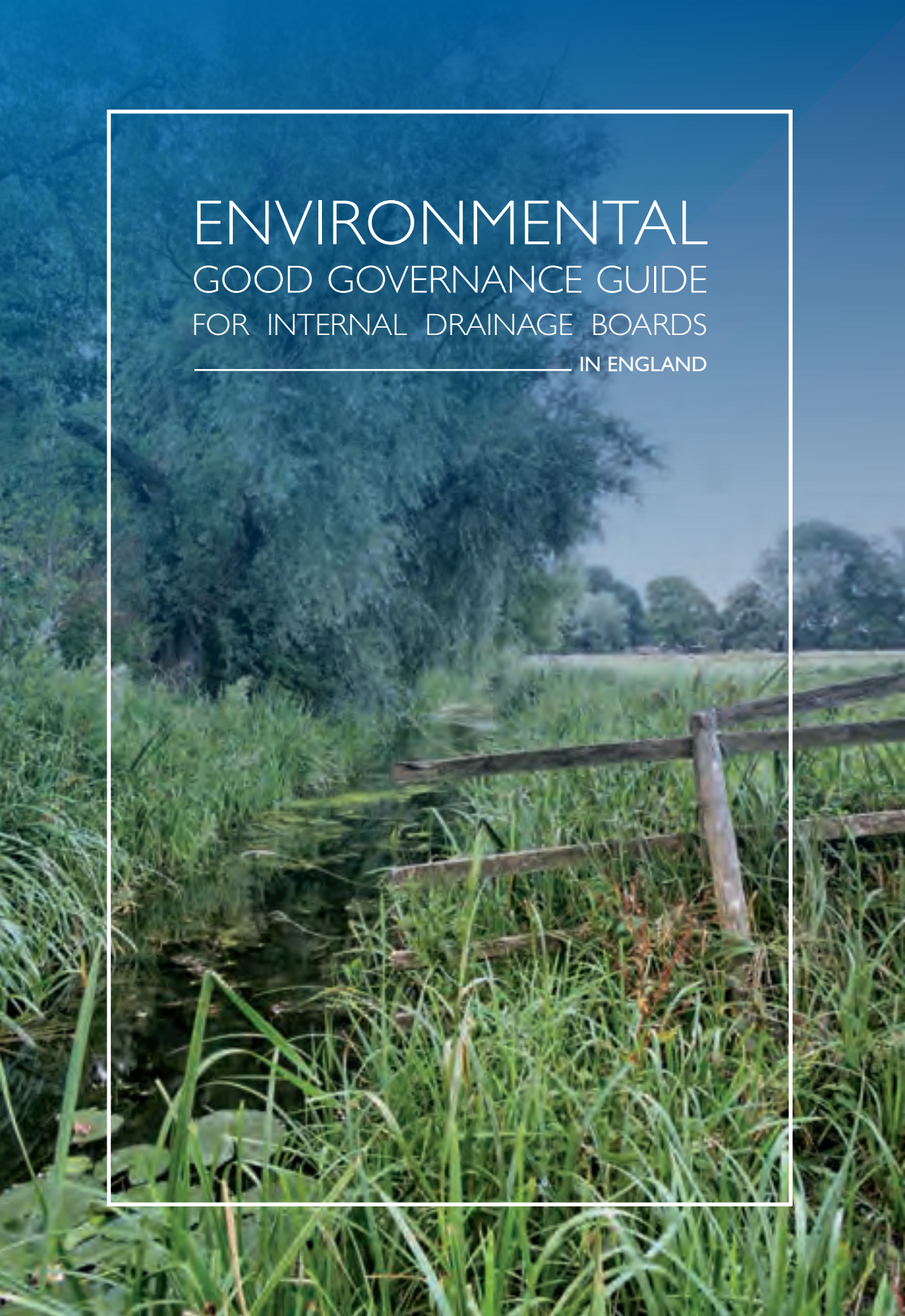

ENVIRONMENTAL
GOOD GOVERNANCE GUIDE
FOR INTERNAL DRAINAGE BOARDS
IN ENGLAND

Welcome

It gives me great pleasure to welcome you to the ADA Environmental Good Governance Guide for IDBs, on behalf of the ADA Board.

My thanks go to the Defra officers involved and the wider Defra family for the resource support that has enabled us to produce this guide, the second in the series following the Good Governance Guide for IDBs, that was so well received by members.

I also want to thank ADA staff for the considerable time and effort that has gone into producing this guide, the checking of the information in it at the time of publication, and ADA members who have kindly assisted by supplying information and guidance.

To link into the UK's 25-year Environment Plan and the passing into legislation of the recent Environment Act, this guide is designed to be a live reference document for Internal Drainage Board members, office and field staff, covering the environmental standards set by UK law and the expectation that IDBs will be delivering over and above the minimum requirements as part of their everyday activities. Following visits to IDB areas, I know that many boards are already delivering major improvements to the environmental status of their districts, and have ambitious plans for further improvements.

Some of you may question the need for IDBs to do any more than is legally required, but we live in a changing world of increased public focus on all things environmental, from climate change to the state of the natural world around us. All public bodies are being scrutinised to a much greater degree than ever before, and, of course, the principle aim must be to manage water within your districts, whilst having regard for the wider environment both in the district but also surrounding areas, be that river systems or coastline.

I am seeing IDBs having a wider influence outside their drainage districts as we continue to push for catchments to be managed as a whole. But this can only continue to expand if we can demonstrate that IDBs are good custodians of the environment, and that a transfer of management responsibilities to IDBs will lead to not only a better maintained water transfer system and more storage within the system, but also an improved water environment for regeneration of biodiversity.

I sincerely hope that this guide will act as a comprehensive reference guide for all IDB staff delivering water level management and an improved environment, as part of their everyday working. In particular, to existing and potential IDB board members, this guide should help you to understand the legal requirements your board must comply with, but also the opportunities that are available to you to lead improvements to the environment, for the benefit of us all.

Finally, ADA staff have worked extremely hard to ensure that this guide is up to date at the time of publication. The subject area, however, is in continuous evolution and there is, of course, always new legislation and guidance being produced. It is very much intended to be a solid foundation from which you can build the IDBs' environmental performance and reputation, accepting that future editions will need to be produced to keep it up-to-date. Our understanding of the water environment is changing as fast as our climate, and we will all need to adapt our water systems and the environment at the same time as we mitigate our CO_2 equivalent emissions.

I hope you find the guide useful and informative and that above all, you take every opportunity to promote the environmental credentials of the work of your IDB through using this guide.

Robert Caudwell, Chairman, ADA

HOW TO USE THIS GUIDE

This is a reference-style guide which sets out concisely what an internal drainage board in England must do, should do and could do to conserve and enhance the environment in order to remain legally compliant and demonstrate best practice. It does not repeat readily available detailed advice that can be found elsewhere, but signposts to it instead.

For brevity, Internal Drainage Boards are referred to by their common abbreviation "IDB" throughout this guide.

NOTE: This guide has been written with reference to the English legal system only and therefore has direct relevance to all IDBs in England. However, the principles of the document are entirely relevant to internal drainage district or commission operations in Wales and Scotland and the management of watercourses in Northern Ireland, and those bodies in the devolved nations of the UK are wholly encouraged to make full use of the guide, but with the recognition that their legislation may be slightly different from that quoted for England.

CONTENTS PAGE

Search for information on an environmental topic in the traditional way by navigating through the chapters and sub chapters to find the information required.

DUTY INDEX

Search alphabetically for statutory environmental duties relevant to IDBs and the recommended actions required to maintain compliance. The duty index can be used as a tick list for IDBs to ensure that all the necessary processes are in place in order to achieve comprehensive environmental governance and compliance.

KEY

This guide introduces each environmental duty relevant to IDBs with a brief summary of its associated legislation where applicable. The guide then highlights the status of the information being provided using consistent terms and icons displayed next to relevant paragraphs and titles as shown below:

DUTY: Many of the functions and activities that an IDB undertakes are regulated by an array of legislation that aims to protect, conserve and enhance the natural environment. This guide helps to identify those statutory duties for IDBs and explains in practical terms what an IDB must do to ensure legal compliance. These duties are identified by the logo and colours shown above left.

BEST PRACTICE: There is often best practice guidance or codes of practice produced by the Government, its agencies and other organisations that IDBs should follow (often as the absolute minimum) so that they comply with the rules and other Governmental policy. These activities generally go over and above the absolute minimum required for legal compliance or where there are no specific rules in place. This guide signposts or summarises such best practice where it exists and such sections are identified by the logo and colours shown above left.

GOING FURTHER: There is often more action that could be taken above and beyond best practice to make an even greater positive difference to the environment. Action in this category can demonstrate integrity and excellence and helps to enhance an IDB's reputation and credibility as a custodian of the lowland aquatic environment. These approaches are detailed in sections identified by the logo and colours shown above left.

KEY RESOURCES: In this section, details of recommended further reading to assist with understanding and compliance is provided, along with titles of key documents and templates and pointers to web pages and websites where relevant. In most cases, the text shown in blue can be copied and pasted into the search box, in the website detailed, or into an internet search engine to find the signposted information.

DISCLAIMER!

Where any doubt, conflict or confusion exists over compliance with any legislation or regulation or any of the information provided in this guide, the IDB should prioritise the advice provided by the regulator i.e. Natural England, Defra, the Environment Agency or the Marine Management Organisation, etc.

ACKNOWLEDGEMENTS

Many people contributed to the writing of this guide and ADA is grateful for all contributions received.

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This publication was made possible with the financial support of:

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DEPARTMENT FOR ENVIRONMENT FOOD & RURAL AFFAIRS

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DUTY INDEX

I SUMMARY OF ENVIRONMENTAL GOOD GOVERNANCE

1 SUMMARY OF ENVIRONMENTAL GOOD GOVERNANCE

1.1 Definition of Environment Before we begin, it is useful to re-iterate what we mean in this guide by 'the environment': the environment includes a wide range of physical, chemical, and biological components, including air, water, soil, geology, climate, plant and animal life, noise, light, pollution and historical features.

1.2 What is Good Environmental Governance Good environmental governance meets all the minimum legal requirements and duties and wherever possible, surpasses them, demonstrating compliance with good practice and the IDBs' best efforts to enhance the environment, going beyond maintaining things as they are.

1.3 The Importance of Good Environmental Governance for IDBs

Legal - An IDB has a legal duty to protect and enhance the environment, set out in a wide range of legislation. Most breaches of environmental law are criminal offences although regulators can sometimes apply civil sanctions.

Societal Responsibility - The understanding of ecosystem services is now mainstream and most individuals will appreciate that their local and wider natural environment, when in good health and well looked after, supports the provision of their clean water and air, food, health and wellbeing and protection from natural hazards. Protecting the environment will impact positively on peoples' lives and the local economic wellbeing of an area. Understanding and support for the environment will enhance the delivery of these services to all those who rely on and value them. An IDB has a societal responsibility to protect the environment, to ensure that it remains capable of contributing to the delivery of those vital ecosystem services that we and nature require to thrive, even if it means changing the way that things are done and incurring costs.

Financial - In addition to the legal fines imposed for breaches of environmental law, there are other financial and economic implications which could arise from a failure to undertake an IDB's environmental duties, or even as a result of a perception that an IDB does no more than comply with the minimum requirements. These are as follows:

- Insurance - Insurance premiums could rise or insurance could be refused altogether,
- Reputational/adverse publicity - The reputation of the individual IDB, its consortium partners and the industry as a whole can be affected. It takes time to reverse these negative perceptions and may require additional costs to support increased positive communications to do so,
- Regulatory pressures - There is likely to be a significant cost in overhauling all organisational procedures and processes relating to the protection of the environment and close scrutiny by the regulator,
- Contract loss - Some Public Sector Co-operation Agreements (PSCA) and other third-party work contracts may be withdrawn as a result of the breach, with a loss of associated income.

The potential financial consequences relating to poor environmental custodianship far outweigh the investment that an IDB can make in ensuring that they are knowledgeable, up-to-date and proactive in protecting and enhancing the environment.

2 TOOLBOX – HOW TO DELIVER GOOD ENVIRONMENTAL GOVERNANCE

2 TOOLBOX - HOW TO DELIVER GOOD ENVIRONMENTAL GOVERNANCE

2.1 Introduction The following section details a range of tools which IDBs can use to help demonstrate their compliance to their environmental duties and to deliver environmental enhancement. Each IDB will undoubtedly need to use the tools slightly differently. The tools, processes and associated templates are designed for this.

This section can be used as a "tick list" by IDBs. The implementation of as many of the processes detailed in this section as possible can help IDBs to demonstrate comprehensive environmental compliance and best practice.

2.2 Engaging Environmental Expertise It is strongly recommended that an IDB either directly employs professional environmental expertise who can help the IDB to integrate environmental priorities into its everyday operations, or has unlimited access to such expertise, such as a contracted ecologist. This resource could be shared with other neighbouring IDBs. Additionally the IDB may need to employ more specialist environmental expertise when conducting particular works, i.e. species surveys.

IDBs are also encouraged to maximise their exposure to environmental expertise on a routine basis through its Board membership and partnership working. This will help the IDB to forge a good understanding of local and national biodiversity and environmental priorities and will provide an additional source of advice and guidance. An IDB can develop this network by:

- Recruiting co-opted members with relevant environmental expertise and experience onto the Board,
- Encouraging environmental representatives from rate-paying local wildlife sites within the IDD to become elected Board members,
- Encouraging local authorities to appoint an environmental expert as an IDB Board Member,
- Forging partnerships and good working relationships with other local conservation organisations,
- Developing an environmental sub-committee, perhaps regionally with other IDBs.

Creating these networks is not intended to replace the requirement for directly engaged professional expertise, but to provide improved access to, and knowledge of, such qualified resource, particularly those with valuable local knowledge.

2.2.1 ADA Environment Forum ADA facilitates a regular environment forum, held on-line, for representatives from IDBs to meet to discuss, informally with their peers, environmental subjects and priorities affecting them. Any IDB member or officer can attend and raise a topic. No formal agenda or minutes are taken and discussions are confidential. Contact ADA to receive joining details for future meetings.

2.3 Partnership Working Nature does not respect management boundaries and IDBs are likely to be one of several environmental managers working within a given hydrological unit. IDBs are urged to engage with other such environmental managers to seek an understanding of their priorities in order to align and contribute to wider local initiatives and deliver true collaborative catchment management.

By participating in collaborative biodiversity enhancement, an IDB may be able to make a bigger impact than where they operate independently, for instance by offering specialist watercourse management expertise to other environmental organisations. Working collaboratively can:

- Enable access to a diverse range of funds, enabling partnerships to 'get more for less', to deliver cost-effective improvements,
- Maximise the multiple benefits that can be realised for both people and the environment,
- Bring local knowledge and expertise to bear and encourage individuals, organisations and communities to take ownership of issues,
- Help to resolve conflicting viewpoints, bringing about improvement through consensus and the identification of trade-offs, thereby avoiding costly and lengthy legal intervention,
- Yield solutions that are more sustainable for the long-term.


BEST PRACTICE

2.3.1 **Partnership Working** Collaboration in terms of environmental management is a duty for IDBs, as set out in the Environment Act 2021 (see 7.1). IDBs as public bodies are required co-ordinate their environmental priorities with those of Local Nature Recovery Strategies (7.1.4), Species Conservation Strategies and Protected Site Strategies (see 7.1.6), when they come on-line. The Act also provides for statutory water resource management planning to be undertaken collaboratively with all stakeholders reliant on the provision of water, which includes IDBs.

A duty for IDBs to cooperate with partners for flood and water level risk management is set out in the Flood and Water Management Act 2020 (see 5.3). IDBs also have a duty to further the conservation and enhancement of designated sites such as Sites of Special Scientific Interest (SSSIs) through the Land Drainage Act 1991 (see 5.1) which it could not do without regular and open contact with the site managers.

2.3.2 ADA Branches An IDB is encouraged to join and benefit from the ADA Branch network and meetings to discuss environmental approaches and priorities on a wider regional catchment with other stakeholders. Some ADA branches have separate environmental committees, with representatives from local environmental managers such as Wildlife Trusts and local authorities. The committee can provide advice and guidance to the branch and to associated IDB boards on environmental matters, organise regional training and encourage participation in wider-scale environmental initiatives such as mink control or Local Nature Recovery Strategy development.

2.3.3 Working with Environmental Organisations Many local environmental partnerships have working groups who deal with wetlands and waterbodies as well as other species and habitats. IDB involvement in these groups can greatly assist information exchange, coordination and integration of activities, and identification of new opportunities. Such collaborations may include Local Nature Partnerships, Wildlife Trusts, Canal & Rivers Trust, water companies, Catchment Based Approach (CaBA) groups and Regional Flood and Coastal Committees (RFCCs), Farming & Wildlife Advisory Group (FWAG) and other farmer groups, Rivers Trusts, RSPB and other similar bodies, the Environment Agency and local authorities.

2.3.4 Local Land Owner Partnerships Many local landowners have measures and approaches in place to conserve and enhance valuable habitats and species on their land through environmental stewardship schemes. It would be valuable

to understand how the IDB could support and complement these efforts when developing IDB Biodiversity Action Plans and when planning their routine operations. Establishing good relationships with such landowners will also improve the opportunities for IDBs to become involved with new collaborative local and landscape-scale nature recovery schemes funded by the new Environmental Land Management scheme (ELM) (see 6.5).

2.4 **Working with Contractors** While an IDB is undertaking their statutory flood risk and water level management functions, their environmental responsibilities and duties remain the same regardless of whether they use directly employed workforce or contractors to undertake work. The ultimate responsibility for environmental compliance rests with the IDB who will have to provide evidence, if requested, that all reasonable steps have been taken to minimise damage to the environment. This will include being able to demonstrate that checks have been made to ensure that contractors are competent and, where applicable, qualified to undertake the work in hand. This may be in the form of certifications, professional memberships and qualifications, licences and permits, courses attended, references or portfolios of previous work. These checks should be ongoing and regular and not just when the contractor is initially hired. Expiry and renewal dates of licences and permits etc. should be logged and the IDB should be proactive in ensuring that the contractor keeps these up to date and meets the relevant reporting requirements where necessary. The necessary environmental permits, licences and qualifications the contractor is expected to hold and maintain should be written into their contract.


DUTY

Aside from the compliance perspective, a contractor should be enthusiastic about promoting, maintaining and improving their own environmental knowledge and skills and should be supportive of the IDB's environmental policies and processes and be proactive in contributing towards them.


BEST PRACTICE

2.4.1 **Working with Contractors** It is likely that the IDB will have to provide training to contractors as they would to their own staff, to ensure the appropriate knowledge is established and maintained. Knowledge and skills should also regularly be assessed. See section 2.9 for more information on environmental training.

It should not be assumed that contractors who have been undertaking similar work for a long time are always the best at understanding the environmental needs of the local environment. Contractors should be chosen on the basis of their proven environmental competence. However, there are benefits to retaining a team with existing knowledge and experience of the IDB's drains and processes. This will bring a variety of benefits including reduced travel costs and emissions. Local contractors will most likely also have a desire to undertake the work to a high standard in order to benefit from the positive impacts it has on their own local environment and community and to maintain a strong positive local reputation. Having and communicating a strong green procurement process will also help the IDB to strengthen their own reputation for being competent stewards of the environment. See section 2.12 for more on green procurement.

2.5 **Environmental Policy Statement** An IDB is encouraged to develop a stand-alone Environmental Policy Statement detailing the overarching approaches it will take to fulfil its general duty to conserve and enhance biodiversity and the environment. The statement should refer to the IDB's Biodiversity Action Plan, Best Practice Operations Manual and its policy of working with other environmental stakeholders. This will help to present a full picture of how the IDB aims to fulfil its environmental duties.

While carbon emissions reduction is not mandatory for public bodies, it is strongly recommended that that the IDB develops a separate carbon reduction policy. See chapter 14 for more information.

KEY RESOURCES:

Policy Statement on Water Level and Flood Risk Management is a generic policy template available from the ADA website which sets out a basic framework for how an Environmental Policy Statement could be formed. It includes a section called 'Environmental Measures' which could be expanded to include the conservation of wider environmental aspects as well as biodiversity. This could include reduction of waste, protection of the historic landscape and landscape character, pollution prevention, dealing with environmental emergencies and sustainable procurement. It could specify the processes and frameworks to be used to achieve the aims, such as the adoption of a formal EMS system, staff training and awareness or applications for funding. From *www.ada.org.uk*

2.6 Biodiversity Action Plan While biodiversity conservation thinking has evolved and some new approaches are being taken to conserve and enhance our nature, the Biodiversity Action Plan (BAP) approach remains one of the most useful and suitable tools to help IDBs meet their statutory biodiversity duties, particularly those set out in the Environment Act 2021 (see 7.1). Biodiversity Action Plans help IDBs to understand what wildlife already exists in their district, how to manage, protect and enhance it, and what wildlife could be encouraged to return. The Biodiversity Action Plan provides the IDB with a formal mechanism to demonstrate and record their contribution to biodiversity conservation.

Each drainage district is different in terms of area, physical character and its potential for biodiversity improvement. Whatever the extent and physical characteristics of the drainage district, the same five-stage Biodiversity Action Plan process should be followed:

1. Conducting a Biodiversity Audit,
2. Evaluating and prioritising habitats and species,
3. Defining Objectives and Actions - Habitat and Species Action Plans,
4. Implementing,
5. Monitoring and Reporting.

It may be daunting for IDBs to understand how to prioritise their biodiversity conservation efforts and plan their actions in order to fulfil their duty to conserve and enhance biodiversity, but the Biodiversity Action Plan template and guidance for IDBs, which has been developed by ADA, sets out how this can be achieved. Further detailed information around Biodiversity Action Plans for IDBs has not been provided here in this Guide, as it is available separately from the ADA website: *www.ada.org.uk*

KEY RESOURCES:

The resources detailed below help to set out the key considerations when deciding what biodiversity enhancement action to prioritise, where and when. For example: the aspect of banks and proximity to other habitats are all helpful considerations when identifying what can be achieved in each location in terms of biodiversity enhancement.

The Drainage Channel Biodiversity Manual is a comprehensive guide to the environmentally supportive operational approaches that can be taken to manage drainage channels - *www.ada.org.uk*.

Enhancing the biodiversity value of arable drainage ditches - a feasibility study - BD1319. The Defra-funded research project report is a key resource which explains how to prioritise drainage channels for enhancement, and can be found on-line.

The Middle Level Biodiversity Manual. An example of a best practice manual - *www.ada.org.uk*

2.7 **The Mitigation Hierarchy** The mitigation hierarchy is a tool and best practice approach designed to help users limit, as far as possible, the negative impacts of development on biodiversity, but the concept can equally be applied to regular operations. It is one of the cornerstones of biodiversity conservation and forms the basis for key regulatory processes such as the Environmental Impact Assessment, Habitat Regulations Assessment and is key to the development of an IDB's Best Practice Operations Manual. It involves a sequence of four key actions:

- Avoid,
- Minimise,
- Restore,
- Offset.

The mitigation hierarchy is a hierarchy in terms of priorities. As a general rule, while all stages of the mitigation hierarchy are important, the earlier stages should receive greater emphasis if significant reductions in potential impacts to biodiversity are likely to be achieved.

Using a mitigation hierarchy approach to assess all IDB operations and activities should help to achieve the best possible outcomes for biodiversity while maintaining flood risk and water levels. With careful planning and execution, there should be few situations where an IDB has to remediate damage or degradation to the environment through restoration or offsetting.

There is much information available on-line to help IDBs embed the mitigation hierarchy approach.

KEY RESOURCES:
Mitigation Hierarchy Guide a comprehensive guide to aid the understanding and implementation of the approach - *www.csbi.org.uk*

2.8 **Best Practice Operations Manual** For an IDB to deliver biodiversity conservation and enhancement through their functions, a systematic approach across all daily operations and considerations is required. A Best Practice Operations Manual sets out in detail how each IDB watercourse should be routinely managed to ensure that the required water levels and flows can be maintained, and how the biodiversity value of each watercourse can be maximised. The Best Practice Operations Manual is one of the primary mechanisms to help an IDB to demonstrate how it complies with environmental and wildlife legislation.

The majority of the manual is likely to be dedicated to routine operations. However, the opportunity should be taken to include a section detailing how the IDB aims to deliver environmental enhancements through other less regular water level management operations including repairs, renovations, and capital works.

It should be remembered that the goal is to develop a diversity of habitats and habitat maturity stages within the district rather than to develop a blanket approach. This diversity can offer the greatest benefits to wildlife. Where good diversity already exists and thrives,

it is most likely that the current regime is supportive of it, so changes to management may affect that diversity. It is a misnomer that less management equals more diversity; lack of management sometimes results in a narrow range of dominant species taking over, shading out other species. Often the greatest diversity occurs where management mimics natural processes such as grazing or where management is regular and light, which allows a wider range of species, particularly those which are less competitive, a chance to establish.

2.8.1 Getting Started A good starting point in developing a manual is to categorise watercourses by their drainage value or seasonal risk (i.e. low, medium or high risk). Then the generic management activities required to maintain the desired water levels and flows in each category can be identified.

- High risk: Key to managing water levels across a wide local area in all seasons. Strong need to maximise capacity and conveyance at all times. High level carriers and IDB main drains in more developed catchments with high residential, commercial and/or infrastructure risk. Complex interconnectivity with other channels. Normally annual bank and marginal vegetation cuts to allow for safety inspections & regular in-channel weed control.

- Medium risk: Key to managing seasonally high flows in less developed areas. Maintenance of in-stream, bank and marginal vegetation on a regular/rolling needs-basis to maintain required capacity and conveyance, and to allow for inspections to ensure good condition.

- Low risk: Key to alleviation of seasonal waterlogging or agricultural drought in rural, less-developed areas, and to contribute to overall system capacity when needed. Vegetation managed occasionally if needed i.e. where it significantly impedes flow and capacity and for biodiversity value.

Next, the IDB's Biodiversity Action Plan will help to highlight the presence and location of the valuable habitats and species found within the IDB's watercourses, and their ecological requirements. The generic management activities can then be adapted, for example their timings altered, to achieve the most environmentally favourable outcome for each drainage channel.

2.8.2 Key Operations Manual Components A best practice operations manual should consider the following key components (presented roughly in order of suggested consideration) using the mitigation hierarchy (see 2.7) as a foundation:

A) Categorisation of channels and/or channel sections based on seasonal risk as above.

B) Then for each channel, define:
   1. The broad ongoing maintenance required to maintain its flood protection function following best practice advice including:
      a. Bank cutting (i.e. H&S cut, annual cut, biennial cuts),
      b. Weed cutting (if managed separately from desilting) (i.e. annual, biennial),
      c. Desilting (slubbing) (biennial, 5-yearly etc.),
   2. Priority, protected and important species known to be present in the area of impact of works (this can include downstream of the immediate area and access routes to the channel as well as the immediate work area) and mark them on a map,
   3. Which operations require surveys to be conducted ahead of them and what survey methods should be used,

4. Tree and shrub management approaches, including timings and methods,
5. Permits, licences, exemptions and training required for each approach,
6. The optimum time to undertake each activity to deliver greatest environmental and flood risk benefits and maintain compliance, taking into account for example breeding birds, mammals, spawning fish etc.,
7. Optimal cutting lengths and cleansing depths for environmental, water conveyance and flood risk benefits,
8. How cuttings will be managed (i.e. removed, heaped, baled etc.),
9. How dredged materials will be disposed of to minimise environmental impacts i.e. through spreading on neighbouring land or re-use elsewhere in line with environmental permits,
10. Areas which can be left unmanaged (i.e. channel margins, redundant channels) for biodiversity,
11. Where water levels can be kept stable all year round for the benefit of biodiversity,
12. The necessary biosecurity actions for each operation,
13. What information should be recorded and kept by those working on the channel i.e. badger sett locations, vegetation type, wildlife sightings etc.,
14. Opportunities for ledge and berm formation when bank repair or profiling is necessary,
15. Seed mixes to be used following repair, profiling or capital works and where possible specify more diverse species supportive of native pollinators.

2.8.3 Common Best Practice Approaches Some common best practice maintenance approaches that are beneficial in terms of balancing environmental, financial and flood risk benefits and aid compliance with environmental legislation include the following (always where flood risk permits):

- Single-side bank cuts on alternate years or every 2 years,
- Retaining a marginal fringe of vegetation on at least one side of as many channels as flood risk allows, of at least 30cm width, to provide habitat and bank-toe protection,
- Creating ledges at the waters' edge and berms during bank re-profiling or repairs to create habitat and increase channel capacity,
- Using coir rolls as bank toe protection,
- Avoid managing channel edges, including not mowing down to the tow of the bank and not dredging or cutting right up to banks where possible,
- Removing cuttings and mowings from banks or raking into large mounds on bank tops where risk of falling into channel is low,
- Trimming shrubs such as brambles and pollarding or coppicing trees rather than removing them,
- Piling or creating dead-hedges on bank tops with the arisings from shrub and tree management instead of burning, where risk of falling into channel is low,
- Maintaining stable water levels throughout all seasons where possible,
- Using a more diverse seed mix for re-seeding areas,
- Managing in stream and marginal vegetation rotationally to ensure a diversity of stand maturity.

2.8.4 Best Practice Operations Manual Implementation Many IDBs develop weekly or monthly work schedules for operatives using the approaches set out in their best practice manual. The information compiled as part of their manual will already set out the management approaches to be taken for each channel, the reasoning

behind the approach taken, any associated maps, important features, required permits, training requirements etc. and what information that the operative is required to record during their work.

An operative should receive appropriate training so they are able to identify any significant environmental factors during their work, such as important plant or animal species and know how to adapt the approach to conserve and enhance them if necessary. This could include new badger setts, signs of mink, otter or water-vole, the presence of birds' nests, areas of soil erosion or the presence or absence of any other important species. Many IDBs provide information sheets on species identification and signs for operatives to keep with them during their work, either as paper copies or via an app on their phones or tablets. Sightings and signs data collected electronically often also has the opportunity to be uploaded into an IDB's Environmental Management or GIS system.

NOTE!: However the information is gathered, it is important that post-work information is communicated back to "the office" and used to update the Best Practice Operations Manual if necessary, and to determine the success of any approach the IDB is taking as part of their Biodiversity Action Plan to enhance species or habitats and demonstrate compliance with their biodiversity duties.

KEY RESOURCES:
The Drainage Channel Biodiversity Manual is a comprehensive guide to the environmentally supportive operational approaches that can be taken to manage drainage channels - *www.ada.org.uk*

The Middle Level Biodiversity Manual is an example of a best practice manual - *www.ada.org.uk*

2.9 **Environmental Training** Many pieces of legislation require that all reasonable steps are taken to ensure that a particular habitat or species is protected from harm. Some environmental permits and wildlife licences also require that an operative receives appropriate training to achieve a minimum level of competency and understands what activities are and are not covered by the terms of a licence. A key tool for an IDB to help them demonstrate compliance is to provide regular formal training.

Fieldworkers, whether directly employed by the IDB or contracted, should be trained in the identification of, in particular, protected, priority and invasive non-native species recognition and their signs, common to the area of their work. Training should develop a thorough understanding of how their activities can affect those species and habitats. This will help operatives and the IDB to remain compliant. It will also help the IDB to understand if their actions are achieving the required outcomes so they can adapt their approaches where necessary. Skills and understanding should be regularly assessed and refreshed and training records kept.

There are several sources of environmental training for an IDB: a directly employed environmental officer could be responsible for the development and delivery of training packages or a contracted environmental professional could be engaged. Otherwise there are a number of professional training providers, such as CIEEM and a number of environmental consultancies that offer courses, and may even develop a bespoke course if necessary on a wide range of environmental topics from specific species to wetland management. Where professional training providers are used, it may be advantageous

for IDBs to work together to secure cost efficiencies for the development or delivery of training to a larger group of operatives. The ADA Lincolnshire Branch's Environment Committee operates in such a way and arranges regular training for a group of IDBs on topics such as water voles.

While the target of environmental training is often fieldworkers, other IDB employees and Board members should receive environmental training too, not least to ensure that they understand what standards and policies the IDB is responsible for delivering, so they can add and enable support.

2.9.1 Water Environment Worker Apprenticeship Standard The standard aims to provide apprentices working for IDBs, the Environment Agency and other water management organisations with specific transferable skills and bespoke training to excel in the maintenance, repair, and management of a variety of water environment assets and habitats.

This Apprenticeship Standard has been developed and approved by the Institute for Apprenticeships and Technical Education, which is sponsored by the Department for Education. The standard also covers responding to major incidents, flood risk & drainage, working with volunteers, water level management, and maintaining & working with heritage assets.

2.10 Biosecurity Policy To comply with legislation around invasive non-native species (INNS), primarily the Wildlife & Countryside Act, an IDB is required to develop and maintain a biosecurity policy setting out how it plans to ensure that the risk of introducing INNS or spreading an existing population is minimised. For more information on INNS, see section 9.

2.11 Environmental Management Systems (EMS) Much as there are management systems for other areas of business such as Health & Safety, Finance and IT, there are environmental management systems (EMS) also. Types of EMS can range from in-house developed and maintained systems and processes, to formal systems which follow international standards and guidelines such as International Organisation of Standardisation (ISO) 14001-2015, which can then be certified by an accredited body such as the British Standards Institute (BSi).

For many IDBs, their EMS in practice is an informal one which involves the keeping of up-to-date computerised risk assessments, work plans and handling records for all relevant activities which can impact on the environment. A formal EMS would bring these individual environmental provisions together in an integrated way, therefore bringing efficiencies in information management, compliance and reporting and allow for standard methodologies to be developed for data collection.


DUTY

2.11.1 Environmental Management Systems Where an IDB is applying for or holds an environmental standard rules permit or bespoke permit, and in some cases for a registered exemption also, it must have a written environmental management system (EMS) in place. Entering into a Public Sector Co-operation Agreement to undertake work on behalf of the Environment Agency will also require an EMS to be in place.

An EMS can help to demonstrate that the IDB has identified the risks that its activities pose to the environment and the reasonable actions the IDB will take to prevent or minimise those risks, including having an emergency environmental incident plan. The EMS should also trigger regular reviews of those risks and activities, particularly after any incidents or non-compliances with the lessons learned.

Types of records an IDB would be expected to maintain as part of their EMS include (but are not limited to):

- Environmental policy,
- Biosecurity policy,
- Biodiversity Action Plan,
- Best Practice Operations Manual,
- Environmental permits & exemptions,
- Water Level Management Plans,
- Protected site assents & consents,
- Waste permits & exemptions,
- Environmental Impact Assessments - see section 7.10,
- Habitat Regulations Assessments,
- Emergency plans & procedures,
- Risk assessments,
- Staff training & competence records,
- Compliance reviews,
- Complaints procedure,
- Site and species survey records,
- Species licences.

BEST PRACTICE

2.11.2 Environmental Management Systems (EMS) An IDB is encouraged to compare its existing EMS and processes to those set out in the freely available international standards for EMS - ISO 14001:2015 and consider the benefits of adopting a more formal approach to managing their environmental provisions, considerations and compliance. The ISO standard is the most widely recognised and used voluntary EMS standard in the world. It is a generic system and can be applied to any organisation, large or small, in any sector, public or private. Following a national or international EMS standard could provide a number of benefits which include the following:

- Improving resource efficiency and reducing unnecessary expenditure,
- Better regulatory compliance,
- Lighter regulation,
- Improving business reputation,
- Improved funding opportunities.

KEY RESOURCES:

What is an EMS? provides a good overview of EMS - *www.netregs.org.uk*

Develop a management system: environmental permits provides guidance on developing an EMS to meet the requirements for environmental permits and regulations - *www.gov.uk*

Introduction to ISO 14001:2015 provides more information on the International Standard for Environmental Management Systems - *www.iso.org*

2.12 Green Procurement IDBs are strongly encouraged to develop a "green" procurement policy which aims to reduce the impact on the environment indirectly through sourcing goods and services from environmentally responsible suppliers. This can include consciously seeking to procure goods and services from suppliers who have taken steps to reduce their own environmental footprint and to source goods as locally as possible to help to reduce the carbon emissions from transportation. Presented below is a list of examples an IDB may consider in order to support wider environmental improvements through their procurement:

- Reduce waste - Goods and packaging made from recycled materials and/or can be recycled including paper and plastics. Goods with minimal or no unnecessary packaging. Suppliers with "zero waste to landfill" policies and certification,
- Local suppliers - including local contractors,
- Local Provenance - Sourcing tree and hedging plants and seed with local provenance from local suppliers and with biodegradable tree guards,
- Natural sustainable materials - Use of biodegradable and natural materials and substances rather than synthetic. Suppliers who use local and environmentally responsible materials such as wood from certified and sustainable sources,
- Low emissions or renewable energy - Suppliers who use aerodynamic, low emission, or electric vehicles, supply or use renewable energy, are net-zero or have a net-zero strategy,
- Ethical responsibility - Banks, investment services, finance and pension providers with environmentally responsible options, ethics and policies,
- Environmental certifications - Suppliers with environmental certifications, i.e. see *www.ecolabelindex.com*

KEY RESOURCES:
Buying Green Handbook available from *www.ec.europa.eu* provides information on the development of a green procurement policy which is particularly aimed at public authorities.

2.13 Green Finance IDBs have significant and increasing responsibilities to deliver environmental enhancement, but do not have specific environmental funding streams available to them, such as farmers do with ELMS or other private organisations, and as charities may have. This sometimes makes it difficult for IDBs to exceed expectations and progress more valuable environmental work.

There are many more opportunities to secure funding for environmental projects when IDBs work in partnership with other organisations, so an IDB is encouraged to maximise its networks to harness these opportunities.

The requirement for biodiversity net gain as a condition of planning from autumn 2023 will present opportunities for IDBs to offer biodiversity net gain solutions to local developers who may be unable to achieve the full 10% net gain on-site. In order to be ready and competitive in this market, and indeed for any other funding opportunities that may arise, IDBs are advised to develop some "shovel-ready" projects, which are defined in terms of the drivers, resources required, timescales, outcomes and benefits they are likely to deliver once the funding is secured.

The IDB should communicate their environmental policies, achievements and aspirations widely, as set out in Chapter 3. The demonstration and improved recognition of an IDB's environmental competence through the delivery of successful environmental enhancement projects and the publication of a robust set of environmental policies and procedures is likely to improve funding opportunities.

Available grants do regularly change, so it is important to keep up to date. However, some funding sources recently exploited by IDBs to progress their environmental enhancements include:

- Developer contributions
- European INTERREG funding
- Section 106 funding from local authorities

- Reverse auctions for environmental enhancement & ecosystem services

Another financial instrument being considered more often is the use of Green Bonds. These bonds raise funds for new and existing projects which deliver environmental benefits, and a more sustainable economy. Further information on the mechanisms to access funding from Green Bonds should be sought from specialist financial advisors.

2.13.1 Flood Defence Grant in Aid (FDGiA) Funding As a risk management authority, an IDB can apply for Grant-in-Aid funding from the Government for flood and coastal erosion risk management (FCERM) projects. This is administered by the Environment Agency on behalf of Defra. Any FCERM project where the benefits are greater than the costs can qualify for a contribution, including studies to investigate the environmental impacts and opportunities of FCERM works. The amount of FCERM Grant-in-Aid funding a project is eligible for depends on the benefits and the outcomes of the project. If the eligible Grant-in-Aid funding does not cover all of the IDB's costs, it may need to raise extra money from partners through contributions. This is known as partnership funding.

Benefits are assessed through a series of outcome measures. With specific focus on the environment, outcome measure 4 (OM4) supports FCERM projects that reduce the risks of flooding or coastal erosion and provide additional environmental benefits. It is made up of two separate outcomes - OM4a for hectares of habitats created or enhanced and OM4b for kilometres of rivers enhanced. The calculator which must be used to determine the biodiversity net gain of such projects is complicated and requires professional ecological skill and knowledge.

Hybrid approaches to FCERM that incorporate natural processes integrated with hard engineered elements often score more highly as they help to deliver and often exceed the minimum required environmental benefits alongside FCERM objectives. Reconnection of flood plains, washlands, and creation of bermed channels, are all flood risk management options that add storage capacity to lowland systems and can provide more extensive environmental benefits.

KEY RESOURCES:
Financing green ambitions: a practical guide for councils- *www.local.gov.uk*

3 PUBLISHING ENVIRONMENTAL INFORMATION

3 PUBLISHING ENVIRONMENTAL INFORMATION

3.1 Freedom of Information Act 2000 (FOIA) An IDB is a non-departmental public body under the FOIA so is required to develop a publication "scheme" or policy which sets out how certain information is made available for public access. There are several classes of information defined and the general principle is that all information which could be included under each class should be included, unless there is a good reason to withhold it. Some information should be provided proactively and a reactive data provision process should also be defined. The Act also requires that there is a defined process for regularly reviewing and updating published data.

DUTY

NOTE: An IDB as a public authority should apply the Environmental Information Regulations 2004 to environmental information and the Freedom of Information Act to non-environmental information.

KEY RESOURCES:

Guide to freedom of information is available from the Information Commissioners Office - *www.ico.org.uk*

Definition document for Non-Departmental Public Bodies and other public authorities is a useful FOIA publication scheme template suitable for IDBs - *www.ico.org.uk*

3.2 INSPIRE Regulations 2009 Under the INSPIRE Regulations, a public authority that holds environmental spatial data has a legal obligation to proactively publish it in a consistent and useable electronic format. Spatial data is any data with a direct or indirect reference to a specific location or geographical area and is often referred to as geospatial data or geographic information. Not all spatial data qualifies under the Regulations; only data that falls within one of the 34 definitions or "themes" qualify and include many with an environmental focus. Published data has to meet certain standards and must be registered on *data.gov.uk* in a certain way. Such data for an IDB could include their Geographical Information Systems (GIS) records detailing the locations of their channels and water level management infrastructure, administrative units, land-use, habitat & species records created by the IDB.

DUTY

An IDB will need to engage an experienced GIS professional to help them comply with the INSPIRE Regulations. For practical efficiencies, it is recommended that IDBs incorporate their duties under INSPIRE into their compliance process for the Environmental Information Regulations.

KEY RESOURCES:

Guide to INSPIRE Regulations is available online from the Information Commissioners Office - *www.ico.org.uk*

A guide to INSPIRE compliance in Local Government is a publication available on-line from the Local Government Association, useful and relevant at a high level to IDBs - *www.local.gov.uk*

3.3 Environmental Information Regulations (EIR) 2004 The EIR is originally derived from the European Directive which aims to make environmental information publically available in order to generate greater awareness of environmental issues. The EIR requires that information is made available for public access but focuses specifically on the right to access environmental information about the activities of public authorities which affect their environment.

Under the regulations, the definition of environmental information has a wide scope and can include written, visual, aural, electronic or any other material. There are some exemptions where information does not have to be provided, which include, when supply would contravene the General Data Protection Regulations, where the request is manifestly "unreasonable" in terms mostly of time and/or cost, requests for incomplete work, or for internal communications.

The EIR requires that a process to respond to information requests is also defined, including any charges which can reasonably be made for supplying information. They also provide for the development of a code of practice in relation to record keeping. While adherence to the code of practice is not statutory, it would be taken into account whether the code had been followed when deciding if a breach of the Regulations had occurred.


DUTY

3.3.1 Environmental Information Regulations (EIR) 2004 IDBs are advised to familiarise themselves with the full EIR definitions and identify any relevant environmental information sources, as they have a duty to provide all relevant information electronically and proactively. It recommended that this information is made available on the IDB's website along with other information covered by the Freedom of Information Act wherever possible. It is accepted that some information is difficult to make available via the website such as large databases or hard copy records. Also, smaller IDBs may not have the technical resource to maintain a large volume of documents on a website and in these cases, a publication scheme (see 3.1) should at least refer to the information and where it can be obtained instead. While the EIR does not require a publication scheme like the Freedom of Information Act does, it is highly recommended that the IDB includes and consolidates environmental information and INSPIRE data provision within the Freedom of Information Act publication scheme for ease, efficiency and to ensure compliance.

The EIR requires that records are organised in such a way that they can be published routinely and systematically with relative ease. The tools, templates and processes set out in this guide which aim to aid compliance with environmental legislation should be sufficient as a means of recording and publishing environmental data in this way. These tools include the IDB's Biodiversity Action Plan and its progress reports, Biosecurity Policy, Environmental Policy, Best Practice Operations Manual, meeting minutes, training records, survey results, Green Procurement Policy and more. Where the services of an environmental contractor have been engaged to help develop certain environmental information on behalf of the IDB, the EIR would also apply to those contractors.


KEY RESOURCES:
Guide to the Environmental Information Regulations is available from the Information Commissioners Office - *www.ico.org.uk*


BEST PRACTICE

3.3.2 Publishing Environmental Information In particular, other environmental managers and stakeholders should be kept informed of the environmental plans an IDB has and the outcomes of IDB action taken to enhance the environment. Without this information being shared, it is difficult to build an accurate local and national picture of the status of many habitats and species. It also improves the recognition of the current efforts and effectiveness of IDB measures designed to protect and enhance the environment. IDBs are advised to contribute towards the national and local picture by submitting information such as sightings and survey results via the following:

www.alerc.org.uk provides contact details for all Local Environmental Records Centres across the UK where local biodiversity records should be sent.

www.iRecord.org.uk is an on-line national wildlife data collection tool and app linked to the national Biological Records Centre. It is also the tool which should be used to report the presence of invasive non-native species.

3.4 Communication Plans IDBs are encouraged to develop a communication plan or strategy, part of which should focus on the provision of environmental information. There are a number of good examples of communications plans and strategies available on-line, and particularly relevant are those of parish councils, district and local authorities.

BEST PRACTICE

Support for IDB environmental projects and initiatives can only be gained where they are made known. Communicating the work of IDB projects both within the local community and more widely will not only be beneficial for the IDB in terms of raising their profile and increasing local support for the IDB and its work, but may also attract support and resources for future projects as well as increasing the perception of IDBs as being competent custodians of valuable natural capital.

Avenues for the active communication of IDB environmental activities which are already used to great effect by some IDBs include: visits to and from schools and colleges, stands at local shows, reports sent to rate payers, siting interpretation boards around local walking routes, road junctions and pumping stations, local community newsletters and social media accounts and forwarding articles for inclusion in industry publications such as the ADA Gazette.

3.5 IDB1 Returns The data submitted annually to Defra by IDBs through the IDB1 process is being analysed now more than ever, not only by Defra but by a wide range of stakeholders and audiences, due to the public accessibility of the data. This scrutiny is expected to increase in the future, particularly through the new biodiversity reporting requirements brought forward by the Environment Act 2021. For this reason, accuracy, consistency and completeness is key. For biodiversity related data in particular, it may be difficult to understand what data should and should not be included in the IDB1. To help with this, ADA compiled a list of hints and tips on collating such data, available from the ADA website - *www.ada.org.uk*

DUTY

3.6 Biodiversity Metrics ADA has developed a series of biodiversity metrics which aim to gather simple biodiversity-focussed statistical data from any IDB who wishes to provide it. The data is to be collected and collated annually and presented as collective figures which highlight the industry's contribution towards supporting and enhancing biodiversity.

BEST PRACTICE

The metrics have been designed so that at least one metric should be relevant to every IDB, and to minimize the need for any additional data collection on top what should already be available through operational records. Completion is not mandatory and IDBs can complete as many or as few of the questions as they wish or are able to do so. The individual IDB responses will not be shared, will remain anonymous, and all data will be collated to present an overall IDB industry position.

Many IDBs may be already involved with many other valuable environmental projects which are not linked to any of the metrics and of course it is intended that this work continues. The completion of the biodiversity metrics questionnaire should not be the primary driver for environmental activity within the IDB districts. However there is an opportunity for the IDB to align its Biodiversity Action Plan and other environmental objectives with the approaches covered within the metrics if they wish to do so and this

could bring data collection and reporting efficiencies. ADA will continue to gather and communicate non-metric environmental project data outside the metrics process.

The value of this collective information to IDBs could be significant as it could help to raise their profile as competent guardians of the environment and may unlock some funding to progress other enhancement projects and encourage greater local support for IDBs and their work. IDBs are encouraged to participate where they are able to do so. The metrics template and guide is available from *www.ada.org.uk*

4 PLANNING & DEVELOPMENT

4 PLANNING & DEVELOPMENT

The planning system is one of the key mechanisms used to protect the environment. One of the three overarching objectives of the Government's National Planning Policy Statement is to protect and enhance the environment.

4.1 Planning As a non-statutory consultee in the planning process, IDBs do not have the legal power to grant or reject a planning application that it scrutinises. An IDB's role is to advise the local planning authority whether any proposed development (including the discharge of water from its proposed drainage system) will increase flood risk, adversely affect water level management, restrict the maintenance of any ordinary watercourse, or adversely impact the water environment within the drainage district. The IDB only has the legal power to grant or deny consent for certain works taking place within, or in the specified vicinity of, its drainage channels in accordance with its statutory powers, provided for by the Land Drainage Act 1991 and the Flood and Water Management Act 2010 and via its bylaws. It is through the consenting process that the IDB must deliver its duty to conserve and protect the environment.

DUTY

BEST PRACTICE

4.1.1 Planning Notwithstanding the above, if an application for consent is made to the IDB for a development which has already received planning permission, in order to fully discharge its duty to conserve and enhance biodiversity, the IDB should ensure that the biodiversity information and assessments provided by the developer, particularly the species and habitat surveys relevant to the IDB area such as water vole surveys, are complete and up to date. The IDB should not assume that all habitat and species assessments have been requested and checked by the LPA and grant consent for the IDB elements without checking that this is the case. The IDB may have access to species and habitat information that the LPA does not. An IDB should be mindful that they should only grant consent if they believe that a licence or approval of a mitigation plan is likely to be granted by Natural England for the proposed activities based on the 3 derogation tests:

- The activity to be licensed or approved must be for imperative reasons of overriding public interest (public health and safety, or social and economic reasons),
- There must be no feasible satisfactory alternatives,
- The favourable conservation status of the population of the species must be maintained, or if a protected site, necessary compensatory measures can be achieved.

It is likely to be rare that the IDB disagrees with any LPA's assessment, but if the IDB thinks that the LPA may have missed something and it thinks will be unlikely that the applicant will receive the necessary licences or approval it needs from NE, then the IDB should not give consent for their regulated aspects either.

4.2 Consents & Bylaws The IDB has the legal power to grant or deny consent for certain works taking place within, or in the specified vicinity of, its drainage channels within its drainage district, in accordance with its statutory powers, provided for by the Land Drainage Act 1991 and the Flood and Water Management Act 2010 and via its bylaws. It is through the consenting process that the IDB must deliver its duty to conserve and enhance the environment. In general, if an IDB has a duty to consider, conserve and enhance any aspect of the environment through the exercising of its statutory functions, they must consider it when consenting the activities of others too.

DUTY

The main priority for consenting in terms of delivering the general biodiversity and other environmental duties is to ensure that consent is not provided when environmental harm cannot be mitigated, and only to provide consent when the IDB is satisfied that the environment will be protected and that biodiversity will be conserved and enhanced, compliantly, by the work being consented.

An IDB can screen applications for potential protected species presence and impact on designated sites, and can advise where a survey etc. may be required. However, ultimately it is the applicant's responsibility to determine presence or absence of a species and impact on designated sites. The applicant is also responsible for proposing mitigations and enhancements. Impact here is defined as an activity which is likely to result in a criminal offence against a protected species or designated site.

Depending upon the source and scale of the application, much of this information may or may not be present at the time of application. The offer of pre-application advice and some comprehensive pre-application guidance made available on the IDB's website will assist applicants in gathering all the required information prior to an application being made. This will also help to assist IDBs with meeting their stated response times.

If this information is **not** available at the time of application, the IDB should consider the following steps:

a) If the IDB suspects the works could impact upon a protected species, request that surveys are undertaken prior to considering consent,
b) Request evidence that works will not impact upon protected species or a designated site, or cause a significant impact upon the environment,
c) For suspected impacts on a designated site, notify Natural England and request a Habitat Regulations Assessment (and possibly an Environmental Impact Assessment (EIA) depending upon scale of development) be undertaken if a European Protected Species is potentially present,
d) For suspected significant impacts on the environment, request that an EIA is undertaken prior to considering consent,
e) If no impacts on designated sites and protected species are expected, request information on proposals for enhancements, before considering consent if none have been provided,
f) If the IDB is confident that no designated sites or protected species will be impacted where certain design and delivery criteria are met, grant consent with the condition that those criteria are met along with the agreed enhancements.

Where the necessary information **has** been provided with the application to help the IDB determine if the proposed works will or will not impact protected species or sites, including surveys, ecological impact assessments and environmental statements etc., it will likely include some recommended mitigations that should be made in order to avoid impacting the site or species (or to avoid resulting in an offence and should provide details on what enhancements will be made to what is already present, as is necessary). The IDB may then take the following steps:

a) Grant consent for the works if the IDB is in agreement with the applicants' ecological appraisal of no probable impact on designated sites or protected species. Grant with the condition that the proposed enhancements and recommendations made in the ecological report are delivered,
b) Request that the necessary licences and approvals are secured by the applicant prior to granting consent. This could include eel pass or screening approvals, SSSI consents,

Habitat Regulations Assessment derogations, protected species licences, heritage, tree and hedge consents,

c) Grant consent if the IDB is confident that licences and/or approval will be granted by Natural England & other regulators, and where the IDB agrees with the recommended mitigations and other biodiversity enhancement proposals. Grant with the conditions that licences are secured prior to commencing any works and that the recommendations and enhancements are delivered,

d) Grant consent if all necessary licences and approvals have been provided and the IDB agrees with the proposed enhancements and recommendations. Grant with the condition that these will be delivered.

It is the applicant's responsibility to deliver the agreed environmental conditions. However, the IDB has the power to charge for compliance visits during and following the completion of works and are advised to make use of this power, to fully discharge their general biodiversity and other environmental duties. These can be detailed in their consent.

Developer contributions should be sought when all environmental impacts and enhancements cannot be delivered at the development site. These contributions can be invested in habitat enhancements elsewhere in the IDD in order to help the IDB fulfil its general biodiversity duty (see 7.1.1).

It is always advisable that IDBs contact Natural England for advice where any uncertainties exist.

BEST PRACTICE

4.2.1 **Consenting** The board should aim to publish as much pre-application information on their website as possible. This should include its "no net biodiversity loss" policy, details of the environmental assessments that an applicant should make and include these requirements as part of their consenting application forms, with associated guidance. Guidance could at least cover the frequently asked questions around the most common types of consent applications such as for culverts etc. The IDB should make it clear that requests for pre-application advice are welcome and hold (and publish) lists of recommended, local, relevantly qualified environmental and ecological consultants to pass on to potential consent applicants.

As part of this pre-application advice, the IDB could specify that only once all the necessary environmental information is received, as set out in the application form, will the IDB consider the application fully received and accept the consent fee payment. To support this, an internal process will be needed which ensures that no consent fee payments are cashed until confirmation is given by the consenting officer that all such information has been received. This will ensure compliance with section 23 of the Land Drainage Act.

KEY RESOURCES:
Many IDB websites already provide consenting information relating the environment which can be used as a guide for others to develop the same.

4.3 **Biodiversity Net Gain** The Town and Country Planning Act 1990 has been amended by the Environment Act 2021 to include the provision for a 10% biodiversity net gain to be mandatory for new developments from late 2023. The Act provides for the creation of Regulations which require Biodiversity Net Gain sites to be listed on a register and to be maintained for a minimum of 30 years. This new provision and its impact on IDBs is set out in section 7.1.5 in more detail.

4.4 **Nutrient Neutrality and Water Neutrality** At the time of writing, a total of 74 local planning authorities (LPAs) have been issued nutrient neutrality advice by Natural England, meaning that development in some catchments can only proceed if it demonstrates that it will be "nutrient neutral". A number of LPAs have also been issued water neutrality advice which prevents development taking place if it increases the rate of abstraction for drinking water supplies above existing levels. Following a number of recent legal precedents, this issuance of advice is Natural England's reminder to LPAs that planning permission can only be given for developments in these areas where a Habitats Regulations Assessment can demonstrate a neutral impact on current nutrient levels and flow rates in the catchment.

Sewage and wastewater from development usually results in an increase in nutrients being discharged into water courses. Therefore, to achieve nutrient neutrality, a development must demonstrate that it can mitigate the additional nutrient loading created by its wastewater and surface water. Sustainable drainage systems play a key part in this, but in some areas, nutrient trading opportunities are being explored as a way to "offset" nutrient increases in one area of the catchment with nutrient pollution reductions in another.

In terms of water neutrality, a developer may need to offset the expected increase in ongoing water needs of the development by supporting water use efficiencies in other established developments in the same catchment. This could include retrofitting greywater recycling systems, rainwater harvesting and water-efficient fittings in council-owned properties.

A small number of IDBs have been asked to provide water quality and flow data by developers to support their planning applications, and by LPAs. This is not data that IDBs routinely collect and are not legally required to do so, but there is a poor understanding of the primary functions of IDBs. The information IDBs can provide is likely to be limited to details around the physical interconnectivity of the system. Even if flow rates and other quantitative water quality data from IDB channels could be provided, the issues are so complex, with many varying spatial and temporal factors, it may still be difficult to evidence any long-term water quality and volume trends linked to the development.

GOING FURTHER

4.4.1 **Nutrient & Water Neutrality** This may be a good time for IDBs to review their charging mechanisms for the provision of such data.

There may be opportunities for IDBs to secure funding, perhaps from water companies or developers, to upscale their monitoring capabilities to better define the volumes and quality of freshwater conveyed through their systems. There will be an increased need for developers and planners to collect this data to improve catchment modelling and to prove the outcomes of mitigation measures. The same data can benefit IDBs in many ways such as for improved flood risk, water level and water resource management planning, to support abstraction requirements and as evidence in funding applications to support their own environmental activities. The approaches and infrastructure needed to support nutrient and water neutrality strategies are similar to those being proposed to tackle climate change in the medium and long term, such as improved water storage solutions, surface run-off interception and water transfers. IDBs are advised to consider what technical solutions could be supported by developer contributions so they are able to offer feasible and costed options when requested.

4.5 **Sustainable Drainage Systems (SuDS)** SuDS are forms of green infrastructure that take approaches to manage surface water from development and take account of water quantity (flooding), water quality (pollution) biodiversity and amenity. SuDS are designed to

manage surface water locally (as close to its source as possible), to mimic natural drainage and encourage its infiltration, attenuation and passive treatment.

NOTE: There are parts of Schedule 3 of the Flood and Water Management Act 2010, which focus on the management of SuDS, that have remained unenforced since enactment. However, Schedule 3 is now being reviewed a possible implementation of regulations covering the development, approval and management of SuDS.

BEST PRACTICE

4.5.1 SuDS Principles Good SuDS design should follow the SuDS philosophy, which calls for the inclusion of a number of key principles:

- Creating a management train - using a number of SuDS components in series and characterising areas into land use and drainage type,
- Source control - managing runoff as close as possible to where it falls as rain,
- Managing water on the surface - wherever possible, runoff should be managed on the surface using 'soft engineered' features rather than underground storage,
- Early and effective engagement - consider the use of SuDS at the earliest stages of site selection and design,
- Consider maintenance - ensure the SuDS features can be accessed and effectively maintained to sustain their function and multiple benefits.

KEY RESOURCES:

Sustainable drainage systems: non-statutory technical standards - *www.gov.uk*

www.susdrain.org

The Association of Suds Authorities (ASA) technical library and database - *www.suds-authority.org.uk*

Sustainable Drainage - Maximising the potential for people and wildlife *www.sudswales.com*

4.6 Green & Blue Infrastructure Green and blue infrastructure is the strategic planning, delivery and management of a network of multifunctional green and blue spaces, as resources to deliver a range of ecosystem services. Often, the term green infrastructure is used to refer to terrestrial areas as well as aquatic and semi-aquatic areas such as sustainable drainage systems and drainage channels. It goes beyond the provision of parks and recreation areas for the public and includes private green spaces such as allotments and gardens, woodland, green roofs and walls, street trees, sustainable drainage systems, watercourses, streams, and ponds. The linking and enhancement of these natural networks into towns and cities delivers on the recommendations of Sir John Lawton's report - Making Space for Nature, which urged that habitats needed to be "bigger, better, more and more joined up" to deliver for biodiversity. It is also a concept supported by the "net-gain through development" and local nature recovery strategy approaches and duties being brought forward through the Environment Act 2021.

There are no mandated standards or extents of green infrastructure which must be delivered by developers or local planning authorities, but there are a number of national planning policy statements which require developments and development strategies to incorporate green infrastructure in order to assist the delivery of a number of functions including flood alleviation, access, climate change mitigation and resilience and biodiversity net gain. There are also some local or district strategies which put forward more stringent

targets in terms of the extent of green infrastructure and no net loss of such assets. These strategic policies can identify the location of existing and proposed green infrastructure networks and set out appropriate policies for their protection and enhancement, and this is likely to include some IDB assets, particularly drainage channels, in some areas.

BEST PRACTICE

4.6.1 Green & Blue infrastructure The IDB should liaise with their local authorities to understand how IDB assets contribute towards such strategies, now and in the future. IDB drainage channels are valued not only for their water level management contribution, but for habitat connectivity, their green/blue space provisions for health and wellbeing, support of biodiversity and much more, both within an urban and rural setting.

The IDB should also seek to understand how their consenting responsibilities should incorporate any green/blue infrastructure strategies and targets.

KEY RESOURCES:
Natural England's' Green Infrastructure Framework tool is set to launch as an on-line resource in Autumn 2022 and holds a wide range of information, including maps.

5 FLOOD RISK MANAGEMENT & THE ENVIRONMENT

5 FLOOD RISK MANAGEMENT & THE ENVIRONMENT

5.1 The Land Drainage Act 1991 (LDA) (as amended) The Act sets out the functions of IDBs and local authorities in relation to land drainage. It also sets out a duty for IDBs to consider the environment, both natural and built, while carrying out its functions as follows:

- Further the conservation and enhancement of natural beauty and the conservation of flora, fauna and geological or physiographical features of special interest,
- Have regard to the desirability of protecting and conserving buildings, sites and objects of archaeological, architectural or historic interest,
- Take into account any effect which the proposals would have on the beauty or amenity of any rural or urban area or on any such flora, fauna, features, buildings, sites or objects,
- Have regard to the desirability of preserving for the public any freedom of access to areas of woodland, mountains, moor, heath, down, cliff or foreshore and other places of natural beauty,
- Have regard to the desirability of maintaining the availability to the public of any facility for visiting or inspecting any building, site or object of archaeological, architectural or historic interest; and,
- Take into account any effect which the proposals would have on any such freedom of access or on the availability of any such facility.

Other legislation referred to elsewhere in this guide, in particular the Natural Environment and Rural Communities Act 2006 and Environment Act 2021, significantly widen the scope of the environmental components which must be considered by IDBs as public bodies, and the action required of IDBs in relation to them, particularly around sites and species. In this respect, some duties set down by the LDA are effectively superseded by a stronger and wider duty for IDBs to conserve and enhance the natural environment.


DUTY

5.1.1 Land Drainage Act In practical terms, an IDB must be able to demonstrate that these considerations have been made when planning and undertaking their functions. In terms of the natural environment and biodiversity, key tools for an IDB to help to fulfil the requirement are the Biodiversity Action Plan and Environmental Best Practice Manual, Biosecurity Policy and Environmental Policy. The outputs from complying with the Environmental Impact Assessments and Habitat Regulations Assessments where necessary will be relevant also.

In terms of heritage and archology duties, see section 6.8.


BEST PRACTICE

5.1.2 Land Drainage Act Less formal approaches an IDB can take to understanding its role in respect of each of the environmental components set out above are equally important. Simply by forging networks with local catchment stakeholders and maintaining regular proactive communications with representatives of local environmental organisations, IDBs can access advice and improve their understanding of the actions and considerations they must make to fulfil these duties. See the Partnership Working section (2.3) in this guide for more detail.

For consenting, bylaws and developer contributions, see the Planning and Development chapter 4.

5.2 Channel Maintenance IDBs are empowered through the Land Drainage Act 1991 to maintain the capacity and conveyance of flow in ordinary watercourses within their drainage district. Such actions include: periodically removing sediment through de-silting/

dredging, controlling in channel and bankside vegetation, repairing bankslips, and managing adjacent trees and bushes. Vegetation cuts to allow for safety inspections of assets will also be required.

5.2.1 Vegetation Management The IDB's Best Practice Operations Manual should have identified and prioritised the channels which require routine vegetation maintenance in order to maintain the required flood risk protection, conveyance, and to maintain or restore beneficial conditions for particular species and habitats highlighted in its Biodiversity Action Plan. Choosing the most appropriate techniques, frequency, timing, and equipment for watercourse maintenance can help avoid unnecessary harm to the environment, and reduce the volume of waste generated.


BEST PRACTICE

5.2.1.1 Weed Cutting To avoid the potential risk of environmental damage associated with vegetation cuttings remaining within the watercourses, they must be removed promptly. Undertaking weed control operations during prolonged periods of hot temperatures when flows are low should also be avoided even when the material is going to be removed because inevitably some matter will be dislodged and remain in the water. This can create environmental problems as set out in section 11.9.4. It is an operator's responsibility to determine if flows are low, temperatures are unsuitable and dissolved oxygen is likely to be low.

5.2.1.2 Thermal Regulation Instream and bank vegetation, including herbaceous plants and woody species i.e. trees and shrubs, play an important role in regulating the temperature of water within channels. They provide localised shade from the sun and prevent water from warming which can be detrimental to a range of wildlife including plants, but particularly fish where some species are quite sensitive to small changes in water temperature. This should be a consideration for IDBs when managing channel and bank-side vegetation.


DUTY

Thermal Regulation It is an IDB's responsibility to assess the effects of its operations on the temperature of water in channels and to find the balance between maintaining the desired flood risk protection and protecting wildlife in order to meet their duty to protect and enhance biodiversity. Such consideration of water temperatures is a term set out in some environmental permits and exemptions.


BEST PRACTICE

Thermal Regulation An IDB's Biodiversity Action Plan should highlight the species present in the district and those which are sensitive to temperature changes. Consideration of these species should be made in places where vegetation is to be managed. For example, the removal of multiple large trees along a channel which provide shade could increase water temperature. Therefore different approaches to managing the trees should be considered i.e. staggering tree management or pollarding instead of large scale removal. Where instream and bankside vegetation is providing shade which is evidently supportive of some species by their presence there, it would be better to stagger vegetation management along and across the stream so there are some areas of refuge available for wildlife from areas of operations.

KEY RESOURCES:

The ADA Drainage Channel Biodiversity Manual details more information on practical techniques for managing channel vegetation - *www.ada.org.uk*

Channel management handbook for flood risk management promotes good practice in channel management by flood risk management authorities - *www.gov.uk*

Aquatic and riparian plant management: controls for vegetation in watercourses - *www.gov.uk*

Engineering in the Water Environment Good Practice Guide Riparian Vegetation Management provides guidance on the establishment and sustainable management of vegetation in rivers for the benefit of the environment and people - *www.sepa.org.uk*

Keeping Rivers Cool: A Guidance Manual Creating riparian shade for climate change adaptation - *www.woodlandtrust.org.uk*


GOING FURTHER

5.2.1.3 Recycling Vegetation Waste Some waste exemptions and permits present opportunities for vegetation waste to be blended with other organic waste materials to generate composts used to improve soils or for the cuttings to be used in local anaerobic digesters to generate biogas. IDBs have found that some recipients of such matter, such as municipal composting sites, require a large percentage of the cuttings to be thoroughly screened and tested in order to ensure that they do not contain hazardous substances before they will accept them. As such, the approach may be prohibitive in terms of time and cost of testing for some IDBs and they will likely have to be disposed of in another compliant way. However these opportunities should remain in mind and be regularly revisited by IDBs in case the process becomes more accessible. In terms of anaerobic digesters, IDBs could get in touch with the operators of any that exist in their local area to understand if and how the IDB could contribute.

5.2.2 Silt Management (Dredging) IDBs are empowered through the Land Drainage Act to maintain the capacity of ordinary watercourses within their district by periodically removing silt and build-up. The removal of built-up silt is beneficial to both flood risk and aquatic wildlife that require a diverse substrate such as trout or spined loach. It is also necessary in some areas to ensure that the correct water levels and depths are maintained to support sensitive flora and fauna, such as protected or designated wetland sites. However, improperly planned or executed dredging can cause significant environmental impacts. Where IDBs have developed a Best Practice Operations Manual, it will have identified the channels which require regular maintenance dredging in order to maintain the required flood risk protection, water conveyance and/or to maintain or restore beneficial conditions for particular species and habitats highlighted in their Biodiversity Action Plan. It should be able to avoid unnecessary dredging which could be harmful to the environment in terms of generating an unnecessary waste, or otherwise, and costly to the IDB.


DUTY

5.2.2.1 Silt Management (Dredging) In some cases an Environmental Impact Assessment or a Habitat Regulations Assessment, or both, will be needed to formally assess the impact of the de-silting or dredging operation on the environment and identify suitable mitigations. In particular, where protected species or designated sites exist at the site or in the vicinity, the rules for assessing and seeking consent for such works will need to be followed in line with requirements for such sites (see 7.3.1)


BEST PRACTICE

5.2.2.2 Silt Management (Dredging) De-silting and dredging carried out in the autumn and winter is most common and fits well with reducing the environmental impact on the watercourse. Flows tend to be higher (in some places however, summer levels are higher than winter levels for irrigation purposes) and temperatures lower which would reduce the risk of deoxygenation but not eliminate it, so care should still be taken. For example, stirring sediments or excessive weed growth in winter

can also result in low oxygen levels.

Wildlife can be less impacted by operations in these seasons as most tend to breed or flower in warmer months. However some guidance states that work which disturbs particularly fine silts should not take place in high flows, as the silts are carried downstream and can smother instream habitats and cause pollution unless silt traps are placed in-stream.

Autumn and winter de-silting can also reduce impacts on navigation and recreation which is expected to be less in winter.

Some waste exemptions and permits allow the deposition of dredged spoil on banks or adjacent land. It is best to engage with all riparian landowners in developing plans for such work and provide good notice.

When dredgings are to be deposited on banks or adjacent land, or spread to adjacent land under an exemption or permit, consideration also must be given to the impact upon any archaeological features in the vicinity. The local planning authority will be able to advise of such locations and considerations. See section 6.8 for more details.

An IDB has a fine balance to achieve as operations with heavy machinery in the wetter months undertaken on waterlogged soils carries a risk of environmental harm. Some waste exemption and permit criteria prevent waste deposition on waterlogged soils. Scheduling for such operations will often have to be dynamic based on ground conditions and waste exemptions and permits require the IDB to make such considerations.


BEST PRACTICE

5.2.2.3 Beneficial Re-use of Dredged Silt Some waste exemptions and permits offer an IDB the opportunity to re-use dredged spoil such as to confer a benefit to agricultural land or as a construction material. The applicability of each exemption or permit will very much depend on the composition and grade of the material i.e. whether it is silts, sands or gravel and in many circumstances will need to be tested for suitability in order to meet the permit or exemption criteria.


GOING FURTHER

5.2.2.4 Dredging Innovations There are some novel techniques for removing silts and sands from watercourses more efficiently and with lower impacts on wildlife and the surrounding environment. The geomorphology of the channel and access often determines the suitability of these techniques. Such approaches include:

- Cutter-suction dredging is highly targeted using an articulated arm with a cutting device, which rotates, and a suction hose. As the cutting head moves towards its target area, silt and water are vacuumed up and can be piped up to several kilometres to a suitable settlement lagoon or bag, as shown in the following images,
- Water injection dredging involves river water being pumped through an injection bar positioned just above the bed of the river and aimed at soft silts so they become super-saturated and travel, in a layer of their own, on an outgoing tide, where they disperse into the natural system.

A cutter suction dredger in Wainfleet All Saints

River Steeping dredging works settlement ponds 2020

KEY RESOURCES:

Channel management handbook for flood risk management promotes good practice in channel management by flood risk management authorities - *www.gov.uk*

Dredging as a flood risk activity under the Environmental Permitting Regulations is written with the dredging of main rivers in mind, but the environmental advice and guidance provided from page 5 onwards is just as relevant to IDB watercourses so can be used as an aid to environmental compliance and good practice when dredging work is planned - *www.gov.uk*

Waste Management For Dredgings Operations - a good practice guide for navigation authorities was written for British Waterways some years ago, so the references to legislation and environmental permits is out of date. However the considerations it sets out for the managers of navigable waterways are very relevant and helpful to an IDB context - *www.aina.org.uk*.

5.3 **Flood and Water Management Act (FWMA) 2010** This Act, along with the Water Resources Act 1991, is the primary legislation governing flood and water resource management. It aims to implement the recommendations of the Pitt Review following the 2007 flood events, particularly around improvements to surface water management. It requires the Environment Agency to take strategic overview for all forms of flooding and coastal erosion, and specific responsibility for managing flooding from main rivers, the sea and large raised reservoirs. It gives lead local flood authorities responsibility for managing local flooding from surface water, groundwater and ordinary watercourses and defines their roles and responsibilities. Statutory flood risk management plans deliver this requirement. Coastal Authorities are district and unitary authorities who have responsibility for coastal erosion and maintain shoreline management plans.

Schedule 3 of the Act provides for the inclusion of Sustainable Urban Drainage Systems (see section 4.5) to be approved through planning and development but has not yet been fully implemented.

The Act requires the Environment Agency (EA) to develop, maintain and implement a national flood and coastal erosion risk management strategy (FCERM) and for the EA and other risk management authorities (RMAs) such as IDBs, water companies, local authorities and highways authorities to plan flood defences and co-operate with each other, in a co-ordinated way, across catchment areas. To deliver this requirement, the Act enables the establishment of Regional Flood and Coastal Committees.

The Act also aims to improve resilience to climate change and reduce flood risk associated with extreme weather events.

It requires that RMAs contribute towards the achievement of sustainable development when exercising their flood and coastal erosion risk management functions.


DUTY

5.3.1 **Sustainable Flood Risk Management** IDBs have a duty under the Act to make a contribution towards the achievement of sustainable development when exercising their flood and coastal erosion risk management functions.

Defra has issued guidance for RMAs on sustainable development in relation to their FCERM functions, it includes:

- Taking account of the safety and wellbeing of people and the ecosystems upon which they depend,
- Using finite resources efficiently and minimising waste,
- Taking action to avoid exposing current and future generations to increasing risk, and,
- Improving the resilience of communities, the economy and the natural, historic, built and social environment to current and future risks.

Guidance encourages the consideration of nature based solutions alongside engineered approaches to reduce flood and coastal risks such as sustainable drainage systems (SuDS) and natural flood management approaches as part of an IDB's own operations and through its consenting of other works within its district. An IDB should engage with those responsible for the delivery of their local flood risk management plan and shoreline management plan to understand how it can contribute towards these local environmental priorities.

Sustainable Drainage Systems (SuDS)
See section 4.5 for more information on SuDS.

GOING FURTHER

5.3.2 Water Level Management for Nature Conservation Section 39 of the Act gives IDBs the power to flood land or raise water levels for nature conservation means, where certain criteria are met. To do so, other RMAs must first be consulted and applicable national guidance and strategy should be followed. In reality there will be many factors affecting the feasibility of this power being exercised but it is an important provision to note.

5.3.3 FCERM (Flood and Coastal Erosion Risk Management) Strategy and Government Policy Statement The FCERM Policy Statement, published in 2020, sets out the government's ambition to create a nation more resilient to future flood and coastal erosion risk. At the same time, the FCERM Strategy was published by the Environment Agency, which provides a framework for the delivery of activities by those involved in flood and coastal erosion risk management on the ground. It describes what all Risk Management Authorities (RMAs) such as IDBs need to do to manage risks from flooding and coastal erosion, in order to protect people and places. The overarching vision of the strategy is: 'A nation ready for, and resilient to, flooding and coastal change - today, tomorrow and to the year 2100.

The objectives and measures are intended to ensure that while managing flooding and coastal change, RMAs also support the achievement of wider environmental targets. These include seeking to:

- Create climate resilient places adapted to the increased risks of flooding, drought etc.,
- Make greater use of nature based solutions that work with natural processes, particularly at a river catchment scale,
- Leave the environment in a better state by delivering net gains in biodiversity and other environmental benefits through FCERM projects and programmes.

The strategy also recognises that there is a need to adapt and manage changing extremes of water supply, which includes water deficit as well as water surplus.

The full FCERM Strategy is available on-line from *www.gov.uk*

DUTY

5.3.3.1 FCERM Strategy The Flood and Water Management Act 2010 places a duty on IDBs to co-operate with other RMAs and share information. The key mechanism for IDBs to comply with this duty is through the support of the FCERM Strategy.

The strategy requires that IDBs provide a positive contribution to enhancing the environment in the development of new flood risk management solutions, undertaking regular water level management activities and consenting the development of others.

Natural flood management and working with natural processes approaches are a strategic objective in the strategy, and IDBs are expected to consider such approaches when identifying solutions to water level management within their district (see section 5.4).

The responsibilities placed upon IDBs through the strategy can also be met effectively through the development of the processes and policies set out in this guide, including Biodiversity Action Plans, Best Practice Operations Manuals and environmental policies.

BEST PRACTICE

5.3.4 Regional Flood and Coastal Committees (RFCCs) RFCCs bring together members appointed by lead local flood authorities and independent members with relevant experience for 3 purposes:

- To ensure there are coherent plans for identifying, communicating and managing flood and coastal erosion risks across catchments and shorelines,
- To encourage efficient, targeted and risk-based investment in flood and coastal erosion risk management that represents value for money and benefits local communities,
- To provide a link between the Environment Agency, lead local flood authorities, other risk management authorities, and other relevant bodies to build understanding of flood and coastal erosion risks in its area.

IDBs are encouraged to get involved with their local RFCC through attendance at meetings in order to become familiar and involved with the catchment management approach and gain opportunity for approval of projects which aim to deliver environmental priorities alongside water level management. An IDB could collaborate with other local IDBs to share the effort of contributing to and attending RFCC meetings to make involvement more efficient and manageable. See section 5.4 for more information on partnership working.

BEST PRACTICE

5.3.5 Public Sector Cooperation Agreement (PSCAs) The Act places a duty on IDBs to co-operate with other risk management authorities and share information. One way IDBs can do this is through PSCAs. Section 13 of the Act provides that a risk management authority may arrange for a flood risk management function to be exercised on its behalf by another risk management authority. Because the work is to be carried out by one partner on behalf of another, an IDB must be competent to undertake the works to the same environmental standards as the Environment Agency (EA), who require evidence in this regard prior to entering into a PSCA with an IDB. Evidence may include the existence of an environmental policy and best practice manual, that suitable permits and exemptions are in place, an environmental management system is in place detailing environmental risks considered and managed and the existence of a Biodiversity Action Plan demonstrating commitment to environmental improvement. Guidance set out in this publication will help an IDB to demonstrate competence in environmental compliance and commitment to environmental improvements through the development and establishment of policies, plans and processes as recommended. Any particular environmental approaches that the EA requires are taken as part of PSCA operations will be set out in schedule 3 of the PSCA.

5.4 Natural Flood Management (NFM) Experts inform us that we are to expect more extremes of weather as a result of climate change, but building more and ever higher flood defences is not a sustainable way of mitigating the risks from those extremes. To manage the risk of flooding in unwanted areas more holistically, it is prudent to consider all sources and pathways of floodwaters within a catchment and adopt solutions which integrate or mimic natural processes rather than work against them. Natural Flood Management (NFM) is one such approach and, when applied in the right place and at the right scale, can deliver flood risk reductions alongside environmental and societal benefits.

NFM is a complex and developing approach with very few widely accepted standards or guidelines so proposals have to be developed very carefully and thoroughly on a case by case basis. NFM has to be carefully sited when in or near to a pumped catchment to ensure that any installations or planting cannot destabilise embankments or dislodge and cause obstructions in channels or at pumping stations downstream. Also, the impact of changing water levels on local valuable habitat and wildlife must also be fully understood, because even subtle changes can have a huge effect on short and long-term habitat and species composition.

Many of our industry partners, and IDBs, have already demonstrated through a number of

good examples that flood risk reduction benefits can be achieved through NFM and these can be used as a guide.

The suggestion is not that NFM replaces or removes the need for traditional or hard engineered flood defences in many areas, but that NFM should be always considered in each project case for how it could contribute to the overall flood risk reduction. In some cases, NFM could provide the whole solution.

NFM approaches are usually split into 4 categories, and common elements include but are not limited to the following:

1. RUN-OFF MANAGEMENT
- Soil Management (see soil section 6.4),
- Woody debris / permeable dams.

2. WOODLAND MANAGEMENT
- Cross-slope,
- Riparian,
- Floodplain,
- Catchment scale.

3. CHANNEL AND FLOODPLAIN MANAGEMENT
- Meander/river restoration,
- Floodplain reconnection,
- Washlands.

4. COASTAL AND ESTUARY MANAGEMENT
- Sand dune management,
- Beach nourishment,
- Saltmarsh reconnection/ restoration.

BEST PRACTICE

5.4.1 Natural Flood Management Including an element of NFM into a project may only contribute a small percentage of the required flood risk reduction goal, but it could provide a significant environmental enhancement in the local area. IDBs have a duty to consider ways to enhance the environment while undertaking their water level management activities and the incorporation of NFM into their approaches may be a good way of meeting this duty. However environmental enhancement should not always be an assumed outcome of natural flood management.

IDBs should be familiar with, support and promote the basic NFM approaches and how they could be potentially used within the IDB district or upstream of it. These areas could be identified within the Biodiversity Action Plan along with the habitats and species which could potentially be enhanced by the approach.

GOING FURTHER

5.4.2 Natural Flood Management An IDB could get involved in NFM projects and research. It could proactively seek to contribute to such research where possible through the provision of trial sites for example, and encourage drainage rate payers and the wider community to do so where possible.

KEY RESOURCES:

Working with natural processes to reduce flood risk is an Environment Agency evidence-based review for NFM with case studies and guidance - *www.gov.uk*

Natural Flood Management Handbook published by the Scottish Environmental Protection Agency (SEPA) - *www.sepa.org.uk*

Natural Flood Management Manual, a comprehensive manual for considering and implementing NFM projects - *www.ciria.org*

6 CATCHMENT SCALE APPROACHES

6 CATCHMENT SCALE APPROACHES

6.1 The 25 Year Environment Plan Published in 2018, the 25 Year Environment Plan aims to leave our environment in a better state for future generations than it is today. It sets out a number of legally binding targets for environmental improvements for the UK Government. The Plan is a key policy for the Government and a driver for much of the existing and forthcoming strategies and legislation. As the goals of the Plan are legally binding, the Government will be placing a strong and increasing focus on activities which impact and contribute to the goals the plan sets out. The Plan details 10 goals:

- Clean air,
- Clean and plentiful water,
- Thriving plants and wildlife,
- A reduced risk of harm from environmental hazards such as flooding and drought,
- Using resources from nature more sustainably and efficiently,
- Enhanced beauty, heritage and engagement with the natural environment,
- Mitigating and adapting to climate change,
- Minimising waste,
- Managing exposure to chemicals,
- Enhancing biosecurity.

Some legislation and regulation was already in place when the Plan was published, and continues to tackle some of the priorities set out in the Plan. The Water Framework Directive, for example, sets out a framework for the assessment of the quality of our freshwaters and aims to ensure that all freshwaters achieve a good condition status. There were some goals set out in the plan which required new strategies and legislation such as the Environment Act 2021 and the new Environmental Land Management Scheme to further protect and enhance biodiversity through development, landscape scale habitat creation and restoration, and to improve protection for soils.

The full 25 Year Environment Plan is available from *www.gov.uk*

BEST PRACTICE

6.1.1 25 Year Environment Plan An IDB has a role to play in each of the 10 goals of the 25 Year Environment Plan through its water level management operations including consenting, a position that perhaps few other sectors have. In many cases, an IDB's contribution is already a legislated duty. Ensuring compliance, demonstrating good practice and best efforts against each environmental element detailed within this guide will help an IDB to ensure that their contribution towards the goals of the Plan is a significant and valuable one.

6.2 The Lawton Report (2010) - Making Space for Nature An influential independent review led by Professor John Lawton of England's wildlife sites and ecological networks, assessed whether the UK's existing wildlife sites were robust and capable of responding and adapting to climate change and other pressures. The subsequent Making Space for Nature report, published in 2010 concluded that the then current system of wildlife sites "does not comprise a coherent and resilient ecological network". The report made 24 clear recommendations with a long-term vision up to 2050, for improvements to help achieve a healthy natural environment that will allow plants and animals to thrive. It stressed that a step change was required in nature conservation approaches which moved away from "hanging on" to small pockets of valuable biodiversity to large scale habitat restoration and habitat creation. A now very familiar way of summarising the main messages in the report is "bigger, better, more and more joined-up" meaning that wildlife sites must be bigger, better quality, more joined up and for more of them to be created. The full report and the Government's response to it can be found online.

BEST PRACTICE

6.2.1 The Lawton Report The Lawton report places great value on the linear networks managed by a range of public bodies and authorities, and considers them to be nature corridors between otherwise unconnected pockets of valuable natural habitat. It recommends that wherever possible, the natural form and processes of rivers and channels should be restored to as close to their natural state as possible, and reconnected to floodplains to provide greater resilience to climate change. Many of the recommendations the report made have already been enshrined in legislation and regulation, so an IDB should already be contributing to the key concepts of the report, for example, through their protection and enhancement of protected sites and species. To engage with the ethos of the report, an IDB should take a systematic approach to biodiversity conservation, assessing how each of their every-day and regular operations, including their consenting functions, could potentially enhance biodiversity generally, not just protected or priority species. A tool which can help an IDB to take this approach is the development of their Best Practice Operations Manual as set out in Chapter 2. An IDB's Biodiversity Action Plans and Environmental Policies should inform a Best Practice Operations Manual. To strengthen their individual contributions to the reports' key concepts, an IDB should also be actively seeking to work in partnership with other environmental stakeholders so that their activities integrate and provide positive impacts on a landscape scale - see section 2.3 regarding Partnership Working.

6.3 Natural Capital Approach and Ecosystem Services

In recent years, there is much more widespread awareness around the wide ranging benefits that our natural assets provide to society. Natural assets include trees, freshwater, soil, wildlife, the air and the ecosystems they form. Some have only been recognised and valued for the commercial benefits they provide, such as trees for timber sales, but we are now much more aware that these assets provide us with wider benefits such as carbon sequestration, recreation, food, clean air and water. The natural capital approach places a value on these benefits, which are most often called ecosystem services, to ensure that they are properly considered and protected when decisions are being made which affect the environment. Flood plains are one example of a natural asset which are recognised and valued for the flood risk reduction benefits they provide to society and the environment, and many are now being protected and restored.

The Natural Capital Committee was set up in 2012 as an independent advisory group to the Government. The Committee's work helped to develop a natural capital approach to identify our valuable natural assets which are in need to protection, restoration and enhancement in order to secure the services they provide to society. This information formed the framework for the development of the 25 Year Environment Plan.

BEST PRACTICE

6.3.1 Natural Capital Approach and Ecosystem Services An IDB should take a systematic approach in considering all of the environmental aspects which may be impacted by their activities and take a natural capital approach to valuing and protecting those aspects to ensure the continuity of the ecosystem services they provide. Taking a district "no-net-loss" approach to various environmental components such as hedges and trees can help to protect the existing natural capital and maintain the provision of their benefits. An IDB can go further and aim to increase natural capital through "net-gain" approaches such as hedge and tree planting to increase carbon storage, and increasing the plant diversity of banks and other grassed areas to support pollinators for pollination services. These approaches to protect and enhance natural capital can be set out and managed through an IDB's Biodiversity Action Plan, Environmental Policy Statement and Best Practice Operations Manual.

KEY RESOURCES:
Enabling a Natural Capital Approach provides guidance on how to establish and embed a systematic natural capital approach - *www.gov.uk*

6.4 Soil Management Soil and water are inextricably linked and IDBs have much to gain from supporting and promoting soil health within and beyond their district.

IDBs will benefit from understanding that the health of the soils and the soil types within the catchment have direct and indirect impacts on local hydrology. Soil health and soil cover can influence the volume and rate at which water enters drainage channels, water quality and biodiversity within those channels. Compacted soils with low levels of organic matter and little green cover during rainfall events are likely to result in more surface run-off, eroding soil and polluting freshwater, causing negative impacts to freshwater biodiversity. Water levels may also react much more quickly to rainfall events on compacted or poor quality soils as the soil will have poor infiltration and water holding capacity. This may lead to an increase in the need for pumping, using more energy and incurring greater costs for the IDB. Soil erosion through surface run-off and the resulting sediment deposition in channels is likely to be greater where soils are in poor health, increasing the likelihood and frequency of the sediment having to be removed in order to maintain channel capacity, at significant cost to the IDB.

An equal understanding on the role of soil health during times of water deficit is necessary. A healthy soil will capture and store much more water than a degraded one, much like a sponge, and therefore can provide greater drought resilience. The organic matter content of the soil is the most important element in this respect, improving soil structure and allowing water to infiltrate and be stored in pores between aggregates and particles.

6.4.1 Understanding Soil Health Soil health "standards" are still being developed as research in the area progresses. In the meantime, there are a number of soil elements which should be considered to determine its overall health and therefore its ability to allow water to move through it, as listed in the table below. Determining soil health is not a complicated process. Just by digging a hole, it is possible to visually assess many of these elements, and sending samples away for further analysis is easy and affordable.

1. SOIL STRUCTURE AND ITS ROLE: The size of the groups of soil particles or "aggregates" determines the amount of space for water, air and biota in the soil.	
THREATS Compaction due to lack of organic matter, cultivations with heavy machinery or farm vehicles on waterlogged soils, overgrazing and poaching by livestock. Intensive cultivations such as ploughing are known to damage soil structure.	MITIGATIONS Avoid travelling waterlogged soils, remediate compaction through subsoiling or ploughing, increase soil organic matter, use of low ground pressure tyres or tracked vehicles. Adopt a reduced or non-inversion tillage approach to cultivations which is known to be beneficial to structure.

2. SOIL ORGANIC MATTER (SOM) AND ITS ROLE:

Small pieces of decomposing plant or animal matter. SOM helps to reduce the risks of compaction, provides a food source for beneficial soil biota and acts a sponge, holding water in the soil, and also sequesters carbon.

THREATS	MITIGATIONS
Historically, soil organic matter levels were maintained by crop residues and applications of farmyard manure as a fertiliser, but more recently synthetic fertilisers are favoured. Ploughing buries crop residues and aerates the soil, which accelerates decomposition and reduces carbon.	Increase SOM matter through use of organic additions such as farmyard manure, compost, cover crops, increasing crop residues and reducing tillage. A good SOM content in soils is estimated to be between 3-6%. Test soils regularly for SOM content.

3. SOIL BIOTA AND ITS ROLE:

The living organisms in the soil which bind aggregates, incorporate and break down organic matter and release and circulate nutrients for use by crops include earthworms, mites and nematodes. Channels created by some burrowing biota can help to increase infiltration and can be exploited by crop roots.

THREATS	MITIGATIONS
Can be negatively affected by intensive cultivations such as ploughing and soil acidification associated with synthetic fertilizer use. Lack of organic matter reduces food sources and broad spectrum pesticides can be deleterious.	Reduced tillage and increased organic matter can support a more diverse and abundant soil fauna. Alleviate and avoid compaction and increase surface residues.

4. INFILTRATION AND WATER HOLDING CAPACITY AND ITS ROLE:

The amount of water that can infiltrate into and be held by the soil. A soil in good condition has the capacity to allow water to percolate through it slowly, preventing soils from drying out or becoming waterlogged and leading to surface run-off. Soil-type is a strong influencing factor.

THREATS	MITIGATIONS
Compaction (as above) and damaged soil structure, lack of organic material and low diversity and/or abundance of soil biota.	Compaction alleviation and avoidance, increased soil organic matter.

5. SOIL CHEMISTRY

Chemical composition, properties and reactions within soil which affect plant growth and plant nutrient availability.

THREATS	MITIGATIONS
Lack of soil organic matter, acidification of soils through use of synthetic fertilisers, use of pesticides and leaching can affect the soil chemistry and the soil biology which live within it which in turn affects the rate of decomposition of soil organic matter.	Ameliorate soil acidification with additions, reduce use of synthetic fertilisers and pesticides, increase soil organic matter and reduce tillage.

6.4.2 Cover Crops & Soil Soil is most vulnerable to erosion when it has no cover from plants. In dry conditions soil, particularly sandy or peaty soils, can be eroded by the wind. When waterlogged or compacted, soil can be eroded by surface run-off, into our waterways. Cover-crops can protect soils when they are most at risk of erosion from surface run-off over winter. A variety of plants with differing rooting structures can be used and most are planted inbetween a summer harvested crop and the drilling of the next crop in spring the following year. Research has shown that cover crops can intercept rainfall, improve infiltration, increase soil organic matter and therefore improve soil structure, provide nutrients for following crops and habitat for biodiversity.

6.4.3 Soil Erosion & Channel Sedimentation Some estimates put the cost of soil erosion on reduced crop yields, reduced carbon storage, and impacts on drinking water at £1.2bn per year in England and Wales alone. Flood damage and flood risk management is said to account for about 19% of that total. With 80% of the total costs of soil erosion being borne offsite, it is clear that the soil quality, both upstream and within an IDB district, should be a concern to IDBs.

Soil erosion and a lack of dredging have been mooted as a primary causes of some flood events in some areas in recent years. Some risk management authorities have been criticized for their lack of management in this regard. Regular removal of sediment from watercourses can improve channel capacity and help to minimize flood risk in the local area. However, dredging can prove costly in terms of money and environmental impacts. It also presents an environmental challenge as to what to do with the dredging arisings, particularly if they are known to be contaminated from industrial processes or otherwise. Some dredging methods are less environmentally damaging but any dredging approach taken is reactive and will not prevent soil erosion, sedimentation and agricultural pollution happening in the first place.

It is prudent for IDBs to consider a more proactive approach to address the causes of sedimentation such as helping farmers and land owners to improve their knowledge and understanding of soil management and ways to improve soil health.

BEST PRACTICE

6.4.4 **Soil Management** IDBs should be aware of the risks they pose to soil structure in using large machinery on waterlogged soils and avoid maintenance operations when soils are waterlogged, to avoid compaction and damaging soil structure.

IDBs should be aware of any areas within the catchment were the risk of soil erosion is high, or where soil erosion is taking place and contributing towards channel sedimentation, and work with the landowner or farmer to alleviate the causes by improving soil health and installing interception features where possible. Improvements could include the landscape-scale establishment of permanent riparian margins, the regular addition of organic matter to improve soil structure, the use of over-wintered cover-crops to stabilize soil particles and the support for adopting reduced tillage cultivation techniques. These changes cannot happen overnight but the move towards them should be encouraged and supported.

GOING FURTHER

6.4.5 **Soil Management** IDBs are well placed to help farmers and land owners to improve their knowledge and understanding of soil management and ways to improve soil health. Through their networks, IDBs could proactively bring together industry colleagues and experts, board members, drainage rate payers, farmers and landowners within the catchment to discuss soil health and promote good practice.

IDBs could provide links to guidance and set out the benefits of good soil management on their website and include the same in their communications directly with drainage rate payers. An IDB need not be experts in the subject themselves, but can guide the audience to organisations and resources which could help such as Game & Wildlife Conservation Trust, Farming & Wildlife Advisory Group (FWAG), Agricology, ADAS, AHDB, CaBA, the Environment Agency or Natural England.

KEY RESOURCES:
Visual Evaluation of Soil Structure - a score card available on-line to help evaluate soil health

Think Soils published by the Environment Agency, available from the AHDB website

Principles of soil health available on-line from the AHDB website

6.5 Environmental Stewardship Environmental Stewardship is a scheme under which farmers and land managers are paid each year for managing their land in a way which protects and enhances the environment and wildlife. Natural England has responsibility for delivering the scheme on behalf of the DEFRA and the payments for such activities are managed by the Rural Payments Agency.

There are several iterations of environmental stewardship schemes, often called agri-environment schemes, in place in the UK. As the scheme has been refined and expanded since its inception in 1987, new versions of the scheme have been opened with new names which have run alongside legacy schemes.

6.5.1 Cross Compliance Currently, in order for a landowner or farmer to qualify for funding from an environmental stewardship scheme, they must first comply with a range of agricultural and environment standards and rules called GAECs (Good Agricultural and Environmental Conditions) and Statutory Management Requirements (SMRs). These standards relate to water, the protection of soil, carbon stocks and landscape features, the environment, public and plant health, animal health and welfare, and livestock identification and tracking. Collectively, these standards are known as Cross-Compliance and an annual payment is made for adherence to these rules, called the Basic Payment Scheme (BPS), or sometimes the direct or single farm payment.

Recipients of the payment may have their payments reduced if they are found to not to be in compliance with one of the rules following inspection. Some derogations and exemptions are available when it is not possible for a landowner to meet cross compliance rules. For example, a landowner can seek an exemption when a statutory body such as an IDB works on a riparian margin which prevents the landowner from meeting the cross compliance rules. However, once the work is complete, the land must be returned to a state which meets the cross compliance rules. An exemption would not need to be sought in advance in this instance, but evidence must be available to support the request for the exemption if inspected.

The Basic Payment Scheme is being phased out as part of an "Agricultural Transition Period" with payments being gradually reduced up to 2027 when they will cease altogether. Farmers and landowners will then need to comply with a different set of standards and rules in order to receive any payment for environmental provisions as part of the new Environmental Land Management scheme (ELM) (see section below).

6.5.2 Countryside Stewardship The current agri-environment scheme is called Countryside Stewardship and is comprised of 3 main agreement types; mid-tier and higher-tier agreements which pay for more complex and targeted measures and the wildlife offer which pays for simpler support measures, particularly pollinators and farmland birds.

Some smaller one-off grants are also available for woodland creation and maintenance and the capital grants scheme funds the provision of some capital items including boundary and hedgerow improvement provisions.

The Countryside Stewardship (CS) scheme is being phased out as part of an "Agricultural Transition Period" with final applications being accepted in 2023 for plan commencement in 2024. The CS scheme is being replaced with the new ELM scheme (see section below).

6.5.3 Catchment Sensitive Farming Officers (CSFOs) CSFOs offer support to farmers in pre-determined high priority areas on environmental stewardship measures, and other approaches which can be funded to reduce, in particular, diffuse agricultural pollution and flood risk, manage water resources and provide support for water-related funding applications.

KEY RESOURCES:
Catchment Sensitive Farming: advice for farmers and land managers provides more information and contact details for local CSFO's - *www.gov.uk*

6.5.4 Environmental Land Management Scheme (ELM) A new environmental stewardship scheme, called Environmental Land Management (ELM) is under development and is expected to go fully live in 2024 with testing and trials of the new scheme already underway. This newest iteration places a strong focus on supporting applicants who deliver "public goods for public money" or in other words, establish measures which provide an ecosystem service to the wider community such as carbon sequestration, biodiversity support or water level management. This approach is in line with the aspirations of the 25 year environment plan which places a greater emphasis on larger landscape-scale approaches to support and enhance the environment. The ELM scheme will be comprised of 3 elements:

6.5.4.1 Sustainable Farm Initiative (SFI) SFI will pay for the delivery of a number of basic environmental standards and enhancements, expected to be soil and hedgerow management and efficient water use and will be available to all who apply. Some agreements with a condensed set of standards have been rolled out in 2022 relating to moorlands and soil.

6.5.4.2 Local Nature Recovery This element will provide funding to successful applicants

who propose to support local nature recovery with more complex approaches such as local habitat creation, connectivity and restoration and management of woodlands, wetlands, freshwater, peatland and coastal habitat, as well as some natural flood management approaches.

6.5.4.3 Landscape Recovery The Landscape Recovery element will focus more on large-scale and multi-partner approaches to habitat restoration and creation.

6.5.4.4 Other ELM Grants and Funding Some additional, stand-alone, interim grants will be available to support farmers to improve their sustainability during the roll out of the ELM scheme, which could include funding for the provision of on-farm water storage infrastructure, such as small reservoirs, through the Farming Transformation Fund.


BEST PRACTICE

6.5.5 Environmental Stewardship

6.5.5.1 Pre-agreement Communication Some stewardship options require the applicant to consult with, and seek consent or approval where required from, the relevant drainage authority (Environment Agency, IDB or local authority), to ensure that the desired environmental outcome can be achieved without having a negative impact on local water level and flood risk management. IDBs may be asked by an applicant to provide advice or written support for some measures.

It is important to note that while there may be exemptions or derogations which a landowner can use or apply for, to avoid them being penalised for being unable to meet the cross compliance rules due to work the IDB has undertaken, there is no such option for environmental stewardship. It is therefore important that the IDB makes it clear to drainage rate payers and potential applicants of stewardship schemes, that if they choose to implement a stewardship measure in an area where an IDB can be expected to work periodically, such as areas where arisings from dredging would periodically be deposited on river bank tops, they do so at their own risk. If any work that the IDB undertakes on the stewardship provision which prevents the agreement holder from meeting the provision criteria, the agreement holder is responsible for returning it to a state which meets the rules to avoid being penalised. However, ADA is working with Natural England to try to find a solution to this barrier to uptake through the developing ELM scheme which will allow, encourage and support more landowners and farmers to implement more stewardship provisions alongside IDB channels without the risk of being penalized for common IDB operations.

Under the new ELM scheme, Catchment Sensitive Farming Officers will be expected to offer flood alleviation advice to farmers alongside their existing air and water pollution reduction advice. IDBs should know who their local CSFO is and develop a good working partnership with them in order to strengthen the catchment management approach to water-level and flood risk management.

6.5.5.2 Existing Provision Support IDBs should seek to understand which of their rate payers currently hold environmental stewardship agreements and how the work of the IDB could affect their environmental provisions, either positively or negatively. Some parts of the scheme, such as the current Higher Tier agreements, have only been awarded to applicants whose efforts have the ability to create or enhance particularly valuable habitats such as scrapes for waders, so it is prudent for an IDB to know the location of such areas and their relationship to water level management. Only if the IDB is aware of these provisions will it be able to properly

consider the protection and enhancement of them during their water-level management operations, as is their duty.

IDBs are able to check the location of stewardship provisions themselves by consulting an on-line mapping tool, provided by DEFRA called Magic Maps: *https://magic.defra.gov.uk/*. The map also shows if the search area falls within a stewardship priority area or has a priority "theme", such as a particular species or habitat type, which is the target for conservation effort, or if it is in a priority area for flood risk and water resource management.

Identification of local environmental stewardship provisions which could be influenced by the IDB's water level management activities should be identified as part of the development of its Biodiversity Action Plan. Many other local environmental and wildlife organizations and groups will also know of the local priorities and valuable sites, such as the Local Nature Partnership, local Wildlife Trust, Natural England, FWAG or CaBA representative.

GOING FURTHER

6.5.6 Environmental Stewardship IDBs could make contact with drainage rate payers to highlight the stewardship provisions which are mutually valuable in relation to enhancing biodiversity, flood risk and water level management, and those which the IDB could help to deliver and manage such as wetland habitat creation. IDBs could encourage the uptake of such provisions.

Details of the stewardship priorities in each geographical area which are more likely to be approved for support by a stewardship agreement are available online from the *www.gov.uk* website: Statements of priorities: Countryside Stewardship.

Environmental Stewardship measures which could be beneficial to drainage channel biodiversity and water level management include but are not limited to:

- Creation of flood mitigation areas (temporary flood storage),
- Payments for raised water tables,
- Wetlands creation & management including wet grasslands, reed beds, lowland raised bogs and fen,
- Invasive non-native plant control,
- The establishment of vegetated riparian buffer strips to intercept surface run-off and reduce channel sedimentation and to improve water quality. The strip also provides valuable habitat for wildlife and can be enhanced with wildflowers to support pollinators or seed bearing plants to support farmland birds,
- Winter cover crops help to intercept rainfall and improve soil structure which improves infiltration, reduces surface run-off and soil erosion and therefore reduces channel sedimentation. (See soil section 6.4 for more information),
- The creation of sediment/settlement/run-off interception ponds which can reduce channel sedimentation,
- Floodplain restoration,
- Leaky dams in the right places can help to reduce flood risk downstream (see NFM section 5.4),
- Earth banks/soil bunds and beetle banks can intercept surface run-off and encourage infiltration.

KEY RESOURCES:
Countryside Stewardship (CS): Mid Tier and Wildlife Offers manual and Countryside Stewardship: Higher Tier manual detail all of the current environmental

stewardship measures available to farmers and landowners up until 2024 - *www.gov.uk*

6.6 Easements and Opportunities for Biodiversity Most IDBs will understand that scheduling routine maintenance at a time which is convenient to both the IDB and the landowner can be challenging. Whilst the Land Drainage Act allows an IDB, with the proper notice given, to access riparian margins to carry out their statutory flood risk management operations, carrying out these operations without regard for a farmers cropping regimes risks litigation. Understandably, where fields are cropped to the bank top, land owners are keen to avoid incurring crop damage from heavy IDB machinery carrying out routine maintenance activities. In practice this often means that a very short window of opportunity exists between harvest and drilling where crop damage can be avoided by such operations. To exploit this window of opportunity, IDB resources are often subject to an intense period of work where they must dash erratically around their districts to complete as much work as possible within farmers and landowners often late-notified schedules. These factors make it difficult for IDBs to fully control their resource requirements and maintenance schedules or execute operations in the most efficient or environmentally friendly way.

Some IDBs have a scheme known in law as an easement, which offers a reduction in agricultural drainage rates in exchange for an access strip allowing 24/7 access for IDB operations to all landowners with land adjacent to high priority channels. The value of the rate reduction is based on the total area of land allocated to the easement strip by the landowner in hectares and mitigates for reduced yield revenue. The landowners retain the right to put the access strip to whatever use they require, providing it does not obstruct IDB operations, including to continue to crop the area.

The easements secured have allowed IDBs to maximise efficiencies and cost savings through better planning and execution of maintenance operations, such as being able to work systematically inland from the outfall. The IDB is also better able to adapt schedules and approaches to be more supportive of the local biodiversity and less travelling has reduced associated carbon emissions.

Equally as important as the material merits of the approach are the strengthened relationships the IDB has secured with their landowners and the improved protection from litigation for crop and land injury. Easements do not do away with the need for full and proper communication with the landowner about planned IDB interventions and every effort should be made to keep landowners fully informed of those plans.

GOING FURTHER

6.6.1 Easements and Biodiversity There has to be a good incentive for landowners and farmers, particularly of high-grade agricultural land in the lowlands, to take a cropped riparian margin out of cultivation, even as an easement. Alongside the reduced drainage rate which could be offered by IDBs for easement, IDBs should be aware of, and promote, the other benefits of leaving riparian margins uncropped and if possible, consider a slightly greater reduction if the area is enhanced for biodiversity in some way. These enhanced areas could be established and maintained either by the by the landowner or the IDB as part of their environmental enhancement duties. They could also attract further funding as part of a farm-scale environmental stewardship scheme.

Tussoky grass margins can provide surface run-off interception where there is a risk of soil erosion into channels, although this is generally less of an issue in the flatter lowland regions. Uncropped margins can provide habitat for beneficial insects which bolster integrated pest management approaches and pollination services. Also,

where crop yield is reduced at riparian margins due to unfavourable water table levels adjacent to the seepage face of ditches, it may be more commercially prudent to take the area out of production to reduce input and cultivation costs also.

6.7 Peat Restoration Peatlands are areas with a naturally accumulated layer of peat, formed in waterlogged conditions from partially decomposed plant matter. Peat has a high carbon density, even when no longer wet, and therefore peatlands can play a key role in long-term carbon storage and climate regulation. Much of the UK's peatland, however, is being eroded and degraded, releasing a significant volume of CO_2 into the atmosphere. Preventing further damage and restoring healthy and sustainable peatlands can therefore play an important role in climate regulation within the UK.

6.7.1 Lowland Peatlands Of the total area of peatland in England and Wales, lowland peatlands cover 44% and 19% respectively. Lowland peatlands are distributed across much of the UK, with concentrations in the Fens, Humberhead Levels, and Somerset Levels and Moors. Most of these areas have been drained, creating some of the highest grade arable and horticultural land in the UK. This drainage has exposed partially decomposed organic matter to oxygen which has accelerated decomposition, a process which releases CO_2 into the atmosphere, and resulted in large areas of substantial land subsidence. Additional costs arise for IDBs from the maintenance of watercourses and flood defences owing to peat subsidence, including repairs to embankments that have slumped or deformed.

6.7.2 Wasted Peat Also known as skirtland, wasted peat is where the peat depth has been reduced through a combination of biological decomposition and wind erosion to a thin and intermixed layer with the underlying mineral material. Only 16% of lowland peats in England still have a depth greater than 40cm, the threshold that is generally used to define a peat soil. The remaining peat area, a good proportion of which is in the Fens, has become 'wasted'.

6.7.3 Paludiculture Paludiculture is defined as farming on wet land, using cultivated species that are typical or tolerant of such conditions. Such crops could support commercial farming in areas where water levels have been raised to a more natural level to reduce the CO_2 emissions from peat degradation. Paludiculture is a relatively novel and developing concept in the UK and trials have been conducted within drainage districts in the Fens and Norfolk Broads to determine the feasibility of the approach. See *www.greatfen.org.uk* for more information.

6.7.4 Peat & IDBs The rate of peat degradation can be reduced or even stopped by raising water levels. However, permanently raising water tables in peatlands under intensive cultivation could, if not carefully managed, negatively affect yields and therefore livelihoods and regional economies. This could also increase reliance on food imports which would be likely to increase CO_2 emissions.

In the near future, IDBs are likely to play a key role in managing water levels in a more sophisticated and dynamic way to maintain agricultural productivity and flood protection alongside reducing CO_2 emissions from peat degradation. There will be a need for this to be locally-led and managed and is likely to require significant investment from a variety of sources to achieve. The approaches which could deliver this balance are still being explored and defined so guidance is currently very limited. However, an IDB could consider if there are areas where water levels could be more responsively or dynamically managed if infrastructure technology were improved, and how it could be achieved, so that project proposals are more

developed when funding becomes available.

6.8 Heritage & Archaeology Heritage and archaeology is concerned with historic assets, including structures, objects and cultures which are anthropogenic in origin. The historic natural environment is dealt with separately.

There is a range of legislation relevant to heritage and archaeology which is principally concerned with the definition and protection of heritage assets, the authorisations, consents and licences required to undertake any work that could negatively impact the condition of assets, and who is responsible for these functions. Primarily these are:

- The Ancient Monuments and Archaeological Areas Act 1979 provides specific protection for monuments of national interest,
- The Planning (Listed Buildings and Conservation Areas) Act 1990 provides specific protection for buildings and areas of special architectural or historic interest,
- The Protection of Wrecks Act 1973 provides specific protection for wreck sites of archaeological, historic or artistic interest,
- The Historic Buildings and Ancient Monuments Act 1953 makes provision for the compilation of a register of gardens and other land (parks, gardens, and battlefields),
- The Treasure Act 1996 provides for the definition of treasure, a code of practice for its management and ensures that important archaeological items are preserved in public collections,
- The Protection of Military Remains Act 1986 secures the protection from unauthorised interference of the remains of military aircraft and vessels and associated human remains,
- The National Heritage Act 1983 and 2002 established a non-departmental public body to be responsible for the management of heritage assets, now known as Historic England.

In addition, the National Planning Policy Framework, which is primarily set out in the Town and Country Planning Act 1990, sets out how planning decisions, which could impact heritage assets, will be made.

Also, the Land Drainage Act 1991 (as amended) sets out duties specifically for IDBs to consider while carrying out its functions, relating to heritage assets as follows:

- Have regard to the desirability of protecting and conserving buildings, sites and objects of archaeological, architectural or historic interest,
- Take into account any effect which the proposals would have on the beauty or amenity of any rural or urban area or on any such flora, fauna, features, buildings, sites or objects,
- Have regard to the desirability of maintaining the availability to the public of any facility for visiting or inspecting any building, site or object of archaeological, architectural or historic interest and,
- Take into account any effect which the proposals would have on any such freedom of access or on the availability of any such facility.

6.8.1 Heritage Designations Archaeological sites and structures of national importance are mostly protected through designations called scheduling and listing, though this is not always the case. Not all heritage assets or ancient monuments can be designated, for example local remnants of ridge and furrow cultivations and prehistoric flint scatters, but their consideration and protection is still important. Monuments do not have to be ancient to be scheduled, they can be of any age and include assets from World War 2 and from collieries. Infrequently, heritage assets can have more than one designation, i.e. a building could be listed and scheduled.

Heritage designations in England and their responsible bodies include:

- World Heritage Sites (UNESCO),
- Scheduled Monuments (Secretary of State/Historic England),
- Listed Buildings (Secretary of State/Historic England),
- Building Preservation Notices (local planning authorities),
- Registered Parks and Gardens (Historic England),
- Registered Battlefields (Historic England),
- Conservation Areas (local planning authorities),
- Locally Listed Buildings and Sites (local planning authorities).

6.8.2 Local Heritage Management Local planning authorities (LPAs) take the lead on the majority of the decision-making in respect of proposed changes to local heritage assets and have a number of powers to actively prevent deterioration and loss of heritage assets. These include the issue of urgent works notices, compulsory purchase powers and dangerous structure notices. LPAs offer advice on maintaining and conserving the local historic environment and are responsible for holding information on the historic environment through local Historic Environment Record Offices.

LPAs are obliged to consult Historic England on certain planning and listed building consent applications and it may advise them and Government on certain matters effecting heritage assets.


DUTY

6.8.3 Heritage & Archaeology An IDB must be able to demonstrate that the considerations set out in the Land Drainage Act have been made when planning and undertaking their functions including consenting the works of others. It must also ensure that the required consents and permissions are obtained prior to undertaking any works which may impact a designated or listed heritage asset.

In practice, an IDB is advised to familiarise themselves with the location of designated heritage assets within their districts by liaising with the local planning authority and consulting the Historic England website information and maps. Non-designated heritage sites of interest may also be known to other local heritage and archaeology organisations and groups. IDBs must consider how their operations could affect or support the favourable condition of heritage assets, both designated and non-designated and protect them from harm, now and in the future. For IDBs, it is particularly pertinent to identify historic sites which may be less obvious such as underground monuments, scheduled or otherwise. Water levels are particularly key to the preservation of some of these sites, such as the Bronze Age timber platform and settlement, Flag Fen, near Peterborough, and sections of Glastonbury Lake Village Iron Age site. An IDB may be engaged by archaeologists or heritage organisations seeking information or assistance to help maintain more suitable water levels to preserve such archaeology.

Historic assets present within the drainage district and the IDB's related actions should be included in the IDB's Environmental Policy Statement and Best Practice Operations Manual in order to demonstrate that these considerations have been made.

More information about preserving archaeological remains, water monitoring for archaeological sites and maps of locally important designated sites are available on-line from Historic England.

KEY RESOURCES:
Heritage Protection Guide is a comprehensive online guide available from Historic England.

DUTY

6.8.4 Treasure Act 1996 It is a legal requirement to report all treasure, as defined by the Treasure Act 1996. These items are essentially single finds of gold and silver over 300 years old and groups (hoards) of coins and prehistoric metalwork. If an IDB finds an item suspected to be treasure, they should report it to the Coroner in the district in which it was found. Contact details for local Coroners can be found online from the Coroners' Society website. Reports should be made within 14 days. For more information, visit the Portable Antiquities Scheme website.

BEST PRACTICE

6.8.5 Heritage & Archaeology

6.8.5.1 Finding & Reporting Heritage, Archaeology & Fossils Reporting potential heritage and archaeology sites is not mandatory but IDBs are encouraged to contact the local Historical Environment Record Office if they find a previously unknown site that may be of heritage interest. Contact details for Historic Environment Record Offices in England can be found through the Heritage Gateway website.

Similarly, reporting finds is not mandatory but if an IDB discovers an object of historic interest that is determined not to be treasure (as above), they are encouraged to contact the Portable Antiquities Scheme run by the British Museum where a Finds Liaison Officer can help to identify the find and provide more information. The reporting of these finds are important as they often lead to the discovery of sites of significant historic interest. More information is available from the Portable Antiquities Scheme website.

For fossil finds, an IDB is encouraged to contact their local museum to report the find and to seek identification and advice.

6.8.5.2 Proposing IDB Assets as Heritage An IDB is also likely to have records and assets dating back over many years that could be of historical interest now or in the future to the community, including redundant pumps and pumping stations. Liaison with the local planning authority will help to develop an appropriate plan for the conservation of such assets where desired.

6.8.5.3 Dyke Surveys IDBs re-profile channel banks periodically, sometimes in response to slumping, or as part of regular maintenance. This presents a valuable opportunity for archaeologists to undertake dyke surveys to observe and record our understanding of fenland and river valley depositional sequences. Any such opportunities should be made known to local archaeologist groups and the local planning authority where possible. Findings can make a positive contribution to the environmental programmes of an IDB and has led to a number of significant archaeological finds including the Flag Fen Bronze Age site near Peterborough.

GOING FURTHER

6.8.6 Heritage

6.8.6.1 Heritage Open Days are the UK's annual celebration of local history, architecture and culture. Co-ordinated nationally but run with the help of thousands of volunteers, Heritage Open Days, usually held in September, provide an opportunity for owners of heritage assets to allow free access to properties and events which cast a light on what makes neighbourhoods and communities special. Heritage assets of every age, style and function open their doors, including a number of IDB pumping stations. Heritage Open Days are a positive opportunity to engage with

the local community around the work and history of the IDB. Search for Heritage Open Days on-line for more information.

6.8.6.2 Roddons are ancient fenland rivers and their tributaries from the pre-Roman period which filled over time with mineral clay sediments when their estuaries were choked. Today these deposits show as low sinuous mounds in fenland fields, as a result of desiccation and shrinkage of the surrounding peat and alluvium. Where they intersect with modern day drainage channels, this can result in more unstable bank conditions and slumping, requiring more frequent repair by IDBs. Because of their ancient nature, roddons can be of interest to archaeologists and geologists and therefore may present opportunities for an IDB to work closely with local interest and academic groups.

6.9 Navigation The definition of an inland waterway varies but generally includes navigable canals, non-tidal rivers, tidal rivers, large and deep lakes and lochs, and estuaries. It is also taken to include all associated land and assets such as lock sites, towpaths and amenity areas.

The Inland Waterways Association's website has a useful map highlighting existing inland navigations and the name of the relevant navigation authority in each case, available from their website: *www.waterways.org.uk*

6.9.1 Navigation Authorities Navigation authorities are bodies with statutory or other legal responsibility for the management, maintenance and operation of navigable inland waterways for navigation by powered vessels. Some are defined as a statutory navigation authority in their enabling and/or subsequent Acts of Parliament, while others have acquired or inherited the status through local authority powers. Section 221 of the Water Resources Act 1991 proposes that a "navigation authority means any person who has a duty or power under any enactment to work, maintain, conserve, improve or control any canal or other inland navigation, navigable river, estuary, harbour or dock". There are a great number of Navigation Authorities ranging in size from the larger organisations such as the Canal & Rivers Trust, the Environment Agency and Middle Level Commissioners to small local organisations such as the Sleaford Navigation Trust.

Rights of navigation authorities vary according to their specific enabling legislation, but they will typically have a right to:

- Implement a registration or licensing regime for boats on waterways under their control,
- Levy a licence fee, tolls, or both, on vessels using the waterway,
- Lay down rules regarding the manner in which vessels shall be navigated.

Navigation authorities often also have powers and/or byelaws to prevent the obstruction of inland waterways and may licence activity such as construction work impacting the waterway banks or bed.

Responsibilities of navigation authorities also vary, but will usually include:

- Maintaining locks and other structures to enable navigation,
- Channel dredging,
- Flood risk management,
- Maintaining navigable water levels.

KEY RESOURCES:
There are a number of key resources available from the Association of Inland Navigation Authorities (AINA) for navigation authorities to assist them with delivering their statutory responsibilities:

Defining waterway standards: Guidance for navigation authorities

Managing inland waterway safety risks: A good practice guide for navigation authorities

Managing water resources: A good practice guide for navigation authorities

WASTE MANAGEMENT FOR DREDGINGS OPERATIONS - a good practice guide for navigation authorities

Good practice guide: Tree safety management: guidance for inland navigation authorities

DUTY

6.9.2 **Navigation Authorities** Some IDBs will have statutory responsibilities they must deliver as navigation authorities which typically, as set out above, include maintaining water levels, locks, pumps and other flow control structures to enable navigation and channel dredging. These will be defined in the Act relevant to the Authority. In addition, where a navigation authority abstracts water from other channels in order to maintain flow and levels, they are required to comply with the Water Act 2003 in terms of water abstraction licensing.

BEST PRACTICE

6.9.3 **Navigation Authorities** An IDB is advised to engage with any local navigation authority who manages any channels which connect to the IDB system in order to develop an understanding of each other's priorities. There may be action the navigation authority can take at times of high flow in IDB channels to expand system connectivity to provide extra catchment capacity. Plans may also be needed to co-ordinate the needs of all catchment users in times of low flow to ensure resources are sufficient to sustain abstraction for irrigation, for example, alongside abstraction to maintain levels and flows within the navigable channels.

6.10 **Biosphere Sites** UNESCO is the founder of the concept of biosphere reserves, which promote solutions for reconciling the conservation of biodiversity with its sustainable use. biosphere reserves are expected to be sites of excellence to explore and demonstrate conservation and sustainable development on a regional scale and are expected to combine three functions: conservation; sustainable development; and logistic support (education, training, exchange etc.). The framework provides an international knowledge sharing and co-operation network to promote best practice and sustainability. They are not formally protected sites: the biosphere reserve title is more of an accreditation and they have no imposed governance model other than they should establish a management policy or plan for the area. There are 7 biosphere reserves in the UK and the Great Fen Project in the Cambridgeshire fens is working towards achieving the criteria set out by the Statutory Framework of the World Network of Biosphere Reserves.

BEST PRACTICE

6.10.1 **Biosphere Sites** Biosphere reserves are not statutory sites but an IDB is encouraged to engage with the reserve's management group to understand how the IDB can contribute to, and support the goals of, the biosphere reserves through its role to strengthen its contribution towards its duty to protect and enhance biodiversity and the environment.

7 HABITATS, SPECIES AND BIODIVERSITY

7 HABITATS, SPECIES AND BIODIVERSITY

7.1 The Environment Act 2021 This comprehensive and significant Act received Royal Assent late in 2021 and much of the associated Regulation is now in development. The 25 Year Environment Plan, published in January 2018, defined the 4 areas of environmental conservation that the UK Government deemed a priority: air quality, waste and resource efficiency, water, and biodiversity. The main focus of the Environment Act 2021 (the Act) is to make the Government's commitment to delivering the targets set against these 4 priorities legally binding. There are a number of elements of the Act which require IDB action and compliance, as set out in the following subsections.

7.1.1 Biodiversity Enhancement - The General Biodiversity Objective Section 102 of the Act strengthens Section 40 of the Natural Environment & Rural Communities Act 2006 (see 7.5), known as the general biodiversity objective, so that public authorities will have to periodically look across their functions to consider what action they can take to conserve and enhance biodiversity, and then take that action. The first consideration must take place no more than one year after Section 102 of the Environment Act comes into force (9th November 2022). Subsequent considerations must take place no more than five years after the previous consideration. In complying with the biodiversity duty, public authorities must have regard (which means proactively find out what they are and integrate their priorities and concepts) to relevant Local Nature Recovery Strategies, Species Conservation Strategies and Protected Site Strategies (see following sections). For local authorities and local planning authorities, a 5-yearly biodiversity report must be produced detailing the actions taken to comply with the duty and provide plans of action for the next reporting period.


DUTY

7.1.1.1 The General Biodiversity Objective (Biodiversity Enhancement) In practice, it is likely that the development and maintenance of an IDB's Biodiversity Action Plan, alongside its Best Practice Operations Manual, will demonstrate that an IDB has made such considerations. The IDB Biodiversity Action Plan and Best Practice Operations Manual work best, particularly in terms of compliance, as a continual and dynamic process with regular reviews, progress reports and changes made where necessary to ensure the most up to date information and priorities are included. IDBs will need to keep abreast of any changed or new local strategies or priorities and build them in as they come online to remain compliant.

7.1.2 Statutory Biodiversity Reporting IDBs are not currently an authorities which are subject to the biodiversity reporting requirements set out in Section 103 of the Act. Currently, only local authorities and local planning authorities will be required to produce reports. However, this could change as provisions are also made in Section 103 to enable the designation, by regulation, of authorities other than local and planning authorities to provide such reports. Initial reports must be produced within 3 years of the regulations being laid and must cover a period of no more than 3 years from the day the Authority becomes subject to the duty. Reports must include details of the actions taken to comply with the new duty during the reporting period and provide plans of action for the next 5 year reporting period. The regulations will also set out what quantitative data must be included in the reports. Subsequent reports must be generated consecutively for periods of no more than 5 years. IDBs should be aware of and, where possible, contribute to the production of biodiversity reports by local authorities or local planning authorities.

BEST PRACTICE

7.1.2.1 Statutory Biodiversity Reporting In practice, it is likely that regular review and reporting on the progress of the IDB's Biodiversity Action Plan will generate the biodiversity reporting information required. Completing the National Annual Biometrics Survey for IDBs will also help IDBs to gather further quantitative data to assist them with action reporting, if it is requested.

7.1.3 Land Valuation - Calculating Land Drainage Charges The Act amends the Land Drainage Act 1991 and The Environment (Wales) Act 2016, enabling certain valuation calculations to be stipulated (and updated) in secondary legislation, future-proofing the calculations as land drainage needs change.

The provisions in the Act will, once the regulations have been made, enable IDBs to rate land using more contemporary data and using a more up-to-date methodology for the purpose of calculating drainage charges applied to those who benefit from the functions of IDBs. The Act also allows for the creation of new IDBs and enables existing IDBs to extend their boundaries, to include other land where the water level management functions of an IDB are locally deemed to be required.

BEST PRACTICE

7.1.3.1 Land Valuation This measure may affect how some IDBs apportion their costs, but it does not determine the amount each IDB needs to raise. New and expanding IDBs must use the updated valuation calculations, but the remainder of IDBs can choose to adopt the new valuation calculation if they wish to. This is an enabling measure, and in the immediate term the Government does not plan to require all IDBs to adopt the changes. However, this will be kept under review and all IDBs may be required to adopt the new valuation calculations in future. ADA would encourage all IDBs to consider switching to the new methodology in order to enable rating calculations to be made in a consistent way using more contemporary data.

7.1.4 Local Nature Recovery Strategies (LNRS) Part 6 of the Act requires the development of Local Nature Recovery Strategies (LNRS). LNRS are expected to be led mainly, but not always, by local authorities, but will be developed and delivered in partnership with a wide range of local stakeholders. Regulations relating to the preparation and management of LNRS are being developed and development processes have been trialled by a number of LNRS pilot areas.

All LNRS will deliver two main outputs:

- A list of priority opportunities for habitat improvement and restoration in the strategy area,
- A local habitat map which contains existing nature sites and habitats, and locations of the priorities for future habitat improvement and restoration.

LNRS are expected to take a wider natural capital approach to managing the environment. Critically, as well as considering improvements to core wildlife sites, each LNRS will also prioritise improving the 'permeability' of the surrounding landscape for the movement of wildlife, and the creation of corridors or stepping stones of connecting habitat (e.g. drainage ditches and hedgerows).

DUTY

7.1.4.1 Local Nature Recovery Strategies IDBs will have to have regard for (which means through planning and then taking auditable action) any relevant LNRS when considering the actions they can take 'when complying with their biodiversity duty to further' the conservation and enhancement of biodiversity, and so will be expected to align the IDB Biodiversity Action Plan, environmental policy and

best practice manual with those priorities set out in the LNRS. The first LNRS are expected to be finalised in 2022.

7.1.5 Biodiversity Net Gain The Town and Country Planning Act 1990 has been amended by the Act and its associated Schedules to include the provision for a 10% biodiversity net gain to be mandatory for new developments from late 2023. The Act provides for the creation of Regulations which require Biodiversity Net Gain sites to be listed on a register and to be maintained for a minimum of 30 years.

The new provisions place a strong focus and incentive for the use of the mitigation hierarchy to avoid negative impacts upon biodiversity on-site as a result of development (see 2.7).

Where it is not possible for the minimum 10% biodiversity enhancement to be achieved on-site within the development, the Act provides for two further options to be made available through Regulations. Firstly, an off-site biodiversity gain can be considered, using the same biodiversity metric. Secondly, the Act sets out the plans for the development of a biodiversity credit purchase system controlled by the Secretary of State. Developers will be able to pay a determined sum to fund biodiversity enhancement elsewhere. There is a restricted range of activities on which the Government could spend monies received in this regard, namely only for biodiversity net gain projects such as habitat enhancement or land purchase for conservation areas and the associated administration.

7.1.5.1 Biodiversity Metric To underpin the net gain system, the Act requires that a biodiversity metric is used to calculate the biodiversity value of a development site and any off-site biodiversity gains. The metric has been developed by Natural England and, in broad terms, attributes a number of biodiversity units depending on the size of a parcel of habitat, i.e. its area or linear length, and its quality. The more units that are attributed to a habitat, the greater its biodiversity value. The metric is complex and is not intended to replace formal ecological expertise, but to be a tool used by them, consistently across the UK's planning system. The metric follows a number of principles which aim to ensure that the mitigation hierarchy is followed in order to maintain the extent and quality of habitats present. Importantly, protected sites and species and irreplaceable habitats are not measured by the metric as they require separate consideration which must comply with existing national and local policy and legislation.

There is a separate Rivers & Streams metric which must be used in conjunction with the main biodiversity metric where necessary to calculate the full biodiversity value of a site that includes linear flowing freshwater habitats. Users of the Rivers & Streams metric must be accredited to use the tool.

KEY RESOURCES:
Biodiversity metric: calculate the biodiversity net gain of a project or development provides guidance and more information around the purpose and use of the metric, including a metric user guide - *www.gov.uk*

7.1.5.2 Biodiversity Gain Plans A developer will be required to submit a Biodiversity Gain Plan in line with the requirements set out in the Act and any subsequent Regulation, detailing what actions will be taken to enhance the biodiversity value of the site by 10% compared to its pre-developed value, and how it will maintain and secure that enhancement for 30 years. This includes any off-site enhancements that are necessary

where on-site enhancement cannot deliver the full 10% uplift required. It will also need to detail any bespoke mitigation or compensation plans for irreplaceable or protected sites and species impacted by the development. Biodiversity Gain Plan templates detailing the information required are currently in development and are expected to be published at the time the regulations come into force.

DUTY

7.1.5.3 Biodiversity Net Gain Most IDB works would be permitted development, and at present, the understanding is that permitted development will not be required to deliver biodiversity net gain under the Environment Act. However, any exemption from mandatory biodiversity net gain would not prevent planning authorities requiring biodiversity gains to be delivered by exempted developments in line with local set planning policy.

If IDBs are planning non-exempt development, they will be subject to the new net gain rules from 2023, including the management of the site to deliver the required outcomes for at least 30 years following project completion. Ecological expertise will be required to calculate the biodiversity values of the site and for the development of a biodiversity gain plan.

Where a third party development requiring planning permission includes an IDB drainage channel or other water level management infrastructure within the development boundary, the associated Biodiversity Gain Plan may propose measures to increase the biodiversity value of that channel or infrastructure. IDBs should assess Biodiversity Gain Plans along with the usual information relating to consent applications to ensure that any proposed biodiversity net gain measures are compatible with the IDB's delivery of flood and water level management, byelaws, and other consents. The IDB should consider how the proposed biodiversity net gain measures will impact flood risk as they mature over the minimum 30 year term. For example, newly-planted riparian trees may not pose much risk until they are mature when larger roots may be more likely to affect bank stability and fallen branches and debris are more likely to cause an obstruction if not correctly managed. Channel widening or re-profiling and planting within the channel will all have maintenance requirements if the level of flood risk protection is to be maintained, so the IDB must assess the maintenance plans to ensure they are appropriate.

BEST PRACTICE

7.1.5.4 Biodiversity Net Gain It is advisable for IDBs to use the biodiversity metric wherever possible to quantify the losses and gains of habitat associated with any development activity, even if it is permitted activity. This approach is already being taken by a number of developers involved with permitted development projects.

GOING FURTHER

7.1.5.5 Biodiversity Net Gain The need for offsite biodiversity net gain sites to offset local development may present opportunities to IDBs. Developing and publicising "shovel-ready" biodiversity net gain projects which can be registered as net gain sites would be attractive for support by developers. Similarly, such shovel-ready projects could attract funding from the Secretary of State's biodiversity credits. IDBs are encouraged to identify such projects and where possible, engage a suitably qualified environmental consultant to identify the biodiversity value of each site and the enhancements which can be made to increase the biodiversity value if funding were made available, with indicative costs. Such enhancements could include berm creation, vegetated coir roll installation, artificial habitat creation, such as for otters or kingfishers, or bank re-seeding with a more diverse herbaceous mix.

Biodiversity net gain requirements could create a strategic opportunity for IDBs to

offer reliable long-term maintenance contracts for registered net gain sites linked to IDB channels and networks, including strategic sustainable drainage systems within the district. The IDB would also benefit from having control of the maintenance required to maintain conveyance and capacity of such areas, and therefore the impact on other IDB assets.

7.1.6 Species Conservation Strategies and Protected Sites Strategies Section 109 of the Act provides for the development of species conservation strategies, which may be prepared by Natural England with the purpose of improving the conservation status of any species of flora or fauna. Any strategy must relate to a particular area and is likely to set out the activities which may impact the species and therefore must be avoided or mitigated. It may also seek to progress habitat creation or enhancement in order to benefit the species.

Section 110 provides for the development of protected site strategies, which may be prepared by Natural England with the purpose of improving the conservation and management of a protected site (specifically European protected sites, SSSIs, or marine conservation zones), and managing the impact of activity, such as off-site development, on those sites.


DUTY

7.1.6.1 Species Conservation Strategies and Protected Sites Strategies If and when they are developed through regulation, IDBs will be expected to co-operate with Natural England in the development and implementation of such strategies if they relate to areas under IDB management. The IDB will also have a duty to have regard to (which includes planning and taking auditable action) any relevant strategies whilst carrying out its functions, including when consenting the work of others.

7.1.7 Conservation Covenants Part 7 of the Act sets out how land owners will be able to enter into a voluntary but legally binding agreement, paid or otherwise, to assign a particular piece of land to be managed for conservation and the public good, by a responsible body. The default term for such covenants is indefinite, in order to secure the purpose and condition of the land through successive ownership, but can be negotiated. Leasehold land is also eligible if the lease is for more than 7 years with time remaining. The default end of term for a leasehold conservation covenant would be the end of the lease.


GOING FURTHER

7.1.7.1 Conservation Covenants At this stage it is unclear whether an IDB could apply to act as a responsible body. The detail suggests that such a body must demonstrate that at least some of its main purpose or function relate to conservation and it could be reasonably determined that an IDB fulfils this criteria.

Conservation Covenants can be used to deliver biodiversity net gain requirements for development so, where this includes IDB assets, there could be opportunities here for IDBs. They may be able to apply to become a responsible body for a conservation covenant to manage and maintain the habitat as part of the net gain requirements of a local development, and be paid for their services.

There could be also be opportunities for IDBs who own or lease land to make it available for off-site biodiversity net gain projects. IDBs are encouraged to identify such areas and where possible engage a suitably qualified environmental consultant to identify the biodiversity value of each site and the enhancements which can be made to increase the biodiversity value if funding were made available, with indicative costs.

7.1.8 Office for Environmental Protection (OEP) The OEP was formed to strengthen environmental accountability by holding Government and public authorities to account, and to monitor the Government's progress towards their environmental improvement targets, such as those set out in the 25 Year Environment Plan.

The body has scrutiny and advice functions, as well as complaints, investigation, and enforcement mechanisms relating to the failure of public bodies to comply with environmental law. The scope and extent of these mechanisms are set out in detail in the Act and include how information relating to the complaint made against a public body will be requested and handled and how investigations and proceedings will be notified.

The failure of a public body to comply with environmental law is defined by the Act as:

A) Unlawfully failing to take proper account of environmental law when exercising its functions,
B) Unlawfully exercising, or failing to exercise, any function it has under environmental law.

Members of the public are able to submit complaints concerning alleged failures by public authorities to comply with legal requirements in areas such as: the protection of air or water quality, nature conservation, or the management of waste. Complaints may be made via the OEP's website (*www.theoep.org.uk*) or by email, post or phone using the template provided online.

The OEP is required to regularly report on the number of complaints they have received and how they are being progressed. Examples of these reports are available, along with other useful related resources and information, on their website.

Further detail around their enforcement policies, such as the definition of seriousness in terms of incidents and how complaints will be prioritised, is yet to be defined.


DUTY

7.1.8.1 Office for Environmental Protection (OEP) & Environmental Complaints IDBs will be expected to co-operate with the OEP and provide the environmental data it requests, as set out in the Act.

7.1.9 Abstraction Reform See Section 11.8

7.1.10 Collaborative Water Resource Planning The Act amends the Water Industry Act 1991 to provide for statutory water resource management planning to be undertaken collaboratively with all stakeholders reliant on the provision of water, when directed by regulation. That regulation is yet to be developed, however we have already examples of how this can work with the establishment of five regional water resource partnerships such as Water Resources East.


BEST PRACTICE

7.1.10.1 Collaborative Water Resource Planning ADA would encourage IDBs to engage with their local water resource planning partnership in order to put forward their case and contributions to the development of this catchment approach to water resource management.

KEY RESOURCES:
Regional Water Resources Planning - why it's important & what we want to see provides more details on each of the five water resource planning regions - *www.wcl.org.uk*

7.1.11 Waste & Resource Efficiency The Act amends the Environmental Protection Act 1990 to require that waste must be sorted into and collected separately in waste "streams" which separate out recyclable materials i.e.:

- Glass,
- Plastic,
- Food waste.
- Metal,
- Paper and card,

Regulations relating to these amendments are expected to be drafted and issued for consultation to waste authorities prior to ratification.

BEST PRACTICE

7.1.11.1 Waste & Resource Efficiency An IDB is advised to consider how these waste streams will be managed and stored separately for collection to comply with the new duty.

7.1.12 Waste Crime, Pollution and Fly-tipping. The Environment Act 2021 includes several measures to help tackle waste crime. The Act will enable agencies and authorities to work more effectively to combat waste crime through better access to evidence and improved powers of entry. The Government recently undertook a Call for Evidence on how Landfill Tax can continue to support objectives, including achieving zero avoidable waste by 2050, and is now considering next steps. There are plans for the development of a digital waste tracking system and for developing further regulation around the handling and management of waste, including hazardous waste. Additionally changes to allow householders to deposit DIY waste at HWRCs for free are being considered.

7.1.13 Wildlife Licensing Section 111 of the Act details amendments to the Wildlife & Countryside Act 1981 which allow protected species licenses to be granted to enable the progression of a development in situations of overriding public interest. Terms of the licence also include that there must be no other satisfactory alternatives and that the "grant of the licence is not detrimental to the survival of any population of the species of animal or plant to which the licence relates".

Flood defence projects in some circumstances may be of the type that qualify as being of overriding public interest to progress, but it is more likely that other mitigations will be possible and the section will not need to be relied upon.

7.1.14 Habitat Regulations Reform The Act makes provisions to amend the Habitats Regulations. Provisions allow for biodiversity targets and objectives to be developed and would require IDBs as public authorities to carry out their functions whilst furthering these objectives and targets. Until such targets and objectives are known, it will not be easy to understand what changes, if any, an IDB would have to make to maintain compliance. However, as the general target is to reduce biodiversity declines by 2030, we can expect some significant species and habitat-specific enhancement targets to be proposed.

7.2 The Habitat Regulations 2017 The Habitats Regulations 2017 is one of the principle pieces of legislation protecting biodiversity in England. It is the legislation which implements the protection of European Protected Species (EPS) in the UK.

The Conservation of Habitats and Species Regulations 2017 (as amended), known as the Habitat Regulations, implement the EU Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992) and part of the EU Birds Directive (Council Directive 2009/147/EC as amended on the Conservation of Wild Birds) both of which part implement the Bern Convention.

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which came into force on exit day, ensures that the protections applied under the Habitats Directive are maintained under the Habitats Regulations.

7.2.1 European Designated Sites - Special Areas of Conservation (SACs) & Special Protection Areas (SPAs) Regulations require that habitats of European importance and sites which are important for European Protected Species (EPS) are designated as Special Areas of Conservation (SACs). Special Protection Areas (SPAs) protect the habitats of certain rare and threatened birds including regularly occurring migratory species. Designation can be applied to terrestrial and freshwater sites as well as marine sites within the twelve nautical mile boundary of the UK. Some of these sites may also have Statutory Nature Conservation Orders which further restrict the range of activities which can be undertaken on the site, in order to protect their conservation objectives.

All SACs and SPAs are also designated Sites of Special Scientific Interest (SSSIs) and many are also Ramsar sites and the conservation objectives under each designation should be aligned.

KEY RESOURCES:
SACs in England provides details of all the designated SAC sites in England along with a Standard Data Form for each site summarising site information including conservation objectives, threats pressures and activities likely to cause impact - *www.jncc.gov.uk*

Special Protection Areas - List of sites provides details of all the designated SPA sites in England along with a Standard Data Form (SDF) for each site summarising site information including conservation objectives, threats pressures and activities likely to cause impact - *www.jncc.gov.uk*

UK Protected Area Datasets for Download provides shapefiles for SAC's, SPAs and Ramsar sites for download and use in GIS systems -*www.jncc.gov.uk*

7.2.1.1 **European Designated Sites - Special Areas of Conservation (SACs) & Special Protection Areas (SPAs)** IDBs have a general duty to protect, conserve and restore sites of European importance. This applies when the IDB:

- Manages a site that it owns or occupies,
- Make decisions that might affect a site,
- Gets asked by a third party to use their powers to protect a site,
- Carries out its statutory work affecting a site.

An IDB has a duty to consider how it can help to:

- Protect, conserve or restore the designated features of the site to meet their conservation objectives,

- Prevent the deterioration of the site's habitats from human activity or natural changes, including habitats that support designated species,
- Prevent significant disturbance of the site's designated species from human activity or natural changes.

An IDB should make contact with the managing authority, named in the site's Standard Data Form, which is mostly Natural England, to understand its role in the protection and enhancement of the habitats and species for which it is designated. As all SACs and SPAs are also designated SSSIs, please refer to section 7.3.1 for more information around the practical steps an IDB can take to deliver its duties in relation to SSSIs.

All European Designated sites and the actions an IDB will take to conserve and enhance them should be included as part of an IDB's Biodiversity Action Plan. Action taken to protect and support them as part of an IDB's regular and standard maintenance operations should be highlighted and included in the IDB's Best Practice Operations Manual.

KEY RESOURCES:
Guidance: Duty to protect, conserve and restore European sites provides guidance for competent bodies such as IDBs - *www.gov.uk*

7.2.2 **Habitats Regulations Assessments (HRA)** IDBs have a duty under the Habitats Regulations to determine whether their planned work, or the work they are consenting of others, may have a significant effect on a European designated site (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) or Ramsar). As a matter of government policy, Ramsar sites receive the same protection as SACs and SPAs. There can be up to 3 stages to a HRA:

1. Screening - to check if the proposal is likely to have a significant effect on the site's conservation objectives. If not, you do not need to go through the appropriate assessment or derogation stages,

2. Appropriate assessment - to assess the likely significant effects of the proposal in more detail and identify ways to avoid or minimise any effects,

3. Derogation - to consider if proposals that would have an adverse effect on a European site qualify for an exemption.

If any planned work is expected to have a "likely significant effect" on a site in terms of it achieving its conservation objectives, an "appropriate assessment" of the impacts upon the conservation objectives must be undertaken. This expectation must be evidence-based, auditable and use a precautionary principle before mitigations are considered. The assessment is known as the Habitats Regulations Assessments (HRA) requirements. The Statutory Nature Conservation Body, which in the case of England is Natural England, must be consulted by the competent authority, or IDB, during an appropriate assessment. Work can only proceed if it is concluded that the conservation objectives of the site will not be impacted. Further guidance around these terms, and the HRA in general, can be found below.

Where an adverse effect cannot be ruled out, and no alternative solutions can be identified, the planned work can only proceed under a derogation (issued by the

Secretary of State) if there are imperative reasons of over-riding public interest and if the necessary compensatory measures can be secured.

KEY RESOURCES:
Guidance: Habitats regulations assessments: protecting a European site is guidance available online for competent authorities, highlighting the action they must take to help protect, conserve and restore the protected habitats and species of European sites - *www.gov.uk*

Guidance: Appropriate assessment provides guidance for the completion of an appropriate assessment - *www.gov.uk*

BEST PRACTICE

7.2.2.1 **Habitats Regulations Assessments (HRA)** Much of the information that is expected to be presented as part of the HRA is the same as the information that an IDB needs to ascertain whether a project will have significant environmental impact. It is strongly recommended that as part of the initial scoping of any project, an IDB prepares a non-statutory Environmental Statement, regardless of the likelihood of the project having a significant environmental impact. The report should clearly set out all aspects of the environment which have been considered, the alternative approaches, the unmitigated impacts and solutions that have been considered, and mitigations which have been integrated into proposed work to minimise the impact on the environment. This will help to demonstrate that no reasonable alternative has been overlooked and will illustrate the conscientious approach that the IDB takes to such matters. It will also help to provide as much information as possible up front so the likelihood of requests for further information is minimised. The approach to gathering and presenting the information required for the HRA as outlined above is also largely contiguous with the Environmental Impact Assessment (EIA) requirements (see 7.10).

There may be situations where an EIA and a HRA are needed due to the proximity of the work to a European protected site such as a SAC or SPA. It is therefore prudent if all the information to satisfy both are collected together.

KEY RESOURCES:
Guidance: Environmental Impact Assessment provides information on the preparation of an Environmental Statement - *www.gov.uk*

7.2.3 European Protected Species (EPS) (non-bird) The EPS (non-bird) as defined in Annex IV of the EU Habitats Directive are offered protection under the Regulations and are listed in Schedule 2. The protected plant species are listed in Schedule 5. Activities which cause harm to EPS usually constitute a criminal offence under the Regulations, unless a defence applies or a licence for the activity has been obtained. These offences only apply to EPS with a natural range which includes any area in Great Britain. Natural England is the Statutory Nature Conservation body in England responsible for issuing such licences.

The regulations also contain new provisions to implement aspects of the Marine and Coastal Access Act 2009 (see 10.3).

For an EPS listed in schedule 2 of the Regulations, it is an offence to:
- Deliberately injure or kill any wild animal of an EPS,
- Deliberately capture any wild animal of an EPS,
- Deliberately disturb wild animals of an EPS,
- Deliberately take or destroy the eggs of any wild animal of an EPS,

- Damage or destroy a breeding site or resting place of any wild animal of an EPS,
- Sell, exchange (or intend to) any wild animal of an EPS,
- Possess, control or transport any live or dead wild animal of EPS or part thereof (applies to all species protected by the Habitats Directive, not just those with a natural range in Great Britain).

Disturbance is defined as:

- An impairment to their ability to survive, breed, reproduce, raise or nurture their young,
- An impairment to their ability to hibernate or migrate,
- Likely to affect significantly the local distribution or abundance.

For an EPS of plant listed in schedule 5 of the Regulations, it is an offence to:

- Deliberately pick, collect, cut, uproot or destroy any wild plant of an EPS,
- Possess, control or transport any live or dead wild plant of an EPS or part thereof (with the exception of bryophytes),
- Sell, exchange (or intend to) any wild plant of an EPS.

KEY RESOURCES:
The Conservation of Habitats and Species Regulations 2017 are available on-line from *www.legislation.gov.uk* and EPS are listed in Schedule 2 and Schedule 5.

7.2.3.1 European Protected Species (EPS) There are a number of EPS which are associated with drainage channels and as such should be properly considered when undertaking water level management functions, including otter, bats and lesser whirlpool ram's-horn snail. In a separate section (8 - Protected Species), some specific guidance is set out for IDBs in relation to protected species, including EPS, which are common to IDB habitats and how to remain compliant with the legislation. Please refer to section 8 for further guidance.

7.3 The Wildlife and Countryside Act (WCA) 1981 is one of the primary pieces of legislation in England for the protection of wildlife and nature. It legally protects a number of plant and animal species, allows for the designation of nationally valuable wildlife sites such as Sites of Special Scientific Interest (SSSI) and strengthens the protection of National Nature Reserves (NNRs). It also covers public rights of way and is the principle legislation to deal with invasive non-native species INNS. Many species protected through the WCA are also European Protected Species (EPS).

Since its enactment, the WCA has been amended and extended via supplement Acts including the Countryside and Rights of Way (CRoW) Act 2000 (see 7.4) and the Natural Environment and Rural Communities (NERC) Act 2006 (see 7.5). The species listed within the schedules are also regularly updated so it is important to check the schedules regularly.

The WCA Schedules:

- All wild birds are protected by the Act and some which have additional protection are listed in Schedule 1,
- Schedules 5 and 6 lists the animal (non-bird) species protected by the Act, in varying ways,
- All native wild plants are protected with further protection provided to those listed on Schedule 8,
- The Act prohibits the release, establishment, allowance or encouragement of spread of INNS, listed in schedule 9 (see section 9 for more information on INNS).

The Act is the principle mechanism by which the Birds Directive (Council Directive 2009/147/EC as amended on the Conservation of Wild Birds) (part implements the Bern Convention) is implemented in the UK in relation to the general protection of all wild birds. The designation of Special Protection Areas (SPA's) for sites which are of importance to endangered and migratory bird species, is managed through the Habitats Regulations.

KEY RESOURCES:
The Wildlife and Countryside Act 1981 - *www.legislation.gov.uk*

7.3.1 Sites of Special Scientific Interest (SSSIs) The National Nature Conservation Body, which in England is Natural England, is responsible for designating sites "of special interest by reason of any of its flora, fauna, or geological or physiographical features". These are known as Sites of Special Scientific Interest or more commonly, SSSIs.

DUTY

7.3.1.1 Sites of Special Scientific Interest (SSSIs) Several pieces of legislation including the Wildlife & Countryside Act 1981 and the Countryside and Rights of Way Act 2000 place a duty on IDBs to avoid damage to SSSIs and to further their conservation and enhancement through their statutory functions. The Natural Environment & Rural Communities Act 2006 makes it an offence to recklessly or intentionally destroy, damage or disturb an SSSI and its designated features without reasonable excuse. An IDB has a duty to determine whether any planned activity, either of their own, or others for which they are required to consent, could pose a threat to the features or condition of a SSSI. This includes work within the SSSI, within its Impact Risk Zone or anywhere else where its actions could affect the SSSI. This means that an IDB should consider the implications of its operations some distance away from any SSSI if it is part of the same hydrological network, and particularly if the site is reliant on water levels and quality.

It is important to note that many SSSIs are also European Protected Sites such as Ramsar sites, Special Protection Areas (SPAs) and Special Areas of Conservation (SACs), so the rules in respect of each separate site designation should be followed.

In line with the Countryside and Rights of Way Act, if an IDB concludes that their planned activity is likely to pose a risk to the condition or features of the SSSI, then they should seek approval known as "assent" from the relevant National Conservation Body (Natural England or the MMO) before any work commences. Assent may not be required if the work is classed as emergency repair work and Natural England is notified as soon as possible after the work has been carried out.

An IDB should be aware of the penalties, both financial or custodial, which can be imposed upon them if an offence in relation to the Wildlife & Countryside Act is committed, under the Countryside & Rights of Way Act.

All SSSIs and the actions an IDB will take to conserve and enhance their designated features should be included as part of an IDB's Biodiversity Action Plan. Action taken to protect and support them as part of an IDB's regular and standard maintenance operations should be highlighted and included in the IDB's Best Practice Operations Manual.

KEY RESOURCES:
Search for designated site details is an online resource made available by Natural England which allows a user to search for specific information relating to an

individual SSSI, available from *www.designatedsites.naturalengland.org.uk*. For each site, the following documents can be accessed:

- Operations requiring Natural England's consent (ORNECs) - Operations likely to damage the special interest,
- Reasons for Designating the SSSI (Citation),
- Views About Management (VAM) of the SSSI,
- Condition Status of Units.

Magic Map Application is Defra's online mapping tool which provides the location of all SSSIs and their Impact Risk Zones, available from *https://magic.defra.gov.uk/magicmap.aspx*

Guidance: Sites of special scientific interest: public body responsibilities is a guide relevant to IDBs in relation to work in or near to a SSSI - *www.gov.uk*

7.3.2 Protected Species Please refer to Chapter 8 Protected Species - where general and specific information around individual protected species is provided.

7.3.3 National Nature Reserves (NNRs) The National Parks and Access to the Countryside Act 1949 (as amended) was the first to provide for the designation of National Nature Reserves by the then statutory conservation body which has since become Natural England, in an effort to conserve the best national examples of certain habitat types. The protection of such sites has since been strengthened via the Wildlife & Countryside Act 1981 (as amended).

DUTY

7.3.3.1 National Nature Reserves (NNRs) While National Nature Reserves are not explicitly protected in the same way by the Wildlife & Countryside Act 1981 as SSSIs are, it is expected that the same level of consideration, protection and enhancement will be given to them by IDBs. Natural England should be consulted if works are planned which could pose a threat to their conservation objectives, just as is expected in relation to SSSIs. An Environmental Impact Assessment may be required if planned operations are expected to have a significant effect on the factors for which the site was designated. In addition, many NNRs are also designated as SSSIs so the rules around operations in or near a SSSI would apply where this was the case.

All NNRs and the actions an IDB will take to conserve and enhance them should be part of an IDB's Biodiversity Action Plan. Action taken to protect and support them as part of an IDB's regular and standard maintenance operations should be included in the IDB's Best Practice Operations Manual.

DUTY

7.3.4 Local Nature Reserves (LNRs) Local Nature Reserves (LNRs) are sites which are designated for their local nature conservation interest. Some operations which could damage the features for which an LNR is designated can be restricted but those restrictions will be set out through local planning policies and bylaws and are likely to be different for each site. An Environmental Impact Assessment may be required if planned operations are expected to have a significant effects on the factors for which the site was designated. An IDB is advised to contact their local authority to understand its role and potential contribution around the support of LNRs within its district. LNRs are sometimes designated SSSIs which provides a greater level of protection and a different set of considerations and duties for IDBs, but both requirements would need to be met if so.

All LNRs, and the actions an IDB will take to conserve and enhance them, should be part of an IDB's Biodiversity Action Plan. Action taken to protect and support them as part of an IDB's regular and standard maintenance operations should be highlighted and included in the IDB's Best Practice Operations Manual.

KEY RESOURCES:
Magic Map Application is Defra's online mapping tool which provides the location of all NNRs and LNRs - *https://magic.defra.gov.uk/magicmap.aspx*

7.3.5 Water Level Management Plans (WLMPs) Water Level Management Plans (WLMPs) are required for all areas which have a conservation interest and where the control of water levels is important for the maintenance or rehabilitation of that interest. Priority is given to WLMPs for Sites of Special Scientific Interest (SSSI), particularly those of international importance (e.g. Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites). WLMPs are a means of balancing and integrating water level management for a range of land uses and activities within an area, including agriculture, recreation, flood risk and conservation. The plans include a written statement of the objectives of the site and how they are to be achieved, including the roles and responsibilities of all key stakeholders. The aim of the WLMP is that activities are defined to ensure that the water levels and channels are managed in such a way that they contribute to the favourable condition status of the SSSI, and to ensure that appropriate steps are taken to avoid deterioration of such sites.

Natural England, as the authority who determines the status of the SSSI and what the management objectives should be, will be required to review and approve any WLMPs so the plan should always be developed in conjunction with them.

DUTY

7.3.5.1 Water Level Management Plans IDBs have a duty under various legislation to consider how the conservation of protected sites such as SSSIs, SACs, SPAs and Ramsar sites could be affected by their water level management activities. Where the IDB is the operating authority, it will lead the WLMP for a designated site in their district. The WLMP should set out who is responsible for each of the activities that are deemed necessary to maintain the site in a favourable condition, or to restore or enhance its condition.

If the IDB is not the Operating Authority, but is in a position to influence water levels affecting the site, it can expect to be both a stakeholder consultee to the plan and to be responsible for undertaking agreed actions related to its statutory functions, to maintain the site in favourable condition.

IDBs should already have WLMPs in place for these sites within their district and should understand their role in relation to them. WLMPs must be regularly reviewed and updated, particularly if it is clear that water level management is not achieving the desired outcomes. It should be noted that there are many factors which can affect whether a wetland site achieves a favourable status, many of which could be outside of the IDB's control. Water quality is one such factor which commonly affects a site's ability to meet its required status.

New proposals made by DEFRA to make site improvement plans (SIPs) statutory for protected sites could be beneficial for IDBs. Currently, if the IDB is the Operating Authority for a water level management plan for a designated site, they are held responsible for the condition of the site, but they often have no powers to address the reasons for the site not achieving good status, for example due to poor water quality. The SIPs would set out the priority measures needed for a site to achieve good condition and those responsible for delivering them.

KEY RESOURCES:
Examples of WLMPs available online include:

Water Level Management Plan for Baston Fen (SAC) and Baston & Thurlby - *www.wellandidb.org.uk*

WATER LEVEL MANAGEMENT PLANS - *www.somersetdrainageboards.gov.uk*

Pevensey Levels Water Level Management Plan - *www.wlma.org.uk*

7.4 The Countryside and Rights of Way Act 2000 (CRoW)

The CRoW Act has four main parts:

- Access - provides the public with a statutory right, without having to use paths, to access on foot, mountains, moors, heaths and downs that are privately owned, common land, some local council land and some land around the English Coast, with some restrictions. It also makes certain activities by the public and landowners in terms of access, an offence,
- Rights of Way - improves provisions for public footpaths, bridleways and byways and their management. Offences relating to the misuse of public rights of way are also introduced,
- Conservation - The protection of SSSIs is strengthened, as is the legal protection for threatened species, by introducing custodial sentences for some offences under the Wildlife & Countryside Act 1981. The process for consenting works around SSSIs is improved. The most important habitats and species for conservation are required to be listed, published and regularly reviewed, and steps to conserve and enhance them must be made (this section is later repealed and replaced with an extended duty in the Natural Environment & Rural Communities Act 2006),
- Areas of Outstanding Natural Beauty (AONB) - Consolidates the provisions for the designation of AONBs from the Environment Act 1995 and the National Parks and Access to the Countryside Act 1949 and requires the establishment of Conservations Board and statutory management plans to manage them. equires that public bodies have a duty to have regard to the purpose of conserving and enhancing the natural beauty of the AONB in exercising or performing their functions.

DUTY

7.4.1 SSSIs

See section 7.3.1.

DUTY

7.4.2 Areas of Outstanding Natural Beauty (AONB) IDBs have a duty when exercising their functions to have regard (which means planning and executing auditable actions) to the purpose of conserving and enhancing the natural beauty of the AONBs. In order to exercise this duty, an IDB would need to regularly (at least annually) engage with their local conservation board, where applicable, and familiarise themselves with the AONB management plan. This gives the IDB the opportunity to present an overview of the planned work to the conservation Board and discuss any areas where the IDB can contribute to the enhancement of the AONB through the course of exercising its functions. It will also help to identify any areas where the IDB may need to adapt its work to protect the AONB character. A map of AONBs can be viewed through DEFRAs on-line mapping tool Magic, available from *https://magic.defra.gov.uk/magicmap.aspx*

It is expected that any AONBs within an internal drainage district would be included in the IDB's Biodiversity Action Plan and the actions which the IDB plans to undertake to protect and enhance the AONB will be detailed.

7.4.3 Access & Rights of Way Along with the Countryside & Rights of Way Act, several other pieces of legislation govern public rights of way including:

- National Parks and Access to the Countryside Act 1949,
- Countryside Act 1968,
- Wildlife and Countryside Act 1981,
- Rights of Way Act 1990,

There are four categories of public rights of way:-

- Public footpaths - public rights to use on foot,
- Public Bridleways - public rights to use on foot, horseback, leading a horse and on a bicycle,
- Restricted Byway - public rights to use on foot, on horseback, leading a horse, on a bicycle and by horse drawn vehicle,
- Byway open to all traffic - public rights on foot, horseback, leading a horse, on a bicycle, in a motorised or non-motorised vehicle and driving animals.

All of the above are public highways and as such are protected by the provisions of the Highways Act 1980. The local highways authority is responsible for the management and protection of all public highways in their areas, including public rights of way, with the exception of motorways and trunk roads. Within national parks, the relevant national park authority also has powers to manage all aspects of rights of way.

Permissive accesses is not a right of way, but a route or area on private land that the landowner has given permission for people to use, but can be withdrawn at any time. As an example, a project between the North Level District IDB and the local community helped create a new permissive footpath along the IDB's North Level Main Drain between their Tydd Pumping Station and the village of Tydd St Giles.


DUTY

7.4.3.1 Access & Rights of Way Where public rights of way are affected by an IDB's operations, the IDB should liaise with the appropriate highways authority team to ensure legal requirements are followed.

A temporary Traffic Regulation Order (TRO) may be granted where proposed works are to be carried out on or near the public right of way, and there is a potential danger to the public or of serious damage to the public right of way, or closure is necessary to allow for maintenance works.

It is important that an IDB applies as far as possible in advance of when a TRO is needed. If a path is to be closed temporarily, notices will be posted at the entry points and where possible an alternative route will be described. Authorities can charge fees for processing temporary closure applications and these may vary by circumstance and duration of closure.

In an emergency situation, for example emergency repairs to a collapsed culvert or riverbank slippage, a public right of way can be closed using an Emergency Closure Notice from the local highways authority.

Permanent changes to a public right of way require the permission of the local highway authority, including where new ditches are made or existing ones widened, diversions are made, or where stiles, gates or other rights of way infrastructure is

erected across rights of way. Highways authorities also have powers to make orders under a range of legislation to alter the route of a public right of way. The legal processes involved and objections can make permanent diversions of a right of way time consuming and expensive, so it is typically recommended to seek alternatives that may remove the need for a permanent change (e.g. fencing alongside the public right of way).

When undertaking works on or near a right of way, an IDB should keep the right of way free of obstructions and leave its surface in a suitable state for use that is safe and accessible for users. An IDB should fully consider the health and safety risk to public rights of way users of its operations and be able to demonstrate such consideration through risk assessments. An IDB has a responsibility to warn users about potential dangers near public rights of way.


BEST PRACTICE

7.4.4 **Coastal Paths** Some stretches of the England coast path have been routed on top of existing embanked lowland coastal defences, which may raise concerns regarding loss of sward, crest erosion and impacts upon access for maintenance. Where this arises, an IDB should raise concerns with the relevant flood risk management authority and access authority.

KEY RESOURCES:

Magic Map Application is Defra's on-line digital mapping tool showing the location of all rights of way - *https://magic.defra.gov.uk/magicmap.aspx*

Guidance: Public rights of way: landowner responsibilities and Guidance: Open access land: management, rights and responsibilities - *www.gov.uk*

The Institute of Public Rights of Way and Access Management provides some on-line guidance, a forum and a directory of specialist consultants if more specific advice is required - *www.iprow.co.uk*

The Countryside Code sets out advice for visitors to the countryside advice to land managers regarding rights, responsibilities and liabilities - *www.gov.uk*

7.5 **Natural Environment and Rural Communities Act 2006 (the NERC Act)** The NERC Act covers a wide range of subjects and amends many other pieces of legislation. The main areas of relevance include the following:

- Establishment of two new independent bodies namely Natural England, to be responsible for conserving, enhancing and managing England's natural environment and the Commission for Rural Communities,
- Reconstitutes the Joint Nature Conservation Committee (JNCC) for the UK for the purpose of nature conservation and to foster the understanding of the same,
- Makes provisions for IDBs to make bylaws,
- Section 41 replaces and extends the requirement set out in the Countryside & Rights of Way Act for the UK Government to list, publish and regularly review and update a list of habitats and species of principle importance in the UK and takes steps to ensure their conservation. These are known as Priority species or Section 41 species,
- Places a general duty on public authorities to conserve biodiversity (amended by the Environment Act 2021 to also require enhancement),
- Makes it an offence to be in possession of certain pesticides unless for a lawful activity.

Relevant elements of the NERC Act, which amend other pieces of legislation, have been

included within the details of the original legislation within this guide, rather than listed separately here. This section intends only to cover the new key elements of legislation brought forward by the NERC Act and their implications for IDBs.

7.5.1 Priority Species and Habitats Priority species and habitats are those which, in addition to protected species, are identified as being the most threatened and requiring conservation action in the UK. These are known as Priority or Section 41 species. Actions which were required to ensure their favorable conservation status, on a national and local level, were previously outlined in Species Action Plans and Habitat Action Plans, and collectively referred to as Biodiversity Action Plans. The responsibility for delivering these actions fell to Local Authorities, who were required to make effective use of the planning system to do so. These Biodiversity Action Plans are no longer in operation, as they were superseded by the Biodiversity 2020 strategy which set out how the UK is expected to deliver all of its international and European commitments in relation to the conservation of biodiversity, in particular the Aichi Targets. However, listed priority species and habitats are still protected and require consideration when decisions are being made which could affect their conservation status, and they remain an important indicator of conservation success in the UK. Priority species and habitats remain a material consideration in the determination of planning applications and negative impacts to their conservation status must be avoided.

DUTY

7.5.1.1 Priority Species and Habitats IDBs are required to give appropriate consideration to priority species and habitats when planning and undertaking their own operations, and consenting the work of others. The IDB's Biodiversity Action Plan and Best Practice Operations Manual are the primary tools an IDB can use to demonstrate this requirement. All priority species and habitats found within an IDB's drainage district should be included within the IDB's Biodiversity Action Plan, along with the action that the IDB intends to take to conserve and enhance them. The adaptions to an IDB's operational approaches to regular maintenance, periodic and capital work in support of priority habitats and species should be detailed within the IDB's Best Practice Operations Manual.

In chapter 8 - Protected and Priority Species Guidance, we set out some specific guidance for IDBs in relation to priority species which are common to IDB habitats and how to remain compliant with the associated legislation.

KEY RESOURCES:
List of UK Biodiversity Action Plan Priority Habitats - *www.jncc.gov.uk*

UK Biodiversity Action Plan Priority Species List - *www.jncc.gov.uk*

DUTY

General Biodiversity Duty
See section 7.1.1

7.6 National Parks and Access to the Countryside Act 1949 (as amended)

The Act allowed for the creation of National Parks with the aim of improving public access to, and protection of, large tracts of land of natural beauty. The National Parks Commission was established to help define, designate and maintain such areas and has since undergone a number of name changes but is today Natural England. Later the Environment Act 1995 saw the creation of the National Parks Authorities which were tasked with managing the national Parks at a local level (see 7.7). There are 10 National Parks in England.

The Act also allowed for the creation of Local and National Nature Reserves (NNRs and LNRs) and SSSIs. The Wildlife and Countryside Act 1981 (as amended) has since increased the protection of these sites which is covered in more detail in section 7.3. The Act also supported the designation of Areas of Outstanding Natural Beauty but this provision has since been superseded by the Countryside & Rights of Way Act so is covered in section 7.4.

Another key element of the Act required Local Councils to identify, record, map, manage and improve the public rights of way in their areas.

The Act has been amended, strengthened and supplemented by various other legislation including the Environment Act 1995 and Natural Environment & Rural Communities Act 2006.


DUTY

7.6.1 National Parks An IDB has a duty to consider, whilst undertaking their functions, the conservation and enhancement of the natural beauty, wildlife and cultural heritage of National Parks and public enjoyment of them. An IDB is encouraged to liaise with their local National Park Authority, who is the statutory planning authority in the area, to understand the role and contributions of the IDB towards the goals of the National Park. Any subsequent actions which the IDB can undertake to support such objectives should be detailed at least within an IDB Biodiversity Action Plan and, where appropriate, their Best Practice Operations Manual.


KEY RESOURCES:
YOUR NATIONAL PARKS provides more information on each National Park - *www.nationalpark.uk*

7.7 Environment Act 1995 (as amended) This Act is wide ranging and seeks to update and strengthen a number of other pieces of environmental legislation. Key elements of relevance include:

- The establishment of the Environment Agency and definition of their duties and powers,
- Changes covering the control and management of National Parks via the National Parks Authorities,
- Allows for the development of the protection of hedgerows via the Hedgerow Regulations 1997,
- Responsibilities of mine operators around the abandonment of mines,
- Strengthens legislation around pollution of land and waters,
- Requires the development of national and local air quality strategies,
- Defines the term "drainage" more precisely.

7.7.1 Funding for Environmental Projects The majority of the topics covered by this Act which are relevant to IDBs are provided for in more detail via other legislation so no duty for an IDB is set out independently as part of this Act. However the Act does expand the range of operations an IDB can be awarded central funding for, in part 5, Section 101, to include feasibility studies for works, obtaining information to help plan works on coastlines and review studies including to review environmental impacts. This could include ecological and environmental surveys prior to projects and following project completion. Realistically, there will be a wide range of factors affecting whether it is likely that an IDB will be granted central funds, but it is an important provision to note.

7.8 Hedgerow Regulations 1997 These Regulations prohibit the removal of most countryside hedgerows without giving prior notification to the local planning authority, who is required to decide whether a hedgerow is "important" because of its wildlife, landscape, historical

(i.e. more than 30 years old), or archaeological value, and as such should not be removed.

The local authority can take action under the Regulations, not only in respect of, for instance, the deliberate removal of a hedge, but also in respect of actions which might result in the destruction of the hedge.

KEY RESOURCES:
Guidance: Countryside hedgerows: protection and management - *www.gov.uk*

DUTY

7.8.1 Hedgerows The operations of IDBs are exempt from the need to obtain permission for the removal of hedgerows to access watercourses for maintenance. Where any hedgerow is removed to allow the IDB to access and maintain watercourses, it must be replaced by replanting of the extent removed within 8 months. However caution is advised around the timing of such works, as operations must also maintain compliance with linked legislation around breeding birds (see 8.3).

The definition of a hedgerow is often the subject of much debate as it is not clear where a hedgerow transitions to a line of trees. However, many find it useful to consider that if it is suspected that any line of trees or woody shrubs was ever intended to be a hedge but has developed into a line of mature trees and shrubs due to the lack of management of the hedgerow, then it should still be classed as a hedgerow.

7.9 Trees

7.9.1 Town and Country Planning Act 1990, Town and Country Planning (tree preservation) (England) Regulations 2012 and the Occupiers' Liability Act 1957

BEST PRACTICE

7.9.1.1 Tree Preservation Orders & Trees in Conservation Areas Trees are protected by a range of legislation. The Town and Country Planning Act and the 2012 Regulations allow local authorities to protect certain trees which are significant to the community with Tree Preservation Orders (TPOs), or if they are within conservation areas.

It is usually an offence for any protected tree to be cut down, topped, lopped, uprooted, willfully damaged or willfully destroyed. Also, to undertake works to such trees without the planning authority's permission is usually an offence. However, the legislation exempts IDBs from requiring consent if the work they undertake on a protected tree is done as part of them fulfilling their statutory function, or is undertaken under permitted development rights. The IDB may need to advise a consent applicant, that permission will need to be sought from the planning authority to undertake work on protected trees, prior to any work commencing.

Normally, a written application must be submitted to work on, or in close proximity to, protected trees and permission must be granted prior to any work commencing. While an IDB is exempt from such requirements, it is encouraged, nevertheless, to advise the LPA in advance of any planned work and mitigations in relation to protected trees, to help, for example, the LPA prepare for any queries they may receive regarding the work. Usually, where trees are removed with permission, new trees may have to be planted in their place, and where possible, an IDB is encouraged to follow this protocol regardless of their exemption, by planting another tree in as close a location as possible to those which have had to be removed.

Details of trees subject to TPOs and conservation areas will be available from the local authority and an IDB is encouraged to proactively familiarise themselves with any in their districts. Many local authorities have the trees and conservation areas mapped on an open access GIS system.

KEY RESOURCES:
Guidance: Tree Preservation Orders and trees in conservation areas - *www.gov.uk*

7.9.2 Occupiers Liability Act 1957

DUTY

7.9.2.1 Preventing Harm from Unstable or Diseased Trees The 1957 Occupiers Liability Act places a reasonable common duty of care on the landowner to maintain the safety of all visitors, including trespassers, whilst on their land, and this includes protecting them or their property from any danger which may be posed by, for example, falling trees on their land. There are some exceptions to this, such as when the responsibility passes to a tenant of the land as part of the tenancy agreement.

Where trees are located on land owned by an IDB, the IDB is advised to ensure that trees are regularly assessed by a professional arboriculturalist to ensure that any disease, decay or instability is identified and managed to minimise any risk of harm to the public or any other visitor. Some common diseases such as ash dieback (Chalara fraxinea) are quite widespread and can kill trees, risking the destabilisation of banks and blockages by fallen deadwood. If the dead or decaying tree needs to be removed, there is a requirement for the diseased plant matter to be dealt with in a compliant way in order to prevent the disease from spreading (see section 13.5.2).

Where IDBs work near trees owned by another landowner, it would be good practice for fieldworkers to be able to identify signs of disease, decay or instability in a tree which would render the tree unstable. This could be included as part of the IDB's environmental training programme as set out in section 2.9. Any such trees identified should be notified to the landowner so that risks of injury from falling trees can be mitigated.

Some tree pests and diseases are notifiable, which means that, in England, they must be reported to the Forestry Commission or the Animal and Plant Health Agency (APHA). Notifiable tree pests and diseases are the ones that have the potential to cause the greatest damage to our trees, woods and forests. Either agency may serve a Plant Health Notice, a statutory notice requiring the tree owner to fell diseased trees. If these need to be removed, there is a requirement for the diseased plant matter to be dealt with in a particular way to prevent the disease from spreading (see 13.5.2).

7.9.3 Forestry Act 1967 & The Forestry (Exceptions from Restriction of Felling) Regulations 1979

The Forestry Act 1967 creates a legal framework for the felling of trees in the UK. All "growing" trees are protected from being felled unless an exemption exists. The Legislation exempts IDBs from requiring consent if the work they undertake on a protected tree is done as part of them fulfilling their statutory function. However, the IDB may need to advise consent applicants that they will need a felling consent to remove any trees as part of the proposed work, prior to the work commencing.

KEY RESOURCES:
Statutory guidance: Tree felling: getting permission provides more information on felling licences, exemptions and how to apply - *www.gov.uk*

BEST PRACTICE

7.9.4 Trees An IDB is encouraged to seek the expertise of an arboriculturalist when work on trees is necessary to improve access for channel maintenance or conveyance. Commonly considered approaches, such as creating tunnels through canopies by lopping lower limbs, can cause a tree to become unstable if not carefully considered, and will be different for each tree concerned. An unstable tree will then pose a risk of injury to any site visitors and may cause its death, resulting in a biodiversity loss. Other approaches, such as pollarding or coppicing, should be considered which enables the tree to be retained but reduces the canopy to allow works, retains the tree roots which may be providing some bank stability, and retains a valuable habitat for biodiversity. Pollarding and coppicing also has to be carefully considered on an individual tree basis to ensure that the tree will be capable of growing back from such management.

An IDB is encouraged to protect and retain ancient and veteran and rare trees wherever possible in the course of their operations, and to leave standing and fallen deadwood in situ to provide valuable habitat for wildlife where there is no risk that the debris will be washed into the channel and cause an obstruction. An IDB is urged to engage the expertise of an arboriculturalist when planning to undertake such work on or near to ancient or veteran trees.

Riparian trees can provide shade to a channel, providing favourable water temperatures for some freshwater fish to thrive. Where it is necessary for an IDB to remove overhanging branches or whole trees and freshwater fish are known to be present, consideration of the impact on the temperature of the water should be given. Removal of overhanging limbs or shading trees over a long stretch of channel may render that section unsuitable habitat for such species. A staged approach should be considered in such circumstances.

In general, an IDB is encouraged to retain as many trees as possible, particularly mature, veteran and ancient trees, during the course of its operations, to cut as little as possible when necessary and commit to no net loss of trees in its district. Where possible, an IDB is encouraged to leave cut or deadwood in situ, rather than burn, chip or remove to landfill, to provide valuable habitat for wildlife. The IDB is encouraged to detail these intentions as part of their Biodiversity Action Plan, Best Practice Operations Manual and its Environmental Policy Statement.

KEY RESOURCES:
Engineering in the Water Environment Good Practice Guide Riparian Vegetation Management is available online from SEPA.

The Drainage Channel Biodiversity Manual - *www.ada.org.uk*

BEST PRACTICE

7.9.5 Ancient and Veteran Trees There is no legislation protecting veteran or ancient trees however their value to the environment is widely recognised, and landowners and managers are encouraged to identify and protect them through a range of environmental policy. Standing and fallen deadwood in particular provides a unique habitat which supports much biodiversity, including some specialised and rare flora and fauna. Care must be taken with veteran tree management, for example inappropriate management such as lopping of lower limbs, can destabilise a tree and pose a risk to human safety.

KEY RESOURCES:
The Ancient Tree Forum website provides a number of key management guides for free - *www.ancienttreeforum.org.uk*

DUTY

7.9.6 Trees and Protected Species All trees can provide potential habitat for roosting bats, nesting birds and other mammals such as otters. Prior to any works being undertaken on a tree, an IDB should assess the tree for presence of roosts or nests so that the IDB remains compliant with legislation.

Work on trees is restricted within the bird breeding season under the Wildlife and Countryside Act (WCA) 1984. Bats and their roosts, many of which are in trees, are also strictly protected by the WCA and the Natural Environment & Rural Communities Act 2006. The Countryside and Rights of Way Act 2000 (as amended) also provides further protection for a range of protected species associated with trees. A licence from Natural England is required to undertake any work on trees where bird nests, bat roosts or any other protected species are present or are suspected to be present within the tree, or in close proximity to the tree being worked on, prior to any work commencing. More specific information on licences required for work on trees which could affect any protected species can be found in section 8.

7.10 Environmental Impact Assessment (EIA) Regulations Environmental Impact Assessment (EIA) (Land Drainage Improvement Works) Regulations 2017 (as amended)

Improvement works to land drainage infrastructure undertaken by land drainage bodies, such as IDBs, are permitted development under the Town and Country Planning (General Permitted Development) (England) Order 2015 (Schedule 2, part 13, class C) and therefore not subject to the Town and Country Planning EIA requirements. Instead the Environmental Impact Assessment (Land Drainage Improvement Works) Regulations 2017 apply.

NOTE: At the time of publication, the Levelling-up and Regeneration Bill is progressing through Parliament, which includes plans to replace all EIA Regulations with an Environment Outcome Report (EORs) regime. The bill proposes to give the secretary of state the power to determine "outcomes relating to environmental protection" and to require an EOR for a "proposed relevant consent or a proposed relevant plan". This would mean that the environmental effects of an individual project or plan would be assessed against the environmental outcomes determined by the secretary of state. ADA will keep members informed on progress of this Bill.

The Regulations aim to protect the environment by ensuring all relevant aspects of the environment are fully and thoroughly considered prior to any development commencing. They also ensure that the public's views and the opinion of the relevant consultation bodies are sought on such matters.

Drainage bodies such as the Environment Agency, Natural Resources Wales, IDBs, lead local flood authorities and other local authorities are required to determine whether their 'improvement works' will have a significant impact on the environment. The environmental impacts which must be considered include not only ecological aspects, but also water, air, soil, noise, archaeological and landscape character, as well as others.

There are 5 broad stages to the process:

- Screening - Determining whether a proposed project falls within the remit of the Regulations,
- Scoping - Determining the extent of issues to be considered in the assessment and

reported in the Environmental Statement,

- Preparing an Environmental Statement - Where it is decided that an assessment is required, the applicant must prepare and submit an Environmental Statement containing a minimum set of details,
- Making a planning application and consultation - The Environmental Statement (and the application for development to which it relates) must be publicised electronically and by public notice and can be reviewed by statutory consultation bodies such as Natural England,
- Decision making - By the local planning authority and/or the Secretary of State will decide whether to grant consent.

Improvement works include any project which aims to:

- Deepen, widen, straighten or otherwise improve or alter any existing watercourse,
- Remove or alter mill dams, weirs or other obstructions to watercourses,
- Raise, widen or otherwise improve or alter any existing drainage work.

AND those which are:

- Permitted development by virtue of Part 13, class C of Schedule 2 to the Town and Country Planning (General Permitted Development) Order 2015.
- Development by a drainage body in, on or under any watercourse or land drainage works required in connection with the improvement, maintenance or repair of that watercourse or those works,
- A "watercourse" includes any river and stream and any ditch, drain, cut, culvert, dike, sluice, sewer (other than public sewer as defined in section 219(1) of the Water Industry Act 1991(8)) and any passage through which water flows,
- "Drainage" includes defence against water, including sea water.


DUTY

7.10.1 Environmental Impact Assessment (EIA) An IDB must determine whether improvement works are likely to have significant effects on the environment by considering all elements of the work and aspects of the environment, as set out in schedule 2 of the Regulations. If the IDB concludes that the works are unlikely to have significant effects, they must publicise their conclusions locally, in a set format, in particular places and including particular information, and notify the relevant consultation bodies (Natural England, Environment Agency and the Marine Management Organisation) in order to seek their views on the matter.

Significance is challenging to define, but EIA practitioners traditionally use a calculation which takes into account the expected "magnitude of impact" and "value of receptor" to determine significance, and anything from moderate and above is classed as significant:

Significance		Value of receptor		
		High	Medium	Low
Impact Magnitude	Major	Major	Major	Moderate
	Moderate	Major	Moderate	Minor
	Minor	Moderate	Minor	Negligible

If no contradictions to the determination of the IDB are received, then the work can proceed following the publication of the intention to commence works. Where reasonable contradictions are received, then it is likely that the IDB will have to

prepare an Environmental Statement (ES) and proceed with the remaining steps of the EIA process.

Where dispute remains which cannot be resolved as to whether the work is likely to have significant effect on the environment, the matter has to be referred to the appropriate Authority for determination.

If the IDB determines (or following consultation has accepted) that their work is likely to result in significant environmental impacts, an Environmental Statement (ES) must be prepared, which must take into account all the factors set out in Schedule 1 and 2 of the Regulations. Each stage of the process must be publicised locally and notified to the relevant consultation bodies in a set format, in particular places, and including particular information in order to seek and take into account any relevant views. These stages include the initial determination for the need for the ES, the ES itself, the outcome of all consultation stages and the intention to either proceed or refer to the appropriate Authority for determination, if objections cannot be resolved.

There is an opportunity for an IDB to seek opinion from the competent authority as to what considerations should be made within the scoping stage of the project, to ensure that nothing is missed which could later delay works. There are set response times which the competent authority has to adhere so not to delay the progress of the project.

The IDB should ensure that an appropriately qualified and experienced environmental professional is engaged to undertake the required surveys, assessments, develop the required reports, and help to determine the approach to be taken.

KEY RESOURCES:
Statutory guidance: Handbook for scoping projects: environmental impact assessment - *www.gov.uk*

BEST PRACTICE

7.10.2 Environmental Impact Assessment (EIA) Much of the information that is expected to be presented as part of an EIA is the same as the information that an IDB needs to ascertain whether a project will have significant environmental impact in the first place. It is strongly recommended that, as part of the initial scoping of any project, an IDB prepares and publishes a non-statutory Environmental Statement, regardless of the likelihood of the project having a significant environmental impact. An IDB should pay particular attention to the requirements of Schedule 1 and 2. The report should clearly set out all aspects of the environment which have been considered, the alternative approaches to achieving the required outcome, the unmitigated impact of the activity, and solutions that have been considered to minimise the impact on the environment. This will help to demonstrate that no reasonable alternative has been overlooked, and will illustrate the conscientious approach that the IDB takes to such matters. It will also help to provide as much information as possible up front, so the likelihood of requests for further information is minimised.

The approach to gathering and presenting the information required in an Environmental Statement, as outlined above, is also contiguous with the Habitats Regulations Assessment (HRA) (see 7.2.2). There may be situations where an EIA and a HRA are needed due to the proximity of the work to a European protected

site such as a Special Area of Conservation (SAC) or Special Protection Area (SPA). In which case it is prudent if all the information to satisfy both are collected together.

Developing and using standard methodologies and templates for collecting the required information, reviewing it and presenting it in reports will help an IDB to make the process more efficient. Using a mitigation hierarchy is one such standard methodology for reviewing and determining project approaches, as set out in section 2.7.

As well as the statutory consultees, an IDB should seek the views of as many stakeholders as possible during each consultation stage of the EIA process. Local social media networks, websites and newsletters can be utilised to achieve this and details can be forwarded to other known stakeholders directly. There are many benefits of doing so, including minimising the risk of anything significant being missed and having to later be accounted for, encouraging partnership working and strengthening public relations.

An IDB should, whether undertaking a project which requires an EIA or not, continually monitor the relevant environmental aspects both during the work and following completion to ensure no impacts emerge that were not originally envisaged.

8 PROTECTED AND PRIORITY SPECIES GUIDANCE

8 PROTECTED AND PRIORITY SPECIES GUIDANCE

8.1 Introduction A number of habitats and wild species are legally protected at an International, European and national level, from being harmed or disturbed. These are called protected species and habitats. Priority species and habitats are those which, in addition to protected species, are identified as being the most threatened and legally require conservation action in the UK.

Some species are protected due to historic persecution or over-hunting, some are protected because human activity, such as development or agricultural intensification, has significantly reduced their abundance due to habitat and food source loss.

Legislation can protect species directly, for example, where the species is named and the activities which are prohibited in relation to it are detailed. Other legislation protects a wider range of species indirectly, through "designating" their habitats. When a site is designated, it means that it has been "set aside" for a specific reason, most often to conserve and protect the valuable species within it. These valuable habitats and species are often protected by more than one piece of legislation at the same time.

While specific activities are not prohibited in relation to Priority species, their conservation and enhancement must be considered, by law, when planning and executing activities which could affect them. The need to avoid negative impacts on Priority species and habitats therefore is a material consideration in the determination of planning applications and must be considered by public bodies, such as IDBs, while exercising their functions.

KEY RESOURCES:
The Drainage Channel Biodiversity Manual details to the key priority species and their management relevant to IDBs - *www.ada.org.uk*

The Middle Level IDB Biodiversity Manual - *www.middlelevel.gov.uk*

Lincolnshire ADA Branch Environment Committee 'Quick Wins' Biodiversity Manual - *www.ada.org.uk*

8.2 Protected Species There are a number of protected species, including European protected species (EPS), which are commonly associated with drainage channels and should be properly considered when undertaking water level management functions in line with the requirements of several pieces of legislation and regulation as set out in this Guide. Species include otter, water vole, badger, birds, white clawed crayfish, eels, bats, great crested newts, some plants and macroinvertebrates.

The Wildlife and Countryside Act (WCA) (see 7.3) is the key legislation in relation to protected species:

- All wild birds are protected by the Act and some which have additional protection are listed in Schedule 1,
- All native wild plants are protected with further protection provided to those listed in Schedule 8,
- The Act prohibits the release, establishment, allowance or encouragement of spread of INNS, listed in Schedule 9,
- Schedules 5 and 6 list the animal (non-bird) species protected by the Act, in varying ways.

It is an offence under the WCA, as updated by the Countryside and Rights of Way Act 2000 (see 7.4), in relation to any wild animal species listed in Schedule 5 to intentionally:

- Kill, injure or take any wild animal,
- Possess or control any live or dead wild animal or part derived from it,
- Recklessly destroy, damage, or obstruct access to any structure or place which any wild animal uses for shelter or protection,
- Recklessly disturb any such animal while it is occupying a structure or place which it uses for shelter or protection,
- Sell or advertise for sale, possess or transport for the purpose of sale, any live or dead wild animal or any part derived from it
- In addition, section 6 species are protected from being killed at certain times of the year or protected from being killed in certain ways.

It is an offence under the WCA in relation to any wild plant to intentionally:

- Pick, uproot or destroy any wild plant listed in Schedule 8,
- Sell or advertise for sale, possess or transport for the purpose of sale, any wild plant or any part derived from it, listed in Schedule 8,
- Uproot any wild plant not included in that Schedule without the consent of the landowner.

Birds are protected separately but with similar provisions, as detailed in section 8.3.


DUTY

8.2.1 Protected Species Licencing When the application of the mitigation hierarchy has deemed that some impact (as defined above and by the Wildlife & Countryside Act 1981) upon a protected species is unavoidable as a result of planned operations, an application for a protected species licence is likely to be required. A licence is issued by Natural England to allow some activities that would otherwise be illegal to proceed, for example to disturb a species or damage their habitat, but not generally kill or injure a protected species of conservation concern. There are several types of licence, with varying charges applied for applications, to allow for various types of work that may affect a protected species to be carried out:

- General Licence - for specific activities that carry a low risk to the conservation or welfare of a protected species, predominantly mammals & birds, such as rehabilitation of some wild birds and some activities relating to taxidermy. It is often not necessary to apply or register to use this licence providing the criteria within the licence are met. These licences are unlikely to be relevant to IDB activities,
- Class Licence - for specific activities that need specific skill or experience to avoid risk to the conservation or welfare of a protected species. Requires an individual to register in order to undertake work in line with the criteria of the licence, for example watercourse maintenance. Most IDBs will have or need at least one of these for general operations and there are some class licences specifically aimed at enabling the routine operations of IDBs where certain criteria are met. Those who register will need to prove they have sufficient skill to be able to carry out the licenced activity,
- Individual Licence - For specific activities not covered by Class or General Licences, including the eviction of badgers from setts and sett destruction. IDBs may need to engage a suitable qualified ecologist who holds one of these licences and therefore has the specific skills required to undertake some of these activities. There is often a need to submit a significant volume of evidence,

gathered over many years, to demonstrate competence in certain approaches before an application for a licence will be approved,
- Organisational Licence - Some larger organisations, such as the Environment Agency, utilise this licence type for routine operations which have a low risk of impacting the conservation status of one or more protected species. It is unlikely that an IDB would be eligible for this type of licence,
- District Level Licencing - For developers to contribute towards strategic habitat creation and restoration for great crested newts within in a region, rather than exclude them from a development area.

It should be noted that where an appropriate licence has not been secured and a European protected species came to light during works, all work must stop until an ecological assessment to establish the status of the species involved has been made, and a licence has been obtained, if required. Such a delay following the commencement of works can prove costly and more than justifies an investment in thorough ecological surveys as part of the preparation for the operation, even routine operations.

It is expected that IDBs will risk-assess all their operations for their likely impact on protected species known to be present, as identified through the IDB's Biodiversity Action Plan and any other source, including directly engaged ecological expertise. If it is deemed that any of the IDB activities are likely to result in an offence, then consent for the activity must be obtained from Natural England prior to the work commencing by way of a relevant species licence. An IDB should have a good understanding of which of their activities are likely to require a protected species licence.

An IDB (operative) should be aware of, and be able to recognise all the species and habitats, which are commonly associated with drainage channels from the following Schedules:

- Wildlife and Countryside Act 1981 (as amended) Schedule 1, 5 and 8 species and their field signs (see 7.3),
- Habitats and Species Regulations 2017 (as amended) Schedule 2, and 5 species and their field signs (7.2.4).

KEY RESOURCES:

Guidance: Wildlife licences: when you need to apply - *www.gov.uk*

Protected species and development: advice for local planning authorities - *www.gov.uk*

Guidance: European protected species policies for mitigation licences - *www.gov.uk*

BEST PRACTICE

8.2.2 **Protected Species** An IDB should map and record the protected species which are known to be present in the internal drainage district and include them within the IDB's Biodiversity Action Plan and Best Practice Operations Manual. Consultation with a relevantly experienced and qualified ecologist will help to bring together this information.

All operatives who undertake work within the IDB district should receive regular training on the identification of protected species and the approaches which must be taken to ensure their protection. The operatives should then be able to record sightings which will help to build an understanding of the current status of the species within the district and identify any changes over time, which could indicate

the success of any approaches taken by the IDB to enhance them.

8.3 **Birds** It is an offence under the Wildlife & Countryside Act (WCA) 1981 in England and its seas up to twelve nautical miles from shore, in relation to all bird species to intentionally:


DUTY

- Kill, injure or take any wild bird,
- Take, damage or destroy the nest of any wild bird while it is being built or in use, or,
- Take or destroy the eggs of any wild bird,
- Possess or control any live or dead wild bird or wild bird egg or part thereof,
- Recklessly disturb birds or their young while building their nests or are at or near their nests (only applicable to birds under schedule 1 of the WCA),
- Take, damage or destroy the nest of a wild bird species included in Schedule ZA1 at any time.

All wild birds are protected by the Act and some which have additional protection are listed in Schedule 1.

Routine maintenance is considered a "lawful activity" under the WCA. However, to remain within the law, an IDB must still prove that all reasonable steps have been taken to avoid any offending action as detailed above. Examples of such steps are detailed below and include deterring nesting from critical sites, work modifications, staff training and surveys.


BEST PRACTICE

8.3.1 **Birds** Traditionally, many IDBs commence their maintenance programme in mid-July in order to ensure that sufficient time is available from that point to complete the necessary work before ground conditions deteriorate in the wetter autumn and winter months. However, caution must be applied to relying upon this reasoning, as compliance with some environmental legislation could be challenged if certain criteria are not met.

Defining disturbance

Killing, taking or destroying birds or their eggs are explicit actions, whereas disturbance can be more subjective and is often the source of much debate in terms of its definition in the context of protected species. Some believe it is more useful to focus on the term "reckless" when trying to ascertain whether an action that did actually disturb a wild bird on or near its nest, was considered appropriately in advance of the action being taken. It is this consideration that would be likely to affect the outcome of any alleged offence.

Bird breeding season

The Wildlife & Countryside Act 1981 does not specifically define when the bird breeding season occurs. Instead it states that if a nest is being built, contains eggs or young then it is considered "active" and is therefore protected. Other central environmental policy, such as rules under cross-compliance for farmers, sets the bird breeding season at the 1 March to 31 August. However, many species often associated with drainage channels are known to breed outside of this season, such as mute swan, kingfisher, snipe, reed and sedge warblers that may each nest later into the summer. A helpful list of 25 such species can be found on page 157 of the Drainage Channel Biodiversity Manual available from www.ada.org.uk.

Prioritisation

A well planned and systematic approach to the management of the channel system can help demonstrate that appropriate steps have been taken by an IDB to comply with biodiversity and species legislation. It is vital to establish a hierarchy

of watercourses based on the flood risk biodiversity priorities assigned to each channel given its function within the system as a whole. This approach is set out in detail in section 2.8. regarding Best Practice Operations Manual development. An example of such a considered approach specific to birds is given below.

Critical channels

If a channel needs to be kept clear of vegetation throughout the year due to its established flood threat to people and property, then it may be better to deter nesting birds from the area altogether by adopting an 'early and often approach', keeping vegetation short all year round. This process must begin early in the year prior to nesting season, and continue throughout the summer and early autumn. This type of regime should be exceptional, and alternative options should be considered that might help remediate the high flood risk and enable some in-channel habitat features to be retained, for example by increasing channel capacity. This will not only improve opportunity for biodiversity but will also offer the community improved resilience against future weather extremes. Additional habitat should be made available elsewhere locally, where possible, to replace the loss of potential nest sites due to the cutting.

Medium to low risk channels

In lower-risk channels where some vegetation growth can be supported, but some regular maintenance is still required, IDBs will want to balance the need for conveyance against biodiversity priorities. Where IDBs are able to demonstrate that all reasonable steps have been taken to avoid committing an offence relating to wild birds, then compliance will be easily achieved.

The following approach to scheduling maintenance (including hedge and tree cutting to allow access) will help demonstrate compliance:

- Routine maintenance campaign to commence as late as practicable (e.g. from August onwards),
- Aim to begin work on habitats that are expected to be less favoured by nesting birds first, sequentially progressing to the more favourable habitats,
- Prioritise less invasive maintenance techniques wherever practicable at start of campaign (e.g. grass cutting, and keeping central flow of watercourse open whilst leaving marginal growth),
- Ensure work is undertaken by trained operatives who can recognise birds associated with drainage channel habitats and modify their actions to avoid birds building or occupying nests if necessary,
- Leave a five metre buffer around any active nests identified. For raptors and Schedule 1 species, larger buffers are likely to be necessary and are species specific,
- Habitats containing later breeding species, such as more mature (e.g. >2 years) or dense stands of reed, cut as late as practicable in the campaign (e.g. after 30 September, unless a survey is undertaken).

Surveys

Conduct non-intrusive bird surveys (i.e. walk-over surveys) to attempt to identify and mark the location of any nests present, when having to undertake early season works, or works within more favourable habitats during the breeding season. Surveys are likely to only be practical where the area for the proposed works is limited or, if on a larger area, the extent of features likely to contain nests is limited. So the focus should first be on risk minimisation, as set out above.

Surveys undertaken by an experienced ornithologist will strengthen claims that all reasonable steps have been taken to identify nesting birds.

Exceptions

Departures from the above plan may be necessary in years of prolific weed growth or high rainfall, in order to maintain an acceptable standard of capacity and conveyance. During exceptional rainfall events when heavy rainfall and sudden increases in watercourse levels are likely to have destroyed most nests, IDBs may wish to bring forwards works and modify procedures. It is recommended to liaise where possible with local ornithologists and Natural England/Environment Agency before this action is implemented.

Birds and other works

There is a range of non-routine maintenance work that IDBs undertake which does not impact birds within the breeding season, but could potentially reduce the availability or suitability of habitat for them to thrive or breed in the future in the local area. Such works could include hedge or tree removal, bank reformation and culverting. It is best practice for an IDB to consider all the bird species which may rely upon the area of proposed work in some way, particularly protected species, and ensure that the quality of habitat is not degraded as a result of the works, but is in fact enhanced as a result of it. This is in line with the biodiversity "net-gain" approach which developers are required to take (see 7.1.5). For example, if the site is known to be favourable for nesting kingfishers, then as a minimum, if any old burrows are destroyed during the works, additional artificial burrows should be provided, preferably on-site, or close by to compensate. Even if a bird species is not known to be present in the immediate area, but is found locally or is associated with the habitat type, the opportunity to create suitable quality habitat for it should be taken where possible, to encourage it into the area, such as reedbed creation. For example, sand martins may not nest in the area due to lack of suitable habitat but where habitat is created, even artificial habitat, they are known to find it and happily occupy it.

8.4 **Badgers** are listed in Schedule 6 of the Wildlife & Countryside Act 1981, so are protected from some methods of taking and killing. However the main legislation, which provides much greater protection of badgers in the UK, is the Protection of Badgers Act 1992. Under this Act, it is an offence to interfere with a badger sett by doing any of the following things, or to knowingly cause or permit the same:

- Damaging a badger sett or any part of it,
- Destroying a badger sett,
- Obstructing access to, or any entrance of, a badger sett,
- Causing a dog to enter a badger sett; or,
- Disturbing a badger when it is occupying a badger sett,
- Intending to do any of those things or being reckless as to whether his actions would have any of those consequences.

8.4.1 **Badgers** Regular channel maintenance activities undertaken by IDBs need to be carefully planned and considered to ensure that no offence is committed, as set out above, where badger setts are known to exist. The CL27 class licence "licence to interfere with badger setts for watercourse and drainage purposes" is specific to IDBs. It permits a registered person to undertake certain low-risk activities around badger setts where some interference or disturbance could be caused, provided steps are taken to prevent and/or mitigate the disturbance as set out in the licence terms.

For more high risk activities, such as sett exclusion or destruction, an individual badger licence will need to be obtained prior to any works commencing.

KEY RESOURCES:

Statutory guidance: Badgers: licence for IDBs to interfere with setts for drainage operations (CL27) provides all the requirements of registering to work under the terms of the licence and how to remain compliant with the terms - *www.gov.uk*

CL27 - Licence to interfere with badger setts for watercourse and drainage purposes - Advice Note provides more specific information and some FAQ's on the use of a CL27 licence for IDBs - *www.ada.org.uk*

Collection: Badger licences details all the licences available for work impacting badgers - *www.gov.uk*

8.5 **Water Voles** Please first read the general protected species sections above (8.2) as an introduction to this section.

The water vole is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) from the activities set out in section 8.2 and is also a priority conservation species (see 7.5.1).

DUTY

8.5.1 **Water Voles** Regular channel maintenance activities undertaken by IDBs need to be carefully planned and considered to ensure that no offence is committed under the Wildlife & Countryside Act (WCA) where water voles are known or suspected to exist. Operations such as bank cutting, weed cutting and desilting can technically proceed lawfully under the WCA using the defence that any damage or disturbance to water voles was an "incidental result of a lawful operation". However, caution must be applied when using this defence, as an IDB must still be able to demonstrate that they had taken all reasonable steps to avoid impacting water voles and their burrows if they are to avoid committing an offence, including the consideration of alternative approaches which would create less potential disturbance or damage. Details of which regular, low-risk maintenance activities which can proceed without the use of a licence are detailed in Annex B of the CL24 Class Licence - Intentional disturbance of water voles and damage or destruction of water vole burrows by means of displacement (IDBs), available from *www.gov.uk*.

If work is planned which would be expected to damage water vole burrows if they were present, a water vole survey will be required. While no licence is required to survey for water voles, the survey must be carried out by a competent ecologist who is trained and experienced in surveying for the species. If the survey does not confirm the presence of water voles, work can continue without the need for a CL24 licence.

Where a water vole survey has identified the presence of water voles or cannot discount their presence, and work which is likely to damage or destroy water vole burrows and displace water voles is required, and no other alternative is feasible, work can only proceed under the direct supervision of a registered CL24 water vole licence-holder, employed by or contracted to the IDB. It is still important for an IDB to be able to demonstrate that all other options have been considered prior to undertaking work which will disturb water voles if they are to avoid committing an offence.

A Registered Person who is undertaking works for or on behalf an IDB can be granted permission to act under the CL24 licence providing certain conditions are met. Permitted activities under the licence include intentional damage or destruction of water vole burrows to displace water voles to "facilitate certain works to flood defences, water courses or drainage systems, to prevent serious damage or risks to public health or safety, or for the purpose of conservation, including the purpose of river restoration". There is often a need to submit a significant volume of evidence, gathered over many years, for an individual to demonstrate competence in certain approaches before an application to hold a CL24 licence will be approved. Where an IDB does not directly employ a resource with such a licence, it will be necessary for an IDB to engage suitable expertise with the required qualifications and knowledge to apply as the registered person for the licence, to direct and supervise works to ensure no offence is committed.

The registered person will be ultimately responsible for ensuring that any fieldworkers operating in the area as accredited agents under the licence are in receipt of suitable training, experience and knowledge in order to comply with the licence. However, where an external registered person is registered to act under this licence, it is likely that the IDB, with their guidance, will be expected to ensure that the appropriate training etc. has been provided to the accredited agents, such as IDB operatives or contractors.

In terms of record keeping and annual returns, it is the registered person who is ultimately responsible for gathering, recording and reporting the data required as set out in the licence. However, it is likely that the IDB will take the lead on this, on their behalf.

The licence requires that the mitigations and approaches described follow best practice, and provides details of the source of such guidance in this regard.

It is likely that many IDBs will encounter the species during their operations at some point, so an IDB, particularly fieldworkers, must familiarise themselves with signs and recognition of the species, and understand which activities require a licence, and which do not, providing a best practice approach is taken. As water voles have been found thriving in a wide variety of habitats which often appear less than ideal, it would be prudent for an IDB to not discount the presence of water voles in any areas other than the most unlikely.

BEST PRACTICE

8.5.2 Water Voles The fact that the water vole is commonly associated with many drainage channel habitats, may be a testament to the suitability of the management regime of those areas. IDBs are encouraged to survey for water vole wherever possible, as the basis of good conservation is to understand what is already present as a benchmark. Records of water voles from surveys, but also sightings and signs spotted by fieldworkers, are valuable and should be forwarded to the local biodiversity records office to help to build a local and national picture of population and trends. The records can also help an IDB to understand whether any conservation activities detailed in their Biodiversity Action Plans are proving successful and provides an opportunity to adapt approaches where needed.

Surveying all IDB watercourses for the presence of water voles may not be feasible. Instead, if an IDB is to avoid committing an offence, it should adopt a systematic approach to maintenance which is supportive of water voles across all watercourses which have the potential to support them, regardless of whether they

are known to be present or not. An IDB's Best Practice Operations Manual is the best mechanism to define and implement these approaches, and to demonstrate their compliance and commitment to supporting water voles.

IDBs are encouraged to set out actions which contribute towards the conservation of water voles within the Biodiversity Action Plan to complement their support of water voles through adaptive management practices. This could include a wide range of activities such as the support of local mink monitoring and control initiatives, and habitat enhancement or creation. Mink are voracious predators of water vole, so where mink are known to be present in the area, an IDB's efforts to conserve and enhance water vole populations could be undermined where mink are not controlled.

KEY RESOURCES:
The Middle Level IDB Biodiversity Manual - *www.middlelevel.gov.uk*

The Drainage Channel Biodiversity Manual details the key protected and priority species and their management relevant to IDBs - *www.ada.org.uk*

Water Vole Conservation Handbook (Third Edition) The Wildlife Conservation Research Unit. Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook. Eds. Fiona Mathews and Paul Chanin, The Mammal Society, Southampton. This is a Comprehensive guide to water voles, surveying and mitigations.

8.6 **Bats** Please first read the protected species section 8.2 to accompany the following guidance.

All species of bats and their roosts in the UK are strictly protected under the Wildlife and Countryside Act 1981 as Schedule 5 species, as set out in section 7.3. They are also offered strict protection as European Protected Species under the Habitat Regulations 2017 as a Schedule 2 species, as set out in section 7.2. Seven bat species are also UK priority species, listed in section 41 of the Natural Environment and Rural Communities Act 2006.

DUTY

8.6.1 **Bats** The IDB can protect itself against committing an unintentional offence where they can demonstrate that all reasonable steps have been taken to identify the presence of bats and roosts. This would include demonstration of knowledge and understanding of bats, their habitats and their roosts, training, initial distanced assessment and specialist surveys. If the IDB is satisfied that no bats or roosts have been identified, then work should be able to proceed with caution, with regular checking for bats and their roosts while works proceed.

An IDB must engage a relevantly qualified environmental expert with the appropriate bat licence criteria, to help confirm the presence of any bats on any structure where work is planned, including trees and bridges, where roosts are known or suspected to be present.

If the presence of bats is confirmed, an IDB must apply for a licence to undertake any work which may disturb the bats or their roosts prior to any work commencing. The IDB will need to engage a suitably qualified ecologist to support the licence application. The named ecologist will need to oversee any work undertaken which could include direct supervision of some activities. A licence is likely to include some mitigations which the IDB is expected to adhere to. The scale of the mitigations required will be dependent upon the number of bats, the species

of bats present and the type of roost affected, but commonly, mitigations include the delay of works to when bats are not present, (if the roost is a hibernation or maternity roost), carefully staged tree felling where roosts in trees are present and provision of alternative roosts.

KEY RESOURCES:
Collection: Bat licences provides further information on bat licencing and the application process - *www.gov.uk*

BEST PRACTICE

8.6.2 **Bats** Many bats roost in trees, bridges and culverts and some favour freshwater environments for foraging, such as the Daubentons bat, so the IDB is likely to encounter some common and rarer bats at some point during the course of their operations. IDBs should therefore be aware of their duty in respect of the species and be able to understand and risk assess elements of their work which may impact on bats and their roosts. An IDB should ensure that field operatives are suitably trained in the signs of bats and their roosts to aid compliance. It is likely that the most frequent bat roosts encountered by the IDB will be in trees, in particular, mature trees and those with holes or crevices, but bats can roost in the smallest of places in trees, even in the small gaps between the bark and the trunk itself.

An IDB's Biodiversity Action Plan should help to identify any records of bats which have been found within the drainage district previously, but an IDB should not use the fact that no previous records exist as a reason to not consider bats in their operational planning and activities. Bats need different roosts and conditions at different times of the year, so where bats may not be present at any particular point in time does not suggest that a roost is not present. A maternity roost, for example, is only likely to be occupied by groups of pregnant females in early summer and hibernation roosts are only usually occupied between November and April. Roosts are protected whether or not bats are present at the time. Also, while the foraging habitat of bats is not directly protected, maintaining bat foraging habitat is likely to be a condition of a European Protected Species licence if work which affects a roost is granted permission to go ahead.

KEY RESOURCES:
Bat habitat assessment prior to arboricultural operations. Guidance for Natural England's National Nature Reserves provides some helpful guidance around the identification of bat roosts in trees - *www.trees.org.uk*

www.bats.org.uk provides helpful bat specific advice including licencing advice

Practical techniques: Bats provides helpful bat specific advice and sources of other information - *www.thomsonec.com*

8.7 Fish & Fish Passes

8.7.1 Salmon & Freshwater Fisheries Act 1975 The Act creates offences for the taking of particular freshwater fish in certain circumstances and by certain means and also for allowing freshwater fish to be harmed by pollution of waters. Part II of the Act creates an offence for any new channel-obstructing installations to be built, or existing ones significantly renovated (by one half or more of the structure), without the installation and maintenance of a fish pass, at the request of the Environment Agency. The regulation of fishing via licencing and the enforcement for non-licenced activity is provided for.

DUTY

8.7.2 **Fish & Fish Passes** An IDB is required under this Act to install fish passes into any new in-channel structure which could obstruct the known passage of migratory fish, and to do the same for any structure it plans to renovate by more than one half. The same duty applies for an IDB's consenting activities. It must also maintain the passes and associated structures to the approved standard. To fail to install or maintain the structures is deemed an offence under the Act. The IDB must submit its plans for the design of such a pass for approval to the Environment Agency. IDBs are strongly recommended to discuss future capital works plans at the earliest stage with the Environment Agency to examine a practical and cost-effective approach to any works being planned.

KEY RESOURCES:
Guidance: Fish pass approval provides application information for fish pass approval - *www.gov.uk*

8.8 European Eel

8.8.1 The Eels (England and Wales) Regulations 2009 The Eels Regulations implement European Regulations (Council Regulation (EC) No 1100/2007), developed to aid the recovery of the significantly dwindling stock of European eels. Specifically, measures detailed are aimed at enabling a minimum of 40% of adult European eels to escape member state inland waters and return to the Sargasso Sea, where they breed. Provision is made for recovery measures to include a closed season for fishing, those with a fishing licence to record and submit certain information, remediation of barriers which impede eel passage and installation of barriers which prevent eels from entering structures which may cause them harm.

The Environment Agency are the regulating body and are responsible for providing notifications, licences and enforcement relating to fish and eel legislation.

Much of the action needed to remediate these barriers is provided for through the Salmon & Freshwater Fisheries Act 1975. However, the Eel Regulations strengthen the requirements for eels specifically, by requiring barriers to be removed in any case when the Environment Agency notifies, rather than just when new installations or significant renovations are being made to obstructing installations. It also mandates protection for eels at freshwater outfalls and intakes, typically where they could come to harm in associated structures.

The Environment Agency completed a review of the Regulations in spring 2021 and revised approaches include focus on providing "best achievable eel protection" (BAEP) following a formal assessment process. A revised range of approved screening and engineering options has been developed from which the most suitable option can be systematically identified on a site-specific basis. For pumping stations, there has been a move away from default eel screening to more fish-friendly pump approaches. A defined exceptions process has also been introduced, including new cost thresholds in cases where approved BAEP measures are not feasible.

Failure to comply with a notice issued from the Environment Agency or the criteria provided within it is an offence.

Guidance around the new eels Regulations process is not yet available so links to the existing guidance are provided below.

KEY RESOURCES:

Guidance: Safe passage for eels provides more information on the situations when an eel pass would be required - *www.gov.uk*

Guidance: Eel and elver passes: design and build - *www.gov.uk*

Environment Agency Fish Pass Manual - *www.gov.uk*

DUTY

8.8.2 Eel Regulations IDB pumping stations and other structures can act as barriers to the downstream passage of mature eels to the sea and on to their breeding ground. They are also obstructive to the upstream return of juveniles.

The Regulations require that an IDB, when notified by the Environment Agency to do so, must install an eel pass solution for an instream obstruction, such as a sluice or pumping station, at the cost of the IDB, or remove the obstruction altogether. An IDB is required to notify the Environment Agency of any plans to install a new structure or modify an existing structure which could impede eel passage. This notification will be required in addition to any environmental permits or licences which may be required to install or modify the structure. In either case, a formal assessment process is required in order to identify the eel passage solution which delivers the best achievable eel protection (BAEP) taken from a range of approved options. Approved solutions include eel passes in flap gates, fish-friendly pumps, elver pass and bypass channels.

The Regulations also require that an IDB structure which is accessible to eels but could cause them harm, must have an eel screen solution installed to prevent their access. Eel screening can be done in a number of ways, but some methods and installations can be more costly than others and some are not suitable at some structures and locations. A formal assessment process is required in order to identify the screening measure which delivers the best achievable eel protection (BAEP) taken from a range of approved measures. Eels must also be able to return to the upstream waters they approached the screen from.

Temporary exemptions can be issued until the remediation is installed in some circumstances, which include a date by which the work must be completed.

Other exemptions could apply where it can be proven that a structure does not affect eel migration or where it is not cost beneficial to install an eel pass. In the case of the latter, certain criteria must be met, including cost thresholds and mitigations.

The IDB should also consider whether there is a need to undertake an appropriate environmental assessment for any plans or projects undertaken on in-stream barriers which could significantly impact the environment (see 7.10).

BEST PRACTICE

8.8.3 Fish & Eel Passes An IDB should be able to identify any obsolete fish and eel pass obstructions and develop plans to remove them. It could go further than the minimum requirements of the legislation by considering which installations could be retrofitted with fish and eel passes where feasible, and where funding was available, regardless of whether the asset is due for significant renovation or notice is served. Many IDBs include this objective within their Biodiversity Action Plans. While the Salmon & Freshwater Fisheries Act is primarily concerned with migratory fish species from the sea entering upstream freshwaters to spawn, such as salmon & trout, the approach now is to aim to provide passage for all freshwater species, including eels, that need to move downstream and out to sea to migrate

to their breeding grounds in the Sargasso Sea. Therefore, IDBs should not restrict their activities if salmon and trout are not known to be present in the area, but identify opportunities to conserve and enhance freshwater fish and eels as part of their duties under other legislation also. For example, considering the installation of a fish-friendly pumping system or the fish-friendly adaptation of sluices and gates and their operation is advised wherever possible to improve the passage of fish downstream. Where adaptation of existing infrastructure is not cost-effective or efficient, other simple bypass solutions may be possible and should be investigated.

KEY RESOURCES:
The Application of Fish Friendly Pumps for the Land Drainage Pump Stations is a technical document focussing on fish friendly pumps - *www.ada.org.uk*

BEST PRACTICE

8.8.4 **Fish Friendly Pumps** is the term given to pumps which aim to minimise injury or mortality to fish as they pass through them. Pumps themselves are barriers to fish migration, so those which claim to be fish friendly are valuable to an IDB in terms of helping to fulfil their duty or remediating fish passage barriers. There are several "fish friendly" pumps available to IDBs, but there is no current design standard in the UK against which pumps can be certified as "fish friendly", so those being sold in the UK are likely to be certified against design standards of other countries. This is still advantageous as it is likely that the pump will have been tested and will have delivered improvements to fish survival rates over those which are not certified. An IDB should ensure that this is the case.

GOING FURTHER

8.8.5 **Fish & Eel Passage** Research is ongoing to support efforts to develop a UK-based standard for fish friendly pumps and also aims to provide a greater understanding of how fish behave in and around pumping station structures. For example, even though a fish friendly pump may be installed, there is no guarantee that fish will pass through it when operated, even if they are able to. Some species may naturally shelter upstream at the regular operating times of the pump or be scared off by the sound of the pump starting or by weed screens so will not be present to pass through it even though they are able. In the future, supporting fish passage may involve more than the installation of a fish friendly pump and other approaches are being researched which include improvements to piping and screening structures to allow improved access to pump inlets and constant low-speed pumping to allow continual flow and passage. Also, the operation of pumps when fish are more likely to be present at the inlets, such as at night, when they tend to take refuge in dark sheltered structures, rather than in the daytime when they tend to forage in lighter open areas.

For IDBs currently, any involvement in projects that aim to guide the development of standards and research fish behaviour is encouraged, for example the REDEEM project, a joint research collaboration supported by ADA, the University of Hull and the Environment Agency. Also, when an IDB is looking to upgrade any pumping station, it is encouraged to seek expert advice to ensure that a whole system approach is considered to improving fish passage alongside the installation of fish friendly pumps.

KEY RESOURCES:
REDEEMing pumping stations for eels provides more information on the REDEEM project - *www.ada.org.uk*

8.9 **Beavers** The Eurasian beaver (Castor fiber) is a large semiaquatic herbivorous rodent that was once widespread across northern Europe, but was hunted to extinction in Britain by the 16th century. Beavers have been legally re-established through releases in Scotland and

there have been a number of trial beaver releases in England into enclosures which have now become free living populations too, notably in Devon, Oxfordshire, and Kent.

NOTE: New legislation, which came into force on the 1st October 2022, will make it an offence to deliberately capture, kill, disturb, or injure beavers, or damage their breeding sites or resting places – without holding the appropriate licence.

There is also no current regulatory system for the management of beavers in England and their release requires a licence from Natural England. However, once established in England, the impacts posed by Eurasian beavers will require an appropriate regulatory system and resources to be put in place that enable proportionate management measures to be taken swiftly where they cause damage and thereby endanger safety.

8.9.1 Beavers & IDBs The Eurasian beaver's ability to impound water through dam building has been cited as a potential benefit to reducing flood risk and improving water quality and ecology in the right circumstances upstream within catchments. However, burrows can undermine flood defences and collapse watercourse embankments, felled timbers can become lodged in culverts and ditches during high flows, and stands of mature trees may be ring-barked or felled, killing the tree and creating obstructions. Where beaver populations establish, water managers will need to identify and take steps to make critical flood defence assets and areas less attractive to beavers. Such mitigations may include attaching collars to deter the gnawing of mature trees, applying mesh, steel sheet piling or rock armour to critical embankments and flood defences, or inserting a flow control device (known as a beaver deceiver) into beaver dams. The cost of such measures are site-dependent, but may be substantial. In the Netherlands, Water Boards take a hierarchical approach wherever possible, only seeking to capture and move, or capture and kill, as the last alternative.

In the Netherlands, coypu and beavers already exist, so ADA is following with interest how populations that are causing damage to flood defence structure are being managed. With a better understanding of the behaviour of beavers in the field, the Dutch Union of Water Boards hope to make it easier to detect excavation damage, deter damage and protect embankments and flood defences.

8.10 Pollinators While only a handful of pollinators are legally protected, as Section 41 priority species under the Natural Environment and Rural Communities Act 2006, they are the subject of many policies which aim to protect and enhance their abundance and diversity, as their overall numbers are known to be in decline due to habitat degradation and loss. Pollinators include bees and wasps, hover flies, butterflies and moths, beetles and other flies, and are responsible for the pollination of crops and plants. A DEFRA report indicated that just under 850,000 hectares of crops alone in the UK are pollinated by insects, with an estimated market value of just over £1 billion. This represents 19.3 per cent of total UK farm gate value. They also pollinate many of our native plants and form a large proportion of the UK's natural food webs.

The Government released a National Pollinator Strategy Action Plan for 2021-2024 which set out a framework for improving the support for pollinators. It calls for a range of actions including more protected sites, better connectivity of sites, landscape scale initiatives, more sustainable management of assets, support for pollinators in the farmed environment through agri-environment schemes and voluntary action to support pollinators.

DUTY

8.10.1 Support of Pollinators An IDB's Biodiversity Action Plan should highlight any previous records of priority bee species within the IDB district, but an absence of records should not be taken to indicate that the bees are not present. Work in areas where priority bee species are known to be present should be undertaken in such a way that it is not detrimental to the conservation status of the species. Such approaches should be detailed in the IDB's Best Practice Operations Manual. The conservation and enhancement of pollinators, even those which are not listed as priority species, can be considered part of an IDB's overall biodiversity duty (see 7.1.1). IDBs are encouraged to identify potential areas where pollen and nectar-rich habitats can be established to support pollinators within their district. Support of pollinators in general, should also be included within the IDB's Biodiversity Action Plan. Opportunities, such as the reseeding of banks following repairs or improvements can be seized to increase the provisions for pollinators, as well as more proactive approaches which look at replacing current grass-dominated mixes with pollen and nectar rich swards. IDBs considering an easement strip strategy (see section 6.6) could consider also enhancing the areas for pollinators.

Some care has to be taken to select flowering species which support pollinators native to the local area, as well as those which are adapted to the cutting regime which will be applied, and local soil type. Cutting will be required several times in the first year of sward establishment in order to suppress any competitive grass species. Identifying the pollen and nectar mixes which have been successfully established on local farms as part of their agri-environment schemes, or in other areas within the district, may give IDBs a good idea of what species and mixes are suited to the local area. Local Wildlife Trusts and seed merchants may be able to provide some advice as to suitable mixes which would establish well in each situation (see section 2.3 on partnership working).

IDBs could also consider green hay, which is the process of taking baled wild flower cuttings from a nearby species-rich site and spreading the bale onto the receiving area requiring enhancement, where seed heads are able to drop into the existing sward and naturally establish. Cutting will be required several times in the first year of establishment in order to suppress any competitive grass species within the sward.

Some trials of floristically enhanced channel banks are beginning in 2022, the results of which will be disseminated to ADA members when available. The trails will include the most successful seed mixes, establishment methods, costs and cutting regimes.

Flower strong dikes

In the Netherlands, water boards are applying grassland management techniques to create stronger flood and river embankments. The species richness of the vegetation provides a well-developed and diverse root system that contributes to the robustness and erosion resistance of a dike against overtopping, and can maintain itself well, both under conditions of drought and of abundant precipitation. A 'flower strong dike' (Dutch: 'bloemrijke sterke dijken') also contributes to the landscape, nature and cultural values of each dike.

KEY RESOURCES:

National Pollinator Strategy: Action Plan, 2021-2024 - *www.gov.uk*

Restoring species-rich grassland using green hay - *www.magnificentmeadows.org.uk*

8.11 Eurasian Otter Please first read the general protected species sections above (8.2) as an

introduction to this section.

The Eurasian otter is fully protected under Schedule 5 of the Wildlife & Countryside Act 1981 (WCA) (as amended) from the activities set out in section 8.2 and is also a priority conservation species (see 7.5.1).

Otters are widespread across the UK and have large ranges, often over tens of kilometres depending upon habitat quality. They have numerous refuges within their range, known as couches if they are above-ground and used just for resting, or a holt if the den is being used for breeding. They are elusive creatures so prefer vegetated banks where they can stay hidden, so long stretches of regularly-managed and closely mown grass banks with no riparian vegetation would not provide the most ideal habitat. This would not mean otters would not be present in the area as they may still use these stretches to feed, but they would most likely return to more vegetated areas to rest and feed. Their couches and dens are often difficult to spot with inconspicuous entrances. They will exploit existing holes in banks, such as through the roots of riparian trees, to burrow up to a depth of a couple of metres into the banks but will also nest in bundles of dense reeds.

Signs of otters are easier to use as an indicator of their presence, including their spraints(faeces), footprints and evidence of feeding such as fish scales and remains and carcasses of crustaceans such as crayfish. Their diet consists of roughly 80% fish so they can expect to be found where there is a good population of fish in freshwaters, but they will prey upon birds, mammals and frogs if fish are in short supply. They have no natural predators so their range is only restricted by habitat degradation and food resources.

DUTY

8.11.1 Otters IDBs should detail known records of Otters within their Biodiversity Action Plans and the steps that will be taken to conserve and enhance them. Adaptive approaches taken to regular and periodic operations in order to conserve and enhance otters and their habitat should also be detailed in an IDB's Best Practice Operations Manual. Both of these documents will help to demonstrate the IDB's compliance with associated legislation and their commitment to conserving and enhancing the species. It would be a criminal offence to damage or destroy otter couches or holts, even if otters were not using them at the time. Regular maintenance such as bank cutting, weed cutting and desilting can technically proceed lawfully under the WCA using the defence that any damage or disturbance to otters was an "incidental result of a lawful operation". However caution must be applied when using this defence, as an IDB must still be able to demonstrate that they had taken all reasonable steps to avoid impacting otters and their refuges if they are to avoid committing an offence. In practical terms, for regular maintenance, compliance will involve, at least, leaving known otter refuges and a buffer zone around them, untouched. An ecologist would be able to advise on the approach that would need to be taken to avoid a "disturbance" to a known otter refuge, but a precautionary approach would be advised in the definition of disturbance. Natural England defines the activities which could result in an offence when otters are known to be present, which include:

- Bank side habitat management,
- Removal of dense vegetation using methods that involve ground disturbance,
- Removal of materials (dead wood, rubble etc.) piled on the ground,
- Spoil deposition near a holt,
- Removing too much scrub from a reedbed to enhance it for other wildlife,
- Coppicing/pollarding/thinning may damage habitat used to provide cover around a holt or natal den.

The IDB should consider not only the impacts of one individual operation on otters, but the cumulative effect that its operations will have on the species across the district, with the aim of ensuring that the population of otters remains at a favorable conservation status in the area, as a result of their operations.

A pre-work survey may be required where otter refuges are suspected to be present in the area of works, to identify any potential holts or couches. They have been known to burrow into a variety of areas including behind walls and piling forming the river bank so it would be prudent for an IDB to not discount their presence in any areas, other than the most unlikely.

While no licence is required to survey for otters, the survey must be carried out by a competent ecologist who is trained and experienced in surveying for the species. If the survey confirms the absence of otter refuges, work can continue, keeping in mind the IDB's duty to use opportunities during the course of their work to enhance habitat, for otters and any other species.

Where a survey has identified the presence of otter refuges, or cannot discount their presence, and work is likely to damage or destroy their habitat, and no other alternative is feasible, an IDB is likely to need to engage a qualified ecologist to apply for a licence (A45). The licence will need to detail the steps that will be taken to avoid impacts as far as possible and propose the mitigations to reduce impacts where not. Work can only proceed once a licence has been secured.

Fieldworkers should be trained in the recognition and field signs of otters so they are able to adapt their approach or cease operations altogether where they are discovered, and there is a risk of harm to them or their refuges by continuing.

BEST PRACTICE

8.11.2 Otters IDBs should use their biodiversity action plans to identify the presence of otters and the action it will take to support and enhance their habitat. Commonly included approaches are the creation of artificial holts and the retention of ideal natural refuge areas such as bank-side tree root systems, reeds and other dense vegetation wherever possible. These areas would be valuable to a range of species. The actions the IDB will take to support and enhance otters should also be detailed in the IDB's best practice operations manual which will help to demonstrate their compliance and commitment to supporting the species.

Records of otters from surveys, but also sightings and signs spotted by fieldworkers, are valuable and should be forwarded to the local biodiversity records office to help to build a local and national picture of population and trends. The records can also help an IDB to understand whether any conservation activities detailed in their BAPs are proving successful and provides an opportunity to adapt approaches where needed.

KEY RESOURCES:

Otters: advice for making planning decisions - *www.gov.uk*

The Drainage Channel Biodiversity Manual details the key protected and priority species and their management relevant to IDBs - *www.ada.org.uk*

Practical techniques: Otters - *www.thomsonec.com*

8.12 Great Crested Newts Please first read the general protected species sections above (8.2)

as an introduction to this section.

The great crested newt is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (WCA) (as amended) from the activities set out in section 8.2 and is also a priority conservation species (see 7.5.1).

The largest of the UK's native newts, up to 17cm long, the mostly nocturnal great crested newt is widespread across the UK and requires a mosaic of aquatic and terrestrial habitats types within close proximity to be well supported. The amphibian can be recognised by their almost black, warty skin and orange and black dappled underbelly. In breeding season between March-July, males also develop a jagged crest across the length of their backs. During this time, they are found in aquatic habitats, most often lowland field ponds with areas of open water and marginal vegetation, on which they lay their eggs. They require a relatively dense network of suitable ponds to be available within a small geographical area to form what is known as a meta-population and will travel up to 500m between habitats. However, they are known to occupy a wide range of other waterbodies including ditches and canals less frequently, but will be discouraged by the presence of fish which predate on their eggs and larvae. Eggs will hatch into larvae and metamorphose into juvenile newts from mid-April into summer. By October, newts will make their way back to their terrestrial habitat in arable farmland, rough grassland, woodland and scrub where they will hibernate underground between November and February. They will then emerge to begin their migration to their breeding ponds from mid-February onwards.

Their threatened status has been driven by the loss of their preferred habitat, mainly field ponds in lowland farmland.

Any development or works which risk killing great crested newts at any stage of their lifecycle, or damaging or destroying their habitat, is an offence unless carried out under a licence, obtained from Natural England. Such a licence will require that impacts on the species are mitigated as far as reasonably possible.

DUTY

8.12.1 Great Crested Newts In order for IDBs to avoid committing an offence in relation to great crested newts as a result of their regular maintenance operations, or periodic or capital works, they would need to demonstrate that all reasonable steps had been taken to avoid killing or injuring the species, or damaging their habitat. Practically, the development of an IDB's Biodiversity Action Plan (BAP) will help to identify any existing records of great crested newts within the area of IDB operations as a first step, and will allow IDBs to then develop a plan to ensure their conservation and enhancement, as part of their regular and periodic operations. This could include retaining existing ponds and surrounding habitat, altering the timing of some works to avoid key seasonal activity and maintaining the condition of habitats to ensure their on-going suitability for the species. No records of species in the area should not be taken as an indication of their absence.

Where there are no records of the species in the area, the IDB will need to make an assessment of the area of work for the likelihood of great crested newts being present. Focus should predominantly be placed on identifying any ponds which could potentially be used by the species, and an area of up to 500m around them, but could include other small to medium-sized bodies of standing or very slow-moving water where other conditions were suitable, such as the absence of fish and the presence of suitable vegetation. Surveys of aquatic habitats should only take place when great crested newts would usually be expected to be present there at that time of year i.e. between April and June. There is information available on-line

to help IDBs make these assessments, details of which are provided in the Key Resources section below. Where an IDB's assessment concludes that great crested newts are unlikely to be present, then work can commence.

If the IDB determines that the species is likely to be present, or presence cannot be discounted, it is likely that a survey will be required, undertaken by a suitably qualified ecologist. In aquatic habitats, the use of an eDNA sampling method is widespread and efficient to determine presence. If the survey identifies that the site is used by great crested newts, or use cannot be ruled out, then the first consideration should always be avoidance of damage to the site through careful location and design of the works. If a modification to the location or nature of works is not feasible, it is likely that other mitigations will be needed, and for this, it will be necessary for the IDB to engage a suitably qualified ecologist to help them make an application to Natural England to undertake the works under a suitable protected species licence (see section 8.2.1). Proposed mitigations as part of the licence could include the exclusion of newts from the area of works, the trapping and relocation of newts, altering the timing of works, or the creation of alternative and additional habitat nearby. The aim of such an approach, and the licence conditions, is to ensure that the population of the newts affected remains at a favourable conservation status in the area.

It is likely that many IDBs will encounter the species during their operations at some point, so an IDB must familiarise themselves with signs and recognition of the species, particularly fieldworkers, directly employed or contracted.

BEST PRACTICE

8.12.2 Great Crested Newts Records of newts from surveys, as well as sightings and signs spotted by fieldworkers, are valuable and should be forwarded to the local biodiversity records office to help to build a local and national picture of population and trends. The records can also help an IDB to understand whether any conservation activities detailed in their Biodiversity Action Plans are proving successful, and provides an opportunity to adapt approaches where needed.

KEY RESOURCES:

Guidance: Great crested newts: advice for making planning - *www.gov.uk*

Guidance: Great crested newts: protection and licences - *www.gov.uk*

Great crested newt mitigation guidelines - *www.cieem.net*

Great Crested Newt Conservation Handbook - *www.froglife.org*

8.13 Reptiles Please first read the general protected species sections above (8.2) as an introduction to this section.

All 6 of the UK's native reptiles are protected to varying degrees under the Wildlife and Countryside Act 1981 (as amended) from activities ranging from killing or injuring the animal itself, for the more common species (common adder, common lizard, grass snake and slow worm), to also disturbing them or damaging their habitat, for the rarer species (smooth snake and sand lizard). They are all also priority conservation species (see 7.5.1).

All IDBs are likely to encounter at least one of the UK's native reptiles during the course of their works, so a brief overview of each is provided below:

SNAKES

Common European Adder

The adder is the UK's only venomous reptile and, as with all reptiles, is fairly elusive. They can be easily distinguished from other species by the dark zigzag patterning on their back. They are fairly widespread and can be found in open habitat such as heathland, grassland, moorland and woodland openings and rides, brownfield sites and railway embankments, where they can bask in full sun. Their main food source is small mammals such as voles but they will also predate other small reptiles, amphibians and eggs. Adders lay live young instead of eggs.

Grass Snake

The largest of the UK's native snakes with adults growing to between 70 – 120cm, the grass snake is elusive as it is particularly sensitive to even small ground vibrations so, along with their camouflage colours and markings, are quite difficult to find or spot. The best time to see them would be while they are basking in the morning sun in open areas. They are green/brown in colour but can be distinguished by small cream/pale yellow and black markings behind their head, a cream underside and black spots and bars on their body. They are particularly associated with wetland areas including lakes, streams, ditches and marshes as they mainly predate amphibians and fish. The snake will travel quite far into neighbouring terrestrial habitat such as grassland and farmland, particularly in search of warm refuges in which to lay their eggs, such as compost heaps, in late spring. Eggs usually hatch in late August into September.

Smooth Snake

The smooth snake is the rarest UK snake, with a range mostly restricted to heathland habitats in the south, at least in part due to the fact that the juveniles of the species only predate other small reptiles which are also more common in these areas. It is elusive and difficult to spot, only growing up to 55cm long. The snake can be recognised by its distinct, butterfly-shaped marking on the top of their head and black stripe under their eyes. Their diet largely consists of lizards, voles, mice and other snakes.

LIZARDS

Slow Worm

Often thought of as a snake, the widespread slow worm is actually a legless lizard. It is small, growing up to 40cm and can be found in various tones of brown or brown/grey, with a smooth texture and appearance. The darker females sometimes have a pale dark stripe along their back and the lighter males occasionally have small blue spots. They live in the moist sub-surface beneath dense grassland or leaf litter in open countryside but also sometimes in less-disturbed areas of gardens and parks where cats and dogs, which predate them, are absent. They are also found in allotments and compost heaps, woodland rides and openings, parks or wasteland. They prefer to bask for warmth under refuges such as large stones, wood or matted grass rather than open areas, and breed in late May into June, so surveys focus on these areas and times. They feed on slugs, worms and insects.

Common Lizard

The most common reptile in the UK, growing up to 15cm in length. They are generally brown in colour with males showing dark flecks along their backs with colourful black-dappled undersides and females having mainly back stripes with a pale belly. The lizard can be found in a variety of habitats including heathland, woodland, grassland and coastal habitats. They will bask in sunlight, as other reptiles do, and will spend their nights sheltering in piles of rocks or logs, or in small burrows underground, and mainly feed on insects and other small invertebrates.

Sand Lizard

The sand lizard is the rarest UK lizard, with a range mostly restricted to heathland and sand dune habitats in the south, and some sand dunes in the north-west, however reintroductions are taking pace in other areas of the UK. The lizard can grow up to 20cm in length and can be distinguished by their brown colour with "eyespot" markings of dark spots with lighter centres along their backs. In breeding season between May-June adult males will develop bright green flanks and females will lay their egg clutches in the sand into July. They are most commonly spotted basking on open patches of sand in morning sunlight.

REPTILE ECOLOGY & SURVEYING

Surveys for all reptile species usually aim to discover them when they are basking for warmth in sunny, open areas and south-facing slopes in the morning or under artificial refuges such as corrugated metal or felt sheets where they can absorb warmth. Surveys therefore have to be carried out when they are most visible while basking, in April – May and September. They will be less likely to bask in the warmer months and will hibernate in dense vegetation, stone walls, log piles, underground in animal burrows etc. in winter.

DUTY

8.13.1 Reptiles An IDB is likely to encounter at least one of the 6 reptile species in the UK at some point during the course of their work, as the habitats they manage are well suited to many of the species, particularly south-facing banks. The IDB must demonstrate that it has taken all reasonable steps to avoid killing or injuring any reptile during the course of their work, to remain compliant with legislation. In addition, where the two rarer reptiles (smooth snake and sand lizard) are known or expected to be present in the work area, an IDB must also be able to demonstrate that steps have been taken to prevent negatively impacting their habitats. To help achieve this, an IDB can proactively obtain records of where reptiles have previously been recorded in the district, through the development of their Biodiversity Action Plan (BAP). IDB should also seek to strengthen their understanding of reptile presence in their areas of operations by undertaking reptile surveys themselves. This will allow IDBs to then develop a plan to ensure their conservation and enhancement as part of their regular, periodic and capital works. Such actions could include altering the timings of some works to avoid active reptile periods, altering cutting lengths, avoiding areas where they are likely to be present, maintaining habitats to a standard which will continue to support the species, and providing additional habitats, such as log or stone piles and heaps of cuttings, for them to use. No records of species in the area should not be taken as an indication of their absence.

Where there are no records of reptiles in the area, the IDB will need to make an assessment of the area of IDB works for the likelihood of reptiles being present, prior to operations taking place. In terms of regular maintenance operations, many of the habitats that IDBs regularly maintain, such as grass banks, could be suitable for more common reptiles so, in order for an IDB to avoid committing an offence, it should take a precautionary approach in these areas, assume they are present, and take a systematic approach to their protection. Such a systematic approach could include increasing cutting lengths, moving more slowly to allow reptiles time to escape and ensuring that an area of suitable habitat, adjacent to the area of operations, remains undisturbed, and that the reptiles have an unobstructed route to it, to seek refuge as operations approach. Reptiles will be more active on warmer days so will have a better chance of making an escape than when they may be more sluggish on cold days. An IDB's Best Practice Operations Manual is the best mechanism to define and implement these approaches, and to demonstrate

their compliance and commitment to supporting reptiles.

If the IDB determines that smooth snakes or sand lizards are likely to be present in the area of works, they will need to follow approaches set out below relating to engaging ecological expertise, surveying and applying for a relevant protected species licence, prior to any work commencing that carries a risk of disturbing or injuring the species, or damaging their habitat.

Fieldworkers should be trained in the recognition and field signs of reptiles so they are able to adapt their approach, or cease operations altogether, where reptiles are discovered and there is a risk of harm to them by continuing. Any piles of brash, logs or stones that need to be dismantled and removed, should be done by hand where reptiles are suspected to be present. Similarly, if piles of brash, cuttings and compost that have been left long enough for reptiles to occupy them (i.e. overnight or longer) that need to be subsequently moved, should also be carefully searched to ensure no animals are present within them. Where possible, alternative replacement refuges nearby should be installed.

For less-regular operations or capital works in areas where the IDB determines that reptiles are likely to be present and will be at risk of harm from the operations, or where smooth snakes or sand lizards are likely to be present, surveys will need to be undertaken ahead of any activity taking place, usually by a suitably qualified ecologist. If the survey identifies that the site is used by reptiles, or use cannot be ruled out, then the first consideration should always be avoidance of damage to the site through careful location and design of the works. If a modification to the site or nature of works is not feasible, it is likely that other mitigations will be needed, and for this, it will be necessary for the IDB to engage a suitably qualified ecologist to help them make an application to Natural England to undertake the works under a suitable protected species licence (see section 8.2.1). Proposed mitigations as part of the licence could include the capture and relocation of reptiles to a newly created, or enhanced habitat, away from the area of works, or altering the timing of works. The aim of such an approach, and the licence conditions, is to ensure that the populations of reptiles affected remains at a favourable conservation status in the area.

BEST PRACTICE

8.13.2 Reptiles IDBs are encouraged to survey for reptiles wherever possible, as part of their Biodiversity Action Plan. Guidance on how such surveys should be conducted is available on-line and some signposts to such guidance are provided in the Key Resources section below.

IDBs are encouraged to set out actions which contribute towards the conservation of reptiles within their Biodiversity Action Plan to complement their support of reptiles. For example, where there is no risk of potential refuges such as grass piles, brash or rocks falling into the watercourse and causing an obstruction, they could be left in situ to provide habitat for reptiles. As with many other biodiversity enhancement approaches, the IDB could also aim to provide a diversity of vegetation types and maturity stages, both terrestrial and aquatic, as this would be likely to support a more diverse and populous range of reptile prey, such as small mammals, amphibians and invertebrates.

Records of reptiles from surveys, but also sightings and signs spotted by fieldworkers, are valuable and should be forwarded to the local biodiversity records office to help to build a local and national picture of population and trends. The

records can also help an IDB to understand whether any conservation activities for reptiles, detailed in their Biodiversity Action Plans, are proving successful, and provides an opportunity to adapt approaches where needed.

KEY RESOURCES:
Guidance: Reptiles: advice for making planning decisions - *www.gov.uk*

Selecting Environmental Stewardship Options to Benefit Reptiles, whilst aimed at farmers and landowners, the approaches are relevant more widely to those looking to conserve reptiles in a rural setting - *www.arc-trust.org*

8.14 **White-clawed Crayfish** Please first read the general protected species sections above (8.2) as an introduction to this section.

The white-clawed crayfish is protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). The following activities would be considered an offence in relation to the species:

- Intentionally take white-clawed crayfish from the wild,
- Sell or attempt to sell, any part of a white-clawed crayfish (dead or alive) or advertise that one buys or sells or intends to buy or sell any part of a white-clawed crayfish.

The white-clawed crayfish is a priority conservation species (see 7.5.1) and is also protected under European law by requiring that Special Areas of Conservation are designated to protect important populations of the species.

Our only native crustacean, the mainly nocturnal white-clawed crayfish is in decline in the UK as a result of a combination of factors, including habitat loss, and competition and disease from larger and more aggressive invasive non-native crayfish such as the widespread American signal crayfish. It can be distinguished from other alien species by its size, growing to between 6-12cm. It is olive/brown to bronze-coloured with pale cream or pink undersides to its claws. The invasive American signal crayfish in contrast, grows up to 18cm, has red undersides to their claws with a pale turquoise/white blotch at the claw junction and an orange/red underbelly. The white-clawed crayfish is associated with typical IDB habitats, such as rivers, streams, canals and lakes where they seek refuge in the more shallow edges under cobbles, boulders, tree roots, undercut banks and macrophytes. They occasionally tunnel into banks, mostly in winter. Their prey is varied as they are omnivorous.

DUTY

8.14.1 **White-clawed Crayfish** For activities affecting Special Areas of Conservation that have been designated for white-clawed crayfish, see section 7.2.1.1.

Although killing or injuring the white-clawed crayfish or damaging its habitat in the wild, outside a designated site for its protection, is not an offence, an IDB has a duty to conserve and enhance the species under the Natural Environment & Rural Communities Act (2006) as a priority species, so negative impacts to the species should be avoided wherever possible. An IDB will need to demonstrate that such considerations have been made. The development and implementation of an IDB's biosecurity policy will be key to ensuring that the risk of introduction and spread of the non-native crayfish, or the disease they carry (the crayfish plague), into areas where populations of the native crayfish are known to be present, is minimised. The IDB's Biodiversity Action Plan should be used to highlight areas within the district where white-clawed crayfish have previously been recorded, and detail the

actions the IDB will take to support the species. Actions could include minimising the extent of culverting throughout the district to prevent habitat loss, working with partners to improve water quality and reduce sedimentation and to control American signal crayfish where possible. More systematic approaches to supporting the species through regular operations, such as reducing the risk of de-oxygenation during works, can be detailed in the IDB's Best Practice Operations Manual (see section 11.9.4).

Where there are no records of white-clawed crayfish in the area, the IDB will need to make an assessment of the likelihood of native crayfish being present, prior to operations taking place. If the IDB determines that native crayfish are likely to be present, and there is a risk of impacting the species, the IDB will need to take steps to minimise those impacts. The IDB may need to engage a professional ecologist to undertake a survey to confirm presence or absence, for which a protected species licence (CL11) will be needed. The eDNA survey method is being used more widely for such surveys. If no white-clawed crayfish are found to be present, then work can commence as planned. Where they are found to be present, or presence cannot be ruled out, a suitably qualified ecologist can advise the IDB how approaches can be adapted to minimise risk to the species. This could include altering the timings of works, providing alternative habitat, or obtaining a protected species licence in order for animals to the trapped and moved to an alternative habitat.

Fieldworkers should be trained in the recognition and field signs of white-clawed crayfish so they are able to adapt their approach or cease operations altogether where they are discovered and there is a risk of harm to them by continuing.

BEST PRACTICE

8.14.2 White-clawed Crayfish Records of white-clawed crayfish from surveys, but also sightings and signs spotted by fieldworkers, are valuable and should be forwarded to the local biodiversity records office to help to build a local and national picture of population and trends. The records can also help an IDB to understand whether any conservation activities for the species, detailed in their Biodiversity Action Plans, are proving successful, and provides an opportunity to adapt approaches where needed. It should also notify the presence of non-native crayfish to the national Biological Records Centre via their on-line national wildlife data collection tool app iRecord.

KEY RESOURCES:

Guidance: White-clawed crayfish: advice for making planning decisions - *www.gov.uk*

Statutory guidance: Licence to catch and relocate white-clawed crayfish to maintain water bodies (licence CL23) - *www.gov.uk*

White-clawed crayfish - *www.thompsonec.com*

Guidance on Habitat for White-clawed Crayfish - *www.gov.uk*

Statutory guidance: White-clawed crayfish: survey or research licence (CL11) - *www.gov.uk*

www.iRecord.org.uk - the on-line national wildlife data collection tool used to report the presence of invasive non-native species.

8.15 **Other Protected Species** There is a possibility that some other, rarer, protected species may be encountered by some IDBs in specific locations, in the course of their operations. These could include the natterjack toad, hazel dormouse, pool frog, whirlpool ramshorn snail and some European protected plant species. If the IDB is undertaking works which would result in an offence where one of these protected species is present, or is suspected to be present, such as risk of harming the animal or damaging their habitats, then the IDB is likely to require a relevant protected species licence in order to proceed with the work. Presence of such species within the IDB district should be picked up in the development of the IDB's Biodiversity Action Plan. Otherwise, the IDB can search for records of species online from the National Biodiversity Network Atlas (details below).

DUTY

Most protected species require that a specific application is made for a certain licence, such as those detailed earlier in this chapter. However, protected species licence A12 covers a range of activities species, plant and animal:

ANIMAL

- Fisher's estuarine moth,
- Large blue butterfly,
- Lesser whirlpool ramshorn snail,
- Pool frog,
- Wildcat.

PLANT

- Creeping marshwort,
- Early gentian,
- Fen orchid,
- Floating water-plantain,
- Killarney fern,
- Lady's slipper orchid,
- Shore dock,
- Slender naiad,
- Marsh saxifrage.

Details of the criteria that must be met in order to apply for the A12 licence and the information that is required to support the application is available on-line. It will be necessary for an IDB to engage professional ecological expertise to help compile the application and to support its proposals.

KEY RESOURCES:
Form: European protected species: apply for a mitigation licence (A12) - *www.gov.uk*

National Biodiversity Network Atlas - *www.nbnatlas.org*

9 PROBLEM SPECIES

9 PROBLEM SPECIES

9.1 **Invasive Non-native Species (INNS)** are those which have been introduced, by anthropogenic means, into an area which is not part of their natural range. This does not always result in significantly adverse impacts on native biodiversity or related ecosystem services, but those that do are classed as invasive.

Some INNS, particularly vigorous plant species, are a risk to IDBs as they can impede flows and block water level management structures, as well as cause significant environmental harm.

9.1.1 Invasive Alien Species (IAS) (Enforcement and Permitting) Order 2019 (Invasive Non-native Species (Amendment etc.) (EU Exit) Regulations 2019) Implements the retained Invasive Alien Species (IAS) Regulation (Regulation (EU) No 1143/2014 of the European Parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species).

A core provision of this legislation is a list of species of special concern, with a series of strict restrictions on these species so they cannot be brought into the UK, kept, bred, transported, sold, used or exchanged, allowed to reproduce, be grown or cultivated, or released into the environment. Such species include plants such as giant hogweed, himalayan balsam, parrots feather, floating pennywort and broadleaf watermilfoil, and are subject to prohibitions including on their transport. This includes the movement of contaminated soil from one place to another or incorrectly handling and transporting contaminated material and plant cuttings. This is of particular relevance to IDBs during works on channels where INNS are present.

9.1.2 Wildlife & Countryside Act (WCA) 1981 Section 14(1) of the WCA makes it illegal to release, or allow to escape into the wild, any animal which is not ordinarily resident in the UK and is not a regular visitor to the UK in a wild state, or is listed in Schedule 9 to the Act. It is also illegal to plant, or otherwise cause to grow in the wild, any plant listed in Schedule 9 to the Act. Note that invasive non-native species that are on the list of species of special concern under the Invasive Alien Species Order have been removed from Schedule 9 so that these species are regulated in one place.

DUTY

9.1.3 Invasive Non-native Species (INNS)

9.1.3.1 Biosecurity Policy To comply with legislation around invasive non-native species (INNS), and primarily the Wildlife & Countryside Act (WCA), an IDB is required to develop and maintain a biosecurity policy setting out how it plans to ensure that the risk of introducing INNS or spreading an existing population is minimised. ADA has developed a template which details the relevant steps which an IDB should implement to demonstrate their commitment to biosecurity, available from the ADA website: *www.ada.org.uk*

KEY RESOURCES:
DEFRAs "CHECK, CLEAN, DRY" protocol is central to any biosecurity protocol involving INNS. Further information can be found on the GB non-native species secretariat website: *www.nonnativespecies.org*

9.1.4 Disposing of Invasive Non-native Species (INNS)

9.1.4.1 The Duty of Care Regulations (1991) (Part II of the Environmental Protection Act 1990) The Regulations class INNS plant matter as a controlled waste and where an IDB needs to dispose of INNS plant matter or the substrate in which it was rooted, certain rules must be followed. The rules and criteria are set out in the Regulation Position Statement (RPS 178) and, where they can be met, a permit is not required to dispose of such INNS. Where the criteria cannot be met, the IDB must apply for a permit to dispose of the waste including if the waste is to be burned on-site in the open.

NOTE: Where the plant matter is to be removed from site for disposal, the IDB will also need a waste carrier's permit (see 12.2.6).

KEY RESOURCES:
Guidance: Treatment and disposal of invasive non-native plants: RPS 178 provides information and a link to application for the INNS disposal permit - *www.gov.uk*

BEST PRACTICE

9.1.5 Invasive Non-native Species (INNS) An IDB operative, through training provided by the IDB, should be aware of, and be able to recognise INNS associated with the habitats within the internal drainage district, even if they are not currently found in the area. This will ensure that action necessary to prevent the introduction of INNS is taken, as well as ensuring that swift action can be taken upon the identification of any new INNS in the area to prevent establishment.

An IDB should identify the species and known locations of INNS within their internal drainage district within their Biodiversity Action Plan. The actions an IDB plans to undertake to prevent the spread or establishment of INNS should, as a minimum, be detailed in an IDB Biosecurity Policy and can be referred to in the Biodiversity Action Plan.

Many approaches to managing INNS, particularly those associated with water, are complex and only a truly co-ordinated and large, spatial scale approach is likely to achieve control. IDBs are encouraged to identify and engage with any local and national initiatives for specific INNS management and best practice (as provided for by the Natural Environment & Rural Communities Act 2006). This is likely to significantly increase the resources and knowledge needed by the IDB to manage the INNS effectively. Failure of an IDB to comply with any available best practice relating to INNS would mean that it would not be able to rely on any "due diligence" defence should it be accused of any offence relating to INNS. One key initiative is the "be plant wise" campaign, launched by Defra in 2010, which raises awareness of the damage caused by invasive aquatic plants.

KEY RESOURCES:
Be Plant Wise provides more information on Defra's INNS campaign and other key INNS management and identification resources - *www.nonnativespecies.org*

9.2 Pathogens (Pests & Diseases) In light of an IDB's field of operations being focussed in agricultural areas, it is prudent to also consider what actions the IDB will take to help prevent the spread of crop pests and diseases. Many of the approaches set out in ADA's biosecurity policy template, which are designed primarily to address the risk of spreading invasive non-native species, will also be appropriate to minimising the unintentional spread of pathogens, for example blackgrass, potato cyst nematode or septoria, and even some livestock diseases such as tuberculosis and foot and mouth.

BEST PRACTICE

Many of these invasive non-native species and pathogens can be spread from the tiniest of fragments or spores. A thorough and robust protocol should be developed and upheld by the IDB in order to comply with legislation and reduce the risk of litigation from landowners who are affected by pests and diseases spread by IDB machines.

9.3 Injurious Weeds There are a number of pieces of legislation which require particular action to be taken when managing invasive weeds. The first is the Weeds Act 1949 which places a responsibility on the landowner to control the following species, when they are served notice to do so, most likely by Natural England or a local authority:

DUTY

- Spear thistle,
- Creeping or field thistle,
- Curled dock,
- Broad-leaved dock,
- Ragwort.

The Ragwort Control Act 2003 provides specifically for effective management of Ragwort through the publication of a code of practice to prevent the spread of the plant. It also strengthens the enforcement possibilities under the Weeds Act in relation to the plant.

BEST PRACTICE

9.3.1 Injurious Weeds An IDB is encouraged to consider including in its biosecurity policy the action it will take to manage injurious weeds and demonstrate its compliance with the various legislation (see 9.1.1).

KEY RESOURCES:
The Ragwort Code of Practice - *www.gov.uk*

Guidance: Stop ragwort and other harmful weeds from spreading provides guidance around how to manage injurious weeds - *www.gov.uk*

9.4 Vermin Control An IDB has a duty, under the Pests Act 1954, to control rabbit numbers on land that they "occupy" or in other words, manage, and damage to neighbouring crops must be prevented.

DUTY

IDBs as property owners or occupiers also have a legal obligation, under the Prevention of Damage by Pests Act 1949, to keep premises rodent free, or, if rodents pose a threat to health or property, to report infestations to the local authority.

An IDB should have a carefully considered protocol for controlling any pests on their land so as not to inadvertently harm any non-target species. Where pesticides are used, the IDB has a duty to follow the relevant regulation as detailed in section 11.3.

KEY RESOURCES:
Pest control on your property provides information on the control of rodents - *www.gov.uk*

Guidance: Rabbits: how to control numbers - *www.gov.uk*.

10 THE MARINE ENVIRONMENT

10 THE MARINE ENVIRONMENT

Many drainage districts are adjacent to the coast and estuaries and therefore IDBs' water management activities will interact with the marine environment, such as when maintaining, repairing or constructing outfalls, sea walls and embankments. These present opportunities for the IDB to enhance coastal and estuarine habitats.

10.1 Coastal Habitats

BEST PRACTICE

10.1.1 Sea Walls and Embankments Grass covered sea banks or dikes are vital engineered structures for the flood defence of England's flat coastal areas. They also provide a linear interface between the foreshore and terrestrial habitats, creating important refuges for a wide range of flora and fauna, some of which are unique to sea walls.

The growth of woody vegetation can undermine the structural integrity of sea walls and promote the activity of burrowing mammals such as badgers. Any unnecessary disturbance of the embankments, such as fencing/gate installations, animal damage, excessive foot or vehicle traffic can also weaken their structural integrity and must be minimised. In the event of overtopping, there is a risk that water will pour over the crest and down the landward face ripping grass tussocks and trees out of the earth damaging the sea wall and potentially resulting in breaches. The Environment Agency predominantly manages coastal sea defences but, a number of these embankments are managed or maintained by IDBs, such as through a PSCA agreement with the Environment Agency.

When repairing or enhancing these embankments, consideration should be given to creating a more resilient profile so that they can accommodate overtopping during a tidal surge without being breached. This means designing embankments with a broader, shallower profile, free of obstructions, especially on the landward face, and ensuring that they are maintained to a consistent height and standard. These approaches should be detailed within the IDB's Best Practice Operations Manual and efforts to conserve and enhance the valuable species which rely on them included in the IDB's Biodiversity Action Plan.

KEY RESOURCES:
The Sea Wall Conservation Handbook 2015 highlights the breadth of plant and animals species living and relying on sea walls and provides practical management - *www.researchgate.net.*

BEST PRACTICE

10.1.2 Saltmarsh Planning for a resilient coastline should not start at a primary defence, but should always consider the foreshore. Saltmarsh can take energy out of surge tides, lessening their impact on primary defences, reducing associated maintenance costs. Wherever possible, measures should be taken to help facilitate and supplement natural accretion and stabilisation to restore saltmarsh habitat on the seaward side of defences. Such measures could include, replanting native saltmarsh plants or building brushwood fascines/groynes to encourage sediment to settle. These are small wooden posts erected in parallel rows and in-filled with brushwood to create a small fence orientated at right angles to the tidal flow to trap suspended sediment.

The conservation, enhancement and creation of these valuable habitats should be

included in the IDB's Biodiversity Action Plan and the approaches taken to manage them included in the IDB's Best Practice Operations Manual. Because of the multi-functionality of saltmarsh, it would be an attractive habitat creation project for many different funding streams and, if appropriate, the IDB should consider developing a shovel-ready project proposal to be supported by funding when opportunities become available (see section 2.13).

KEY RESOURCES:
Saltmarsh Habitat Restoration Handbook provides practical guidance and case studies on restoring and creating saltmarsh - *www.catchmentbasedapproach.org*

DUTY

10.1.3 Coastal Squeeze Coastal squeeze occurs when sea level rise erodes sea-edge or coastal habitats such as mudflats or saltmarsh, which are separated from inland areas by a man-made structure or influence such as sea walls and embankments. In the absence of anthropogenic structures or influences, ordinarily these coastal habitats would move further inland as sea levels rise, whilst maintaining an overall similar area, but instead they get eroded and "squeezed" against immovable structures, with an eventual loss of these valuable habitats altogether.

There is a legal obligation to compensate for the loss of coastal habitats, such as saltmarsh. Consequently, as a result of maintaining coastal flood management infrastructure, and working in close cooperation with the Environment Agency and Coastal Protection Authorities, the IDB may need to consider those management activities that could lead to coastal squeeze and be able to help contribute towards the replacement of lost habitat through its Best Practice Operations Manual and its Biodiversity Action Plan.

10.2 The Marine Strategy Regulations 2010 require the UK to take action to achieve or maintain Good Environmental Status (GES) in UK seas, through the development and implementation of a UK Marine Strategy. The Strategy is formed of 3 parts, each reviewed and updated every 6 years. Part 1, last updated in 2019, assesses the status of UK seas and sets the criteria, targets and indicators to be used for the following 6 years. Part 2, updated in 2021, sets out the monitoring programmes used to monitor progress against those criteria, targets and indicators. Part 3 details the measures used to help to achieve GES for UK seas, and is currently being updated. The UK Marine Strategy applies across coastal and marine waters around the UK.

There are some significant areas of overlap with the Water Framework Directive (WFD), particularly in relation to chemical quality, eutrophication and aspects of ecological and hydromorphological quality. Where both apply in coastal waters, the Marine Strategy Regulations 2010 covers those aspects not covered by the WFD, including noise, litter and aspects of biodiversity.

The UK Marine strategy contains a Descriptor and Targets around non-native species (NNS). As NNS are not covered formally under the WFD, although they are managed as part of water movements by water companies and the EA under other regulations, the UKMS can cover NNS where it overlaps with the WFD.

DUTY

10.2.1 Marine Strategy An IDB has a duty to consider the UK Marine Strategy and its objectives whilst planning and undertaking its operations. There are a number of components including birds, mammals, water quality, including chemical contaminants, and fish which are assessed to determine the status of UK seas under the Strategy. Most of these components are already afforded protection

through various other UK legislation, including the designation of habitats of particular importance for certain species such as Special Protection Area (SPAs) for birds and Special Areas of Conservation (SACs) for some fish, SSSIs and Marine Conservation Zones (MCZs) and River Basin Management Plans. For the most part, this existing legislation offers the means by which the objectives of the UK Marine Strategy can be delivered. Providing an IDB complies with the requirements of such legislation as set out in this guide, it is unlikely that any further action will be required of an IDB in relation to these regulations.

10.3 **Marine and Coastal Access Act 2009 as amended** The Marine and Coastal Access Act (MCAA) established the Marine Management Organisation (MMO) to oversee marine licencing, planning and conservation and to develop marine plans. There are a total of 10 regional marine plans now published with a strong environmental focus, which set out how marine area activities can be managed sustainably and consider development, recreation, biodiversity and industry.

The Act also provides for public access to England's coast and the determination and designation of marine protected areas, known as marine conservation zones (MCZs), to protect nationally important, rare or threatened habitats and species. 91 MCZs have been designated in England which help to support the objectives of the Marine Strategy Framework Directive (see 10.2) and Water Framework Directive in protecting important parts of estuaries and coastlines, as well as offshore habitats and species. Some nursery grounds for juvenile fish have already been designated.

Provisions in the Act set out that certain activities undertaken within the area of jurisdiction of the MMO i.e. from 200 nautical miles from the English shore to the mean high water spring contour (MHWS) may require a licence or an licence exemption (which can be granted for very low risk activities providing certain criteria are met).

KEY RESOURCES:
Planning and development: Marine planning: detailed information provides links to each of the 10 marine plans and other information around compliance - *www.gov.uk*

DUTY

10.3.1 **Marine Plans** When an IDB applies for a marine licence or planning approval, it will need to demonstrate how the relevant marine plan for the area has been considered, how the IDB plans align and integrate with it, and how the activity will help to contribute towards the objectives of the marine plan. An IDB should familiarise themselves with their local marine plan and engage with their local MMO office to learn how their work, outside of licensable activity, could contribute towards the plans' objectives.

DUTY

10.3.2 **Marine Management Organisation (MMO) Exemptions**

Marine licensing (Exempted activities) Order 2011 (as amended)
Marine licensing (Exempted activities) Order 2013
Marine licensing (Exempted activities) Order 2019

The Marine & Coastal Access Act 2009 makes provision for activities within the MMO jurisdiction in and around coastal and tidal waters to be licenced. The above Orders provide the details of the activities that are exempt, and under which circumstances the exemption may not apply. The activities detailed can be undertaken providing an exemption is secured from the MMO and the criteria within the exemption are met.

The MMO exemptions only apply to an IDB if the IDB is undertaking their work for, or on behalf of the Environment Agency (under a Public Sector Cooperation Agreement) or a Coast Protection Authority. If the IDB is undertaking their own work on flood and coastal defences, they must apply for a self-service or standard licence from the MMO as no exemptions exist for them to undertake such works.

KEY RESOURCES:
Statutory guidance: Marine licensing exempted activities provides the details of the exemptions and how to apply - *www.gov.uk*

DUTY

10.3.3 Marine Management Organisation (MMO) Self Service Licences There are a restricted range of low-risk activities an IDB may need to undertake which may be eligible for an MMO self-service licence, if they are to be undertaken below mean high water springs. These mainly include minor maintenance and repair works, to an outfall where the location is not in, or near to any protected or navigation route area. A license would need to be secured prior to any work commencing.

KEY RESOURCES:
Guidance: Self-service marine licensing provides the full details of the self-service licenses available and the associated criteria which have to be met - *www.gov.uk*

DUTY

10.3.4 Marine Management Organisation (MMO) Standard Licences Any activity which is planned to take place below the mean high water springs and which is not covered by an exemption or self-service licence, will require a standard licence to be obtained prior to work commencing. The information that is requested as part of the licence application will, in most cases, require that some planning work is undertaken prior to application to define the project more clearly to decision makers, and identify potential environmental or other impacts. The types of additional reports which may be requested as part of the application could include Environmental Impact Assessment (EIA), Habitats Regulation Assessment (HRA), Marine Conservation Zone (MCZ) assessment, Marine Planning Assessment, Water Framework Directive (WFD) Assessment, Waste Regulations Assessment or SSSI Assent from Natural England. The licence application process can take some months, although the MMO aim to make a decision on most applications within 13 weeks of an application being validated. Applications can also incur some significant fees, as assessment and advice provision etc. are all chargeable on an hourly basis, so the more information that can be provided as part of the application, the more efficient the process will be.

If a project requires both a marine licence and planning permission from the local planning authority (LPA), the MMO may issue an "intention to defer" letter to the LPA, only if the project has been screened through an Environmental Impact Assessment (EIA) by the LPA. In these situations, MMO would not be able to defer to their decision and subsequently issue a marine licence decision until the LPA had made their decision regarding EIA.

KEY RESOURCES:
Guidance: Make a marine licence application provides more information on standard licences and an application link - *www.gov.uk*

DUTY

10.3.5 Marine Conservation Zones (MCZ's) An IDB must exercise its functions in the manner which best furthers, or least hinders, the conservation objectives stated for the MCZ. This requirement also stands for any works the IDB is consenting.

If any work the IDB is planning to undertake is expected to affect, other than insignificantly, the features for which the MCZ is designated, they are required to undertake a full MCZ assessment prior to commencing any work. This assessment will determine any mitigation measures required in order to reduce impact on the MCZ. It may be appropriate for information used in the MCZ assessment to be included in consultation with other bodies, for example, during Environmental Impact Assessment scoping.

An IDB is encouraged to familiarise themselves with the details of any MCZs in their district and engage with the local MMO representative to better understand the IDB's role in contributing towards the MCZs conservation objectives. There may be additional bylaws which further protect individual MCZs, so an IDB is encouraged to also familiarise themselves with the content and requirements of those where present.

KEY RESOURCES:
Collection: Marine conservation zone designations in England details of each of the individual MCZs in England - *www.gov.uk*

Guidance on the duties on public authorities in relation to Marine Conservation Zones (Note 2) is available on-line.

Guidance: Marine Licensing: impact assessments provides access to information regarding MCZ assessments Marine Environmental Impact Assessments (EIAs) and other marine licencing related assessments - *www.gov.uk*

10.4 The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2017

The Regulations apply to all UK marine waters except for the Scottish inshore region. They are applied along the same lines as other Environmental Impact Assessment Regulations discussed elsewhere in this guide i.e. section 7.10. Schedule A1 of the Marine Works Regulations is equivalent to Schedule 1 of Town and Country Planning Act Environmental Impact Assessment Regulations, with Schedule A2 equivalent to Schedule 2.

DUTY

10.4.1 Marine Environmental Impact Assessment (EIA) These Regulations would potentially apply to any works undertaken by the IDB below mean high water springs contour. An environmental impact assessment (EIA) would be required if the project was assessed in line with Regulations and was determined to have likely significant effects on the environment (unless one of the exceptions in regulation 9 or 10 applied). The most relevant works in an IBD context include those related to coastal works for erosion remediation (excluding maintenance of such defences), for example, management or modification of water courses, outfall channels, land drainage and irrigation, transfer of water, water abstraction and discharges. See section 7.10 for more information relating to IDB's duties in respect of EIAs.

KEY RESOURCES:
Guidance: Marine Licensing: impact assessments provides access to information regarding MCZ assessments Marine Environmental Impact Assessments (EIAs) and other marine licencing related assessments - *www.gov.uk*

11 MANAGING WATER QUALITY, POLLUTION & WATER RESOURCES

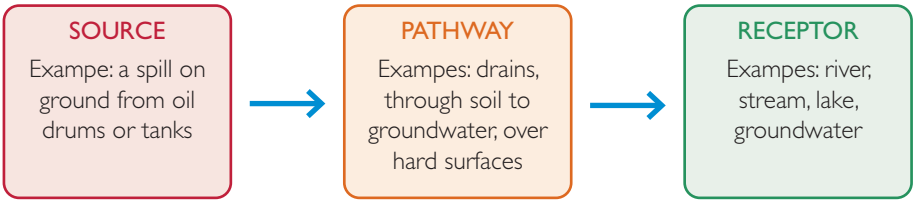
11 MANAGING WATER QUALITY, POLLUTION & WATER RESOURCES

11.1 Pollutants Pollution occurs when substances released to water, land or to air have a harmful effect on the environment or human health. Pollution incidents can affect our drinking water supplies, people's health, business activities, wildlife and habitats, and recreational enjoyment.

Incidents can happen accidentally, deliberately, through negligence or ignorance, and can come from a single place (point source) or from lots of different, possibly unknown and unconnected sources (diffuse sources).

Many different types of substances can cause pollution - common examples include fuels and oils, chemicals, sewage, agricultural manure and slurry, silt, waste materials, contaminated surface water such as vehicle washing/cleaning runoff, contaminated land, detergents, food stuffs such as milk and fire-fighting run-off.

Sites and activities will only cause pollution where there is a pollutant source, a pathway and a receptor. Understanding how IDB premises, operational sites and activities could cause pollution in this way is key. By doing so, it is possible to identify how to prevent or reduce the likelihood of pollution and reduce the impact of any problems which may occur.



Example of a pollution linkage using the source-pathway-receptor model

DUTY

11.1.1 Managing Fuels and Oils - The Control of Pollution (Oil Storage) (England) Regulations 2001 An IDB has a duty by having custody or control of oil, to carry out certain works and take certain precautions and other steps for preventing pollution of any waters. The following substances are classed as oils which are regulated:

- Petrol,
- Diesel,
- Biofuels,
- Kerosene,
- Vegetable oils, including any oil derived from a plant such as sunflower oil or plant-based oils used in aromatherapy,
- Synthetic oils - normally lubricating oils like motor oil,
- Oils used as solvents,
- Biodegradable oils - usually lubricating or hydraulic oils,
- Liquid bitumen-based products, for example waterproofing or damp proofing products, or coatings for a road surface,
- Cutting fluids, for example lubricants designed specifically for metalworking processes, that are made from or contain oil as oil-water emulsions,
- Insulating oils, used as electrical insulator and coolant.

IDBs should put measures in place to break or weaken the source-pathway-

receptor links for all activities at fixed sites, such as offices and depots, and at operational sites in the field. Examples of preventative measures include:

- Having complete and up-to-date site drainage plans for fixed sites,
- Storing fuel, oil and chemicals in secondary containment facilities,
- Having accident and emergency procedures coupled with training,
- Providing emergency oil spill kits for fixed and operational sites.

KEY RESOURCES:
Oil storage regulations for businesses are Government guidelines setting out how to remain compliant when storing oils - *www.gov.uk*

BEST PRACTICE

11.1.2 **Managing Machines near Water to Prevent Pollution** Any plant or machinery which is to be used on or near water should be subject to a thorough maintenance check prior to each deployment and should be thoroughly cleaned following each deployment to ensure that no contaminated material is transported from one site to another. Checks should include the integrity of seals, fuel caps and tanks and to make sure that no parts are loose or could become unattached during works.

Where possible, IDBs are encouraged to use biodegradable lubricant and hydraulic oil in plant when working in or near watercourses, as they are less toxic than most of the synthetic oils. These should, however, still be prevented from entering the water environment.

Many sealants, coatings, adhesives and glazing can be toxic to plants and animals if released into the environment. Where possible, water based or low solvent alternatives should be used but, still prevented from entering the water environment.

All substances should be stored compliantly as detailed in section 11.1.1.

11.2 Nitrate Vulnerable Zones

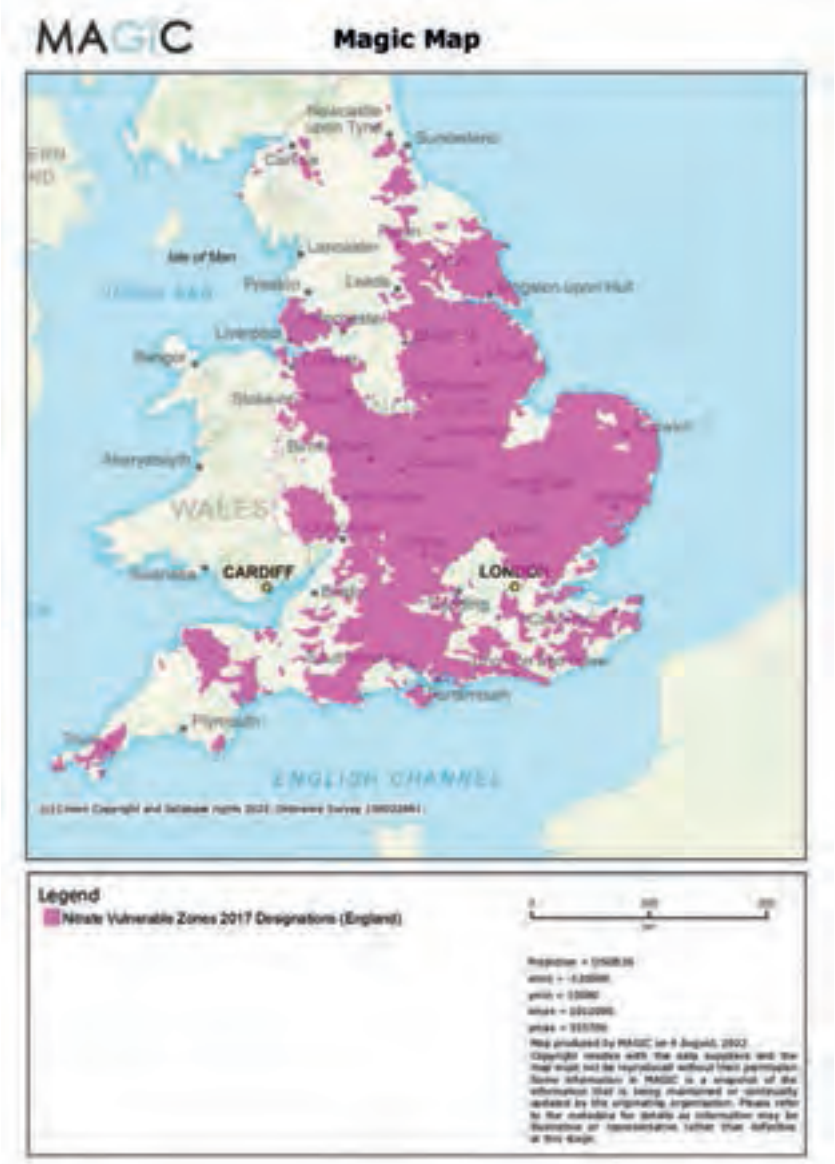
11.2.1 Nitrate Pollution Prevention Regulations 2015 The Regulations implement the EU Nitrates Directive (Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources).

The provisions cover the designation of areas as Nitrate Vulnerable Zones (NVZs) and impose limits on the volumes of organic and inorganic nitrogen fertiliser which can be applied to certain land. The Regulations also set out when and where fertilisers cannot be applied, requires records of nitrogen applications to be kept, sets criteria for storage of fertilisers, and provides for the enforcement of the regulations. NVZs cover both surface water and ground waters.

Nitrate Vulnerable Zones (NVZs) are assessed by the nitrate concentration levels in freshwaters and are reviewed every 4 years.

KEY RESOURCES:
Nitrate vulnerable zones present the rules farmers and landowners must follow if their land is in a nitrate vulnerable zone (NVZ) - *www.gov.uk*

Magic Map Application provided by DEFRA allows a user to search an interactive map to identify the boundaries of all NVZs - *https://magic.defra.gov.uk/magicmap.aspx*



DUTY

11.2.2 Nitrate Vulnerable Zones (NVZ) While agricultural drainage rate payers will be affected by the NVZ designations and restrictions, IDB statutory functions are expected to be largely unaffected. However, where IDBs own and manage land, they have a duty to ensure that nitrate and other pollutants are prevented from entering watercourses.

GOING FURTHER

11.2.3 Nitrate Vulnerable Zones (NVZ) Where an IDB does not own land, they can still help to promote measures to help reduce pollution from nitrates and other pollutants in freshwaters as set out in section 6.4 on an IDB's role in improving water quality and soil health.

11.3 Pesticides

11.3.1 Food and Environment Protection Act (FEPA) 1985 and Control of Pesticides Regulations 1986 (as amended) (COPR) Part III of the FEPA controls the use of pesticides. It aims to protect humans, fauna, flora and the environment. It also aims to secure safe, efficient and humane methods for pest control. The Act makes consultation with the Environment Agency obligatory prior to the use of herbicides or pesticides in or near water.

The COPR Regulations are made under FEPA and specify that (amongst other things) pesticides can only be sold, supplied, stored, advertised or used in line with the Regulations. It requires that anyone who uses pesticides in the course of their work must have received training in using them in a safe, efficient and humane way, and have the knowledge, skills and experience needed for the duties they will perform. Also, any person who uses a pesticide must use it only on the land, crop, structure, material or other area being treated.

11.3.2 The Official Controls (Plant Protection Products) Regulations 2020 Provides a legal obligation for the users of plant protection products (PPPs) to join a register. PPPs include:

- Insecticides,
- Fungicides,
- Herbicides,
- Molluscicides,
- Plant growth regulators.

DUTY

11.3.3 Pesticides An IDB is bound by the provisions in the above Act and Regulations where it intends to use pesticides for weed control on or near water or in any other circumstance such as the control of pests and vermin. An IDB also has a statutory duty to follow the Code of Practice for the use of pesticides (details below), a comprehensive guide which will help IDBs remain compliant in all aspects of the use of pesticides, particularly with regards to storage and the safety of the environment.

Pesticides can be incredibly harmful to the environment and to human health if not properly handled and managed, so their use should be very carefully considered and managed. The Drainage Channel Biodiversity Manual (link below) sets out some IDB-specific circumstances where it may be possible or beneficial to use pesticides to control IDB channel vegetation. However it is not just the use on water which can be hazardous for the environment - even the residue from one dropped foil seal from one pesticide container is sufficient to contaminate a 30km stretch of stream, and at least 40% of surface water pollution by pesticides may come from pesticide handling areas. IDBs must therefore have carefully designed pesticide handling areas where pesticides and associated equipment such as sprayers or bait traps can be properly stored, mixed, cleaned and disposed of, and appropriate procedures in place to minimise risk of pollution and to remain compliant.

An application form must be completed and sent to the Environment Agency prior to pesticide operations commencing. The agreement includes the rules which must be followed in order to remain compliant.

All records of use etc. as per the code of practice must be up to date and available in case of a spot inspection by the Health & Safety Executive.

NOTE: Any business, organisation or sole trader that uses professional Plant Protection Products (PPPs) such as herbicides, and any adjuvants, are required to register with DEFRA. This is a new requirement which is in addition to any licences the IDB may currently have for their use. Registration is free and is currently a one-off requirement. However, it is the IDB's responsibility to ensure that the registration details are kept up-to-date, so any relevant changes must be notified. There is no specific change of details form available at present, so changes must be notified by re-submitting all the updated information on the registration form, and the most recent submission will be taken as the most up to date. Any location where the IDB stores pesticides must be registered and, where records are kept separately, the address where records are kept (this could be head office).

KEY RESOURCES:

Application to use herbicides in or near water provides details on how to access an application to apply pesticides on or near water and some guidance related to such use - *www.gov.uk*

Professional plant protection products (PPPs): register as a user provides an application to register to use pesticides - *www.gov.uk*

Code of Practice for Using Plant Protection - *www.hse.gov.uk*

The Drainage Channel Biodiversity Manual details some vegetation management approaches which may require the use of pesticides - *www.ada.org.uk*

11.4 Environmental Incidents

11.4.1 Environmental Damage Regulations 2009 The Regulations implement the Environmental Liability Directive 2004/35/EC in England. Under the Regulations, those responsible for carrying out almost any economic activity will be held financially liable for remedying or preventing environmental damage caused by that activity to:

- Protected species and natural habitats, or to a site of special scientific interest,
- Surface water or groundwater.

Damage is defined as:

- A significant adverse effect on reaching or maintaining the favourable conservation status of the protected species or natural habitat,
- In terms of surface water, a change sufficient to lower its status classification under the WFD relation to the biological, chemical or physiological elements
- In terms of groundwater, a change sufficient to lower its conductivity or pollutants composition,
- In terms of land, substances, preparations, organisms or microorganisms that results in a significant risk of adverse effects on human health.

The rules impose a proactive duty on operators to notify the relevant authorities

(the Environment Agency or the local authority in most cases) when environmental damage has occurred or is threatened. Interested parties, such as environmental groups, will also be able to notify suspected, or the potential for damage. Prevention notices can be issued to operators who are at risk of damaging the natural environment and regulators can force operators to remedy environmental damage caused by their activities.


DUTY

11.4.2 Environmental Damage IDBs as "operators" under the regulations must immediately notify the Environment Agency of any imminent threat to the environment or when environmental damage has occurred. The IDB must immediately take all practicable steps to prevent and limit the damage. These duties apply regardless of whether the IDB is responsible for the damage or potential damage. An IDB should develop an environmental incident plan as part of its environmental management system (see 2.11).

KEY RESOURCES:
Environmental Damage (Prevention and Remediation) Regulations 2009: Guidance for England and Wales provides more information setting out how to comply with the regulations - *www.gov.uk*

11.5 The Water Framework Directive (WFD)

The Water Environment (Water Framework Directive (WFD) (England and Wales) Regulations 2017

The 2017 Regulations implement The EU Groundwater Directive (Directive 2006/118/ EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration), the Priority Substances Directive, Environmental Quality Standards Directive and The EU Water Framework Directive (WFD) (Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community Action in the field of Water Policy 2000).

NOTE: In this section we refer to the above Regulations as the WFD for brevity and ease.

The WFD seeks to restore the natural functioning of water bodies, secure the sustainable use of water resources, protection of water uses and high quality habitats for wildlife. The Regulations set the objective of all watercourses achieving a "good" or better ecological condition status by 2015, which has now been extended to 2027. Actions to achieve these targets have been defined and coordinated in the UK through the development of River Basin Management Plans.

11.5.1 WFD - Protected Waters The Regulations require the Environment Agency to develop and maintain a register of protected sites which include (but are not limited to):

- Drinking Water Protected Areas,
- Areas designated for the protection of economically significant aquatic species (i.e. Shellfish),
- Designated recreational waters, including Bathing Waters,
- Nutrient-sensitive areas
- Areas designated for the protection of habitats or species.

NOTE: The WFD covers the area from the mean low water mark to 1 nautical mile from shore. This overlaps with the jurisdiction of some other marine legislation so where a project is planned within this zone, applications for licenses to proceed with the work should be made to the Marine Management Organisation in the first instance and it is they who are responsible to make sure that the marine licence decision is compatible with the WFD and any river basin management plan through consultation with the Environment Agency.

KEY RESOURCES:
Water Framework Directive assessment: estuarine and coastal waters provides some guidance in this respect - www.gov.uk

11.5.2 River Basin Management Plans (RBMPs) The WFD aims to provide a framework for the delivery of water legislation and policy through RBMPs in an integrated and strategic way.

The Environment Agency is responsible for undertaking detailed monitoring and analysis of each river basin district and for developing a programme of measures designed to maintain their good ecological status, or restore to a good ecological status. This forms the basis of the River Basin Management Plan (RBMPs). Draft RBMPs have to be made available for public consultation prior to them being approved and initiated, and must be regularly updated.

A waterbodies' overall ecological condition status is judged by the lowest scoring underlying component, of which there are several depending upon the type of waterbody. The presence of an established population of invasive non-native species in any waterbody also has a bearing on its overall score. Types of waterbodies are:

- Rivers,
- Lakes,
- Transitional waters (estuarine),
- Coastal ,
- Groundwater.

Scored components include:

- Biological - Fish, macroinvertebrates, plants etc.
- Physio-chemical - PH, phosphorous, dissolved oxygen, ammonia,
- Hydromorphological - Quantity and flow of water, changes to natural form.

Overall condition status categories are:

- High - near natural conditions,
- Good - slight change from natural conditions,
- Moderate - moderate change from natural conditions,
- Poor - major change from natural conditions,
- Bad - severe change from natural conditions.

It is recognised that some waterbodies are not able to be returned to a more

natural condition due to their function, such as flood defence, water conveyance or navigation, so are unlikely to ever score "good" ecological status or better. These waterbodies are classified as:

- Artificial water bodies (AWB) i.e. those which are created by man (i.e. canals, drainage channels),
- Heavily Modified Water Bodies (HMWB) i.e. those which are natural but have been substantially and irrevocably modified in character i.e. straightened and embanked rivers in the lowlands.

Instead of "good ecological status", the environmental objective for HMWB and for AWB is "good ecological potential" (GEP). A number of mitigations are set out for such waterbodies which aim to maximise the ecological potential of the waterbody when they are all undertaken. These mitigations are key to the waterbody achieving the status of GEP.

Small Channels and Water Quality

Many smaller waterbodies such as IDB drainage channels (unless certain criteria are met such as being linked to the achievement of the status of a designated site or used for drinking water abstraction) fall below the size thresholds for inclusion in WFD assessment.

However, scientific research has highlighted that many small watercourses have excellent water quality and greater species richness than larger rivers due to their smaller and more rural or natural catchments with fewer sources of pollution. Small waterbodies are also more vulnerable to changes in water quality, so with the objectives of "clean and plentiful water and thriving plants and wildlife" set out in the Government's 25 year environment plan, it is inevitable that these smaller waterbodies may receive greater attention and protection in the future. A recent Office of Environmental Protection (OEP) informal consultation with the Small Waterbodies Expert Group suggested that consideration is being made to the value of including smaller waterbodies in WFD assessments and reporting.

DUTY

11.5.3 **River Basin Management Plans (RBMPs)** An IDB has a duty to have regard for their local RBMPs when exercising their functions. This includes their own work and the consenting of the planned work of others on IDB watercourses. An IDB should not plan to undertake, or consent to the undertaking of, any activity which would be in conflict with the objectives of the RBMP of the main rivers that are connected to the IDB channels. In fact, an IDB should plan or consent with conditions to include elements where possible that contribute towards the objectives of the local RBMP. An IDB should therefore familiarise themselves with their local RBMP and engage with their local catchment partnership to better understand their role and contribution towards the WFD. The subsequent contributions identified should be included within the IDB's Biodiversity Action Plan and other relevant key tools for environmental action delivery, such as the Biosecurity Policy and Operations Manual.

KEY RESOURCES:

The WFD Regulations in the context of IDBs has been effectively summarised in pages 16-19 of the publication named A guide to management strategies and mitigation measures for achieving good ecological potential in fenland waterbodies - *www.ada.org.uk*

BEST PRACTICE

11.5.4 WFD Water Quality It can be difficult to understand what an IDB could do, or be made responsible for improving, in terms of water quality as part of the WFD, apart from not adding anything undesired to the water which could deteriorate its quality further downstream. However, there are good reasons why an IDB should be thinking about how it could contribute to improved water quality. These are explained in more detail below.

11.5.5 Channel Sedimentation & Water Quality Nitrate and phosphorous are 2 major chemicals which affect the quality of freshwater. Agricultural inputs and sewerage effluent are both major sources. Nitrate is very soluble so when the volume in the soil is greater than the immediate demand of the crop, the excess easily leaches or is washed into freshwaters. Phosphorous adsorbs (binds) particularly well with soil particles, so when run-off from fields carries soil particles into channels, it brings phosphorous with it. It is the soil particles which are problematic and costly for IDBs to remove from channels rather than the chemicals, so where IDBs are successful in proactively reducing channel sedimentation, they will also be successful in improving water quality and could save some money too.

GOING FURTHER

11.5.6 WFD Water Quality The quality of waters within an internal drainage district can be heavily influenced by activities outside the internal drainage district. An IDB's usual sphere of influence is limited to their drainage district but they are central to a network of farmers and land managers. This network can be used to bring together farmers and land managers, both within and upstream of the district to transfer knowledge and promote the benefits of good soil and riparian management to reduce the volume of soil particles being mobilised and carried into channels via surface run-off and through field drains.

KEY RESOURCES:
Draft river basin management plans: 2021 provides access to the most up to date RBMPs - *www.gov.uk*

11.5.7 Catchment Partnerships There are over 100 catchment partnerships across the UK, following an approach and framework devised by Defra in 2013 and administered by CaBA, the Catchment Based Approach. Catchment partnerships are collaborations between Government, local authorities, water companies and local stakeholders including businesses, conservation charities, landowners, angling clubs, IDBs, farmer representative bodies and academia within each WFD river catchment. Each partnership has been convened to improve the delivery of WFD priorities alongside other benefits including improvements to water quality, enhanced biodiversity, and reduced flood risk, resilience to climate change, more resource efficient sustainable businesses and, health and wellbeing benefits for local communities. The collaboration enables a more diverse range of expertise and sources of funding, as well as local knowledge to be accessed.

For IDBs not already involved in their local Catchment Partnerships, engagement is recommended as it may present improved opportunities for support of projects identified by the IDB's Biodiversity Action Plan and otherwise.

KEY RESOURCES:
www.catchmentbasedapproach.org provides details of all Catchment Partnerships and a wide range of catchment management advice and resources.

11.6 Water Industry Act 1991 and 1999 as amended Regulates water and sewerage industries,

including charging, and lays out the legislative provisions in relation to discharge consents to sewers. The Act made a non-statutory provision for water companies to develop water resource plans.

11.7 **Water Resources Act 1991** This large and complex Act consolidated a number of other pieces of legislation around the management of water resources and much of it has since been repealed with new legislation. It established the National Rivers Authority (NRA) and it's responsibilities for rivers and flood defence which is now managed by the Environment Agency (EA). It conferred powers to the EA to require permits and consents to be obtained from those wishing to undertake work on main rivers. The Act required the definition of minimum acceptable water levels or flow of surface waters and gave the NRA the ability to apply restrictions on licenced abstractions to maintain those flows/levels. It also introduced greater management of abstraction licences. It provided the framework for the assessment of water quality and the setting of objectives to remediate quality issues. In terms of water pollution, the Act created water pollution offences based on the polluter pays principle. Much of the legislation around pollution has been repealed and is now covered within the Environmental Permitting Regulations, which is covered in section 13.

Flood risk management is regulated by the Act which describes the roles and responsibilities of the operating authorities and forms the basis for their operational, supervisory, regulatory and executive powers to do work in the fluvial environment.

It is under this Act that an IDB would need exemptions or permits to undertake work on main rivers and coastal defences, either under a Public Sector Co-operation Agreement or otherwise. See section 13 on Environmental Permitting Regulations for more information on flood defence exemptions and permits.

11.8 **Water Act 2003 (as amended)** The Act aims to modernise the regulation of water resources through improved operation and regulation. It regulates, and added definition to water abstraction and impoundment, and has water conservation as a key focus. It provides powers for the Environment Agency to amend or revoke the licenses of water abstractors who cause serious damage to the environment, without having to pay compensation. It requires the statutory development of drought and water resource plans by water companies. It also amends the Environment Act 1995 to allow for changes to be made to Regional Flood & Coastal Committees establishment by the Secretary of State and improved the provisions for the maintenance of a flood warning system.


DUTY

11.8.1 **Water Conservation** An IDB has a duty to consider water conservation under the Act. In practice this means that as IDB has to demonstrate, in an auditable way, that it has considered ways to ensure water is conserved as part of its operations. It is advised that the IDB sets out these considerations in its environmental policy, not only for its channel operations, but for its office-based support and site operations also.

11.8.2 Abstraction, Impoundments & Water Transfers

11.8.2.1 Abstraction & Water Transfers Taking water from a surface source (e.g. river, stream or canal) or from an underground (groundwater) source is called abstraction. Water abstractions of more than 20 cubic metres a day are likely to need a licence from the Environment Agency, who assesses applications to abstract water against local water availability. This assessment process is set out in Abstraction Licensing Strategies. If a strategy shows that an area has low water availability, it is unlikely that any new application to abstract water within the area will be granted. Key water abstractors include water companies for public water supplies (greatest

proportion), electricity supply industry, other industry and agriculture.

Where an application is made, the Environment Agency is required to publish the application as part of a public consultation process in accordance with Section 37 of the Water Resources Act 1991 and Regulation 8 of The Water Abstraction (Transitional Provisions) Regulations 2017.

Abstraction & Water Transfer Exemptions
From 1 January 2018 The Water Resources (Transitional Provisions) Regulations 2017 removed most exemptions from licensing control. Details of the few that remain are available from the source shown below.

KEY RESOURCES:
Check if you need a licence to abstract water - provides details of abstraction activities which do not require an abstraction licence - *www.gov.uk*

11.8.2.2 Impoundments are structures within inland waters that can permanently or temporarily change the water level or flow. Many of these structures will be relevant to IDBs, including weirs, sluices, culverts and penstocks. An impoundment licence is typically needed prior to work commencing on a main river to install one of these structures. Any impoundment undertaken by an IDB, or on their behalf, to exercise their legal functions within their drainage district does not require a licence or an exemption.

Impoundments - Low Risk Activities
Some impoundment activities are classed as low risk so are unlikely to need a licence. Where the activity can meet each of the criteria set out in a "low risk checklist", an impounding licence will not be required. Activities and conditions are listed online.

KEY RESOURCES:
Check if you need a licence to impound water provides details of the exempted and low risk activities and the low risk conditions - *www.gov.uk*

11.8.2.3 Abstraction, Impounding & Water Transfer Licenses Any other water transfer, abstraction or impoundment from surface or groundwater that falls outside exemption or low risk activity conditions will require a licence. New abstraction licences are mostly granted for between six to eighteen years and occasionally up to twenty-four years where robust evidence to support the need and the sustainability of the development are provided. Existing abstraction licences are renewed every twelve years to ensure that the conditions within them respond to the regularly reviewed needs of the catchment. Charges apply for application and annual subsistence.

The different types of abstraction licence are:

- Full Licence - for most types of water abstraction over twenty cubic metres a day,
- Transfer Licence - to move over twenty cubic metres of water a day from one source to another without intervening use,
- Temporary Licence - to abstract more than twenty cubic metres of water a day over a period of less than twenty-eight days,
- Impounding licence - to create an impoundment structure such as a sluice, weir or dam.

11.8.2.4 Hands off Level (HoL) & Hands off Flow (HoF) HoL is the collective term given to the flow level criteria in an abstraction licence at which an abstractor must cease to abstract water in order to protect the environment.

11.8.2.5 Abstraction Reform Abstraction regulation has only in recent times, recognised the need for sufficient water levels to be maintained to support the environment and wildlife. The Environment Act 2021 has implemented two main changes to the Water Resources Act 1991 in relation to abstraction licensing. Firstly, the amendments confer power to the Environment Agency from 2028, to remove the consistently unused headroom from an abstraction license. This means that the EA will have the ability to revise a licence to reflect what has historically been used in actuality, if it is lower than the licensable limit. Secondly it provides for the ability to revoke a license if it is deemed that it is necessary to protect the environment. Importantly, no liability for compensation will be made for either revision or revocation from the date indicated.

KEY RESOURCES:

Apply for a water abstraction or impounding licence offers general details around abstraction licences and links to apply - *www.gov.uk*

Abstraction licensing strategies (CAMS process) - offers details of the water resource pressures within each catchment and details of any water abstractor groups and other partnerships - *www.gov.uk*

Water resources licence application forms provides forms to be completed when applying for an abstraction, transfer or impoundment licence and the guidance for their completion - *www.gov.uk*

DUTY

11.8.2.6 Abstraction, Impounding & Water Transfer If an IDB has to transfer water from a main river system into an IDB system, in order to supply the abstraction requirements of other abstractors within the IDB system (who will have to have their own abstraction licences), it will need to apply for an abstraction licence and meet its conditions. The abstraction may also be subject to eel screening requirements as per the Eel Regulations (see 8.8).

Making permitting decisions for abstractions within flat, low-lying IDB systems can be challenging, particularly where there are few flow gauges within the system. The hands-off limit levels within the IDB system will ordinarily be agreed following liaison with the Environment Agency. It will be the IDB's responsibility to then communicate those trigger points with the licence holders.

Where an IDB has to impound water from a main river, which does not qualify for any exemption or as a low-risk activity, it will need to apply for an impounding licence. It is up to the IDB to ensure the terms of the license are met and any eel screening requirements as per the Eel Regulations (see 8.8) are also met.

BEST PRACTICE

11.8.2.7 Abstraction, Impounding & Water Transfer An IDB should include any licence criteria within its Best Practice Operations Manual and set out the steps it will take leading up to and at the point of the hands-off limit (HoL) being imposed, including any steps which can be taken to avoid the impacts from HoL.

An IDB is advised to work closely with any formal Water Abstraction Groups (WAGs) within its district to discuss water resource management plans for the medium and

long term to support business continuity, particularly in the face of climate change and the weather extremes that are predicted. Where formal WAGs do not exist, an IDB is encouraged to support the establishment of such groups. Many abstraction licences are due for renewal in the next few years and it is prudent to expect that abstraction volumes may be significantly reduced or even revoked in order to accelerate progress towards improving the water environment. Some landowners may look to secure more reliable access to water to help sustain their irrigation needs, for example, through the creation of on-farm water storage, more efficient irrigation systems, or otherwise adapt their business to be less reliant on water. The IDB has the knowledge and infrastructure to support a number of adaptive approaches and solutions to deal with such future challenges, which should be highlighted to such groups.

The Best Practice Operations Manual and Environmental Management System should also be used to identify the activities which are likely to require an impounding licence and reference the licence conditions which must be met whilst undertaking the activity.

KEY RESOURCES:
Abstraction licensing strategies (CAMS process) - offers details of the water resource pressures within each catchment and details of any water abstractor groups and other partnerships - *www.gov.uk*

Water for agriculture: collaborative approaches and on-farm storage - *www.fensforthefuture.org.uk*

11.9 **Drought Resilience** The Environment Agency recognises that there are three types of drought; environmental, agricultural and water supply drought. IDBs have an important role to play in helping to ensure that, where supply is sufficient, the water resources are shared equitably between water users to avoid, as far as is possible, a drought.

An IDB can monitor local weather conditions and where rainfall is falling below the usual average for the time of year, then changes in water level management may be considered. There is a desire to try to avoid overlapping environmental drought, when flows are low and wildlife is showing signs of stress, with a potential agricultural drought, when crops are also suffering, but abstractions for irrigation have been restricted due to low water levels and flows. An IDB has a duty to conserve and enhance the environment and must consider this duty when planning how it will manage deficits of water.

11.9.1 Water Storage Integrated water management, including water transfer and water storage, may be key to securing our future food production, mitigating the risk to people and businesses from flooding and drought, and protecting our riverine environments. This is particularly relevant where variations and restrictions on abstractions have been, and are expected to be made to protect the environment. Up to 70% of abstracted water in summer months in some eastern regions is used for crop irrigation. With the pressures upon water supply we are told to expect from climate change, farmers are under increasing pressure to develop solutions which secure their water supply in a more sustainable way which does not cause detriment to the quality and flow of freshwater streams and rivers. Their focus may increase on the storage of water abstracted at times of high flow.

Generally, water storage solutions fall into one of 2 categories:

- Planned water storage is a deliberate accumulation of water into an engineered, specified area such as reservoirs, over a longer timeframe, for example weeks or months, for use when demand is expected to be greater than supply. An example of this is the on-farm water storage ponds developed by the Euston Estates in Suffolk to secure their future irrigation needs and business approach in light of the increasingly variable rainfall in the area and the changing abstraction licenses. See the article in the spring 2020 ADA Gazette on Euston Estates for more information, available on-line from *www.ada.org.uk*

- Unplanned water storage is as a result of the urgent need to divert diffuse overland flow or high flows within watercourses into pre-defined areas in a controlled manner, to alleviate flooding in more vulnerable areas downstream, such as floodplains or washlands. This accumulation of water needs to be released as soon as the risk of flooding has passed to restore the land back to its primary function i.e. agriculture. The washlands around Lincoln and downstream of York on the River Ouse are examples of such areas. Much use has previously been made of the Rural Development Programme to part-fund on-farm water storage.

RAPID (Regulators' Alliance for Progressing Infrastructure Development) is a collaboration between Ofwat the Environment Agency and Drinking Water Inspectorate established in 2019. The group convened in order to help accelerate the development of new water infrastructure and design future regulatory frameworks to support new and innovative national supply options to avoid restrictions in the near future. It engages with business and industry to identify multifunctional solutions to address not only drought, but flood risk and environmental net gain.

11.9.2 Water Transfers Innovations in infrastructure solutions to move water from where it is in surplus to where it is in deficit are being more widely considered and promoted in the UK. In terms of water companies, inter-regional water transfers already take place but most regional water resource plans are recommending increasing the use and extent of water transfer infrastructure. Solutions mooted include those which use existing above-ground networks such as canals, streams & rivers where connectivity can be improved or underground pipework. On a more local scale, some private groups have commissioned their own infrastructure and solutions, including some water abstractor groups.

The farmer-led Felixstowe Hydrocycle project on the River Deben estuary, supported by East Suffolk IDB, the Environment Agency, UEA and Suffolk County Council, is creating 11kms of new pipeline to redirect freshwater destined for the sea from an IDB pumping station, back inland to storage reservoirs on farms to be used in irrigation. The redirected water will also be used to recharge an inland aquifer. This will help to improve the significant water shortages that have been experienced in recent times when even winter levels in local rivers have often been too low to support abstraction for agriculture.

GOING FURTHER

Water Storage and Water Transfer An IDB is well placed to use their networks, infrastructure and expertise to support on-farm water storage and unplanned water storage approaches, as well as water transfer projects. IDBs are encouraged to engage with any farmers or farmer groups, particularly water abstractor groups to add support

to, and progress such approaches and identify new farmer groups, who are looking to secure their future water supply for business continuation and resilience, to work with.

KEY RESOURCES:
Abstraction licensing strategies (CAMS process) - offers details of the water resource pressures within each catchment and details of any water abstractor groups and other partnerships - *www.gov.uk*

Water for agriculture: collaborative approaches and on-farm storage - *www.fensforthefuture.org.uk*

11.9.3 Maintaining Water Levels for Habitats and Species There are many habitats which support species which are sensitive to changes in water levels, temperatures and quality. If we are to expect more extreme weather as a result of climate change, then consideration must be given on how these habitats and species can be safeguarded, and water levels maintained at a level which remains supportive of the species. For example, pollutants in freshwaters may increase in concentration, and therefore the potential to cause harm, where water levels fall as a result of lower summer rainfall and higher temperatures.

Protected and priority species and designated sites will most often have robust management plans, such as water level management plans, in order to maintain the most favourable conditions. However consideration must be also given to more common species which rely on freshwater habitats such as drainage channels, wetlands and floodplains, where species need predictable seasonable ranges and levels to thrive.

BEST PRACTICE

11.9.3.1 Maintaining Water Levels for Habitats and Species An IDB should consider how they could stabilise and maintain water levels and enable sufficient flow to maintain dissolved oxygen levels throughout the seasons in key areas, in order to provide a more consistent habitat and levels which are supportive of present species. There are perhaps redundant channels which could be blocked off in order to provide linear pond-like habitats either permanently or seasonally. There may be an opportunity to increase the resilience of channels to drought conditions by improving diversity of the channel morphology. The creation of deeper pools within the channel bed, ponds and pools at channel junctions, riffles and meanders would provide places of refuge in drought conditions for some species and should be considered where flood risk allows.

11.9.4 De-oxygenation Prolonged periods of high temperatures and low rainfall, as well as de-silting and dredging operations, can impact the amount of dissolved oxygen available within channels, especially in channels with few obstructions to cause turbulence, low gradients and low-flows which are typical of many lowland drainage channels. These conditions promote increased algal and/or microbial growth which increases the biological oxygen demand, particularly where nutrient status is high. Such conditions can also increase macrophyte growth and increased decomposition of organic matter in the channel which utilises further dissolved oxygen and increases the risk of deoxygenation within the channel. In extreme cases, deoxygenation can result in the death of fish and other aquatic fauna from suffocation.

DUTY

11.9.4.1 De-oxygenation Assessing oxygen content and flow rates in channels is a term set out in some environmental permits and exemptions, so an IDB would need to ensure it had the means of testing oxygen levels if the permit was granted and recording the results.

BEST PRACTICE

11.9.4.2 De-oxygenation Many IDBs regularly test for dissolved oxygen content on some channels with low flows using dissolved oxygen meters. Some IDBs check flow rates also. This may need to be a more frequent activity if more extreme weather brings longer periods of high temperatures and low rainfall which could increase de-oxygenation risk, or as part of any de-silting or dredging works. Where oxygen levels fall below about 20%, particularly for channels which are known to support fish, pumps and aerators should be installed to increase oxygen content, or dredging works halted or modified. Some practical guidance on assessing flow rates and dissolved oxygen can be found via the link below:

KEY RESOURCES:
River Monitoring Guidelines offers some practical guidance on assessing flow rates and dissolved oxygen levels. It can be found online by searching for "River Monitoring Guidelines Shropshire Wildlife Trust".

11.10 Water Act 2014 Introduces reforms to the water industry which aim to make it more innovative and responsive, and to increase resilience to hazards such as flooding and drought. It withdraws the right for water companies to be compensated for a modification or revocation of an abstraction or impoundment licence based on environmental grounds. It provided for the establishment of the Flood Re scheme; a Government-supported initiative which aims to assist households finding re-insurance following impact from a flood event. It also paved the way for flood defence consents to be brought under the existing environmental permitting regime with other disparate environmental consents being able to follow, such as water abstraction and impounding licences and fish pass approvals. It required that the Government make a report on the progress of abstraction reform.

12 WASTE MANAGEMENT

12 WASTE MANAGEMENT

12.1 Environmental Protection Act (EPA) 1990 The Act makes provision for the improved control of pollution to the air, water and land by regulating the management of waste. It defines the related powers, offences and enforcement around the management of waste. Key provisions of the Act impose a duty of care on any business or person who produces, carries, keeps, treats, disposes of or imports controlled waste to do so safely, including hazardous waste. The Act also contains provisions addressing statutory nuisances, litter and the control of genetically modified organisms and disposal of invasive non-native species such as giant hogweed and Japanese knotweed. Since the Act was passed, several provisions have been replaced or repealed by subsequent environmental legislation, most predominantly the Waste (England and Wales) Regulations 2011.

The Act established the definition of controlled waste as being a waste that requires regulation. The Controlled Waste (England and Wales) Regulations 2012 then further classified controlled waste as household, industrial or commercial waste, and as a result further determined the meaning of controlled waste already established in the Act.

12.1.1 Waste Duty of Care (and Code of Practice) Covered below in section 12.2 for ease. Also, the permits covering the management of waste are covered in chapter 13.

12.2 The Waste (England and Wales) Regulations 2011 (as amended) The main relevant provisions include:

- The introduction of a two-tier system for waste carrier and broker registration and that waste is only collected or moved by registered waste carriers,
- That waste collections must covered by a valid document - a waste transfer document for non-hazardous waste and a consignment note for hazardous waste,
- Confirmation that the waste management hierarchy has been applied must be included on any waste transfer or consignment note,
- Makes amendments to hazardous waste controls,
- Excludes some categories of waste from waste controls,
- Requirements for the separate collection of waste paper, metal, plastic and glass,
- That waste must be stored correctly i.e. it must be properly contained,
- Records i.e. transfers of waste are kept for at least two years (non-hazardous) or 3 years (hazardous),
- That waste is only taken to an authorised facility that has the necessary waste management.

KEY RESOURCES:
Environmental management: Waste: detailed information provides detailed information, guidance and application links for licences, permits and exemptions - *www.gov.uk*

DUTY

12.2.1 Waste Duty of Care (and Code of Practice) An IDB has a duty of care under the Environmental Protection Act to provide safe management of controlled waste to protect human health and the environment, in line with the Waste Duty of Care Code of Practice. Failure to comply with the duty of care and code of practice is an offence with no upper limit on the courts' power to fine. The main requirements of the Code of Practice include:

- Keep waste to a minimum following the waste hierarchy,
- Sort and store waste safely and securely,
- Complete a waste transfer note / consignment note for each load of waste that leaves your control,
- Check if the chosen waste carrier is registered to dispose of waste,
- Not allowing the waste carrier to dispose of the waste illegally.

KEY RESOURCES:

Statutory guidance: Waste duty of care code of practice sets out how an IDB can achieve compliance along with some helpful waste definitions - *www.gov.uk*

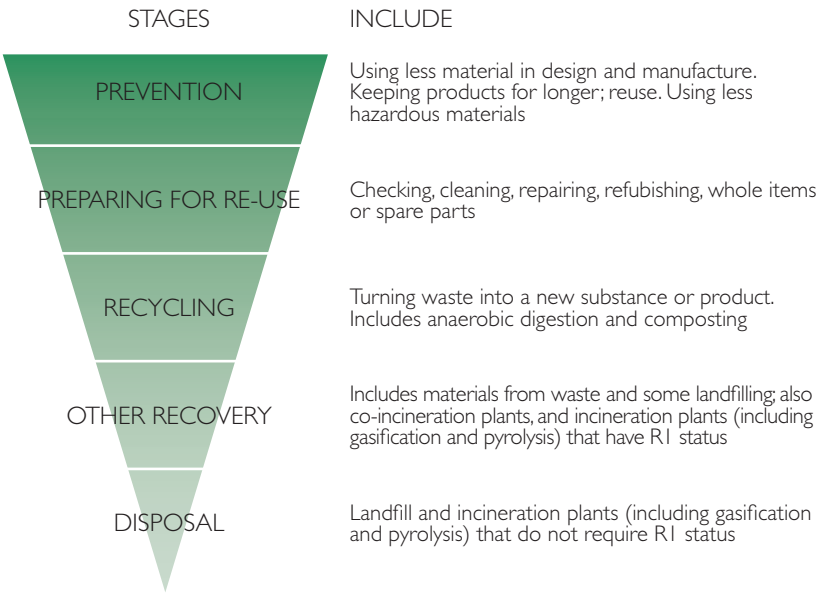
Duty of Care flowchart provides a helpful visual summary of the key elements of the code of practice - *www.360environmental.co.uk*

12.2.2 Waste Management Hierarchy The hierarchy sets out, in order of priority, the waste management options that should be considered:

- Prevention,
- Preparing for re-use,
- Recycling,
- Recovery, e.g. energy recovery,
- Disposal.

Whenever waste is passed on to someone else, a declaration has to be made on the waste transfer note, or consignment note for hazardous waste, that the waste hierarchy has been considered.

The Waste Management Hierarchy



DUTY

12.2.3 Waste Classification It is the IDB's responsibility to classify its waste correctly in order to be compliant in its management under the waste duty of care. Types of waste and their codes are defined in the retained List of Waste Decision (2000/532/EC). Waste must be classified:

- Before it is collected, disposed of or recovered,
- To identify the controls that apply to the movement of the waste,
- To complete waste transfer & consignment notes,
- To identify suitably authorised waste management options,
- To prevent harm to people and the environment.

Waste classification will help to identify a suitable waste contractor who is able to deal with waste of this classification. It will also help to identify if there is a compliant means of the IDB disposing of the waste themselves, i.e. by burning or spreading under a permit or exemption.

There is a protocol for classifying mixed waste (see the technical waste classification guidance), but where technically and economically feasible, mixed waste should be separated into single waste classifications.

KEY RESOURCES:
Classify different types of waste should provide all the information required to assist an IDB to classify its waste, including waste codes - *www.gov.uk*

Waste classification technical guidance provides more in-depth information around waste classification including waste codes- *www.gov.uk*

12.2.4 Storing and Sorting Waste
See section 13 for more detailed information.

DUTY

12.2.5 Sending Waste to Landfill It is an IDB's responsibility to identify a suitable registered waste contractor who is able to collect the waste from the IDB's secure site or remove it from where it was produced, directly to a permitted facility. It is the IDB's ultimate responsibility (under the waste duty of care) for ensuring that the waste is carried and disposed of compliantly and the IDB could be held liable for an offence if it is later found to be unlawfully handled and disposed of. A register of authorised, licenced waste carriers, operated by the Regulator (the Environment Agency) is available online. Only carriers with an Upper Tier Registration are able to transfer waste on behalf of others.

DUTY

12.2.6 IDBs as Waste Carriers It may not be possible or desirable sometimes for dredgings from the channel or vegetation cuttings to be deposited on the banks or adjacent land. If the IDB intends to transfer this or any other waste, such as cuttings, rubble, non-hazardous litter etc., to another location for collection by a registered waste carrier, the IDB will need to be registered themselves as a lower tier waste carrier. A link to more details and an application to become a waste carrier is provided below.

KEY RESOURCES:
Register or renew as a waste carrier, broker or dealer allows access to more information about becoming a waste carrier, and how to apply - *www.gov.uk*

Register of waste carriers, brokers and dealers allows a user to check whether a

waste carrier is lawfully registered, available online through an internet search.

Dispose of waste to landfill provides more information about sending waste to landfill - *www.gov.uk*

DUTY

12.2.7 Waste Transfer Notes When an IDB needs to dispose of waste that they have classified to be non-hazardous waste via a registered waste carrier, it is the IDB's duty to ensure that a waste transfer note has been completed correctly, with all the necessary details. As a minimum, this must include:

- Description of the waste, waste classification code, how it is contained and the volume,
- Details of the transferor (IDB),
- Details of any associated environmental permits, exemptions & licences of the transferor,
- Details of the transferee i.e. person / business collecting the waste including their registration details, permits, exemptions and licences,
- Transfer collection location details,
- Signatures of the transferor and the transferee,
- Confirmation that the transferor has applied the waste hierarchy.

A competent local waste contractor should be able to assist the IDB in ensuring that all the requirements in terms of the waste regulations are met for the transfer of waste. However, it is the IDB's ultimate responsibility (under the waste duty of care) for ensuring that the waste is carried and disposed of compliantly and could be held liable for an offence if it is later found to be unlawfully handled and disposed of.

A season ticket or annual waste transfer note can be used to cover multiple transfers of non-hazardous waste over a period of up to a year. More information on this option is available online as detailed below.

For dealing with hazardous waste, see section 13.9.

KEY RESOURCES:
Duty of care waste transfer note form is a downloadable and printable template available from *www.gov.uk*

13 ENVIRONMENTAL PERMITS (Waste & Flood Risk Activities)

13 ENVIRONMENTAL PERMITS (WASTE & FLOOD RISK ACTIVITIES)

13.1 Environmental Permitting Regulations 2016 (EPR)

The Regulations are the principle definition source of environmental pollution offences and aim to consolidate and streamline some more complex legislation around the same subject, and particularly concerning water and waste. They have been amended, expanded and updated a number of times. The aim of the Regulations is to protect the environment and human health through regulating activities, called "regulated facilities" which carry a risk of causing pollution.

The principal offences under the EPR are:

- Undertaking a regulated activity without a permit,
- Causing or knowingly permitting a water discharge activity or groundwater activity without a permit,
- Failing to comply with a permit or exemption condition, flood risk activity emergency works notice, flood risk remediation notice or an enforcement-related notice.

Flood risk activity, water discharge activity and waste operations are activities covered by the EPR which are relevant to IDBs. There are a range of regulatory options available covering these activities which include:

- A bespoke environmental permit,
- A standard rules environmental permit,
- An exemption from the need for a permit,
- Compliance with a standard set of rules or "regulatory position statement" (RPS).

There are fees associated with permit applications and the subsistence of permits once they have been issued.

The Environment Agency is the regulatory body for these activities in England and is responsible for issuing permits, registering exemptions and enforcement. EPR penalties can be severe - a person tried and convicted in a Magistrates Court could be fined any amount and/or sentenced to up to twelve months imprisonment. For more serious offences tried and convicted in a Crown Court, a person could face an unlimited fine and/or be sentenced to up to five years imprisonment.

Some common activities undertaken by IDBs which fall under the EPR are detailed in sections below and include waste management and flood risk activities, along with the associated exemptions and permit information. The information presented is a high level summary only. It is not intended that the information presented is a definitive guide and the IDB must check its individual circumstances in every case against more detailed information available. Where any doubt exists, the IDB is advised to refer to the guidance available on *www.gov.uk* or contact the Environment Agency for clarification.

KEY RESOURCES:
Check if you need an environmental permit details of all available environmental permits, exemptions and exclusions - *www.gov.uk*

13.2 **Environmental Permitting Regulations** It is an IDB's responsibility to determine which of its activities require an environmental permit or an exemption, to abide by the conditions of them and to ensure that the permits are reviewed and renewed. Environmental Permitting is a complex area so the IDB may need to seek outside expertise to ensure that it remains compliant, particularly as all watercourses and sites are unique and have different factors which affect them. The predominant activities undertaken by IDBs which are subject to regulatory position statements, exemptions and permits focus on the management of waste, including dredged sediments and plant matter, vegetation cuttings, litter, fly-tipped and hazardous waste and flood risk activities.

DUTY

It is necessary for an IDB to ensure that, where permits or exemption etc. are granted, the relevant IDB staff or contractors are technically competent to undertake their activity in compliance with the conditions of the associated permits. To obtain an environmental permit for a waste activity, the IDB must be able to demonstrate the means by which that technical competence is assessed and maintained.

Where an IDB is applying for, or holds a standard rules permit or bespoke permit, and in some cases for a registered exemption also, it must have written records, as part of an Environmental Management System (EMS), in place and keep them for up to 6 years or until a permit is surrendered. This is to demonstrate that the IDB has identified and assessed the risks that its operations pose to the environment and the actions the IDB will take to avoid or minimise those risks, including having an emergency environmental incident plan. The IDB should have up-to-date computerised risk assessments, work plans and handling records for all EPR relevant activities in line with the conditions set out in each permit or exemption. Some guidance on developing an EMS is provided in section 2.11.

13.3 **Legal Operator & Competence Requirements** The guidance and duties set out in relation to EPR are relevant whether the IDB undertakes its activities using its own staff or contractors, as it is the IDB who produces and controls the waste, so the IDB is responsible for the management of it. An IDB must also check their status in terms of the Legal Operator and Competence requirements when undertaking Public Sector Co-operation Agreement activities to ensure that the correct party holds the necessary exemptions and permits for the work.

DUTY

KEY RESOURCES:

Environmental permits: detailed information provides guidance, detailed information and application links to all environmental permits - *www.gov.uk*

Develop a management system: environmental permits - *www.gov.uk*

Legal operator and competence requirements - *www.gov.uk*

13.4 **Bulk & Linear Networks Permit & Exemptions** Many of the EPR permits and exemptions require the location of the activity to be provided as a postcode or grid reference. However it also recognises that this may not be possible where an activity continues across some distance. This is particularly relevant to many IDB operations which take place along the length of a channel such as dredging and weed cutting. The EPR therefore allows that certain permits and exemptions can be registered as linear or bulk types. Registration for these eligible permits and exemptions has to be done via a separate form rather than via the usual on-line application, and requires a map to be provided which outlines the area within which the activity will be taking place. For IDBs, this is likely to be a map of the IDB district and its channels or a part of it. Permits and exemptions which can be registered in this way are detailed within the registration document and include, for example, the D1 exemption.

DUTY

KEY RESOURCES:

Waste exemptions: bulk and linear networks registration provides access to the form an IDB is required to complete when registering certain permits and exemptions as linear types - *www.gov.uk*

The meaning of "place" under the new waste exemption system provides more details on the definition of place (i.e. linear networks such as IDB channels) for environmental permits and exemptions - *www.gov.uk*

13.5 **Flood Risk Activity Permits, Exemptions & RPS** Regulated flood risk activities, i.e. those which are covered by the Environmental Permitting Regulations include the following:

- Erecting any temporary or permanent structure in, over or under a main river, such as a culvert, outfall, weir, dam, pipe crossing, erosion protection, scaffolding or bridge,
- Altering, repairing or maintaining any temporary or permanent structure in, over or under a main river, where the work could affect the flow of water in the river or affect any drainage work,
- Building or altering any permanent or temporary structure designed to contain or divert flood waters from a main river,
- Dredging, raising or removing any material from a main river, including when you are intending to improve flow in the river or use the materials removed,
- Diverting or impounding the flow of water or changing the level of water in a main river,
- Quarrying or excavation within 16 metres of any main river, flood defence (including a remote defence) or culvert,
- Any activity within 8 metres of the bank of a main river, or 16 metres if it is a tidal main river,
- Any activity within 8 metres of any flood defence structure or culvert on a main river, or 16 metres on a tidal river,
- Any activity within 16 metres of a sea defence structure,
- Activities carried out on the floodplain of a main river, more than 8 metres.

Environmental permits and exemptions for regulated flood risk activity relate to main rivers rather than IDB channels or ordinary watercourses. Any flood risk activities on ordinary watercourses within an IDB district are managed by the Lead Local Flood Authority. Those undertaken on IDB channels are covered by the IDB's consenting process. Many of these permits and exemptions are particularly relevant for works undertaken on behalf of the Environment Agency under a Public Sector Co-operation Agreement (see 13.11)

Where the IDB is undertaking works, for example new constructions or refurbishments on or near to a main river (but not under a Public Sector Co-operation Agreement), the IDB may need to register for an exemption or a permit and adhere to the conditions defined within each.

DUTY

13.5.1 **Permitted Flood Risk Activities** Some flood risk activities which relate to works carried out on or near to a main river, are excluded from needing an exemption or a permit where certain conditions can be met. An IDB will need to demonstrate that they have considered and identified which activities they undertake are covered by an excluded flood risk activity condition, and record the steps they have taken to comply with the conditions as part of the IDB's Best Practice Operations Manual and environmental management system (see 2.11). Some of the key activities include the following:

13.5.2 Emergency Works One of the permitted Flood Risk Activities provides a

defence for carrying out an activity without a permit or exemption etc. when the activity was undertaken in an emergency. The term "emergency" is defined as: an occurrence which presents a risk of serious flooding, serious detrimental impact on drainage and/or serious harm to the environment. It excludes "pre-planned emergency activity" meaning any activity which has been planned in response to an emergency before it occurs. It is still required that all reasonable practicable steps to minimise pollution are taken. The details of the activity must be provided to the Environment Agency soon as reasonably practicable after they were done, along with the circumstances in which the activities were carried out.

Emergency works should not be confused with 'urgent' works identified in a broader FCRM programme or strategy on the basis of risk arising from actual or anticipated asset deterioration".

Where the conditions set out in the excluded activities' details, the IDB is able to undertake emergency works without a permit or risk of committing an offence.

KEY RESOURCES:
Excluded flood risk activities detail the activities which do not require an exemption to be registered or permit but still require conditions for each activity to be met - *www.gov.uk*

DUTY

13.5.3 **Flood Risk Activity Exemptions** Some common flood risk activities relating to works on or near to a main river would require an IDB to register for an exemption and comply with set conditions. The exemption would have to be registered prior to any work commencing. An IDB will need to demonstrate that they have considered and identified which activities they undertake are covered by an exemption, and record the steps they have taken to comply with the conditions as part of the IDB's Best Practice Operations Manual and environmental management system (see section 2.11). Rules around impacts upon protected species would also still have to be followed (see chapter 8). Where the conditions of the exemption cannot be met, the IDB must consider a flood risk permit or bespoke permit instead.

Some flood risk activity exemptions which may be applicable to IDB work include:

- Temporary scaffolding in or over a main river for no more than 4 weeks (FRA6),
- Temporary dewatering of a work area for no more than 4 weeks (FRA7),
- Maintaining a raised river defence or sea defence (FRA8),
- Constructing a single small access platform on the bank of a river or that projects into or over a main river (FRA11),
- Outfall pipes less than 300mm diameter through a headwall (FRA12),
- Repairing and protecting up to 10m of main river banks using natural materials (FRA13),
- Repairing bank slips and erosion using the fallen materials (FRA14),
- Removing silt and sand from bridge arches and any material from existing culverts (FRA21),
- Dredging to remove accumulated silt and sand from the bed of up to 1.5km of man-made ditches, land drains, agricultural drains and previously straightened watercourses that are main rivers (FRA23),
- Dredging to remove accumulated silt and sand from the bed of up to 20m of a main river (FRA24).

KEY RESOURCES:
Exempt flood risk activities: environmental permits provides details and application links to all flood risk activity exemptions - *www.gov.uk*

Dredging as a flood risk activity under the Environmental Permitting Regulations is a guide available online to aid compliance with the EPR around dredging main rivers - *www.gov.uk*

DUTY

13.5.4 Flood Risk Activity Standard Rules Permit An IDB can apply for a Standard Rules Permit to undertake certain activities on or near to a main river where they comply with a standard set of rules. Standard Rules Permits must be secured prior to any work commencing. The Environment Agency has undertaken a generic risk assessment for these activities, so the IDB would not have to generate a risk assessment provided they abide by the conditions set out within the permit. An IDB will need to demonstrate that they have considered and identified which activities they undertake are covered by a Flood Risk Activity Standard Rules Permit, and record the steps they have taken to comply with the rules as part of the IDB's Best Practice Operations Manual and environmental management system (see section 2.11). Rules around impacts upon protected species would also still have to be followed (see chapter 8). Where the conditions of the exemption cannot be met, the IDB must consider a bespoke permit instead.

There are charges for making a standard rules application.

Some Standard Permits applicable to IDBs may include:

- SR2015 No 26: temporary dewatering affecting up to 20 metres of a main river,
- SR2015 No 27: constructing an outfall pipe up to 500mm diameter through a headwall into a main river,
- SR2015 No 29: temporary storage on a flood plain of a main river,
- SR2015 No 33: repairing and protecting up to 20 metres of main river bank,
- SR2015 No 34: temporary scaffolding affecting up to 20 metres of a main river,
- SR2015 No 35: excavating a wetland or pond in a main river floodplain,
- SR2015 No 38: removing 100 metres of exposed gravel from bars and shoals.

KEY RESOURCES:
Standard rules: environmental permitting provides further information on flood risk activity standard permits and links to apply - *www.gov.uk*

13.6 Groundwater Activity Exemptions & Permits For normal operations which convey accumulations of natural non-contaminated rainwater which would have otherwise been groundwater, an IDB is unlikely to require any exemptions or permits. However, the following resources will help an IDB to identify any activity which may require a permit. It is an IDB's responsibility to determine which of its activities are regulated and therefore need an environmental permit. The Environment Agency should be contacted to provide clarification and advice where there is any uncertainty.

KEY RESOURCES:
Discharges to surface water and groundwater: environmental permits, offers general advice around how surface water and groundwater is regulated - *www.gov.uk*

Water discharge and groundwater activity environmental permits provides details of all the relevant ground and surface water permits - *www.gov.uk*

The Environment Agency's approach to groundwater protection provides detailed information around how the Environment Agency regulates activities which impact groundwater - *www.gov.uk*

13.7 Waste Permits, Exemptions & RPS


DUTY

13.7.1 Waste Regulatory Position Statements (RPS) An RPS covers activities that are unlikely to cause pollution and therefore no permit or exemption is required, providing the activity or waste is managed or undertaken in line with the criteria and conditions within the RPS. An IDB will need to demonstrate that they have considered and identified which activities they undertake are covered by an RPS and record the steps they have taken to comply with the conditions as part of the IDB's Best Practice Operations Manual and environmental management system (see 2.11).

RPS relevant to IDBs include:

- RPS 60: Storing fly-tipped waste and waste from trash screens and litter bins - The criteria include not storing more than 20 cubic metres, ensuring that the matter does not cause a nuisance through the emission of bad smells and the limit of 6 months for storage. Where the RPS conditions cannot be met, the IDB must arrange for collection and disposal by a registered waste contractor.
- RPS 55: Dewatering and depositing silts from sustainable drainage systems (SUDS) on land,
- RPS 168: Temporary storage of waste sandbags after a flood,
- RPS 235: Treating and using water that contains concrete and silt at construction sites,
- Waste management: regulation of trials of new waste management techniques,
- Rainwater harvesting: regulatory position statement,
- Temporary dewatering from excavations to surface water.


KEY RESOURCES:
Environmental permits: regulatory position statements details all RPS available - *www.gov.uk*


DUTY

13.7.2 Waste Exemptions Exemptions cover activities involving the use, storage, treatment or disposal of waste. There are 2 types of exemptions - those which do not require registration but still require an operator to work within its terms and conditions, called NWFD (Non-waste Framework Directive) exemptions, and those which require an operator to register to work within its terms and conditions.

It is (in most cases) free for an IDB to register for a waste exemption and registration lasts for 3 years. Exemptions can then be renewed if required.

Waste exemption types:

- Using waste (exemptions U1 to U16) - These cover operations such as using waste in construction, spreading waste materials on the land, and burning of waste as fuel,

- Disposing of waste (exemptions D1 to D8) - These cover operations such as

depositing sanitary waste, agricultural waste and spoil from dredging inland waters, and burning specific waste in an incinerator or in the open,

- Treating waste (exemptions T1 to T33) - These cover operations such as preparing, recovering, sorting and treating certain waste materials, such as waste wood and plant matter,

- Storing waste (exemptions S1 to S3) - These cover storing certain waste materials in secure containers or at secure sites and the storage of sludge.

Some exemptions which may be applicable to IDBs include (but are not limited to):

- NWFD 3 waste exemption: Temporary storage of waste at a place controlled by the producer - Cuttings and dredged spoil removed from IDB channels and banks will most likely be classed as waste type 020103 plant-tissue waste or 170506 dredging spoil not containing dangerous substances. However it is an IDB's responsibility to accurately classify each separate batch of waste (see 12.2.3). IDBs are classed as a producer of this type of waste, as it is a waste that has been generated during the course of their activities. As such, waste of this type can be stored securely and temporarily under this exemption, which does not require registration, providing certain conditions are met. Conditions include that wastes of different types must be stored separately and for a limited time. In practical terms, an IDB would have to de-water the material as far as practicable before removing to the place of storage, and separate and store any other waste materials or litter which has been removed from spoil separately pending collection by a registered waste contractor/carrier. Where the conditions cannot be met, the IDB must arrange for collection and disposal by a registered waste contractor.

- S1 waste exemption: Store waste in secure containers (waste oils & debris) - An IDB can register for an exemption to store certain items for RECOVERY including up to 3 cubic metres of waste oil and a certain volume of plastic containers, in a secure manner at its facility, provided it meets with the criteria of the exemption. Criteria include the screening and sorting of waste into separate types for its recovery. Materials which are to be disposed i.e. burned or sent to landfill are not covered by this exemption. If the items being stored were dumped or "fly-tipped" and are destined for disposal to landfill because they are not recoverable, then the storage of such materials is lawful under the RPS60. It is an IDB's responsibility to accurately classify each separate batch of waste (see 12.2.3) to ensure it meets the criteria for exemption and the waste duty of care. Where the conditions cannot be met, the IDB must arrange for collection and disposal by a registered waste contractor.

- S2 waste exemption: Storing waste in a secure place - An IDB can register for an exemption to securely store certain items for RECOVERY in "a secure place" including plastic, scrap metal, wood and tyres in varying volumes, provided it meets with the criteria of the exemption. The criteria include that the materials must be intended for recovery, not disposal i.e. not burned or sent to landfill. Screening and sorting of waste into separate types for its recovery is required, and it must not be stored for longer than the indicated period. It is an IDB's responsibility to accurately classify each separate batch of waste (see 12.2.3) to ensure it meets the criteria for exemption and the waste duty of care. Where the conditions cannot be met, the IDB must arrange for collection and disposal

of the waste instead by a registered waste contractor.

- D1 waste exemption: Depositing dredgings from inland waters - Conditions of the exemption include that the dredging spoil must not be hazardous and that it must be deposited at the closest possible point to the location of the dredging. This can be either on the bank of the channel it was removed from, or the land immediately adjoining the channel. The 'closest possible point' definition takes into account that there may be obstructions at the point of removal which prevent deposition, including buildings, roads, woodland etc. so allows for the dredgings to be deposited at the closest possible appropriate point upstream or downstream on the bank, or adjoining land of the same watercourse.

  Once the dredgings have been deposited, the IDB must "screen" the deposits for large items such as litter and fly-tipped waste. These items must be removed as they are classed as another type of waste and must be dealt with separately.

  Once the dredgings have been screened and de-watered (through gravity drainage as a natural process), they can then be spread from where they are deposited onto adjoining land, within one mechanical movement.

  The volume of spoil deposited must not exceed 50m3 per 1m of watercourse dredged every 12 months.

  Where the conditions of the D1 exemption cannot be met, the IDB must arrange for collection and disposal of the waste instead by a registered waste contractor.

- U13 waste exemption: Spreading plant matter to provide benefits - This exemption applies to cut grass, bank side and bank top vegetation, and enables the cuttings to be left in-situ, in order to supress weeds, where particular conditions are met, including limits on the volumes spread in any one place in one year. Where the conditions of the U13 waste exemption cannot be met, the IDB must arrange for collection and disposal of the waste instead by a registered waste contractor.

- Cutting vegetation in inland freshwater: Environmental permit exemption - Where it is the intention that vegetation cuttings are not removed from the channel and are allowed to be carried downstream, it is classed as a water discharge activity and the IDB will require a specific exemption and will have to comply with some strict conditions. The exemption aims to minimise the risk of deoxygenation (see section 5.2) and requires that strong consideration should be made of the risks that the vegetation could accumulate further downstream. This could block culverts, weirs and other structures in the channel, which could result in flooding. Consideration must be made of how those, with interests further downstream, could be affected such as wildlife sites or fisheries and how they should be notified. Where the vegetation cutting conditions cannot be met, the IDB must arrange for collection and disposal of the waste instead by a registered waste contractor.

  Ideally, to avoid the potential risk of environmental damage associated with vegetation cuttings remaining within the watercourses, particularly shallow and slow-flowing IDB channels, they must be removed promptly. Weed control should be avoided in warm weather or during low flows, even when

the material is going to be removed, because inevitably some matter will be dislodged and remain in the water and this can create environmental problems as set out above. It is an operator's responsibility to determine if flows are low and temperatures are unsuitable. It would be prudent for IDBs to provide formal guidance to operatives and make a record of that provision to ensure compliance.

- D7 waste exemption: Burning vegetation waste in the open - The exemption covers the burning on-site, in the open air, of plant tissue such as those removed from cutting bank vegetation, shrubs and trees, providing a number of conditions are met. It is an IDB's responsibility to accurately classify each separate batch of waste (see 12.2.3) to ensure it is covered by this exemption. Where the D7 waste exemption conditions cannot be met, the IDB must arrange for collection and disposal of the waste instead by a registered waste contractor.

- T23 waste exemption: aerobic composting and associated prior treatment - Vegetation cuttings from IDB watercourses and banks can be classified as either 170506 plant tissue waste from inland waters only or 020103 plant-tissue waste. The IDB has the opportunity to compost such waste under this exemption at a particular site for later land spreading, providing some criteria are met. Criteria include screening for suitability and storing up to sixty tonnes of vegetation in any one location away from the area it was produced. An IDB would need to consider the risk of the material containing hazardous substances as part of the screening process (see section 13.9.5) and where hazardous materials or substances were evident or suspected then the exemption could not be used. The screening process must take place within one month of the deposition at the composting site. Such waste would be beneficial to local agricultural businesses as a source of organic matter for addition to soils. It would be prudent for an IDB to confirm a suitable receiver site for such compost prior to undertaking this activity.

- U10 waste exemption: Spreading waste to benefit agricultural land - Where it is the IDB who will be spreading the waste, it is the IDB who must register for the exemption. If it is the landowner then they must register for the exemption themselves.

  An IDB should be aware of the potential risk of hazardous substances being present within dredged spoil and should familiarise themselves with their responsibilities relating to hazardous waste and land spreading, as set out in section 13.9.3, before considering any land spreading approaches.

  The conditions of this exemption require that the waste being spread is beneficial in terms of improving or maintaining the physical, chemical and biological properties of the soil to grow crops. Dredged spoil is likely to contain silts and organic matter, both of which are beneficial to maintaining and improving a growing medium, and can be used in place of other organic matter additions the landowner had planned to use, or other soil to level land. Consideration has to be given to the nutrient content of the spoil and the implication for Nitrate Vulnerable Zone rules in some areas for the landowner.

  Other conditions include an annual application limit of 150 tonnes of spoil per hectare. Care must be taken to calculate the volumes being spread in order to comply with the exemption. In reality 150 tonnes per hectare is less than seven

22-tonne (8-wheel) truck loads, and there is a possibility that the volume of dredged material an IDB needs to dispose of exceeds the volume which can be spread under this exemption, apart from small regularly dredged watercourses. Where the volume limit is expected to be exceeded, a standard rules permit can be applied for. Where the U10 waste exemption conditions cannot be met, the IDB must arrange for collection and disposal of the waste instead by a registered waste contractor.

- U11 waste exemption: spreading waste on non-agricultural land - As for U10 except the land is non-agricultural.

- U1 waste exemption: use of waste in construction - IDBs can use 5,000 tonnes of waste type 170506 "Dredging spoil not containing hazardous substances" specifically for drainage works, in one place (or 500 tonnes per linear mile per year) under this exemption. Otherwise only 1000 tonnes in any one place (or 100 tonnes per linear mile per annum) can be used in other construction. It would be prudent for an IDB to consider and confirm the use or receptor of such waste prior to taking this approach to managing dredging spoil. Where the conditions of the U1 waste exemption cannot be met, the IDB must arrange for collection and disposal of the waste instead by a registered waste contractor.

KEY RESOURCES:
Register or renew waste exemptions (England) provides details on waste exemptions and how to register to use them - *www.gov.uk*

Depositing dredged waste on land provides specific guidance around the spreading of dredged spoil to land - *www.gov.uk*

DUTY

13.7.3 **Waste Standard Rules Permit** Some waste management activities can be carried out compliantly by following a set of specific rules as part of a standard rules permit. An application for a standard rules permit is required when certain conditions and criteria can be met. Some standard rules permits which may be applicable to IDBs include (but are not limited to):

- SR2021 Composting (various) - Vegetation cuttings and dredged spoil from IDB watercourses and banks can be classified as either 170506 dredging spoil or 020103 plant-tissue waste. Where the criteria of the T23 exemption cannot be met, perhaps in terms of volumes of matter, there are several standard rules permits which allow dredged matter to be composted where the conditions set out within it can be met.

- SR2010 No 4 & 5: Mobile plant for land-spreading & treatment - Allows for the spreading of dredged waste of more than 150 tonnes per hectare up to 5,000 tonnes per hectare. There are a number of strict conditions which must be adhered to as part of the permit, including data recording and deployment forms, which must be submitted to the Environment Agency and approved prior to works commencing.

- Standard rules SR2010No18 Storage and treatment of dredgings for recovery

KEY RESOURCES:
Standard rules: environmental permitting provides further information on waste standard permits and links to apply - *www.gov.uk*

How to comply with your landspreading permit provides useful guidance around how to meet the requirements of a standard landspreading permit - *www.gov.uk*

13.8 Bespoke Environmental Permits Where a waste management or flood risk activity does not meet any of the criteria and conditions set out in any of the above (RPS, exemption or standard rules permits), then an application for a bespoke environmental permit must be submitted. Reasons for not being able to meet the criteria of RPS, exemption or standard rules permits include; exceeding the permitted waste volumes, needing to dispose of a non-included waste type, requiring an unpermitted activity to take place within or near to a main river, or requiring activity to take place in a non-permitted location, such as within 200m from a SSSI or Special Protection Area. An IDB is advised to adapt its approach to comply with an RPS, standard rules or exemption where possible, as bespoke permits are complex, costly and time consuming in terms of application and annual subsistence. Specialist advice will be needed to help the IDB apply and develop the management plans required.

DUTY

KEY RESOURCES:
Environmental permit application form: new bespoke permit sets out the details to be submitted as part of a bespoke permit application - *www.gov.uk*

13.9 Hazardous & Contaminated Waste

13.9.1 Hazardous Waste (England and Wales) Regulations 2005 (as amended) These Regulations make provision for the controlled management of hazardous waste from the point of production to the final point of disposal or recovery. Hazardous waste includes any item or substance, or any material or substances it contains, which are harmful to humans or the environment. The retained List of Waste Decision (2000/532/EC) identifies wastes that are either absolute hazardous (shown with a *) or hazardous when containing hazardous contaminants over a certain concentration threshold, which are identified by the duplication of an entry description (i.e. 170505 dredging spoil containing hazardous substances and 170506 dredging spoil other than those mentioned in 170505).

DUTY

13.9.2 Hazardous & Contaminated Waste The same protocols must be applied to hazardous waste as are applied to all other controlled waste as set out in section 12.2 and include adherence to the waste management code of practice and application of the waste management hierarchy. The main additional requirements are that a hazardous waste consignment note is required instead of a waste transfer note, and there are a different range of environmental permits required to transport store, sort and dispose of hazardous waste.

An IDB will need to demonstrate that they have considered and identified which activities they undertake that may be related to the management of hazardous waste, and record the steps they will take to comply with any permits and exemptions applicable to hazardous waste as part of the IDB's Best Practice Operations Manual and environmental management system (see 2.11).

An IDB has a duty of care to ensure that any hazardous waste it produces or handles causes no harm or damage to the environment or health. Hazardous waste in an IDB context could include animal carcasses, fly-tipped (illegally deposited) household or business waste. It is the IDB's responsibility to correctly classify waste that it controls (see 12.2.3).

Large litter, fly-tipped and hazardous waste must be removed from watercourses and dredged spoil and then stored, collected and disposed of separately and compliantly. An IDB may produce and handle other hazardous waste in the form of herbicide containers, washings from herbicide containers and application equipment, fuels, hydraulic oils and other oils. Some hazardous wastes can be treated on-site to render them non-hazardous, such as triple rinsing pesticide containers which can then enable their disposal via landfill. An IDB has a responsibility to ensure that it has the correct exemptions and permits in place to enable the IDB to manage such waste in a lawful way, including licenses to transport the waste as a waste carrier and to store it. It should ensure that operators are trained in handling such waste, including the required personal protective equipment (PPE) and record keeping to prevent harm being brought to the environment or health. There are severe penalties, including fines and imprisonment, for pollution and environmental damage caused by the failure to properly manage such materials and wastes.

DUTY

13.9.3 **Contaminated Dredgings & Testing** An IDB must demonstrate that it has carefully considered whether any dredging spoil is likely to contain any contaminants and dangerous or hazardous substances which would be detrimental to the environment, food production or human health, particularly if it plans to deposit or spread it on adjacent banks or land.

It should be clear to the IDB whether, for instance, their drains have any connection to land occupied by a hazardous waste producer with a risk of such waste entering the watercourses, both currently and historically. This may be a greater consideration for drains which pass through towns, cities and current or former industrial areas than it is for rural areas. However, rural areas present their own risks for consideration too. Plant pathogens or animal diseases could be contained within the spoil from known local sites with connections to the watercourses, which would pose a risk to crops or livestock.

The illegal disposal of litter, household and business waste, or fly tipping, is relevant to all IDBs and it could indicate that potentially harmful chemicals could be present within the watercourse and its substrate. Fridges are one common example of illegally disposed waste found in watercourses which may contain hazardous substances. Where it is expected that the dredged spoil may contain such harmful substances, it must be tested by the IDB using a registered MCERTS (Monitoring Certification Scheme) testing facility. The results will indicate the most appropriate means of disposal.

KEY RESOURCES:
MCERTS: performance standard for laboratories undertaking chemical testing of soil provides more information on the testing of dredged waste - *www.gov.uk*

DUTY

13.9.4 **Hazardous Waste Consignment Notes** When hazardous waste is moved (i.e. collected from an IDB-controlled site by a registered hazardous waste collector), it must be accompanied by a correctly completed consignment note. A consignment note is complex and has five mandatory parts (A to E). Each part must be filled out in order, by the right person, at the right time. In order for a consignment note to be classified as valid. It is recommended that the template provided online from *www.gov.uk* is used and it is checked carefully to ensure completeness.

13.9.5 Hazardous, Contaminated & Fly-tipped Waste - RPS, Exemptions and Permits RPS, permits and exemptions relevant to hazardous waste likely to be controlled by an IDB include:

- RPS 60: Storing fly-tipped waste and waste from trash screens and litter bins
- RPS 70 Disposal of felled diseased trees
- RPS 178 Disposing of INNS plant matter

KEY RESOURCES:

Hazardous waste consignment note provides a template consignment note which must be completed and accompany hazardous waste when moved from any premises - *www.gov.uk*

Hazardous waste sets out the process for dealing with hazardous waste compliantly - *www.gov.uk*

Find a local hazardous waste disposal service is an online search which enables a user to search for a hazardous waste disposal service by postcode - *www.gov.uk*

13.10 Fly-Tipped Waste Fly-tipped waste in watercourses presents particular hazards to flood risk and may indicate that potentially harmful chemicals could be present within the watercourse. Fridges are one common example of illegally disposed waste found in watercourses that may contain hazardous substances.

DUTY

13.10.1 Managing Fly-Tipped Waste Where waste has been tipped into, or on the banks of an IDB channel illegally, it is the landowners'/occupiers' responsibility for clearing and disposing of it. However, the IDB has a duty to maintain flood risk and water levels so, where fly-tipped waste is causing, or has the potential to cause an obstruction to conveyance and a potential flood risk, the IDB would not be compliant with its statutory duties if it did not take action to remediate the blockage. The preferable approach may be for the IDB to make an immediate request to the landowner to remove the fly-tipped waste within a specified timeframe, before it poses a blockage or contamination risk. The IDB must check that it has been removed and also be prepared to remove it themselves if it is not removed within the desired timeframe. If the IDB owns the land, then they become legally responsible for clearing and disposing of it. Local authorities are responsible for clearing waste from public land.

It is important to note that as soon as the IDB touches the fly-tipped waste, they legally become the waste controller so are responsible for disposing of the waste compliantly. If they were to remove the waste from the channel and deposit it on the riverbank for removal and disposal by the landowner / occupier, there is a risk that the IDB could itself be classed as a fly-tipper for not disposing the waste compliantly. The requisite waste carrier, storage and permits etc. will be required to manage the waste compliantly as set out in previous section. The IDB should ensure that operators are trained in handling such waste, including the required personal Protective Equipment (PPE) and record keeping to prevent harm being brought to the environment or health.

If there is evidence that hazardous substances from the fly-tipped waste have leached into the channel, or where it is suspected, then the protocols for environmental incidents may need to be followed (11.4). The IDB may also need to test the substrate prior to disturbing it during subsequent maintenance operations (see section 13.5.2).

13.10.2 Fly-tipped Waste - RPS, Exemptions and Permits RPS, permits and exemptions relevant to IDBs for managing fly-tipped waste may include (but are not limited to):

- RPS 60: Storing fly-tipped waste and waste from trash screens and litter bins


BEST PRACTICE

13.10.3 Reporting Fly-Tipping An IDB does not have enforcement powers with regards to fly-tipping as these rest with the appropriate local council or the Environment Agency. If the fly-tipping is causing a pollution incident, is of a larger scale or involves hazardous waste, then the Environment Agency should be informed at the earliest opportunity and any pollution contained. In the case of an abandoned vehicle, the Police should be informed. In all other fly-tipping incidents the waste should be reported to the relevant local council.

Councils may investigate such incidents where appropriate. In the event that a successful prosecution is brought, the council can apply for the court to order that clean-up costs be reimbursed to those parties involved.

Some local authorities provide landowners, and/or public authorities such as IDBs, with assistance such as reduced cost access to disposal/recycling facilities, subject to making an accurate report of the fly-tip. Section 15 (5) of the Land Drainage Act 1991 makes provision for such agreements and payments between IDBs and local authorities for the disposal by the council of any matter removed from a watercourse.

To support successful cases and prosecutions, the IDB is advised to familiarise themselves with the types of information required and evidence that can be gathered at the scene of deposition, to be reported. Most local authorities have on-line reporting systems which will at least request details regarding the type of waste, volumes and location, but much more information can be gathered, including photographic evidence, and anything which may identify the offender, such as receipts, bills, etc.

There may be a local fly-tipping strategy partnership in the IDB area. The IDB is encouraged to contact their local authority to learn of any such groups and engage with them where they do exist. There are many good examples of stakeholder collaborations supporting successful local initiatives to improve waste disposal knowledge, reduce and prevent fly-tipping, and make successful reports to improve enforcements and prosecutions.

KEY RESOURCES:

National Fly Tipping Prevention Group is a group of organisations working with a common aim to help prevent and tackle fly-tipping and offers many resources and case studies on-line which are relevant to IDBs - *www.tacklingflytipping.com*

Fly-tipping responsibilities: Guide for local authorities and land managers is a comprehensive guide available from the NFTPG website *www.tacklingflytipping.com*

Manage waste on land: guidance for land managers sets out how to deal with waste, including hazardous and fly-tipped waste, and prevent pollution - *www.gov.uk*

13.11 Public Sector Co-operation Agreements (PSCAs) Permits and Exemptions For work undertaken under a PSCA, the IDB will still need to consider what permits or exemptions need to be in hand prior to commencing work. For bulk work or linear work, it is likely that the Environment Agency will already hold the correct licences and permits under which the IDB can operate, but it is imperative that this arrangement is confirmed prior to any work commencing, and must be detailed within the PSCA agreement. For site specific exemptions and permits, such as the storage of debris removed from main rivers, the IDB


DUTY

will need to apply for a permit for the site where the waste is to be stored, unless it is going to be transferred to an already-registered Environment Agency site.

For some IDBs who undertake regular and/or large scale maintenance work for the Environment Agency under a PSCA, it may be more efficient for the IDB to include the Environment Agency main rivers in the linear registration form for permitted permits and exemptions.

14 CLIMATE & CARBON

14 CLIMATE & CARBON

Climate change is a huge challenge for flood risk and water level management, globally and in the UK. The average annual UK temperature is around 1.2°C warmer than the pre-industrial period. The UK Climate Projections (2018) predict that extreme hourly rainfall intensity will increase throughout the 21st Century, with increased average rainfall in winter and on average drier summers with more short lived high intensity showers. On the coast, the average UK sea level has risen by 16cm since 1900, and will continue to rise, increasing the risk of coastal flooding from storm surges and high tides. Consequently, flooding and coastal change risks sits at the top of the UK Climate Change Risk Assessment (2017).

When tackling climate change to prevent and reduce the impacts it causes globally, two types of measures are commonly referred to: mitigations that reduce greenhouse gas emissions and adaptation that reduces vulnerability to the impacts of climate change.

14.1 **Climate Change Act 2008** The Climate Change Act 2008 set out Britain's efforts to self-impose tougher, legally binding Greenhouse Gas (GHG) emission reductions, in an attempt to become a global leader in tackling climate change. It provided a legal duty for the Government to reduce GHGs by 80% below 1990 levels, by 2050 and to reduce carbon dioxide emissions by 26% by 2020. This represented the first legally binding climate change mitigation target set by a country. In 2019 the ambition was increased when the UK became the first developed nation to commit to at least a 100% reduction in GHG emissions compared to 1990 levels by 2050.

The Act also requires the Government to develop a series of five-yearly carbon budgets to define the pathway to emission reductions. These budgets set the maximum amount of GHGs which can be emitted in the UK over a five-year period. The current carbon budget runs until 2022.

The Committee on Climate Change (CCC) was established by the Act as an independent, expert body to advise the Government on appropriate carbon targets and budgets and climate change mitigation and adaptation. The Committee makes annual assessments and reports to Parliament regarding the progress made in reducing GHG emissions in line with carbon budgets.

A separate Adaption Committee within the CCC reports every two years on progress made in adapting to climate change. The Committee publishes the UK Climate Change Risk Assessment (CCRA) every five years which details the major risks and opportunities from climate change. One of the six main focus areas of the CCRA is flooding and coastal change. The CCRA informs the National Adaption Programme (NAP) which sets out how the Government will address those risks and opportunities. The current NAP runs from 2018 to 2023.

To help to better inform the CCRA and the NAP, the Act gave power to the Government to ask certain organisations such as infrastructure providers and public bodies to report on their preparedness for climate change. There are currently 89 organisations who are expected to submit reports under this Adaption Reporting Power (ARP) for the third round of reporting, including the Environment Agency.

14.2 **Climate Change Mitigation** Mitigation measures are aimed at reducing the volume of greenhouse gases emitted into the atmosphere either by reducing sources of these gases (e.g. fossil fuels), or enhancing the "sinks" that accumulate and store these gases, (such as the oceans, forests and soil).

When applying climate change mitigation measures, it is necessary to first calculate the current volume of emissions from different sources prior to any intervention being implemented, and then calculate the same, regularly, to assess the success of any interventions. This is called carbon accounting. Carbon calculators are a means of calculating an organisation or individuals' greenhouse gas emissions.

BEST PRACTICE

14.2.1 Carbon Accounting While reporting on greenhouse gas emissions is currently voluntary for public bodies such as IDBs, quantifying emissions will help an IDB understand what their key emission sources are, how an IDB contributes to global emissions, and what opportunities an IDB has to reduce its emissions. IDBs can then develop a carbon reduction plan, identifying ways to reduce its carbon footprint and limit emissions from future activities, and then measure what progress has been made each financial year.

Many IDBs undertake work on behalf of a local authority (LA) or the Environment Agency (EA) under a Public Sector Co-operation Agreement. It can be expected that in the near future, the EA and LAs will be seeking to obtain carbon emissions data from IDBs for such work, in order to help them more accurately report their carbon emissions as part of their statutory carbon emission reporting duty.

ADA has developed a carbon accounting guide for IDBs to use, with a freely available carbon calculator. It also provides a carbon reporting template. More detailed information is not presented here as it is available in the guide, available from *www.ada.org.uk*.

BEST PRACTICE

14.2.2 Emissions Reduction Targets While it is important to measure and report emissions, the aim should be to reduce absolute emissions as far as possible. This makes good financial sense as any reduction should be reflected in reduced energy costs and will minimise the operational impact on the environment and contribution to climate change.

Good practice is to set targets and put into place actions that help reduce emissions. Targets are often based on a reduction in emissions by a pre-determined percentage or reduction in the quantity of a specific fuel. Supporting such targets should be a series of specific, time-bound actions that will deliver the reductions. Factors to consider in setting such targets would be the cost benefits, resources available and operational practicality.

BEST PRACTICE

14.2.3 Carbon Reductions Approaches The Environment Agency's carbon footprint was 273,000 tCO_2e in 2019-20. Around half of that (46%) came from constructing flood defences. The next big chunk (13%) came from their vehicle fleet and travel, and 9% came from pumping water. Therefore it is reasonable to assume that plant machinery, vehicle use, and pumping will also be the most significant sources of direct GHG emissions for an IDB. Therefore, seeking to reduce emissions in these areas could result in the greatest reductions overall.

Guidance is still developing in this area but there are some "quick wins" and "no regrets" changes that an IDB can make to help lower their emissions in the meantime. Some of these are listed below.

14.2.3.1 Renewable Energy

- Purchase energy from renewable energy providers. More information on this is available in the Carbon Accounting Guide available from the ADA website, *www.ada.org.uk*,
- Replacement of diesel pumps with electric pumps,
- Install renewable energy generation infrastructure i.e. lowhead hydropower on weirs, photovoltaic (PV) panels on pumping stations or other buildings or small/medium wind turbines.

> Water management boards in Germany use flexible electricity tariffs and smart grids that trigger routine pumping when wind power is a more significant part of the country's electricity supply and electricity prices are cheaper.

14.2.3.2 Low-Carbon Materials

- Use of low carbon concrete,
- Use of natural materials such as coir rolls instead of engineered bank toe protection,
- Use of steel alternatives for water level management structures and construction.

14.2.3.3 Energy Efficiency

- Fit or retrofit variable speed drives to electric pumps,
- Greater use of gravity sluicing,
- Installation of more energy efficient pumps,
- More efficient channel maintenance programmes (i.e. implementing easement agreements, see section 6.6).

14.2.3.4 "Lower emissions" Vehicles, Fuel & Tools

- Replacing IDB's fleet with electric or other options where possible,
- Use of biofuels such as hydrogenated vegetable oil (HVO) in applicable vehicles,
- Replacement of diesel hand tools with electric options.

14.2.3.5 Sustainable Construction

- Use of the BREEAM assessment standards (or similar) for planning and managing a sustainable construction project.

14.2.3.6 Reducing Carbon Emissions from Management & Administration

- Installation of remote and telemetry technologies to reduce travel to sites,
- Reducing other business travel i.e. via attendance at meetings via on-line video conferencing.

14.2.3.7 General

- Use of natural flood management techniques (see section 5.4).

14.2.3.8 Green Procurement

(See section 2.12).

KEY RESOURCES:

Innovation is a quarterly magazine published by the Environment Agency which details case studies of projects which include carbon emission reduction approaches, available online from *Current Magazine - Environment Agency Partners Flood and Coastal Magazine* on Linkedin.

14.2.4 Carbon Offsetting Offsetting is a way of paying for others to sequester carbon to compensate for your own greenhouse gas emissions. Priority should be given to cutting greenhouse gas emissions to mitigate the impact of climate change. However, not all of the technologies needed to achieve net zero within the flood and water management sector currently exist. Consequently, the Environment Agency (EA) investigated offsetting the impacts of its remaining emissions through tree planting and other measures that will lock up carbon and may deliver other benefits such as improving habitats. The EA has recently published its review of carbon offsetting approaches which assessed a number of factors including the confidence in the science, costs, potential for uptake and the speed of outcome. The report highlights that offsetting is still an immature and complex subject with much yet to learn, but the greater the involvement in trials, the faster these approaches will become more defined and reliable. The challenge with using offsetting schemes is verifying that the emission reduction or carbon removal actually takes place, and that all forms of double-counting are avoided.

KEY RESOURCES:
Achieving Net Zero carbon emissions: a review of the evidence behind carbon offsetting provides the Environment Agency's report on the assessed carbon offsetting approaches - *www.gov.uk*

The Peatland Code is a voluntary standard for UK peatland projects wishing to market carbon offsets, which provides assurance and clarity for business and other investors in peatland restoration projects through independent validation and verification - *www.iucn-uk-peatlandprogramme.org*

UK Woodland Carbon Code is the quality assurance standard for woodland creation projects in the UK, and generates independently verified carbon units - *www.woodlandcarboncode.org.uk*

14.3 Climate Change Adaption Adaptation measures involve adjusting to actual or expected future climate, reducing vulnerability to the effects of climate change, including sea level rise, drought, rainfall intensity and peak river flow.

The UK Government is required by the UK Climate Change Act 2008 to assess the risks and opportunities associated with climate change in the UK every five years, and respond to the risks via a National Adaptation Programme. The most recent assessment is the second, and used the latest climate projections for the UK which were updated in 2018. A number of relevant sector briefings have been published alongside the full report. These summaries present useful adaption approaches which are relevant to IDBs, and could be used to help IDBs define adaptive approaches and measures they can take to tackling climate change.

KEY RESOURCES:
The following relevant sector reports are available from *www.ukclimaterisk.org*:

- Flooding and Coastal Change,
- Freshwater Environments,
- Terrestrial Biodiversity,
- Marine and Coastal Environment,
- Food and Agriculture,
- Water.

14.3.1 Adaption Reporting Power and IDBs IDBs are not currently one of the 89 organisations who are expected to submit reports under the Adaption Reporting Power (ARP), which includes the Environment Agency. However, IDBs have been identified by Defra and the Adaption Committee as being suitable to become Reporting Authorities. ADA has undertaken to produce the required Adaptation Report on behalf of IDBs in order for the burden to be proportional to the considerable variability in sizes between IDBs. An IDB Adaptation Report would help spread awareness of adaptation across the IDB community, and help showcase examples of best practice.

BEST PRACTICE

14.3.2 Climate Adaption Approaches Because of the uncertainties over the timing and scale of impacts from climate change on the water environment, where possible, measures that can cope with a range of future climate conditions should be chosen. IDBs as public authorities must justify their expenditure at all times and taking an adaptive approach can help an IDB to make economically optimal investment decisions and more flexible use of funding sources. In principle, the following types of climate adaptive measures should be prioritised in decreasing order of priority:

- Win-win options - cost-effective adaptation measures that minimise climate risks or exploit potential opportunities but also have other social, environmental or economic benefits. In this context, win-win options are often associated with those measures or activities that address climate impacts but which also contribute to climate change mitigation or meet other social and environmental objectives. For example, encouraging the efficient use of water,

- No-regrets options - cost-effective adaptation measures that are worthwhile whatever the extent of future climate change. These types of measure include those which are justified (cost-effective) under current climate conditions and are also consistent with addressing risks associated with projected climate change in the future. For example, promoting good practice in soil management,

- Low-regrets options - adaptation measures where the associated costs are relatively low and where the benefits, although mainly met under projected future climate change, may be relatively large. For example, constructing drainage systems with a two stage profile that can hold a higher capacity than required by current climatic conditions may have additional costs, but can help to cope with increased run-off as a result of expected climate change impacts and provide biodiversity habitat too,

- Flexible adaptation options - measures which are designed with the capacity to be modified at a future date as climate changes. Influencing the design of a pumping station so that its capacity can be increased at a future date, if necessary, would be an example of flexible adaptation. Flexible adaptation involves implementing planned actions when particular thresholds are triggered and can help avoid over-engineering assets and provides flexibility to manage future climate change uncertainties.

14.3.3 Examples of Adaptive Approaches for IDBs ADA is developing separate guidance around the climate change-adaptive approaches that IDBs can take. In the meantime, the following list of examples and case studies of adaptive approaches are provided to give an indication of current approaches being considered and implemented, and more information on each can be found online:

- Raising pumping station motors and electrics i.e. Wyberton Marsh Pumping Station, Black Sluice IDB,
- Creating washlands i.e. River Witham and River Till washlands,
- Building broader sea defences i.e. Wrangle Sea Banks, Witham Fourth District IDB,
- Aquifer recharge such as Felixstowe Hydrocycle, East Suffolk IDB,
- Water transfer pipelines such as Felixstowe Hydrocycle, East Suffolk IDB,
- Bermed/2-stage channels such as New Life on the Old West, Ely Group of IDBs and by Lindsey Marsh Drainage Board.

KEY RESOURCES:

Guidance on Water and Adaptation to Climate Change offers advice on the challenges caused by climate change to water management and water-related activities and how to develop adaptation strategies - *www.unece.org*

Climate Adaptive Drainage details 3 climate adaptive drainage trials undertaken in the Netherlands as part of the Future Water Research Organisation. Search for "future water climate adaptive drainage" online.

Published by ADA

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