



# **Important Freshwater Areas (IFAs)**

## **First workshop on method development**

### **(April 2014)**

#### **Workshop report**

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A large, stylized dragonfly graphic in shades of green, yellow, and blue, positioned in the bottom right corner of the page.

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## Contents

<b>1</b>	<b>Introduction</b> .....	<b>1</b>
1.1	The workshop .....	1
1.2	The IFA concept .....	1
<b>2</b>	<b>Workshop report</b> .....	<b>3</b>
2.1	Background to the IFA process and threats to freshwater biodiversity .....	3
2.2	Workshop 1: Which habitats and species should be considered? .....	5
2.3	Workshop 2: Which descriptions of conservation significance should be used to select important sites? .....	10
2.4	Workshop 3: Prioritisation and precision of the IFA identification process .....	12
<b>3</b>	<b>Overall conclusion and recommendations</b> .....	<b>14</b>
	<b>Appendix 1. List of attendees</b> .....	<b>15</b>
	<b>Appendix 2. Workshop Agenda</b> .....	<b>16</b>

# 1 Introduction

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## 1.1 The workshop

This document summarises the findings of a workshop to begin method development for the identification of Important Freshwater Areas (IFAs) in the UK. The workshop took place on 23<sup>rd</sup> April 2014 in Oxford and was organised by the Freshwater Habitats Trust, which is coordinating the identification of IFAs in the UK. Funding to support the workshop organisation and attendance was provided by the Catchment Partnership Fund under the auspices of the Catchment-Based Approach (CaBA) Support Group.

The aim of the workshop was to bring together a small technical group with detailed knowledge of gathering, managing and using freshwater biodiversity data, to discuss and refine the methodological approaches to the identification of IFAs. A list of workshop attendees is included in Appendix 1. Those invited but unable to attend the workshop were encouraged to contribute in writing and these comments have been integrated into this report.

The workshop programme included an introduction to the status of freshwaters and key freshwater conservation issues. This was followed by an overview of examples and problems already identified as part of preliminary IFA development work. Three workshop sessions then provided a forum to discuss options to address specific questions, covering:

- Which habitat and species should be covered, and which environmental data (e.g. water quality) used to identify important areas for freshwater biodiversity?
- How should the data be analysed and mapped?
- How should Important Freshwater Areas be geographically defined?

The agenda for the day is included in Appendix 2.

The output from the workshop forms the basis for recommendations for further development of the work.

In the period following the workshop several further developments have occurred. A freshwater biodiversity subgroup of the CaBA Support Group has been established to further develop tools to help CaBA groups access biodiversity information, and FHT has received funding to develop a national pilot of the IFA process in Oxfordshire.

## 1.2 The IFA concept

The concept behind *Important Freshwater Areas (IFAs)* is to bring together, as a single data source, information on the location of areas which are important for the protection of freshwater biodiversity. Important Freshwater Areas will identify groups of waterbodies, and sometimes large single waterbodies, which are important for freshwater biodiversity. Map-based outputs will identify important groups of ponds, lakes, streams, rivers, ditches, springs and flushes. The work is conceptually similar to the Key Biodiversity Areas approach developed by IUCN and builds on approaches developed during the Important Areas for

Ponds project which brings together data on species and habitats of conservation concern to identify concentrations of waterbodies of biodiversity concern<sup>1</sup>.

At present data on freshwaters is fragmented and is not easily available to non-specialists, which means that planners, managers and practitioners frequently lack the information needed to underpin strategic planning. For all stakeholders it is currently difficult to identify which parts of the landscape, and which waterbodies, are most important for freshwater biodiversity, and where best to target habitat creation or improvement to bring the greatest benefits. The IFA development work is of practical relevance to catchment partnerships, and to many other organisations concerned with the protection of freshwater biodiversity and landscape-scale conservation work.

There is now abundant evidence that freshwater biodiversity is supported by a wide variety of waterbody types, large and small, and is found both inside and outside well-known designated areas. For the majority of waterbodies which have not been designated as Water Framework Directive (WFD) waterbodies, or as part of site designations such as SACs or SSSIs, there is only patchy information about their importance for biodiversity. Although freshwater species often make use of a network of waterbody types within a landscape<sup>2</sup> rather than being restricted to a single waterbody type, current protection and management activities for freshwaters typically deals with these systems separately.

A single source of mapping or data which brings together in one place information on the location of high quality freshwater sites is an essential generic resource to effectively protect important sites and species for freshwater biodiversity, and critically to build out from these areas to establish more robust network of high quality freshwater habitats across the landscape. The IFA work will seek to provide both an information resource, but also a practical tool for conservation work on the ground.

The ultimate aim of the IFA programme is to develop a partnership approach to identifying landscape areas that support groups of waterbodies which should be prioritised for the protection of freshwater biodiversity.

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<sup>1</sup> Keeble, H., Williams, P., Biggs J. and Athanson, M. 2009. Important Areas for Ponds (IAPs) in the Environment Agency Southern Region. Pond Conservation, Oxford.

<sup>2</sup> Unpublished data from Williams, P., M. Whitfield, J. Biggs, S. Bray, G. Fox, P. Nicolet, and D. Sear. 2004. Comparative biodiversity of rivers, streams, ditches and ponds in an agricultural landscape in Southern England. *Biological Conservation* 115:329-341.

## 2 Workshop report

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### 2.1 Background to the IFA process and threats to freshwater biodiversity

#### 2.1.1 Introduction summary

Jeremy Biggs provided an overview of the status of freshwaters in the UK, covering a range of water bodies. The information presented was based on a range of sources including the Water Framework Directive assessment of rivers and lakes, the pond and stream assessment of the 2007 Countryside Survey and FHT's own research data. This included information from the landscape-scale Water Friendly Farming project which, amongst other things, has re-emphasised the importance of small water bodies for the landscape level conservation of freshwater biodiversity<sup>3</sup>.

National biological assessments show that freshwaters in Britain are in a poor state. Catchment data from lowland agricultural landscapes, which include the small waters currently largely ignored by the Water Framework Directive, such as headwater streams, ponds and ditches, also confirms that pollution is widespread in these habitats. In the research catchments of the Water Friendly Farming Project, over 90% of water bodies have nutrient concentrations above levels at which biological degradation is expected to occur. Clean water is now very rare in intensively managed landscapes. In addition to extensive pollution by nitrate and phosphate, freshwaters also suffer from a range of other impacts, including habitat modification (e.g. drainage and channelization), over abstraction and colonisation of freshwaters by alien species. The biggest problem of all is the sheer multiplicity of issues which, acting together at all geographical and spatial scales, and potentially compounded by climate change, make it difficult to achieve real improvements in the condition of freshwater biodiversity.

Despite some positive news, such as the return of the otter and the spread of some mobile generalist species further north, there is general agreement that freshwater biodiversity is in decline (c.f. State of Nature report and WWF Living Index). There is a clear need to develop strategic targeting to prevent or at least slow down the rate of degradation by:

- focusing on the protection of high quality sites and areas, and to secure these,
- building out from high quality sites/areas through restoration and creation of new high quality areas, helping to improve connectivity and functional ranges for species and populations.

Practical projects by a range of organisations have already demonstrated that both large and small scale creation and restoration work can provide biodiversity benefits in the short term. The key question is where should we focus our efforts so that freshwater biodiversity is effectively protected? This is what the identification of Important Freshwater Areas will help to achieve.

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<sup>3</sup> <http://www.eeb.org/index.cfm/news-events/news/protecting-small-waters-in-europe-workshop-report/>

Bearing in mind the now recognised importance of small water bodies for freshwater biodiversity (c.f. EEB workshop report), it is also critical that high quality ponds, headwater streams and ditches are included in targeting work, in addition to the larger waters which have traditionally been the focus of research and conservation work.

Jeremy provided an overview of FHT's aspirations for the IFA programme. The information provided by the IFA programme should be open access and web-based. The ultimate aim is to provide a tool which will directly lead to benefits on the ground by improved targeting of practical conservation measures (e.g. agri-schemes, land purchase or conservation credits), and also promote engagement and agreement between partners and stakeholders.

The work will also be a key component of FHT's main strategic aim of establishing a Freshwater Network which both ensures that we have a real world network of high quality freshwater habitats and a network of people and organisations working together to achieve this goal.

### **2.1.2 Discussion and question session**

The development of the IFA concept was welcomed by workshop attendees. In addition to being a critical tool for the conservation of freshwater biodiversity, it was noted that the IFA work would also help raise the profile of freshwaters generally.

Other initiatives which would mostly likely feed into the IFA process were noted, such as Buglife's Important Invertebrate Areas (funding for this work has been confirmed since the workshop) which aims to cover all invertebrate species, including those of freshwaters, UK wide.

The inclusion of small waters in the IFA programme was widely supported. Attendees provided examples of areas where conservation work was largely focused on larger water bodies, rather than on high quality sites upstream in catchments (e.g. high quality headwater streams and ponds in the Broads). It was noted that this was because more information was available on larger waters, and that where information on small waters became increasingly available (e.g. Dorset), it tended to be acted upon and fed back to CaBA partnerships.

The importance of conservation work outside designated areas, and on species other than BAP (i.e. S41/42) species was highlighted. For example most Red-listed invertebrate species are not currently well protected and similarly freshwater habitats in County Wildlife Sites or outside designated areas receive little or no protection.

There were questions about the potential for the new agri-schemes to help in the conservation of small waters, especially ponds, but the information was not available at the time of the workshop.

The need to regularly update IFAs was discussed. Of course ongoing review of the IFAs would be welcome, e.g. as new data become available. However, the first IFA development is likely to be a resource intensive process, and so it is unclear at present how often a review would take place. Currently the main focus should be to carry out the first assessment.

## 2.2 Workshop 1: Which habitats and species should be considered?

### Box 1 What is wet and what is dry...?

The first step in the IFA process is to identify which taxonomic groups and which habitats are to be included. This may seem like a straightforward process: species and habitats are commonly considered either aquatic or terrestrial by biologists and conservation workers. Of course, in reality, wet and dry habitats are very much interlinked in the landscape, and the distinction between wet and dry is not always easy to make, particularly for those habitats with little open water (e.g. bogs) or which are only seasonally inundated (e.g. wet grassland). Similarly there are many species which do not fit within the simple wet/dry classification. The pros and cons of an inclusive or exclusive approach to species and habitats in the IFA selection process were discussed in Session 1 of the workshop.

### 2.2.1 Which habitats?

#### Introduction

The **habitats** which should potentially be included in the development of IFAs are those which are traditionally seen as aquatic habitats ('primary' habitats): ponds, lakes, streams, rivers, ditches (includes grazing marsh ditches – but not restricted to this landscape), springs and flushes. Implicit in this is the inclusion of headwaters.

Other aquatic habitats which could be included are canals, of which some are, or have been, of outstanding importance for aquatic biodiversity (e.g. Montgomery Canal, Basingstoke Canal), and reservoirs where these are appropriate. Cave/karst systems also support aquatic species and are often overlooked, as are brackish water bodies.

The main issue for the workshop was whether 'wet' terrestrial habitats should also be included e.g. floodplain/wet grasslands, bogs, reedbeds, fens, wet woodland.

There are a number of disadvantages to including these habitats in the IFA process:

- Practically, the process of identifying IFAs may become too unmanageable if we include these habitats from both a biological and resource perspective.
- Wet 'terrestrial' habitats are mostly well-recognised and advocacy is already provided by a number of statutory organisations and NGOs e.g. WWT, fen / bog specialist groups, Woodland Trust, Floodplain Meadow Partnership and many Wildlife Trusts.
- Actual maps of the wetland Priority Habitats are not always very accurate or demarcated which may lead to the inclusion of sites which are not Priority Habitats.
- Upland wetlands (e.g. blanket bogs) were not treated as freshwater/wetland habitats in the National Ecosystem Assessment.

Four possible solutions were presented for discussion on how to deal with the issues of 'wet' terrestrial habitats:

- Option 1: exclude 'wet' terrestrial habitats wetlands and stick to the 'primary' freshwater habitats.

- Option 2: use existing data on the distribution of terrestrial wetlands to inform analysis and take account of these areas when identifying IFAs.
- Option 3: include terrestrial wetland habitats/species, and develop IFAs that include them.
- Option 4: include some terrestrial wetlands if we feel these are not well-represented in existing systems.

### **Group discussion**

The group generally agreed on the proposal to include the 'primary' aquatic habitats and the discussion centred mainly on the inclusion of 'wet' terrestrial habitats.

Overall, and despite the resourcing and other issues highlighted in the introduction to this session, attendees supported the inclusion of 'wet' terrestrial habitats because these tend to be diverse habitats and, in many cases, these habitats also included 'primary' aquatic habitats. For examples, many fens and bogs include high quality ponds and pools, floodplains tend to be a matrix of dry/wet habitats which are difficult to separate and species such as flush molluscs are 'water table-dependent', rather than 'water body-dependent'. Including these sites will also ensure that ephemeral or temporary aquatic habitats, which are often not included on maps, are included in IFAs. Generally, habitat mosaics are increasingly being recognised as important for biodiversity and separating water bodies from their surrounding areas was seen as undesirable. A more holistic approach to the freshwater landscape may also help obtain funding for the IFA work.

The question remained on where to draw the line: for example should fens which don't include open water bodies be included in IFA selection process or should we include all fens? There was a proposal for the inclusion of 'wet' terrestrial habitats to be species led, i.e. include those 'wet' terrestrial sites which support target species of conservation concern (see next section). Species which are 'water table'-dependent tend to be found across a range of habitats at these sites and so species data should highlight important sites.

Practical issues were raised, including limited resources and the availability of mapping information on these habitats. It was noted that the IFA assessment should focus on identifying high quality areas outside designated sites, to avoid duplication.

### **Recommendations**

Based on the information presented and the technical expert group discussions, we recommend the following (i.e. option 2):

- Focus on important water bodies within larger habitats matrix (e.g. blanket bogs and fens), rather than including all 'wet' terrestrial habitats.
- Use clusters of important species records to identify important aquatic sites in 'wet' terrestrial habitats, i.e. apply the same methods as for terrestrial habitats such as heathland, woodland, upland moors, mountains, dunes – which all support important freshwater assemblages.
- Review available information on 'wet' terrestrial habitats and test its use on a pilot area to assess its relevance to (i) identifying IFAs and (ii) landscape-scale targeting for new sites.

## 2.2.2 Which species?

### Introduction

Species data is likely to include freshwater groups for which there is conservation status information including higher plants, some lower plants (e.g. mosses, liverworts), macro-invertebrates (including some relevant terrestrial groups), fish and mammals. Only those species which are of conservation concern will be included in the IFA analysis (i.e. Priority species, or IUCN status).

The main questions discussed during this workshop session were:

- **Where to draw the line on ‘aquatic’?** It was proposed to draw the line at having an aquatic life stage and include species which can be clearly linked to a site and exclude those with wider geographical ranges (e.g. birds, bats).
- **Do we include non-aquatic species which are totally dependent on freshwater plants?** For example the swallowtail butterfly is dependent on the fen species milk parsley. Other examples include the frogbit smut and the flowering-rush weevil.
- **What about species whose conservation status are currently in review?** This is relevant for several important groups including mayflies and stoneflies. It was proposed to seek interim advice from species specialists.

An overview of all the relevant groups and recommendations following discussions is included in Table 1 below (see Recommendations).

### Group discussion

There was disagreement in the group about which species to include. Some participants wanted to include all groups, others were happy with including all species with at least one life stage in water, whereas yet others only wanted to include those species which are completely dependent on water at all life stages. It was noted that a pragmatic approach should be taken. For example, there is currently no accepted list of water beetle species, so there is little chance of a complete agreement between wider stakeholders of what should or shouldn't be included in the IFA process!

During the discussion there were warnings against (i) including too many charismatic species which may potentially obscure other species of conservation concern and (ii) the issues linked with including widespread species in analyses to identify IFAs (e.g. Otter, Great Crested Newt, Bullhead). The approach developed in Southeast England for Great Crested Newt could also be used for other widespread species (see Keeble *et al*, 2009), although of course IFA designation is unlikely to rest on the presence of one widespread species at a particular site, but instead to look for cumulative effects, i.e. clusters of species of high conservation value, potentially with a weighting on species with restricted distributions. Key sites for widespread species are generally known (e.g. GCN and Common Toad) and could also be prioritised specifically by expert knowledge.

It was pointed out that charismatic species such as swallowtail butterfly were already well protected and managed, and were unlikely to benefit from IFAs. For birds, the Important Bird Area GIS layer is readily available and should be used as part of the data analysis.

Those in favour of inclusiveness argued that this would maximise protection for freshwater biodiversity. From a practical conservation perspective, integrating all the information within

IFAs was also more desirable than having to use multiple data sources. In addition not all food plants of important invertebrates are rare, so there is the potential to miss sites if the food plant of these species is not covered.

Regarding species conservation status, there were two issues: (i) this information is missing for a range of species, and (ii) some taxonomic groups are currently under review. It was agreed to use what was currently available from species experts rather than await publication by JNCC. For mayflies and stoneflies, the list was essentially final but needed official rubber stamping before becoming publicly available. New molluscs and spider lists have also been recently prepared. If funding becomes available in future, it is likely that there will be reviews of the conservation status for other groups.

The discussion then veered toward the potential to include invasive species as part of the IFA analysis. This would help highlight potential risks of creating new aquatic habitats in or near important sites, and would also be particularly useful for e.g. fish conservation. Information on species such as Signal Crayfish is readily available and could be integrated in the IFA identification analysis. Of course, important areas for freshwater biodiversity with persistent invasive species problems (e.g. the Broads and Pevensy Levels) should not be prejudiced in obtaining IFA designation because of it. Overall, there was general agreement that at this stage the focus needs to be on identifying IFAs and highlighting major threats to freshwater biodiversity in those IFAs. Although site management is beyond the focus of this project, the identification of IFAs may help prioritise areas for eradication work.

### **Recommendations**

Further discussion should take place with national species experts to develop a list of wetland and aquatic species of conservation concern for wider consultation. The table below provides an overview of the groups discussed, and of those which will be included in this first IFA assessment. In the longer term, there is an aspiration that all groups should be included, as and when data becomes available on their distribution and conservation status.

**Table 1 Overview of taxonomic groups, with those likely to be included in the first IFA assessment in bold**

Taxonomic group	Include in IFA process?	Conservation status information available?	Comment or next steps
Fungi	Potentially	?	Discuss with national experts to define aquatic species.
Lichens	No	?	Discuss with national experts and consider future inclusion.
Algae (other than stoneworts)	No	Patchy	Distribution data is currently unavailable for most species but consider future inclusion.
<b>Stoneworts</b>	<b>Yes</b>	<b>Yes</b>	
<b>Bryophytes: mosses and liverworts</b>	<b>Yes</b>	<b>Yes</b>	<b>Confirm aquatic species list with national experts.</b>
<b>Vascular plants</b>	<b>Yes</b>	<b>Yes</b>	<b>Use standard list of c. 300 wetland-associated species used in Countryside survey and National Pond Survey.</b>
Aquatic micro-invertebrates: e.g. Cladocera, Ostracoda, rotifers	No	No	Distribution data is currently unavailable for most species but consider future inclusion.
<b>Aquatic macro-invertebrates: leeches, crustaceans, molluscs, dragonflies and damselflies, bugs, beetles, alderflies, mayflies, stoneflies and caddisflies, true flies and spiders</b>	<b>Yes</b>	<b>Yes</b>	<b>National statuses are currently in review for mayflies, stoneflies and caddisflies. A new molluscs list has been produced.</b>  <b>Information on the aquatic phase of Diptera, i.e. larvae, tends to be limited. New Red List for spider is close to completion.</b>
Semi-terrestrial beetles: rove beetles, ground beetles, leaf beetles, featherwing beetles and weevils	Potentially	Yes	Discuss with national experts to define aquatic species.
<b>Fish</b>	<b>Yes</b>	<b>Yes</b>	
<b>Mammals: water vole, water shrew, otter</b>	<b>Yes</b>	<b>Yes</b>	<b>For otter use likely distribution range, if available.</b>
Birds	No	Yes	Match up landscape scale Important Bird Area to IFAs once these are identified.
Bats	No	Yes	Bats are associated with aquatic habitats but a different approach to IFAs is needed for their conservation. Discuss with national experts.

## 2.3 Workshop 2: Which descriptions of conservation significance should be used to select important sites?

### 2.3.1 Introduction

Once the taxonomic groups and habitats to be included in the first IFA assessment have been selected (see previous section) and analysed, the next step is to select the criteria for including sites (ie water body, area) in the IFA identification process.

Broadly, criteria to identify sites which may become IFAs could be based on both biological and non-biological information. In the Important Areas for Ponds assessment, the five existing Priority Pond criteria based on species and assemblages were used to identify High Quality Sites, and then clusters of these High Quality Sites were selected to be designated as Important Areas for Ponds. In the IFA process, biological attributes based on species and assemblages could similarly be used as selection criteria, as well as others based on physico-chemical attributes. A summary of the criteria discussed is included in Table 2.

### 2.3.2 Group discussion

Generally the proposal to include both biological and non-biological criteria was well received by attendees. Attendees tended again to be very inclusive, and further investigation and consultation of the criteria to use in the identification of IFAs will be needed before these are finalised. The danger of using too many existing designations, rather than the species data, was highlighted, particularly since clearly the site designation process does not seem to cover all biodiversity interests. In contrast, the importance of using suitable 'hooks' (e.g. species or habitats) to justify the inclusion of sites outside designated areas was also noted.

### 2.3.3 Recommendations

Clearly, further work and consultation is needed to select criteria for the identification of IFA. Each of the criteria proposed was discussed and as a group, and the results of discussions is summarised in Table 2 below. It was noted that a pilot study on a county or region would help identify which criteria will be most useful in the IFA identification.

**Table 2 Potential criteria to identify freshwater sites of high importance in the IFA identification process**

Description	Approved by workshop attendees?	Comments
<b>Biological criteria</b>		
Waterbodies with any WFD biological quality elements at High status	Yes	
Designated sites (with water dependent features)	Yes	Including NNRs, LNRs. It was noted that some local wildlife sites can be as good as SSSIs but these are often overlooked. Information about these sites can sometimes be obtained from local record centres, but there are no national criteria to define these sites. Similarly populations of rare species can exist outside designated areas where little survey work has taken place.

Description	Approved by workshop attendees?	Comments
Habitats of European Importance (Annex I of Habitats Directive)	Yes	
Priority Habitats	Yes	
Species of conservation concern, including: Annex II (e.g. Pearl Mussel), BAP (S41), scheduled, Red Data Book and Nationally Scarce species	Yes	
Salmonid rivers	Yes	There were discussions about whether these necessarily supported important biodiversity, rather than being a focus for amenity/angling.
Ditches with important biological assemblages	Yes	Including agricultural ditches, as identified by recent surveys and expert knowledge.
Important Stonewort Areas	Yes	
<b>Non-biological criteria</b>		
Waterbodies in Land Classes 1 and 2 of Defra's Aquatic Habitats of the UK agricultural landscape	Yes	
Waterbodies with clean water	Yes	This should include areas of unpolluted water <i>per se</i> – though this will be harder to identify for small waterbodies, ie away from the main network of monitored EA rivers sites. This criteria should be used in an inclusive manner so as not to exclude sites with potentially poor water quality but that still support high biodiversity value.
Headwaters with >70% semi-natural landuse and < 2% urban area in their catchment	Yes	This could use existing mapping and WFD typology for chalk streams.
Natural processes approach developed by Natural England	Yes	Analysis of the river SSSI network, which requires a waterbody to have a natural flow regime, natural nutrient and sediments, minimal physical modifications and natural longitudinal and lateral connectivity.
Density of freshwaters – connectivity	Yes	It was noted that high density does not inevitably mean high quality. Some isolated sites are better and less impacted by invasive species than those in areas with high connectivity.
Unusual freshwater types	Yes	For example waterbodies in rare terrestrial habitats.

## 2.4 Workshop 3: Prioritisation and precision of the IFA identification process

### 2.4.1 Introduction

This workshop session aimed to discuss the potential approaches to identifying Important Freshwater Areas, following on from the previous criteria discussion session. The main question for discussion was about how precise and rigid the process needed to be.

### 2.4.2 Group discussion

Previous experience with the identification of 'important areas' work (including ponds, stoneworts etc) shows that extremely detailed methodological prescriptions for identifying groups of sites can be unhelpful, particularly when the datasets available are incomplete at best. Expert knowledge can be critical in identifying important sites or group of sites for freshwater biodiversity. In light of the strengths and weaknesses of the species data, the group also discussed whether the identification of some IFAs could rely solely on more widely available non-biological data. To guide the discussions, a set of questions were introduced to the workshop attendees and a summary of discussion for each point is given below.

**Q1. How do we choose IFAs?** *Is it satisfactory to make fairly rough and ready identifications of Important Freshwater Areas provided they do include a significant concentration of species or habitats of conservation concern?*

Overall workshop attendees agreed that both data and map information, and expert opinion, should be used in the IFA process. The exact methodology should be decided depending on how the IFAs are going to be used practically, and proposals should be made in a pilot study or as part of the IFA concept development. A stratified approach to prioritisation was also suggested.

If one aim of the IFA process is to prevent further species extinctions, the data analysis could also attempt to assess the percentage of the population of selected species included in the IFAs. An overlap between IFAs and other similar initiatives (e.g. Birdlife International's Important Bird Areas and IUCN's Key Biodiversity Areas) would facilitate sign up by stakeholders and potentially strengthen protection for a range of freshwater species in these areas.

There was a query about whether the data analysis should aim to directly link water bodies and species data, which would be very useful for monitoring and planning purposes, but has proved rather difficult in the IAP process because of the limitation of the species data (e.g. much of the species data is only accurate to 100m, which is inadequate for small waters) and the accuracy of the mapping data (e.g. many ponds are missing from the GIS water layer used).

The importance of including a buffer along or around waterbodies was highlighted, again reinforcing the point about the link between terrestrial and freshwater habitats. It was however acknowledged that deciding on the width of the buffer needed would be difficult, as this would vary considerably between species.

It was suggested that the IFA analysis would help to identify where there were gaps or data needed to be updated.

**Q2. How big should IFAs be?**

Generally IFAs could be relatively large areas but a single small or large waterbody could also be defined as an IFA, depending on what its biodiversity importance was (e.g. last UK population of a species of conservation concern). Important sites could be defined or highlighted within each IFA, essentially following the tiered Important Areas for Ponds model. The availability of data, as well as the practical use of IFAs, should inform maximum and minimum surface area. The concept of manageable unit was introduced as a useful tool to define IFA areas.

There was a query about how much of the Freshwater Network is currently protected by SSSI designations, and how much of the network the IFA programme aimed to protect.

**Q3. How should the IFAs be kept up to date?**

Due to time constraints, discussions on this question were limited. Previous comments had welcomed the idea of updating IFAs as new datasets were made available, however resource availability might preclude this. It was also suggested that IFAs could be updated in line with the Water Framework Directive River Basin Management Plan's timescale.

### 3 Overall conclusion and recommendations

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- There is a clear need for identifying IFAs in the UK, including all types of water bodies, as part of a national partnership initiative including a range of statutory and non-statutory stakeholders involved in the conservation of freshwaters.
- IFA identification should aim to provide added value to existing targeting initiatives and plans relevant to freshwaters (e.g. Important Bird Areas, Wetland Vision) and provide a useful and *practical* tool for conservation action.
- The IFA process will help identify and potentially rectify data gaps on freshwater habitats and species and stimulate action on the ground.
- The IFA methodology should be inclusive in terms of species and habitats which are linked to freshwaters, rather than solely being based on aquatic species.
- A regional pilot study would help define which species and habitat to include in the initial analysis, the criteria to use in identifying sites of high conservation importance for freshwaters, and the selection of actual IFAs.
- Partnership work and consultations at key stages in the methodology development process are essential in ensuring IFAs usefulness and use.

## Appendix 1. List of attendees

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<b>Name</b>	<b>Organisation</b>
Robert Aquilina	Aquilina Environmental Quality
Jeremy Biggs	Freshwater Habitats Trust
David Bilton	University of Plymouth
Sarah Blyth	RSPB
Fiona Bowles	Wessex Water
Rob Cathcart	Natural England
William Darwall	IUCN
John Davy-Bowker	Freshwater Biological Association
Helen Edwards	abcGIS
Naomi Ewald	Freshwater Habitats Trust
Chris Hassall	University of Leeds
Shaun Leonard	Wild Trout Trust
Craig Macadam	Buglife
Ali Morse	Wildlife Trust
Pascale Nicolet	Freshwater Habitats Trust
Carl Sayer	UCL
Michelle Walker	The Rivers Trust
Gearoid Webb	CEH
Martin Willing	Conchological Society

## Appendix 2. Workshop Agenda

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10.30 onwards	<b>1. Coffee available</b>
11.00.	<b>1. Welcome (Pascale Nicolet)</b> <ul style="list-style-type: none"> <li>• Introductions and background to the CaBA approach</li> <li>• Aims for the day</li> </ul>
11.10 a.m.	<b>2. Background to the process: the threats to freshwater biodiversity, Important Areas for Ponds and Important Freshwater Areas (Jeremy Biggs)</b>
11.30 a.m.	<b>3. The species data and the habitat data: examples and problems (Jeremy Biggs)</b>
11.45 a.m.	<b>BREAK</b>
12.00 a.m.	<b>Workshop Session 1. Which habitats and species are we considering?</b> Review and discussion of proposals
13.00	<b>Lunch</b>
13.30 a.m.	<b>Workshop Session 2: Which descriptions of conservation significance should we use?</b> Review and discussion of proposals
	<b>Tea available</b>
14.30	<b>Workshop Session 3: Prioritisation and precision</b> Review and discussion of proposals
15.30	<b>Round up and next steps</b>
16.00	<b>Close</b>