Finding Opportunities to Improve Monitoring Activities

Interim Project Report

Contents

Executive Summary

UKEOF are leading a project to find opportunities to improve monitoring activities. Following work carried out with Natural England in 2011, to map coincidences in environmental monitoring sites in England and Wales, a pilot project to realise the benefits of this mapping is being run in the Hampshire Avon catchment.

The **aim** of the project is to investigate the potential of integrating and aligning monitoring activity in a specific area by facilitating better coordination between relevant organisations, in order to develop best practice guidelines that can be applied in other areas.

Objective 1: to establish what monitoring activity is occurring in the Hampshire Avon catchment, was met. Work was carried out over summer 2013 to research which organisations are monitoring in the Hampshire Avon and to contact them for information regarding these activities.

Objective 2: to host a workshop to provide opportunity for collaborative working, was met. A workshop was carried out in October 2013 with 15 organisations who carry out environmental monitoring in the Hampshire Avon in attendance to discuss potential collaborations over their monitoring activity.

Objective 3: to produce a report and best practice guide to ensure impact of the work, is ongoing. UKEOF will monitor the impact of this work in April 2014, after which a final report and best-practice guidance will be produced.

Several **key messages** have become apparent and lessons have been learnt from the work carried out so far on this project. The key messages focus on issues such as the amount of time needed to run the project, who should manage the work, materials needed to successfully run the project, ways to collaborate over monitoring activity and wider implications in terms of carrying out the project in other geographical areas.

The **next steps** of the project will be to circulate this report to attendees of the workshop and UKEOF Management Group Members. Following this, workshop attendees will be contacted in April 2014 to assess the impact of the project i.e.to see if any collaborations over monitoring activity have been formed as a result of this project. This will continue to be monitored at regular intervals. The UKEOF Management Group will consider the outcomes of the project after the initial impact has been analysed and discuss how the lessons learnt from this project can be applied more widely within their organisations.

In **conclusion,** the project has been a valuable demonstration of the breadth of work being carried out in the Hampshire Avon catchment and has highlighted the enthusiasm from local organisations for engagement. The impact investigation in April 2014 will begin to demonstrate whether monitoring has become more efficient as a result of the project, and advice will then be produced for wider implementation. Consideration should be given to who should own such a project if it were to be repeated in other areas, taking staff time and resources into account.

1. Introduction

1.1 Organisations funding environmental observations are increasingly required to make efficiency savings and deliver better science. The UKEOF Management Group represents the main public sector funders of environmental observations in the UK and UKEOF has been tasked to investigate potential areas for making savings and delivering better science.

1.2 UKEOF worked with Natural England in 2011 to map the locations of environmental monitoring activities undertaken by a range of organisations in England and Wales. The results showed high levels of geographically coincident monitoring locations. As a next step it was agreed, by the UKEOF Management Group, that a pilot project should be carried out to provide a detailed investigation into the opportunities for collaborative working in an area where there are a high number of closely located monitoring sites. It was anticipated that best practice guidelines could then be taken from the pilot and applied by Management Group organisations to their monitoring activity in other areas. Due to constraints on UKEOF secretariat resource, the project was put on hold at the time. The project restarted in February 2013, and the Hampshire Avon catchment was selected for a case-study due to the number of monitoring coincidences found there.

2 Aim

2.1 The overall aim of this pilot project is to investigate the potential of integrating and aligning monitoring activity in a specific area by facilitating better collaboration between relevant organisations, in order to develop best practice guidelines that can be applied in other areas.

3. Objectives and Progress

3.1 Objective 1: Establish what monitoring activity is occurring in the Hampshire Avon catchment.

3.1.1 A project Steering Group was formed in March 2013 (Annex 1) and research was carried out into which organisations were involved in environmental monitoring within the catchment boundaries. Organisations carrying out monitoring in the Hampshire Avon catchment were contacted over the summer of 2013. Relevant contacts were found through a number of sources including:

- Demonstration Test Catchment
- Environment Agency Hampshire Avon Catchment Coordinator suggestions
- National Biodiversity Network (NBN) Gateway
- Natural England Coincidence Mapping exercise
- Project Steering Group member suggestions
- UKEOF Catalogue
- Informally from suggestions from other participants.

3.1.2　In total, 27 organisations were contacted, with 17 organisations returning questionnaires about their monitoring activity. Despite several attempts at making contact, some of the organisations did not respond at all. It is not clear whether this was a result of a lack of interest, time or relevance. The questionnaire template can be seen in Annex 2 and the results of the questionnaires can be seen in Annex 3. It is interesting to note that 89% of organisations already considered themselves to be collaborating in some form. This was typically in terms of data sharing, providing scope for further collaboration in other ways, and with different organisations to those that they were already working with. The results of these questionnaires were used to help shape the workshop.

3.1.3　Spatial information about the monitoring sites was mapped to help show visually where monitoring was occurring in the catchment (Annex 4).

3.2　Objective 2: Host workshop to provide opportunity for collaborative working

3.2.1　**Workshop Summary**

The Collaboration Workshop was held on the 9th October 2013 at the Game and Wildlife Conservation Trust Headquarters in Fordingbridge, as it was located in the catchment area. 24 people attended the workshop, from 15 different organisations (Table 1). The workshop ran very smoothly and it enabled organisations to present their monitoring work in the catchment area, and hear what other people are doing. There were discussion tables about different types of collaboration which helped attendees think about what might be possible, followed by a speed-collaborating session. Whilst many of the participants had not engaged in an activity like this before it was a successful event and focused discussions on collaborations, resulting in clear actions for individuals.

Organisations that returned information about their monitoring activities	Organisations that attended the workshop
Amphibian and Reptile Conservation	Botanical Society of the British Isles
Botanical Society of the British Isles	British Trust for Ornithology
Butterfly Conservation	Centre for Ecology and Hydrology
Centre for Ecology and Hydrology	Environment Agency
Dorset Wildlife Trust	Forestry Commission
Environment Agency	Game & Wildlife Conservation Trust
Forestry Commission	Hampshire Avon Demonstration Test Catchment Project / QMUL
Game and Wildlife Conservation Trust	Hampshire & Isle of Wight Wildlife Trust
Hampshire & Isle of Wight Wildlife Trust	Hampshire Biodiversity Information Centre
Hampshire Biodiversity Information Centre	JNCC
Natural England	Natural England
NOC (Christchurch Harbour Macronutrients Project)	Plantlife
Plantlife	Wessex Chalk Stream & Rivers Trust
RSPB	Wessex Water
Wessex Chalk Stream & Rivers Trust	Wiltshire Wildlife Trust
Wessex Water	
Wiltshire Wildlife Trust	

Table 1: Organisations involved in the project

3.2.2 Workshop Presentations

Organisations gave 5 minute presentations about their monitoring activity in the catchment area. Maps were displayed around the workshop highlighting various monitoring activity, such as the Environment Agency monitoring network in the catchment and the SSSI monitoring network. This session gave participants a clear view of what monitoring is occurring in the catchment to help discussions in the following Discussion Table session.

3.2.3 Workshop Discussion Tables

The participants were split onto three tables to discuss resource sharing, data sharing and knowledge-exchange. The key points that were discussed are highlighted below.

1. Resource Sharing

This topic naturally divided into two discussions: sharing equipment and sharing personnel.

- Equipment Sharing:

It was noted that equipment can be expensive for organisations and therefore can be a barrier to carrying out efficient monitoring if not purchased, or can restrict the budget in other areas if it is purchased. Sharing equipment would promote cost saving and is an area that warrants further investigation. An inventory would be needed to list the availability and location of equipment. Whilst this would facilitate the sharing of equipment, there are some barriers that would need to be overcome such as who would own the list, and how responsibility for the maintenance and security of equipment would work.

Universal equipment sharing was discussed – for example the idea of storing portable monitoring equipment (e.g. bat detectors) at a public library where it could be borrowed by anyone with an interest.

- **Personnel Sharing:**

Sharing skillsets from differently trained staff could be useful, for example, Wessex Water have made the option available for the Wessex Chalk Streams project to send samples for analysis, therefore both organisations could benefit from the relationship.

The issue of data quality as a result of using staff from different organisations was discussed. Technology and app software were noted as a potential way of helping ensure the quality of data collected. It was agreed that standardising protocols would be necessary to share personnel and to achieve a higher quality of data. Professional Bodies (e.g. the Chartered Institute of Ecology and Environmental Management) can provide standardised guidelines regarding information that should be contained within protocols. The idea of a national certification scheme was raised, which would provide confidence that any member of staff or volunteer who has achieved that certification would have a certain level of skill for various monitoring activities.

The use of volunteers was discussed; especially the importance of showing volunteers what the benefits of the monitoring are, with a view to encourage volunteers to carry out a wider breadth of monitoring.

2. Data Sharing

There was discussion around IT systems and the differences in capabilities and abilities to store data within the systems. Data.gov.uk was noted as making data storage more flexible for public sector organisations. Better signposting was discussed to enable data-sharing, which would help where knowledge of available data is limited. This would also better link people with data sets and monitoring activities from their local area. Both LivingRecord and iRecord were suggested as good IT systems but a question was raised regarding the usefulness of these as technology progresses and choice widens.

Private sector data-sharing was raised as a potential barrier as organisations may be bound by confidentiality agreements and intellectual property rights. It was noted that some organisations (e.g. Non-Governmental Organisations) that are going through financial cut-backs are looking to raise funds through providing access to their data, which would provide an additional barrier to overcome.

The need to simplify data access agreements was discussed. It was suggested that a simple statement and tick-box to indicate that the data being uploaded can be shared may make the process easier than a complicated data access agreement. However, this is a very basic solution and issues relating to level of data resolution and whether the data is free to all or restricted to certain audiences would need to be overcome /managed.

It was suggested that a protocol for sharing data ought to be achievable. Hampshire Biodiversity Information Centre (HBIC) was highlighted as a potential solution for data sharing.

3. Knowledge Exchange

Attendees felt that organisations have a good idea of what other organisations are doing at the national level, but not at the local level. It was felt that there were some problems with licensing and sharing data. HBIC gave information about its role in knowledge exchange, and that record centres are the points of contact within the country for records. The Environment Agency shared information on the role of the catchment coordinators.

Sharing site visits was a suggested approach to sharing information, along with blogs and newsletters. The Wessex Chalk Stream and Rivers Trust gave information about their coordinator role for the Hampshire Avon catchment.

Collaboration over training and development was discussed as a means of knowledge exchange that could also lead to higher standards of data collection.

Barriers were discussed:
- It is necessary to be careful over improvement of quality assurance, as improvement of data quality could be mistaken as an improvement / degradation in site or environmental quality.

- Care should be taken not to solely rely on equipment as this can give false results if the equipment is faulty or poorly maintained.

3.2.4 Speed Collaboration Exercise

Attendees at the workshop were given 5 minute slots to meet every other attendee at the workshop and discuss what monitoring activity they were carrying out in the catchment area and potential collaborations. This was a carefully structured session and timing was strictly adhered to. A timer was used to stop each conversation at the end of the 5 minutes, at which point each participant moved one seat to the left. Attendees were given a sheet to fill in as they progressed around the table, to make notes on each organisation. The project manager collected these at the end and collated them, returning the notes back to each participant. The number of actions that were noted from the session can be seen in Annex 5.

3.2.5 Feedback from Participants

The workshop received very positive feedback from participants, which can be seen in full in Annex 6. The feedback included the following statements:

- "Do it again, agreement that we should meet annually"
- "Numerous contacts during speed collaborating to follow up"
- "Fairly new to the catchment so a great opportunity to meet other people/organisations working in the catchment."
- "At least 10 individual contacts to follow up. Thank you!"
- "Contacts made and resources to follow up"
- "A little more time needed!"

As noted in Annex 2, a large proportion of organisations already collaborate through data sharing. The actions noted from the speed collaborating session showed a much wider range of anticipated actions. For example:

- Sharing contacts
- Exchanging data-sets
- Sharing facilities
- Sharing volunteer coordination
- Collaboration over site access

3.3 Objective 3: Produce a report and best-practice guide to ensure impact of work.

Following the workshop, the resulting collaboration between organisations will be monitored and documented. Through this pilot project, UKEOF aims to highlight methods where collaboration works well and where there are constraints, and share these with organisations in other areas through best-practice guidance. However, this needs further consideration and cannot be written until the impact investigation has been completed. Once the level of success resulting from the workshop is known, best practice guidance can be compiled and disseminated to UKEOF Management Group organisations. Discussion is needed over who is best placed to produce best practise guidance, beyond the final report.

4. Key Messages / Lessons Learnt

4.1 Project Logistics and Resources

- The amount of **time needed** to run a project like this should not be underestimated. The bulk of communications were done over the summer months, which may have been a barrier due to holidays and this being a key season for environmental monitoring. However, with persistence, the majority of contacts were receptive and forthcoming in providing information. Plenty of time should be allowed to progress the project.

- Enough time should be considered to explore the "**contacts-web**". For this project, talking to various people working in the catchment was invaluable for finding other suitable contacts and organisations.

- Having **one organisation** (UKEOF) leading the organisation and logistics of this project has been essential to coordinate the different aspects of the project. This lead organisation would need to be established in the initial stages in similar projects. The advantage to UKEOF not actually carrying out monitoring in the area was that it could objectively see a picture of what was happening. If one of the organisations carrying out monitoring in the area took the lead, there is a risk that the activity may be perceived to be biased.

- **GIS and mapping facilities** would have been useful in order to send organisations the GIS layer of the catchment early in the project so they could quickly determine what monitoring activity was present within the catchment. Working with Natural England to create maps of the monitoring activity in the Hampshire Avon helped add value at the workshop and provided a visual reminder of how much monitoring activity is being carried out at coincident sites.

4.2 Project Workshop

- The **questionnaire** was a useful exercise to get organisations thinking about their monitoring activities before the workshop, and to give the Project Manager and Steering Group a comprehensive understanding on the scope of monitoring within the Hampshire Avon catchment.

- The **collaboration document** (Annex 7) which was distributed prior to the workshop was useful for the Steering Group to help format and shape discussions at the workshop. As it is not site-specific it could be used in any area. It is unclear what value there was to attendees before the workshop.

- The **location** of the workshop, within the catchment area resulted in strong attendance on the day. However, with one attendee coming from Edinburgh, the value of the workshop was also understood by participants. The attendance also points to the benefit of good engagement prior to the workshop (circulation of papers, agenda etc. in good time).

- The **round-room presentation session** was successful. Although organisations had already returned detailed questionnaires about their monitoring activities, having short (5 minute) presentations from every organisation on the day was beneficial for other organisations to learn about what else was happening in the catchment before discussing collaboration.

- The **speed collaboration** session at the workshop was very effective. It was a good opportunity for attendees to speak to each other, opening up contacts in other areas of the catchment that they may have otherwise been unaware of.

- **More time** for the workshop would have been useful – the discussion sessions, and the speed collaborating were sometimes cut short in the middle of beneficial discussion due to time constraints. A two day workshop may have helped cement future actions, but the benefits of a longer workshop would need to be balanced against barriers to this. For example, attendees may have found a two day workshop harder to commit to, the costs of running the workshop would have doubled, as well as additional costs for overnight accommodation.

4.3 Improving Monitoring Activity

Organisations at the workshop discussed potential opportunities for collaboration, with several themes occurring commonly. The following areas that were discussed could be applicable universally.

- **Sharing access to land and sites**
  It was agreed that using other organisations links to site access would be beneficial to monitoring activity, more efficient and less disruptive to the landowner.

- **Sharing / linking data**
  Several organisations at the workshop identified datasets that would be useful to share with other organisations. Linking the data to enhance monitoring and research was also discussed.

- **Lending services and modelling**
  Organisations discussed the potential to use other organisations to test monitoring samples. Using other organisations' modelling techniques was also considered a possibility.

- **Including other organisations in meetings**
  Inviting personnel from other organisations to relevant meetings was discussed to increase the number of organisations involved in monitoring issues.

- **Sharing contacts**
  Sharing contacts was discussed as a way of increasing exposure about monitoring activities to other regional personnel who may not have otherwise been aware.

- **Sharing protocols**
  Sharing data protocols would help organisations understand the monitoring that is being carried out by other organisations. Where there is the potential to share staff, it would be particularly useful to have aligned protocols. This would lead to more efficient monitoring as less staff training time would be needed.

- **Collaboration over training**
  Organisations considered collaborating over training as a way of improving skillsets cost-efficiently.

- **Sharing coordination of volunteers**
  Organisations that use volunteers to carry out all or part of their monitoring could share volunteer resources where practical. This would provide more variation and opportunities for volunteers and also lead to efficiency saving in volunteer recruitment and training.

- **Sharing meeting space and laboratory facilities**
  Sharing facilities where possible will lead to cost savings and increase the exposure of organisations to other organisations.

4.4 Wider Implications

- **Ownership** of the project in other locations may be an issue. In this project, momentum was maintained as UKEOF were coordinating the project. However, passing this ownership to another organisation to uphold the collaborative effort within the Hampshire Avon catchment may prove challenging. It is also likely to be difficult in other areas to identify an organisation to take the lead and manage the project, taking into account the resources and time needed and that it may take some time before the full benefits of the activity are realised.

- The **location** of projects in other areas would need to be considered. This project was carried out in a Water Framework Directive (WFD) river catchment. This fitted well with the newly appointed Environment Agency Catchment Coordinators and was a sensible defined area to fit with the Demonstration Test Catchment, however there were some terrestrial organisations that were less aware of the WFD boundaries. This may also be the case in other areas and a different defined area may be more appropriate, for example across a county. This may also work better for local records centres which work at a county level. One issue that was noted in the Hampshire Avon catchment was that this was in the "South" and in some organisations the catchment crossed the boundary of both their "South East" and "South West" monitoring teams. This would also need to be considered in other areas where locational teams overlap.

5. Next Steps

5.1 Following the workshop, the action notes from the speed collaborating session were collated and this report produced, which will be circulated to workshop attendees and UKEOF Management Group member organisations.

5.2 The Steering Group will continue to meet to ensure that next steps are beneficial and continue the momentum of the project, until the project comes to a close.

5.3 Workshop attendees will be contacted by telephone interview / questionnaire in six months' time (April 2014) to assess what has changed as a result of the workshop and to monitor the impact. Depending on the results of this, impact will continue to be monitored at regular intervals.

5.4 The UKEOF Management Group will consider the outcomes of the project after the initial impact has been analysed and discuss what the appropriate next steps would be, for example whether this project can be repeated in a different area, or if key lessons learnt from this project can be applied to monitoring activity in other parts of their organisation, to encourage efficiency and alignment of monitoring activity.

6. Conclusion

6.1 The project has been a valuable exercise in highlighting the breadth of work being carried out in the Hampshire Avon catchment and the enthusiasm of those working in the area towards collaborating over monitoring activities. The workshop ran very well and feedback shows that participants felt they came away with a much better understanding of other work in the catchment. The action table from the Speed Collaborating exercise shows that clear individual actions were set by participants during the workshop.

6.2 However, whether the project has demonstrated finding efficiencies has yet to be seen. Revisiting the actions set by the participants six months after the workshop should demonstrate the usefulness of the project in terms of impact. Regardless of these results, the project has clearly served as a method of bringing together organisations monitoring within the same catchment and has shown that there is an appetite for greater collaboration.

6.3 The amount of time and energy required to manage a project like this should also be emphasised and consideration should be given to who should manage similar projects if repeated in other areas. Moreover, the resource would need to be considered, both in terms of staff time and money to run the project.

Finding Opportunities to Improve Monitoring Activities:

Steering Group Membership

David Allen	Natural Resources Wales
Helen Beadman	UKEOF
Adrian Collins	Rothamsted Research-North Wyke
Ben Ditchburn	Forestry Commission
Andy Nisbet	Natural England (Chair)
Deborah Procter	JNCC
Rich Walmsley	Environment Agency

Project Manager

Sophie Isaacs	UKEOF

Thank you for participating in this case study which aims to find opportunities to improve monitoring activities in the Hampshire-Avon Catchment.

Please read the information below and then complete the information in worksheets Part 1 and Part 2.

Part 1

This part of the questionnaire aims to capture some more general information about your monitoring activities in the Hampshire-Avon.

Please fill in the answers, some of which must be completed using the drop-down box.

Part 2

This part of the questionnaire aims to capture more specific details about your monitoring activities in the Hampshire Avon. There is guidance below for each question but if you are unsure please contact Sophie Isaacs (sophie.isaacs@ukeof.org.uk)

Please complete a new column if you are giving details of more than one survey for different monitoring programmes. Please use the further information box to provide further details where necessary.

Guidance for questions in Part 2

1. Please give the name/details of the survey you are providing information about

2. Please select from the drop-down menu which environmental area your monitoring fits into. If it fits into more than one area, please choose details from the list and fill in the further information box on the right-hand side.

3. Give details of what you are recording, e.g. nutrient levels, water flow, single species.

4. Please provide reasons for the data being collected. If there is more than one reason, please give details of which, from the list, in the further information box.

5. Is your monitoring part of, or does your data feed into a wider monitoring scheme?

6. Give details of what time of year the survey is carried out, and please give further details, e.g. if seasonal whether summer/winter

7. Provide details of how regularly the survey takes place

8. This question looks to find out if the survey has been carried out over a long time period - give details of years started or ended, or whether ongoing.

9. Give details of which organisation has taken the lead for the survey

10. Please give details of whether a professional or amateur has organised the survey

11.Give details of who takes part in the collection of the data

12. Please choose which option is most relevant to your survey sites - please also supply your geographical site information as an attachment to the email. If you have previously submitted your site information for these surveys to UKEOF for the coincidence mapping work, there is no need to resend this information.

13. Give details of the sample design used in your survey

14. Please give details if you have a specific protocol or guidelines for collecting data

15. Please give details of what skills data collectors need for the survey, e.g. ID skills, equipment skills

16. Give details of how you ensure the robustness of your data (if applicable)

17. Give details of equipment used during the collection of data. If there is a need for more equipment to enhance your monitoring, please provide details.

18. Please indicate where your data is stored once collected.

19. Indicate how accessible your data is to the general public

If you have any questions regarding the questionnaire, please email or call Sophie Isaacs, sophie.isaacs@ukeof.org.uk, 01793 411 940

Questionnaire Part 1

	Question	Response
1	Name of Organisation	
2	Main Contact	
3	Main Contact Details	
4	Does your organisation currently collaborate over any of its monitoring in the Hampshire-Avon catchment?	▼
4a	If yes, please give details	
5	Is your organisation currently using any data collected by other organisations to complement your work in the Hampshire-Avon?	▼
5a	If yes, please give details	
6	Is your organisation aware of any other organisations carrying out monitoring in a similar area to your monitoring in the Hampshire-Avon catchment?	▼
6a	If yes, please give details, including any reasons for why collaboration is not already happening	
7	Is there any data in particular that would be useful for your organisation to collect that you currently do not have the capacity to?	▼
7a	If yes, please give details	

Questionnaire Part 2

	Question	Survey 1 Response	Survey 1 (further info)
1	Name of survey carried out in Hampshire-Avon region		
2	Environmental domain covered by the survey (if multiple, please choose from the list and fill in the further information box)	▼	
3	What are you recording for this survey? E.g. specific species, nutrient levels		
4	What are the main reasons for the data being collected? (if multiple, please choose from the list and fill in the further information box)	▼	
5	Does this survey form part of a wider monitoring programme within / outside of your organisation? If yes, fill in the further information box	▼	
6	When is this survey carried out?	▼	
7	How often is this survey carried out?	▼	
8	Is this survey part of a long term monitoring scheme?	▼	
8a	Which year did the survey start?		
8b	Is the survey ongoing / which year did it end?		
9	Which organisation is leading this survey?		
10	Who has organised the survey?	▼	
11	Who has collected the data?	▼	
12	What is the geographical spread of your survey?	▼	
13	Please give details of the sample design for your survey e.g. stratified, random etc		
14	Do you have a data collection protocol for this survey? If yes, please attach it to your response	▼	
14a	Do you use a standard existing protocol or one developed for this activity?	▼	
15	What skills are required to undertake this monitoring activity?		

15a	How do you ensure that surveyors have the required skills?		
16	Do you have a quality assurance process in place to check data? If yes please fill in details in the further information box	▼	
17	Is any particular equipment required for the collection of the data? If yes, please give details including where more is needed	▼	
18	How is the data stored?	▼	
19	How available is your data? If your data is publicly available, please state where in the further information box (website, NBN etc)	▼	

**Finding Opportunities to Improve Monitoring Activities: Hampshire-Avon
Summary of Questionnaire Analysis**

INTRODUCTION

UKEOF worked with Natural England in 2011 to map locations of environmental monitoring activity from a range of organisations in England and Wales. The results showed high levels of geographically coincident monitoring locations. To find out if organisations will benefit from collaboration with other organisations monitoring close by, a pilot project is being run in the Hampshire-Avon catchment, which was one area shown to have several coincidences in monitoring sites.

24 organisations were contacted to determine if this project would be relevant and 16 organisations returned questionnaires about their monitoring activities. A workshop is being held which aims to provide the opportunity for organisations to discuss potential collaborations over their monitoring activities.

INVOLVEMENT IN THE PROJECT

⇒ **16 organisations** carrying out environmental monitoring in the Hampshire-Avon returned questionnaires about their activities

⇒ **37** different **survey programmes** were highlighted in the responses

Participating organisations

Amphibian and reptile conservation trust	Hampshire Avon Demonstration Test Catchment
Botanical society of the British Isles	Hampshire & Isle of Wight Wildlife Trust
British Trust for Ornithology	Hampshire Biodiversity Information Centre
Butterfly Conservation	Natural England
Centre for Ecology and Hydrology	NOC – (Christchurch Harbour Macronutrients Project)
Dorset Wildlife Trust	Plantlife
Environment Agency	RSPB
Forestry Commission	Wessex Chalk Stream and Rivers Trust
Freshwater Habitats Trust	Wessex Water
Game & Wildlife Conservation Trust	Wiltshire Wildlife Trust

In general, organisations were very positive about being involved in the project, and returned comprehensive questionnaires about their monitoring activities. The majority of the work to involve organisations was carried out during the summer months and at times it was difficult to contact the relevant staff within organisations due to holiday periods. There were some comments that the questionnaires took longer than expected to complete, and that a map of the catchment area would have been helpful for those organisations not familiar with the Water Framework Directive

catchment areas.

MONITORING PRIORITIES

Understanding what organisations are monitoring and why can help us to understand the monitoring priorities within an area and where there are links between organisations. Providing the opportunity for organisations to discuss these priorities will help develop collaboration opportunities.

The questionnaire results showed that **89%** of organisations are already collaborating to some degree over their monitoring activities, and **83**% of organisations use data collected by other organisations.
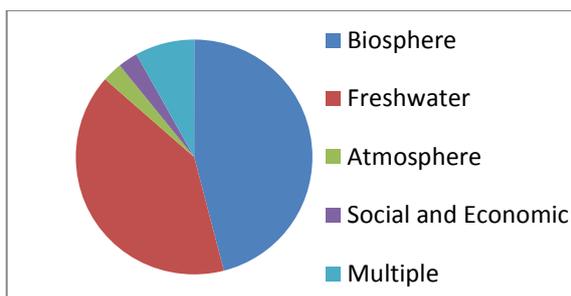*The high percentage of organisations already collaborating shows that the scope for collaboration is real, and implies that there must be real benefits to collaboration.*

Figure 1 shows that a range of environmental domains are being covered by monitoring activities, although the most common are **biosphere** and **freshwater** observations.
Data collected from different domains may provide relevant contextual information for monitoring activity in other domains.
73% of organisations stated that extra data would be useful to their monitoring work.
A question to be discussed is whether extra data from other domains could be used.
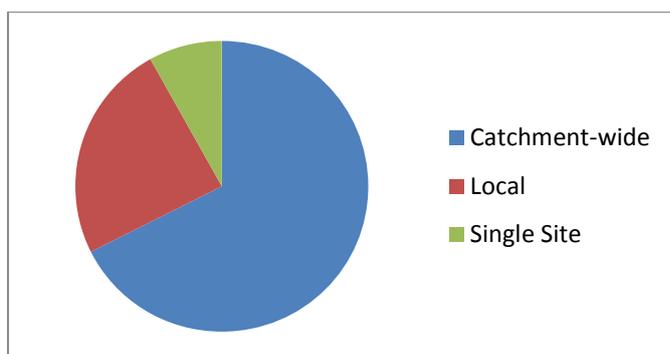

 Figure 1: Environmental domain covered by surveys

The questionnaire results also show that **78%** of surveys are being carried out as part of a wider monitoring programme.
Monitoring activity from other organisations may be complimentary to the wider monitoring programme, and the wider monitoring programmes may also provide additional useful information to organisations.
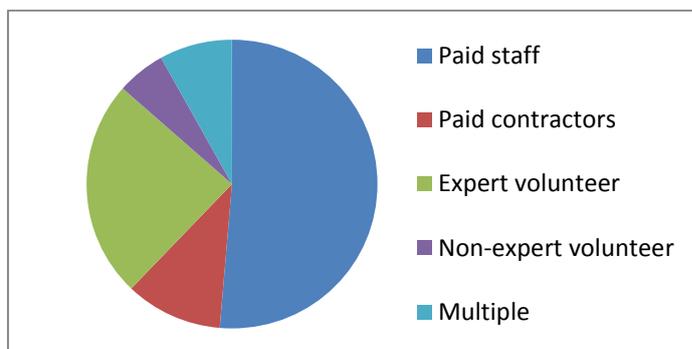
MONITORING DELIVERY

Figure 2 shows that the majority of surveys are being carried out on a catchment-wide basis. *This suggests potential for collaboration where sites overlap/are close-by, and that there is a large amount of monitoring information available across the catchment that may be of use to different organisations.*

Figure 2: Geographical remit covered by surveys

Organisations were asked to provide details of who organises, and collects the data on surveys. The majority of organisations showed their surveys are organised by professionals, but the data collectors were more varied, as highlighted in Figure 3.
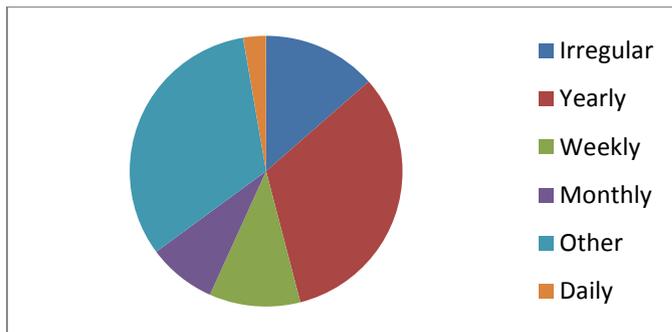*Sharing of data collectors may be possible particularly when utilising paid staff, and could be a real efficiency saving, accepting that skillsets will need to be assessed and additional training may be required.*

Figure 3: Data collectors for surveys

The frequency of surveys varied across the organisations as highlighted in Figure 4.
Where there are regular monitoring activities there is greater potential to share resources through co-ordinating activities.

Figure 4: Frequency of surveys

RESOURCES

In the questionnaires, organisations were asked to supply details of the equipment needed for surveys and the skills required by data collectors. The following shows the areas that were identified as necessary for monitoring activities.

Equipment:

Hand lenses • notebooks • recording cards • OS maps • moth traps • weather stations • air quality monitoring equipment • GPS • soil sampling equipment • EXO 2 sondes • ISCO 6712 water samplers •grapnels • ID guides •temperature loggers • binoculars • measuring loupe • dissecting microscope • waterproofs • cameras • nets • samplers for Ammonia monitoring • electric fishing equipment • boats • quadrats • telescope • binoculars • ringing equipment • scales • callipers • dormouse boxes

Skills:

ID skills • map reading skills •GPS understanding • water-sampling skills • electric fishing training, • kick-sampling • diatom analysis • ability to drive • people skills • lab skills • field craft skills

DATA SHARING

Sharing data collected through monitoring activities is a key method of collaboration and allows organisations to gain access to a far greater range of monitoring information than they may be able to collect directly themselves.

However, in order to have confidence in the information that they have been provided with organisations require data to be robust, and key to this is following a specific monitoring protocol.

46% of organisations had an existing protocol that they used for surveys and the other **49%** had specifically developed protocols for particular surveys.
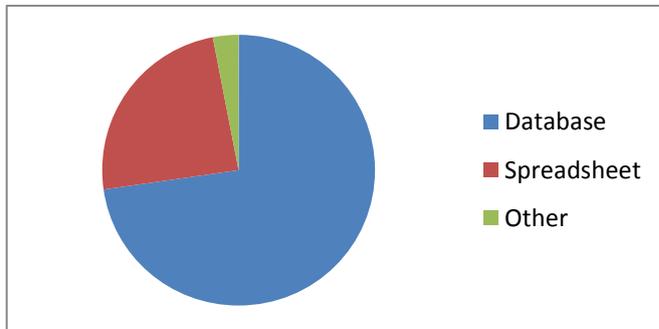**76%** of organisations have a quality assurance process in place for checking data.
Understanding monitoring methods and quality assessment used by different organisations can help to provide confidence in the data produced and therefore increase understanding of its applicability and potential use.
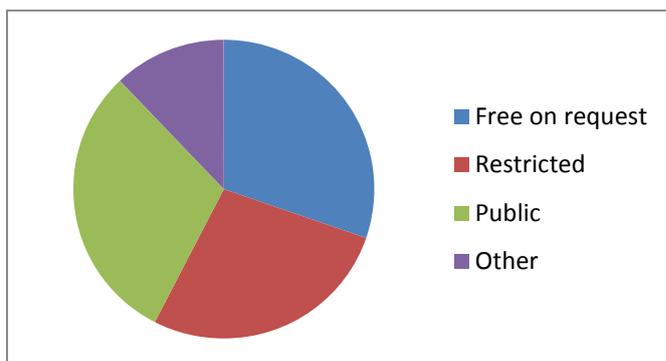
Understanding organisations' handling of data will also be key to beginning the collaboration

process. Organisations were asked to supply details of how their data is held and whether it is available to access. The majority of organisations hold their data either in a database or spreadsheet (Figure 5). There was variation over the accessibility of the data (Figure 6).

Issues of data accessibility can be discussed to ascertain whether organisations would be willing to share data, and where this is not possible to establish why, and if any steps could be taken to remove barriers to gaining access to data.

Figure 5: Storage of data

Figure 6: Availability of data

DISCUSSION

The questionnaire results show that collaboration is already happening between organisations, and there is great potential to consider where this can be built upon and new collaborations encouraged. The majority of organisations indicated that more data would be useful for collaboration, and so clearly there is an appetite to develop this area further.

The questionnaires have helped identify particular issues that could be discussed at the workshop. Some questions are suggested below that are intended to provide a starting point for discussion. They have been arranged under the following three headings:

Resource Sharing

- Does your organisation have equipment that could be shared with other organisations? Or, is there equipment held by other organisations that it would be useful for you to have access to?

- Do your data collectors have the necessary skills to undertake other types of monitoring? Is there the potential to undertake new or share training to increase the breadth of skills in both your and other organisation's teams to help collaborate in the field?
- Does your organisation have the flexibility to schedule your monitoring activities to enable collaboration?
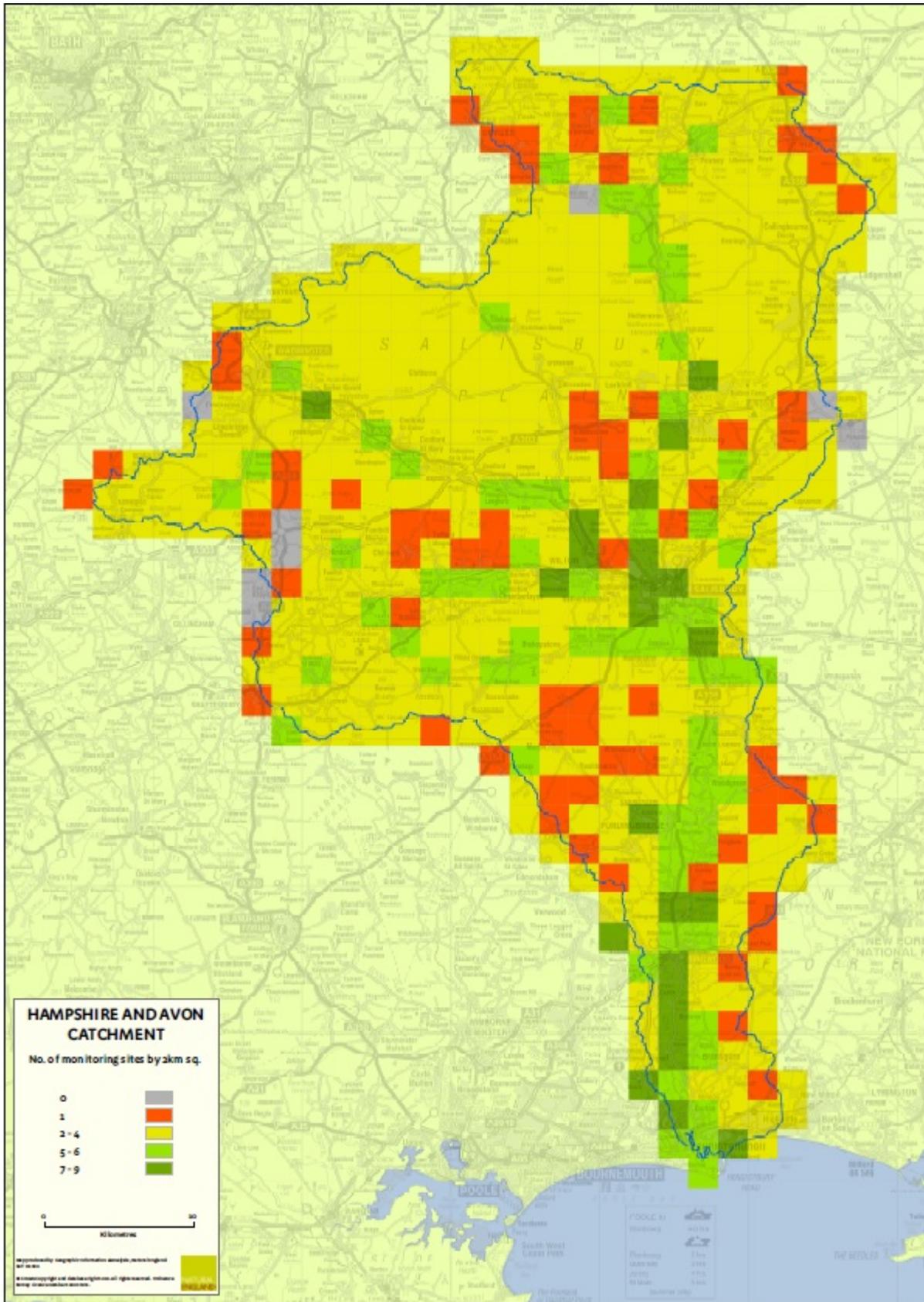
Knowledge Exchange

- Is your organisation sufficiently aware of other monitoring activity happening in the catchment area?
- Are there opportunities to exchange knowledge between your organisation and others?
- Is your organisations aware of opportunities to exchange knowledge? What could be done to make organisations more aware and encourage knowledge exchange?
- Can public/private/voluntary organisations exchange knowledge fluidly? If not, what are the barriers and how might they be overcome?

Data synthesis

- Can data be shared simply across your organisations I.T. systems etc?
- Can public/private/voluntary organisations share data? What barriers have you come across and how might they be overcome?
- Are there restrictions on some of your organisation's data, e.g. sensitive data? Do these need to be blanket restrictions or could some data be shared with known organisations where the use of the data is known?
- Are data accessible, e.g. in a sharable, searchable format? If data is not accessible, why is this the case and what steps could be taken to help the situation?
- What resolution is your organisation's data available at?

Coincidence Mapping of Hampshire Avon Monitoring Sites

Organisation	Botanical Society of the British Isles	British Trust for Ornithology	Centre for Ecology and Hydrology	Environment Agency	Forestry Commission	Game & Wildlife Conservation Trust	Hampshire Avon Demonstration Test Catchment	Hampshire & Isle of Wight Wildlife Trust	Hampshire Biodiversity Information Centre	Natural England	Plantlife	Wessex Chalk Stream & Rivers Trust	Wessex Water	Wiltshire Wildlife Trust
Botanical Society of the British Isles					Y								Y	
British Trust for Ornithology	Y				Y	Y		Y	Y		Y	Y		Y
Centre for Ecology and Hydrology				Y			Y						Y	
Environment Agency	Y	Y			Y	Y		Y	Y			Y		
Environment Agency Keeping Rivers Cool			Y			Y	Y					Y		
Forestry Commission		Y												
Game & Wildlife Conservation Trust	Y	Y			Y			Y						Y
Hampshire Avon Demonstration Test Catchment	Y		Y	Y										
Hampshire & Isle of Wight Wildlife Trust							Y			Y				Y
Hampshire Biodiversity Information Centre				Y		Y	Y			Y				
Natural England	Y			Y										
Plantlife	Y	Y												Y
Wessex Chalk Stream & Rivers Trust				Y			Y							
Wessex Water			Y		Y					Y	Y			
Wiltshire Wildlife Trust		Y		Y	Y	Y		Y	Y		Y	Y		

Workshop Feedback

The figures below include results from 17 attendees. There were 19 attendees at the workshop (excluding UKEOF/Steering Group members.)

Overall, the workshop ran very smoothly, with participants agreeing that the venue and organisation of the workshop were either good or excellent. The majority of participants felt that the workshop was relevant to their job. The speed collaborating session was not something that many participants had engaged in before, but the feedback shows this was largely successful.

	Poor	Average	Fair	Good	Excellent
Venue				53%	47%
General Organisation				18%	82%
Relevance to your job			12%	47%	41%
Discussion tables session			12%	70%	18%
Speed collaborating session		6%	12%	37%	35%

Were expectations met?

Expectations met fully: 88%
Expectations met partially: 12%

Will attendees follow up on anything?

100% will follow up on something

Could we have included anything else?

- Do it again with agreement that group should meet annually
- More time

Potential Methods of Collaboration for Environmental Monitoring

INTRODUCTION

This paper provides an overview of the types of collaborations that may be possible between organisations carrying out environmental monitoring in a defined area. Collaboration between organisations has the potential to lead to more efficient and cohesive working, enabling improved monitoring activities. The paper highlights the different types of collaborations that are possible for resource sharing, knowledge exchange and data synthesis.

RESOURCE SHARING

Sharing Equipment

Monitoring activity often requires expensive, specialist equipment. Sharing resources, particularly when budgets are constrained, can be a way forward for organisations to carry out or expand upon their monitoring activities cost-effectively.

Benefits:
- Reduced costs without reducing monitoring activity
- Ability to expand monitoring programmes with specialist equipment
- Ability to collect more robust, accurate measurements
- Data collectors develop new skills
- More feasible to keep up with technological advances

Barriers:
- Issues over ownership of equipment

- Issues over maintenance and storage of equipment

- Difficulties allocating time to organisations for use of equipment

Example: In Kent on SSSIs, Natural England shared expensive machinery with the Forestry Commission in return for labour from the Forestry Commission. This reduced costs and allowed woodland to be better managed.

Sharing staff / transport

Where monitoring sites are geographically close in location, sharing data collectors or transport to and from monitoring sites can be an effective option to make best use of resources.

Benefits:

- Potential to increase amount and types of monitoring activity
- Sharing of skillsets and knowledge between staff
- Economic saving where sharing transport (petrol, parking etc)
- Time savings and ability to refocus staff effort into other activity
- Sharing of support infrastructure and engineering teams to install and service observing systems

Barriers:
- Difficulty in sharing staff/transport if site locations are sensitive

- Different data collection protocols between organisations could make sharing staff difficult

- Training requirements? E.g. if staff need to carry out multiple monitoring activities?

- Relying on another person to carry out data could be problematic, e.g. illness could prevent measurements being taken at a specific time.

Example: A number of organisations have collaborated through the Wildlife Crime Network in the East of England, including the Environment Agency and Natural England. Through this scheme, trained EA staff carry out some work on behalf of NE, resulting in more efficient use of resources. There has been greater engagement with the community as a result of the collaboration, as the EA 24 hour help line is used for landowners to call when concerned about damage to SSSI land, when NE staff are unavailable.

Sharing facilities

Organisations could share facilities, for example laboratories, I.T. equipment or meeting spaces within a catchment area.

Benefits:

- Reduced costs on hiring meeting space/laboratory time
- Access to facilities/equipment that was not possible before.
- Greater potential for information-sharing and expansion of skillsets
- Time and transport cost savings where shared facilities are in a more convenient location

Barriers:

- Training for specialist equipment at a facility (e.g. GIS software) – should this be done by the hosting organisation?

Example: A sub-group of the Marine Science Coordination Committee, led by CEFAS, are investigating the potential for sharing facilities and equipment. A list of potential facilities for sharing has been compiled, listing the facilities and equipment available and the appropriate contact.

KNOWLEDGE EXCHANGE

<u>Exchanging information and advice</u>

Exchanging knowledge, and coordinating training needs can improve monitoring activity by creating webs of information and skills across a catchment area.

Benefits:

- Widen the knowledge base for monitoring within the catchment
- Identifying common training needs and responding to these collectively will lead to a broader skillset without duplication of effort.
- Better coordination of monitoring activities, for example leading to better engagement with land owners and local communities
- Awareness of breath of monitoring activity within a catchment may lead to increased research and knowledge, resulting in better catchment management
- More efficient monitoring can take place, following advice from other organisations (e.g. regarding survey sites etc).

Barriers:

- Reluctance to share information relating to sensitive monitoring

- Reluctance to share information relating to funding bids

Example: Collaboration through knowledge exchange has been successful in Scotland where Scotland's Environmental and Rural Services (SEARS) has been set up. This is a partnership of eight public bodies which share information over their monitoring activities in order to provide efficient and effective service to improve land managers' experiences. Through the scheme, land owners can deal with just one of the organisations within the partnership to find out information about any of the other organisations. Moreover, visits to the land are better coordinated by the partners which helps avoid duplication of effort.

Example: The Environment Agency has appointed Catchment Coordinators to work over designated Water Framework Directive catchments. The Hampshire-Avon catchment is an example of one of these catchments, where work is currently in progress. So far a workshop has been held looking at who is doing what on the Hampshire-Avon, and there have been positive outcomes from this including plans for a website for those working in the Hampshire-Avon to provide updates about their activities, and for a biannual newsletter about work on-going in the area. Although this example is not specific to monitoring activities, it is a useful case-study to show how broader schemes like this, that have already been set up in catchments, may be of benefit to monitoring activities.

Example: An initiative is starting in the Frome and Piddle catchment in Dorset, where the Frome & Piddle Catchment Initiative (F&PCI) Catchment Plan has identified the need for a monitoring network to be developed. A group of key stakeholders have met at an initial scoping meeting to discuss and identify the key monitoring issues, what is being monitored in the catchment area and what datasets exist. Following this, a task group is forming with relevant organisations to realise collaborations over monitoring within the catchment and prioritise actions for progressing the establishment of a more cohesive landscape scale monitoring network.

DATA SYNTHESIS

The various data-sets collected by different organisations across catchments may help provide context, or compliment other data being collected. By working together, organisations can share data which that may add context to the results of their own organisations' monitoring activity, and expand smaller datasets.

Benefits:

- Extension/expansion of datasets, and fill in data gaps
- Provide context for better interpretation of data from monitoring activities
- Help streamline and focus monitoring activities
- Enable improved/new research
- Exploration of citizen science schemes – resource efficiency and potential for large-scale data collection

Barriers:

- Access to data – some data may be sensitive and be restricted to certain audiences. Where the data is held and any cost implications may also raise issues
- Willingness to share data across public/private/voluntary sector.
- Data quality and validation issues – data collection standards may vary and data collection protocols may need to be assessed before sharing can go ahead.

Example:

- DTC Archive Project – this project is ensuring that the data received from the DTC projects is stored effectively and accessible by those with an interest in it.
- NBN Gateway. Several organisations collecting biodiversity observations already submit their data to the NBN Gateway, which has varying degrees of accessibility.