



Catchment Based Approach



Catchment Data & Evidence Forum 2019 – Summary

The Catchment Data & Evidence Forum was organised by the CaBA Catchment Data User Group (CDUG), which is a multi-sectoral CaBA working group, consisting of data users, data providers and modellers. The focus of this year's FORUM was on the collection and use of CaBA data. This is locally collected data, which is needed to compliment the national evidence base from government agencies and research institutes. **The enormous potential for CaBA data to contribute to the 25 Year Environment Plan was a key opportunity identified at the 2018 FORUM.** A series of discussions, followed by interactive voting, were used to set a workplan for the CaBA National Support Group.



What does CaBA need to do next?

Develop fundable propositions for key elements of a future CaBA monitoring programme and seek out funding sources and partners to co-develop bids.

Audit of existing survey methods so that the wider CaBA community understand what is already available and how to access it. Some groundwork has been done in developing the CaBA Citizen Science & Volunteer Monitoring Guide, although, this review needs to be updated and extended to include monitoring protocols, and different types of monitoring data. Significant frustration was acknowledged, at the proliferation of data gathering apps and platforms, which can only be detrimental to the long-term sustainability and credibility of CaBA data and evidence.

Establish a CaBA Monitoring Working Group to guide the development of CaBA data collection and use. This group would be used to guide the growth of CaBA data collection towards more consistent approaches and fewer data platforms. Initial steps identified in the FORUM include:

- Provide a 'CaBA kite mark' for key approaches and platforms so that CaBA partnerships can move towards a more consistent approach. Key resources will be published and curated on the CaBA website under the 'Volunteers and Citizen Science' topic.
- Refine and publish the EA "Approach to CaBA Data" so that CaBA partnerships know what their data can and can't be used for.
- Continue to identify and push for access to any datasets which the CaBA partners and the FORUM have identified as essential to support collaborative integrated catchment planning.

Develop nationally standard apps and platforms, aiming towards a 'CaBA Monitoring Cooperative' similar to the one established in Chesapeake Bay in the US. This will require significant funding and commitment from the CaBA community and government agencies. The CaBA Monitoring Working Group would need to develop this proposal. The CaBA NSG will continue to opportunistically use funded projects to build capacity within the partnerships and use the experience gained to feed into the proposal.

Engage with EA locally to explore opportunities for collaborative monitoring planning and delivery arising from the Strategic Monitoring Review.

How should government agencies respond?

A new vision for working together to use a wider range of information to manage the water environment has emerged from the Strategic Monitoring Review. There are four actions which government and its agencies can do to maximise the involvement of CaBA partnerships in gathering, sharing and using this evidence base to deliver greater collaborative environmental improvements:

Work with CaBA partnerships to agree and commission the 'agile' component of local monitoring. The Environment Agency will continue to identify and commission the sentinel component of their monitoring resource. However, the agile component of the monitoring for each catchment should be co-designed with the CaBA partnership.

The Environment Agency will re-develop their IT platform using CDUG to help guide the development so that it delivers maximum benefit to partnerships as well as the EA. The interactive voting suggested that the fisheries data would be the highest priority for the CaBA data & evidence community. This may reflect the make up of the audience or the quality/usefulness of the other national datasets.

Respond to the criticisms of the Environment Agency's water quality data. The interactive voting suggests that the Environment Agency's water quality data has become a very poor resource for catchment partnerships. This may not be an issue if the agile component of the monitoring programme is developed and co-designed with the CaBA partnership and the sentinel component is used solely for reporting rather than management.

Facilitate CaBA NSG technical team to access key datasets and contribute to the government's Geospatial Commission Strategy. The key datasets identified as essential to the work of partnerships were identified as:

- Water company 'Asset Database' for the sewerage network
- Bio-diversity data from Biological Record Centres
- Soils data from NSRI
- Deployment locations of Environment Agency continuous WQ monitoring kit
- Full CLAD or land ownership data
- Recent actual abstraction data from the Environment Agency

What worked well in this year's FORUM?

Feedback on the day confirmed that over 90% of attendees found the FORUM useful and would like it to be run on an annual basis. The organisation, tone and focus of the day were good and the location at Bristol Zoo was excellent. CDUG members will form an organising committee to plan and run future events. The lightning talks and networking time were extremely valuable and provide a great shop window for the work of leading research groups and practitioners.

Priorities for next year's FORUM

There is a danger that the FORUM will focus on the technology and platforms without ensuring that the data collected is focused on the adaptive management of catchments. CDUG will ensure that the application of data to catchment management is the focus when planning next year's FORUM.

The results from the interactive voting, notes from the discussions and the full list of presentations and weblinks are contained in the annexes. Outputs from the FORUM, including slides and videos of the presentations are found on the CaBA Website: <https://catchmentbasedapproach.org/learn/catchment-data-evidence-forum-2019/>

Annex 1 – Voting Results

The first set of questions were specific to Chris Thomas' presentation “Making a step change in the Environment Agency’s environmental IT – how can you help?”:

Qu. 1 The EA approach is not to use CaBA evidence in regulation, but to use it to understand the environment. The EA will not store CaBA data but will enable sharing & use via linked data. (Choose ONE response)

- 2 1. Strongly disagree with the ‘approach’
- 16 2. Disagree with the ‘approach’
- 7 3. Don’t know
- 34 4. Agree with the ‘approach’
- 2 5. Strongly agree with the ‘approach’

Qu 3. The EA are redeveloping their legacy database systems so they provide data externally as well as internally. (Rank datasets in order of importance to you)

- 11% A. WIMS (Water quality)
- 24% B. WISKI (Water quantity)
- 22% C. BIOSYS (Ecology data)
- 27% D. NFPD (Fisheries data)
- 17% E. Other e.g. Waste Database, let us know...

Qu 2. Which are the key features that the CaBA community needs from any new system? (Choose top TWO)

- 27% A. A simple query builder to extract data.
- 25% B. ArcGIS Online compatible.
- 26% C. A user-friendly interface to allow us to visualise the data
- 14% D. Stable web links
- 8% E. Other. From discussion / Drop us an email.

Qu 4. At the last FORUM data availability was still identified as a key barrier. Which of the following would be most useful? (Choose top two).

- 8% A. Recent actual abstractions
- 22% B. Soils data
- 19% C. Deployment locations of EA continuous WQ monitoring kit.
- 16% D. The full CLAD or similar land ownership.
- 35% E. Other? Call out if there is something specific

The next set of questions were about the use of apps and data sharing platforms:



Qu1. Which apps has your organisation or volunteers used to gather local data & evidence? (Select all that apply)

- 15% A. PlantTracker
- 11% B. River Obstacles
- 1% C. AMBER
- 4% D. AqualInvaders
- 16% E. Freshwater Watch
- 23% F. Other
- 29% G. None of the above

Qu2. What are the barriers to using apps or shared data collection platforms? (Select all that apply)

- 16% A. Prefer to manage and control our own data
- 9% B. Lack of skills and training
- 19% C. Finance and budgeting
- 40% D. Too many apps and conflicting databases
- 4% E. Access to technology
- 12% F. Other

Qu3. How far should local data gathering be organised at a national level? nationally standardised and managed, with data standards, apps and platforms (Select one)

- 13% 1. Nationally standardised, managed and funded by government
- 50% 2. Nationally standardised, managed and funded in partnership
- 33% 3. Nationally standardised, but locally managed and funded.
- 4% 4. bespoke local solutions not coordinated centrally

The final question was about future development of CaBA monitoring and what to focus on first:

What could an enhanced CaBA Monitoring Programme look like?

- Toolkits
- Templates
- Training
- Data management
- Tech support
- Regional hubs

National or local?



What should we work on first? (top 3 in order of preference)

- 23% A. Find funding for national CaBA monitoring programme
- 30% B. Setup CaBA Monitoring Working Group to agree scope
- 32% C. Audit of monitoring methods and sharing existing ones
- 11% D. Statement of position from EA to understand how CaBA data will be used to change action
- 2% E. Other – from discussions
- 0% F. Other – from discussions
- 2% G. Other – email us afterwards

Annex 2 Discussion Feedback

Workshop participants were asked to discuss and provide feedback on a range of topics. This is a summary of the feedback points reported verbally or via flipcharts.

Key points regarding use of CaBA data for regulatory purposes:

- major differences between urban and rural catchments (in urban areas CaBA data has been used to prosecute polluters, but in rural areas this would alienate farmers and landowners)
- observations and pollution incident reporting can be used as a trigger - this is not necessarily the same as CaBA monitoring data
- need to know data quality to know what decisions can be made on the basis of that data
- data quality is not the same as relevance; 'lower' quality data may be more relevant to the issue in question than 'higher' quality data
- more datasets measuring the same thing in different ways = more value (weight of evidence)
- need more clarification about opportunities for providing evidence, e.g. feeding in evidence of WFD failures

Discussion points regarding the key features needed from EA data sharing systems:

- Metadata needs to be available with the data itself
- Use REST APIs for data publication services
- Work with designers of other platforms

What other opportunities might an enhanced CaBA monitoring programme provide?

- **Understanding Catchments**
More flexibility in future data gathering. EA to focus on national data and sentinel network, CaBA to focus on gap filling // Adding to weight of evidence // gain better understanding of our rivers // fill evidence gaps // Comparing data to spot anomalies // Passive Sampling // Expand our scope to investigate headwaters and estuaries, not just waterbodies
- **Changing Outcomes**
Increased pressure from more reporting of incidents // Develop more resources – especially for analysis – to lead to wisdom & delivery // Volunteers could have feedback loops on what they have achieved // Sustaining interest in CaBA and gaining voluntary support
- **Apps and Platforms**
Availability of a wide range of tools/apps etc. // Data sharing platform should be re-useable // Pick a small number of trusted service providers // use partnerships to contain the explosion in number of apps / platforms // Data directory/sign posting // If you want your data to be used, use the CaBA approved app-
- **Engagement**
Opportunity to grow citizen science // More opportunities in public engagement on monitoring – plastics / pharma // Geocaching – other apps = fishing // People can see the change // Volunteers can see bigger picture that they are feeding into and how they can contribute e.g. an outfall safari conference // Joining up with water companies // Use farmers' ELMS soil data (with permission)
- **Data standards and National Consistency**
National CaBA working group for monitoring // define basic data formats // developing data standards // consistent data formats // increased acceptance of widespread CaBA datasets // linking monitoring to evaluation and investment // Nationally consistent picture of monitored elements – much easier to see the bigger picture, to prioritise and to spread the message // Training citizen scientists – refreshers and perhaps EA accreditation

What would the barriers be to developing an enhanced CaBA monitoring programme?

- **Financial and Resource Constraints**
Funding / cost // Initial pain to standardise data – who does this? Who pays for this? // Manpower needed – specialist skills // How many catchment partnerships even have an inventory of monitoring?
- **Legal Barriers**
Legislation needed // Protective / Intellectual Property Rights // Data owned privately
- **System Change Barriers**
We are a long way from collaborative monitoring – still very much agency owned // Need significant transformative change to create and support true collaboration
- **Engagement Barriers**
Need more water company engagement // People want ownership // Keeping people motivated // Awareness of the responsibilities on quantity and quality by the public
- **Scope and Implementation Barriers**
Needs to encompass England, Scotland and Wales // Understanding what to use and when // How do we define standards and how to we maintain consistency // Training for citizen scientists

Annex 3: Presentations and Weblinks

Watch the session videos all the way through, or click the talk titles to open the video at that location. Click the weblinks or further info column for key resources or further information.

Session 1 Video: <https://youtu.be/BvTjgwA-8vl>

Session 2 Video: <https://youtu.be/A9ugvakNdQI>

Session 3 Video: https://youtu.be/HdHU_27em9I

Talk title and Video Link	Presenters	Organisation	Weblinks or Further Info
SESSION 1			
Welcome to the Forum	David Johnson, Michelle Walker	The Rivers Trust	Forum Outputs
Keynote	David Lerner, Bob Harris	University of Sheffield	
Making a step change in the Environment Agency's environmental IT – how can you help?	Chris Thomas	Environment Agency	Annex 2 Voting Summary
CaBA Data Package	Anneka France & Lucy Butler	The Rivers Trust	CaBA Data Hub
Prioritising action using data	Caitlin Pearson	West Cumbria Rivers Trust	West Cumbria Catchment Story Map
Natural Capital Assessment	James Mathews	Atkins	Contact Atkins
Mapping potential sites for constructed wetlands	Sebastien Piet Zacho	SEGES	Scalgo Live Tool
The CAMELS Dataset	Gemma Coxon	University of Bristol	Contact UoB
Cadastre: a Geo-enabled Register of the Ownership and Extent of Land and Property in England & Wales	Pete Wain	Triage	Cadastre
Smarter Land Use	Tim Hopkins	The Land App	The Land App
Citizen Science Research	Izzy Bishop	Earthwatch	Earthwatch

Natural Flood and Pollution Planning Tool	Gareth Old	CEH	Contact CEH
SESSION 2			
What next after the Strategic Monitoring Review?	Ben Bunting	Environment Agency	SMR Reporting Roadmaps (Draft)
Citizen Science Investigates and Local Action	Simon Browning	Westcountry Rivers Trust	Citizen Science Investigates
ArcGIS Hub	Miles Gabriel	ESRI UK	ArcGIS Hub
Using Earth Observation for assessing the effectiveness of measures for controlling rural diffuse pollution	Ben Hockridge	ADAS	Contact ADAS
Cartographer & MoRPh	Dave Gurnell	Cartographer Studios	Cartographer
INNS Mapper	John Cave	York Wildlife Trust	INNS Mapper
Coreo	Dave Kilbey	Natural Aptitude	Coreo
SESSION 3			
Smarter Catchments	Helena Soteriou	Thames Water	Contact TW
An introduction to FreeStation and //Smart: sensing for real time monitoring	Mark Mulligan	Kings College London	Freestation
River Health Checker App	Guy Pluckwell	Environment Agency	River Health Checker App
Outfall Safari Guide and Toolkit	Phoebe Shaw-Stewart	Zoological Society of London	Outfall Safari Guide and Toolkit
Sediment Fingerprinting	Charlotte Chivers	University of Exeter	Contact UoE
Monitoring within the Riverlands Project	Ashraf Afana	National Trust	Contact National Trust
Time lapse camera for pollution spotting	David Lerner	Friends of Bradford's Becks	Contact Bradford Becks
Catchment Science. Fieldscale monitoring handbook	Glenn Olschner-Castle	Atkins	Fieldscale Monitoring Handbook
Chesapeake Bay Monitoring Cooperative	Liz Chudoba	Alliance for the Bay	Chesapeake Monitoring Cooperative