

Strategic Advisory Group Meeting

Water Resources East

14th March 2023

 www.wre.org.uk

 [@WaterREast](https://twitter.com/WaterREast)

 [Water Resources East](https://www.linkedin.com/company/water-resources-east/)

Agenda

Item	Presenter
Welcome, introductions and housekeeping	Paul Leinster
Letter from Defra: a second round of regional planning	Ben Fitzsimons
Update on WRE staff and budgets	Ben Fitzsimons
Feedback and next steps of WRE's draft Regional Water Resources Plan	Rebecca Bishop/ Ben Fitzsimons
Update on WRE's Flagship Projects: • Water for Tomorrow • Norfolk Water Strategy Programme • Essex Water Strategy • Bedford to Milton Keynes Waterway Park	Julia Beeden Luke Waterman Julia Beeden Ben Fitzsimons
Discussion: WRE's role in drought management	Ben Fitzsimons
Close	

House-keeping

- We will be recording this session
- The recording and slides will be posted on our website
- Please mute microphones unless you are speaking

To ask a question:

- Use the Q&A tab to type a question (along the top toolbar)
- Raise your hand when we come to the Q&A sections



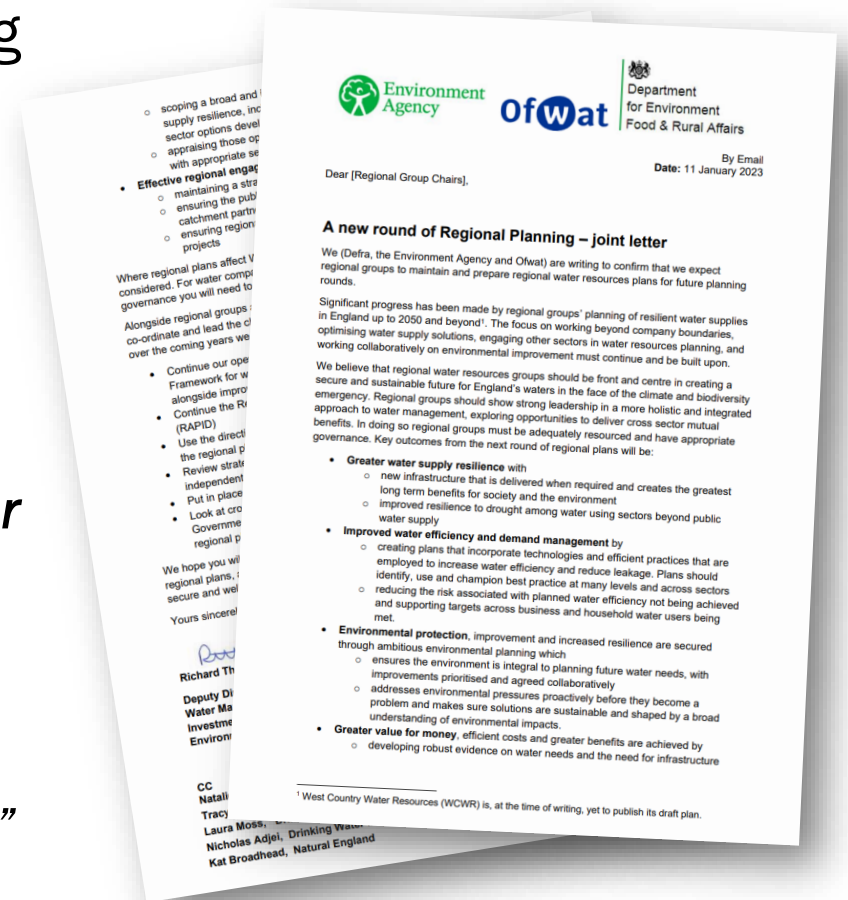
- The chat feature is for technical issues and comments only. Please use the Q&A tab for questions

Letter from Defra: a second round of regional planning

- Joint letter from Defra, the EA and Ofwat confirming there will be a second round of regional planning through to 2029.
- Read the full letter [here](#).

*“We believe that **regional water resources groups** should be front and centre in creating a secure and sustainable future for England’s waters in the face of the climate and biodiversity emergency.*

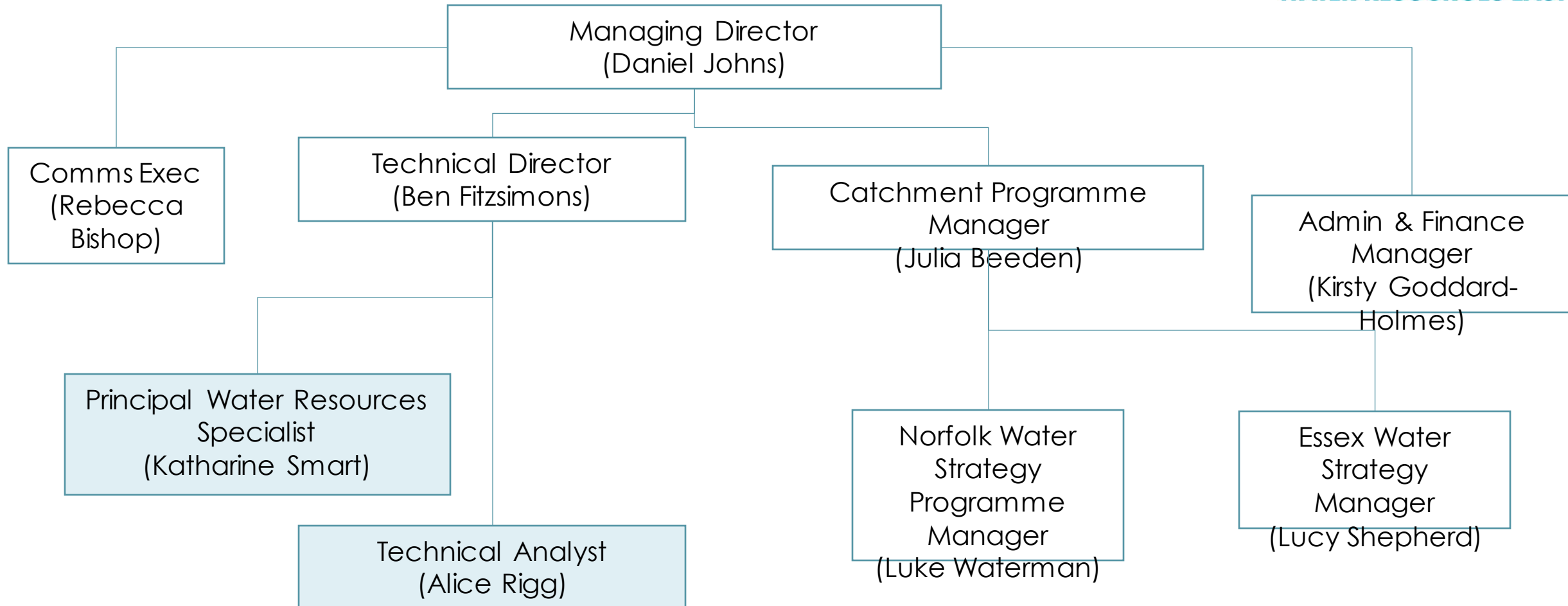
“Regional groups should show strong leadership in a more holistic and integrated approach to water management, exploring opportunities to deliver cross sector mutual benefits.”



WRE staff and budgets

- Budget for 2023/24 approved by the Board:
 - Membership fees for board members to remain at 2022/23 levels, to be invoiced in April
 - Approval to recruit two new technical staff
 - To split their time between public water supply, agriculture, energy and environmental analysis
- Changes to team:
 - Rachel Dyson has started in her new role at Anglian Water.
 - New technical staff arriving:
 - Alice Rigg: started 6 March
 - Katharine Smart: starting 1 May

New team structure



Update on Regional Plan consultation

- Media coverage and engagement during the consultation period
- Overview of feedback to consultation questions
- Summary of feedback by sector
- Overview of regulators' feedback (to date)

Media coverage to date

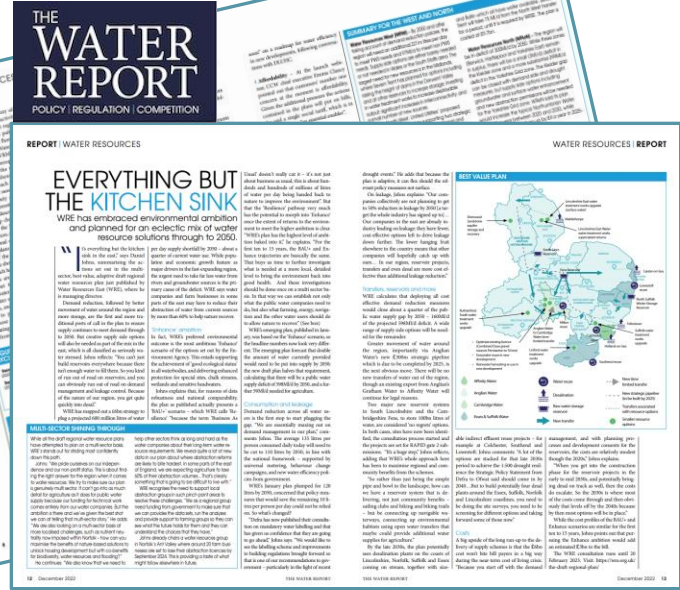
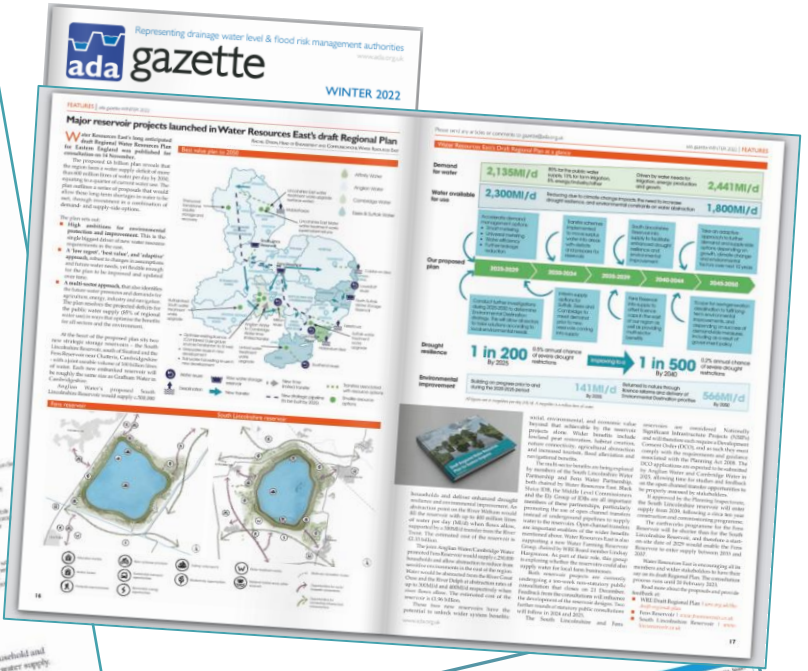
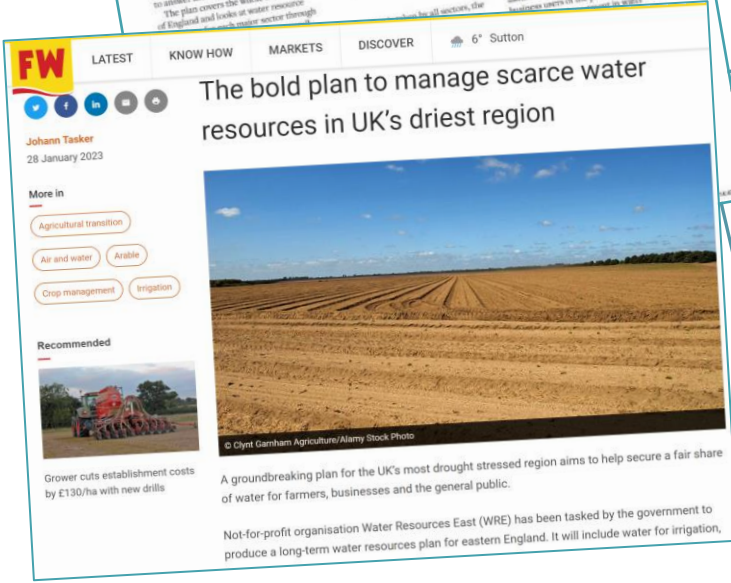


BBC Look East



BBC Look North and Lincolnshire

- [BBC Radio Cambridgeshire Timing 1:07:30](#)
- [ADA Gazette Winter Edition](#)
- [Eastern Promise Podcast](#)
- [Eastern Daily Press \(about regional plan\)](#)
- [Farmers Weekly \(January 2023\)](#)
- [Eastern Daily Press \(Norfolk Farming Conference\)](#)
- [East Anglian Daily Times \(Fresh4Cs conference\)](#)
- [British Farmer and Grower Magazine \(February 2023\)](#)



Webinars, meetings and conference talks

Month	Event
November 2022	National launch webinar 17.11.2022 Cambridgeshire Development Forum 18.11.2022 Greater Cambridge planning meeting 21.11.2022 WRE launch webinar 22.11.2022 Norfolk Farming Conference 30.11.22
December	Bedfordshire LNP AGM 1.12.2022 Mardlers 6.12.2022 Welland Valley Partnership 6.12.2022 Natural Cambridgeshire 14.12.2022 Lincs NFU Water Group 15.12.2022
January 2023	WRE non-household water efficiency webinar 12.01.23 NFU Water Conference 30.1.23
February	Witham catchment partnership 02.02.23 Fresh4Cs Conference 03.02.23 Cambridge Forum for the Construction Industry 06.02.23 Cranfield AgriTechE Conference 08.02.23 Bedford Group of IDBs 09.02.23 Hydrogen Week UK 13-19.02.23 ESWAG AGM 20.02.2022

Month	Event
March	Great Ouse ADA Branch AGM 7.03.2023 Welland catchment partnership 14.03.23 FPC Futures & Careers 2023 16.03.2023 Waterwise conference 21.03.2023 Water for Tomorrow conference 22.03.2023 Keep Our Rivers Flowing summit 29.03.23
Later	Fenland SOIL Workshop 17-18.04.23 Flood & Water Live 5-6.07.2023

Norfolk Farming Conference highlights water supply worries

2nd December

BUSINESS



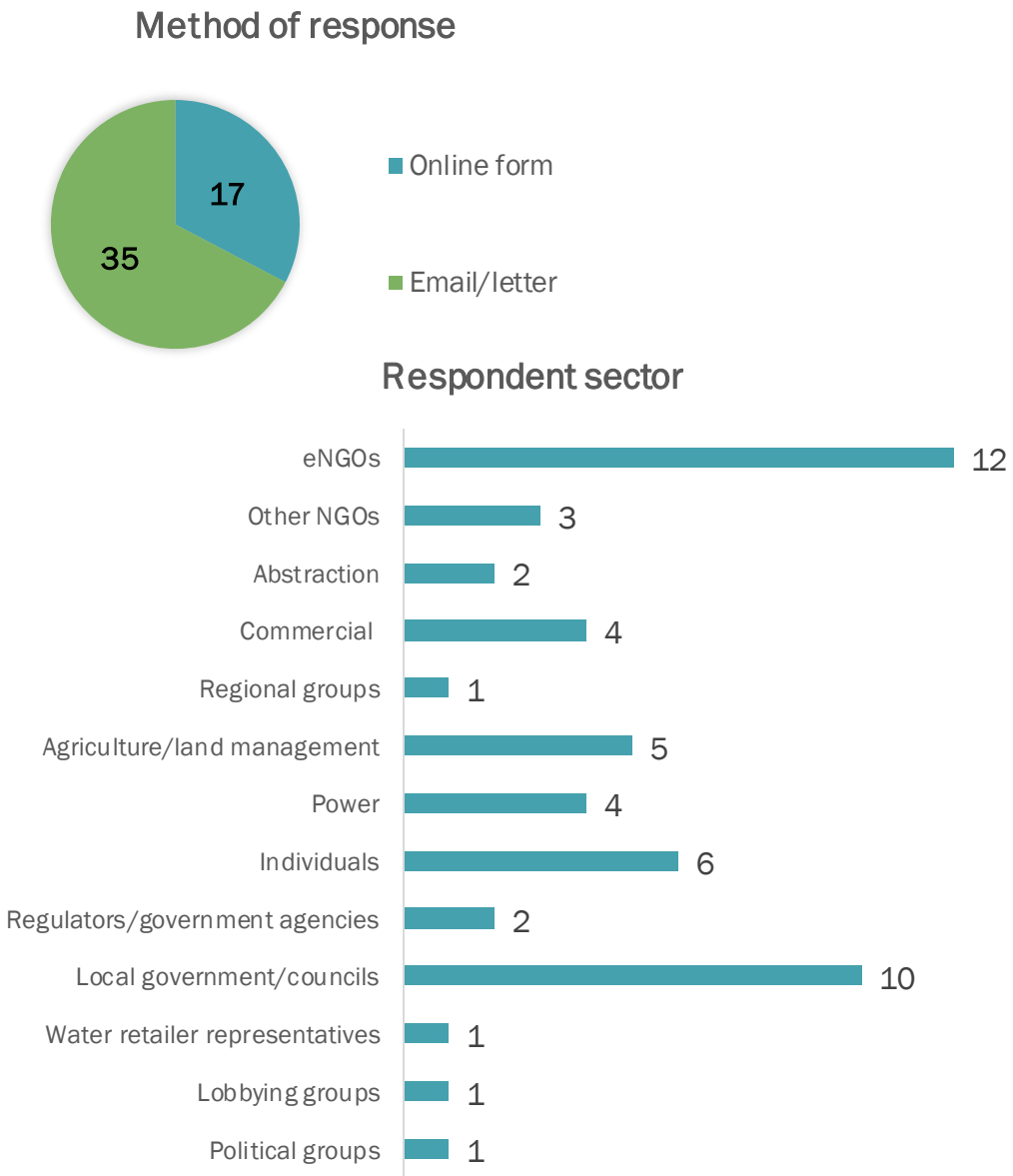
Further engagement

- Recording of talk: 'WRE's Draft Regional Plan: Implications for Agriculture' – [December 2022](#)
- WRE Newsletter – February 2023, Issue 1
- All [recordings](#), [publications](#) and further resources are available on our website

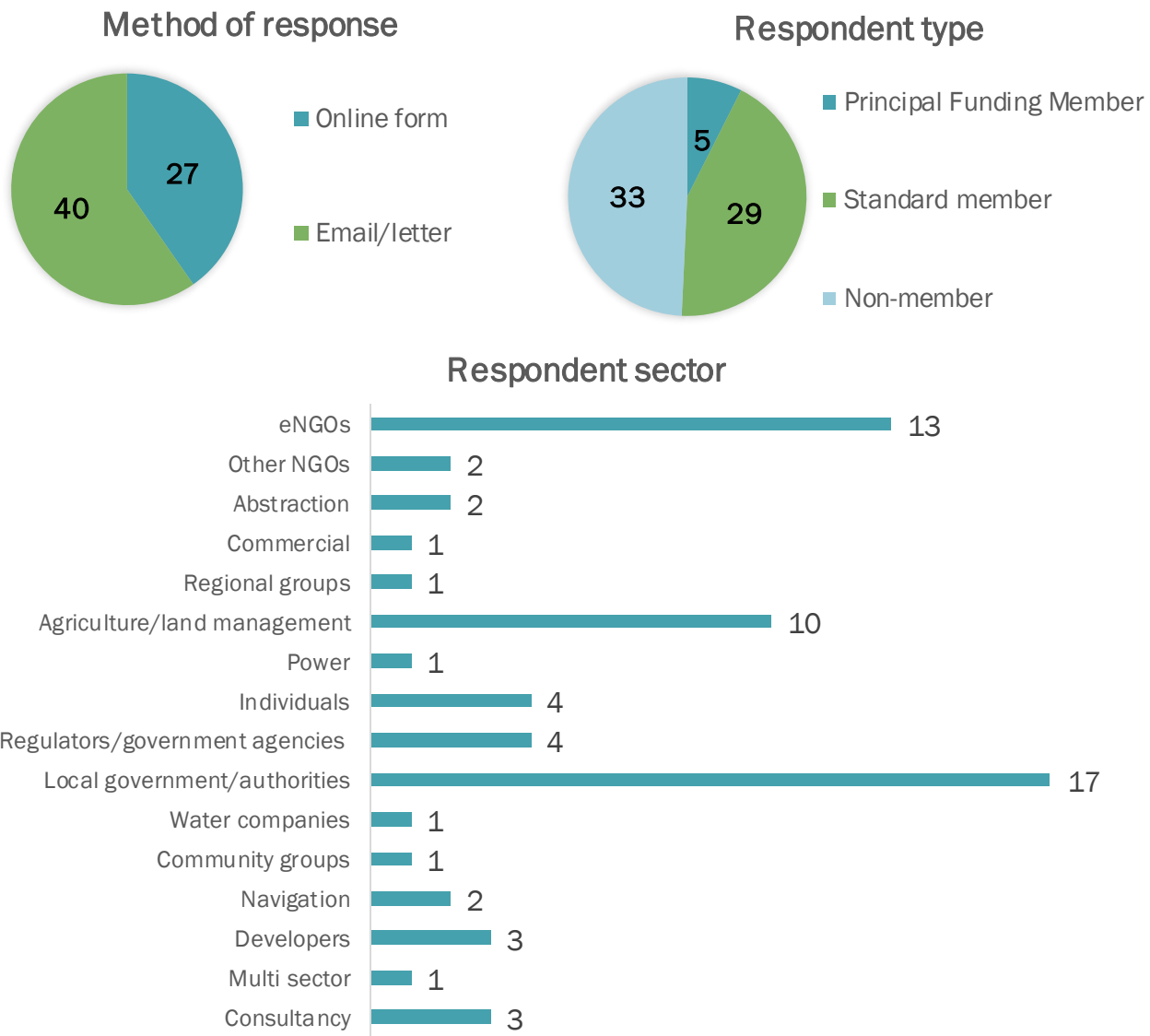


Key statistics

Emerging Plan, 52 responses overall



Draft Plan, 65 responses overall (still waiting for feedback from Ofwat & RAPID)

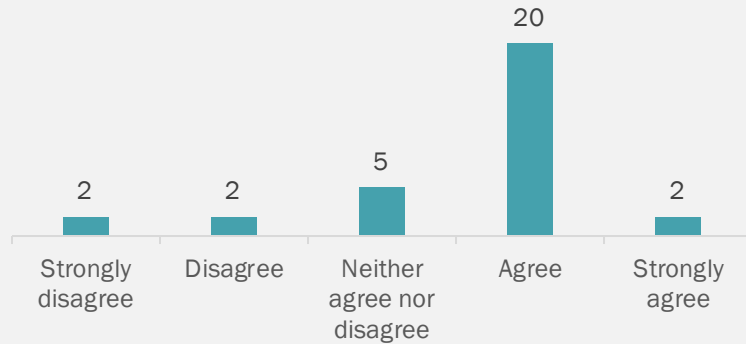


Responses to consultation

(includes responses that contained quantitative data only)

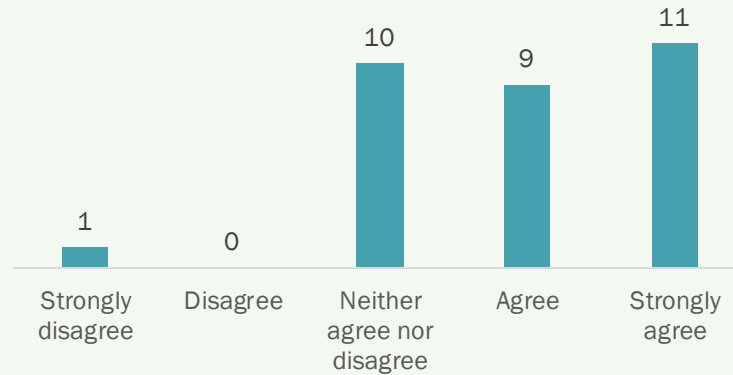
1

WRE has presented credible region-wide projections of future water needs and deficits across all sectors and the environment.



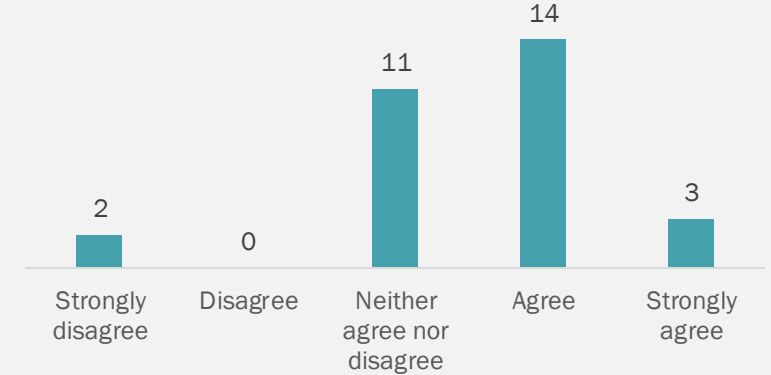
2

WRE's ambition should be to achieve the outcomes associated with the 'Enhance' Environmental Destination scenario by 2050.



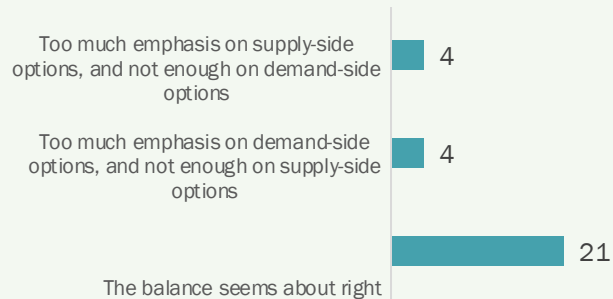
3

WRE has taken the right approach to identifying potential solutions to mitigate the projected deficits.



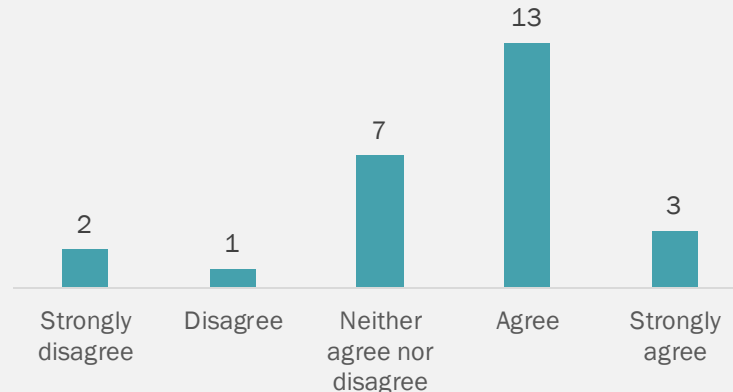
4

Does our proposed plan strike the right balance between demand and supply-side options for the public water supply?



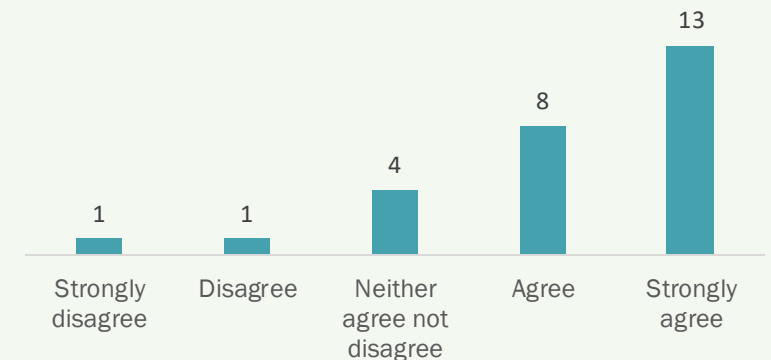
5

WRE's proposed plan includes the right low-regret supply-side options in the short, medium and long-term.



6

WRE's proposed plan has been co-created in a fair, open and transparent way, involving the right stakeholders.



Summary of feedback by sector (1)

Agricultural sector	• Promotion of smaller, more agile supply-side solutions which can become operational quickly. • Risks and implications for agriculture must be considered if WRE follows 'Enhance' ED without safeguards for maintaining and growing food security. • Regulators must work with farmers to prepare for and reduce the impact of changes to abstraction licences. • Priority for WRE to quantify future agricultural need and deficits at a catchment scale. • Proper and secure funding mechanism for agri sector must be established. Financial implications for agri must also be explored. • Demand-side savings should derive from PWS, not agri licence cuts. Water companies should aim for 50% leakage reduction by 2050. • TUBs should be retained as option to manage PWS demand during droughts. • Greater focus on nature-based solutions to store water and manage river flows on farmland. • Benefits of new supply options unclear for agri sector – more work needed on how they support short-, medium- and long-term risks for agri sector.
Power sector	• Proper funding required for multi-sector inclusion and assessment – ideally to come from central government. • Long-term certainty needed for power and hydrogen production that water needed to operate power plant will be available. Licence reliability must reflect lifetimes of power projects. • Possibility of future green hydrogen plant using desalinated water must be explored further. • Must consider wider impacts associated with achieving net-zero, e.g. impact of licence cuts to access water for power/hydrogen production. • Supportive of Fens Res and SLR provided water abstracted to fill reservoirs (from River Trent) will not impact power sector. However, impact of Grand Union Canal and Severn Thames Transfer on power sector should be considered - more engagement needed with non PWS on impact of transfers in particular.
Environmental sector	• Supportive of 'Enhance' ED, but unclear whether ambition will be reduced over time – longer-term environment impact must be considered. • Lack of environmental water budgeting in current plan. • Focus on large scale, carbon and cost heavy infrastructure lacks flexibility. More investment and greater strength of voice needed in scaling up sharing schemes and local capture and store adoption. • 2050 timescales to be brought forward. 'Enhance' ED timeframe to be accelerated through work with catchments and farm clusters to increase resilience. • Significant reliance on desalination; gaps in evidence of environmental impact of desal and other measures proposed. • Emphasis on seeking holistic approach to water management needed, e.g. linkage to flood risk management and storage/usage of surplus winter rainfall. • Nature-based solutions such as concept of 'whole farm reservoirs' should be considered. • Acceleration of progress/support for multi-sector catchment scale planning is essential.

Summary of feedback by sector (2)

Navigation sector	• Supportive of Grand Union Canal and open water transfers. Bedford and Milton Keynes Waterway Park to be considered in future options appraisal. • Environmental, societal and economic benefits of waterways should be considered, but also potential issues like flow rates, level changes, operation and maintenance of new and existing structures, and priorities during times of high demand. • Further involvement needed from navigation sector in scoping works of SLR.
Councils/local authorities	• Growth forecasts should be more detailed according to area. • Some councils thought leakage reduction and smart metering should be rolled out more quickly, and that PCC reduction targets were not ambitious enough. • Generally supportive of new reservoirs, although further detail needed on channelling of water and locations/directions of pipelines. More detail also required on benefits of reservoirs for agri sector. • Divided opinions on desalination as a low-regret option, but agreement generally that desal necessary as a longer-term option. • Oxfordshire CC believed WRE should pursue the Anglian to Affinity Transfer as preferable to some options within WRSE's plan. • Capture and reuse supported but implementation needs more work. Short-term options should be developed further. • Agreement with adoption of 'Enhance' ED. Abstraction reductions generally supported, but further consideration needed for impact on licence cuts for agri. • Changes to groundwater abstraction must be modelled to understand flood risk impacts to communities and the environment. • Environmental, social and economic benefits and drawbacks associated with supply-side options must be considered. • Further water efficiency measures should be considered e.g., retrofitting existing buildings in all sectors. • More detail required on how PCC reduction will be enforced. Increasing public awareness and investing in a behavioural change programme to be prioritised.

Summary of Environment Agency feedback

Recommendations

- | | |
|---|---|
| 1. Resolve short-term public water supply deficits and risks to the environment. | 5. Justify that the preferred plan is best value and reservoir options are low regret. |
| 2. Promote sufficient supply options to meet current and future water need. | 6. Align and improve consistency with water company WRMPs, including levels of service and drought options. |
| 3. Act now to secure the long-term environmental needs of the region. | 7. Work to ensure multi-sector needs and options are included in the final regional plan. |
| 4. Do more to reduce water demand, including reductions in leakage and water use by individuals and businesses. | Wider recommendations: <ul style="list-style-type: none">• Regional plans should be ‘active’ and kept under review as options are delivered – with biannual progress reporting• Take account of new Water Resources Planning Guidance |

Summary of Natural England feedback

We welcome the done work so far in identifying overall scale and need for water across the region.

We suggest future work should prioritise:

- refining water needs in space and time to ensure the best environmental outcomes are secured
- finding solutions for non-PWS sectors
- increasing the pace of delivery so short and medium term deficits for environment and non-PWS can be addressed

We welcome the ambition to meet the Enhanced environmental destination scenario.

- The water needs of the whole environment are currently approximated using river flows, which don't automatically address the water needs of all priority habitats. Resolving this with more specific surface and groundwater modelling at ecologically appropriate scales and resolution for the whole region should be a priority.
- Deferring decisions on some options, particularly desalination, puts the environment and growth at risk. Bringing forward the development of more new supplies would accelerate their delivery and provide a "plan B" if demand management fails to deliver savings as planned.

Pathways that address risks to delivery should be developed, particularly around non-option (demand management and leakage) delivery and option delivery timelines

Timeline through to the final regional plan

Business Plan key dates

Regional
Planning key
dates

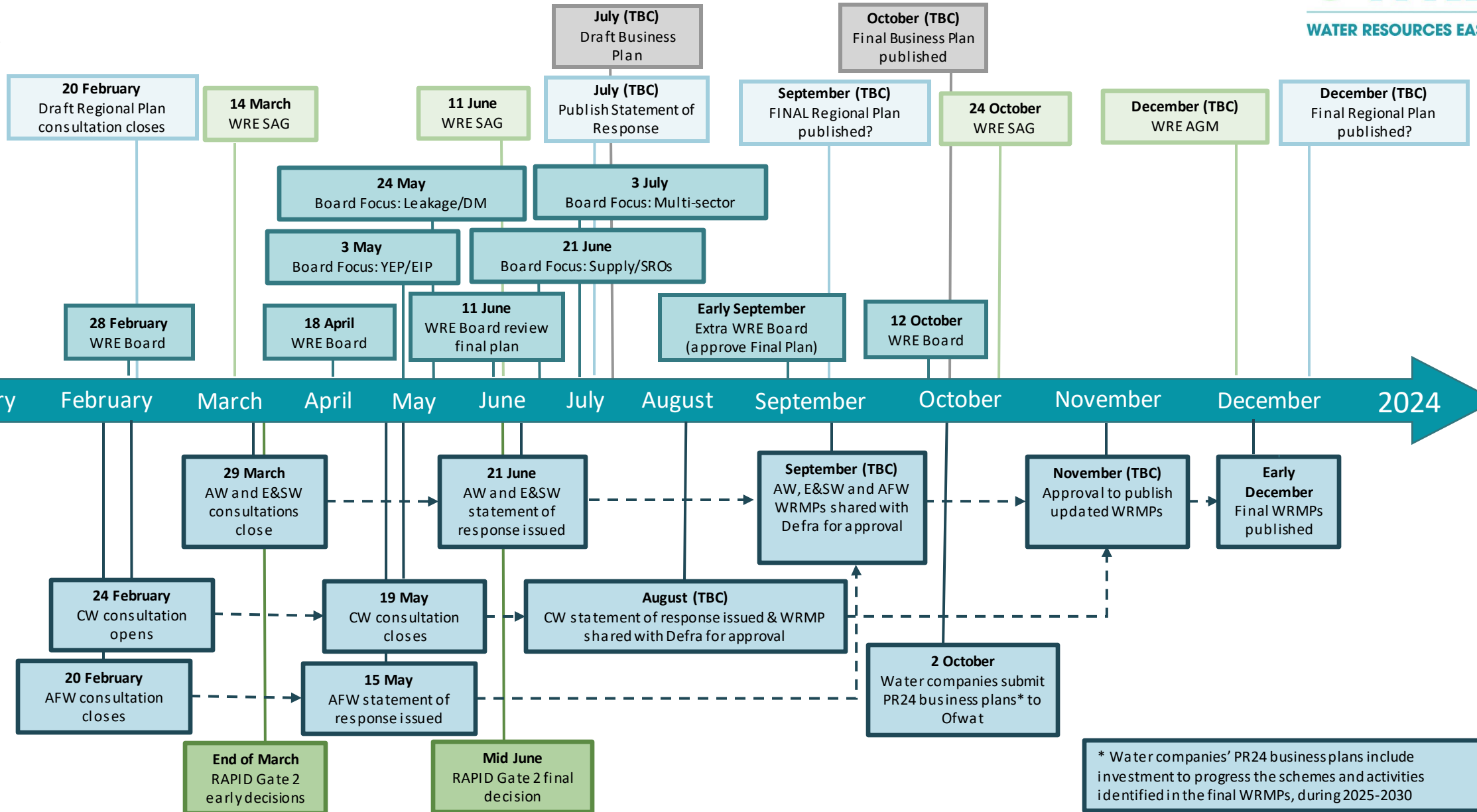
Strategic Advisory
Group meetings

WRE Board meetings

2023 January February March April May June July August September October November December 2024

Water company
WRMP key dates

RAPID key dates



Questions?

Update on projects

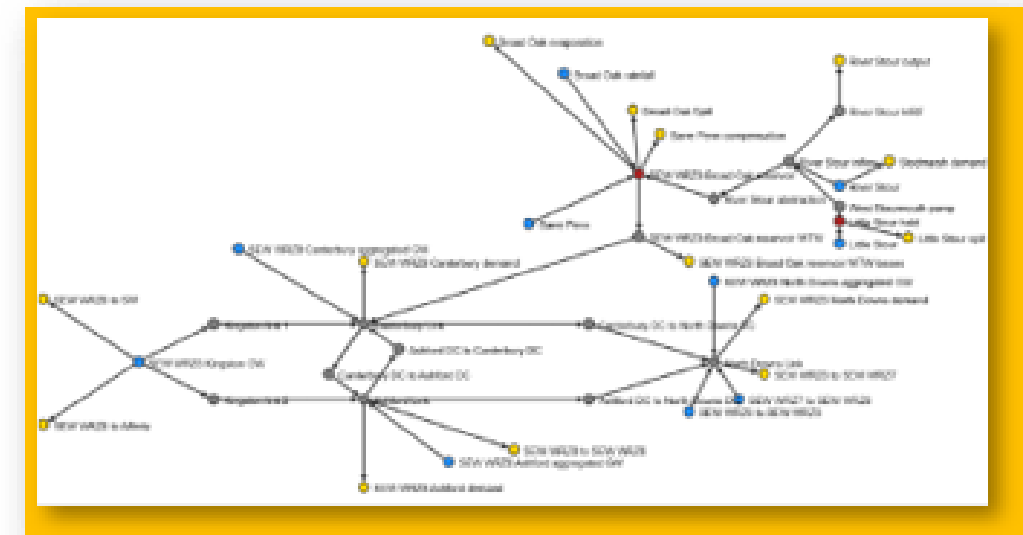
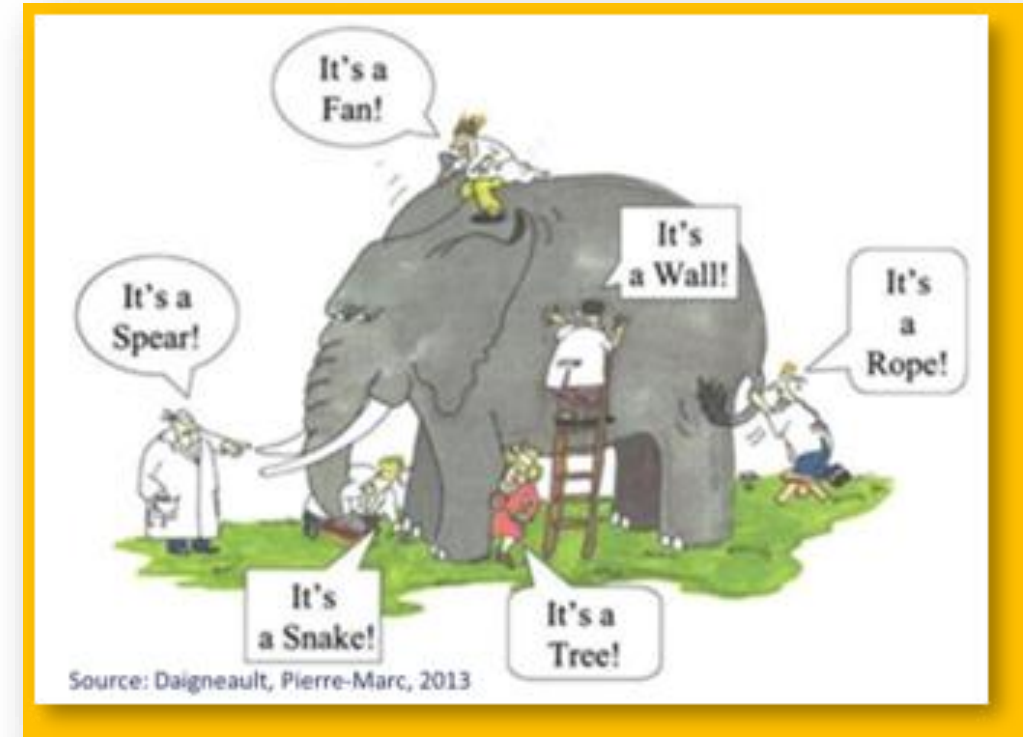
- Water for Tomorrow
- Norfolk Water Strategy Programme
- Essex Water Strategy
- Bedford and Milton Keynes Waterway Park

Water for Tomorrow

Conference: Wednesday 22nd March 2023
Online or in person at IET Savoy Place, London, WC2R 0BL

Programme outputs

- Participatory modelling - a whole systems approach
- Groundwater availability maps
- Soil moisture monitoring
- Supporting water abstractor groups - SuperWAG
- Agricultural surveys re impacts of lack of water
- Groundwater monitoring
- Investment in local projects across the regions, engaging catchment partners
- Hydrological catchment modelling
- Exploring decision trade-offs
- Catchment management options visualisation tool

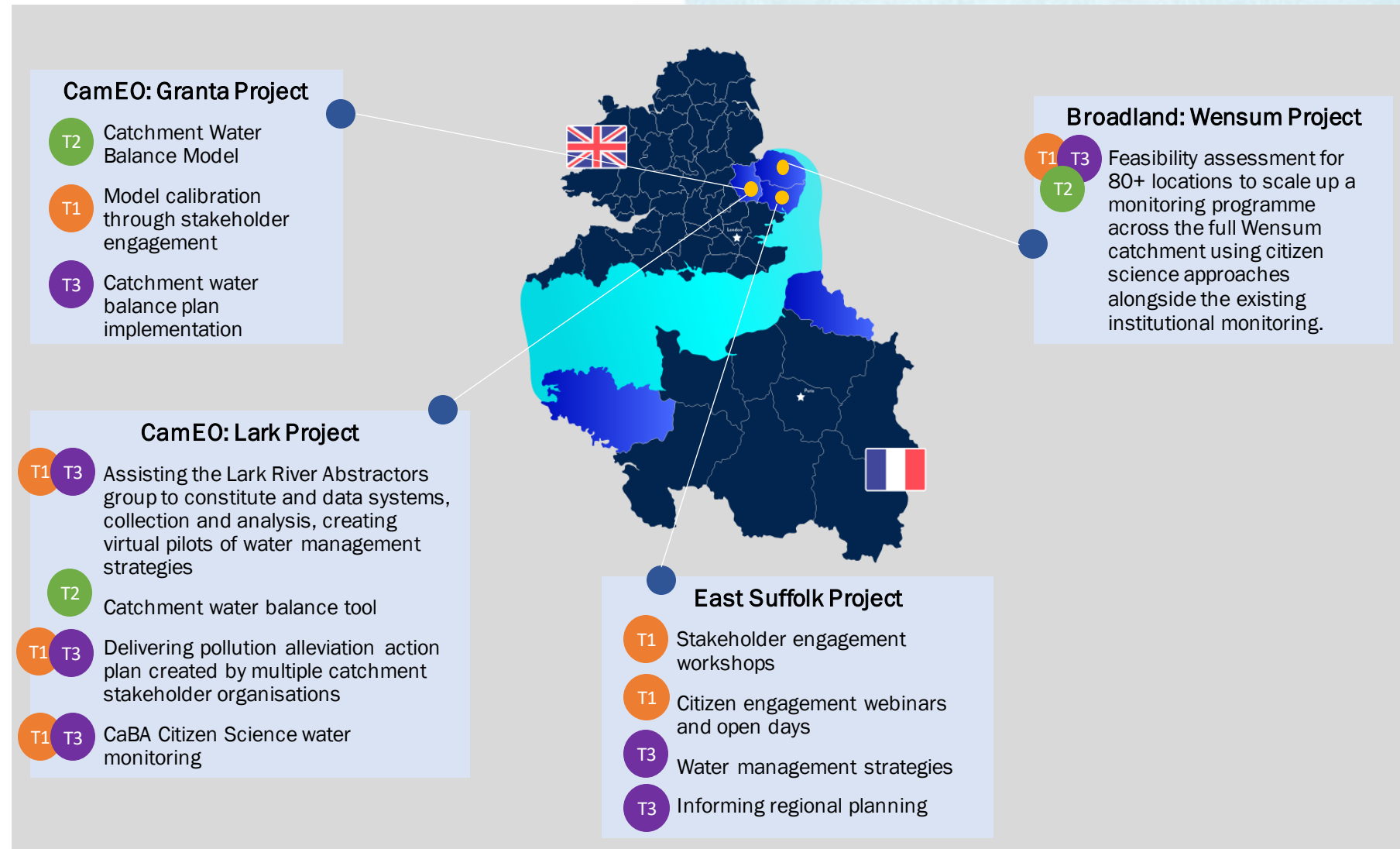


Local projects

- Local UK Projects have been awarded funding through the joint RT – EA Water Resources Communication and Engagement Fund. Delivery of the Water for Tomorrow project is included in three UK pilot areas: CamEO, East Suffolk and Broadland catchments.

- This map identifies where core activities in each project link to different WfT work packages:

- T1** T1: co-designed water resource models
- T2** T2: water resources management systems design
- T3** T3: innovative water management systems implementation initiated

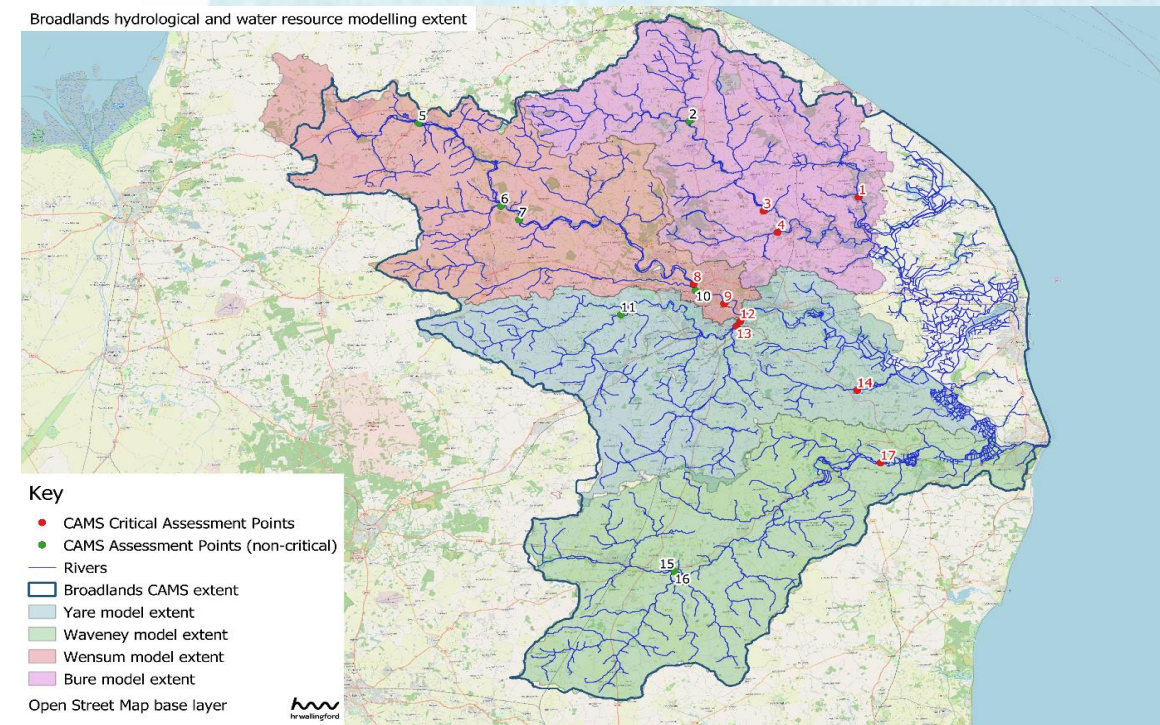


Catchment modelling

- Hydrological and option modelling
- Long-term view
- Collaborative decision making on options

Water company modelling

- Years of experience,
- Reliable funding
- Good data
- Good models
- Small number of companies
- Regional bodies set up to co-ordinate across them



Other sectors

- Less shared understanding of water resources challenges
- Limited data availability
- Hundreds of users
- No formally agreed collaborative framework

Modelling approach

What is the scale of the problem?

Hydrological modelling at a more detailed local scale (sub-catchments based on CAMS Assessment Points)

Testing different climate and environmental scenarios

What local options might be available?

- Unconstrained list e.g.,
- Demand management
 - Rainwater harvesting
 - Nature-based solutions
 - Winter storage reservoirs
 - Licence trading
 - Licence sharing



How are the options likely to perform given future uncertainty?

Assessment of costs, water availability and supply resilience in a variety of future scenarios, examining trade-offs

Create a portfolio of measures that balances needs.



Catchment Management System

Allows non-technical users to explore and visualise 'What if?' scenarios, based on combinations of:

- Selected water resource options and approaches
- Growth in water needs
- Extent of environmental returns necessary
- Severity of climate change impacts

Modelling approach

Input - uncertainties

2 Hydrology (Weather)
1 Climate Change

Inputs - decisions

Environmental Destination

Possible options and adaptations

Winter storage
reservoirs

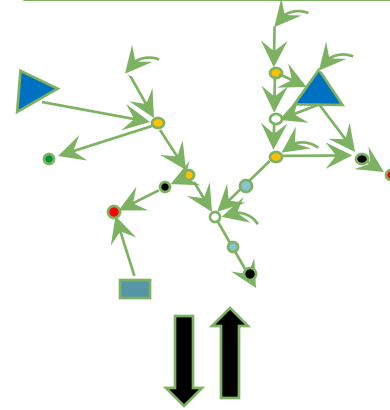
Summer spray
demand management

Removing direct
abstraction for
summer spray

Winter spray demand
management

Multi-criteria search

Catchment simulator



Search algorithm:
Iteratively tries out
combinations of options
maximising system
performance

System performance

Agricultural supply

Agricultural deficit

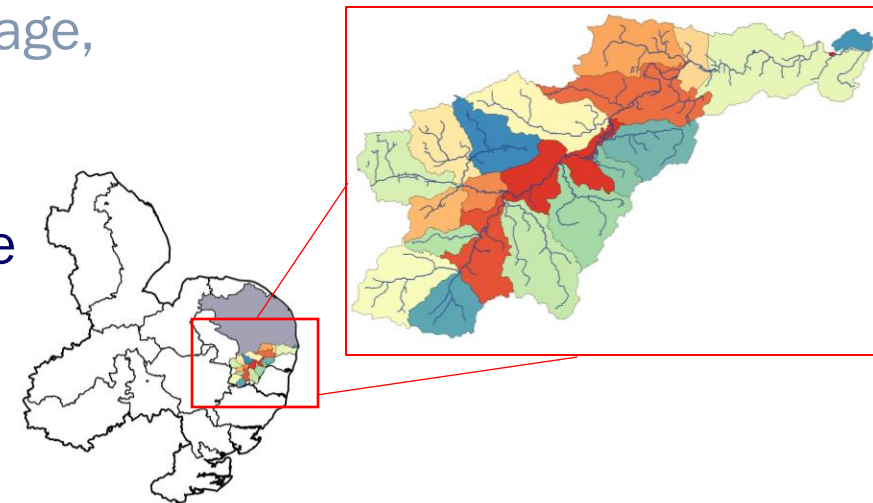
Annual frequency of high
deficits

Winter storage costs

Deviation from
environmental flow
requirements

What does this tell us?

- Relative magnitude of the agricultural deficit at a sub-catchment level
- Potential sensitivity of environmental flow compliance as a result of licence reductions or adaptation measures
- Trade-off between changes in agricultural demand or reservoir investment
- Without adaptation to reduce demand and/or invest in storage, agricultural deficits occur
- Investment in reservoir storage reduces both the magnitude and frequency of agricultural deficit



Future uses and possible next steps

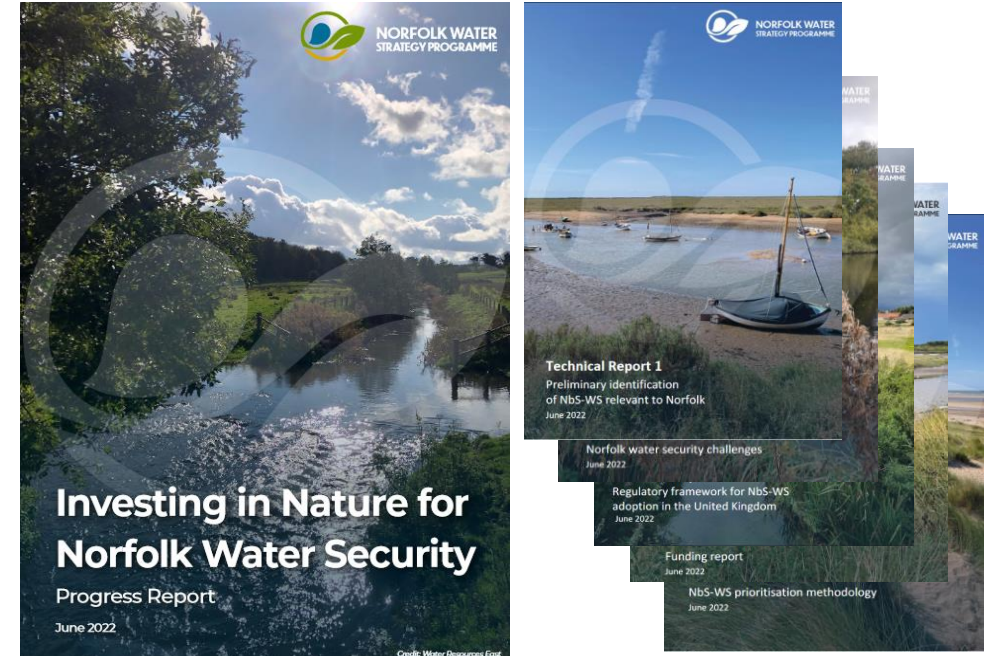
- See what is possible, what are the challenges
- Understand data gaps so we can support sectors to fill them
- Raise awareness of the long-term issues and the options
- What scale of infrastructure and demand management measures is needed
- Encourage collaborative discussions within and across different sectors
- This can be made more complex
- Translate to real feasible reservoir size
- Need to better understand level of resilience the agricultural sector needs
- Test and refine agricultural forecasts
- Build on work of the NFU, catchment partnerships and Cranfield University



Norfolk Water Strategy Programme

Recent activities:

- Assessing the **pipeline of NbS projects** in Norfolk and where funding may be needed
- Securing **feasibility funding** for candidate projects
- Working with EA on concluding **NbS water resources modelling**
- Identifying sites for **WWF pilot project** on attenuation features in the Wensum, along with monitoring with the EA.
- Devising recommendations the **legal structure and governance** of the Norfolk Water Fund



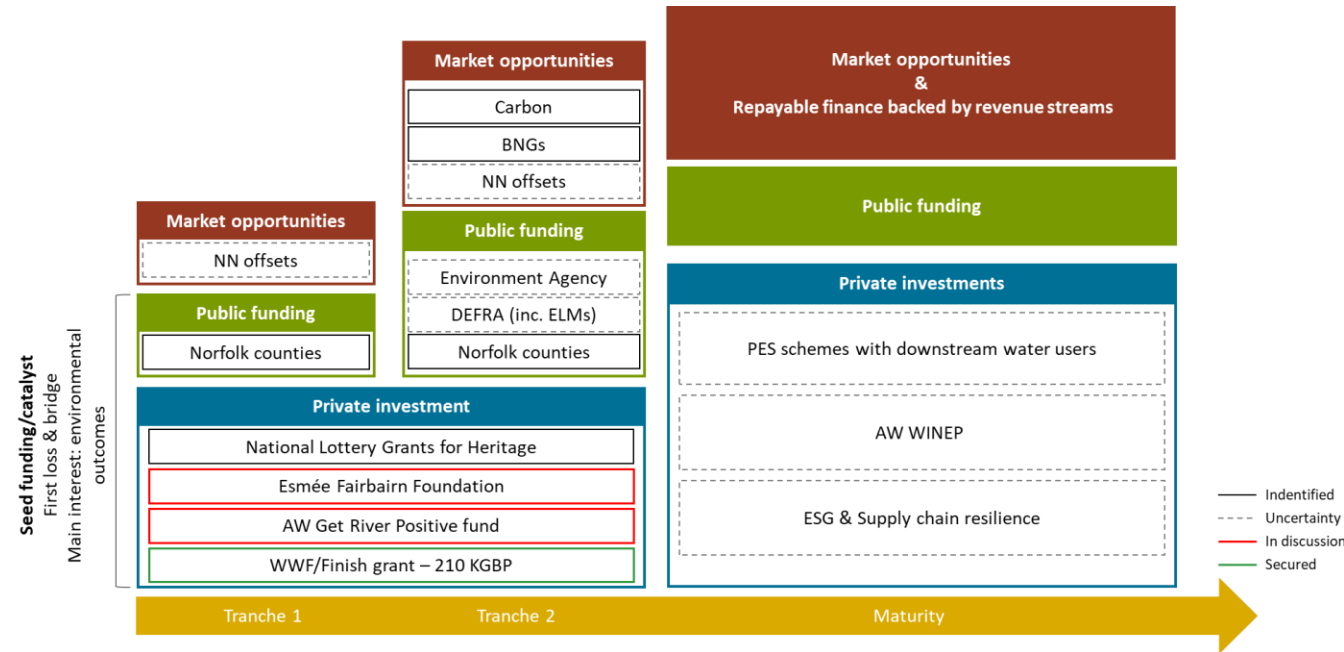
Progress report:

- Water Security challenges in Norfolk
- The role NbS can play
- Funding challenges
- Key recommendation: **Water Fund**
- [Available online](#)

Norfolk Water Strategy Programme

The Norfolk Water Fund – Blended investment vehicle

- Key decision on **Hosted Programme vs Dedicated Vehicle**
- A **Hosted Programme** through WRE could **cause additional complexity** in terms it's geographical coverage, existing governance & decision making and liability.
- Initial recommendation to set up a **Dedicated Vehicle** – potentially a **Community Interest Company** (limited by guarantee).
- Looking to finalise a **paper** and **reconvene a steering group** to inform further discussions, as well as gauge interest in membership.



Next steps

March 2023

July 2023

End of Financial Year (2023/24)

Launching the Water Fund

Building the project pipeline
further & delivering pilots

- Building a portfolio of NbS projects (bottom-up)
- Assessing the landscape capacity for NbS (top-down)
- Investigating emerging environmental markets and CBA
- Setting out a funding strategy
- Launching the Norfolk Water Fund

- Building the NbS pipeline further
- Capacity building with delivery partners
- Delivering pilots
- Securing further funding for feasibility and capital
- Defining a strategy for sustainably funding the operations of the Norfolk Water Fund

Essex Water Strategy

Scope

Integrated with:

- The Essex Climate Action Commission and Essex 'Climate Focus Area'.
- The Essex Local Nature Partnership, and their strategy and agricultural working groups.
- The Essex Green Infrastructure Strategy principles and standards.
- Essex Highways Biodiversity Net Gain/Water Use Working Group.
- Essex Planning Officers Association and the Climate Planning Policy Support Group.
- Other internal service such as procurement and facilities management.



Understanding the water challenge in Essex



Creating ambition



Influence demand and efficiency



Delivery of green/blue infrastructure



Our role in future strategic options



Identifying actions we must all deliver



Achieving integration and a holistic view



Information on the challenge and our collective actions will be brought together using an interactive visualisation tool, centred on the water cycle and Essex Environment.

Essex Water Strategy

Project Deliverables

1

Essex Water
Strategy
Report



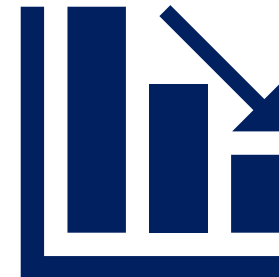
2

Public
Engagement
Campaign



3

Essex Water
Data Pack

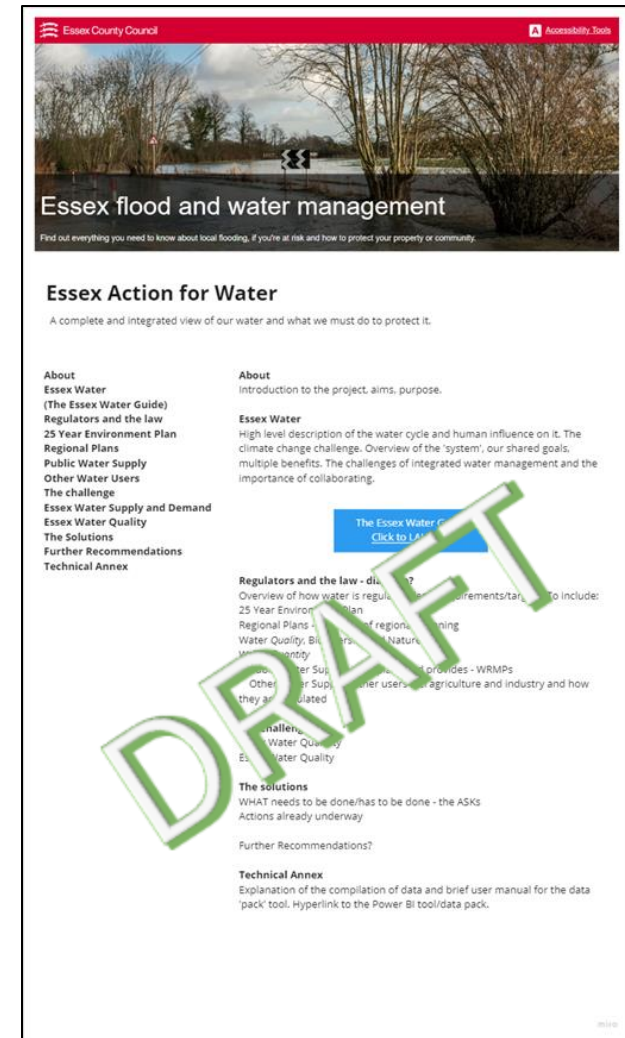


Essex Water Strategy

Main Report Content

Text based accessible layout and content. Bringing plans together to provide an Essex account of the cross-sector challenges and actions required.

- Specific to the Essex area
- Focus on integrated water management
- Setting out what action is already underway and the links to our other Land Use and Green Infrastructure initiatives, promoting nature-based solutions.
- Being clear about what more needs to be done
- Making recommendations for further activity
- Complemented by our Public Engagement Campaign and Technical Data Pack...



Essex Water Strategy

Public Engagement

Campaign Microsite to increase water literacy and inspire behaviour change.

- An engaging explorer site using ‘hotspot’ icons to fact find and myth bust.
- Holistic/Integrated view with links to Essex case studies and direct links to further resources.
- Engaging with Essex Youth Assembly to develop the end style and useability.
- Provides a longer legacy for the project above a simple strategy document.
- Opportunities to work on user analytics to develop future partnership campaigns.

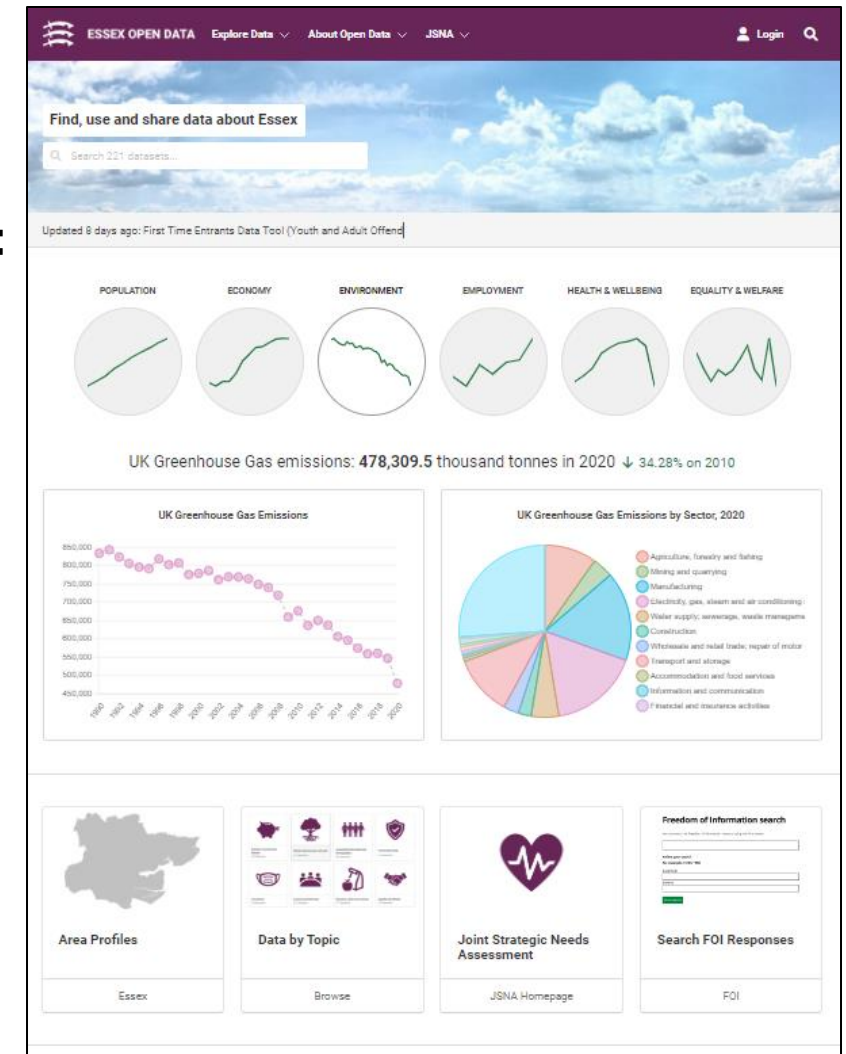


Essex Water Strategy

Data Pack/Technical Annex

Providing a one-stop summary of Essex Water Data, which includes:

- Context setting – Essex challenges
 - climate change, rainfall, temperature
 - population growth
- WRMP data for Essex Water Resource Zones:
 - Supply/Demand Deficit
 - Leakage
 - Per Capita Consumption
 - Smart Metering rollout
 - Transfers, Reuse and Desalination
 - Etc.
- WFD Data on water quality and reasons for not achieving good status
- Combined sewer overflows
- Abstractor license holders and primary uses.
- Flood Risk and DWMPs



<https://data.essex.gov.uk/>



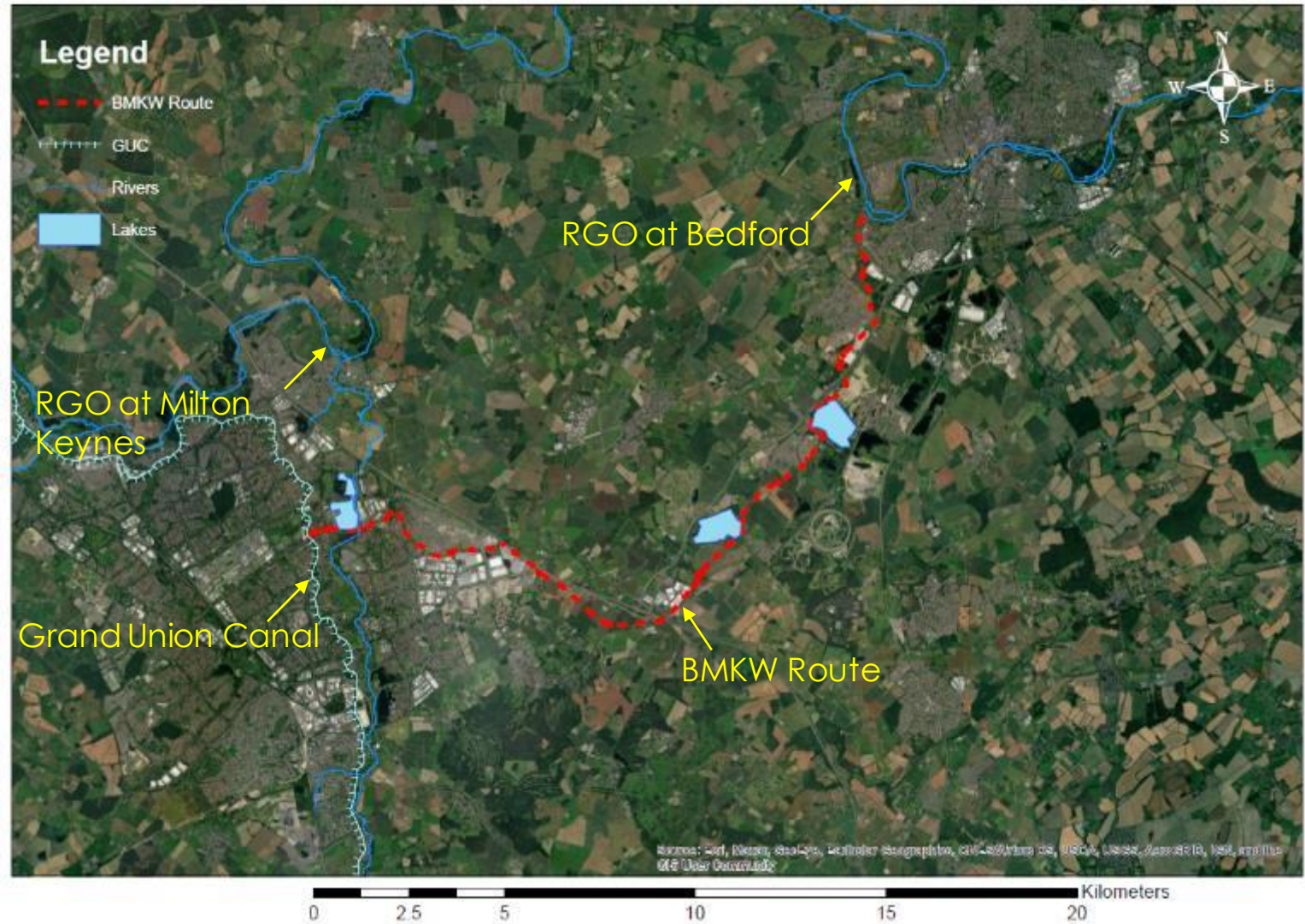
Bedford to Milton Keynes Waterway Park

**Results of flood risk and
water resources study**

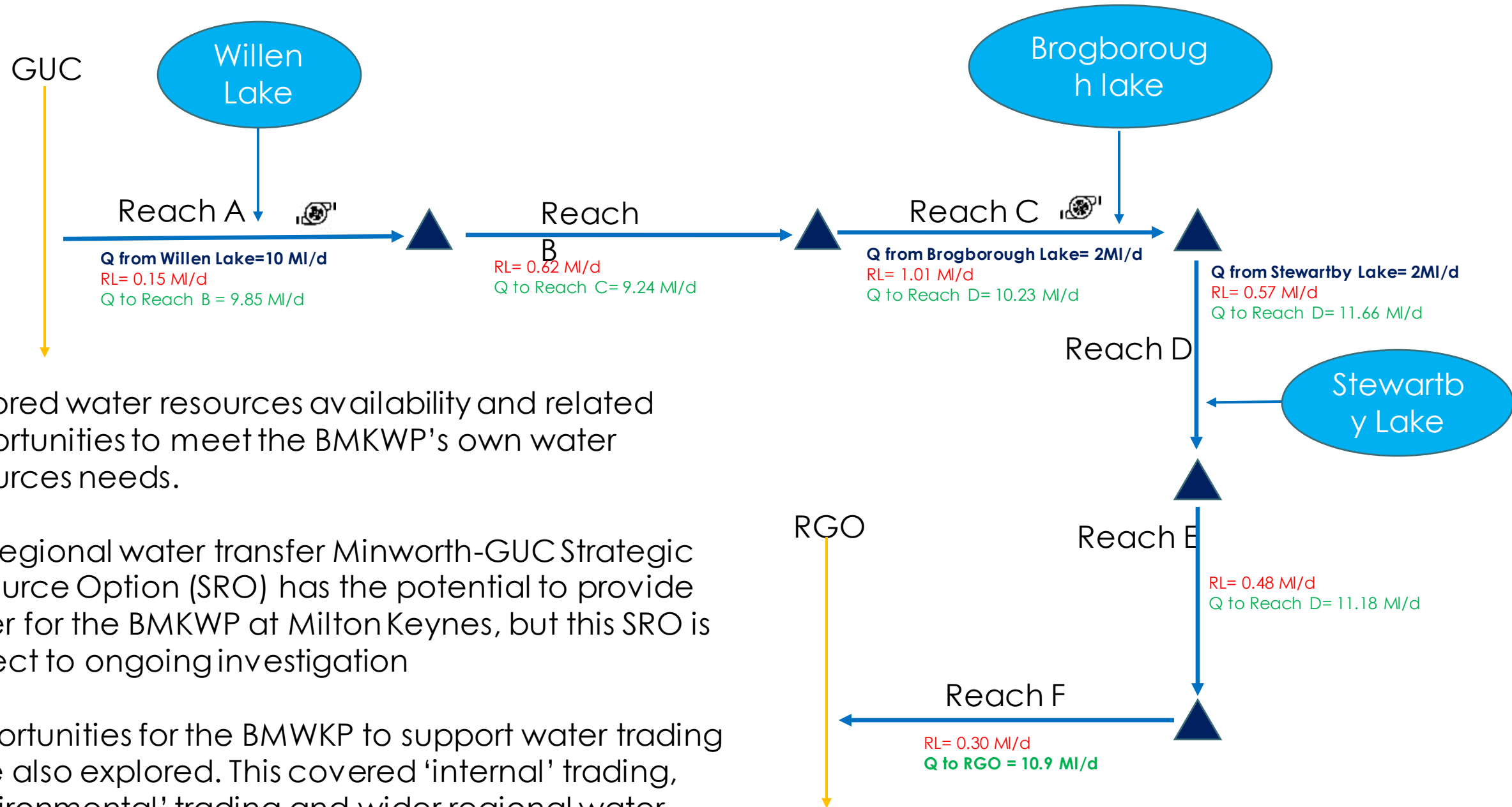
March 2023

Overview

- **Water Resources Management**
- **Flood Risk Management**



Water resources benefits



Explored water resources availability and related opportunities to meet the BMKWP's own water resources needs.

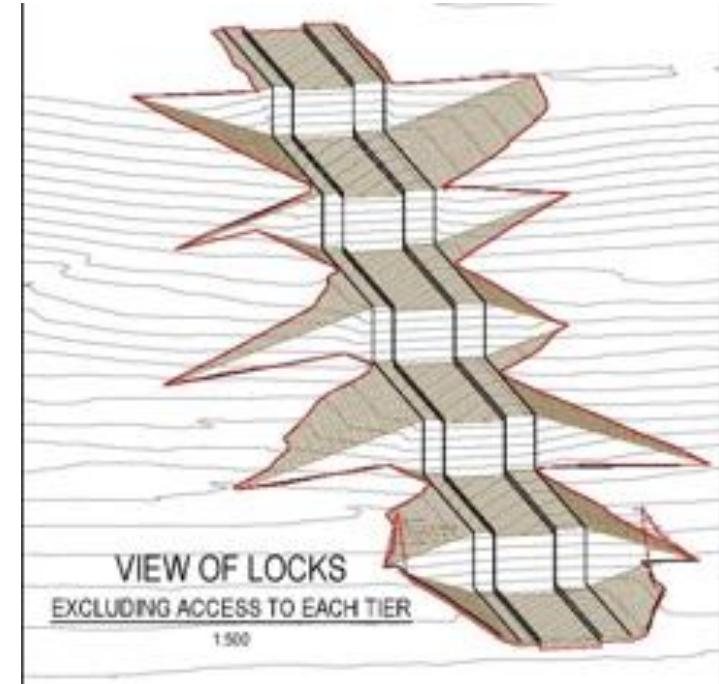
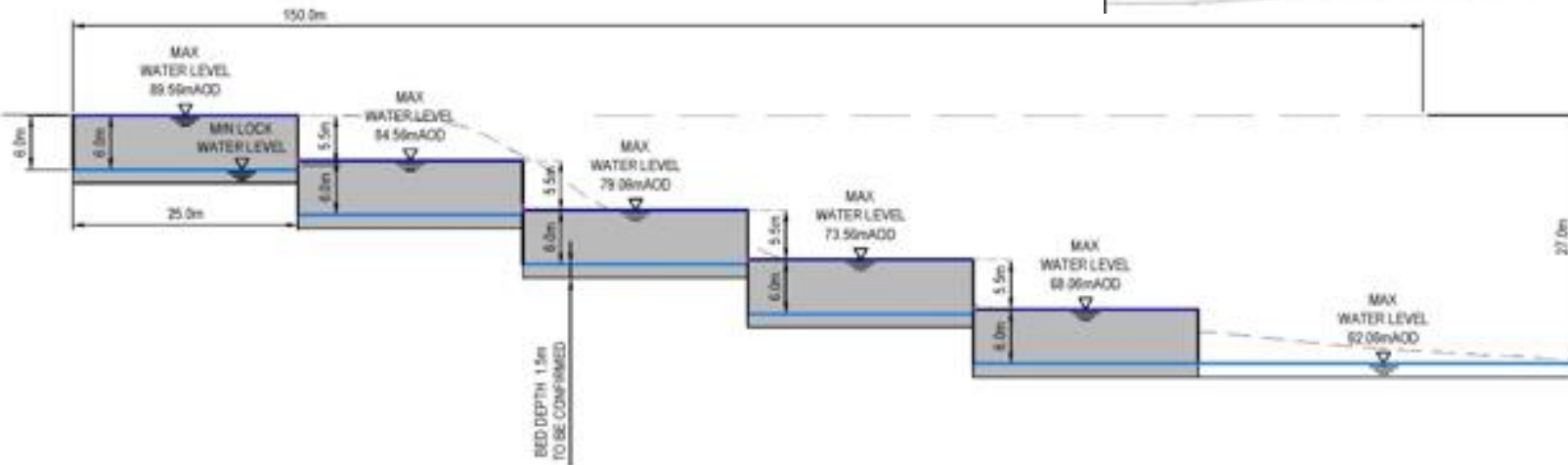
The regional water transfer Minworth-GUC Strategic Resource Option (SRO) has the potential to provide water for the BMKWP at Milton Keynes, but this SRO is subject to ongoing investigation

Opportunities for the BMWKP to support water trading were also explored. This covered 'internal' trading, 'environmental' trading and wider regional water

Navigating Brogborough Hill

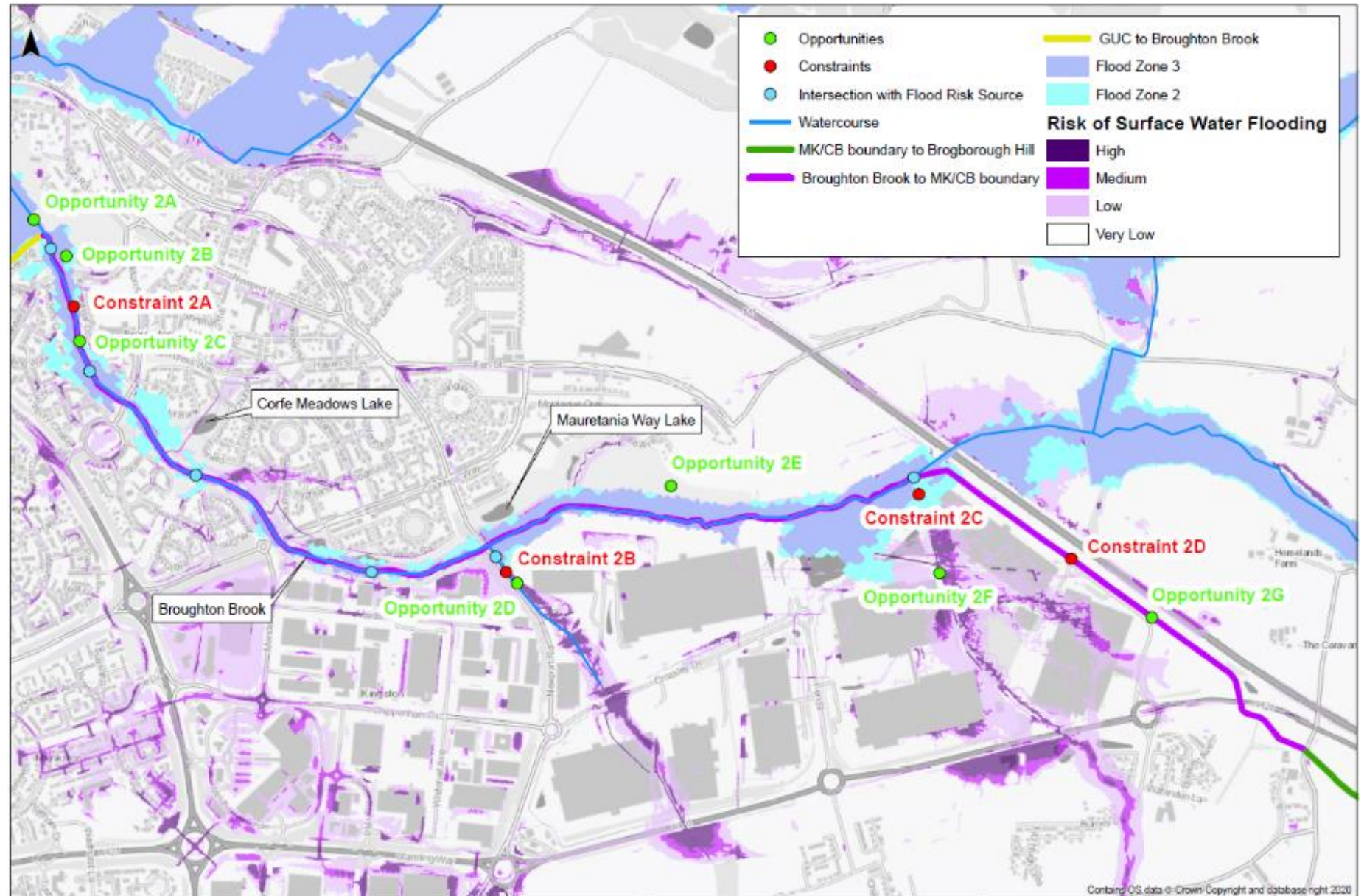
- Falkirk-style wheel
- Standard or funicular boat lift
- Series of locks

BROGBOROUGH HILL LOCK WATER LEVELS
SCALE: H 1:500, V 1:500. DATUM: 40.000



Potential flood risk management opportunities

Study Zone 2 – Broughton Brook to MK/CB Boundary



Potential flood risk management opportunities

Appraisal of Options Concerning Broughton Brook

Verdict	Explanation
Y	The Opportunity should be considered further, as it is likely to provide numerous benefits.
Y	Although the standalone Opportunity does not perform well in this assessment, it should still be considered based on additional factors not considered here.
N	The Opportunity should not be considered further, as it is not likely to provide any significant benefits.

Option	Flood Risk Management Opportunity	Benefits	Constraints to feasibility	No. Properties at Reduced Risk of Flooding	Potential Prevented Damages (£)	Approx. Estimated Costs for Implementation (£)	Consider further? (Y/N)
2A	Waterway subsumes existing Broughton Brook channel – increase the storage capacity of the channel by elevating banks and widening the channel.	- Reduction of localised flooding by constraining flood extent to the Waterway. - Relief of pressure on capacity the Broughton Brook.	- Services may constrain ease of widening in places. - Potential requirement to provide additional hydraulic controls / structures. - Disruption to in-channel and bank habitats during works. - Raised Waterway may disconnect former Broughton Brook from its floodplain.	39	46,916.00	561,000.00	Y (See Section 7.2.4)
2B	Opportunity to provide active water level management throughout reach via connection of Waterway to Broughton Brook.	- Reduction of localised flooding by constraining flood extent to the Waterway. - Relief of pressure on capacity the Broughton Brook.	- Fluctuation of Waterway pound water level will require controls to manage levels. - Requires monitoring of rainfall conditions.	932	791,331.00	825,000.00	Y

Next steps

Options have been short-listed based on “trade-off” discussions between flood risk and water resources teams across the project team and this has been presented to stakeholders.

Concept design details have been developed and are being finalised following feedback gained during the stakeholder workshop.

More detailed assessment using coupled water resources and hydraulic modelling is required in the next phase of the project.

Continued discussions across regional groups with respect to wider benefits of SROs

Further work with water-dependent stakeholders including the EA, abstractors, IDB to understand future commitments and potential benefits.

Questions?

WRE's role in drought management

- WRE has been asked to organise and run a new *Drought Management Group* to facilitate opportunities to share water across sectors and protect the environment during periods of dry weather and drought.
- Proposed format – monthly Teams calls split into two halves:
 - Part 1 (for all stakeholders): The current water situation and future outlook
 - Based on existing monthly calls hosted by the Environment Agency
 - Part 2 (for abstractors & representatives – all sectors): Areas of potential water availability and opportunities for water sharing
 - Mapping exercise between water companies and other sector representatives to identify specific areas of water availability and opportunities to share water and support environmental needs



Thank you for your continued support

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