
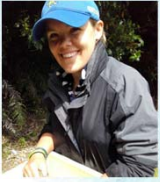



Water
FOR TOMORROW


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Water for Tomorrow





Dr Harri Condie
Water Resources Specialist,
Environment Agency


 The Rivers Trust

 Communauté d'Agglomération
Béthune-Bruay
Artois Lys Romane

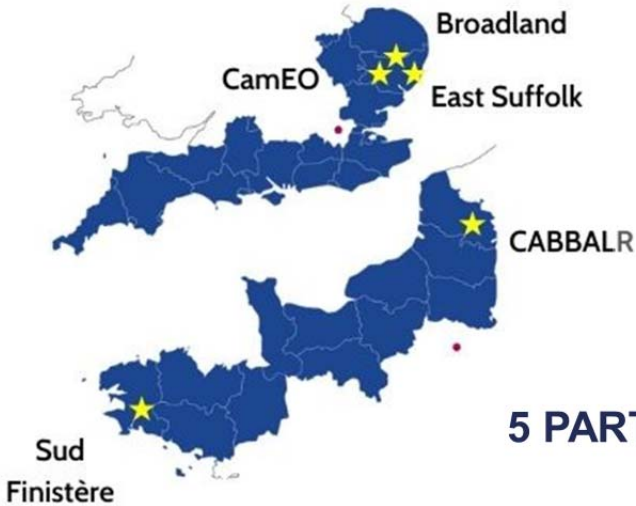
 Environment Agency

 **brgm**
Sécheresses pour une terre durable

 **WRE**
WATER RESOURCES EAST



1



Broadland


CamEO


East Suffolk


CABBALR


Sud Finistère


5 PARTNERS – 5 CATCHMENTS


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 **brgm**
Sécheresses pour une terre durable

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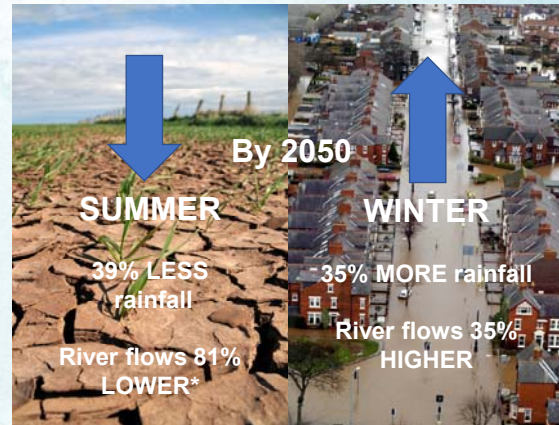
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What's the problem?

Climate change, growth, and increasing demand means we won't have enough water by 2050



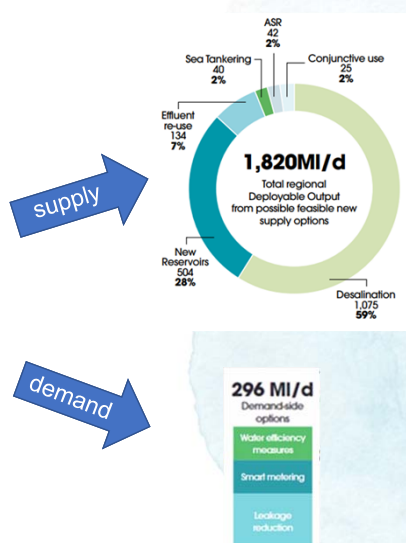
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*Climate change projections are estimated using data from UKCP09, consistent with a 4°C rise by 2100 [Climate impacts tool - GOV.UK \(www.gov.uk\)](https://www.gov.uk/climate-impacts-tool)
** [WRE-Emerging-Plan.pdf](#)

3

Meeting the deficit



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Catchment approaches



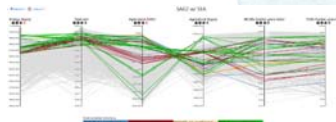
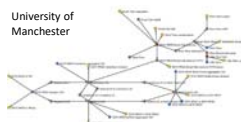
4

What is WfT doing?

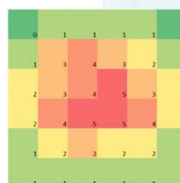
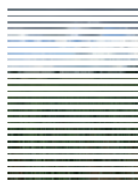


Creating a shared understanding of the problem for all

University of Manchester

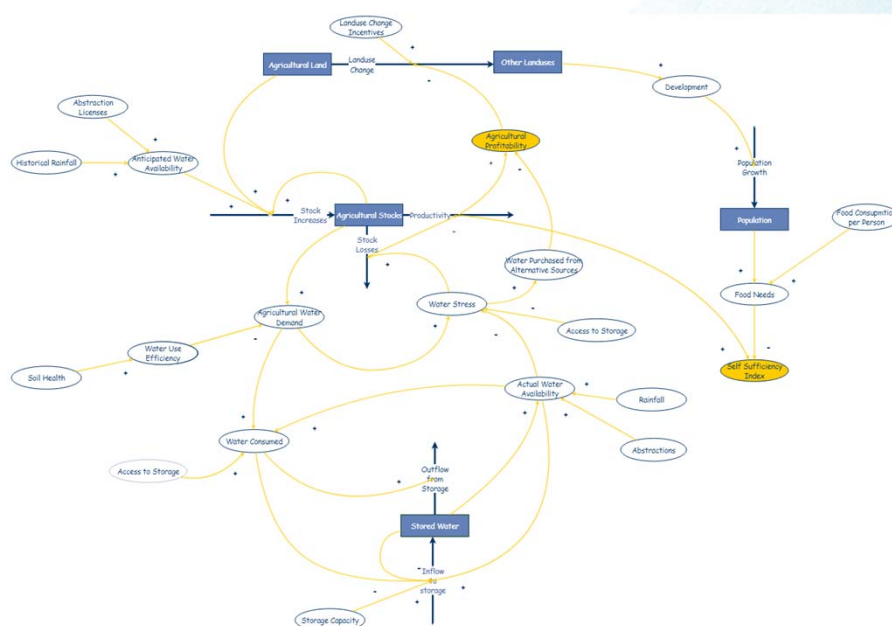


Developing innovative water resources modelling and decision support



Testing new monitoring systems to validate solutions and support future modelling

5

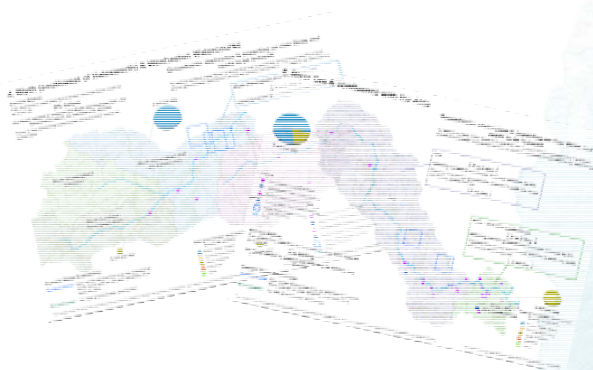


Shared Understanding



6

Communication & Engagement



Impacts of reduced water availability

Future predictions estimate that we are facing a water deficit of between 135million gallons and 490million gallons per day by 2050. Everyone will need to reduce their current levels of water use to ensure there is enough water for future generations and the environment.

As a part of the **Water For Tomorrow** project, we want to understand the potential impacts on the agricultural sector based on different percentage reductions. The purpose of this survey is to understand the real-world implications of reduced water availability on abstraction and to help inform conversations with decision makers.

Answers will only be used to produce high-level statements concerning the broader impacts on the agricultural sector for sharing on the project website and other media.

Impacts of reduced water availability on	Current baseline	20% Reduced water availability	75% Reduced water availability
Type of crop What are you currently growing and how would it change? [Optional]	XXXX potatoes, XXXha onions, XXXha parsnips, XXXha sugar beet, XXXha cereals, XXXha maize	XXXX potatoes, XXXha onions, XXXha parsnips, XXXha sugar beet, XXXha cereals, XXXha maize	XXXX potatoes, XXXha onions, XXXha parsnips, XXXha sugar beet, XXXha cereals, XXXha maize
Crop yield How much crop would you expect to harvest? [Optional]		xxxx/ha reduction on cereals x xxxha = xxx tonnes but effect x xxxha not worth cropping = xxx tonnes less xxxx/ha maize = xxx tonnes less	Onions xxx tonnes less, sugar beet xxx tonnes less, cereals xxx tonnes less, maize xxx tonnes less
Quality of crop How would water reduction affect your crop quality? [Optional]		We would endeavour to maintain quality on remaining crops grown.	We would endeavour to maintain quality on remaining crops grown.
Economics What would be the impact on your business? [Optional]		Maize -xxx,000 Cereals -xxx,000	Onions -xxx,000 Sugar beet -xxx,000 Cereals -xxx,000 Maize -xxx,000
Workforce What would be the impact on your workforce? [Optional]		Would have to take out 3 out of workforce of 16. Workforce shared across a larger area.	Major re-think as to approach to farming, wholesale change of policy, consider selling off machinery and try to find contract farmer/collaborative opportunity.

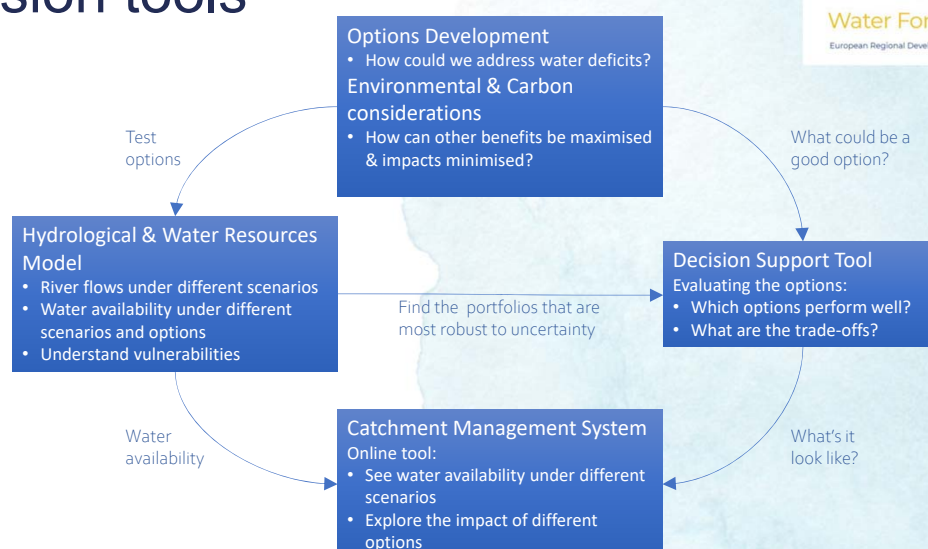
The Emerging Water Resources Plan for Eastern England

Tools & approaches to support:

- Highlighting the scale of the problem
- Understanding the real world impacts
- Facilitate/stimulate action

7

Innovative modelling & decision tools



8

Options development

Scoping and Developing a set of options for WR management at a **catchment level** considering:

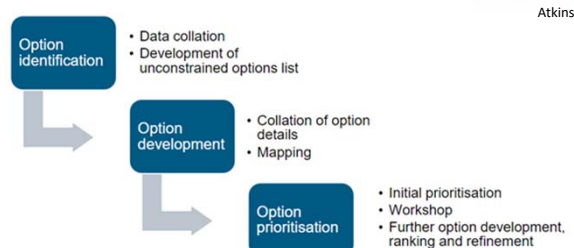


Figure 2-1 - Options development process



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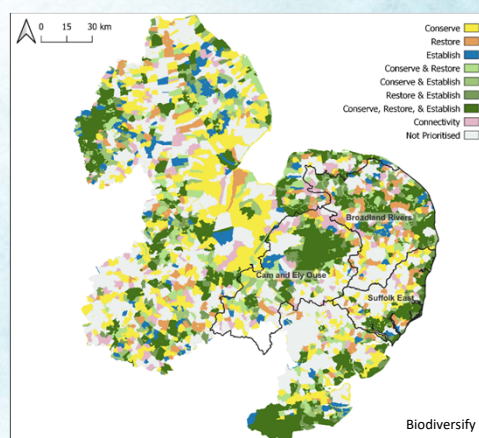
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Environment & Carbon Considerations

Including nature considerations into option selection

Opportunities/impacts:

- Support priority habitats
- Store or sequester carbon
- Provide ecosystem services
- Restore & enhance designated sites
- Regional & catchment priorities
- ELMS, LNRS & funding

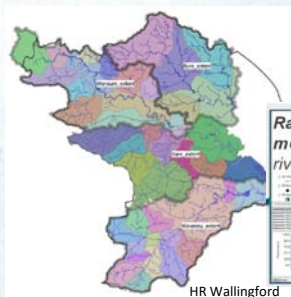


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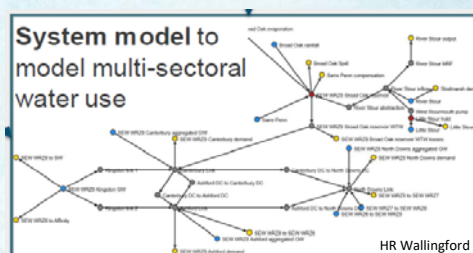
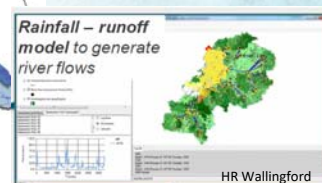
10

Water resources models

- **Hydrological model** – river flows, reflecting land use and hydrogeology
- **Water resource model** – impacts on infrastructure and water users
- Under different **scenarios**:
 - climate
 - demand
 - environmental ambitions
 - Future PWS infrastructure
 - Option packages



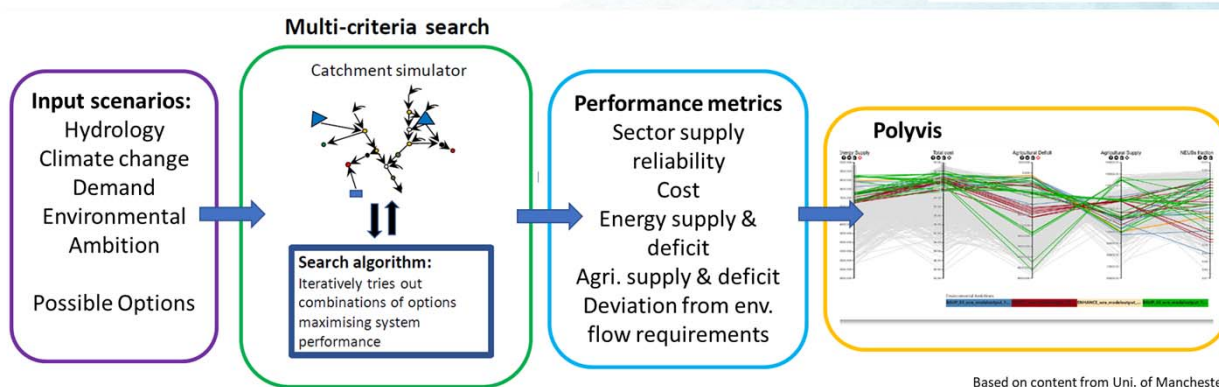
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11

Decision Support Model

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What combinations of options meet the performance goals of sectors under the different climate, demand and environmental scenarios?

12

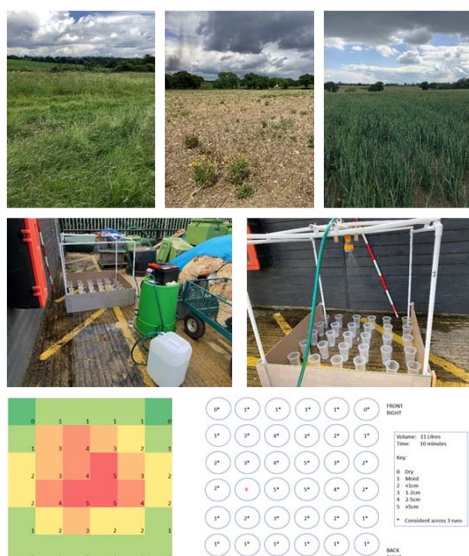
Catchment Management System



- Map based systems highlighting how options perform at a catchment level
- Aggregated impact across sectors and catchments (demand nodes)
- High-level view of impacts of options under a range of scenarios
- Outputs could be viewed based on time-steps
- Understand inter-dependency between options e.g. developing a reservoir & supporting abstractions

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New monitoring & data collection



Testing the options

- Gathering data on options that can feed into modelling
 - Soil management
 - Climate change and capping
 - Natural flood management
- Sharing evidence on best practice
- Working with partners in the catchments

14

Local projects

WfT is supporting 4 local projects:



East Suffolk

- Understanding the local deficit across all sectors & how we can move towards sustainable abstraction

Broadlands

- Using citizen science on the Wensum

Cam & Ely Ouse

- Catchment water balance model & engagement plan for the Granta
- Developing a shared understanding and improved management of water resources on the Lark

15

How will this help?



Expose:

- the scale of the problem
- the real word impacts of inaction
- Sector vulnerabilities

Highlight:

- the options available & the trade-offs to be made

Exposing the choices

16

Thank you for listening!



Find us online:



www.water-for-tomorrow.com



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



<https://www.linkedin.com/showcase/77870469>