

Evidence

Plausible future scenarios for the water environment to 2030 and 2050 Project summary

This project developed and explored 4 plausible future scenarios and a reference scenario for the water environment for England and Wales through to 2050.

The scenarios are a strategic tool that can be used to investigate future uncertainties associated with water management in a coherent and consistent manner. The project's findings will help water and environment planners to help 'future proof' water management strategies and policies.

Background to the project

Testing strategies and policies can help in setting targets for the water environment:

- What will the world look like leading up to 2050?
- How can we ensure we achieve the correct outcomes for the water environment over the long term?
- How do we make sure we don't set off on a course of action that fails due to factors that are not important now but become so in the future?

The water environment is subject to a wide range of external political, social, technological, environmental and economic influences. How these play out in combination and the consequences for the water environment, looking into the future, is highly uncertain. It is vital to have a good understanding of this future, so that the decisions made will enable environmental outcomes to be achieved over the long term in a cost-effective way.

This understanding comes from making reasonable assumptions about the development of key 'drivers or factors' that may have an impact (positive or negative) on environmental outcomes. These assumptions can be used to help construct a range of coherent, internally consistent and plausible scenarios that cover a likely range of futures for a particular region.

What the project involved

The work was carried out between 2011 and 2014 to extend existing and recently updated Environment Agency socioeconomic and water scenarios to make them more appropriate to the wider context of river basin management in England and Wales.

The 4 scenarios are called 'uncontrolled demand', 'innovation', 'sustainable behaviour' and 'local resilience'. A reference scenario was also developed.

The implications of the 5 scenarios for society and the environment were studied using a drivers/activities–pressures–states–impacts–responses systems chain approach (a DPSIR-type systems framework). Workshops and telephone interviews with interested parties, as well as desk-based work, were used to develop and interpret the scenarios. The research produced comprehensive scenario 'storylines'.

The project's findings

In the absence of specific policy interventions the findings suggest that scenarios that are driven by short-term growth and competitiveness could undermine the requirements of current environmental legislation and make the negative impacts of climate change worse. Conversely, scenarios that are characterised by long-term sustainability may offer substantial environmental improvements, though currently desired environmental outcomes may not be fully achieved.

The impacts varied across contrasting types of catchment typical of different parts of England and Wales, and with very different future water management challenges.

Future proofing measures to deal with these challenges is likely to be crucial. This can be done by 'stress-testing' current measures and proposed management strategies. The water and water environment scenarios developed in this project provide an interdisciplinary framework for analysing a complex set of issues and devising solutions to the problems revealed. Some management strategies may be effective and economic despite the futures depicted in the scenarios, but it may be better to take action in response to the conditions highlighted in multiple scenarios.

This summary relates to information reported in detail in the following outputs:

Report A:

Delivering sustainable river basin management: plausible future scenarios for water and the water environment to 2030 and 2050. Report A: Overview of scenarios.

Report B:

Delivering sustainable river basin management: plausible future scenarios for water and the water environment to 2030 and 2050. Report B: Full scenarios.

Report C:

Delivering sustainable river basin management: plausible future scenarios for water and the water environment to 2030 and 2050. Report C: Consequences for the water environment and water users.

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Research Collaborator: The work was carried out through a Defra led partnership by the Centre for Environmental Risks and Futures (CERF) at the University of Cranfield (now Cranfield Institute for Resilient Futures; CIRF). The partnership included the Environment Agency, Defra, Natural England, Forestry Commission England, Marine Management Organisation, CAMERAS, Natural Environment Research Council, Scottish Government and Welsh Government.

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