

science summary



www.environment-agency.gov.uk

SCHO0309BPOG-E-P

A wetland framework for impact assessment at statutory sites in England and Wales

Science Summary SC030232/SS

Wetland scientists at the University of Sheffield have developed a way of classifying wetlands based on an understanding of where the wetland water supply comes from and the environmental and landscape conditions in which the wetland develops.

Understanding how a wetland 'works' means important habitats can be protected, as we can assess where, when and how changes in certain aspects such as groundwater supply and water quality may affect the wetland.

The 'Wetland Framework' created by the Sheffield scientists was developed using field data, including a combination of pH categories, fertility categories and wetland water supply mechanisms (WETMECs) to define habitats. This classification is focussed on habitat types found in lowland England and Wales.

WETMECs can be thought of as hydrological models with an ecological component added. Certain WETMECs are associated with specific water supply and landscape situations.

Identifying 20 WETMECS was a key outcome of this study, providing a hydrological description of how wetlands work.

Being able to describe these relationships more accurately improves understanding of why some wetland habitats are rare and confined to specific locations. This knowledge will help the Environment Agency and the nature conservation agencies in England and Wales (Natural England and the Countryside Council for Wales) protect these habitats into the future, allowing them to develop objectives and thresholds that relate to the specific water, nutrient and management needs of the vegetation.

Identifying some of the main factors influencing why and how a wetland has developed can help in finding the best way to manage it in an environmentally sustainable way, and how to restore wetland sites that have been damaged.

This report will be useful for hydrologists and ecologists, allowing integration between the two disciplines in wetland assessment.

The project output comprises of a number of distinct parts and appendices. The main report covers:

- Ecohydrology and classification of wetlands, and the main concepts of the project.
- The main approaches and data analysis procedures used within the project, describing the WETMEC typology that forms the core of the Wetland Framework.
- The relationships between the occurrence and composition of selected wetland plant communities in relation to hydrological, ecological and management variables.

Appendices contain detailed ecohydrological site accounts of the sites studied as part of the project (appendix 3) and accounts of the hydrogeological conceptual understanding and information collected (appendix 4).

This summary relates to information from Science Project SC030232 reported in detail in the following output(s):

Science Report: SC030232/SR

Title: A Wetland Framework for impact assessment at statutory sites in England and Wales

SR1:

ISBN: 978-1-84911-003-7

March 2009

Report Product Code: SCHO0309BPOE-E-E

SR2:

ISBN: 978-1-84911-004-4

March 2009

Report Product Code: SCHO0309BPOF-E-E

CD Rom (containing additional appendices):

ISBN: 978-1-84911-005-1

March 2009

Report Product Code: SCHO0309BPOH-E-C

Internal Status: Released to all regions

External Status: Publicly available

Project manager: Kathryn Tanner, Water Resources

Research Collaborators:

Countryside Council for Wales [general enquiries](#)

Natural England enquiries@naturalengland.org.uk

The University of Sheffield Wetland Research Unit
animal.plant@sheffield.ac.uk

Principal Research Contractor:

Dr Bryan Wheeler and Dr Sue Shaw, The University of Sheffield Wetland Research Unit, Alfred Denny Building, Western Bank, SHEFFIELD. S102TN.

Hydrogeological Research contractors:

Ron Allen, The Environmental Project Group

www.hydro-ecology.co.uk, www.epcg.co.uk

Dr Jillian C Labadz & Prof David P Butcher, Nottingham Trent University, jillian.labadz@ntu.ac.uk

Hydrogeological Services International Limited (now incorporated in Scott Wilson),
andreas.charalambous@hydrolaw.com

This project was funded by the Environment Agency's Science Department, which provides scientific knowledge, tools and techniques to enable us to protect and manage the environment as effectively as possible.

Further copies of this summary and related report(s) are available from our [publications catalogue](#) on or our National Customer Contact Centre T: 08708 506506 or E: enquiries@environment-agency.gov.uk.

© Environment Agency

