

XXXVIII IAH Congress

**Groundwater Quality Sustainability
Krakow, 12–17 September 2010**

Extended Abstracts

**Editors:
Andrzej Zuber
Jarosław Kania
Ewa Kmiecik**



**University
of Silesia
Press 2010**



abstract id: **505**

topic: **2**

Groundwater and dependent ecosystems

2.7

Integrated groundwater management with dependent ecosystems

title: **Hydro-ecological guidelines for wet dune slacks**

author(s): **Mark I. Whiteman**

Environment Agency for England and Wales, United Kingdom,
mark.whiteman@environment-agency.gov.uk

Tony Davy

University of East Anglia, United Kingdom, a.davy@uea.ac.uk

Kevin Hiscock

University of East Anglia, United Kingdom, k.hiscock@uea.ac.uk

Laurence Jones

Centre for Ecology and Hydrology, United Kingdom, lj@ceh.ac.uk

Rob Low

Rigare Ltd., United Kingdom, rob@rigare.co.uk

Nick Robins

Centre for Ecology and Hydrology, United Kingdom, nsro@bgs.ac.uk

Charles J. Stratford

Centre for Ecology and Hydrology, United Kingdom, cstr@ceh.ac.uk

keywords: wet dune slacks, eco-hydrology, groundwater

INTRODUCTION

The spatial mosaic and successional development of coastal dune systems include humid slacks with water levels that fluctuate seasonally with varying amplitudes. They have distinctive biodiversity and high conservation importance, representing European habitat features 2190 and 2170 in Annex I of the European Union Habitats Directive. This legislation requires competent authorities to assess all plans and projects that could affect the nature conservation objectives of European sites (SACs and SPAs), in order to maintain their ecological integrity. Dune slacks are particularly susceptible to the effects of water abstraction, changes in local land use, nutrient pollution, and sea-level rise.

NEW GUIDELINES FOR DUNE SLACKS

The Environment Agency, as a competent authority, is responsible for reviewing all its existing authorisations, consents, licences and permissions in England and Wales, which includes water abstraction licences. Natural England, the Countryside Council for Wales and the Environment Agency have collaborated to address the requirement for scientifically robust information (the "Wetland Framework") in order to establish eco-hydrological guidelines for dune slack management. We examined information available in site-specific reports, as well as unpublished eco-hydrological and hydrochemical data for English and Welsh dune systems. We have established a model for hydrological functioning of humid slacks (Davy et al., 2006), and made detailed appraisals of and recommendations for British dune slack community types corresponding to Annex I (NVC types SD13–SD17). Finally, we highlight the many deficiencies in the data and make recommendations for further work.

ACKNOWLEDGEMENTS

The Authors wish to acknowledge the contribution of the national statutory conservation organisations Natural England and the Countryside Council for Wales towards the work described in this paper.

REFERENCES

Davy A.J., Grootjans A.P., Hiscock K., Petersen J., 2006: *Development of Eco-hydrological Guidelines for Dune Habitats – Phase 1*. English Nature Reports, Number 696, Peterborough.
www.naturalengland.org.uk



International Association of Hydrogeologists



AGH University of Science and Technology

2-vol. set + CD
ISSN 0208-6336
ISBN 978-83-226-1979-0