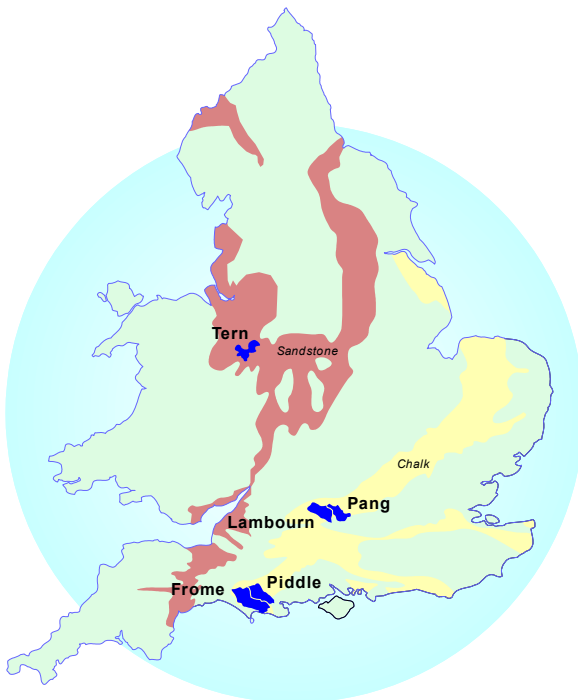


# THE NERC LOWLAND CATCHMENT THEMATIC RESEARCH PROGRAMME (*LOCAR*)

## *Interdisciplinary research to improve water and catchment management in the English Midlands and chalklands*



LOCAR is an ambitious, intensive research programme to study key water resource issues in the lowlands of the English chalklands and Midland sandstones. It examines surface and groundwater supplies, changes in water quality and their impacts on fisheries and wetlands. It is a fundamental catalyst in developing the integrated science needed to answer the problems being caused by possibly drier summers and wetter winters, changes in farming, urban expansion, new industrial sites and road building in terms of altered water flows and water chemistry, as well as by increasing competition between rural, urban and ecological water demands.

LOCAR catchment research provides key understanding needed to guide decisions related to water resources and environmental quality. LOCAR is a UK Natural Environment Research Council (NERC) thematic programme operating in three intensively instrumented river catchment areas to improve the science required to support the current and future management of permeable lowland catchments through an integrated and multi-disciplinary experimental and modelling programme.

LOCAR has set up state-of-the-art field laboratories with world-class instrumentation in three key areas (see map) for groundwater flow and quality, including interactions between streams and groundwater bodies, evapo-transpiration, soil hydrology, stream sediment and pollutant transfer, wetland hydrodynamics and monitoring of aquatic fauna and flora.

LOCAR has funded research programmes on:

- Catchment evaporation using satellite and ground-based measurements
- The influence of woodlands on soil and groundwater recharge in the Pang Catchment



*The chalkland River Lambourn at Bagnor with an  
SSSI on the right bank  
Water and land management upstream has major  
consequences for biodiversity and fish life in these aquatic  
ecosystems*

- Vegetation influences on fine sediment and propagule dynamics in groundwater-fed rivers
- Fine sediment and nutrient dynamics of lowland permeable streams
- The fine sediment budgets of lowland permeable catchments
- Investigation of groundwater flow heterogeneity in Chalk aquifers
- Hydrogeochemical functioning of lowland permeable catchments
- The pattern and magnitude of recharge through drift deposits
- Permeability, groundwater flow and contaminant attenuation in Chalk catchments
- Stream-groundwater interactions in lowland chalk catchments
- Ecological significance of surface and subsurface exchange in lowland channels
- Use of off-river habitats by lowland river fishes



*The Tern at Longdon upon Tern*

*Intense agriculture and some industry affects this river*



*Automatic weather station in the Pang/Lambourn catchments*

*These well-instrumented catchments provide the detailed long-term monitoring to support fundamental research on the consequences of climate and land-use change in future years and decades*

### **LOCAR Partnerships**

The **Environment Agency** is a key partner in the LOCAR Thematic Programme, being represented on the LOCAR Steering Committee and the Catchment Management Boards. Several of the LOCAR Research Projects are co-funded with the Environment Agency. LOCAR relies on some Environment Agency data and much of the LOCAR infrastructure is collecting data of direct value to the Environment Agency.

LOCAR also works closely with government departments, including DEFRA and English Nature, with relevant water and sewerage companies, national and local conservation bodies, including the Wildlife Trusts, RSPB, Country Land and Business Association (CLA) and National Farmers' Union (NFU). LOCAR contributes to international programmes on integrated catchment research and actively encourages new forms of science collaboration and the exploitation of its research to benefit local, regional and national organisations.

#### **For further information please contact:**

The LOCAR Science Coordinator  
 Professor Ian Douglas, School of Geography,  
 University of Manchester, Manchester, M13 9PL  
 Tel: 0161 973 1708 Fax: 0161 275 7878  
 Email: [ian.douglas6@ntlworld.com](mailto:ian.douglas6@ntlworld.com)

**or**

The LOCAR Programme Coordinator  
 Dr Andy Parsons  
 Natural Environment Research Council  
 Polaris House, North Star Avenue  
 Swindon, SN2 1EU.  
 Tel: 01793 411679 Fax: 01793 411545  
 Email: [andy.parsons@nerc.ac.uk](mailto:andy.parsons@nerc.ac.uk)