



**CHARTERED INSTITUTION OF WATER AND
ENVIRONMENTAL MANAGEMENT
North Western & North Wales Branch**



**Institute of Fisheries Management,
North West Branch**

Joint evening conference

**“Environmental Issues and Technologies Surrounding
Hydropower and Abstraction Screening”**

Two presentations at:

The Galleon Hotel & Leisure, Wilmslow Road, Didsbury, Manchester, M20 5WZ

Wednesday 5th March 2008

6:00 to 8:00 pm

Hydropower attracts both support and criticism for its environmental effects. Proponents have argued that unlike fossil fuelled electric power plants, hydroelectric projects do not pollute the air or increase emissions of greenhouse gases. Opponents have countered that hydropower can harm fragile aquatic environments. Furthermore the impingement and entrainment of aquatic organisms such as fish through and onto screens utilised in water abstraction facilities is of key environmental importance especially in light of the Review of Consents process undertaken by environmental statutory bodies across the UK.

The evening conference will focus on environmental, legislative, technical and commercial issues delivered by two experts within their respective fields. The event is open to both Members and Non-Members.

Programme

6.00 pm	Registration and Refreshments (sandwich and dip buffet)
6.30 pm	Welcome
6.40 pm	Hydropower and the environment – Dr David Howard (UKERC)
7:10 pm	Fish entrainment and intake screening – Dr Stuart Clough (APEM Ltd.)
7.40 pm	Discussion
7:50 pm	Announcements
8:00 pm	Close

The Conference will count towards CPD for CIWEM or IFM



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OUTLINE OF PRESENTATIONS

Hydropower and the environment

Dr David C Howard

Centre for Sustainable Energy, Lancaster Environment Centre, UK

Our environment, through solar power and gravity, provides opportunities to capture energy from natural running water, but in doing so we may compromise ecological and environmental systems. As a consequence local authorities and agencies are given the role of protecting the environment and they are unfairly seen as one of the major barriers to the deployment of new hydro schemes. A project funded by the Joule Centre called the NW Hydro Resource Model is looking at the barriers to uptake and offering information that will help make decisions and circumvent obstacles. The project is designed to link information from different disciplines consistently and walk interested parties through the decisions, explaining the relevance and importance of each step and the confidence that can be placed in each component.

The first important question is the resource available; this is a hydrological question and is modelled using data from gauging stations and observation. One output of the model is a flow duration curve, which combined with the height of the head and proportion of the flow that can be used can identify the most effective turbine system to install. The output also defines the deprived reach, that is the impact on the original water course of removing water (even temporarily) to power a turbine. The possible impacts on freshwater flora and fauna and the riparian habitats are important in gaining approval not only from the authorities, but also from your neighbours! The model is controlled by an economic cost benefit style of analysis and will, when complete, be presented as a web-based support tool.

Fish entrainment and intake screening

Nicola O’Keeffe & Dr Stuart Clough

APEM Ltd, Manchester, UK

Prior to the introduction of the Habitats Directive and denotation of a number of freshwater fish species, fish entrainment and impingement were largely overlooked beyond the migratory salmonids. The Habitats Directive driven Review of Consents process has highlighted this potential impact on freshwater fish populations and forced the need for further investigation and action. These investigations however, have identified complications with the assessment of impact significance on site integrity. Robust population estimates required for the assessment of significance are not available for many catchments particularly for species such as lamprey and shad. Where “no adverse effect” cannot be demonstrated, the precautionary principle is applied and Best Available Technology (BAT) screening is required for intakes.

The Salmon and Freshwater Fisheries Act (SFFA s.14) recognises that although adequate screening should be employed to protect fish populations ‘costs to industry should be in proportion to the magnitude of the perceived risk’. The more stringent risk assessment process of the Habitats Directive however, requires BAT screening and states that cost should not be a consideration. There are however uncertainties surrounding the effectiveness of BAT screens and the potential impacts that their operation and the process of installation of the large structure PWWC screens may have upon the SAC. Alternative and less intrusive solutions to this problem may exist and should be investigated during the assessment process including behavioural screening technologies and habitat enhancement. Clearly additional studies are urgently required to determine both the extent of fish entrainment and its impact on site integrity.

GENERAL INFORMATION

Those who wish to attend are requested to register by returning this reply slip **no later than one week before** the date of the event to assist in the booking of refreshments. Places are limited however and people attending without prior registration may be asked to wait until registered delegates are first accommodated. An acknowledgement of registration will not be issued unless specifically requested.

Please reply to: Matt Davison, APEM Ltd., Riverview, A17 Embankment Business Park,
Heaton Mersey, Stockport, SK4 3GN
tel: 01614428938
e-mail: m.davison@apemltd.co.uk

I wish to book. (number) of places for the meeting	
Names of CIWEM members	
Names of non-members.	
Contact Name	
Company	
Address	Acknowledgement required
.	(Please tick) <input type="checkbox"/>
Tel.	E-mail

Detailed directions are available at: <http://www.watersidehotel.co.uk/index.html>

By Road – Leave the M60 at Jnt 1 and head into Manchester along the A34 (Kingsway), turn right onto Wilmslow / Manchester Road at the Parris Wood Cinema Complex. The entrance to the Galleon Hotel is 200m past the complex.

By Rail – A 10 min walk from the East Didsbury train station

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