

HUMBER MANAGEMENT SCHEME

Industry, Water and Waste Management

Water Resources

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There are few abstractions directly from the Humber and its tidal tributaries other than for power station cooling. The inland river systems and groundwaters are extensively used for water for public supply, industry and agriculture. Generally, the impact of abstractions on the Humber and its wildlife is small except for fish mortalities associated with power station cooling water intakes.

The base flow of the river Trent is higher than natural because water abstracted from reservoirs in Wales for public supply is returned to the environment via the sewage treatment works in the West Midlands. The flow regime of the Yorkshire Derwent, Ouse and Wharfe is depleted by the extraction of water for Pennine reservoirs that is returned to the environment via Aire and Don, thus enhancing their base flows. The abstractions and discharges from the Ouse system should, thus, approximately balance in the upper estuary. Some of the water drawn from the Derwent is used in Hull and East Yorkshire with most discharged back to the Humber system from the Hull sewage treatment works. Water levels are not affected by abstractions because of the tidal action

The impact of reductions in freshwater flow to the tideway is only significant in dry weather conditions. It would enable the penetration further upstream of saline water into the tidal rivers and could change the movement of sediment. Reduced flow down the Ouse may exacerbate low dissolved oxygen levels in the Selby to Goole reach of the tidal Ouse. The lower 20km of the Derwent became non-tidal in 1975 when the Barmby Barrage across its mouth was completed. The purpose of the barrage is to facilitate the abstraction of water immediately upstream for public supply. Along the southern side of the Humber, springs feed water bodies and wetlands valuable for nature conservation, such as the Barton Clay Pits area. There are concerns that groundwater abstraction could have an adverse impact on these sites.

Drax, Cottam and West Burton coal-fired power stations all have cooling towers, as do the power stations on the non tidal rivers. The Humber Power, Keadby and Saltend gas-fired power station have direct water cooling while the other such stations on the estuary use air-cooling. The main concern with the abstractions from the tidal system is over the entrainment of fish. Climate change during the 21st century is predicted to result in wetter winters and drier summers in the Humber catchment. This may, thus, result in more reliable groundwater recharge in winter but more frequent summer droughts affecting river flows, wildlife, availability of water resources, and the demand for water for agriculture and domestic use.

Management

With a few exemptions, all abstractions of water from rivers, reservoirs, estuaries and underground waters require an abstraction licence granted under the Water Resources Act 1991.

The conditions in licences are set to:

- Ensure there is no derogation from the rights of existing licence holders.
- To protect other uses of the water body, including its quality and ecology.

The Environment Agency is the regulator of abstractions and water resources using the duties and powers of the Water Act 1991 and Water Act 2003. As well as controlling abstractions, it has a duty to ensure that there are adequate resources available for public supply and that measures are adopted to conserve water resources. The water companies in the Humber area are Anglian, Midlands and Yorkshire.

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The Agency has published a national Water Resources Strategy and ones for each of its regions; those for the Anglian, Midlands and North East Regions being relevant to the Humber's catchment. These are to be updated for the latest UK predictions of climate change. Catchment Abstraction Management Strategies (CAMS) are being prepared for each major catchment with there being eight relevant for the Humber. The residual flow to the estuary is one of the issues, which will be included. Management of water resources abstractions will be important for the maintenance and achievement of the "good status" objectives of the Water Framework Directive.

The Agency has a comprehensive programme of measuring rainfall, river flows and groundwater levels.

Breaches of abstraction licence conditions and abstraction without a licence, save for some minor exemptions, are criminal offences. The Agency has powers to prosecute offenders (see water Quality section).

Current management objectives

The Environment Agency's Vision provides the high level policy for the management of the water resources in the Humber system. Water is a valuable resource, which must be used wisely and conserved. The aim is to reduce the likelihood of water shortages for domestic and industrial supply while avoiding environmental damage.

Current management for nature conservation

The conditions for abstraction licences are determined so that there is no significant adverse affect on water quality (eg a breach of an environmental quality standard) or nature conservation.

Under Regulation 50 of the Habitats Regulations 1994, the Environment Agency is required to carry out a review of licences for abstractions, which could have an impact on a designated site. The Environment Agency and English Nature completed the screening stage of this exercise during 2002. Where as a result of this screening licences are considered to have a 'likely significant effect' an appropriate assessment is to be undertaken by 31 March 2006. This is supported by a research and development programme

- 1) "development of eco-hydrological guidelines for wet habitats: wet woodland, wet heaths and coastal/saline habitats" Julie McNish Project officer at EN
- 2) Review of information on the impact of changes in freshwater flows to Natura 2000 estuary sites (SACs, SPAs and Ramsars) see Johan Schutten (EN)

The findings of these projects will need to be reflected during the ROC process The Water Framework Directive should facilitate the integration of the requirements of the Habitats Directive with the other aspects of water management.

Further Information

Legislation

Countryside and Rights of Way Act 2000.
Environmental Act 1995
Conservation (Natural Habitats & c.) Regulations 1994.
Water Resources Act 1991.
Water Industry Act 1991.
Water Act 2003.

Public Registers

Water Resource Act 1991 (Environment Agency).

References

Department of the Environment Food and Rural Affairs & Environment Agency,
various dates from 2002, Consultation papers on the Water Framework Directive.
Environment Agency, 1999, Humber State of the Environment Report.
Environment Agency, 2001, Water Resources for the Future - Strategies for England
and Wales, and the Anglian, Midlands and North East Regions.
Environment Agency, 2003, The Trent Corridor Catchment Abstraction
Management Scheme.
Environment Agency, 2003, The Don & Rother Catchment Abstraction Management
Scheme.
English Nature, 2000, Review of information on the impact of changes in freshwater
flows to Natura 2000 estuary sites (SACs, SPAs and Ramsar).
Hume, M. et al, 2002, Climate Change Scenarios for the United Kingdom: the
UKCIP02 Scientific Report.
McNish, J, In preparation, Development of eco-hydrologic guidelines for wet habitats: wet
woodland, wet heaths and coastal/saline habitats.
Schutten, J. In preparation, Review of information on the impact of changes in freshwater flows to
Natura 2000 estuary sites (SACs, SPAs and Ramsars).
Yorkshire and Humber Assembly & Yorkshire Forward, 2002, Warming up the
Region: The impact of climate change on the Yorkshire and Humber region.

Factors arising from the activity

Abstraction of water could lead to loss of flow, which may alter the salinity and quality of the estuary, which may lead to a change in the numbers and diversity of fish and other life.

Activity	Location	Present /historic levels of activity	Existing management Responsible Organisation	Relevant Authority Bold = Lead	Possible effect on features	Significant Effects
NB the activity "Monitoring of flows" has been taken out as the activity itself will not cause any impacts. Most of the weirs where this activity takes place were not purpose built for flow gauging and serve other purposes – the potential impact on fish movements by the existence of weirs and other structures that may act as a barrier is being considered under the Fisheries category – any solution would be a project or plan						
C1/ Abstraction of water * (Annex A11)	From Humber, tidal rivers and fresh-water catchments.	Varying lengths of time	EA YW AW BW	EA YW AW BW	Physical loss: Removal Entrainment of lamprey at power stations. Non-toxic contamination: Changes in turbidity Changes in flow regime generally small as far as tidal system concerned.	YES NO
* Water for public supply (water companies), agriculture, industry (including power station cooling – electricity generators) and canals (British Waterways) commencing in the 19 th century (or earlier) until the present day.						
C2/ Monitoring of abstractions* (Annex H)	As abstractions	Day to day	As above	EA	Non-physical disturbance: Noise & Visual presence Possible impact but low level of activity	NO
* Checks that water is not being abstracted illegally						

Internal Natural factors

The discharge of water to the estuary will be affected by the variability of climate, e.g. reduced flow during droughts or elevated runoff in wet weather. In turn this affects siltation. Climate change may be significant in the long-term.

External factors

Abstractions within the whole Humber catchment are relevant and are included in the Reg. 50 review

