REF.	ACTIONS	PARTNERS (lead partners in bold)
14.1	**Determine the significance of existing levels of abstraction in relation to summer water flows, individually and cumulatively.**	**SEPA** / SW / Farmers / SRPBA / Land owners / Land managers
14.2	**Investigate potential level of future demand (including agriculture, snowmaking projects, golf courses and recreation grounds, potable abstractions, distillers).**	**SEPA** / SW / ACC / AC
14.2.1	Obtain data on abstraction trends.	**SEPA** / SW / ACC / AC
14.2.2	Confirm existing abstraction rates.	**SEPA** / SW / ACC / AC
14.2.3	Estimate future abstraction demands for all current and potential users.	**SEPA** / SW / ACC / AC
14.3	**Ascertain sustainability of new housing, commercial and industrial developments requiring additional water with respect to water flows.**	**ACC** / **AC** / **CNPA** / SEPA / **SW**
14.3.1	Determine whether existing abstraction sources and flows meet projected demand *(this will be achieved by the development of the national Water Resource Plan).*	SW
14.3.2	Complete Strategic Studies of the Invercannie and Mannofield Water Resource Zone.	SW / SEPA / ACC / AC
14.3.3	Look for alternative/supplementary water sources (*if this is shown to be necessary by the outcome of joint SW/SEPA Strategic Studies of the WRZ*).	**SW** / **ACC** / **AC**
14.4	**Determine which abstractions, if any, impact adversely on habitats and species during periods of low flow.**	**SEPA** / **FRS** / SW / SNH / DDSFB / AU / MI
14.4.1	Develop criteria for assessment.	**SEPA**
14.4.2	Determine critical flow levels with respect to good ecological conditions.	**SEPA** / **FRS** / SW / SNH / DDSFB / AU / MI
14.4.3	Review DDSFB list of obstructions for low water levels in dry flow periods	**SEPA** / **FRS** / SW / SNH / DDSFB / AU / MI
14.4.4	Where necessary optimise abstraction regimes to assist fish passage and support juvenile fish habitat during periods of low flow.	**SEPA** / **FRS** / SW / SNH / DDSFB / AU / MI
14.4.5	Review Draft CAR License once issued (review of abstraction rates with respect to ecological impact is required by WFD, by 2013).	SEPA
14.5	**Identify and protect wetlands that are vulnerable to damaging effects of over-abstraction.**	**SEPA** / RSPB / NESBReC / SNH
14.6	**Agree and implement a strategy for promoting water conservation in the catchment.**	ACC / AC / SEPA / SW / SNH
14.6.1	Ensure consideration of Deeside in the national leakage strategy and review SW leakage data when project complete (Q&S IV)	SW
14.6.2	Consider how to further encourage water metering, water recycling and water leakage reduction.	ACC / AC / SEPA / SW / SNH
14.7	**Promote flood plain storage initiatives as alternative water sources for irrigation for land management purposes.**	**Landowners** / SEPA / ACC / AC

Acronyms are listed in the centre of this Action Card

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water abstraction 14

WATER RESOURCES

OBJECTIVE 14. Regulate abstraction to prevent harm to SAC interests and ecological status, especially during low summer flows.

BACKGROUND

The River Dee has been the main source of domestic water for the whole of Aberdeen City and over half of Aberdeenshire for over 130 years, as well as providing a source of quality water for industry, distilleries and farming.

The two major water abstractions from the River Dee are at Inchgarth (Mannofield Water Treatment Works) and Cairnton (Invercannie Water Treatment Works). Water from Cairnton and Inchgarth supplies Aberdeen City and is distributed as far as Ellon, Alford and Stonehaven. Other potable water abstraction schemes are located on the Water of Dye (a tributary of the Water of Feugh) and on the River Gairn west of Ballater. Other small abstractions are made for water supply and for crop irrigation throughout the catchment.

These abstractions from the Dee and its tributaries are regulated through the Water Environment (Controlled Activity) (Scotland) Regulations 2005 (CAR). Licences issued under CAR establish the rate of abstraction permitted under different flow conditions and also specify a 'hands off' limit, which prevents abstraction from the water body during periods of very low flow. Some of these abstractions were authorised many years ago and the conditions attached have never been reviewed.

The Water Framework Directive (WFD) requires that water abstraction must not severely impact on the ecological status of the water body. It is, however, necessary to balance the needs of public health and farming against the need to ensure that the quality of the environment is maintained. Ultimately, public health must be assured and, if necessary, a Drought Order can be sought to allow abstraction to continue. Although current water supply and demand data indicate that there is not a need for additional sources, there is a need to assess the potential environmental and ecological impacts of abstractions from the Dee under current and future climate change scenarios to assess their long-term sustainability.

ISSUES

- Public water supply in the catchment is highly dependent on abstraction from the River Dee.
- When river levels are low, abstraction of groundwater near the river reduces the potential input to the river from groundwater sources, reducing river levels still further.
- In these conditions there is a risk of adverse impact on ecological interests. Salmon, for example, can become trapped in pools and prevented from migrating.
- The quality of a water body is related to the quantity of water within it. Over-abstraction can therefore reduce water quality, especially during periods of drought, when river levels are already low.
- Climate change predictions & water demand projections suggest that it is increasingly likely that there will be conflict between the fundamental requirement for a public water supply which ensures satisfactory public health and the WFD's objective of achieving good ecological status.
- Leakage from the water distribution network is of concern, to both the water industry and to stakeholders.
- Although the need for householders and businesses to adopt water conservation measures is widely recognised and supported, no organisation has a regulatory responsibility to promote 'water conservation' as such.

EXISTING / RECENT INITIATIVES

Review of abstraction levels

- All existing abstraction points have been transferred to draft CAR licenses and the Scottish environment Protection Agency (SEPA) is undertaking a process of reviewing the abstraction levels in these licences.
- As the regulatory regimes change to CAR licensing it is expected that SEPA will review

WHO IS INVOLVED?

- Aberdeenshire Council
- Aberdeen City Council
- Aberdeen University
- Cairngorms National Park Authority
- Dee District Salmon Fishery Board
- Fisheries Research Services
- Landowners
- Land managers
- The Macaulay Institute
- North East Scotland Biological Records Centre
- Royal Society for the Protection of Birds
- Scottish Environment Protection Agency
- Scottish Natural Heritage
- Scottish Water

Further copies can be downloaded at www.theriverdee.org. For further information contact the Dee Catchment Officer c/o The Macaulay Institute, Craigiebuckler, Aberdeen AB15 8QH Telephone: 01224 498200 email: info@theriverdee.org

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the abstraction levels set out in the Water Orders.

Management of abstractions and impoundments

- The Invercannie and Mannofield Water Resource Zone is one of 78 (of the 239) in Scotland that have been identified as having public abstraction/impoundment activities that may impact the ecological status of the waterbody. Scottish Water produced 'Strategic Studies' in March 2007, setting out the priorities and options for investment that would contribute towards meeting the objectives of the WFD.
  - The Strategic Study of the Invercannie and Mannofield WRZ: 1) applies the SEPA guidelines on the environmental standards and conditions to consider the long term viability of current water sources, 2) reviews options for their management, taking into account drinking water and environmental considerations, and 3) identifies priorities for investment.
  - Such investment, if required, may be to support: amending abstraction regimes, reducing leakage, demand management, or the consideration of alternative/supplementary water sources. Decisions will be made on the basis of cost benefit analysis, taking into account social, environmental and economic factors.
  - The Strategic Study is still being discussed and reviewed with SEPA to determine potential abstraction licence conditions and what (if any) further studies may be required.
- Scottish Water has produced a national leakage strategy which will assist with programming of investment to meet 1) the requirements of the WFD and 2) the regulatory target for reducing leakage at a national level by 2010. The extent to which leakage is reduced in the Dee catchment will depend on 1) the outcome of the Strategic Studies, and 2) the economic contribution leakage can make to any mitigation.

Effects of abstraction on river ecology

- Through the Controlled Activities Regulations (CAR) SEPA has been afforded more powers to regulate abstraction so as to ensure that waterbodies are protected. SEPA is developing requirements for licensing water abstraction, based on the interaction between river flow and ecological condition.
- SNH have commissioned an assessment of the effects of abstractions on low flows on the Dee and the potential impacts on Special Area of Conservation (SAC) qualifying species.
- Aberdeen University has undertaken research linking critical flow levels to ecology (Tetzlaff *et al* 2005).
- Dee District Salmon Fishery Board and Fisheries Research Services collect data relating to spawning activity and its relationship river levels.
- SEPA and Aberdeenshire Council have flow gauges along the Dee and in some tributaries.
- All Scottish Water abstractions and impoundments are now regulated by CAR. One of the conditions of the Licence is a requirement to measure, record and report daily abstracted volumes where the permitted abstraction is greater than 50m3/day. Monitoring Plans are being submitted to SEPA for their approval for each site concerned. Scottish Water has obtained funding and has started on a programme of installation of equipment to comply with the measurement and monitoring requirement. This is due to be completed by the end of March 2009.

Others

- Risk assessments carried out for WFD characterisation to be confirmed in period up to first River Basin Management Plan in 2009.
- The new Planning Act introduces more frequent review of Local and Structure Plans. This provides the opportunity to anticipate future trends in water use more accurately.

ACTIONS REQUIRED

- Realistic assessment of the impact caused by abstraction is an essential pre-requisite which underpins the actions following.
- The links between low river levels and their duration and the ecological status of water bodies need to be better understood to allow low flow events to be managed without conflict.
- Actions are required which will enable improved control of large abstraction regimes (e.g. timing, quantities).
- There is also a need to promote best practice in order to minimise the environmental impacts of small abstractions.
- A strategy for the promotion of water conservation in the catchment is required.

LEGISLATION

See Action Pack Annex for information sources

- In fulfilling its duties under the WEWS Act, SEPA regulates all abstractions from surface or groundwater.
  - All existing and any new abstraction activities require an authorisation under the Water Environment (Controlled Activities) Regulations.
  - All abstractions less than 10 cubic metres per day will be covered by a General Binding Rule (GBR) that requires operators to ensure that the water is used efficiently. As long as the abstraction is undertaken in compliance with the specified conditions, then the GBR provides the authorisation and the operator is not required to contact SEPA.
  - Operators responsible for abstractions *greater* than 10 cubic metres per day must apply to SEPA.
  - It is the duty of all persons carrying out a Controlled Activity under WEWS CAR 2005 to use water efficiently. SEPA has a duty to assess the steps being taken to ensure efficient and sustainable use when determining a license application.
- The Town & Country Planning Act
- Aberdeen and Aberdeenshire Local Plans
- Strategic Environmental Assessment Regulations
- Habitats regulations 1994

GUIDELINES AND INFORMATION

See Action Pack Annex for information sources

- www.sepa.org.uk for information about CAR

BENEFITS TO PROTECTED SPECIES

The following specially protected species will benefit from the Actions:

- Freshwater pearl mussel *Margaritifera margaritifera*
- Atlantic salmon *Salmo salar*
- Brook lamprey *Lampetra planeri*
- River lamprey *Lampetra fluviatilis*
- Sea lamprey *Petromyzon marinus*

RELATED ACTION CARDS

19. Changes in land use

26. Atlantic salmon

27. Freshwater pearl mussel