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Developing abstraction controls for allocating water to irrigated agriculture

E. K. Weatherhead (1), J. W. Knox (1) and A.A.R. Ioris (2)

(1) Institute of Water and Environment, Cranfield University, Silsoe, England, (2) Scottish Environmental Protection Agency, Stirling, Scotland

The European Water Framework Directive (EWFD) will have major implications for agricultural water resources management. Part of the Directive requires Member States to implement a comprehensive system of controls (licences) on the allocation and abstraction of water resources, including those to irrigated agriculture.

This paper describes the development of a procedure to help regulatory authorities assess and set reasonable licence limits of water abstraction for agricultural irrigation. The procedure provides water resource planners with a new and useful tool to improve their decision-making in support of implementing the EWFD and in developing sustainable approaches to integrated catchment management. A geographical information system (GIS) was used to combine spatial information with data derived from an irrigation water balance computer model. Maps and a procedure have been developed to enable regulatory staff to estimate volumetric irrigation demand, taking into account local catchment variations in soils, agroclimate and land use.

The application of methodology is described with reference to two countries, England and Scotland. In England, water resources have been managed through an abstraction licensing regime for over 40 years using existing legislation. This is in marked contrast to Scotland where only limited abstraction controls exist. The contrasting approaches being developed for abstraction controls with respect to the EWFD are discussed.

The approach described provides a scientifically robust framework to allow regulatory authorities to allocate water to individual irrigators or between irrigators and competing uses (e.g. industry, the environment). The methodology would be equally applica-

ble in other Member States where water abstraction controls are required and where appropriate datasets are available.