

CHAPTER ONE

INTRODUCTION

This report presents a review of surface and groundwater quality in Ireland for the period 2004 to 2006. It is the latest in a series of comprehensive reviews of water quality which commenced with the initial surveys, undertaken by An Foras Forbartha, in the early 1970s. Since the last such report, for the 2001 to 2003 period, the Environmental Protection Agency (EPA) has published annual interim and indicator reports according as data has become available. The purpose of the present report, however, is to present a more detailed review of all the main aspects of the quality of the aquatic environment in Ireland in order to provide thorough guidance towards its protection and enhancement.

The water quality assessments set out in this report are derived from the implementation of the national monitoring programmes, prepared by the EPA in the 1990s, in accordance with its statutory responsibilities. With the exception of the groundwater monitoring programme, the scope of this review is broadly similar to that of the previous report covering the period 2001-2003. In the case of the freshwater reaches of rivers the baseline channel length of 13,240 km was again classified using biological characteristics. The four principal canal waterways (Grand Canal, Royal Canal, Barrow Navigation and Shannon-Erne Waterway) were assessed using physico-chemical and biological data. Data are also presented for over 449 lakes and for the 69 individual estuarine and coastal waters bodies in the 25 estuarine and coastal areas which were assessed in this period.

An improved groundwater monitoring programme has been developed and implemented. Groundwater quality and the links between groundwater and the ecological status of associated surface waters were assessed through the examination of 1,362 individual samples at 137 monitoring stations.

The principal sources of data on which this report is based are the national monitoring programmes undertaken by the EPA and by the local authorities supplemented by data from the Marine Institute, the Central and Regional Fisheries Boards, Waterways Ireland and the Radiological Protection Institute of Ireland.

The Water Framework Directive, establishing a framework for European Union (EU) community action in the field of water policy, was adopted by the EU in October 2000. The directive provides a new approach for the protection and improvement of water resources and aquatic ecosystems and aims to protect and enhance all waters – groundwaters, rivers, lakes, transitional waters (estuaries and coastal lagoons), coastal waters, water dependent terrestrial ecosystems and wetlands. It aims to achieve these objectives through a process of river basin management planning supported by status assessments derived from new monitoring programmes.

As part of the Water Framework Directive implementation process the EPA was required to develop monitoring programmes and to identify the public authorities by whom the monitoring is to be undertaken. In December 2006 these monitoring programmes became operational and in 2007 have replaced the national monitoring programmes. The new programmes include waterbodies representative of the different types of surface and groundwaters as well as those waterbodies deemed to be at risk of failing to achieve, within the given timeframe, the objectives of the Water Framework Directive. It covers artificial waterbodies e.g. canals, heavily modified waterbodies such as rivers impounded to form reservoirs and has a sub-programme for protected areas.

These new programmes have set out a greatly expanded range of biological, physico-chemical, morphological and chemical quality elements to be examined at an increased monitoring frequency. New Water Framework Directive compliant biological classification systems and standards for physico-chemical and chemical parameters are proposed for determining the quality status of the waterbodies. The biological classification systems will assign surface waterbodies to one of the five status classes: high, good, moderate, poor or bad. The proposed standards for the physico-chemical parameters will differentiate between high, good or moderate status, while the chemical standards indicate the boundary between good or moderate status. Hydromorphological assessments will be carried out to differentiate between high status and good or lower status.

These classification systems and standards will be applied to the data collected in the monitoring programmes to determine the overall status of all waterbodies in Ireland. This status will be used in developing management plans to set the objectives for the waterbodies and to determine the measures required to meet these objectives.

To achieve the Water Framework Directive objectives within the timeframe set out in the directive poses a major challenge for Ireland. The directive sets a target of achieving “good” status in all our waters by 2015. This report indicates that almost 28 percent of river channel length examined and 15 percent of lakes are in an unsatisfactory condition, a percentage that is likely to increase when the more rigorous Water Framework Directive status assessments are completed. A major co-ordinated planning effort will be required if the targets are to be reached.

This and previous reports have been highlighting the significance of nutrient enrichment as the major pressure on surface and groundwater in Ireland. The principal sources of these nutrients are discharges from municipal sewage treatment works and from agricultural activities. Nutrient reduction measures are set out for these sources respectively in the Urban Waste Water Treatment Directive and the Nitrates Directive. The full implementation of these measures will be a significant step towards achieving the objectives of the Water Framework Directive.

The following chapters outline and discuss the current status and trends in the water quality of surface and groundwaters. This is followed by a general discussion and conclusions in Chapter Six. Tabulations of the detailed analyses of river quality in each Hydrometric area, together with data summaries for individual lakes and estuarine and coastal waters are presented as Appendices to this Report.

This Report is available in electronic format only.

Colour coded River, Lake and Tidal water quality maps accompany this Report in electronic format. Printed versions of these maps (70cm x100cm, approx) may be purchased separately (price €10 each) in flat or folded from the EPA Publications Office, McCumiskey House, Richview, Clonskeagh Road, Dublin 14.