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European foreword

This document (EN 14614:2020) has been prepared by Technical Committee CEN/TC 230 “Water analysis”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2021, and conflicting national standards shall be withdrawn at the latest by March 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 14614:2004.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

In the past, many countries in Europe assessed river 'quality' simply in terms of water chemistry or pollution within river channels. A more comprehensive understanding of rivers is needed, however, in view of global issues such as climate change, to answer pressing ecological questions such as those arising from the EC Water Framework Directive (WFD), the EC Habitats Directive and EC Floods Directive, to underpin the International Convention on Biodiversity, or to assess proposed river engineering work and to evaluate the effectiveness of restoration schemes and other catchment developments.

River habitats and physical processes have suffered historically from a wide range of human impacts, especially changes in land use since World War II. In most European countries there is now widespread agreement among environment and conservation agencies to see modified rivers returned to a more natural condition. This implies a need to evaluate areas deserving protection and those requiring restoration, and to encourage sustainable management of river systems throughout Europe.

NOTE In this document, 'assessment' is used as a broad term referring to the general description of features and the pressures affecting them. It is not used to imply the judgement of particular levels of 'quality' or 'value', whether related to status under the WFD or more generally.

1 Scope

This document is focused on the structural features of rivers, on geomorphological and hydrological processes, and on river continuity. It provides guidance on the features and processes to be taken into account when characterizing and assessing the hydromorphology of rivers. The word 'river' is used as a generic term to describe flowing watercourses of all sizes, with the exception of artificial water bodies such as canals. The document is based on methods developed, tested, and compared in Europe, including the pan-European REFORM project (<https://reformrivers.eu/>). Its main aim is to improve the comparability of hydromorphological assessment methods, data processing and interpretation. It provides broad recommendations for the types of parameters that should be assessed, and the methods for doing this, within a framework that offers the flexibility to plan programmes of work that are affordable. Although this document does not constitute CIS guidance for the WFD, relevant references provided by the CIS expert group on hydromorphology have been included in the Bibliography.

Although it has particular importance for the WFD by providing guidance on assessing hydromorphological quality, this document has considerably wider scope for other applications. It does not attempt either to describe methods for defining high status for hydromorphology under the WFD, or to link broadscale hydromorphological classification to assessments of ecological status. In addition, while recognizing the important influence of hydromorphology on plant and animal ecology, no attempt is made to provide guidance in this area, but where the biota have an important influence on hydromorphology, these influences are included.

NOTE A case study illustrating the application of this document is given in Gurnell and Grabowski[1].

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply:

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

aluvium

sediment deposited by rivers

3.2

anabranching river

river with more than one channel separated by vegetated islands

3.3

aquifer

underground layer of water-bearing permeable rock, rock fractures or unconsolidated materials (gravels, sands) from which groundwater can be extracted

3.4

armouring

where the river bed surface comprises coarser particles than the underlying river bed layers as a result of removal (mobilization and transport) of the finer particles from the bed surface layer