

**Water quality - Guidance for the surveying of aquatic
macrophytes in running waters**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

Water quality - Guidance for the surveying of aquatic macrophytes in running waters

Qualité de l'eau - Guide pour l'étude des macrophytes
aquatiques dans les cours d'eaux

Wasserbeschaffenheit - Anleitung für die Untersuchung
aquatischer Makrophyten in Fließgewässern

This European Standard was approved by CEN on 11 January 2014.

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Contents

Foreword.....	4
Introduction	5
1 Scope	6
2 Terms and definitions	6
3 Principle.....	7
4 Equipment	8
4.1 General.....	8
4.2 Deeper waters (optional).....	8
5 Survey planning	8
5.1 General.....	8
5.2 Timing of initial and subsequent surveys	9
5.3 Survey protocols.....	9
5.4 Selection of reference sites	10
5.5 Selection of river reaches	10
5.6 Selection of representative sites.....	11
6 Survey procedure	12
6.1 Survey preparation	12
6.2 Survey technique	12
6.3 Field survey	13
6.4 Recording and quantification scales for macrophytes.....	14
6.5 Aquatic macrophyte identification	16
Annex A (informative) Principles of interlaboratory comparison for macrophyte surveys in running waters – Occurrence and abundance of macrophyte species	17
A.1 General.....	17
A.2 General aspects of quality assurance in aquatic macrophyte survey	17
A.3 Site selection	17
A.3.1 General.....	17
A.3.2 Site parameters	18
A.3.2.1 Flow	18
A.3.2.2 Depth	18
A.3.2.3 Width	18
A.3.2.4 Transparency	19
A.3.3 Survey unit number, length and demarcation	19
A.3.4 Aquatic vegetation characteristics suitable for IC	19
A.4 Independence of participant's results	19
A.5 Field protocol and time limit.....	20
A.5.1 General aspects	20
A.5.2 Time limit for the field survey.....	20
A.6 Data collection for the whole group of participants.....	20
A.7 Reference values for the survey	20
A.7.1 General.....	20
A.7.2 Reference values for species number, taxonomic correctness and abundance of species	20

A.8	Description of results concerning species detection.....	21
A.9	Description of results concerning species abundance.....	22
A.10	Reporting.....	23
Bibliography.....		24

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Foreword

This document (EN 14184:2014) has been prepared by Technical Committee CEN/TC 230 "Water analysis", the secretariat of which is held by DIN.

This document supersedes EN 14184:2003.

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 September 2014, and conflicting national standards shall be withdrawn at the latest by September 2014.

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

This document contains the following technical changes to the previous edition:

- a) this document is applicable to all kinds of running surface waters (e. g. rivers, streams, artificial canals);
- b) requirements for survey planning and documentation were revised concerning the requirements of the Water Framework Directive (WFD);
- c) a further example for estimator scales widely used in Europe to assess aquatic macrophyte abundance was added in Table 1;
- d) informative Annex A "Principles of interlaboratory comparison for macrophyte surveys in running waters – Occurrence and abundance of macrophyte species" was added.

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

Introduction

Macrophytes are an important component of aquatic ecosystems and can be used to facilitate the monitoring of ecological status. The requirement to use macrophytes in monitoring is inherent in numerous European directives (e. g. the Water Framework Directive (2000/60/EC), Urban Waste Water Treatment Directive (91/271/EEC), Nitrates Directive (91/676/EEC), etc.).

In addition to their important ecological role, the use of macrophytes as indicators of ecological quality in running waters is based on the fact that certain species and species groups are indicators for specific running water types and are adversely affected by anthropogenic impact.

In certain types of running water habitats the lack of macrophytes is not an effect of anthropogenic impact but a characteristic feature. For example, in geological formations like the flysch, or in the central part of deeper rivers macrophytes may be absent due to the habitat limitations imposed by geology and substrate, water depth, current flow velocity, turbidity, etc.

A wide range of sampling and survey methodologies has been developed for specific applications including conservation, drainage impact, management, ecological habitat enhancement etc. The methodology of this guidance standard is recommended specifically for the surveying of macrophytes in running freshwaters, of natural, heavily modified and artificial character, and for the purpose of monitoring ecological status. It could be used as the basis for investigative monitoring of water quality or other applications, as well.

According to the precise usage to which this European Standard is to be put, it is essential for specifiers and users to mutually agree on any necessary variations or optional procedural details prior to use.

WARNING — Working in or around water is inherently dangerous. Persons using this European Standard should be familiar with usual field and laboratory practice. This European Standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

1 Scope

This European Standard specifies a method for surveying aquatic macrophytes in running waters for the purpose of assessing ecological status, using these organisms as elements of biological quality. The information provided by this method includes the composition and abundance of the aquatic macrophyte flora.

This European Standard is applicable to all kinds of surface running water bodies, like natural brooks, streams and rivers and their heavily modified equivalents, as well as to artificial water bodies like canals or run-of-river reservoirs.

The general principles of the approach described in this European Standard may also be applied when monitoring water bodies in the fluvial corridor of a river, such as side channels and oxbows.

It is recognized that for a complete assessment of ecological status, other elements of biological quality should also be assessed.

2 Terms and definitions

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

2.1

aquatic macrophytes

larger plants of fresh water which are easily seen with the naked eye, or which usually form colonies, including all aquatic vascular plants, bryophytes, stoneworts (Characeae) and macro-algal growths

2.2

bank

permanent side of a river or island, which is above the normal water level and only submerged during periods of high river flow

Note 1 to entry: In the context of this standard, bank species include macrophytes that overhang the channel or overgrow the water surface but are rooted in the bank.

2.3

channel

course of a river or stream

Note 1 to entry: In the context of this standard, this includes only the in-stream part, i. e. that which is under water most of the time although it may be exposed temporarily under conditions of dry-weather flow or for longer periods under certain natural (climatic, geological) conditions.

2.4

belt transect

defined band across a river or stream at right angles to the bank

Note 1 to entry: This may be virtual or physically delineated within which the aquatic vegetation is analysed (species composition, abundance, cover).

2.5

ecological status

expression of the quality of the structure and functioning of aquatic ecosystems, expressed by comparing the prevailing conditions with reference conditions

Note 1 to entry: As classified in accordance with Annex V of the EC Water Framework Directive (2000/60/EC).