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Water quality — Guidance on mapping of seagrasses and macroalgae in the eulittoral zone

National foreword

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A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

Water quality - Guidance on mapping of seagrasses and macroalgae in the eulittoral zone

Qualité de l'eau - Lignes directrices pour la cartographie des herbiers et des macroalgues dans la zone eulittorale

Wasserbeschaffenheit - Anleitung zur Kartierung von Seegras und Makroalgen in der Eulitoralzone

This European Standard was approved by CEN on 6 January 2019.

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European foreword

This document (EN 17211:2019) 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of an identical text or by endorsement, at the latest by March 2020, and conflicting national standards shall be withdrawn at the latest by March 2020.

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.

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Introduction

Investigation of marine angiosperms (e.g. seagrasses) and macroalgae is an important part of marine environmental monitoring, facilitating the assessment of general ecological quality and the monitoring of ecological status. The requirement for using marine angiosperms and macroalgae in marine monitoring is inherent in numerous European and national directives: e.g. Marine Strategy Framework Directive (Directive 2008/56/EC), Water Framework Directive (WFD) (Directive 2000/60/EC), Urban Waste Water Treatment Directive (91/271/EEC), Habitats Directive (92/43/EEC) and the OSPAR and HELCOM conventions. Extensive green macroalgal beds are considered an indicator of eutrophication. Seagrasses and some macroalgae species are important contributors to biodiversity, as well as IUCN threatened species and they are investigated in very similar ways. They respond to environmental changes - primarily availability of light, nutrients, temperature and are impacted by physical disturbance. Monitoring of extent of area, biomass and species composition may therefore in many cases be used to characterize the environment and the degree of impacts.

The characterization of environmental conditions based on marine angiosperms and macroalgae requires the use of quantitative and qualitative mapping methods.

WARNING — Persons using this document should be familiar with normal fieldwork practice. This document 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

1 Scope

This document provides guidance for survey design, equipment specification, survey methods, sampling and data handling of macroalgae and marine angiosperms such as *Zostera* in the intertidal soft bottom environment. It does not include polyeuryhaline terrestrial angiosperms that are found in saltmarshes. *Ruppia* is a genus of angiosperms that can be found in brackish water. This document can also be applied to the study of *Ruppia* in these environments.

The document comprises:

— development of a mapping and sampling programme;

— requirements for mapping and sampling equipment;

— procedures for remote sensing data collection;

— procedures for direct mapping and sampling in the field;

— recommendations for taxon identification and biomass determination;

— data handling.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 7027-2, *Water quality - Determination of turbidity - Part 2: Semi-quantitative methods for the assessment of transparency of waters (ISO 7027-2)*

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 http://www.iso.org/obp

3.1
biomass
total mass of living material in an area (m^2)

[SOURCE: ISO 6107-3:1993, definition 12, modified – “a given body of water” has been replaced by “an area (m^2)” to reflect the littoral location]

3.2
ground-truth
information that are confirmed in an actual field investigation which is done at a defined location

Note 1 to entry: Used to confirm the findings of, or to calibrate quantitative observations, from remote sensing.