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SUURSELGROOTUTE KVANTITATIIVSEKS
PROOVIVÕTUKS JA PROOVITÖÖTLUSEKS**

**Water quality - Guidelines for quantitative sampling
and sample processing of marine soft-bottom
macrofauna (ISO 16665:2014)**

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

See Eesti standard EVS-EN ISO 16665:2014 sisaldab Euroopa standardi EN ISO 16665:2013 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 16665:2014 consists of the English text of the European standard EN ISO 16665:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
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English Version

Water quality - Guidelines for quantitative sampling and sample processing of marine soft-bottom macrofauna (ISO 16665:2014)

Qualité de l'eau - Lignes directrices pour l'échantillonnage quantitatif et le traitement d'échantillons de la macrofaune marine des fonds meubles (ISO 16665:2014)

Wasserbeschaffenheit - Anleitung für die quantitative Probenahme und Probenbearbeitung mariner Weichboden-Makrofauna (ISO 16665:2014)

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN ISO 16665:2013) has been prepared by Technical Committee ISO/TC 147 "Water quality" in collaboration with 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of an identical text or by endorsement, at the latest by June 2014, and conflicting national standards shall be withdrawn at the latest by June 2014.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 supersedes EN ISO 16665:2005.

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.

Endorsement notice

The text of ISO 16665:2014 has been approved by CEN as EN ISO 16665:2013 without any modification.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2, www.iso.org/directives.

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 147, *Water quality*, Subcommittee SC 5, *Biological methods*.

This second edition cancels and replaces the first edition (ISO 16665:2005), which has been technically revised.

Introduction

Analysis of macrofaunal communities in soft-bottom sediments is an integral part of marine environmental assessment. The faunal composition, in terms of both the species present and their relative abundance, reflects integrated environmental conditions in the survey area over a period of time. The composition and structure of soft-bottom macrofaunal communities therefore can be used to characterize environmental conditions and estimate the extent of environmental impact.

Characterization of environmental conditions is usually based on quantitative methods, in this case by relating the numbers of species and individuals captured to a known area of sea floor. For accurate data interpretation, it is essential to add information on the geophysicochemical characteristics or properties of the water masses and bottom sediments, including nutrients, oxygenation, and redox state where appropriate.

For effective data utilization and quality assurance (QA) of the work carried out, it is beneficial and may be essential (depending on the individual survey aims) that surveys be intercomparable temporally, spatially, and between operators. This International Standard contributes to ongoing work on QA of data from soft-bottom macrofaunal surveys. These guidelines primarily aim to assist in standardizing monitoring surveys carried out for commercial purposes or in connection with the EU Water Framework Directive. For this reason, detailed specifications are given in areas of consequence for data intercompatibility.

Where appropriate, cost-benefit issues have been taken into consideration, and accepted minimal requirements for general environmental impact assessment have been given. The cited minimum requirements for accuracy are not intended to satisfy research needs or to provide a full ecological understanding of the sampling area. Designers of programmes for research or other studies requiring a detailed knowledge of soft-bottom macrofauna should consult the guidelines given in Reference [13] for decisions on survey design and sampling frequency.

This International Standard applies to all areas of the sea floor where it is possible to collect faunal samples by a grab or coring device. For practical reasons, this applies to animals retained on a mesh screen of 0,5 mm or 1 mm aperture size.

The sensitivity of the method, here defined as detection of faunal disturbance, change in taxon composition or faunal mapping, is dependent on the survey design, the type of environmental influences present in the area and on the level of competence or standardization of the personnel.

Water quality — Guidelines for quantitative sampling and sample processing of marine soft-bottom macrofauna

WARNING — Persons using this document should be familiar with normal laboratory 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 employer or user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

IMPORTANT — It is absolutely essential that tests conducted in accordance with this document be carried out by suitably trained staff.

1 Scope

This International Standard provides guidelines on the quantitative collection and processing of subtidal soft-bottom macrofaunal samples in marine waters.

This International Standard encompasses:

- a) development of the sampling programme;
- b) requirements for sampling equipment;
- c) sampling and sample treatment in the field;
- d) sorting and species identification;
- e) storage of collected and processed material.

This International Standard does not specifically address the following, although some elements may be applicable:

- bioassay sub-sampling;
- deep water (>750 m) or offshore sampling;
- *in situ* faunal studies, e.g. recolonization assays;
- non-benthic organisms caught in the sampling device;
- estuarine sampling;
- intertidal sampling;
- meiofaunal sampling and analysis (see Reference [9]);
- sampling by dredge and sledge;
- self-contained underwater breathing apparatus (SCUBA) sampling;
- statistical design.

Accuracy of position fixing is determined by the geographical area, equipment used and survey objective.

2 Terms and definitions

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