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

Qualité de l'eau — Lignes directrices pour l'échantillonnage quantitatif et le traitement d'échantillons de la macrofaune marine des fonds meubles

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 16665 was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 5, *Biological methods*.

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 characterise environmental conditions and estimate the extent of environmental impact.

Characterisation 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 geophysical/geochemical characteristics or properties of the water masses and bottom sediments, including nutrients, oxygenation and redox state where appropriate.

For effective data utilisation and quality assurance of the work carried out, it is essential that surveys are intercomparable temporally, spatially and between operators. This International Standard contributes to on-going work on quality assurance of data from soft-bottom macrofaunal surveys. These guidelines primarily aim assisting in standardising 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 [17] for decisions of 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 type of environmental influences present in the area and on the level of competence/standardisation of the personnel.