Water quality - Sampling of fish with multi-mesh gillnets

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EVS EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 14757:2005 sisaldab Euroopa standardi EN 14757:2005 ingliskeelset teksti.	This Estonian standard EVS-EN 14757:2005 consists of the English text of the European standard EN 14757:2005.
Käesolev dokument on jõustatud 29.09.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.	This document is endorsed on 29.09.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

Käsitlusala: This European Standard describes a standardised method for sampling fish in lakes, using multi-mesh gillnets. The method provides a whole-lake estimate for species occurrence, quantitative relative fish abundance and biomass expressed as Catch Per Unit Effort (CPUE), and size structure of fish assemblages in temperate lakes.	**Scope:** This European Standard describes a standardised method for sampling fish in lakes, using multi-mesh gillnets. The method provides a whole-lake estimate for species occurrence, quantitative relative fish abundance and biomass expressed as Catch Per Unit Effort (CPUE), and size structure of fish assemblages in temperate lakes.

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English Version

Water quality - Sampling of fish with multi-mesh gillnets

Qualité de l'eau - Echantillonnage des poissons à l'aide de
filets maillants

Wasserbeschaffenheit - Probenahme von Fisch mittels
Multi-Maschen-Kiemennetzen

This European Standard was approved by CEN on 27 June 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Foreword

This European Standard (EN 14757:2005) 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 February 2006, and conflicting national standards shall be withdrawn at the latest by February 2006.

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

Introduction

This is the second of several European Standards developed for evaluation of the species composition, abundance and age structure of fish in rivers, lakes and transitional waters. Other standards describe "Sampling of fish with electricity" (EN 14011) and "Guidance on the scope and selection of fish sampling methods" (prEN 14962).

In most countries the use of the method specified in this European Standard requires permits from landowners and national or regional authorities. In many countries permits are also required from authorities for animal rights and animal welfare demands. Both fish diseases and diseases specific for other organisms, such as freshwater crayfish, may be spread by placing equipment contaminated with pathogens or parasites in the lake. The user of this method should check which national legislation is applicable.

WARNING — Persons using this European Standard should be familiar with normal laboratory and fieldwork 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.

IMPORTANT — It is absolutely essential that tests conducted according to this standard be carried out by suitably trained staff.

1 Scope

This European Standard describes a standardised method for sampling fish in lakes, using multi-mesh gillnets. The method provides a whole-lake estimate for species occurrence, quantitative relative fish abundance and biomass expressed as Catch Per Unit Effort (CPUE), and size structure of fish assemblages in temperate lakes. It also provides estimates, which are comparable over time within a lake and between lakes. This European Standard provides information on sampling routines, data handling and reporting, sampling of fish for age and growth analyses as well as applications and further treatment of data. Selected references in support of this European Standard are given in the Bibliography.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

prEN 14962:2004, *Water quality — Guidance on the scope and selection of fish sampling methods*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in prEN 14962:2004 apply.

4 Principle

The sampling procedure is based on stratified random sampling. The sampled lake is divided in depth strata and random sampling is performed within each depth stratum. Sampling of benthic fish is performed with specially designed multi-mesh gillnets which are 30 m long and 1,5 m deep. The gillnets are composed of 12 different mesh-sizes ranging between 5 mm to 55 mm knot to knot following a geometric series. Gillnets used for sampling pelagic fish are 27,5 m long and 6 m deep, with the smallest mesh-size being 6,25 mm. The sampling effort needed to allow detection of 50 % changes in relative abundance between sampling occasions, range between 8 gillnets per night (efforts) for small, shallow lakes, up to 64 efforts for lakes of about 5 000 ha. When less accurate estimates of abundance are needed, an inventory sampling procedure may be used, thereby reducing the number of efforts needed.

5 Sampling design and equipment

5.1 Sampling design

Fish are not randomly distributed over a lake. Depth distribution varies between fish species and with the ontogeny of the fish. The horizontal distribution may also be influenced by habitat heterogeneity. Neither is the distribution constant over the year, but will vary with temperature and season.

To cope with this uneven distribution a stratified random sampling design is used. The lake is stratified in depth strata and a random sampling is performed within each depth stratum. Each gillnet is placed to represent an independent sample of the fish assemblage. By randomising the location of each gillnet within each depth stratum and by randomising the angle of the gillnet in relation to shoreline, an independent sample of the fish in each stratum will be achieved. Randomisation is performed prior to fishing by the aid of depth maps and a co-ordinate grid. If needed, the angle of the gillnet in relation to the shoreline shall be adjusted so that the gillnet is within the corrected depth stratum.