



Designation: D4211 – 21

Standard Guide for Fish Sampling¹

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1. Scope*

1.1 This guide covers the use of lethal and non-lethal collection practices for fish.

1.1.1 Lethal practices include the use of rotenone and antimycin which are used to collect or eradicate fish; numerous chemicals have been used but presently only rotenone and antimycin are U.S. Environmental Protection Agency (EPA)-approved for this use.

1.2 Non-lethal collection practices typically do not cause mortality to fish.

1.2.1 Non-lethal practices include surface or bank observation, underwater observation, gill netting, beach seines, hoop nets, fyke nets, trap nets, electroshocking, minnow traps, enclosure (pop drop and throw) traps, angler surveys, commercial surveys.

1.3 The focus of this guide is to provide sampling practices for fish collection. This standard does not cover the identification of species or any statistical methods for the sampling data.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use. Refer to the MSDSs for all chemicals used in this procedure.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This guide is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.24 on Water Microbiology.

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2. Referenced Documents

2.1 *ASTM Standards:*²

D1129 Terminology Relating to Water

D4131 Practice for Sampling Fish with Rotenone

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this standard, refer to Terminology D1129.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *rotenone, n*—an odorless, colorless, crystalline isoflavone used as a broad-spectrum insecticide, piscicide, and pesticide.

3.2.1.1 *Discussion*—This chemical is commonly used as nonselective piscicide (fish killer).

4. Significance and Use

4.1 Fish sampling includes a number of lethal and non-lethal practices.

4.2 This guide provides an overview of commonly used fish sampling practices.

4.3 This summary serves as a brief accounting of options available to personnel responsible for determining the fish sampling practice or practices that best serve the sampling objectives.

5. Basis of Classification of Practices

5.1 *Lethal Practices*—The significance of using chemical fish toxicants is that more complete population analyses or total eradication, or both, can be accomplished. Target species can be selectively eradicated by varying concentrations. This provides a very effective tool in fisheries investigations and management programs. Water conditions (that is, pH, temperature, alkalinity, and so forth) and morphology can be limiting factors.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

*A Summary of Changes section appears at the end of this standard