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An American National Standard

Standard Practice for Depth Measurement of Surface Water[1]

This standard is issued under the fixed designation D 5073; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice guides the user in selection of procedures commonly used to measure depth in water bodies that are as follows:

	Sections
Procedure A—Manual Measurement	6 through 11
Procedure B—Electronic Sonic-Echo Sounding	12 through 13
Procedure C—Electronic Nonacoustic Measurement	14 through 15

The text specifies depth measuring terminology, describes measurement of depth by manual and electronic equipment, outlines specific uses of electronic sounders, and describes an electronic procedure for depth measurement other than using sonar.

1.2 The references cited and listed at the end of this practice contain information that may help in the design of a high quality measurement program.

1.3 The information provided on depth measurement is descriptive in nature and not intended to endorse any particular item of manufactured equipment or procedure.

1.4 This practice pertains to depth measurement in quiescent or low-velocity flow. For depth measurement related to stream gaging see Test Method D 3858. For depth measurements related to reservoir surveys see Guide D 4581.

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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 1129 Terminology Relating to Water [2]

D 3858 Test Method for Open-Channel Flow Measurement of Water by Velocity-Area Method [2]

D 4410 Terminology for Fluvial Sediment [2]

D 4581 Guide for Measurement of Morphologic Characteristics of Surface Water Bodies [3]

3. Terminology

3.1 *Definitions*—For definition of terms used in this practice refer to Terminologies D 1129 and D 4410.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *bar-check*, *n*—a method for determining depth below a survey vessel by means of a long, narrow metal bar or beam suspended on a marked line beneath a sounding transducer.

3.2.2 *bar sweep*, *n*—a bar or pipes, suspended by wire or cable beneath a floating vessel, used to search for submerged snags or obstructions hazardous to navigation.

3.2.3 *beam width*, *n*—the angle in degrees made by the main lobe of acoustical energy emitted from the radiating face of a transducer.

3.2.4 *bottom profile*, *n*—a line trace of the bottom surface beneath a water body.

3.2.5 *sonar*, *n*—a method for detecting and locating objects submerged in water by means of the sound waves they reflect or produce.

3.2.6 *sound*, *vt*—to determine the depth of water **(1)**. [4]

3.2.7 *sounding line*, *n*—a rope or cable used for supporting a weight while the weight is lowered below the water surface to determine depth.

3.2.8 *sounding weight*, *n*—a heavy object usually of lead, that may be bell-shaped, for use in still water and soft bottom materials or torpedo shaped with stabilizing fins, for use in flowing water.

3.2.9 *stray*, *n*—spurious marks on the graphic depth records caused by surfaces other than the bottom surface of a water body below the sounding vessel.

3.2.10 *subbottom profile*, *n*—a trace of a subsurface horizon due to a change in the acoustic properties of the medium through which the sound energy has traveled.

3.2.11 *towfish*, *n*—a streamlined container, containing acoustical equipment for sounding depth, and designed to be pulled behind or beneath a survey vessel.

3.2.12 *transducer*, *n*—a device for translating electrical energy to acoustical energy and acoustical energy back to electrical energy.

[1] This practice is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.07 on Sediments, Geomorphology, and Open-Channel Flow.

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[2] *Annual Book of ASTM Standards*, Vol 11.01.

[3] *Annual Book of ASTM Standards*, Vol 11.02.

[4] The boldface numbers in parentheses refer to a list of references at the end of this practice.

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