



Standard Practice for Depth Measurement of Surface Water¹

This standard is issued under the fixed designation D5073; 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 [D3858](#). For depth measurements related to reservoir surveys see Guide [D4581](#).

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:²

[D1129 Terminology Relating to Water](#)

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.

Current edition approved Jan. 1, 2013. Published January 2013. Originally approved in 1990. Last previous edition approved in 2007 as D5073 – 02(2007). DOI: 10.1520/D5073-02R13.

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.

[D3858 Test Method for Open-Channel Flow Measurement of Water by Velocity-Area Method](#)
[D4410 Terminology for Fluvial Sediment](#)
[D4581 Guide for Measurement of Morphologic Characteristics of Surface Water Bodies](#) (Withdrawn 2013)³

3. Terminology

3.1 *Definitions*—For definition of terms used in this practice refer to Terminologies [D1129](#) and [D4410](#).

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 The last approved version of this historical standard is referenced on www.astm.org.

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