United States Environmental Protection Agency | Office of Water 4305 | EPA-823-F-01-023 October 2001

FACT SHEET

Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual

Summary

The U.S. Environmental Protection Agency (EPA) is publishing information and recommendations for collecting, handling and manipulating sediment samples for physicochemical characterization and biological testing. This technical manual provides a compilation of methods that are most likely to yield accurate, representative sediment quality data based on the experience of many monitoring programs and researchers.

Background

Bottom sediments provide essential habitat for many freshwater, estuarine, and marine organisms. In aquatic systems, many man-made chemicals and waste materials, particularly persistent organic and inorganic chemicals, may accumulate in sediments. These sediments become repositories for many toxic chemicals. The United States Environmental Protection Agency's 1998 National Sediment Inventory, a biennial report to Congress on sediment quality in the United States, identified sediment contamination in every state of the country.

Contaminated sediments represent a hazard to aquatic life through direct toxicity as well as to aquatic life, wildlife and human health through bioaccumulation. Assessments of sediment quality commonly include analyses of man-made contaminants, benthic community structure, physicochemical characteristics, and direct measures of whole sediment and pore water toxicity.

Why is EPA publishing a manual on the collection, storage and manipulation of sediments?

Accurate assessment of environmental hazards posed by sediment contamination depends in large part on the accuracy and representativeness of sediment collection and analyses. Accurate assessment of sediment quality is needed to trigger source controls and/or remediation for a watershed.

This Manual addresses several needs identified in EPA's 1998 Contaminated Sediment Strategy including:

- an organized discussion of activities involved in sediment sampling and sample processing;
- important issues that need to be considered within each activity; and
- recommendations on how to best address issues such as sampling design, proper sampling procedures, and sample manipulations.

What does the manual contain?

Information is provided concerning appropriate sampling design, field and laboratory facilities needed, safety, sampling equipment, sample storage and transport procedures, and sample manipulation issues common to chemical or toxicological analyses. Information in this manual reflects the knowledge and experience of organizations that have developed internationally recognized procedures and protocols including:

- American Society for Testing and Materials,
- Puget Sound Estuary Program,
- Washington State Department of Ecology,
- US Environmental Protection Agency,
- US Army Corps of Engineers,
- National Oceanic and Atmospheric Administration, and
- Environment Canada.

This manual presents a set of recommendations on field sampling techniques and sediment/ interstitial water sample processing using extensive information in the current peer-reviewed literature.

Who will use this manual?

This manual provides technical support to those who design or perform sediment quality studies under a variety of regulatory and non-regulatory programs. The methods are widely applicable to anyone wishing to collect consistent, high-quality sediment data. This manual is **not** guidance on how to implement any specific regulatory requirement. Rather, it is a compilation of technical methods on how to best collect environmental samples that most accurately reflect environmental conditions.

How do I get this manual?

A pdf version of this document is available for viewing or downloading from the EPA Office of Science and Technology's web site at: www.epa.gov/OST/cs.

A limited number of copies of the complete document, entitled ***Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual*** are available from:

National Service Center for Environmental Publications
P.O. Box 42419
Cincinnati, OH., 45242.
1-800-490-9198
https://www.epa.gov/ncepi/

Water Resource Center
202-260-7786
center.water-resource@epa.gov

Request document # EPA-823-B-01-002.

Who do I contact for more information?

For more information on the ***Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual*** contact:

Richard Healy,
Health Protection and Modeling Branch,
Office of Science and Technology,
Mail Code 4305,
U.S. Environmental Protection Agency,
Ariel Rios Building,
1200 Pennsylvania Avenue, N.W.,
Washington, D.C. 20460
(202) 260-7812;
healy.richard@epa.gov.