United States Department of the Interior

U.S. GEOLOGICAL SURVEY
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Denver, Colorado 80225

IN REPLY REFER TO:

NATIONAL WATER QUALITY LABORATORY TECHNICAL MEMORANDUM 1998.09

April 30, 1998

Subject: Invertebrate Sample Field Processing and Shipment to the NWQL

Effective date of change: April 30, 1998

To: NAWQA Study Unit Biologists
NAWQA Study Unit Project Chiefs
NAWQA Ecological Operations Team
NAWQA National Leadership Team

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Revision: None

This memorandum contains guidelines for field processing of NAWQA invertebrate samples and their shipment to the National Water Quality Laboratory (NWQL). The guidelines were prepared by the QMH Committee (members: Tom Cuffney, Steve Moulton, Terry Short, and Jim Carter) following the development of two new, cost effective methods for processing RTH and QMH samples. The NAWQA Ecological Operations Team and Marc Sylvester reviewed and approved the technical information contained herein. Guidelines consist of 1) a new procedural requirement, 2) changes to original NAWQA field procedures and 3) reminders of specific aspects of the original NAWQA field protocol. For additional information please refer to Methods For Collecting Benthic Invertebrate Samples Collected As Part Of The National Water Quality Assessment Program by Cuffney, Gurtz, and Meador (1993), U.S. Geological Survey Open-File Report 93-406, v + 66 pp.

The purpose of this memorandum is to update Study Unit biologists on procedural issues relating to the field processing and shipment of invertebrate samples to the Biological Unit (BU). Compliance will ensure that the BU can process NAWQA invertebrate samples cost-effectively and consistently, resulting in the timely release of data to the Study Units.

Implementation of the new requirement (see below) goes into effect October 1, 1998, however we encourage study units to follow it as soon as possible.

Please contact Tom Cuffney (tcuffney) or Steve Moulton (smoulto) with questions or comments.

FIELD PROCEDURES: NEW REQUIREMENTS, REMINDERS, AND CHANGES

STANDARD SAMPLE CONTAINERS (NEW REQUIREMENT)

1. NAWQA will begin using standard, wide-mouth, sample containers in five sizes (1 L, 500 ml, 250 ml, 125 ml, and 60 ml.)

2. Standard sample containers must be purchased through the NWQL. To place orders:

   · access the USGS One-Stop Shopping Homepage (http://1stop.usgs.gov)
   · enter your user ID as instructed
   · select "Analytical Supplies (NWQL)" from the list of supply vendors
   · select container type and quantity

NWQL Stock Number	Description
N1121	BOTTLE, HDPE, WIDE MOUTH, NATURAL, W/CAP, 2OZ/60ML
N1122	BOTTLE, HDPE, WIDE MOUTH, NATURAL, W/CAP, 4OZ/125ML
N1123	BOTTLE, HDPE, WIDE MOUTH, NATURAL, W/CAP, 8OZ/250ML
N1124	BOTTLE, HDPE, WIDE MOUTH, NATURAL, W/CAP, 16OZ/500ML
N1125	BOTTLE, HDPE, WIDE MOUTH, NATURAL, W/CAP, 32OZ/1000ML

3. All NAWQA samples must be sent in a standard sample container. Any other forms of sample containers (e.g., vials, mason jars, "other" plastic jars, and paint buckets) will not be accepted by the NWQL. Samples received in non-standard sample containers will not be processed and will be returned to the Study Unit.

SAMPLE IDENTIFICATION CODES (PROTOCOL REMINDER)

Study Units must follow the instructions for generating sample identification codes as presented in Cuffney and others (1993, pp. 39-42).

LABELING SAMPLE CONTAINERS (PROTOCOL REMINDER)

Identical NAWQA field labels must be placed inside and outside of each sample container. Please refer to "Sample Processing and Labeling", pp. 38-39 in Cuffney and others (1993).

FIELD LARGE-RARE COMPONENTS (PROTOCOL CHANGE)

1. Large-rare (L/R) components will consist of "large and rare" specimens (e.g., large crayfish and mussels).

2. Typically, no more than a total of 20 specimens should be placed in the field L/R component. Match the standard sample container size to the type and quantity of specimens, if any, in the L/R component.

3. Do not place clumps of detritus in L/R component. Often, this extra debris includes early instar and "tag-along" specimens and results in increased processing times.

FIELD ELUTRIATE COMPONENT (PROTOCOL REMINDER)

1. Field elutriation can be a very important step in sample volume reduction by removing inorganic materials (e.g., sand, gravel) from organic materials (e.g., organisms and detritus)

that typically comprise the main-body component. Please refer to "Sample Processing and Labeling", pp. 31-34 in Cuffney and others (1993).

2. For samples having a relatively large volume of material, field elutriate discrete slack samples separately, then composite. This process will ensure a more efficient field elutriation (i.e., fewer organisms/detritus remaining in the inorganic elutriate) and cause less damage to specimens.

3. Elutriate component volumes must not exceed 0.75 L.

4. The BU will not quantitatively process elutriate components. Rather, elutriate components will be qualitatively evaluated shortly after receipt by the BU. Following evaluation, categorical information on the number of organisms in major groups and the amount of detritus in each component will be relayed to the Study Units. This information can be used to assess field elutriation efficiency prior to going out into the field in subsequent years.

MAIN-BODY COMPONENT AND FIELD SPLITTING (PROTOCOL REMINDER)

1. The volume of the main-body component must not exceed 0.75 L.

2. If, after elutriation and compositing, the volume of the main-body component exceeds 0.75 L, this component must be split in the field to reduce to an acceptable volume. Refer to pp. 34-37 in Cuffney and others (1993).

3. Large debris (clumps of turf, mosses, filamentous algae, rocks, twigs, wood chunks, leaves) must be rinsed and visually inspected for attached organisms in the field then discarded. Refer to p. 33 in Cuffney and others (1993).

SAMPLE SHIPPING INSTRUCTIONS

SHIPPING SAMPLES (NEW REQUIREMENT)

1. High-quality, stretchable tape (3M Scotch Brand 471 Plastic Tape) must be used to ensure a leak-proof seal of the sample container lid prior to shipping. After tightly securing the sample container lid, wrap the outside of the lid tightly with this tape. Any other form of tape (e.g., duct tape, fiber tape, clear box tape) may result in leakage of preservative.

2. Tape may be purchased through the NWQL using the One-Stop Shopping instructions outlined above for standard sample containers (see NWQL Stock Number N1525). If you purchase your tape locally, make sure it is 3M Scotch Brand 471 Plastic Tape.

3. Shipping instructions are available by contacting Gary Cottrell, Acting BU Supervisor (cottrell) or Steve Moulton, and will soon be available on the BU homepage.

/signed/
Robert S. Williams, Jr., Chief
National Water Quality Laboratory
Branch of Analytical Services

Distribution: E and http://wwwnwql.cr.usgs.gov/