

Lotic AIM Macroinvertebrate and Water Quality Submission Protocol

Updated: April 2025

Purpose

Outline the procedures needed to submit Assessment Inventory and Monitoring (AIM) macroinvertebrate and water quality samples to the BLM/USU National Aquatic Monitoring Center (NAMC). To submit non-AIM samples please contact NAMC directly.

Overview

All AIM macroinvertebrate and water quality samples must be submitted to NAMC by October 31st following the protocols below. Chain-of-custody forms are standard practice for submitting any physical samples to track responsible parties and error tracking. Lotic AIM has two chain-of-custody tracking forms that must be completed: 1) the Water Quality Macroinvertebrate Submission tool on AGOL containing all samples collected with the delivery data and notes confirming sample condition; 2) a paper sheet to be taped to one of the boxes of samples with the following info: the person responsible for the samples at each stage in the process; the date they transferred them to someone else in the process; their phone number; and the total number of boxes to be delivered.

General process to submit water quality and macroinvertebrate samples to NAMC:

1. The crew should:
 - a. Tape all macroinvertebrate sample jars from the same site together prior to submission.
 - b. Verify all jars are properly labeled and follow the macroinvertebrate and water quality labeling procedures listed in the TR 1735-2.
 - c. Verify that the number of all jars match what was recorded in Survey123.
 - d. Ensure all Survey123 data has been submitted.
 - e. Alert their manager that samples are ready for submission.
2. The crew manager should (See section A for more detailed instructions):
 - a. Access the [Water Quality Macroinvertebrate Submission Tool](#) in AGOL and follow directions in the webmap form to check all samples collected by their crew.
 - b. Once all samples have been checked and notes added as needed, pack samples in boxes and tape a paper chain of custody tracking form on the box. Determine the delivery method and deliver samples to the BLM/USU NAMC (See section B for details). Samples may be shipped or driven with each intermediate person signing the paper chain of custody form with the samples along the way.

Section A: Verifying samples and preparing for delivery

1. Crew managers should locate the Water Quality Macroinvertebrate Submission Tool (<https://geoplatform.maps.arcgis.com/apps/dashboards/add91758283448f196ba153f2238f12e>) in AGOL using the link provided. Follow the directions in the webmap form to verify samples and add notes as applicable.
 - a. Water Quality and Macroinvertebrate samples are submitted independently from one another using this tool.

- i. For water quality samples, ensure the PointID, Date, and Type of Sample (Orig, Dup, Blank) match the physical sample and the webform. All labels must be legible. If there are any errors or if labels are illegible, correct them prior to submission.
 - ii. For macroinvertebrate samples, ensure the PointID, Date, and Number of Jars match the physical sample and the webform. All labels must be legible. If there are any errors or if labels are illegible, correct them prior to submission.
 - b. Use the editable comments field to provide any notes. If everything matches and is present, please enter “All good”. If there are any discrepancies, correct them and make notes before proceeding.
 - c. In the editable date field, record the date the samples will be delivered to NAMC.
 - d. Work through the list of sampled sites for the project(s) you manage.
2. Ensure that all sample preservation and identification protocols have been followed:
 - a. Macroinvertebrate jars filled with $\frac{1}{2}$ or less of material and filled to the top with 95% ethanol.
 - b. Water quality jars filled $\frac{1}{2}$ way and acid stabilized.
 - c. Label placed on exterior of jar and for macroinvertebrate samples on the inside of the jar as well. Labels must contain:
 - i. Date
 - ii. Stream name
 - iii. AIM PointID
 - iv. State
 - v. Number of jars (for macroinvertebrates only, e.g., “1 of 3”)
 - vi. Sample Type (water quality only). Most reaches will only have an original, for reaches with original, duplicate, and blank samples verify that there is only one sample of each type (i.e., blank, duplicate, and original).
 - vii. **If any discrepancies or errors are identified or if labels are illegible, you must replace the labels with corrected ones before they are submitted.**
3. Prepare jars for transport:
 - a. Ensure that all lids are tightly sealed. For macroinvertebrate samples, wrap electrical tape around jar-lid interface to secure lids and reduce leakage.
 - b. Bundle multi-jar samples into single cluster and bind together with electrical tape. This greatly reduces time spent on sample inventory at end of season and in the lab and mitigates error. When taping, do not cover the labels. These will need to be checked in the lab, and it is best not to unbundle them.
4. When finished working through the list:
 - a. Transfer all bundled macroinvertebrate and water quality jars into separate boxes. Water quality samples should **not** be frozen but should be kept in a climate-controlled environment during inventory and transport.
 - b. Securely tape box so that it cannot be accidentally opened during transport. This will also serve as a tamper proof seal.
 - c. Clearly label the box (e.g., macroinvertebrate box 1 of 2 for NAMC, Water quality box 1 of 3 for NAMC).

- d. Securely tape a piece of paper to the box/cooler to use as a chain of custody form. Write your name, phone number, number of boxes, and date you handed them off. If samples are being handed off to intermediaries, every individual person that touches the box during transport should record this information.

Section B: Shipping or delivering samples

1. Determine if samples will be driven or shipped to NAMC:
 - a. If certified and registered to ship Hazardous Materials, samples may be shipped. Macroinvertebrate samples must be shipped in ethanol. Follow all carrier specific instructions for shipping Hazardous Material. Ship samples and any additional information concerning the samples to:

BLM/USU National Aquatic Monitoring Center
Department of Watershed Sciences
Utah State University
5210 Old Main Hill
Logan, UT 84322-5210

2. If shipping is not possible or desired, samples may be driven and dropped off at NAMC.
 - a. Please use the above address and deliver samples to Biology and Natural Resources (BNR) room 160 on campus.
 - b. Please provide NAMC with a **minimum of 2 days advanced notice** of delivery (Andrew.Caudillo@usu.edu).
 - c. **NAMC can accept submissions Monday through Friday from 8am – 5pm.**
 - d. Exceptions to days and hours are sometimes possible given enough notice.