

Standard Operating Procedure 3: Sampling Conditions and Times, version 1.0

This Standard Operating Procedure outlines time periods and environmental conditions when aquatic macroinvertebrate sampling should occur. Consistency of sampling times and conditions between sampling events is important to minimize seasonal associated effects and error when monitoring macroinvertebrate populations.

Sampling Times

- 1) The field component of the aquatic macroinvertebrate monitoring program typically begins in mid-April and ends in late-May or early June. Sampling should start no sooner than April 12th and should end no later than June 7th. Ending dates occur when all sites are sampled and are largely determined by the frequency of rain events, the amount of total rainfall, and the associated water levels in streams.
- 2) Sampling will only occur during daylight hours when visibility allows for accurate data collection.
- 3) At the beginning of the field season, a list of sites to be sampled for the year is generated and the average Julian Date of sampling for each site is determined. To facilitate data comparisons between years, individual stream sites should be sampled as close to that average date as possible. A temporal sampling disparity of one week between years is acceptable but larger discrepancies between sampling periods should be avoided when possible. Insects can hatch rapidly as water temperatures quickly warm in the spring. As such, delays or major discrepancies in sampling date can have a dramatic influence on results.
- 4) Identification of insects will occur in an outside laboratory of a cooperator or contractor. Generally, insects are identified within one year of their collection.

Sampling Conditions

- 1) The best conditions for sampling occur during normal spring-time flows with no heavy rains 24 hours prior to sampling. Rain events can result in movement of stream insects to the stream margins or to deep locations in the substrate which may result in a biased sample. High stream flows also increase safety risks by creating more difficult wading conditions. Some streams may require the use of a life jacket (see Macroinvertebrate Monitoring Job Hazard Analysis).
- 2) Ultimately, the Lead Technician or Biologist will determine when weather and water conditions are appropriate for macroinvertebrate collection. Large rain events are the primary concern but spring snows or major wind events may make it unsafe to be in the backcountry.

SOP Revision History

All protocols, regardless of how sound they are originally, require modification as new and different information becomes available. SOP version numbers increase incrementally by tenths

(e.g. version 1.1, version 1.2...etc.) for minor changes. Major revisions should be designated with the next whole number (e.g., version 2.0, 3.0, 4.0 ...). Small changes or additions to existing methods will be reviewed in-house by Shenandoah or Mid-Atlantic Network staff. However, if a complete change in methods is sought, an outside review is required.

Revision History Log:

Prev. Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #