Quality Assurance/Quality Control Protocol Executive Summary
Rocky Bottom Benthic Macroinvertebrate Method

The Virginia Save Our Streams (VA SOS) monitors collect benthic macroinvertebrate data across the state. This QAPP summary serves as a reference guide for certified VA SOS monitors, highlighting important protocol details. This summary and the QAPP do not serve as a substitute for attending a VA SOS training event.

- The data collected by VA SOS monitors is used by DEQ and DCR at Level 2. It is used to identify waters where agency scientists will conduct follow-up monitoring. VA SOS data is not used to list impaired streams - instead, it can be used to identify pollution incidents when immediate agency response is required to mitigate the pollution event. VA SOS data may also be used in the development and implementation of Total Maximum Daily Load (TMDL) plans.
- VA SOS volunteers should monitor the benthic macroinvertebrate populations and the habitat of their adopted stream at least two times a year: spring (March 1 – May 31) and fall (September 1 – November 31).
- Data is submitted and reviewed by regional coordinators and the VA SOS Coordinator or designee at least bi-annually. Data is compiled in the VA SOS database, and data is updated to the Clean Water Hub and the Chesapeake Data Explorer annually.
- Backup copies of volunteer datasheets must be kept for a minimum of five years, by the volunteer, regional coordinator, or VA SOS main office.
- DGIF must be notified of stream sites and dates of sampling at least 48 hours prior to the sampling events at this address: CollectionPermits@dgif.virginia.gov. Monitors must also carry a copy of the Scientific Collection Permit at all monitoring sessions.
- A monitoring station is defined as a single stretch of stream no more than 100 yards long. Monitoring stations should be at least one quarter mile apart along a stream.
- Volunteers are not to conduct their normal sampling within one week of heavy rainfall if possible (approximately more than 1 inch of rainfall in rural areas or ½ inch of rainfall in urban areas). Rather, they should sample the stream during its average conditions for that season.
- Nets are required to have a mesh size of no greater than 1/32”. Current groups or monitors using 1/16” nets must transition to 1/32” by 2021. If desired, 1/50” (500 microns) mesh is also acceptable.
- Sampling times must fall between 20 and 90 seconds.* Each net collected must be sorted in its entirety, even if that leads to a sample of well over 200 organisms. Total samples

with fewer than 200 organisms are only accepted if at least three of four sampling nets were taken at 90 seconds (maximum time).
    - *The second, third, and fourth sampling times may be reduced to 12 seconds if the stream is heavily productive.
- The sample area is one square foot (one foot by one foot) in front of the net. If necessary, monitors may use rocks and cobbles that fall only partially in this area, but sampling efforts should be kept within one square foot as much as possible.
- Volunteers should use the tally sheet and reference materials to record the number of individuals in each taxonomic group. Benthic macroinvertebrates not included in taxonomic groups on the tally sheet should be totaled and noted in the "other" category on the tally sheet. The total in this box will be included in the total number of organisms in the sample.
- Volunteers should complete a qualitative streamside visual analysis that assesses the general conditions in the stream every time they conduct a biomonitoring session. These data are used to gain perspective on the macroinvertebrate data collected from the same site.
- To maintain active certification, certified monitors must collect and submit data to the VA SOS office at least once every two years.