

SOP 1.1 – Field Season Preparation and Close-Out Activities for Benthic Macroinvertebrate Monitoring.

This document provides guidance for the activities required to prepare for and close-out the spring sampling season. Some actions (e.g., ordering supplies) must take place well in advance of the field season while others (e.g., prepare equipment) should occur immediately prior to the sampling event.

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I. Advance Preparations

A. Complete Contracting Process

Due to the dynamic nature of working through the contracting process only general procedures are provided here. The protocol lead will work with the senior I&M staff and NER MABO to complete contracting process.

- (1) At the beginning of the fiscal year (October):
 - a. Determine process to complete contracting requirements for the current year, either:
 - i. Exercise option on existing contract
 - ii. Initiate new contract
 - b. Submit appropriate paper work (e.g., Purchase Request, etc.) to NER MABO

B. Inventory of Equipment and Supplies

These procedures shall be completed at the end of the previous fiscal year/beginning of current fiscal year (August – October) in preparation for the sampling season (mid-March – early April).

- (1) Check condition of all required equipment listed in attached checklist:
 - a. Repair damage if possible
 - b. Replace equipment if necessary
- (2) Check status of all required supplies listed in attached checklist:
 - a. Re-order any supplies that are not sufficient to complete full sampling event

II. Immediate Preparations

Approximately one month prior to the field season several actions shall be completed (early February).

A. Confirm all equipment and supplies are available

- (1) Review all equipment and supplies present in attached checklist:
 - a. Rectify any deficiencies
- (2) Check condition of waders

B. Print required materials

- (1) Review attached checklist and print all required materials:
 - a. Sample Labels: print on adhesive weatherproof paper (3 per site) using template
 - b. Data sheets: print on weatherproof paper (1 per site plus 10 extra)
 - i. In-stream transect/Water Quality
 - ii. EPA RBP Stream Habitat Assessment
 - c. Documentation (print SOPs, state based methods, and sample site list on weatherproof paper)
 - i. MIDN PIP
 - ii. MIDN SOPs
 - iii. State based field methods
 - iv. Sample site list

C. Select QA Replicate Sites

- (1) Place printed sample labels into a two liter sample jar separated by ecoregion and select QA replicates
 - a. Shake jar to mix samples and randomly select QA replicate sites by pulling labels out of the sample jar
 - b. Select a minimum of one sample label per ecoregion or 10% of sites monitored (whichever is greater)
- (2) Print additional QA sample labels

D. Establish Sampling Schedule

The index period for sampling is limited to the beginning of March through mid-April. Ideally sampling will occur under consistent conditions each year (e.g., stream temperature, growing degree-days, etc.) but must occur during the index period. Often streams experience high discharge events in late winter/early spring period across the mid-Atlantic region. Sampling should be limited to periods of baseflow recession to ensure a representative sample is collected. Staff should not initiate sampling within two days of a high discharge event or two weeks of a scouring event as organisms can seek refugia during these events which can bias sample collection. Logistical and safety considerations must be taken into account when final sampling dates are selected.

- (1) Coordinate with MIDN staff to ensure availability of a minimum of the protocol lead and one additional staff member (when possible three staff members should complete sampling)
- (2) Select tentative dates as close to middle of March as possible
 - a. Review weather and discharge conditions across the sampled regions one week prior to tentative dates, adjust as necessary
 - b. Contact Natural Resource Managers and communicate tentative dates
- (3) Select Final sample dates based on weather and discharge conditions
 - a. Review weather and discharge conditions across the sampled regions two days prior to tentative dates; either:
 - i. Finalize sampling schedule
 - ii. Revise tentative sampling dates and repeat sample scheduling procedures as needed
 - b. Communicate sampling schedule with all Natural Resource Managers and MIDN staff

III. Post Sampling Activities

A. Demobilization

After all sampling activities are completed for the field season a series of actions are required.

- (1) Evaluate the condition of all field equipment
 - a. Repair any damaged equipment if possible
 - b. Store field equipment in appropriate locations at MIDN facility
 - c. Create log of equipment needs and store on MIDN server
- (2) Evaluate status of supplies
 - a. Create log of supply needs and store on MIDN server
 - i. Create a reminder to purchase supplies on MIDN calendar for August 1st
 - b. Store supplies in appropriate locations at MIDN facilities
- (3) Evaluate and hold field samples
 - a. Check all labels to ensure consistency and accuracy

- b. Create log sheet of all samples and store with samples and on MIDN server
- c. Store field samples in appropriate locations at MIDN facilities

B. Transfer Samples to Contract Laboratory

Following the conclusion of all sampling activities samples are held at MIDN until transferred to the contract laboratory.

- (1) At the conclusion of the sampling period contact the contract laboratory to indicate that the samples are available for pick up
 - a. Arrange a date to meet a representative of the contract laboratory to transfer samples from the MIDN to the laboratory
- (2) Check condition of samples a minimum of once per month until transfer is complete
- (3) Meet contractor at MIDN facility on prearranged date to transfer samples
 - a. Provide a physical copy of sample log as well as an electronic copy of the log to the contract representative

Checklist:

Required Field Supplies and Equipment Checklist for Benthic Macroinvertebrate Sampling

Safety:

- ☐ **Emergency Supplies**
 - ☐ SPOT Personal Locator Beacon
 - ☐ Cell Phone with Emergency Contact #'s
 - ☐ First Aid Kit
 - ☐ Aquatic Safety SOP
- ☐ **Vehicle Safety Kit**
 - ☐ High visibility vest
- ☐ Warning triangles
- ☐ Spare tire and tools
- ☐ **Stream Safety Equipment**
 - ☐ Hip boots/waders
 - ☐ Wading shoes/boots
 - ☐ Water-proof gloves (seasonally as needed)
 - ☐ pfd's

Sampling Equipment:

- ☐ D-nets (500µm)
 - ☐ 2 long handle D-nets
 - ☐ 1 Collapsible handle D-net
 - ☐ 2 replacement nets
- ☐ 2 Sieve Buckets (500µm)
- ☐ Forceps (4)
- ☐ Gravelometer/small ruler
- ☐ Meter stick
- ☐ Measuring tape
 - ☐ 2 100-meter
 - ☐ 2 25-meter
- ☐ Photo reference stick
- ☐ Surveying Pins (12)
- ☐ 5-Gallon Bucket with lid (2)

Miscellaneous Supplies:

- ☐ Large Backpack
- ☐ Clipboard with internal storage
- ☐ Mechanical pencils (5)
- ☐ Sharpies (2)
- ☐ Scissors
- ☐ Extra blank weatherproof cardstock
- ☐ Storage Containers (2 Large)
- ☐ Household bleach (1 Gallon)

Sampling Supplies:

- ☐ Sample Containers
 - ☐ 32-oz jars (2 per site)
 - ☐ 64-oz jars (1 per site)
- ☐ 95% Ethanol (0.5 - 1 L per site)
- ☐ Printed weatherproof labels (2 per site)
- ☐ Blank weatherproof cardstock (2 per site)

Disinfection Equipment:

- ☐ SOP and NE PARC guide
- ☐ 40 gallon rubber trash can

- ☐ Hand Sprayers (2)
- ☐ Long handle brush (2)
- ☐ Measuring cup

- ☐ Towel (2)

Electronic Equipment:

- ☐ iphone/ipad
- ☐ Handheld GPS units

- ☐ MIDN laptop

Documentation:

- ☐ MIDN BMI PIP
- ☐ MIDN BMI SOPs
- ☐ Sampling site list (see attached)

- ☐ State based sampling methods
 - ☐ VA Piedmont
 - ☐ VA Coastal Plain
 - ☐ PA Piedmont

Data Sheets (per site):

- ☐ In-stream Transect/WQ data sheet
- ☐ EPA RBP Stream Habitat data sheet
 - Piedmont (High Gradient)
 - Coastal Plain (Low Gradient)

Sample Site List

Stream Name	Site ID	Tree Tag #	Reach in Relation to Tree Tag
FRSP			
Lewis Run	FRSP-01	19910	Downstream end of reach located 18 meters below tag, 82 meters of reach above tag
Hazel Run	FRSP-08	19903	Downstream end of reach at tag, 100 meters of reach above tag
Burnside Drive Creek	FRSP-13	19917	Tag located at 50 meter mark of reach, 50 meters below and 50 meters above tag
North Wilderness Run	FRSP-14		
Brock Run	FRSP-17	19907	Downstream end of reach located 38 meters below tag, 62 meters of reach above tag
PETE			
Upper Harrison Creek	PETE-03	19981	Downstream end of reach at tag, 100 meters of reach above tag
Gravelly Brook	PETE-10	19974	Upstream end of reach located 28 meters above tag, 72 meters of reach below tag
RICH			
Tributary to Chickahominy River	RICH-02	19928	Downstream end of reach at tag, 100 meters of reach above tag
Bloody Run	RICH-04	19924	Downstream end of reach at tag, 100 meters of reach above tag
Totopotomoy Creek	RICH-05	19923	Downstream end of reach at tag, 100 meters of reach above tag
Western Run	RICH-07		Upstream end of reach at tag, 100 meters of reach below tag
APCO			
Appomattox River	APCO-03		Upstream end of reach at tag, 100 meters of reach below tag
Plain Run	APCO-02	19964	Tag located at 50 meter mark of reach, 50 meters below and 50 meters above tag
BOWA			
Jack-O-Lantern Branch	BOWA-02	19987	Tag located at 50 meter mark of reach, 50 meters below and 50 meters above tag
Gills Creek	BOWA-04	20000	Tag located at 50 meter mark of reach, 50 meters below and 50 meters above tag
GETT/EISE			

Willoughby Run	GETT-01	19984	Upstream end of reach located 38 meters above tag
Stream Name	Site ID	Tree Tag #	Reach in Relation to Tree Tag
GETT/EISE continued.			
Marsh Creek	EISE-03	N/A	N/A
Rock Creek	GETT-06	19986	Downstream end of reach located 46 meters below tag, 54 meters of reach above tag
Branch of Plum Creek	GETT-07	19995	Upstream end of reach at tag, 100 meters of reach below tag
HOFU			
French Creek	HOFU-05	17083	Tag at downstream end of reach
Baptism Creek	HOFU-04	17071	Tag at downstream end of reach
VAFO			
Valley Creek	VAFO-01	N/A	N/A