

Harmful Algae Bloom Sample Collection Protocol for Virginia Waters

****Contact the ODU Phytoplankton lab prior to shipping samples to make arrangements for analysis to ensure proper turn around time and scheduling.****

SITE INSPECTION:

- Record observations for each sample taken (location in body of water, color of bloom, presence of odor, scum, dead fish, proximity to culverts, docks, recreational beaches, ect. Photos of conditions at the site are useful.
- Record environmental parameters including water temperature, salinity, pH, dissolved oxygen, conductivity, and turbidity (secchi depth).
- Record site name, latitude and longitude of sample location, and position of sample taken (ie: scum layer, sub surface layer (-.5 m), bottom (+.5 m), ect..).
- For each event, take two sub surface (-.5 m) samples (one live and one preserved) from the center of the bloom. When there is a scum present, take a second collection at the scum-water interface. The cells present at the surface exposed to air and sun are often degraded, dying, or dead and not well suited for taxonomic enumeration.

PHYTOPLANKTON IDENTIFICATION AND ENUMERATION SAMPLE COLLECTION:

Preserved samples are for biomass quantification and multi species identification. Live samples are useful for determining color and motility in most phytoplankton or sheath formation in cyanobacteria.

- For the preserved sample, collect 500 mL in a plastic bottle or cubitainer and administer Lugol's iodine solution at a ratio of 1:100. To achieve a ratio of 1:100, add approximately 1 mL of Lugol's to 100 mL of sample (5 mL for a 500 mL bottle) so that the final preserved sample color resembles weak tea.
- For the live sample, collect 500 mL in a plastic bottle or cubitainer. ***Do not*** add preservative.
- Label each bottle clearly with location name, sampling site (ie: boat landing, scum or dock, -.5m), date, treatment (ie: preserved or live), and analysis (ie: taxonomy or microcystis).

TOXINS SAMPLE COLLECTION:

The purpose in collecting for toxins is to determine if there is an exposure risk to the public. Toxins samples should be taken when there is an obvious scum or fish kill present. Microcystin assay are usually conducted, make sure to contact the lab prior to taking samples if the need for cylindrospermopsin, anatoxin-a, or saxitoxin analysis is anticipated.

- For microcystin and/or cylindrospermopsin assays, collect 250 mL of sample in an amber glass bottle. The same bottle can be used for both assays.
- For saxitoxin and/or anatoxin-a assays, collect 250 mL of sample in an amber glass bottle. In freshwater systems, add 10x Concentrated Sample Diluent to prevent absorptive loss of toxin. Saltwater samples ***do not*** need the addition of this reagent. The same bottle can be used for both assays.
- Label each bottle clearly with location, date, treatment (ie: live or Lugol's), and analysis (ie: microcystin).

SHIPPING:

Shipping containers should be packed to prevent leakage or breakage as the shipping company will remove leaking coolers from their trucks, delaying or cancelling delivery. Shipping should be expedited overnight, and delivery within 24 hours of sampling.

- Close sample bottle tightly, and place into a sealed bag. Include the field sheets with the shipment.
- Samples should be kept cool with freezer packs (preferred) or ice sealed in airtight bags, and the bottles protected from freezing by wrapping in bubble wrap or another barrier.
- All shipping containers should be lined with a garbage bag to avoid leakage.
- All shipping containers should be firmly packed with Styrofoam, paper, or bubble wrap to avoid breakage.
- Include a prepaid shipping label for the return of your shipping container. Shipping address on next page.

RECOMMENDED EQUIPMENT:

If you do not have a sampling kit provided by VDH, or have run out of bottles/preservatives, please contact the lab and we can make recommendations to field staff.

- 500 ml plastic containers (id/ enumeration samples)
- 250 ml amber glass bottles (toxin samples)
- Lugol's iodine solution and pipette
- Field sheet, pen, and Sharpie
- Cooler suitable for shipping (coolers with spigots are **not** suitable as they can break off)
- Freezer packs (preferred) or wet ice in ziplocks
- Protective eyewear and gloves
- Waders or hip boots
- Sample pole with clamp
- GPS, camera and water meter

SAFETY:

- Wear gloves and protective eyewear when sampling.
- Wear waders when wading.
- Wear a personal flotation device when entering the water or sampling from a boat.
- Avoid inhaling spray or getting spray in eyes.
- Do not ingest or allow water to come into contact with skin. **If skin contact occurs, immediately wash with clean water.**
- Wash hands and equipment after each sampling event.

****Contact the ODU Phytoplankton lab at 757-683-4994 prior to shipping samples to make arrangements for analysis to ensure proper turn around time and scheduling.****

SHIPPING ADDRESS

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244 Oceanography and Physical Sciences Building
Norfolk, VA 23529-0266
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