



## CONNECTICUT DEPARTMENT OF AGRICULTURE BUREAU OF AQUACULTURE

P.O. Box 97, 190 Rogers Avenue, Milford, CT 06460

203-874-0696 | [Agri.Aquaculture@ct.gov](mailto:Agri.Aquaculture@ct.gov)

*Affirmative Action/Equal Employment Opportunity Employer*



### **Phytoplankton Volunteer Network Standard Operating Procedure (SOP)**

**Overview.** In addition to routine water and shellfish tissue testing for the National Shellfish Sanitation Program, the Department of Agriculture Bureau of Aquaculture (DOAG) monitors phytoplankton in statewide shellfish growing areas. Phytoplankton monitoring is a critical component of our program because it provides staff with an early warning about the presence and abundance of harmful algal bloom (HAB) species, which have the potential to impact or even close shellfish growing areas. Some HAB species produce toxins, which can accumulate in shellfish tissues, and make consumers sick or result in death when present in high enough concentrations. While Connecticut historically has only had a few HAB closures, isolated to Groton, HABs are increasing in frequency and intensity around the world and U.S., and some HAB species are expanding their distributions. With such a large coastline and robust shellfish program, DOAG staff would like to increase the number of phytoplankton samples analyzed annually. Your contribution to our program is greatly appreciated and will help to expand DOAG's understanding and protection of consumers.

**Procedure: Whole-water grab samples (*ideally* for sampling areas equal to or less than 6.5ft depth)**

#### **Equipment (provided by DOAG):**

- 500mL sample bottles (non-sterile)
- Water sample grab stick
- Lugol's iodine (fixative, contains acid and will stain clothing and skin)
- Sampling sheets

#### **Procedure:**

- Every town participating in the monitoring program has a set station(s) by the DOAG to collect phytoplankton samples at. Record the water monitoring station number on the side of one 500mL bottle. Phytoplankton bottles do not need to be sterile, but it is critical that the bottles are not cracked or damaged in any way that will compromise the sample integrity.
- Record the date on the bottle.
- When sampling from shore, allow any debris disturbed by wading in to settle. When sampling from a boat with an automatic bilge pump, collect sample as far away from the bilge pump discharge as possible and avoid boat wash.
- Place the sample bottle in the sampling tool clamp with the bottle opening facing up. Remove the cap. Place the 500mL bottle approximately 1ft below the surface and allow the bottle to fill. Please avoid aerating the sample (i.e. do not allow the water to "bubble" into the container).
- Add ~30 drops of Lugol's iodine to fix the 500mL sample. The fixed sample should be tea-colored. Do not add more than 30 drops because over-fixing the sample can make it more challenging to analyze.

- Place the cap back on, seal the bottle completely and **gently** invert the bottle to thoroughly mix the fixative into the sample. **DO NOT** shake the sample vigorously – some phytoplankton are fragile and cells will be stressed or lost if not handled appropriately.
- If you observe discolored water or a fish/other aquatic animal kill, please immediately report the event to DOAG. Photos are helpful, if possible.
- Store the sample on ice until delivered to DOAG. Please avoid light exposure as much as possible.
- If you are collecting the phytoplankton sample on a routine water sample run, simply record “phyto” with the station number and the collection time on your sheet. DOAG will complete the phytoplankton monitoring collection form upon arrival.
- If possible, please provide environmental information like weather conditions, water temperature and salinity, as they are very useful parameters for phytoplankton monitoring.
- The DOAG will provide cleaned 500mL sample bottles to each town during their normal deliveries.

**Grab samples should be collected in any available container if you notice discolored water**, potentially indicative of a phytoplankton bloom. While the bloom may not be toxic, avoid direct skin contact with the discolored water and thoroughly wash your equipment (e.g. sampling stick, waders if applicable, etc.) with bleach and freshwater at the completion of sampling. **DO NOT** use sampling equipment that may have come in contact with a bloom at a later location, as it is best to avoid spreading a potentially toxic species.

**In the event of a bloom or if you have questions, please contact the following DOAG staff:**

Emily Marquis, Environmental Analyst II & HAB Specialist, [Emily.Marquis@ct.gov](mailto:Emily.Marquis@ct.gov), (860)-929-6414

Alissa Dragan, Supervising Environmental Analyst & Growing Area Lead, [Alissa.Dragan@ct.gov](mailto:Alissa.Dragan@ct.gov), (860)-818-7034

