

Utah Water Watch HAB Microscope Instructions

Volunteers use microscopes to verify the presence of the 5 key cyanobacteria species that produce toxins. These microscope instructions apply to both HAB verification and the NOAA phytoplankton monitoring program. **These instructions are to be accompanied by the NOAA “Freshwater Phytoplankton ID Sheet” and the “Cyanobacteria Monitoring Lab Sheet”**

Supplies:

- **Microscope with connected camera & computer**
- **Gridded slides**
- **Coverslips**
- **Small plastic pipettes**

Slide Preparation

- Tighten cap on sample bottle and mix slowly. Do not shake the bottle.
- First drop: Squeeze pipette and take sample from the lower portion of sample bottle. Place drop from pipette onto the middle of the gridded slide.
- Second drop: Squeeze pipette and take sample from the top portion of sample bottle. Place drop from pipette onto the middle of the gridded slide.
- Gently lay cover slip at an angle to avoid air bubbles. (video/picture)

Microscope Techniques (add videos/pictures)

- Focus on phytoplankton using lowest objective lens, 4x (40x total magnification).
- Use the 10x objective lens to scan the entire slide for target species (100X total magnification).
- If greater detail is necessary for identification, use the 40x objective lens (400X total magnification).
- Use the gridded microscope slide to help move through the entire slide by following the order of lettered columns and numbered rows. This is called the “lawn mower” method.
- Adjust the amount of light as needed.
- Take pictures of any unknown species.

Determining Abundance Levels

Using the “lawn mower method” allows the volunteer to quickly access the relative abundance of each target species in the sample. Size and number of the target algae found on a slide will determine the abundance level. The three abundance levels are none, yes (present) and elevated.

The relative abundance levels refer to the approximate surface area each target species is taking up over the entire slide:

None = 0% Present = 0.1- 50% Elevated = >50%