First Water-bath Incubation: Sugarpoint Practice Incubation

12/1/20

# Purpose:

This incubation was the first dry run using the newly completed water baths and magnetic stirring tower to incubate 4 rocks in 4 chambers.

## Sites:

8 rocks were taken from the Sugarpoint State Park routine periphyton monitoring site and 6 gallons of water was collected from Sunnyside Beach on the evening of 11/29/20. Water samples were collected in 6 1-gal water bottles since pre-washed carboys were not available. Water bottles were rinsed 3x with ambient water before collecting samples, however, some contamination may still have occurred. Water samples and rocks sat unrefrigerated for 24hrs before incubation, but ambient temperatures were between 38-50°F. Rocks were kept in darkness from the time of collection until incubation.

## Notes:

I rinsed chambers, stirrers, and lids with sitewater before placing rocks inside and filling completely with sitewater. I used a siphon to fill chambers to avoid oxygenation of water and trapping bubbles inside chambers. Once chambers were filled, I placed them in the water bath at ~10°C and allowed them to equilibrate in the dark for 3 hours. No gloves were available at the time, thus all equipment and rocks were handled bare-handed. Rocks were incubated under the Veg&Bloom light setting for 1hr and in the dark for an additional hour.

## Additional Notes:

* Light Inc: 16:07 – 17:08 PST
* Dark Inc: 17:08 – 18: 08 PST
* Light level: Veg&Bloom
* Stirring Speed: ~90rpm with DC supply @ 11.74V
* Temperature setting: 10°C ± 0.5
* Issues with compressor “stuttering” again—this is due to low operating temps (~50°C) which triggers low Freon pressure and automatic shut-off. May need to purchase space heaters for winter incubations.
* Presens O2 sensors periodically displayed “ADC overflow (Signal)” error code when lights were on, especially in channels 1 & 3. This indicates ambient light levels were too high and affected optical oxygen measurement.
* Presens sensors also displayed “Amplitude too low” error when fiber optic cables were not properly aligned with spot inside chamber. This happened a lot as Velcro straps securing fiber-optic cables loosened once soaked for a period of time.
* PAR sensor placed in tank ~3” below the water surface. Tested Veg&Bloom light level first followed by Veg&Bloom+Stronger and then Stronger only. Then lid was placed on tank for remainder of time.
* Special precautions need to be taken to avoid splashing water on electrical components during incubation.

## Potential Improvements:

* Additional table for clean working surface
* Nitrile gloves
* Peristaltic pump and tubing for filling chambers
* DI water
* Acid for washing chambers
* Device for measuring water volume in chambers?
* Seat
* Additional computer to run Presens from
* Ability to raise lights up higher
* Extra magnet for retrieving dropped washers and wingnuts inside water baths
* More water proof wiring for stirring tower
* Clear plastic sheet to protect the underside of lights from splashing water