



## 2018 Winter Water Quality Monitoring Instructions

### Equipment List

- Integrated tube sampler
- Sample bottles for each site
- YSI meter with appropriate length cord (Turn on 15 minutes prior to calibration)
- Measuring tape (of appropriate length) with weight attached
- Shovel
- Ice auger
- Wooden ice depth measuring device
- WQ Clipboard
  - Pen/Pencil
  - Map & GPS coordinates & site depths of monitoring locations
  - Winter Water quality monitoring
  - Data sheets (have extras!)
- GPS or smartphone with GPS app
- SLA Ice Safety Tips & Protocol
- Ice spikes
- PFDs/life jackets

### Instructions

- Review and adhere to SLA's Ice Safety Protocol
- Turn on YSI 15 minutes prior to calibrate. Leave meter on in between sites.
- Calibrate YSI
  - REMEMBER, *NEVER BEND OR KINK CORD!!!*
  - Calibration:
    - Press and hold 'Cal' button for three seconds.
    - Highlight 'Dissolved Oxygen' and press enter (instrument will indicate 'Calibrating DO%')
    - Calibration is complete once display shows 'Calibration Successful'
    - If you receive error message, return to start screen and try again.
- Clear ice of snow from around where you plan to drill
- Drill through the ice with the auger
- Record the depth of the ice
- Record site depth measurement using measuring tape with weight
- After the YSI has been calibrated, remove grey plastic cover from sensor and place in water.
- Lower to depth of 0.1m and allow sensor to equilibrate while gently shaking or jiggling sensor. Ideally, sensor will move at rate of 6 inches per second.

- When values on display stop changing, equilibrium is reached. Record these values on the YSI data collection sheet. Record the temperature, oxygen (concentration and percent saturation), and specific conductance profile at the surface, then every meter until you reach the bottom. Colors and numbers on YSI meter correspond with colors & numbers on the data sheet.
  1. Dissolved oxygen concentration (in red)
  2. Dissolved oxygen percent saturation (in black)
  3. Specific conductance (in green)
  4. Temperature (in blue)
- Collect the sample
  - Ensure that the tube sampler has no air restrictions when it is placed in the water. The idea is to collect water from the entire depth. Take a sample 1 meter from lake bottom, or as deep as your tube sampler allows.
  - Rinse the sample bottle with water from the tube
  - You may have to repeat this step several times until the sample bottle is full.
  - Record the sample depth on the data sheet.
- Remember to process samples within 24 hours of collection. Please make special arrangements with the SLA if you're unable to process your sample. Fill out the back of the data sheet with sample processing information. Required fields are starred and have a red box around them.
- Check in with the SLA once you've completed your monitoring and processing, so we know the monitoring has been done and that you've safely returned from the ice.

For more information contact:

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<b>Water Quality Monitoring Site Location and Depth</b>					
<b>Site #</b>	<b>Site Name</b>	<b>lat, long (Deg min sec)</b>	<b>Lat-Decimal degrees</b>	<b>Long-Decimal degrees</b>	<b>Approximate Depth (m)</b>
2	Cotton Cove	43°44'09.7", -71°35'00.5"	43.73602	-71.58347	8
5	Livermore Cove	43°44'31.8362", -71°33'18.8065"	43.74217	-71.55522	10
8	Rattlesnake Cove	43°46'27.943", -71°30'59.8458"	43.77442	-71.51662	8
10	Sandwich Bay	43°46'51.300", -71°28'52.1000"	43.78091	-71.48113	22
11	Kent Island	43°46'09.5", -71°29'000"	43.7693	-71.48333	11
12	Moultonborough	43°45'3.1861", -71°30'15.2161"	43.75088	-71.50422	18
14	Sturtevant Bay	43°44'35.7128", -71°30'46.0059"	43.74325	-71.51277	18
16	Dog Cove	43°43'13.7", -71°30'44.0"	43.72047	-71.51222	9
18	Piper Cove	43°43'49.7", -71°33'40.9"	43.73047	-71.56136	14
1A	Little Squam West	43°43'6.5", -71°36'39.4"	43.71847	-71.61094	22
1B	Little Squam East	43°43'39.0", -71°35'25.2"	43.7275	-71.59033	14
9A	Inner Squaw Cove	43°46'59.1043", -71°30'57.8161"	43.78308	-71.51606	6
9B	Outer Squaw Cove	43°46'55.3", -71°30'29.8"	43.78202	-71.50827	5
16A	Inner Dog Cove	43°42'23.64", -71°30'19.76"	43.70656	-71.50548	6
DH	Deephaven Reef	43°45'47.9", -71°32'13.5"	43.7633	-71.53708	30
LR	Loon Reef	43°46'1.8", -71°30'37.3"	43.76716	-71.51036	27