

Shorezone Fish & Blue Crab Survey: COVID-19 Protocols



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Preparations & Safety: COVID-19 precautions and overall safety must be the top priority at all times.

- All surveys are initially limited to a maximum of six active participants. All team members should travel to each survey site separately unless from the same household.
 - NOTE: The number of active participants is subject to change based on the regional COVID-19 case and vaccination levels.
- All participants, both volunteers and staff, will be masked at all times during the completion of the survey. Physical distancing of at least six feet should be observed at all times.
 - All teams will be supplied with sanitizing equipment. While COVID-19 is predominantly transmitted through aerosols, all volunteers should be careful when handling equipment used by other team members.
- Any team members with a possible or confirmed exposure to COVID-19 over a 14 day period leading up to the survey cannot not attend any surveys.
- Any team member with a positive COVID-19 diagnosis cannot return to the survey until they are cleared by a doctor or have qualified as cleared according to current CDC guidelines.
- All survey participants should have signed the liability waiver and COVID-19 waiver before participating in the survey.

Calibrating YSI Meters: All YSI meters should be calibrated for dissolved oxygen within 24 hours of each survey.

- See Appendix A at the end of this document for proper YSI Calibration
 - The full manual with calibration information can be viewed at:
<https://usermanual.wiki/Pdf/YSIPro2030UserManual.782071309/view>

Starting the Survey: Meet at the predetermined place and review safety procedures. Have the selected note-taker for the session select the proper field note sheet for the site.

- Record time of beginning of seining
- Record the tide stage at the beginning of sampling (use local tide tables)
 - High Flood - 0 to 2 hours prior to high tide

- Mid Flood - 2 to 4 hours prior to high tide
 - Low Flood - 0 to 2 hours after low tide
 - High Ebb - 0 to 2 hours after high tide
 - Mid Ebb - 2 to 4 hours after high tide
 - Low Ebb - 0 to 2 hours prior to low tide
- Record Physical conditions at beginning of sampling from about 5 feet offshore and measure:
- Record water chemistry-from the YSI meter:
 - Water temperature in tenth of a degree centigrade (C)
 - Dissolved oxygen-to nearest milligram per liter (mg/l)
 - Salinity to the nearest tenth of a part per thousand (designate as ppt)
- Record Weather:
 - Note general weather as clear and sunny, overcast, partly cloudy, rain, showers
 - Note wind speed, using Beaufort Scale (on water)
 - Amount of rainfall within 24 hours available from nearest DEOS Delaware weather station using <http://www.deos.udel.edu/>
- Record Wave Height and Water Depth:
 - Measure wave height at the midpoint between the deep and shallow ends of the pole
 - Measure the depth of the deep end of the pole and shallow end of pole in inches
- Record amount of macroalgae pulled in by net
 - No Algae Present:
 - Minor Algae Present: a few leaves or red weed clumps
 - Medium Algae Present: abundant handfuls of algae are in the net
 - Heavy Algae Present: logs or rolls of algae in bottom of net

Seining Methodology:

1. Have one of the two individuals seining roll out the net so that each end can be held at least 6 feet apart from one another before heading into the water.
2. Start at the end of the seining area farthest away (100ft) from the point where the offshore end of the net will be pulled out of the water. Use tape measure or 33 1/3 strides if sure stride is 3ft. Use aerial images provided in the data kit to ensure the same 100ft is consistently sampled.
3. The inshore person will position less than 3 ft. from shore while the offshore walks directly offshore until the seine is fully extended, perpendicular to shore
4. The seine is pulled parallel to shore with each seiner pulling their pole while backing towards the pull-out point

5. The end of each seine pole is to be in contact with the bottom throughout the sample until the net is completely out of water and pulled onto shore at the end of the 100 ft. The offshore person is to be slightly ahead of the inshore person while seining to help reduce offshore escape of fishes.
6. At the end of the 70 feet, the inshore person stops while the offshore person keeps the net fully extended and swings into shore.
7. When the offshore person is the same distance from shore as the inshore person, both persons pull the net as quickly as possible directly to and onto shore.
8. Once the net is totally on the shore it is rolled back and the central bag interior exposed.
9. The contents of the net will be dumped into a small kiddie pool pre-filled with water. This will allow fish to be removed at a more cautious pace that is safe for both people and fish.
 - a. All fish are immediately moved into a plastic bin filled with water and can an aerator (if necessary).
10. A maximum of two people (or COVID-bubbles of people) will search the net for additional fish and crabs once the net is on shore.
 - a. Be sure to check the entire seine from the pole end to the bag, especially any vegetation and mud. Small fishes can be contained in these materials; look for movements.
11. Blue crabs are removed from the net and pool with the number of small (<40 mm carapace width), medium (41-140 mm) and large (>140 mm) and called out to the data scribe.
12. Fish will then be identified and the name of the species called out to the scribe. Fishes to be measured are immediately placed in a bucket (buckets if many species need to be measured). The other specimens are to be counted and released as soon as possible if more than 25 individuals of that species are already in the buckets.
13. All care possible should be made to keep all fishes alive. Specimens are removed alive by a dip net and processed.
14. Measure the first 25 specimens of each species randomly dipped out of the bucket(s). Count the balance of the specimens of the species as they are released.
15. Each volunteer should measure on their own measuring board, with a bucket with fish for them to gather. These buckets (and people) should be at least 6 feet away from each other.
16. All personnel handling fishes must do so with wet hands before touching any fish. The number taken of each species will be noted after all specimens are measured.

Safety: see first aid, COVID-19, and emergency responder protocol for additional details.

- Footwear:
 - Cold Water Conditions: The offshore person should wear waders and the inshore person can wear either hip boots or waders
 - Warm Water Conditions: Waders and hip boots do not have to be worn. Closed toe footwear with soles such as sneakers, water shoes or other appropriate closed-toe footwear must be worn.
 - No sandals, flip flops or open toe footwear should ever be worn.
 - Care should be exercised when stinging lion's mane and/or sea nettle jellyfishes are present. Boots should be worn when they are present. If stung, wash the area with first water, pour white vinegar on the sting and coat the area with meat tenderizer to neutralize the toxin in the sting. Any shortness of breath or other allergic reactions should be treated with immediate action. Seek medical attention. Call 911 and the emergency contact. The emergency contact information for each person is in the clipboard case. Remember that pieces of tentacles separated from the body of the jellyfish can sting as easily as they can when attached to the live body.
- Cuts and Abrasions
 - Anyone with a cut, abrasion or wound of any kind which is not completely healed over must keep that area out of contact of the water
 - Treat any cut or abrasions with materials in the first aid kit. Make liberal use of antiseptic cleaning materials and treat with antibiotics. Do not ignore these wounds since water-borne bacteria are present in all bodies of water and cause serious illness.
 - Seek immediate medical or treatment or advice for any deep cut or puncture wound, or if any sign of infection such as redness or yellow discharge in or around the wound occurs.
 - Report any first aid materials used to Zachary Garmoe (zgarmoe@inlandbays.org) so that the first aid kits can be fully stocked at all times.
 - Team leaders are responsible for safety training and enforcement of safety rules. All injuries or accidents are to be immediately reported to Zachary Garmoe, Program Manager (zgarmoe@inlandbays.org ;301-661-3499). An incident report form is to be completed by the team leader

Species Identification:

- Utilize the identification manual; "Field Guide to the Fishes of Chesapeake Bay" to identify fishes collected if needed.

- If a certain, collaborative identification cannot be made, pictures of the lateral and dorsal aspects of the fish should be sent to Zach Garmoe zgarmoe@inlandbays.org and Andrew McGowan environment@inlandbays.org.
 - Pictures should include dorsal fin extended, anal fin extended, the head, the tail extended, and a full body shot.
- If good quality photos are not available, the specimen is to be brought back to the Center for Inland Bays. Specimens can be placed in a zip lock bag (and kept cool). If the specimen is not going to be given to a staff member the same day, please place in a freezer.

Dealing with the Public: Be friendly and informative. We are ambassadors of information and health of the bay. However, this year we must be cautious regarding our safety and the spread of COVID-19

- Only interact with members of the public if you feel comfortable doing so. Encourage a physical distance of at least 6 feet and mask wearing for any individual curious regarding the survey.
- Answer any questions about the program which you are sure of the answer. Be sure you are familiar with the program goals and methods. Knowledge of the fishes and some of their life history information would be very valuable in these conversations. Do not hesitate to consult the copy of "The Fishes of Chesapeake Bay" distributed to each team. The public will really appreciate you getting your facts right for them, but don't hesitate to admit you don't know the answer to a question as well.
- Don't argue if a person thinks they know more than the texts; 99% chance they are wrong but it's not worth arguing with them.
- Irrate members of the public:
 - Explain that volunteers on the study have permission of private property owners and the State of Delaware (for public lands). A list of the permissions for that team's sites will be kept in each clipboard case.
 - Do not stand firm when confronted by an abusive person. If menacing or threatening bodily harm, move away and call 911. Let the police, not you, handle the situation. Be observant, you may need to give the police accurate accounts.
- Individuals interested in helping:
 - While in prior years, we gladly welcomed public interest, due to COVID-19, only pre-determined volunteers can participate in the survey. If any members of the public are interested, direct them to our website where they can potentially sign up for future surveys.

If you have any other questions please contact Zachary Garmoe at 301-661-3499 or zgarmoe@inlandbays.org

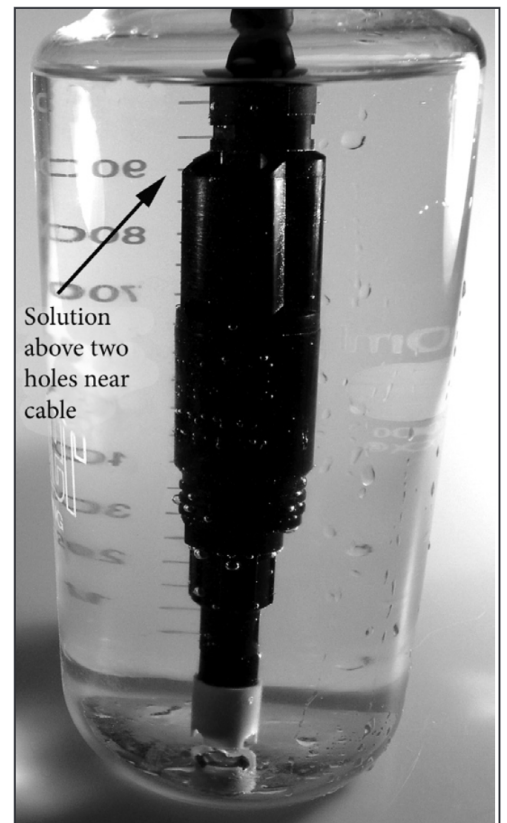
Appendix A. YSI Calibration:

Dissolved Oxygen:

1. Moisten the sponge in the grey calibration/storage sleeve with a small amount of clean water and install it over the sensor guard. The sponge should only be moistened and the calibration/storage sleeve should not have excess water in it that could cause water droplets to get on the membrane. The storage sleeve ensures venting to the atmosphere.
2. Power the instrument on and wait approximately 5 minutes for the storage chamber to become completely saturated and for the sensor to stabilize. Ensure the barometer is reading accurately. If not, use YSI pro 2030 Manual to perform a barometer calibration
3. Press and hold the Calibrate key for 3 seconds.
4. Using the up or down arrow key, highlight Dissolved oxygen and press enter. The Pro2030 will indicate "Calibrating %Do" on the display. The instrument will automatically calibrate the sensor to the current barometric pressure. If Do Local% is enabled, the sensor will calibrate to 100%. This may take up to 2 minutes depending on the age of the probe. 'Calibration Successful' will display for a few seconds to indicate a successful calibration and then the instrument will return to the Run screen.
5. If the calibration is unsuccessful, an error message will display on the 7. screen. Press the Cal key to exit the error message and return to the Run screen. See the Troubleshooting guide for possible solutions.

Conductivity:

1. Each probe will have with it a plastic bottle of conductivity solution for the purposes of calibrating conductivity.
2. Rinse the entire probe with fresh water, removing any debris. Do not scrub the probe or disassemble.
3. Open the conductivity solution bottle and submerge the probe. The solution must cover the holes of the conductivity sensor that are closest to the cable (see image to the right).
4. Ensure the entire conductivity sensor is submerged in the solution or the instrument will read approximately half the expected value. Gently move the probe up and down to remove any air bubbles from the conductivity sensor.
5. Turn the instrument on and allow the conductivity and temperature readings to stabilize.



6. Press the Cal key. Highlight Conductivity and press enter.
7. Highlight Sp. Conductance and press enter.
8. Highlight $\mu\text{S}/\text{cm}$ and press enter. ($1 \text{ mS} = 1,000 \text{ }\mu\text{S}$).
9. Use the up and down arrow keys to adjust the value on the display to read 10,000 μS .
10. Press enter to complete the calibration.
11. "Calibration Successful" will display for a few seconds to indicate a successful calibration and then the instrument will return to the Run screen.
12. If the calibration is unsuccessful, an error message will display on the screen. Press the Cal key to exit and return to the Run screen.