

Advanced Water Quality Lab

Grade Level: High School and Above

**** Service learning/citizen science is always integrated into the water quality lab ****

Summary: Abiotic water parameters determine the health and the community of any water system. Water quality parameters will be discussed as well as tools and methods to measure each parameter. Students will have hands on opportunity to use all of the tools in preparation for water quality field collection and analysis.

Program Objectives:

- students will understand the concept of abiotic and how it relates to ecology
- students will be able to list 6 water quality parameters that can be measured and various tools used to measure each parameter
- students will be able to identify local healthy water quality parameters
- data will be collected by students for analysis during snorkel trips
- students will participate in a worldwide citizen science program
- students will have the opportunity to use higher level water quality measurement tools and participate in a University study

Concepts Covered:

- Environmental conditions determine the geographical distribution of all organisms
- Relevant water quality parameters and the common tools used to measure each parameters
- Water quality parameters can vary significantly from the Bay to the Ocean, inshore to offshore.
- Causes/effects of fluctuations of each parameter, including ocean acidification and increased salinity
- Healthy levels for all water quality parameters
- Units of measurement for all water quality parameters
- Importance of long term monitoring
- Precision versus accuracy
- Importance of replicate measurements

Vocabulary: abiotic/biotic, refractive index, salinity, specific gravity, hypoxia/anoxia, Refraction, refractometer, hydrometer, turbidity, Secchi disk, YSI sonde, acidity/alkalinity, hypersaline, hyposaline, pH, ammonia, precision, accuracy, turbidimeter, conductivity, colorimeter, eury/steno haline/thermal

Procedure: Students discuss water quality, common parameters and tools used to measure each parameter. Students will measure sample waters to gain experience in water quality data collection and analysis before collecting data in the field. Students will collect water quality data during scheduled snorkel trips.

Extensions: It is recommended to include the “summary” program into your schedule if your group is participating in this lab. During the summary, all water quality data will be discussed and entered into the GLOBE database. Additionally, all water quality data collected by MarineLab staff and/or students is available for analysis before or after your MarineLab program.

Resources: www.globe.gov



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