DISSOLVED OXYGEN

What is dissolved oxygen?

Dissolved oxygen is the amount of oxygen gas that is present in water. Water absorbs oxygen from the atmosphere and from aquatic plants, which produce oxygen during photosynthesis. Most aquatic animals need adequate dissolved oxygen in the water to survive—even aquatic plants can be harmed if the water around their roots is low in oxygen.

How is dissolved oxygen measured?

Dissolved oxygen (mg/L) can be measured in the field using an electronic probe. A Winkler titration kit can also be used to measure the dissolved oxygen level of a water sample. Sampling can be done at the surface or throughout the whole water column, which creates a vertical profile of dissolved oxygen through the water column.



What can dissolved oxygen tell us about the Bay?

Dissolved oxygen is a key indicator of ecosystem health, especially during the summer. Most problems with low dissolved oxygen, or hypoxia, occur during the summer due to increased temperatures (warm water holds less oxygen) and higher biological activity in the water column. Dissolved oxygen also tends to be lower at greater depths due to decreased mixing, less photosynthesis, and more oxygen-requiring



decomposition of sinking dead plants and animals. Low dissolved oxygen is often the result of excess nutrients in the water, which fuel algal blooms that eventually decompose and use up large quantities of oxygen. High dissolved oxygen indicates a healthy Bay, with enough oxygen to sustain aquatic species and maintain the chemical balance of the water.



Dissolved oxygen can be measured with a probe (top center) or using the Winkler titration method (bottom) (UMCES; Alliance). Low amounts of dissolved oxygen can suffocate aquatic life and lead to fish kills (top outside) (UMCES).

