## **PHOSPHORUS**

## What is phosphorus?

Phosphorus is an essential nutrient for all growth and reproduction. Phosphorus occurs naturally in ecosystems and fuels the food web by providing nutrients to algae and other primary producers. Orthophosphate is a type of phosphorus that can be absorbed by living organisms, and helps plant growth.

## How is phosphorus measured?

**Orthophosphate** (mg/L) is measured in the field using ascorbic acid and either a colorimetric kit or a digital checker, or through lab analyses of water samples.

**Total phosphorus** (mg/L) is measured using lab analysis procedures. Salinity data is needed in order to accurately interpret phosphorus data.

## What can phosphorus tell us about the Bay?

High phosphorus content in water is an indication of intensified nutrient pollution input from the watershed. Lower levels of phosphorus suggest that the ecosystem is healthy and the food web is balanced and not dominated by algae.

Although phosphorus is essential for plant life, it is also found at unnaturally high concentrations in fertilizers, cleaners, and wastewater. Heavy rains push phosphorus-rich stormwater runoff from lawns, farms, and overflowing drains into the Chesapeake Bay. Phosphorus nutrient pollution in water systems stimulates excess algal growth and leads to dense algal blooms, which can reduce water clarity and decrease overall habitat quality for plants and animals living in the Bay and its tributaries.

*Top: Filtered water can be used to measure dissolved nutrients, such as phosphorus (H. Stevens). Bottom: Phosphorus-rich sediment runs off the land and into the Bay, which decreases water clarity and suffocates organisms (J. Thomas).* 

