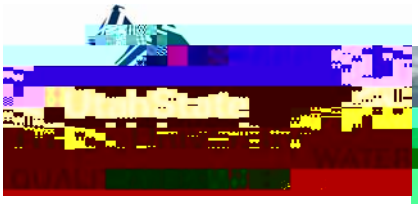

Reviewed December 2010

By: Nancy Mesner and John Geiger

What is dissolved oxygen?

Dissolved oxygen describes oxygen molecules which have actually dissolved in water. Sometimes people confuse bubbles in water with dissolved oxygen, but in reality the dissolved form of oxygen cannot be seen. Oxygen is not very soluble in water. Under normal circumstances, about 12 parts of oxygen can dissolve in a million parts of water (12 mg/liter). Oxygen can only enter water from two sources: it either dissolves into water from contact with the atmosphere or is produced by plants during photosynthesis.

All fish and other animals that live in water, such as snails, aquatic insects, and crayfish, require oxygen to survive. Most animals re-

How do you measure dissolved oxygen in water?

Dissolved oxygen in water must be measured either directly in the stream or lake or immediately after collecting a sample. This is because oxygen concentrations can change dramatically in a sample bottle due to changes in temperature or to continued use of the oxygen by bacteria in the water.

Dissolved oxygen is usually measured with a field probe or is collected in a special bottle and chemically "fixed" before being taken back to a laboratory for analysis. This is so the dissolved oxygen concentrations do not change. Field tests used by volunteer monitors usually do not have the accuracy to produce results of the quality necessary for watershed studies. These tests, however, can be very useful for educational, demonstrational, or screening purposes. For more information on simple dissolved oxygen testing, see USU's Water Quality Extension website at http://extension.usu.edu/waterquality/.

What do the results mean?

The State of Utah has set minimum dissolved oxygen concentrations to protect fish and other aquatic animals. These minimum concentrations vary according to the designation of the stream as a warm or cold water fishery, a non-game fishery, or simply waters that support aquatic life.

For more information, contact USU Water Quality Extension at 435-797-2580, or visit our website at http://extension.usu.edu/waterquality/