# June 2011

## Invasive Species of the Month

### Algae, toxic cyanobacteria

***What?*** Cyanobacteria are known as blue-green algae because they are aquatic and use sunlight to create food and support life. However, they are not algae. Cyanobacteria are the oldest known fossils, more than 3.5 billion years old. They usually are too small to be seen, but sometimes can form visible colonies (called algal blooms) in slow-moving waters that are rich in nutrients (e.g., fertilizer runoff or septic tank overflow). These blooms are often found in water where little mixing occurs, and can occur at any time, but most often in late summer or early fall. Eutrophication and a thinning ozone layer can contribute to algal blooms. There are an increasing number of cyanobacteria genera and species that have been found to produce biologically active compounds that can be very toxic to a variety of organisms, including people and pets. Although algal blooms can occur in marine, estuarine, and fresh waters, the blooms of greatest concern are the ones that occur in fresh water, such as drinking water reservoirs or recreational waters. The blooms can look like foam, scum, or mats on the surface of fresh water lakes and ponds, and can be blue, bright green, brown, or red. Some blooms, though, may not affect the appearance of the water. As the algae in a cyanobacterial bloom die, the water may take on a bad odor. Cyanobacterial harmful algal blooms block sunlight and consume the oxygen in a water body, which can cause fish and plant kills. The toxics produced from these blooms are some of the most powerful toxins on the planet. Symptoms of exposure to harmful algal blooms include skins rashes, hives, or skin blisters, runny eyes and nose, a sort throat, allergic reactions, diarrhea and vomiting, liver or kidney toxicity, and neurotoxicity (in dogs, symptoms include weakness, staggering, difficulty breathing, convulsions, and death; in people, symptoms include numb lips, tingling fingers and toes, and feeling dizzy).

***Where?*** Cyanobacteria have been linked to human and animal illnesses around the world.

***Lookalike?*** Cyanobacteria are also known as "blue-green algae" on account of their blue-green hue, which is apparent when viewed under a microscope. However, cyanobacteria can also be seen with the naked eye because they clump together to form massive colonies. Look for a thin, green-blue film (also known as pond scum) floating on the surface of standing water. This pond scum is actually a collection of cyanobacteria colonies dwelling on the water's surface. Cyanobacteria are fairly easy to identify under a microscope—look for strands composed of several individual, spherical cells (similar to a chain). Be on the lookout for cells that appear blue-green when the light from a microscope shines through them. This will help you identify cyanobacteria more quickly.

Cyanobacterial accumulation at Binder Lake, IA, dominated by the blue green algae Microcystis sp. with a dead fish. USGS scientists studied the effects of harmful algal blooms on lake water quality found that blooms of blue-green algae (cyanobacteria) in Midwestern lakes produced mixtures of cyanotoxins and taste-and-odor causing compounds, which co-occurred in lake water samples.

This photograph of a toxic cyanobacterial bloom has the typical appearance of a thick pool of green oil paint. This bloom occurred in 1981 and was found to consist of species in the genus Microcystis. (W. Carmichael)

**What can you do?**

Be on the lookout for toxic cyanobacteria blooms, and report suspected blooms to www.oregoninvasiveshotline.org or 1-866-INVADER.

STOP the invasion

Protect Oregon from Invasive Species