

Foam on the Water

By Joe George

Have you ever wondered about the foam you see against log jams, in still sections of the creek, and along the lake shore as you walked along your favorite creek or lake? On windy days this foam can also be seen along ocean beaches. Many people believe this foam is caused by pollution, but this foam is naturally occurring.



How does this foam develop? It's because of two components, the change in surface tension and the addition of air into the water. Surface tension is caused by the chemical attraction amongst water molecules. This attraction of water molecules enables insects, such as water striders, to glide across the water without sinking. Surface tension of water can be reduced by the addition of other molecules. These molecules are known as surface active agents, or surfactants. Decomposition of plants or plant material in the water produces natural surfactants.

The second component is air. Physical agitation of the water such as wind, waterfalls, flowing over or around debris, and stream riffles; introduces air into the water. With the surface tension reduced because of natural surfactants, this enables air to bubble to the surface. When the foam first appears it is white and turns brown over time because of the accumulation of dirt.

Foam from pollution generally accumulates near the source; it will not persist, and dissipates quickly once the source is removed. The foam is white and will have a sweet or scented smell. Foam accumulations from synthetic surfactants will generally not be related to rainstorms or windy conditions on lakes.