

Foam: A Naturally-Occurring Phenomena

The Department of Environmental Quality often receives complaints claiming that “someone discharged laundry detergents into the lake” or that there are suds on the river or stream. This phenomenon is often the result of natural processes, not environmental pollution. Foam can be formed when the physical characteristics of the water are altered by the presence of organic materials in the water.

The foam that appears along lakeshores is most often the result of the natural die-off of aquatic plants. Plants are made up of organic material, including oils (i.e., corn oil and vegetable oil). When the plants die and decompose, the oils contained in the plant cells are released and float to the surface. Once the oils reach the lake surface, wind and wave action pushes them to the shore. The concentration of the oil changes the physical nature of the water, making foam formation easier. The turbulence and wave action at the beach introduces air into the organically enriched water, which forms the bubbles.

Foam commonly occurs in waters with high organic content such as productive lakes, bog lakes, and in streams that originate from bog lakes, wetlands, or woody areas. Oftentimes, streams that originate from woody areas will have a brown tint in the water. The brown tint is often caused by the presence of tannin, which is a substance that gives wood its brown color. The tannin is released during the decomposition of wood along with other materials that cause foaming when they are introduced in water. It is quite common to find foam in dark-colored streams, especially during late fall and winter, when plant materials are decomposing in the water.



Naturally-occurring foam: on Stoney Creek in Southeast Michigan and on Grand River in the Jackson area.

Some foam in water can indicate pollution. When deciding if the foam is natural or caused by pollution, consider the following:

- ◆ Wind direction or turbulence: natural foam occurrences on the beach coincide with the onshore winds. Often, windrows of foam can be found along a shoreline and streaks of foam may form on open waters during windy days. Natural occurrences in rivers can be found downstream of a turbulent site.
- ◆ Proximity to a potential pollution source: some entities such as the textile industry, paper production facilities, oil industries, and fire fighting activities work with materials that cause foaming in water. If these materials are released to a water body in large quantities, they can cause foaming. In addition, the presence of silt in water, such as from a construction site can cause foam.
- ◆ Presence of decomposing plants or organic material in the water.
- ◆ Feeling: natural foam is usually persistent, light, not slimy to the touch.

If you find pollution and believe it is human-induced, please report it to the State of Michigan’s Pollution Emergency Alerting System (PEAS) hotline at 1-800-292-4706. For more information please contact any Water Bureau district office or call the State of Michigan’s Environmental Assistance Center at 1-800-662-9278.

This publication was developed through the cooperative efforts of the Environmental Science and Services Division and Water Bureau, Michigan Department of Environmental Quality, 800-662-9278.

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TOTAL NUMBER OF COPIES PRINTED: 6000
TOTAL COST: \$454.50 COST PER COPY: \$.303
DEQ Michigan Department of Environmental Quality



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