

Have you ever noticed foam formations in waterways?

In rivers and streams, foam often forms downstream of rapids, in eddies or below structures, such as weirs. In lakes and reservoirs, foam often collects along windward shores.

Foam formations can become quite large and it can appear as though someone has emptied a container of detergent into the water.



Natural foam (most common) has a slightly fishy or earthy scent and usually persists downstream of a turbulent water site and is light and fluffy.

Foam caused by a pollutant will have a slimy feel and smell aromatic. Foam can take on a dirty appearance if water is turbid.

What causes foam?

Foam is commonly formed after a river has been dry or stagnant for an extended period and a large flow disturbs and washes out the organic matter (leaves, twigs, bark) from deep pools. As organic matter breaks down, natural compounds and oily chemicals are produced. These are termed surfactants. These oils are buoyant and float to the surface, reducing surface tension and creating small bubbles. Wind action, vigorous water flow or even boating activity can introduce air into the organically enriched water, generating more bubbles. Without surfactants, these bubbles would only last moments before bursting but with surfactants they persist and build up as foam.

While mostly natural, some foam is caused by the release of synthetically produced materials, for example household cleaning products, cosmetics and shampoo/toothpaste. Regardless of new and improved formulations, synthetic surfactants usually cause some foam. However, unlike natural foam, it will accumulate near the source and generally not in conjunction with windy conditions.

Values of foam

Even though it may appear undesirable, a certain amount of organic matter and the foam it may produce is essential for healthy rivers due to the energy, nutrient, food, habitat, refuge areas, structure and complexity it adds to a stream system.

Managing foam

Natural foam does not require management. However, the occurrence of pollution-related foam is reduced significantly by the development of biodegradable products.

Early detergents contained alkylbenzene sulfonate surfactants which are non-biodegradable and resulted in extremely persistent foam accumulating below sewage treatment plants and other wastewater outfalls. These products of the past also contained phosphate softeners which enriched the nutrient content of waterways resulting in algal blooms. Better processing of waste water and more effective management of urban stormwater has also helped to reduce pollution-related foam.