Foam Foam everywhere! And not a drop to wash up with!

I get many calls around this time of years wondering if our beloved river below the falls is becoming a washing machine complete with soapy bubbles.

Ah Nature! What a miracle she is! My answer to you may not be simple, but it will be complete. “No, this not an April fools prank. It is most likely not pollution based but a natures way of telling us that spring is...well, on its way.”

What causes foam to form on rivers and streams?

- Foam buildup on rivers and streams can either be a natural phenomenon or a result from human activities. 99 percent of the time it is mother natures creation.
- Natural foam is caused by chemicals released during the decay of plant material and algae. These chemical byproducts can act as surfactants, reducing the surface tension of the water. Surface tension is the attraction between water molecules that forms a thin “skin” on the water’s surface. This property is what allows some insects to glide on water. When the surface tension is broken, air more easily mixes into the water and bubbles are created and persist- sometimes all the way down to Sellwood!
- Natural foam will most likely have a tan or light brown color, but it may be white, and will smell earthy or fishy.

When am I most likely to see natural foam on a water body and why do I see this stuff mostly in the early morning?

- When the water warms up in the spring, chemical reactions get going breaking down algae and plant material. During the daytime, plants are photosynthesizing, at night they are letting off gasses. Mix that with oxygen from a giant blending source such as Willamette Falls or the wave action on the beach and BAM! Foam.

- On windy days or when you have lots of mixing opportunities, because foam occurs when air mixes with water to form bubbles.
- During high rain periods when there is far more water coming down the falls and there is more mixing than typically occurs.
- During the fall when trees drop their leaves and aquatic plants begin to die back and decompose.
- Throughout the spring as plants lose their buds.
- When the outdoor temperature rises, because heat accelerates plant decay, which releases the organic substances that contribute to foam.
- During soil erosion events or from human activities, such as gravel washing.

Is foam harmful?

- Foam is usually harmless. In fact, only 1 percent of the foam you see on a waterbody is the actual foaming agent; the rest is air and water! This is not the greatest excuse however for opting for that extra whipped cream on your morning mocha.
- Excess foam IS sometimes the result of too much phosphorus in the water.
- Although phosphorus in an important plant nutrient, it is not found abundantly in nature and too much of it is indicative of pollution from human activities.
- Excessive phosphorous can result in nuisance algae blooms, fish kills due to low dissolved oxygen from decomposition processes, and irregularities with the water's taste and odor. This phosphorus overload might mostly happen in the hot summer months. We know that this is not the case at this time as our regular sampling of the rivers dissolved oxygen levels are normal if not high right now.

What if stuff is man made and not nature? Heres how you can tell.

- Foam that is caused by man-made surfactants that have been released in the water, such as detergents will most likely be white and may have a fragrant/ perfume-like smell. It will REALLY foam up into peaks and may go air-born (think Dish detergent put into a fountain)

How can I tell what kind of foam it is? A review.

Although it's difficult to know for sure, foam from various sources can have different characteristics.

Natural foam usually:

- appears as light tan or brown in color, but may be white;
- smells earthy, fishy or has fresh cut grass odor;
- can occur over large areas and accumulate in large amounts, especially on windward shores, in coves and eddies; and
- dissipates fairly quickly, except when agitated (as in high wind conditions).

Unnatural foam from human activity usually:

- appears white in color;
- gives off a fragrant, perfumed or soapy odor; and
- usually occurs over small area, localized near source of discharge.

While huge masses of foam in a stream or around our lakes could signal a pollution situation, the vast majority of foam we see is from perfectly normal biological processes and follows the perfect recipe of warming water, high flows and plant material.

So fine folks we will be regularly checking our foamy days if anything seems out of place, then we will take a physical sample and send it in. Feel free to call us to talk foam at any time and if something seems awry in your river! Give your Water Quality Program Coordinator Suzi Cloutier a call at 503-223-6418 or Call the Oregon Department of Environmental Quality at 888-997-7888 .