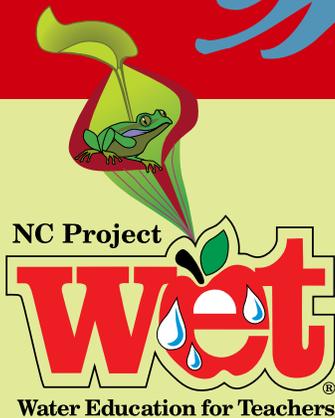


The Water Cooler



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Fall 2010

Emerging Issues: Pharmaceuticals and Personal Care Products (PPCPs) in Our Waters

Pharmaceuticals and personal care products are a part of our everyday lives. We get infections, headaches, and rashes. So we use medications to treat them. We also want to keep our hair and bodies clean, so we use soaps and deodorants.

We are not the only ones using PPCPs. Veterinarians prescribe medications and pesticides to many of our household pets. Likewise, antibiotics are heavily used for large-scale animal farms and feedlots.

Some pharmaceuticals and personal care products are easily broken down and processed by humans and animals, or degrade quickly in the environment. Others are not. When we urinate, bathe or have runoff from farms, these residues go down the drain into septic tanks, municipal water systems or directly into waterways. They then make their way into the soil and into aquatic environments.



Wastewater treatment plants do not remove all of the PPCPs during treatment. When the treated water is returned to the river, the pollution is also released back into the environment. As the water is used again downstream, the pattern repeats itself and the concentration of these substances increases.

More than 80 percent of waterways tested in the United States show traces of common medications such as acetaminophen, birth control hormones, antibiotics and antidepressants. What are the effects of these substances? The risks to humans and aquatic organisms are unknown. The major concerns are antibiotic resistance in bacteria and endocrine disruption in aquatic organisms and human fetuses.

The Environmental Protection Agency considers the presence of PPCPs in the environment one of the most significant emerging threats of the 21st century. The EPA has extensive resources explaining PPCPs, how they are introduced into the environment, and what happens when they enter the environment. They also have excellent documents that can be downloaded for use in workshop presentations. For more information, please see their website at <http://www.epa.gov/ppcp/>.

Activity Adaptations: Incorporating PPCPs into Project WET Activities

PPCPs can be incorporated into many Project WET activities. The easiest fit is with *Sum of the Parts*, because there is the ability to incorporate many different kinds and sources of pollution.

Reaching Your Limits is also suitable, because it directly speaks of water quality standards and what they mean. Once you discover how these standards are met, you can introduce PPCPs. You can explain that there are no standards yet established for most of these substances, because it is not yet certain what concentrations are harmful to the environment.

You may also want to consider *Sparkling Water*. In this activity, participants learn about wastewater treatment and develop strategies to remove contaminants from “wastewater.” You can discuss what happens to the sludge and the effects it may have on the environment, including the PPCPs it may contain. You can also discuss what happens to the substances that could not be removed, such as PPCPs. What happens as water is reused by those downstream? How does this affect the concentration of substances such as PPCPs in the aquatic environment?

If you have any other ideas for incorporating PPCPs into WET activities, please e-mail the North Carolina state coordinator with your tips at holly.denham@ncdenr.gov.

From the State Coordinator:

Please welcome the new Project WET facilitators!

In August 2010, the Albemarle-Pamlico Estuarine Program graciously funded the 2010 N.C. WET Facilitator Training. Ten participants attended a 2 ½ day training at Blue Jay Point County Park in Raleigh and are now official N.C. WET facilitators!

From the Piedmont, please welcome: Jaunita Souther from Wilkes County; Parnell Bell, Michelle Pearce, Stacy Gray and Steve McElhaney from Wake County; and Elizabeth Jernigan from Guilford County. The new mountain facilitators are Jessica Varney and Rachel Doebber from Buncombe County. Carla Edwards from New Hanover County and Melissa Myers from Craven County are now helping to reach people on the coast.

I would like to thank Sarah Yelton from the N.C. Office of Environmental Education and Public Affairs for leading the Excellence in Environmental Education portion of the workshop, and Don Rayno and Kirsten Zillman from the N.C. Division of Water Resources for their water supply planning presentations. In addition, I would like to thank the dynamo WET facilitators Sheila Jones with Wake County Soil and Water Conservation, Laura Webb Smith with the City of Durham, and Peggy Sloan with the North Carolina Aquarium at Fort Fisher for their insightful instruction on planning workshops and tips on facilitating activities.



More than 80 percent of waterways tested in the United States show traces of common medications such as acetaminophen, hormones, blood pressure medicine, codeine and antibiotics. These fall under a class of chemicals known as PPCPs.

The U.S. Environmental Protection Agency considers the presence PPCPs in the environment one of the most significant emerging threats of the 21st Century.



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