Are there PAHs in New Hampshire's waters?

In New Hampshire, PAHs are a concern whenever a dam is removed from a river, especially in urban areas. Some of these dams, dating back to the 1800s, are holding back a great deal of sediment and mud that has accumulated over the years. Unfortunately, accumulated sediment and mud often contain a variety of man-made pollutants. When a dam is removed, any PAHs mixed into the mud could be reactivated and become toxic to aquatic life downstream. A spokesperson for the Dam Bureau at the NH Department of Environmental Services stated that PAHs have been detected as a result of sediment quality screening for dam removal projects; however, the PAH levels have been below that which would adversely affect aquatic biota or humans.

Are there alternatives to coal tar sealants?

There have been many attempts to ban coal tar sealants (PAHs) from use in cities and states. The U.S. Environmental Protection Agency has made attempts to ban the product nationally but with no success. Cities such as Austin, Texas, and numerous small cities in Minnesota have instituted PAH bans.

There are other products that will work just as well as the coal tar sealants. When purchasing an alternative product at a hardware store, read the product label to make sure that there are no coal tar residues in the container. You can also ask the store owner for the Materials Safety Data Sheet (MSDS) which will list the product's ingredients and identify any hazardous materials.

There are other ways of reducing the amount toxic PAHs to the environment such as only applying sealants to driveways and roadways when really needed. Pervious pavement, which allows rain water and other surface runoff water to soak through it and into the ground, is now readily available in most communities and it does not need sealants.

What's the take home message?

Driveway sealants are not the only hazardous materials that end up on lake bottoms across the country. As wise stewards of our lakes, we must all continue to become aware of potential problems such as the sealant phenomenon, which could degrade the health of our lakes. We must re-examine our daily activities and yearly rituals (such as sealing the driveway) and change our routines, and use alternative products when available, to help keep our lakes healthy and clean.

The good news is that most of New Hampshire's lakes and ponds are probably not at risk at this time of being contaminated with PAHs, since the state is still relatively rural. However, New Hampshire is the fastest growing state in the Northeast—it seems that more and more driveways, roads, and parking lots are being constructed every day. We need to keep monitoring our lakes and striving to reduce or eliminate our use of coal based tar sealants in our watershed—before it is too late for our lakes.

This article originally appeared in The New Hampshire Lakes Association's April 2011 issue of its monthly e-news blast, Shorelines. Visit their website at www.nhlakes.org and sign up to receive this newsletter.

Driveway Sealants in Your Lake?

FAQs about PAHs

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What if you were walking through the woods one day and came upon a five gallon bucket oozing black coal tar on to the ground?

Your first thought might be, "what inconsiderate person would do this with no regard for the environment?" Then, what if you noticed your neighbor brushing the same coal tar material on to his driveway to seal the numerous cracks that inevitably show up on asphalt due to weathering? If you are like most people, you would probably think he was saving his driveway from the ravages of the climate. But, did you know that the seemingly innocuous act of sealing a driveway with a liquid coal tar product could be sealing the fate of a nearby lake or pond?!

Photo source: *www.customizedicons.com*

What is coal tar?

Coal tar is a black viscous waste product derived from the distillation of coal during the production of steel. In scientific terms, coal tar and other similar substances are called PAHs or Polycyclic Aromatic Hydrocarbons.

What does the science say?

Scientists from the U.S. Geological Survey have studied and documented increasing levels of PAHs in the bottom sediments of 40 urban lakes across the country. Waterbodies in cities such as Anchorage, Fort Worth, Detroit, Milwaukee, and Boston were involved in a recent study. Polycyclic Aromatic Hydrocarbons (PAHs) come from driveway and roadway sealants as well as from vehicle emissions, crude oil, and power plants. Analysis of data has revealed there is a positive correlation between increased urban sprawl and an increased amount of PAHs found in lake bottom sediments. Coal tar-based sealants were implicated to account for more than half of the PAHs found in the lakes studied. Conversely, the study revealed that lakes with very low PAHs had relatively limited uses of coal tar-based sealants applied to roadways and driveways within their watershed (i.e.; drainage area).

Are PAHs harmful?

Dust from driveways and parking lots contaminated with PAHs may prove to be a probable and suspected carcinogen to humans through skin contact and inhalation. Under the authority of the Safe Drinking Water Act, PAHs are regularly analyzed in drinking water. The maximum contaminate level allowed in drinking water is 0.0002 Mg/l. Thankfully, PAHs have not become a drinking water problem yet due to the fact that they do not readily mix with water and end up, instead, in the lake sediments.

Lakes with watersheds that have significant portions of the landscape covered with coal tar sealants may eventually become toxic to aquatic organisms that live in the region near the lake bottom. This could cause aquatic organisms to perish. Investigations into the interaction of PAHs with bottom dwelling aquatic organism populations are ongoing.

How do PAHs end up in lakes?

You may be wondering, "If the coal tar sealant is applied with a brush and the driveway is cordoned off with caution tape and allowed to dry, how does the toxic material enter a lake?" Researchers have determined that the sealant breaks down into a fine dust due to weathering and normal wear and tear associated with a driveway. The wind can move the dust everywhere. When it rains, the particles of contaminated dust can move towards streams and rivers and may ultimately end up in a lake. Since the particles are heavier than water, they fall down to the lake bottom and get mixed into the sediment. Every year that home owners dutifully reapply more sealant, more PAHs make their way into our lakes.

Coal tar dust from asphalt is seen in a parking lot in Austin, Texas. / Thomas E. Ennis / Watershed Protection Department, Photo Source: http://www.news-leader.com/article/20100207/NEWS01/2070371/What-you-should-know-about-coal-tar-sealant