New York State Department
of Environmental Conservation

New York State
Department of Health

Information Sheet Summer 2008

PCBs and the Upper Hudson River Floodplain

Introduction

Sediments within the Upper Hudson River are contaminated with polychlorinated biphenyls (PCBs) as a result of industrial discharges that occurred between the 1940s and 1970s. PCBs were discharged to the river from the General Electric plants in Hudson Falls and Fort Edward and were subsequently transported downstream. Once PCBs entered the river, they were deposited and mixed with the sediments at many locations on the river bottom and at some locations along the shoreline. In 2002, the U.S. Environmental Protection Agency (EPA) signed a Record of Decision (ROD) for the cleanup of the Hudson River PCBs Superfund Site. The PCB-contaminated sediments on the river bottom will be remediated as part of the upcoming Hudson River dredging project. The ROD also states that concerns related to possible exposure of residents and ecological receptors to PCBs in the floodplain must be evaluated. This information sheet is intended to provide you with information that will help you to minimize your potential exposure to PCB-contaminated soils in floodplain areas along the Hudson River between Fort Edward and the Troy Dam.

Deposition of PCBs in Floodplain Areas

The river is a dynamic system that has the ability to pick-up, carry, and move river bottom sediments, some of which may contain PCBs, further downstream. During periods of flooding, fine-grained sediments, and any PCBs that they contain, may be deposited above the riverbank upon the floodplain and become part of the soil. Certain areas of the floodplain are more likely to accumulate PCB-contaminated soil. These include low-lying areas right next to the river that are subject to frequent flooding, backwater areas, and areas on the inside of large bends in the river. In many instances soils within floodplain areas may appear wet and muddy throughout the year. It is these areas where flooding occurs and floodplain deposits accumulate that people may be exposed to soils contaminated with PCBs.

Minimizing Exposure to PCBs in Floodplain Soil

Potential health risks from exposure to the PCBs in floodplain soils depend on PCB concentrations and the extent to which people contact soil containing PCBs. The extent of contact depends on the types of activities that contribute to exposure and the duration and frequency of these activities. Considering that the presence and concentration of PCBs at any given location may not be known without collecting and analyzing soil samples, the following discussion should be considered when spending time in floodplain areas.

Children may come into direct contact with PCB-contaminated soil while playing or digging in the dirt. During these activities they may incidentally ingest soil through hand-to-mouth activity. For example, this exposure may occur when young children put toys or hands into their mouths or do not properly wash their hands before eating. Therefore, to reduce potential exposures it is important to assure that childrens' hands, feet and toys are washed after playing or digging in the dirt.

Adults and adolescents may walk over the soil with shoes on, which in most cases results in very little exposure. However, the following precautions will help to further minimize potential exposure:

- Avoid tracking soil and mud from potentially contaminated areas into your home by rinsing off shoes that may have sediment or soil on them. Additionally, wipe your pet's feet before it enters your home.

- Avoid digging in and relocating soil from the areas where frequent flooding occurs.

- Wash soil from skin whenever possible, especially after working or playing in areas where flooding occurs. You can also minimize skin contact while working in soil by wearing clothing such as gloves and long pants to help minimize soil contact.

- Gardening and eating homegrown vegetables are not major sources of PCB exposure for most people. This is because PCBs are generally found in low-lying areas next to the river, which are usually not good for residential gardening due to frequent flooding. Should you choose to garden in a low-lying area next to the river be sure to thoroughly wash and/or peel vegetables grown there. This will help to remove soil that adheres to the vegetables.

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Frequently Asked Questions:

Every spring the river floods my yard, does this mean that there are PCBs in my yard?

PCBs may be present in areas that have been flooded in the past and that may be subject to frequent flooding by the river. Residents can reduce the potential for exposure to PCBs by following the precautions indicated above when working, gardening or playing in areas that are frequently flooded by the river.

What are PCBs?

PCBs, or polychlorinated biphenyls, are a group of chemicals consisting of 209 individual chemicals. PCBs were widely used as a fire preventive and insulator in the manufacture of electrical transformers and capacitors because of their exceptional ability to withstand high temperatures. At the concentrations detected in the sediments and fish, people are unlikely to be aware of PCBs by their smell or taste. Many commercial PCB mixtures are known in the U.S. by the trade name Aroclor.

What are the health effects associated with contact to PCBs?

PCBs have been extensively evaluated for their toxicity in animal studies and human epidemiological studies of workers and the general population. PCBs cause many effects in animals. In humans, skin conditions, such as chloracne and rashes, have occurred in workers exposed to high levels of PCBs. PCBs are suspected of causing a variety of other effects in humans. Information on the toxicity of PCBs is available at two EPA websites: (1) visit http://www.epa.gov/iris/subst/index.html for separate information on Aroclors 1254 and 1016 and PCBs in the EPA Integrated Risk Information System, a consensus database of toxicity information developed by EPA and (2) visit http://www.epa.gov/hudson/faqs.htm at the USEPA Region 2 Hudson River PCBs website for Frequency Asked Questions about PCB Health Risks. Additional information is also found at two websites of the U.S. Agency for Toxic Substances and Disease Registry (ATSDR): (1) visit http://www.atsdr.cdc.gov/toxpro2.html for the Toxicological Profile for PCBs; and (2) visit http://www.atsdr.cdc.gov/toxfaq.html for the ToxFAQs for PCBs.

As with all chemical exposures, the nature and extent of any health effects from PCBs are related to the amount and duration of chemical exposure. In addition, people differ in their response to the same or similar exposures. This difference in sensitivity is due, in part, to the individual differences among people. People, for example, differ in age, sex, diet, family traits, lifestyle, genetic background, the presence of other chemicals in their body (*e.g.,* alcohol, prescription drugs), and state of health. Differences in sensitivity should be kept in mind when reading the information on the human health effects of any chemical including PCBs.

Can I fish in the river?

Yes, you can fish in the river, but due to PCB contamination you should not eat the fish or share them with others. Be aware that NYSDEC "Catch-and-Release" regulations require that all fish caught from the Hudson River between Bakers Falls (in Hudson Falls) and the Federal Dam at Troy must be immediately returned to the water unharmed. Equally important, the New York State Department of Health (NYSDOH) has issued extensive fish advisories for most of the Hudson River due to elevated PCB levels in fish. The NYSDOH advisories recommend that no one eat any fish caught between South Glens Falls and the Troy Dam. PCB exposures from eating contaminated fish are greater than those arising from contact with contaminated floodplain soil and hence pose a greater health concern. For additional fish advisory information for New York State waters (including the entire Hudson River) call NYSDOH's toll free information line at 1-800-458-1158 or view the fish advisories online at http://www.nyhealth.gov/nysdoh/fish/fish.htm.

Can I swim in the river?

Yes, you can swim in the river. The EPA's Human Health Risk Assessment for the Hudson River PCBs Site evaluated the potential risks from PCB exposure via the following exposure routes: ingestion and dermal contact with contaminated sediments while wading; incidental ingestion of water while wading; and dermal contact with water while swimming. Based on this risk assessment, the EPA determined that the PCB risks from these forms of exposure did not meet the level which required any remedial action.

Can PCBs be in the air, too?

Although the possibility exists that PCBs can be released into the air from both soil and water, potential exposures from air are much less than those from fish or soil. Recent air sampling along the river indicates that PCB concentrations are consistent with the background levels in rural areas. Additionally, the EPA Human Health Risk Assessment for the Hudson River PCBs Site evaluated resident risks from inhalation of PCBs along the river and the risks were found to be at or below the risk range used by EPA to determine need for remedial action.