

FACT SHEET

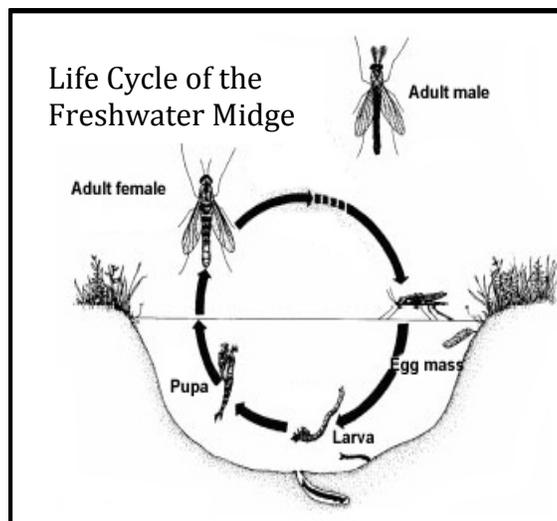
BENTHIC INJURY: PCBs IN HUDSON RIVER SEDIMENTS

Hudson River Natural Resource Damage Assessment

Past and continuing discharges of polychlorinated biphenyls (PCBs) have contaminated the natural resources of the Hudson River. The Hudson River Natural Resource Trustees – New York State, the U.S. Department of Commerce, and the U.S. Department of the Interior – are conducting a natural resource damage assessment (NRDA) to assess and restore those natural resources injured by PCBs, a hazardous substance and a known human carcinogen.

Trustees Study Toxicity of PCB- Contaminated Sediments

The Hudson River Natural Resource Trustees conducted a sediment toxicity pilot study, prior to remedy implementation, to determine if PCB-contaminated sediments from the Hudson River are toxic to sediment-dwelling organisms. Two indicator species of sediment-dwelling organisms, the freshwater amphipod, *Hyalella azteca*, and the midge, *Chironomus dilutus*, were exposed to Upper Hudson sediment collected in 2008 from the Thompson Island Pool (also known as River Section 1). Sediment samples were also examined to identify what sediment-dwelling organisms were present.



Midge larvae, the sediment-dwelling life stage, were exposed to Hudson River sediment.

Fast Facts on Benthic Injury

- PCBs are prevalent in sediments throughout the study area
- Exposure to Upper Hudson River sediments resulted in toxicity to both midge and amphipods
- Reproduction was the most sensitive of the three endpoints assessed.

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Sediment Toxicity Testing

Sediment-dwelling organisms, such as the freshwater amphipod pictured below, may be exposed to PCBs that are bound to sediment particles, as well as any PCBs that are dissolved in the water in and around the sediment. Sediment toxicity tests measure the effects of sediment-associated PCBs on benthic macroinvertebrates by exposing test organisms to PCBs in the same way they are exposed in the environment. The study also evaluated the composition and structure of the benthic macroinvertebrate community.

Trustees Issue New Report on 2008 Benthic Pilot Study to Provide Data on:

- Concentrations of PCBs and other chemicals of potential concern in surface sediments collected with grab samplers;
- Survival, growth and reproduction of the amphipod, *Hyaella azteca*, exposed to Upper Hudson River sediment for 42 days;
- Survival, growth and reproduction of the midge, *Chironomus dilutus*, exposed to Upper Hudson River sediment for ~53 days;
- Macroinvertebrate taxa (“animal group”) richness and diversity, mayfly (*Ephemeroptera*), stonefly (*Plecoptera*), and caddisfly (*Trichoptera*) abundance, and pollution sensitive and pollution tolerant taxa abundance; NYSDEC benthic community metrics of Biotic Index, Dominance-3, Percent Model Affinity, and Biotic Assessment Profile.



Freshwater Amphipod, *Hyaella azteca*

This sediment-dwelling creature is one of the organisms tested in the pilot study.

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