



## Independent scientists challenge Corps' finding of "no significant impact" from dredge toxics in Delaware River sediments

### Fact Sheet #4 — Independent scientists challenge Corps' finding of "no significant impact" from dredge toxics in Delaware River sediments

A December 1998 white paper\* by scientists at the Graduate College of Marine Studies at the University of Delaware (UofDE), reviewing environmental impact studies by the U.S. Army Corps of Engineers for the proposed deepening of the Delaware River shipping channel from 40 to 45 feet in depth, says that the Corps' conclusions of no significant impact "appear unjustified."

The paper also says that Corps data (Supplemental Environmental Impact Statement [SEIS], 1997) "...is often lacking many of the details, or appropriate references...which a normal research report provides. Thus the conclusions appear doubtful."

Supported by the Sea Grant College Program of the University of Delaware, the white paper addressed the release and remobilization of hazardous contaminants from dredging and from dredge spoil disposal and their return to humans via sea food and groundwaters. The UofDE paper did critical analysis of existing published and unpublished data and summarized existing information of abundances of radionuclides, heavy metals and PCB's in Delaware River and Bay sediments. It also modeled contaminant release characteristics.

Several areas are covered including:

- Arthur D. Little (ADL) study. This 1994 study analyzed and measured pollutants in sediments and their bioavailability of organic chemicals, suggesting more widespread acute sediment toxicity in the Delaware Estuary than previously documented and saying that "**through food chain transfer, the bioavailability of these toxic contaminants may result in adverse impacts to organisms that biomagnify these contaminants and may pose potential health risk to humans who consume fish from the estuary.**" Concentrations of PCBs, DDT and its metabolites, PAHs, and dieldrin exceeded sediment effect levels at 7 to 15 of the 16 stations sampled. The UofDE paper calls the ADL conclusions "conservative," and notes that ADL values show agreement with other published results.
- Army Corps of Engineers' SEIS (1997). The UofDE paper says that **Corps' heavy metal and pesticide data disagree with ADL data by 800% to 2800% for similar parts of the river**-- ADL values being higher, and that Corps conclusions are "doubtful" because Corps data "is often lacking many of the details, or appropriate references, as provided by ADL..."

The UofDE paper also challenges the Corps' use of differing standards for different substances to assess safe limits for disposal. As an example, the paper points out that a benzopyrene sampling exceeds standards "very significantly" if the NJDEP Residential Cleanup criteria is used -- as is done for other toxins. For benzopyrene the Corps instead applied the Non-Residential Cleanup criteria.

The UofDE paper also pointed out that "'No available data' is often regarded by [the Corps] as 'no evidence' to suggest concerns," saying that "Authority of indulgence is very strong in conclusions."

- **Groundwater threats from disposal sites.** Noting that in much of the regional groundwaters of the Delmarva peninsula "...concentrations of several heavy metals...are very close to the EPA's potable water limits," the authors point out that metals reaching groundwater from disposal sites (by leaching action of acid rain or from oxidized sulfide in the spoils themselves) "can potentially make...concentrations in shallow groundwaters exceed limits."

Better assessment of the threat, however, must await information on how metals leach from spoils and how they do or do not travel through a local soil/water system. Although the Corps has already concluded that the proposed disposal sites can be used, they do have leaching studies on Delaware sediments underway, with results due during mid 1999. The authors say precise estimates of the threat also require new information about the soils surrounding and underlying disposal sites.

- **Polonium 210.** Although the authors lacked funding to sample for concentrations of radioactive substances in the River and in sediments, the currently-assumed minimal risk of exceeding exposure limits could be significantly raised if polonium 210 is liberated from sediments and biomagnified into sea food eaten by humans. But for accurate assessment of risk to the human population, data on radionuclide concentrations in local waters, biota and sediments is essential, the authors conclude.
- **Arsenic.** The authors also note that arsenic in Delaware River and estuarine waters are very close to recommended limits and can pose a threat to human health through food-chain transfer.
- **"Sedimentary Impact of Dredging the Delaware Estuary: Geochemical Impacts and Natural Radionuclide Transfers, A White Paper Report",** by Najid Hussain and Thomas M. Church, Graduate College of Marines Studies, University of Delaware, Newark, DE, December 16, 1998.

*An Alliance has been formed to oppose the project. Dump the Delaware Deepening is comprised of organizations and individuals throughout the region concerned about this project. If you want to get involved call us at 1-800-8-DELAWARE.*