

tion, and the U.S. National Institutes of Health. WHO already has begun to circulate the declaration among organizations it works with.

The architects of the U.S. National Children's Study (NCS) say they will consider the statement. NCS, scheduled to begin in mid-2008, is designed to provide long-term and case-control studies of 100,000 children from preconception to age 21 for a wide range of health issues. Sarah Keim, NCS co-ordinator, says, "We will always up-

date our plans to reflect the latest thinking and hope to answer a lot of the questions that were raised."

Yet, incorporating the information addressed by the proclamation into policies and regulations is likely to be a slow, incremental process. In Europe, new chemical regulations known as REACH (the Registration, Evaluation, and Authorisation of Chemicals), which went into effect on June 1, address prenatal and early infancy exposures in only a limited way, says

Philippe Grandjean, co-chair of the conference, who holds positions at the University of Southern Denmark and the Harvard School of Public Health. He says it's possible that the European Parliament may consider this issue as it works through its re-authorization of pesticides.

The final statement is expected to be posted on the website of the journal *Basic & Clinical Pharmacology & Toxicology* later this year, Grandjean says.

—ROBERT WEINHOLD

Unleashing a dioxin legacy

For decades, paper mills, municipal waste incinerators, and petrochemical industries lining the banks of the Houston Ship Channel (HSC) have filled the waters with 2,3,7,8-tetrachlorodibenzo-*p*-dioxin and its equivalents. The sediments lying underneath still bear that toxic legacy. A new study published in *ES&T* (pp 5291–5298) suggests that soil erosion, hurricanes, tides, shipping, and dredging may be churning up contaminants, transporting them to different parts of the channel, and reintroducing them into the aquatic environment. The findings may help reveal why mysteriously high dioxin levels are in fish and shellfish in the channel despite tight regulations on emissions.

The HSC is a 52-mile-long, very narrow channel and is one of the busiest ports in the U.S. It receives freshwater from the San Jacinto and Trinity rivers and connects to the Gulf of Mexico via Galveston Bay. High concentrations of dioxins have been found in blue crab and catfish in the HSC since Texas first started testing for the chemicals in the early 1990s. In other places in the state, tissue levels of dioxins plummeted within 1–2 years of reductions in emissions, but in the HSC, levels have remained almost constant, even after a decade of tightened regulations on industries and years of



KEVIN YEAGER

The waters and sediments of the HSC remain contaminated with dioxins despite a decade of tighter regulations.

cleaning up. This suggests that "something different was happening" there, says Larry Koenig, manager of the Texas Commission on Environmental Quality's HSC Total Maximum Daily Load project, which is determining acceptable amounts of daily dioxin input into the channel.

"We're finding alarming amounts of it, and what we want to know is: is this dioxin derived from continuing inputs, or is it legacy dioxin," says Kevin Yeager of the University of Southern Mississippi, who teamed up with Hanadi Rifai of the University of Houston and other colleagues for the current study.

Yeager and his team collected 55 sediment cores from the upper part of the channel. Most of the cores were so heavily mixed that they were unsuitable for analysis. The team settled on eight sediment cores that showed the least

amount of mixing and analyzed them for the rate of sedimentation and the rate of deposition of 17 of the most toxic dioxins and other airborne pollutants. They also tested for dioxin content and changes in dioxin concentrations within each core. They compared these findings with a background atmospheric dioxin deposition rate obtained from one sediment core from a wetland farther northwest.

Although most of the sites had recently deposited dioxins, the observed rate of deposition could not be explained by atmospheric processes alone. "Some industries do continue to produce and emit dioxin, although much reduced from pre-1990s," says Koenig. "At this time, we do not have any specific indication that a specific type of industry or specific facility is currently emitting enough dioxin to exceed water quality standards."

The traditional view on dioxins is that they attach to organic matter in sediments and get buried over time. But Yeager and colleagues' study shows why things are different in the HSC: dioxins there do not bind to the organic matter in the sediments as tightly as expected.

Taken together, these findings suggest that the HSC sediments are unable to safely store historic dioxins and are reintroducing them to the aquatic environment. Yeager's team is currently studying the impact of dredging on dioxin distribution in the sediments.

—RHITU CHATTERJEE