



Number 1
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Contaminated Sediments News

Progress Report on EPA Sediment Contamination Oversight Committees

The Office of Water Regulations and Standards (OWRS) formed two Agency-wide committees last summer to identify, coordinate and provide guidance on activities relating to the assessment and management of sediments contaminated with toxic chemicals: a Sediment Oversight Technical Committee and a Sediment Oversight Steering, or Policy Committee. The goal of these Committees is to facilitate decisions made at various stages in the management process such as 1) assessing sediment contamination, 2) deciding on the need for and type of management action, and 3) evaluating types of remediation (if relevant).

In addition to this newsletter, the Sediment Oversight Committees are currently engaged in a number of projects. Two of note are 1) compilation of summaries of EPA Program Office activities related to contaminated sediment issues, including specific statutes under which these activities fall (EPA Program Summary Document), 2) Preparation of a Sediment Classification Methods Compendium which describes the various methods used to evaluate sediment contamination, including their advantages, limitations, and existing applications.

CS News is produced by EPA-OWRS to exchange relevant information on contaminated sediments and to increase communication among interested parties. To obtain copies of this report or to contribute information, contact Mike Kravitz, EPA-HQ at (202) 475-8085.

Sediment Activities Around the Country

EPA

Criteria & Standards Division

On Feb 2-3, 1989, the Sediment Criteria Subcommittee of the Environmental Effects Transport and Fate Committee of the Science Advisory Board (SAB) met to review the appropriateness of the Equilibrium Partitioning (EP) Approach method for generating sediment criteria for nonionic contaminants. The SAB findings will be published in a report which is expected to be available this summer.

The Criteria & Standards Division (CSD) prepared a briefing document for the SAB to provide pertinent information and data on the EP Approach. This document is available from Chris Zarba at (202) 475-7326.

Superfund

A draft report, "Nature and Extent of Ecological Effects at Superfund Sites" is available from Craig Zamuda (202) 382-2763. This report presents an overview of the extent of contamination at selected Superfund sites throughout the country.

Contaminated Sediment Activities Timeline

Oct 27-28, 1988 SAB Review of the Apparent Effects Threshold (AET) Approach.

Feb 2-3, 1989 SAB Review of the Equilibrium Partitioning (EP) Approach.

Apr 16-18, 1989 13th American Society of Testing Materials Symposium on Aquatic Toxicology and Risk Assessment. Atlanta, GA.

Jun 1, 1989 SAB Briefing on U.S. EPA Sediment Classification Methods Compendium.

May 30-Jun 2, 1989 International Association for Great Lakes Research. University of Wisconsin, Madison.

Jul 11-14, 1989 Coastal Zone 89: The Sixth Symposium on Coastal and Ocean Management. Charleston, SC.

Aug 29-31, 1989 EPA Criteria & Standards Division planning meeting for Sediment Criteria and Bioassay Development for FY 90. Newport, OR.

Sep 18-21, 1989 Oceans 89: The Global Ocean. Seattle, WA.

Oct 8-12, 1989 10th Biennial International Conference of the Estuarine Research Federation. Baltimore, MD.

Oct 9-13, 1989 8th International Ocean Disposal Symposium. Dubrovnik, Yugoslavia.

Oct 16-19, 1989 National Symposium on Water Quality Assessment, U.S. EPA. Fort Collins, CO.

Oct 28-Nov 2, 1989 10th Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC). Toronto, Canada.

Office of Research and Development (ORD)-Headquarters

Sam Williams of EPA ORD is currently compiling a list of all sediment research being conducted by the Office of Research and Development. For a copy, contact Sam Williams at (202)382-5980.

ORD-Duluth

The Duluth lab is currently studying the uptake of dioxin and dibenzofurans in fish from Lake Ontario sediments. A mathematical model is also being developed which will relate the contamination of sediments to measured effects (toxicity).

Other projects include a joint study with the Great Lakes National Program Office (GLNPO) to conduct sediment toxicity studies on the Fox River in Wisconsin, identification of causes of sediment toxicity, development of sediment criteria for metals, and development of chronic toxicity methods with several benthic species.

Region I

Region I, in conjunction with the New England Division of the Corps of Engineers (NE-COE), has developed protocols for testing dredged material within the framework of the existing National Ocean Dumping Guidelines. These protocols will standardize chemical and biological testing of dredged material for permit applicants who wish to dispose of the material in open waters. The region received agency concurrence on the protocols in June and expect an operating program in place by September. A QA/QC program is being phased in for labs participating in the testing of the sediments for ocean disposal permits. For more information contact Dave Tomey at (617) 565-4425.

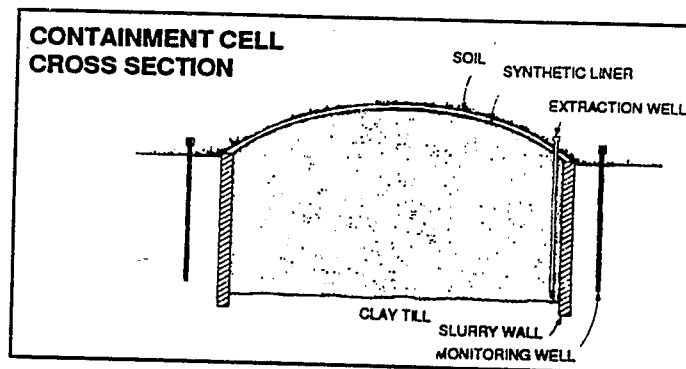
In a coordinated effort between EPA and the NE-COE, a pilot project is underway to evaluate the feasibility of dredging and disposing of PCB contaminated sediments in New Bedford Harbor. New Bedford Harbor is the largest Superfund site in Region I, consisting of 18,000 acres of estuary, harbor and bay highly contaminated with PCBs and heavy metals.

Region V

Region V is part of an inter-agency task force studying the effects of disposed dredged material at confined disposal facilities (CDFs). A pilot study of modeling and field studies at a Saginaw Bay CDF is underway (by ORD-Grosse Ile) to determine if biota inhabiting the outside dike walls are accumulating contaminants as a result of leakage of PCBs through the dike wall. The first year field effort (1987) focused on establishing a methodology for sampling PCBs. [This report is available from Marc Tuchman at (312) 886-0239.] The second year field effort quantified the release of PCBs through water quality sampling and biomonitoring.

Region V has completed an overview of state sediment programs in the region. They are currently working with the states to develop an inventory of contaminated sediments. Eventually the region wants to develop consistent assessment and prioritization protocols and develop site specific remedial options for sites with contaminated sediments.

A settlement has been reached between the Outboard Marine Corporation (OMC) and EPA Region V which sets forth remedial actions to be taken at the OMC Waukegan Harbor Superfund site. This site is heavily contaminated with PCBs both on land and in the surrounding harbor. The remedial actions involve removing any harbor sediments with PCB concentrations greater than 50 ppm. Sediments in the harbor slip area with PCB concentrations greater than 500 ppm will be treated on site using a low temperature thermal extraction process called Taciuk. Those harbor sediments which have PCB concentrations between 50 ppm and 500 ppm will be placed in containment cells. Sediments on the



property adjacent to the harbor which have PCB concentrations greater than 10,000 ppm will also be treated using the on-site extraction process.

Region X

In February, Region X sponsored a workshop with the WA Department of Ecology on developing sublethal bioassays on the polychaete *Neanthes*.

The State of Washington is currently developing state sediment quality standards. Several methodologies, including the Apparent Effects Threshold (AET) Approach and the Equilibrium Partitioning (EP) Approach, are being considered as the technical basis for these standards. Final regulations are expected to be promulgated by July 1990.

U.S. Geological Survey (USGS)

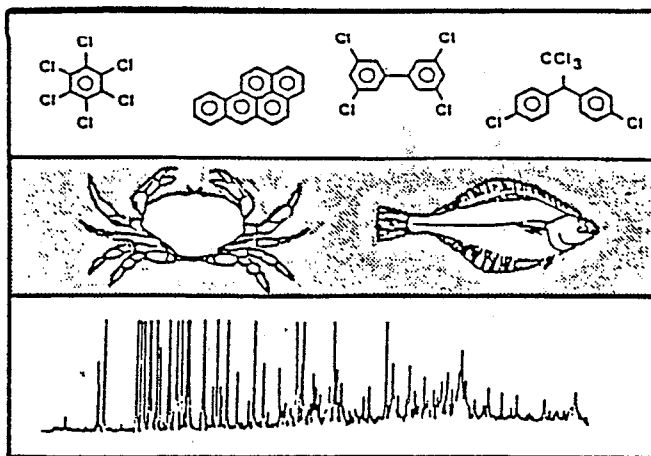
The Geological Division of USGS collects and analyzes thousands of samples from stream sediments annually, as well as samples from estuaries and offshore. The geochemical data from these samples are stored in the RASS (Rock Analysis Storage System) data base which contains the chemical composition of approximately 700,000 samples of sediments, rocks, soils, plants, and water from the United States (identified by state, county, and latitude and longitude). The Water Resources Division of USGS also collects samples of stream sediments for a variety of their programs, two of these being the National Water Quality Assessment Program (NAWQA), and the Toxic Substances

Hydrology Program. Stream sediment data from these programs are stored in a data base called WATSTORE, or in RASS. Another USGS data base, NURE (National Uranium Resource Evaluation), contains
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concentration data for a broad array of trace elements in nearly one million water and sediment samples collected over approximately 65% of the U.S. and Alaska between 1975 and 1980.

A "Guide to Obtaining USGS Information"

(USGS Circular 900, revised 1986) can be obtained free upon request from: Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, CO 80225.



Army Corps of Engineers

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The New England Division of the Corps of Engineers held a symposium in December to present the summary of findings of the Disposal Area Monitoring System (DAMOS) project from the past 3-4 years. Topics included capping work at disposal sites, tiered approaches for monitoring potential impacts of dredged material, disposal site management, and a review of field verification programs.

The New England Division is currently assembling a monograph of capping operations at disposal sites. In addition, they are determining the feasibility of disposal options at the New Bedford Harbor Superfund site; disposal options include CDFs as well as confined aquatic disposal cells.

NOAA

Edward Long of NOAA is presently working on a document that will 1) present descriptions of chemical contaminants measured as part of NOAA's National Status and Trends Program (NS&T), and 2) summary tables of toxicity threshold values for these chemicals in the sediment, for various sediment quality assessment approaches and biological endpoints. Chemical data at NS&T sites and a number of known "hotspots" will be compared to the threshold values. This work, which is expected to be finished by the end of the year, will allow us to gage the toxicity of known chemical concentrations in the sediment.

The Office of Marine Assessment of NOAA has recently produced two documents relating to sediment contamination and their associated biological effects. The first document portrays geographical and temporal trends in concentrations of contaminants in sediment and biota, and the prevalence of selected measures of biological effects in San Francisco Bay. The second report evaluates candidate measures of biological effects for the NS&T Program. These reports are available from Ed Long at (206) 526-6338.

American Society of Testing Materials (ASTM) Toxicology Subcommittee Voted on Methods for Conducting Toxicity Tests

The ASTM E47.03 Sediment Toxicology Subcommittee prepared several documents designed to standardize approaches for collecting, processing, and testing the toxicity of sediments. The first two documents were approved by the subcommittee and await consideration by the full committee. The remaining documents will also be submitted for review. To receive information on ASTM contact Chris Ingersoll at (314) 875-5399.

Documents:

1. *Proposed Guide for Conducting Solid Phase 10-d Static Sediment Toxicity Tests with Estuarine and Marine Invertebrates.* (Task group chairs: Janet Lamberson and Rick Swartz, US EPA, Newport, OR).
2. *Proposed Guide for Conducting Solid Phase Sediment Toxicity Tests with Freshwater Invertebrates.* (Task group chairs: Marcia Nelson, Chris Ingersoll, and Jim Dwyer, USFWS, Columbia, MO).
3. *Proposed Guide for Sediment Collection, Storage, Characterization, and Manipulation.* (Task group chairs: Allen Burton (Wright State University, Dayton, OH) and Peter Landrum (NOAA, Ann Arbor, MI).
4. *Proposed Guide for Designing Sediment Toxicity Tests.* (Task group chairs: John Scott (SAIC, Narragansett, RI), Charles Pittinger (Proctor and Gamble, Cincinnati, OH), and Jim Dwyer).
5. *Invertebrate Bioaccumulation Sediment Testing Methods for Freshwater and Marine Environments.* (Contact: Peter Landrum).
6. *Fish Bioaccumulation Sediment Testing Methods for Freshwater and Marine Environments.* [Contact: Mike Mac (NFC-GL, USFWS, Ann Arbor, MI) and Usha Varanasi (Northwest and Alaska Fisheries Center, USFWS, Seattle, WA)].

A list of ongoing research projects in marine contaminated sediments is available through NOAA. To obtain a copy of this list, contact Bill Conner at (301) 443-8823.

Selected Available Literature

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- o **Briefing Report to the Science Advisory Board on the Equilibrium Partitioning Approach to Generating Sediment Quality Criteria, 1989.** Contact Chris Zarba at (202) 475-7326.
- o **NOAA Tech Memorandum: NOS/OMA 45. 1989. An Evaluation of Candidate Measures of Biological Effects for the National Status & Trends Program.** Edward Long and Michael Buchman. 105 pp. + appendices. Contact Ed Long at (206) 526-6338.
- o **Nature and Extent of Ecological Effects at Superfund Sites, 1989.** (Available in draft). Contact Craig Zamuda at (202) 382-2763.
- o **Briefing Report to the Science Advisory Board on the Apparent Effects Threshold Approach, 1989.** Contact Catherine Krueger at (206) 442-1287.
- o **Comparisons of Bioassays for Assessing Toxicity in Puget Sound, 1988.** Contact Catherine Krueger at (206) 442-1287.
- o **Contaminated Sediment Criteria Report, 1988.** Contact Catherine Krueger at (206) 442-1287.
- o **Interim Sediment Criteria Values for Non-ionic Organic Contaminants, 1988.** Contact Chris Zarba at (202) 475-7326.
- o **NOAA Tech Memorandum: NOS/OMA 41. 1988. Status and Trends in Concentrations of Contaminants and Measures of Biological Stress in San Francisco Bay.** Edward Long, et al. 268 pp. Contact Ed Long at (206) 526-6338.
- o **Sediment Quality Values Refinement: 1988 Update and Evaluation of Puget Sound AET's, 1988.** Contact Catherine Krueger at (206) 442-1287.
- o **Workshop Proceedings - Toxic Sediments: Approaches to Management, 1988.** Contact Sally Valdes-Cogliano at (202) 382-5871.
- o **An Overview of Sediment Quality in the United States, 1987.** Contact Howard Zar at (312) 886-1491.
- o **Pilot Confined Disposal Facility Biomonitoring Study: Channel/Shelter Island Diked Facility, Saginaw Bay, Bay City, MI, 1987.** Contact Marc Tuchman at (312) 886-0239.
- o **Policy Implications of Effects-based Marine Sediment Criteria, 1987.** Contact Dexter Hinkley at (202) 382-2783.
- o **Development of Sediment Quality Values for Puget Sound, 1986.** Contact Catherine Krueger at (206) 442-1287.

EPA Sponsors Symposium on Monitoring Issues

On October 16-19, 1989, the Assessment and Watershed Protection Division of US EPA will sponsor a National Symposium in Fort Collins, Colorado to focus on water quality monitoring issues, particularly those of importance in the western U.S. For more information contact Jim Plafkin at (202) 382-7005.