View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by UNH Scholars' Repository

University of New Hampshire
University of New Hampshire Scholars' Repository

Media Relations | Administrative Offices

6-16-2008

UNH Researchers Test Sediment-Scrubbing Technology In Cocheco River

Beth Potier
UNH Media Relations

Follow this and additional works at: https://scholars.unh.edu/news

Recommended Citation
Potier, Beth, "UNH Researchers Test Sediment-Scrubbing Technology In Cocheco River" (2008). *UNH Today*. 472.
https://scholars.unh.edu/news/472

This News Article is brought to you for free and open access by the Administrative Offices at University of New Hampshire Scholars' Repository. It has been accepted for inclusion in Media Relations by an authorized administrator of University of New Hampshire Scholars' Repository. For more information, please contact nicole.hentz@unh.edu.

UNH Researchers Test Sediment-Scrubbing Technology In Cocheco River

Media Contact: Beth Potier
603-862-1566
UNH Media Relations

June 16, 2008

Reporters and editors: To schedule a site visit to the Cocheco River, contact Jeffrey Melton at 603-862-2107 or Jeffrey.melton@unh.edu, or Kevin Gardner at 603-862-4334 or Kevin.gardner@unh.edu.

DURHAM, N.H. - In a mud flat at the edge of the Cocheco River, just outside downtown Dover, scientists from the University of New Hampshire's Contaminated Sediments Center are testing an innovative way to treat polluted sediment in coastal waterways.

Rather than dredging up the problem, or burying it under several feet of sand, they've created a patch ï¿½ black geotextile mats designed to cap and stabilize pollution in place. Over the next two years, UNH associate professor Kevin Gardner, research assistant professor Jeffrey Melton, and a team of UNH students will monitor these mats to evaluate the effectiveness of this new approach.

"We need to know how these mats behave when they're buried under mud for a few years, compared to how they performed in the lab," says Melton. "What will happen to them in this intertidal zone with boats, waves, birds, and weather? How will they impact bugs and other aquatic life in the sediment?"

The mats are six feet square and one inch thick. They consist of a mixture of reactive materials sandwiched between two layers of geotextile fabric, creating a sort of quilt that traps pollutants but allows water to flow through. The reactive "filling" of this quilt contains three different substances that bind and stabilize different pollutants. One such substance ï¿½ a UNH-patented technology based on a natural form of phosphorus ï¿½ treats toxic heavy metals associated with industrial pollution such as lead, copper, zinc and cadmium.

"But you don't just find one pollutant at a site," says Melton. "Everything is all mixed up in the sediment." So he and his colleagues added organoclay and activated charcoal ("like in your Brita filter," he says), which adhere to and treat toxic chemicals such as polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons, (PAHs), and petroleum products that routinely enter waterways through stormwater runoff.

The project is funded by the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET), a partnership of UNH and the National Oceanic and Atmospheric Administration, and NH Sea Grant.

"Polluted sediment is a nationwide problem," says Richard Langan, CICEET's UNH co-director. "We need better tools to identify and treat areas where this pollution has the potential to threaten human and ecosystem health. Technology demonstrations like these, that take

advantage of cutting-edge science, are key to making that happen."

The mats present an alternative approach to remediating contaminated sediment; more common responses include dredging or capping sediment beneath several feet of sand. But dredging is expensive, disrupts habitats and poses the problem of how to move - and where to put - all that toxic sediment. Sand caps have questionable long-term effectiveness and can hinder boat traffic and impact aquatic life. "There's no silver bullet. What we are exploring is potentially a great tool to add to the tool box," says Melton.

Melton admits that even as Americans grow increasingly aware of environmental woes, sediment pollution does not score high on the "green glamour" scale. Yet, he points out, everyone is already feeling its impact through regular advisories that close shellfish beds or warn of eating fish contaminated by heavy metals and persistent organic pollutants like PCBs or PAHs.

"You can enjoy a great day of fishing, but if you can't eat the catch, there's a problem," says Melton. It's estimated that 20 percent of the top six inches of all sediment in U.S. rivers, lakes, streams and estuaries is contaminated. In 2004, the U.S. Environmental Protection Agency reported there were 3,221 fish consumption advisories in state waters.

Melton and Gardner chose the Cocheco not because its sediment is especially polluted, but rather because its characteristics as a well-used tidal river and its proximity to UNH make it an ideal laboratory. They plan to compare the performance of the mats in the Cocheco to those they've laid in Cottonwood Bay in Grand Prairie, Texas, adjacent to the Dallas National Air Station, in a demonstration funded by the Department of Defense's Strategic Environmental Research and Development Program (SERDP).

Moving forward, researchers from the Contaminated Sediments Center, part of UNH's Environmental Research Group, plan to test new sampling technologies that measure the scope and potential threat of contamination in sediment. In addition, they're always on the lookout for new test sites.

To learn more about UNH's Contaminated Sediments Center, go to http://www.unh.edu/erg/ccsr/index.html.

-30

Photographs available to download:
http://www.unh.edu/news/img/cocheco/mat.jpg
Caption: A close-up of the inside of the mats, where reactive substances are distributed through a lofty fiber, where they trap and treat pollutants in the contaminated sediment.
Credit: Lisa Nugent, UNH Photo Services

http://www.unh.edu/news/img/cocheco/gardner_melton.jpg
Caption: In June 2008, UNH researchers Kevin Gardner and Jeffrey Melton of the Contaminated Sediments Center placed geotextile mats on a mud flat at the edge of the tidal Cocheco River in Dover, N.H. The researchers are testing these mats as an innovative way to treat polluted sediment in coastal waterways.
Credit: Lisa Nugent, UNH Photo Services

http://www.unh.edu/news/img/cocheco/cocheco.jpg
Caption: UNH research assistant professor Jeffrey Melton (l) and associate professor Kevin Gardner, both of the Contaminated Sediments Center, are testing a new treatment for

contaminated sediment at the edge of the Cocheco River in Dover, N.H.
Credit: Lisa Nugent, UNH Photo Services

BOOKMARK