
University of Pennsylvania
Institute for Environmental Studies



presents

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Linking Land Use to Pathogen Impairments in Coastal Watersheds

Bacterial pollution of coastal waters including streams, rivers, estuaries and the oceans is a worldwide problem of concern. Fecal pollution poses a health hazard, closes beaches, and restricts recreational and commercial shellfishing activity.

Traditional water quality monitoring programs analyzing bacterial contamination in waterways involve testing for total and fecal coliform levels. While not pathogens themselves, elevated levels of coliform bacteria can indicate the presence of waterborne pathogens and these data can be used to identify “hot spots” in need of more detailed investigation. However, monitoring of coliforms cannot be used to identify specific sources of bacterial pollution.

Determining if fecal bacteria originate from human or other sources requires use of innovative techniques known collectively as Microbial Source Tracking (MST). A variety of MST methodologies have demonstrated value for discriminating sources contributing fecal bacteria to a waterbody. Once the source of the pollution is identified through implementation of MT studies, be it human, domestic animal, wild animal, waterfowl or other avian species, best management practices (BMPs) can be developed to remediate watershed fecal pollution.

In order to develop effective BMPs, land use within the watershed must be analyzed and locations held responsible for the contaminant inputs identified. Completion of this level of analysis relies on the integration of available water quality data, watershed specific MST data, and existing mapped land use and land cover information using a Geographic Information Systems (GIS) platform. The objective is to geographically identify the likely sources for the measured bacterial contamination that facilitate development of correct BMPs or combination of BMPs for the control of these specific contaminant sources.

Date: October 18, 2006

Time: NOON - 1:30 pm

Place: Carolyn Hoff Lynch Auditorium

On the Penn campus: Chemistry Building
34 & Spruce Sts. (enter on 34 St)

NO REGISTRATION REQUIRED

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