

Report for 2002NH3B: Characterization of Groundwater Discharge to Hampton Harbor

There are no reported publications resulting from this project.

Report Follows:

A. Scheduled Tasks

The primary efforts during this reporting period were the final review of intertidal groundwater discharge zones, the preparation of the research findings for presentation at an upcoming conference, and final water quality analyses.

B. Progress on Tasks

The final review of intertidal groundwater discharge zones suggest that intertidal groundwater discharge is extremely limited in Hampton Harbor due to the presence of a large impermeable salt marsh. A single groundwater discharge zone was found within the study area. Numerous sites were located, and all but one had salinities greater than 21 ppt. With salinities that high, these sites were deemed locations of saltwater pumping rather groundwater discharge. A single site was located which had a salinity of 5 ppt. The strict hydrogeologic control limited all potential sites to coarse sands, likely the location of historic deposition of coastal barrier features. No potential sites were located within the salt marsh.

The unique project results will be presented at the *Technology Transfer Conference, Emerging Technologies, Tools, and Techniques, To Manage Our Coasts in the 21st Century*, sponsored by the U.S. EPA Office of Water, Office of Wetlands, Oceans, and Watersheds, Oceans and Coastal Protection Division. The title of the presentation will be *Limitations of the Use of Thermal Infrared Imagery for the Assessment of Inter-Tidal Groundwater Discharge based on Land Use, Land Cover, and Hydrogeology*, by Robert M. Roseen, Thomas P. Ballesterro, Gabriel Bacca-Cortez, and William G. McDowell.

Following completion of water quality analyses, final loading calculations will be performed. However, as groundwater discharge is extremely limited, loading is expected to be very minimal.

C. Difficulties Encountered

None to report.

D. Anticipated Success in Meeting Project Objectives in Scheduled Project Period

The project is on schedule and project objectives will be met on time.

Schedule of Reporting Periods:

<u>Report</u>	<u>Reporting Period</u>	<u>Submission Date</u>
Progress Report #3	July 02 through Sept. 02	End of Oct. 02
Final Progress Report #4	Sept. 02 through Dec. 02	End of Jan. 03
Final Report	Jan. 02 through Dec. 02	End of June 03

E. Preliminary data

Preliminary results suggest a distinct lack of intertidal groundwater discharge zones within the salt marsh areas. This trend is consistent for nearly every site, with few exceptions. Figure 1 illustrates the location of groundwater discharge zones within transmissive materials. The correlation of discharge zones with upgradient land use is clear. Undisturbed upland marsh locations appear to yield little or no groundwater discharge at the marsh intertidal zone, whereas disturbed upland areas, with large permeable surfaces, seem to be correlated with groundwater discharge. It is anticipated that following water quality analyses, very little attendant loading from groundwater discharge will be present.

Figure 1: TIR Detected Groundwater Discharge Zones and the Correlation with Land Cover for Hampton Harbor

