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[Seminar Series](#)

Friday, November 20, 2015 11:00 a.m.

Geologic Effects on Land-Seawater and Solute Exchange across Scales: Examples from Delaware and Bangladesh

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The physical and chemical processes of groundwater flow and solute transport in coastal systems are a primary control on chemical fluxes between land and sea. These fluxes sustain ecosystems and promote biogeochemical cycling, they change the chemistry of the ocean over geologic time, and they contribute to worldwide problems such as seawater intrusion and estuarine eutrophication. Exchange processes occur over scales from ripples to continental shelves, making measurement and modeling difficult, but interactions across scales can be important for biogeochemical processing and chemical loading to the sea. Examples of field and modeling investigations of land-sea water exchange at sites on small scales in Delaware and on large scales in Bangladesh will be discussed. The influence of spatial scales of exchange on nutrient loads is illustrated by hydrologic, geologic, and geochemical interactions.



Holts Landing State Park in Indian River Bay, DE



Holly Michael holds a BS in Civil Engineering from the University of Notre Dame and a PhD in Hydrology from the Massachusetts Institute of Technology. Her research interests include coastal hydrogeology, groundwater-surface water interactions, water resource management, and geostatistics. Some of her current projects include investigating groundwater flow into estuaries, modeling groundwater salinization due to climate change, evaluating sustainability of arsenic-safe groundwater in Bangladesh, and application of experimental economics to groundwater resources.

This presentation will also be available remotely via Webex:

<https://usgs.webex.com/usgs/j.php?MTID=mc2da6627445ff233bb3b9dee6dc82b33>

For directions to the USGS MD-DE-DC WSC: <http://md.water.usgs.gov/directions/baltimore.html>.