

# SCIENCE & TECHNICAL ADVISORY COMMITTEE



DELAWARE CENTER FOR THE  
**INLAND BAYS**  
Research. Educate. Restore.

DATE & TIME: *October 26, 2018 -- 9:00 a.m. to 12:30 p.m.*

LOCATION: *DNREC Lewes Field Facility, end of Pilottown Road, Lewes*

*Meeting called by: Scott Andres, Chair*

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## MEETING AGENDA

Call to order, STAC announcements ..... *Scott Andres*

CIB announcements ..... *Marianne Walch*

Update on Monitoring Subcommittee..... *Scott Andres, Marianne Walch*

Using ecosystem models to explore eutrophication, hypoxia,  
and acidification in estuarine ecosystems..... *Jeremy Testa, UMCES*

Estuarine ecosystems are complex environments that respond to a variety of external forces, including watershed nutrient and sediment inputs, exchanges of gases and energy with the atmosphere, and large inter-annual and seasonal changes in temperature and freshwater input. Numerical models are useful tools to simultaneously quantify the many processes that respond to external forcing, and this presentation will address how long-term changes in nutrient inputs and ocean acidification impact the biogeochemistry and quality of coastal waters.

A seamless modeling system on unstructured grids for  
hydrodynamics and water quality..... *Joseph Zhang, VIMS*

*[Remote presentation]* We have successfully developed an unstructured-grid model for bays and estuaries and applied it to study hydrodynamic and water quality problems in a number of estuaries around the world. The model has some unique features that make it ideally suitable for seamless creek-to-ocean type applications: (1) semi-implicit scheme bypasses stringent stability constraint; (2) finite-element formulation allows very flexible mesh to be used; (3) a flexible hybrid vertical coordinates with shaved cells allows very accurate representation of the bottom and thus bottom-controlled processes such as salt intrusion, gravity flow and upwelling. We are working with NOAA to use the seamless creek-to-ocean capability of SCHISM to couple coastal processes with National Water Model to account for compound flooding from coastal surges and river flooding, using Delaware Bay as a testbed.

CCMP Seagrass Action ..... *Michelle Schmidt, CIB*

Potential Sea Grant Research Topics ..... *Marianne Walch, CIB*

New Business

Adjourn

**2019 STAC MEETING DATES: January 25, April 26, July 26, November 1**