



**EBC Ocean and Coastal Resources Program  
Numerical Modeling in Coastal Planning and Design  
Applications and Case Studies**

Wednesday, January 30, 2019

McLane Middleton | Woburn, Massachusetts

**AGENDA**

- 8:00 a.m. **Welcome**
- Payson Whitney, Chair, EBC Ocean & Coastal Resources Committee  
Vice President, ESS Group, Inc.
- Program Introduction and Overview & What You Will Learn**
- Brandon Raymond, P.E., Program Chair and Moderator  
Coastal Engineer, Geosyntec Consultants
- 8:15 a.m. **Case Studies of Numerical Model Applications in the Coastal Environment**
- Deborah Crowley, Senior Scientist, RPS Ocean Science
- 8:50 a.m. **Water Quality Modeling in Coastal Waters**
- Matt Hodge, P.E., Manager, Hodge.WaterResources, LLC
- 9:25 a.m. **From 1-D to 3-D – Model Considerations and Practical Applications to Meet Project Needs**
- Matt Schultz, P.E., Senior Coastal Engineer, Woods Hole Group
- 10:00 a.m. **Networking Break**
- 10:30 a.m. **Integration of Numerical Modeling into Coastal Engineering and Design**
- Daniel Stapleton, P.E., Senior Vice President / Senior Principal, GZA
- 11:00 a.m. **Panel Discussion**
- Moderator: Brandon Raymond, Geosyntec Consultants
- Panel Members:
- Deborah Crowley, RPS Ocean Science
  - Matt Hodge, Hodge.Water Resources, LLC
  - Matt Schultz, Woods Hole Group
  - Daniel Stapleton, GZA
- 12:00 p.m. **Adjourn – Closing Comments – Payson Whitney**

## PROGRAM CHAIR

**Brandon Raymond**, P.E., Coastal Engineer  
Geosyntec Consultants  
289 Great Road, Suite 202, Acton, MA 01720  
978.206.5791 | BRaymond@Geosyntec.com

Brandon has over eight years' experience modeling, designing, and constructing coastal engineering and sediment remediation projects. His experience includes analysis and numerical modeling of coastal processes, including wave transformation, beach morphology and nearshore circulation; design of both hard and soft shore protection projects; and modeling of hydrodynamics, waves, and sediment transport in river, lakes, open coasts, and estuarine systems.

Brandon has contributed to a range of projects including design of erosion protection systems for critical infrastructure, living shorelines and habitat restoration for protected wetlands, as well as dredging and subaqueous capping for sediment remediation projects. He has also served as the primary investigator for multiple municipal-level sea level rise vulnerability and adaptation studies.

His numerical modeling experience includes wave prediction and transformation, tidal and wave-induced nearshore circulation, extreme flood and storm surge, as well as vessel-induced propeller wash and wake erosion. Brandon has also contributed to a range of field efforts including beach nourishment survey monitoring, sediment sample collection, water quality monitoring, and construction observation.

## SPEAKERS

**Deborah Crowley**, Senior Scientist  
RPS Ocean Science  
55 Village Square Drive, South Kingstown, RI 02891  
401.789.6224 x324 | deborah.crowley@rpsgroup.com

Ms. Crowley is a senior consulting environmental scientist and project manager at RPS. She has experience working on issues and projects related to various aspects of environmental science such as environmental data analysis, hydrodynamic, sediment transport and water quality modeling and analysis, coastal processes modeling and analysis, coastal facility design support, operational/industrial and accidental discharge modeling and assessment, environmental impact assessment in coastal and marine environments and permitting and regulatory compliance analysis and support. Ms. Crowley's experience includes numerous studies of hydrodynamics, sediment transport, water quality and storm impacts assessment at coastal locations. Areas of experience include model development and application, field program design and support, environmental impact assessment (marine resources), geospatial analysis, environmental data analysis and technical writing.

**Matt Hodge**, P.E., Manager  
Hodge.WaterResources, LLC  
95 Arlington Street, Brighton, MA 02135  
617.903.0340 | mhodge@hodgewaterresources.com

Matt Hodge is a Professional Engineer (PE) with experience in many aspects of environmental modeling. Matt specializes in numerical modeling of surface water resources and groundwater. Matt has more than 10 years of experience providing modeling of wetlands, estuaries, lakes, rivers, streams, and coastal zones. Matt has expertise in hydrodynamic modeling, hydrology and hydraulics, sediment transport, contaminant fate and transport, water quality, and mixing zone models.

Matt founded Hodge.WaterResources, LLC in 2013. The mission of Hodge.WaterResources, LLC is to be experts in quantitative analysis related to water resources. We use our expertise to answer environmental

questions for our clients, address our clients' challenges efficiently and economically, and support our clients' larger goals. We consistently push the state of practice, which challenges us to learn new skills to create and support projects.

**Matt Shultz**, P.E., Senior Coastal Engineer

Woods Hole Group

81 Technology Park Drive, East Falmouth, MA 02536

508.495.6259 | mshultz@woodsholegroup.com

Matthew F. Shultz, PE, is a Senior Coastal Engineer and serves as Team Leader of Coastal Engineering & Modeling at Woods Hole Group. He has over 15 years of experience in coastal studies involving the evaluation of coastal hazards, shoreline restoration, and the development of flood mitigation solutions for reducing risks and offering increased resilience in a changing climate. His areas of expertise include the design of structural and non-structural shoreline protection and restoration alternatives, as well as the modeling of coastal and estuarine hydrodynamics, waves, and sediment transport processes.

Matthew has a Master's Degree in Ocean Engineering from the University of Rhode Island and a Bachelor's Degree in Civil Engineering from Tufts University. He is currently licensed as a Professional Engineer in MA, CT, DE, and LA.

**Daniel Stapleton**, P.E., Senior Vice President / Senior Principal

GZA GeoEnvironmental, Inc.

249 Vanderbilt Avenue, Norwood, MA 02062

781.278.5743 | daniel.stapleton@gza.com

Dan has professional degrees in geology, civil and geotechnical engineering and ocean engineering and is an expert in the assessment of geohazards and their effect on the natural and built environment. He currently leads GZA's Natural Hazard Mitigation and Resilience services and has been responsible for hazard vulnerability assessments and mitigation planning and design for municipalities, critical infrastructure, institutions, industry and site development. He is at the forefront of the use of numerical hazard modeling, probability-based risk assessment, and innovation and geospatial technology. His resilience project experience includes: 1) power generation and transmission; 2) wastewater and water facilities; 3) real estate development; 4) municipal hazard mitigation and resilience plans; and 5) institutional facilities.

As an expert in coastal resiliency, Dan has extensive experience in: 1) characterizing coastal hazards (wind, tides, storm surge and waves) under current and future climate conditions; 2) integrating numerical modeling with the design of coastal structures and shoreline protection; and 3) designing coastal protection systems that integrate natural and nature-based systems with structures.

## UPCOMING EBC PROGRAMS

February 13 – Rhode Island Briefing from the RI Coastal Resources Management Council Leadership

February 26 – Climate Change Program: Design Criteria

February 27 – Ocean and Coastal Resources Program: 3<sup>rd</sup> Annual Coastal Construction Conference

March 22 – Ocean & Coastal Resources Program: The Northeast Ocean Data Portal

April 24 – Ocean & Coastal Resources Program: Implementation of Municipal Vulnerability Assessments

May 20 – Ocean & Coastal Resources Committee Program Planning Meeting

Environmental Business Council of New England, Inc.

375 Harvard St, Suite 2 Brookline, MA 02446

617-505-1818 // ebc@ebcne.org // www.ebcne.org // Twitter @ebcne