

## 4<sup>th</sup> Annual Cape Coastal Conference

### Our Coastal Future: Taking Action for a Prosperous and Healthy Cape *Putting Science, History and Innovative Economic Strategies to Work*

## BREAKOUT SESSION DESCRIPTIONS

DECEMBER 6, 2016 - DAY 1

1:30PM-2:50PM

#### **SESSION 1: GETTING TO CLEAN WATER**

##### **ROOM: OSTERVILLE A**

FACILITATOR: Tonna-Marie Rogers, Waquoit Bay National Estuarine Research Reserve

#### **From Disposal to Treatment: Can Small Changes in Leachfields Reduce Nitrogen to Our Marine Embayments?**

**George Heufelder, Director, MA Alternative Septic System Test Center, Barnstable County Department of Health and Environment**

The standard septic system over the years has evolved from a temporary means of wastewater disposal to a permanent solution for wastewater disposal in many coastal areas. Recent research suggests that relatively simple and sustainable strategies may improve the treatment in septic system soil absorption systems. One such means for the removal of nitrogen from wastewater is being researched by a collaborative of researchers and practitioners and promises to provide another tool for wastewater management professionals in watersheds where centralized treatment is not feasible

#### **Emerging Contaminants in the Waters of Cape Cod: Lessons Learned for Proactive Water Quality Protection**

**Dr. Laurel Schaidler, Research Scientist, Silent Spring Institute**

The presence of emerging contaminants such as pharmaceuticals and per- and polyfluoroalkyl substances (PFASs or PFCs) in drinking water and aquatic ecosystems raises human and ecological health concerns. However, these chemicals are not currently regulated in drinking water and little to no monitoring is required. Nevertheless, in many instances we can predict where emerging contaminants will be of greatest concern. Drinking water wells and surface waters with higher levels of nitrate and more extensive nearby land development are more likely to contain pharmaceuticals and other chemicals associated with wastewater, and wells close to landfills and fire training areas are more likely to contain PFASs. This presentation will discuss how concerns about emerging contaminant pollution can be considered as part of land use planning and wastewater management.

#### **A Landfill's Impact on Water Supply: Eastham's Story - Jane Crowley, Health Agent, Town of Eastham**

Eastham's unlined landfill was capped in 1997. Post closure monitoring was required in the Comprehensive Site Assessment which included testing both monitoring wells and private drinking water wells. In November 2012, 1, 4 Dioxane was detected at a landfill monitoring well which exceeded the regulatory limit. Residential wells tested confirmed the migration of 1, 4 Dioxane and resulted in a large scale environmental investigation. 1, 4 Dioxane is an emerging contaminant of concern with carcinogenic potential in animal studies. Government agencies believe 1, 4 Dioxane is likely to be carcinogenic to humans. This discussion will include Eastham's response to the private drinking water well impact with 1, 4 Dioxane and lessons learned for other Cape towns.

#### **SESSION 2: SHELLFISH AQUACULTURE**

##### **ROOM: CENTERVILLE A & B**

FACILITATOR: Pat Hughes, Center for Coastal Studies

#### **Considerations for Scaling Shellfish Propagation for Nitrogen Management**

**Josh Reitsma, Cape Cod Cooperative Extension & Woods Hole Sea Grant**

Scaling up shellfish propagation for mitigating the effects of excessive nitrogen entering estuaries of coastal towns has received increasing attention of late. This presentation will review some of the important considerations and lessons learned by local shellfish programs including the economic, logistical, social, and associated uncertainties.

**Acidification Impacts on Larval Shellfish – Dr. Daniel McCorkle, Senior Scientist & Department Chair, Geology and Geophysics, Woods Hole Oceanographic Institution**

This presentation will examine impacts of ocean acidification on shellfish and other species – an important emerging issue for coastal regions like Cape Cod. It will hone in on impacts to larval shellfish in particular and present results from lab and field studies. The presentation will also touch on the potential economic impacts of acidification on important biological resources as well as the implications of the larval study research findings for resource management.

***Vibrio parahaemolyticus (Vp) Caused Illness in Massachusetts and Impact on the Cape and Island's Shellfish Industry***

**Chris Schillaci, Aquaculture Specialist and Vibrio Coordinator, Massachusetts Division of Marine Fisheries**

This presentation will discuss the recent increase in the occurrence of *Vibrio parahaemolyticus (Vp)* illness in Massachusetts and the resulting impact on the Cape and Island's shellfish industry. Vp. illnesses associated with the consumption of oysters harvested from the waters of the Cape and Islands has increased dramatically in recent years, resulting in harvest area closures, recalls and the implementation of costly control measures on the shellfish industry. Chris will highlight research conducted by DMF to evaluate trends in Vp. abundance and composition in shellfish harvest areas along the Cape and Islands and research efforts to understand the efficacy of control measures in place to reduce Vp illness. Chris will also discuss DMF's role in permitting private aquaculture and municipal propagation efforts in Massachusetts and how the risk of pathogens like Vp. may impact state policy in regards to these efforts.

**SESSION 3: RESTORING OUR PONDS**

**ROOM: ORLEANS A & B**

FACILITATOR: Ed DeWitt & Jo Ann Muramoto, Association to Preserve Cape Cod

Previous Coastal Conferences looked at the state of the Cape's ponds and some management methods for addressing eutrophication. This session will begin with a presentation on aerators as one example where we now have new monitoring information on efficacy. We'll then segue to a facilitated discussion on what is needed to protect and improve the Cape's ponds. This discussion will consider the breadth of activities currently underway in the region and opportunities for collaboration around data collection, management, outreach, and restoration activities. Session attendees will have an opportunity to share ideas and dig deeper into actions that are needed to support restoration of healthy ponds in the region.

**Clear Water Revival: Solarbees on Santuit Pond, Mashpee - Catherine Laurent, DPW Director and Andrew McManus, Conservation Agent, Town of Mashpee**

Mashpee's Santuit Pond suffered from poor water quality due to eutrophication due to high phosphorus concentrations. After completion of a diagnostic study which identified the potential phosphorus sources and proposed options for improving water quality, the Town moved forward with installation of six water circulators in 2012. This presentation will review how the Town reached its decision to install the circulators and what the results have been.

**Ponds in Transition: What Do We Need for Protection and Improvement?**

*(A facilitated discussion with town and community representatives)*

**SESSION 4: EXPLORING THE MARINE TECHNOLOGY CLUSTER**

**ROOM: OSTERVILLE B**

FACILITATOR: Peter Karlson, Neu-Eon, Inc. & Cape Cod Chamber of Commerce

This session will introduce the audience to the range of marine technology businesses and ventures that are currently occurring in the Cape Cod Region. Presenters will pull back the veil on what they do and how they do it. Following presentations there will be a facilitated discussion with panelists and the audience focusing on topics such as what is the Marine Technology Cluster? What opportunities are there for partnerships and collaborations? How can we grow the Cluster and make it even more of a signature piece of the Blue Economy in the Cape Cod region?

**Panelists:**

- ☐ Peter Furze – Product Line Manager, Teledyne Marine Systems
- ☐ Hung "Tom" Pham, Project Officer, Mass. Maritime Academy
- ☐ Carl Mancuso, VP of Sales & Marketing, Falmouth Scientific, Inc.
- ☐ Toby Stapleton, Assistant Vice Chancellor & Director, UMASS Dartmouth Center for Innovation & Entrepreneurship



WEDNESDAY, DECEMBER 7, 2016 - DAY 2

11:20PM-12:30PM

**SESSION 1: SEA LEVEL RISE IMPACTS**

**ROOM: OSTERVILLE A**

FACILITATOR: James Rassman, Waquoit Bay National Estuarine Research Reserve

**The Potential Effects of Sea-level Rise on the Hydrologic System of Cape Cod - Donald Walter, United States Geological Survey**

This talk will present findings from a USGS study which examined how the Cape's groundwater system between Falmouth and Orleans will respond to rising sea level in future years. Findings indicate that low-lying coastal areas will experience higher water tables and some areas may experience increased stream discharges. In low-lying coastal areas with higher water tables, there is a potential for more groundwater pollution from flooded septic systems as well as damage to infrastructure such as roads, basements, stormwater systems, and utilities.

The URL for the report is: <https://pubs.er.usgs.gov/publication/sir20165058>.

**Modeling Sea-Level Rise in Coastal Wetlands: Understanding Potential Impacts and Their Implications for Management on Cape Cod - Marc Carullo, Massachusetts Office of Coastal Zone Management**

Wetlands in Massachusetts and elsewhere are under increasing pressure from impacts associated with coastal development and the effects of climate change, such as sea-level rise. Here we attempt to characterize the potential effects of long-term sea-level rise on the distribution of wetland habitat types using the Sea-Level Affecting Marshes Model (SLAMM), identify opportunities for and barriers to marsh migration, and engage stakeholders to advance resiliency planning and management strategies in an effort to adapt and restore wetlands.

**SESSION 2: BRINGING RESILIENCY HOME**

**ROOM: OSTERVILLE B**

FACILITATOR: Tonna-Marie Rogers, Waquoit Bay National Estuarine Research Reserve

**Saving Money: Community Rating System & Flood Insurance Updates – Shannon Jarbeau, CRS & Floodplain Coordinator, Barnstable County Cape Cod Cooperative Extension**

The Community Rating System (CRS) is a federal program within the National Flood Insurance Program that provides discounts on flood insurance for policyholders of towns that make additional efforts to improve flood safety. This presentation will review where towns are at with their efforts to join the CRS. It will also review common flood insurance questions and tips for residents recently mapped into flood zones.

**“Bridging” Resiliency in Infrastructure and Capital Planning Projects – A Boots on the Ground Perspective**

**Ray Jack, DPW Director, Town of Falmouth**

Strategic planning is the art of positioning a community in the most advantageous position possible prior to an event taking place. Easier said than done, it requires a forward-thinking, holistic approach toward project planning that encompasses environmental, social, technical, economic, political and social dimensions. This presentation provides a Public Works perspective of the challenges associated with achieving infrastructure resiliency.

### **SESSION 3: ADAPTATION PLANNING IN ACTION**

#### **ROOM: CENTERVILLE A & B**

FACILITATOR: Danielle Donahue, Cape Cod Commission

**Habitats, Roads, Cultural and Recreational Resources, Buildings and Bathrooms: In a Changing Climate, What Should We Protect? Coastal Vulnerability Indexing, Mapping, Assessment and Adaptation on The Trustees of Reservations Coastal Properties – Case Study, *Thomas O'Shea, Russell Hopping, Trustees of Reservations & Ted Wickwire, Joe Famely, Kirk Bosma, Woods Hole Group***

The Trustees of Reservations (TOR), working with Woods Hole Group, have undertaken a comprehensive assessment of the vulnerability of their coastal properties to sea level rise and storm surge inundation. TOR will begin with an overview of the strategic foundation for multiple property management and long term planning. Woods Hole Group will provide an overview of the climate change vulnerability assessment process including an introduction to the Coastal Vulnerability Index (CVI). The CVI allows site managers to compare vulnerable assets within and across properties, to maximize the protection of assets and the future uses of TOR properties, and to strategically prioritize adaptation projects with respect to the organization's mission. A local case study will be used to illustrate the process and application of the results. This work extends upon an approach used to evaluate infrastructure vulnerability at the Town scale, by including the assessment of ecological and cultural resources.

**Implementing a Coastal Resilience Project Case Study: Efforts to Analyze and Permit a Nearshore Sediment Borrow Source for Sandwich Beaches – *Steve McKenna, Cape & Islands Regional Coordinator, Massachusetts Office of Coastal Zone Management***

In 2015, CZM awarded the Town of Sandwich grant funds to begin work to identify, analyze and permit a nearshore sediment borrow source for the restoration of Town Neck Beach, which had experienced severe storm damage and erosion in recent years. This ongoing project highlights the scientific, political and regulatory complexities involved with implementing a large scale sediment management and coastal resilience project in Massachusetts