

## Dune Management Challenges on Developed Coasts Workshop

Hilton Garden Inn,  
5353 N Virginia Dare Trail, Kitty Hawk, NC 27949  
October 26-28, 2015  
AGENDA

### October 26: Coastal Dunes Field Trip (Optional – sold out)

#### **Objective**

*Begin the meeting by visiting a variety of developed dune systems in the area to set the tone, serve as an icebreaker, and inform the subsequent discussions.*

#### **Approach**

A tour of a variety of dunes along the northern Outer Banks from Duck to South Nags Head, beginning at the FRF for a tour of the facility and discussion of the variety in dune morphologies present on the FRF property. Other stops will include: an erosional hotspot region in Duck that experienced severe erosion and property damage during Hurricane Sandy; Kitty Hawk, where a moderate Nor'Easter recently decimated the foredune and washed out NC 12; recently nourished Nags Head to discuss the interaction of the beach nourishment project and homeowner's property with respect to dunes. The field trip will identify both science and management challenges with dunes on developed coastlines.

Field trip leaders: Kate Brodie, USACE ERDC Coastal & Hydraulics Laboratory and Bill Birkemeier

1-5:30 pm

Hilton Garden Inn, Kitty Hawk, NC – transportation provided

### October 27: Defining the Challenges of Dune Management

#### **Objective**

*Learn about challenges involved in building and managing dunes on developed coasts from different perspectives: academic, government, research, local managers. Define conflicts, solutions, and societal implications*

#### **Approach**

*Use break-out groups to synthesize the different perspectives' challenges*

**Session Chair:** Kate Brodie, USACE ERDC Coastal & Hydraulics Laboratory

8:20

Welcome

**Chairman, Robert L. (Bob) Woodard, Dare County Board of Commissioners, NC**

8:40

Statement of objectives

**Jeff Lillycrop, Technical Director, Civil Works RD&T**

**Nicole Elko, American Shore and Beach Preservation Association**

9:00

Wind, Sand, and Dunes

**Douglas Sherman, University of Alabama**

9:20

Opportunities and Constraints of Enhancing Dunes on Developed Shores

**Karl Nordstrom, Rutgers**

9:40

Design and maintenance of coastal dunes for flood risk management: a UK perspective

**Kenneth Pye, Southampton University**

10:00

**Break**

**Session Chair:** Hilary Stockdon, USGS Coastal Marine Geology Program

10:20 Dunes as nature-based infrastructure: The ecogeomorphology of dune systems

**Candice Piercy, USACE ERDC Environmental Laboratory**

10:40 State Regulations/Policies affecting dune management

**Jason Pinchback, Texas General Land Office**

11:00 Dune Performance during Hurricane Sandy: Findings and Recommendations from the USACE Performance Evaluation Study

**Donald Cresitello, USACE New York District**

11:20 Challenges with evaluating and mapping dunes for the NFIP

**Jonathan Westcott and Tucker Mahoney, FEMA**

11:40 Dunes as infrastructure in damage/loss estimation models

**Dan Cox, Oregon State University**

12:00 **Lunch**, Hilton Garden Inn

**Session Chair:** Julie Rosati, USACE ERDC Coastal & Hydraulics Laboratory

1:15 Reconvene

1:20 Results of Local and State Coastal Managers' Survey

**Kim McKenna, Delaware DNREC, and Roberta Thuman, Town of Nags Head**

1:40 Dune Management Challenges in the Outer Banks of NC:

Nags Head 2011 Nourishment

**David Ryan, Town of Nags Head & Haiqing Kaczowski, Coastal Science & Engineering**

Integrating Dunes into Project Design in Dare County, NC

**Gary Perry, Mayor Town of Kitty Hawk & Ken Willson, CB&I**

2:20 Lessons Learned from Providing Dune Vegetation Services to Communities

**Chuck Kocur, EarthBalance**

2:40 **Break**

3:00 South Padre Island efforts towards balancing natural functioning landforms and tourism

**Reuben Trevino, City of South Padre Island, TX**

3:20 A Case Study in Applying Natural Resource Management for Coastal Resiliency: The City of Miami Beach Coastal Dune Management Plan

**Margarita Wells, City of Miami Beach, FL**

3:40 Charge to breakout groups:

*Identify the challenges involved in building and managing dunes on developed coasts:*

- *What are the challenges in managing dunes on developed coasts?*
- *How do/have we move(d) forward – lessons learned and potential solutions (e.g., obtain key natural functions on managed dunes)?*

**Product:** *List of top 3 resource management challenges*

3:50 – 4:50 Breakout groups

5:00 – 5:30 Report out from breakout groups

6:00 **Welcome reception, Hilton Garden Inn, Pier House**

### October 28: Science to Address Dune Management Challenges

#### **Objective**

*Assess the extent to which scientific knowledge can be applied to the challenges from Day 1*

#### **Approach**

*Learn how researchers are quantifying dune morphology and the ecosystem value of dunes. In breakout groups, discuss research needs, scientific management solutions, and community needs.*

**Session Chair:** Karl Nordstrom, Rutgers

8:20 Dune response to Hurricane Sandy and recovery along the NJ shoreline

**Stewart Farrell, Stockton University Coastal Research Center**

8:40 Quantifying Coastal Sand Dunes for Vulnerability Assessments

**Hilary Stockdon, USGS Coastal Marine Geology Program**

9:00 Quantifying dune morphological evolution/state on storm to annual time scales

**Kate Brodie, USACE ERDC Coastal & Hydraulics Laboratory**

9:20 New technologies and methods for quantifying beach-dune morphodynamics and sediment budgets

**Ian Walker, University of Victoria**

9:40 Post-storm dune recovery as a control on barrier island resilience and management

**Chris Houser, Texas A&M University**

10:00 **Break**

**Session Chair:** Kim McKenna, Delaware DNREC

10:20 The role of vegetation in determining dune morphology and exposure to sea level rise and storm-induced coastal hazards: a US Pacific Northwest perspective

**Peter Ruggiero, Oregon State University**

10:40 Vegetation controls on the maximum size of coastal dunes and the role of biophysical interactions in determining dune/island state

**Laura Moore, University of North Carolina**

11:00 The promise of vegetation for shore protection

**Rusty Feagin, Texas A&M University**

11:20 NJ Sea Grant's new "Dune It Right" Manual

**Amy Williams, Stevens Institute of Technology**

11:40 A framework for addressing endangered species challenges

**Craig Fischenich, USACE ERDC Environmental Lab**

12:00 **Lunch, Hilton Garden Inn**

Charge to breakout groups:

Assess the extent to which scientific knowledge can be applied to the challenges from Day 1:

**Materials:** List of top resource management challenges

- What research questions need to be answered to allow for science-based management solutions?
- What research infrastructure is needed (observations, models)?

**Product:** List of top 3 research needs

**Session Chair:** Nicole Elko, ASBPA

1:15 Breakout groups

2:30 Report out from breakout groups

3:10 **Break**

3:30 Large group discussion charge:

Determine pathways to science-based management goals

**Materials:** Top resource management challenges and top research needs

- Do challenges and research needs align for improved management?
- What common tools are needed (engineering guidance, community manuals)?
- What our roles (state & federal agencies, academics, community managers)?  
*How do we foster coordination?*

**Products:** Establishment of a technical community to promote and advance best dune management practices on a national scale. Meeting report writing team.

4:30 **Adjourn**

4:30 – 5:30 Technology Challenge Grant Information Session (*optional*)

*ASBPA will hold a competition to offer several small (~\$30K) grants to directly support academic research. The grants will be awarded to those proposals which investigate one of the top challenges identified during the workshop. Proposals will be due December 1, 2015 with announcement of results before the end of the year. The performance period will be one year with an expectation that the awardees will present preliminary findings at ASBPA's annual meeting in New Jersey during a dedicated session in October 2016 and publish results in a dedicated issue of Shore and Beach.*