



NEERS 2016 Spring Meeting

April 14 -16, 2016
York Harbor, Maine

Organized and Hosted By:

US Fish and Wildlife Service & Wells National Estuarine Research Reserve

Susan C. Adamowicz, USFWS; Chris Feurt, Wells NEER;
Pam Morgan, University of New England; Bev Johnson, Bates College



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Judith Pederson, Ph.D., MIT Sea Grant

**NEERS SPRING MEETING
PROGRAM AT-A-GLANCE**

All events are at the York Harbor Inn, all oral sessions are in the Yorkshire Ballroom
Thursday, April 14th

12:00 – 1:00	Meeting Registration
1:00 -5:00	Special Symposium: <i>For Better or For Worse: Can Collaborative Research Improve</i>
5:00-5:30	Meeting Registration
5:00	Welcoming Social

Friday April 15th

7:00-8:00	Meeting Registration
8:15	Estuarine Water Quality and Processes
10:00	Break
10:30	Fish and Shellfish Ecology and Management
12:15-1:30	Lunch
1:30	Poster Session
3:00	Estuarine and Marsh Processes, Restoration and Management
4:15	Break
4:30	CERF Strategic Plan, Hilary Neckles, CERF President-Elect
5:00	Business Meeting
6:00	Welcoming Social

Saturday April 16th

8:15	Water Quality Monitoring and Management
9:15	Climate Change Indicators and Impacts
10:15	Break
10:30	Salt Marsh Restoration
11:30	Salt Marsh Management and Tools
12:45	Presentation of Student Awards; Closing Words
1:00	Meeting adjourns and field trips begin

Thursday, April 15th 2016 - SPECIAL SYMPOSIUM

For Better or For Worse: Can Collaborative Research Improve Estuarine Sustainability?

Estuaries and coasts have been the focus for developing and applying new collaborative research approaches. Whether you call it Social Ecological Systems, Coupled Human and Natural Systems or just plain science, researchers are increasingly joining forces with coastal managers to collaboratively tackle management questions that have never been more critical. Bridging disciplinary boundaries and organizational borders is hard work, time intensive and expensive. Is it worth the effort? This symposium features invited speakers working on the front lines of collaborative research in coasts and estuaries sharing their challenges and approaches. The symposium will include a facilitated discussion of best practices for tackling wicked challenges.

Chairs: Susan Adamowicz and Christine Feurt

- 1:00** Susan Adamowicz - Welcome
Chris Feurt - RECOGNIZING BEST PRACTICES WHEN WE SEE THEM
- 1:10** Steve Burns
Town Manager York Maine
ACHIEVING COMMUNITY GOALS FOR CLEAN WATER - THE SEARCH FOR A SMOKING
- 1:40** **DISCUSSION**
- 2:00** Steve Jones
Associate Director, New Hampshire Sea Grant and Research Associate Professor of Natural Resources, University of New Hampshire
SAFE BEACHES AND SHELLFISH – COLLABORATIVE RESEARCH TO SUPPORT COMMUNITY GOALS
- 2:30** **DISCUSSION**
- 2:50** **BREAK**
- 3:10** Kalle Matso
Coastal Science Program Manager, Piscataqua Region Estuaries Partnership
CULTIVATING NEW ROLES AND VOICES THROUGH COLLABORATIVE RESEARCH - DO ESTUARIES BENEFIT?
- 3:40** **DISCUSSION**
- 3:50** **BREAK**
- 4:00** John Terry¹ and Nancy Pau²
¹President and Founder of the Gulf of Maine Institute; ²Refuge Biologist at Parker River National Wildlife Refuge
ENGAGING TEACHERS AND YOUTH IN RESEARCH PARTNERSHIPS – A MODEL WORTH SPREADING
- 4:30** A MATCH MADE IN HEAVEN FOR SUSTAINING ESTUARIES
- 4:40** **DISCUSSION**
- 5:00** **WELCOMING SOCIAL** – Light refreshments, cash bar and stimulating conversation

Friday, April 16th 2016

8:15 Welcome and Introductory Remarks – Jamie Vaudrey, NEERS President

Estuarine Water Quality and Processes

Chair: Sara Grady

- 8:30 Jamie M.P. Vaudrey
Department of Marine Sciences, University of Connecticut, Groton, CT 06340.
EUTROPHICATION IN LONG ISLAND SOUND EMBAYMENTS: LINKING SOURCES TO CONSEQUENCES
- 8:45 Sandy Macfarlane
Coastal Resource Specialists, 290 Kingstown Way #379, Duxbury, MA 02332.
SHELLFISH TO THE RESCUE? EFFORTS TO USE SHELLFISH TO RESOLVE WASTEWATER ISSUES
- 9:00 Marguerite (Peg) Pelletier
US EPA Office of Research and Development, NHEERL-Atlantic Ecology Division, Narragansett, RI.
TRENDS IN THE BENTHIC COMMUNITIES OF SUB-EMBAYMENTS OF NARRAGANSETT BAY, RI
- 9:15 Eric Peterson*¹, Schmidt, C.¹, Berounsky, V. M.^{1,2} and DeSilva, A.^{1,2}
¹Narrow River Preservation Association, Narragansett, RI; ²Graduate School of Oceanography, University of Rhode Island, Narragansett, RI.
WATER QUALITY AT SOUTHERN PETTAQUAMSCUTT ESTUARY (NARROW RIVER) IN RHODE ISLAND
- 9:30 (K) Steven R. Schmidt*, M.M. Whitney, and Jia Y.
Department of Marine Sciences, University of Connecticut, Groton, CT.
INVESTIGATING THE INFLUENCE OF COASTAL ISLANDS ON RIVER WATER DISTRIBUTION AND MIXING IN WESTERN LONG ISLAND SOUND
- 9:45 (R) Emily A. Santos*¹ and Oczkowski, A.¹ and Wigand, C.¹ and Hanson, A.¹ and Mckinney, R.¹ and Szura, K.¹
¹ United States Environmental Protection Agency, Atlantic Ecology Division, Habitat Effects Branch, Narragansett, RI.
UNDERSTANDING THE CHARACTERIZATION OF NUTRIENTS AS THEY ARE DISTRIBUTED SPATIALLY THROUGHOUT THE SAN JUAN BAY ESTUARY
- 10:00 **DISCUSSION:** Estuarine Water Quality and Processes
- 10:15 **BREAK**

Fish and Shellfish Ecology and Management

Chair: Tay Evans

- 10:30** (K) Amy Webb*¹, Wilson, K. (2), Lasley-Rasher, R. ³, and LaBonte, G. ¹
¹ Department of Biological Science, University of Southern Maine, Portland, ME; ² Department of Environmental Science, University of Southern Maine, Gorham, ME; ³ Department of Marine Science, University of Maine, Darling Marine Center, Walpole, ME.
FEEDING HABITS AND MOVEMENT OF JUVENILE ALEWIFE (*ALOSA PSEUDOHARENGUS*) IN THE PENOBSCOT ESTUARY
- 10:45** (K) Gregory LaBonte*¹ and K. Wilson ²
¹University of Southern Maine, Biology Department, Portland, ME; ²University of Southern Maine, Department of Environmental Science, Aquatic Systems Research, Portland, ME.
USE OF NATURAL MARKERS TO INVESTIGATE HABITAT USE AND GROWTH OF JUVENILE ALEWIFE
- 11:00** (K) Chelsea Duball
¹ Department of Natural Resources Science, University of Rhode Island, Kingston, RI.
EFFECTS OF OYSTER AQUACULTURE ON RESIDENT BENTHIC INFAUNA AND THE SOILS THEY INHABIT IN RHODE ISLAND COASTAL LAGOONS
- 11:15** (K) Catherine Coupland*¹ and D. Brady ¹
¹ Darling Marine Center, 193 Clarks Cove Rd, Walpole, ME 04539.
UNDERSTANDING OYSTER GROWTH IN THE DAMARISCOTTA RIVER THROUGH MODELING AND THE SUSTAINABLE ECOLOGICAL AQUACULTURE NETWORK (SEANET)
- 11:30** (K) Brian M. Preziosi* and Bowden T. J.
School of Food and Agriculture, Aquaculture Research Institute, University of Maine Hitchner Hall, University of Maine, Orono, ME 04469, USA.
MORPHOLOGICAL CHARACTERIZATION VIA LIGHT AND ELECTRON MICROSCOPY OF ATLANTIC JACKKNIFE CLAM (*ENSIS DIRECTUS*) HEMOCYTES
- 11:45** Michael M. Whitney*¹, K. DeRosia-Banick ², and E. Ward ¹
¹Department of Marine Sciences, University of Connecticut
²Connecticut Department of Agriculture, Bureau of Aquaculture.
FORECASTING *VIBRIO PARAHAEMOLYTICUS* IN LONG ISLAND SOUND OYSTERS TO PROMOTE SAFE SEAFOOD
- 12:00** **DISCUSSION:** Fish and Shellfish Ecology and Management
- 12:15** **BREAK AND LUNCH**

POSTER SESSION

1:00 - 3:00

Coastal Habitat Restoration

- P-1** (D) Paul J. Mancuso
Department of Estuarine and Ocean Sciences, University of Massachusetts Dartmouth, School for Marine Science and Technology, MA.
TIDAL RESTORATION OF THE NONQUITT SALT MARSH AND ACCELERATED RECOVERY
- P-2** (D) Natalie A. Feldsine*¹, G.E. Moore², D.M. Burdick³, and S.C. Adamowicz⁴
¹ Department of Biological Sciences, University of New Hampshire, Durham, NH; ² Department of Biological Sciences, Jackson Estuarine Laboratory, University of New Hampshire, Durham, NH; ³ Department of Natural Resources & the Environment, Jackson Estuarine Laboratory, University of New Hampshire, Durham, NH; ⁴ Rachel Carson National Wildlife Refuge, U.S. Fish and Wildlife Service, Wells, ME.
EFFECTS OF BIODIVERSITY ON SAND DUNE SYSTEMS OF PLUM ISLAND, NEWBURY, MASSACHUSETTS
- P-3** (W) Cailene M. Gunn*¹ Johnson, B.J.¹ Dostie, P.¹ Bohlen, C.²
¹ Department of Geology, Bates College, Lewiston, ME; ² Casco Bay Estuary Partnership, Portland, ME.
METHANE FLUXES ALONG A SALINITY GRADIENT ON A RESTORED SALT MARSH, HARPSWELL, ME
- P-4** (D) Robert Lee Eckert
University of New Hampshire, Biology Department, Durham, NH 03824.
SPATIAL PATTERNS OF SPAT DENSITY IN RELATION TO DISTANCE FROM NATIVE OYSTER REEFS IN GREAT BAY ESTUARY, NEW HAMPSHIRE

Genetic Diversity in Coastal Habitats

- P-5** (W) James A. Elliott*¹ S. Lopez¹ and L. Atkinson¹
¹ Department of Biology, Salem State University, 352 Lafayette Street, Salem, MA 01970.
PHYLOGENETIC RELATIONSHIPS AMONG SUBSPECIES OF THE COMMON WOOD NYMPH BUTTERFLY *CERCYONIS PEGALA* (NYMPHALIDAE: SATYRINAE)
- P-6** (W) Jeremy Lessard
Department of Biology, University of New England, ME.
ANALYZING THE EFFECTS OF INVASIVE *PHRAGMITES AUSTRALIS* ON GENETICALLY DIVERSE *SPARTINA ALTERNIFLORA* ECOSYSTEMS
- P-7** (W) Eric Scouten
Department of Biology, University of New England, ME.
THE ROLE OF GENETIC DIVERSITY IN THE RESPONSE OF *SPARTINA ALTERNIFLORA* TO NUTRIENT LOADING AND INVASIVE SNAILS

Invertebrate Interactions

- P-8** (D) Sara Edquist* and Harris, L.
University of New Hampshire, Durham, NH.
IMPACTS OF THE TREMATODE PARASITE, *ZOOGONUS RUBELLUS* ON ITS
PREDATORY HOST *HEDISTE DIVERSICOLOR* IN THE GREAT BAY ESTUARY SYSTEM,
NH
- P-9** (W) Curtis T Fahey
Department of Biology, Salem State University, Salem MA.
POPULATION MONITORING STUDY OF THE INVASIVE GREEN CRAB *CARCINUS*
MAENAS IN A SEMI-CLOSED ECOSYSTEM.
- P-10** Hanna Mogensen*¹, A.B. Novak¹, P.D. Phippen²
¹ Department of Earth & Environment, Boston University, Boston, MA; ² Merrimack Valley
Planning Commission, Haverhill, MA.
MARSH INVADERS: ABUNDANCE AND POPULATION CHARACTERISTICS OF THE
EUROPEAN GREEN CRAB (*CARCINUS MAENAS*) IN GREAT MARSH, MA

Nitrogen Cycling in Aquatic Habitats

- P-11** (W) Andre Brittis-Tannenbaum*¹ Johnson, B.² Dostie, P.³
¹ Department of Geology, Bates College, Lewiston, ME ² Department of Geology, Bates College,
Lewiston, ME ³ Department of Geology, Bates College, Lewiston, ME.
MONITORING THE EFFECTS OF MARINE DERIVED NITROGEN DUE TO AN ALEWIFE
MIGRATION AT NEQUASSET LAKE, WOOLWICH, ME.
- P-12** Mary Alldred
Department of Natural Sciences, City University of New York Baruch College, New York, NY.
USING PLANT TRAITS TO PREDICT MARSH STABILITY AND DENITRIFICATION IN
WETLAND ECOSYSTEMS
- P-13** (D) Micheline S. Labrie*, Schlezinger, D.R., Sundermeyer, M.A., Howes, B.L.
School for Marine Science and Technology, University of Massachusetts Dartmouth, New
Bedford, MA.
QUANTIFYING IMPACTS OF SUSPENDED OYSTER AQUACULTURE ON NITROGEN
CYCLING IN SOUTHEASTERN MASSACHUSETTS COASTAL EMBAYMENTS
- P-14** (D) Amber Unruh
706 South Rodney French Blvd.
QUANTIFYING NITROGEN ATTENUATION IN CAPE COD, MA FRESHWATER PONDS

3:00 ORAL PRESENTATIONS RESUME

Estuarine and Marsh Processes, Restoration and Management

Chair: Cathy Wigand

- 3:00 (K)** Bri Benvenuti*¹, Surrell, D. ¹, O'Brien, K. ², Walsh, J. ¹, Burdick, D. ¹, and A. Kovach ¹
¹Department of Natural Resources and the Environment, University of New Hampshire, Durham, NH; ² U.S. Fish and Wildlife Service, Rachel Carson National Wildlife Refuge, Wells, ME.
NESTING BEHAVIOR AND MANAGEMENT OF SALT MARSH SPARROWS
- 3:15 (K)** Devin Batchelder*¹, Burdick, D. M.¹, Moore, G. E.¹, Dijkstra, J. A.¹, and M. C. Tyrrell².
¹ University of New Hampshire, Durham, NH; ² U.S. Fish and Wildlife Service, Hadley, MA.
A HOSTILE TAKEOVER IN THE SALT MARSH: INVASIVE SNAIL THREATENS ESSENTIAL PLANT SPECIES
- 3:30 (K)** Rene Legault*¹, G. Zogg ², and S. Travis ².
¹M.S. in Biological Sciences candidate, Department of Biology, University of New England, Biddeford, ME ;
²Department of Biology, University of New England, Biddeford, ME.
EFFECTS OF NUTRIENT LOADING, COMPETITION, AND TEMPERATURE IN *PHRAGMITES AUSTRALIS* AND *SPARTINA ALTERNIFLORA* MESOCOSMS
- 3:45** James S. Latimer ¹*, K. Parlee ², A. Elskus ³, M. Liebman ⁴, and C. M. Tilburg ⁵
¹ U.S. Environmental Protection Agency, Office of Research and Development, Narragansett, RI ² Environment and Climate Change Canada, Dartmouth, Nova Scotia, CA ³ U.S. Geological Survey, Turner's Falls, MA ⁴ U.S. Environmental Protection Agency, Region 1, Boston, MA ⁵ Gulf of Maine Council, Buxton, MA.
ESIP: BOLDLY GOING TOWARDS ESIP 2.0 AND YOUR PHONE
- 4:00** *IGNITE (5 minutes, 20 slides, 15 seconds each)*
Laura Sewall*, The Harvard Center for Community Partnerships, Bates College, Lewiston, ME.
The Harvard Center for Community Partnerships, Bates College, ME.
WHY COLLABORATE?: THE NEW STORY OF NECSA
- 4:05** **DISCUSSION:** Estuarine and Marsh Processes, Restoration and Management
- 4:15** Break
- 4:30** Hilary Neckles, CERF President-elect
CERF STRATEGIC PLAN
- 5:00** **BUSINESS MEETING**
Jamie Vaudrey, NEERS President
- 6:00** **SOCIAL** – Light refreshments, cash bar and stimulating conversation
Dinner on your own followed by music and dancing in the Inn's Cellar Pub

Saturday, April 16th

Water Quality Monitoring and Management

8:15 Welcome and Announcements

Chair: Bev Johnson

8:30 (K) Kelsey A. Semrod*, K. and Benoit, G.
¹ School of Forestry & Environmental Studies, Yale University, New Haven, CT.
QUANTIFYING STORMWATER MANAGEMENT BENEFITS OF BIORETENTION
IN NEW HAVEN, CT: FROM GREY TO GREEN INFRASTRUCTURE

8:45 Jordan Mora
Waquoit Bay National Estuarine Research Reserve, Falmouth, MA.
THE HIGH VALUE OF VOLUNTEER-BASED WATER QUALITY MONITORING:
LONG-TERM TRENDS IN THE WAQUOIT BAY ESTUARY SYSTEM

9:00 *IGNITE (5 minutes, 20 slides, 15 seconds each)*
Rahat Sharif
P.O. Box 32, Peacedale, RI 02883.
PERFORMANCE OF SELECTED RAIN GARDENS IN RHODE ISLAND

9:05 **DISCUSSION:** Water Quality Monitoring and Management

Climate Change Indicators and Impacts

Chair: Bev Johnson

9:15 Gregg Emery Moore for: Moore*, G.E.
University of New Hampshire Jackson Estuarine Laboratory 85 Adams Point Road
Durham, NH 03824.
COULD CLIMATE CHANGE BE INFLUENCING THE RANGE EXPANSION OF
THE BLACK MANGROVE (MANGLE NEGRO), *AVICENNIA SCHAUERIANA* STAPF
& LEECHMAN EX MOLDENKE, IN TROIS BAIES NATIONAL PARK, HAITI?

9:30 Stephen Smith
National Park Service, Cape Cod National Seashore, 99 Marconi Site Road, Wellfleet,
MA.
MULTIDECADAL TRENDS IN ATMOSPHERIC AND OCEAN CLIMATE
VARIABLES IN OFFSHORE WATERS NEAR CAPE COD (MASSACHUSETTS,
USA)

9:45 Phil Colarusso for: Colarusso*, P.¹, J. Simpson², A. Novak³, K. Ford⁴, P. Vella⁵, R. Lyons¹, P. DiBona⁵, J. Deane⁶¹US EPA, Boston, MA
²MIT Seagrant, Cambridge, MA;³Boston University, Boston, MA; ⁴Mass Division of Marine Fisheries, New Bedford, MA; ⁵Massachusetts Bays National Estuary Program, Boston, MA; ⁶McGill University, Montreal, Canada.
ASSESSING CARBON STORAGE CAPACITY IN EELGRASS (*ZOSTERA MARINA*) MEADOWS IN MASSACHUSETTS

10:00 **DISCUSSION:** Climate Change Indicators and Impacts

10:10 **BREAK**

Salt Marsh Restoration, Management and Tools

Chair: Pam Morgan

10:25 Karen A. Wilson*¹, Pearson, A.O.², and M. Thurrell³
¹ Department of Environmental Science and Policy, University of Southern Maine, Portland, ME
² Environmental Studies, Colby College, Waterville, ME
³ Department of Biology, University of Southern Maine, Portland, ME.
RESTORATION OF A SALT MARSH: 10 YEARS OF VEGETATION CHANGE

10:40 Chester B. Zarnoch*¹, Alldred, M.¹, Hoellein, T.², and Bruesewitz, D.³
¹ Department of Natural Science, Baruch College, City University of New York, New York, NY; ² Department of Biology, Loyola University Chicago, Chicago, IL; ³ Environmental Studies Program, Colby College, Waterville, ME.
WILL RESTORED SALT MARSHES IN URBAN EUTROPHIC ESTUARIES PROVIDE ECOSYSTEM SERVICES?

10:55 David M. Burdick*¹ C. Peter¹, G. E. Moore¹, S. Adamowicz², N. Pau³
¹ Jackson Estuarine Laboratory, University of New Hampshire, Durham, NH; ² Rachel Carson National Wildlife Refuge, Wells, ME; ³ Parker River National Wildlife Refuge, Newburyport, MA.
CAN ADDING SUGAR TO SOIL REDUCE GROWTH AND SUCCESS OF *PHRAGMITES AUSTRALIS* IN SALT MARSHES?

11:10 Troy D. Hill*^{1,2}, S. Anisfeld¹, and G. Benoit¹
¹ Yale School of Forestry and Environmental Studies, New Haven, CT;
² US EPA Atlantic Ecology Division, Narragansett, RI.
MERCURY POLLUTION IN SALT MARSHES OF LONG ISLAND SOUND AND THE HUDSON-RARITAN ESTUARY

- 11:25** Scott A. Rasmussen* ¹, Neil, A. J. ¹, Cressman, J. A. ¹, Bradley, M. J. ¹, LaBash, C. ¹, August, P. V. ¹, Lynch, J. C. ², Stevens, S. ².
¹ Environmental Data Center, Department of Natural Resources Science, University of Rhode Island, Kingston, RI; ² Department of the Interior, National Park Service, Northeast Coastal and Barrier Network, Kingston, RI.
HIGH RESOLUTION MAPPING OF SALT MARSH VEGETATION ELEVATION RANGES USING A ROBOTIC TOTAL STATION
- 11:40** Arnis Mangolds
C-2i, Inc., 102 Peabody Dr, Stow, MA 01775.
NOVEL INSTRUMENTATION PLATFORM FOR OPERATION IN ESTUARINE ENVIRONMENTS
- 11:55** **DISCUSSION:** Salt Marsh Restoration, Management and Tools
- 12:05** Presentation of Student Awards – Closing Remarks
– Jamie Vaudrey, NEERS President
- 12:30** Adjourn and join field trips

Notes:

*Presenter

(K) Ketchum Prize candidate for best graduate student oral presentation

(R) Rankin Prize candidate for best undergraduate student oral presentation

(D) Dean Prize candidate for best graduate student poster

(W) Warren Prize candidate for best undergraduate student poster