



The New England Estuarine Research Society

Spring meeting April 25 – 27, 2019

York Harbor, Maine

Local Committee and Hosts: Tristan Taber, Beverly Johnson, Rachel Stearns, Tay Evans, Briana Fischella, Paul Geoghegan

Special Symposium: Tay Evans, Phil Colarusso, Jeff Gaeckle, Alyssa Novak

Scientific Program: Tay Evans, Cathy Wigand, and Autumn Oczkowski

NEERS Executive Committee: Susan Adamowicz, Sara Grady, Brett Branco, Peg Pelletier, Courtney Schmidt, Pamela Neubert, Tristan Taber, Curtis Fahey, Alan Young, Jamie Vaudrey, Tay Evans, Autumn Oczkowski, and Cathy Wigand

GOLD Supporters



Bates



SILVER Supporters



**NEERS SPRING 2019 MEETING
PROGRAM AT-A-GLANCE**

York Harbor Inn

Oral presentations are in the Yorkshire Ballroom, posters and socials are in the Hillcroft Room

Thursday, April 25th

11:15 -12:30	Executive Committee Meeting
12:30 – 1:00	Meeting Registration
1:00 - 4:45	Special Symposium: <i>A Festschrift to honor Dr. Fred Short</i>
4:45 – 5:30	Meeting Registration
5:00 - 6:30	Welcoming Social

Friday April 26th

7:30-8:30	Meeting Registration
8:30	Shellfish and their contribution to nutrient cycling
10:05	Break
10:30	Dune and saltmarsh ecosystems
12:05-1:30	Lunch
1:30 -3:00	Poster Session (With coffee and snacks at ~2:30)
3:00	Mental Yoga: Afternoon stretch and IGNITE
3:30	Eelgrass and a changing seascape
5:05	NEERS business meeting
5:50-7:00	Social

Saturday April 27th

8:30	Waste water treatment systems
9:15	Sediment and water quality Part I
10:00	Break
10:15	Sediment and water quality Part II
11:30	Presentation of Student Awards
12:00	Meeting adjourns and field trips begin

**Spring Meeting of the New England Estuarine Research Society
Thursday April 25, 2019**

Special Symposium: A Festschrift to honor Dr. Fred Short

- 1:00 Welcome and introduction to the Festschrift – Tay Evans and Jeff Gaeckle
- 1:15 Hilary A. Neckles
USGS Patuxent Wildlife Research Center, Augusta, ME.
EFFECTIVENESS AND FEASIBILITY IN SEAGRASS MONITORING: RESOLVING THE PARADOX
- 1:30 Jeff Gaeckle
Nearshore Habitat Program Aquatic Resources Division
Washington State Department of Natural Resources, Olympia, WA.
SEAGRASS MONITORING AND RECOVERY FROM THE GREAT BAY ESTUARY TO PUGET SOUND AND BEYOND
- 1:45 Holly K Plaisted
Plaisted, H.K. (1), E.C. Shields (2), J. Carr (3), N.T. Evans (3), S.E. Fox (1), S.M. Heck (4), R. Hudson (5), K.A Moore (2), H.A. Neckles (6), B. Neikirk (2), A.B. Novak (7), D.B. Parrish (2), B.J. Peterson (4), T. Philippi (1), A.I. Tinoco (4), F.T. Short (8)
(1) National Park Service; (2) Virginia Institute of Marine Science, Gloucester Point, VA;
(3) Massachusetts Division of Marine Fisheries, Gloucester, MA; (4) Stony Brook University, Southampton, NY; (5) Roger Williams University, Bristol, RI; (6) USGS Patuxent Wildlife Research Center, Augusta, ME; (7) Boston University, Boston, MA; (8) University of New Hampshire, Durham, NH.
INVESTIGATIONS ON THE ROLE OF POPULATION GENETICS AND SUMMER WATER TEMPERATURE ON EELGRASS RESILIENCE
- 2:00 Alyssa Novak
Department of Earth and Environment, Boston University, Boston (MA).
ENVIRONMENTAL SIGNIFICANCE OF LEAF REDDENING IN SEAGRASSES
- 2:15 Tay Evans
Massachusetts Division of Marine Fisheries, Gloucester MA
ADVENTURES IN EELGRASS RESTORATION FROM GREAT BAY TO MASSACHUSETTS BAY
- 2:30 Phil Colarusso
Colarusso, P.D. (1) and Short, F.T. (2)
(1) US EPA; (2) University of New Hampshire.
THE EFFECT OF VARYING INITIAL NON-STRUCTURAL CARBOHYDRATE CONCENTRATIONS ON SHORT TERM EELGRASS TRANSPLANT SURVIVAL AND GROWTH
- 2:45 Jim Kaldy
Kaldy, J.E. (1), C. Brown (1), S. Pacella (1), Christina Tenison (2), Sarah Stryffeler (3),
(1) Western Ecology Division, US EPA, Newport, OR; (2) Dept. of Geology, Miami University,

Oxford, OH; (3) Dept of Physics, Geol. & Engin. Tech., Northern Kentucky University, Newport, KY.

UNEXPECTED RESPONSES OF AUTOTROPHS TO NUTRIENT LOADING: INFLUENCE OF WATER RESIDENCE TIME ON EUTROPHICATION EXPRESSION

- 3:00 BREAK
- 3:15 Ryan Davis
Anchor QEA, New York
REMOTE SENSING OF SUBMERGED AQUATIC VEGETATION
- 3:30 Dante Torio
Torio, D., Nick Anderson, Fred Short
Jackson Estuarine Laboratory
SEAGRASS MAPPING AND THREAT ANALYSES: CHALLENGES, SOLUTIONS AND NEW DEVELOPMENTS
- 3:45 Nicholas Anderson
Short, F.T., D.T. Torio, N.B. Anderson
University of New Hampshire.
CREE MONITORING OF JAMES BAY EELGRASS
- 4:00 Pam Morgan
Morgan, P.A. (1), M. Luetje (2) and L. Lowery (3)
(1) Department of Environmental Studies, University of New England, Biddeford, ME; (2) Science Department, Kennebunk High School, Kennebunk, ME; (3) Kennebunkport Conservation Trust, Kennebunkport, ME.
LEARNING TO TACKLE COMPLEX PROBLEMS IN THE GULF OF MAINE: THE COMMUNITY-BASED STEWARDSHIP INITIATIVE
- 4:15 Kalle M. Matso
Piscataqua Region Estuaries Partnership.
SURVIVING THE THUNDERDOME OF ENVIRONMENTAL CONFLICT
- 4:30 Summary – Hilary Neckles
- 5:00 **Welcoming Social**

Spring Meeting of the New England Estuarine Research Society

Friday, April 26, 2019

8:30 Welcome and Introductory Remarks – Sue Adamowicz, Rachel Carson NWR, NEERS President

SHELLFISH AND THEIR CONTRIBUTION TO NUTRIENT CYCLING

It seems a shame that clams do not have some mechanism that would allow them to move up in the world.” Sandy Macfarlane

Session Chair: Sandy Macfarlane, Coastal Resource Specialists

- 8:45 (K) Nicholas Ray
Ray, N.E. (1), A.N. Al-Haj (2), R.W. Fulweiler (1,2)
(1) Department of Biology, Boston University; (2) Department of Earth and Environment, Boston University.
DOES OYSTER AQUACULTURE DRIVE SEDIMENT NITROGEN CYCLING PROCESSES TO CHAOS?
- 9:00 (R) Gretchen McCarthy
McCarthy, G.J. (1), N.E. Ray (2), R.W. Fulweiler (1,2)
(1) Department of Earth and Environment, Boston University; (2) Department of Biology, Boston University.
NATIVE AND NON-NATIVE OYSTERS AS A SOURCE OF NITROUS OXIDE BUT NOT METHANE IN A NEW ENGLAND ESTUARY
- 9:15 (K) Jennifer Zhu
Zhu, J. (1), C. Zarnoch (1), J.S. Gosnell (1), M. Alldred (2), T. Hoellein (3)
(1) Department of Natural Sciences, Baruch College CUNY, NY; (2) State University of Plattsburgh, NY; (3) Department of Biology, Loyola University Chicago, IL.
POTENTIAL OF RIBBED MUSSELS TO ENHANCE GROWTH AND NITROGEN-REMOVAL SERVICES IN RESTORED SALT MARSHES
- 9:30 Stephen Gosnell
Gosnell, J.S. (1,2), C.B. Zarnoch (1,2), J. Zhu (1,2), C. Francis (3), J. Symond (4)
(1) Department of Natural Sciences, Baruch College, City University of New York, New York, NY; (2) Department of Biology, Graduate Center, City University of New York, New York, NY; (3) Earth Science Program, Unity College, Unity, ME; (4) Department of Civil and Environmental Engineering, Seattle University, Seattle, WA.
FEAR LIMITS CONTRIBUTIONS OF OYSTERS TO DENITRIFICATION
- 9:45 **Small-group discussions**
- 10:05 **BREAK**

DUNE AND MARSH ECOSYSTEMS

“The salt marsh...The green ribbon of soft, salty, wet low-lying land” - John and Mildred Teal

Session Chair: Gregg Moore, UNH

- 10:30 Gregg Moore
Moore, G.E. (1), D.M. Burdick (1), A.R. Payne (1), M.J. Anderson (2), W.K. Thomas (2)
(1) Jackson Estuarine Laboratory, University of New Hampshire, Durham, NH; (2)
Hubbard Center for Genome Studies, University of New Hampshire, Durham, NH.
**UNRAVELING THE MYSTERY OF DUNE DIE-OFF IN NEW ENGLAND:
POTENTIAL CAUSES AND A STRATEGY FOR RECOVERY**
- 10:45 (K) Brian Donnelly
Donnelly, B.R., C. Lynum, J. Bowen, A. Murphy
(1) Department of Marine and Environmental Science, Northeastern University, Boston,
MA.
**POTENTIAL DENITRIFICATION RATES AND MICROBIAL COMMUNITIES
DIFFER IN TWO SALT MARSH RESTORATION PROJECTS IN OAK ISLAND, MA
AND NEPONSET, MA**
- 11:00 Ashley Bulseco-McKim
Bulseco-McKim, A.N. (1), A.E. Murphy (2), J.H. Vineis (2), J.L. Bowen (2)
(1) The Ecosystems Center, Marine Biological Laboratory, Woods Hole, MA; (2)
Department of Marine and Environmental Sciences, Northeastern University, Nahant,
MA.
**EXAMINING THE PROCESSES THAT SHAPE MICROBIAL COMMUNITIES AND
THEIR FUNCTIONAL POTENTIAL IN DEEP SALT MARSH SEDIMENTS**
- 11:15 (R) J.A. Croteau
Croteau, J.A. (1), M.R. Varney (1), A.L. Augenstein (1) N. Rohr (2), P.V. August (3),
B.A. Oakley (1)
(1) Department of Environmental Earth Science; (2)Coastal Institute, University of Rhode
Island; (3)Natural Resources Science, University of Rhode Island, Kingston, RI.
**VULNERABILITY FACTORS OF THE FRINGING SALTMARSH OF NAPATREE
LAGOON: WESTERLY, RI**
- 11:30 (K) M.S. Roy
Roy, M.S, G. Mavrommati, J.E.K. Byrnes
University of Massachusetts Boston, Boston, MA.
**A MODEL FOR THE FUTURE: USING SYSTEM DYNAMICS TO UNDERSTAND
IMPACTS OF THE RANGE EXPANDING FIDDLER CRAB *UCA PUGNAX* ON
MARSH ECOSYSTEM FUNCTIONING**
- 11:45 **Small-group discussions**
- 12:05-1:30 **LUNCH**

1:30 -3:00

POSTER SESSION

“The impulse which drives a man to poetry will send a man into the tide pools and force him to report what he finds there.” - John Steinbeck

Salt Marshes

- SM-1 Robert Buchsbaum
Buchsbaum, R.N.(1), P.R. Burn (2), S.L. Lussier (2)
(1) Mass Audubon, Wenham, MA (2) Suffolk University, Boston, MA.
HOW HIGH SHOULD WE FLY? EXPERIMENTING WITH A DRONE TO
CHARACTERIZE SALT MARSH VEGETATION IN THE PLUM ISLAND
ESTUARY.
- SM-2 (W) Ved Ahuja
Ahuja, V. and A. Novak
Department of Earth and Environment, Boston University, Boston, MA.
GREEN CRAB POPULATION DYNAMICS IN GREAT MARSH, MA IN
RELATIONSHIP TO TEMPERATURE
- SM-3 Briana Fischella
Burdick, D. (1), C. Peter (2), C. Feurt (3), J. Goldstein (3), M. Tyrrell (4), K. Raposa (5),
B. Fischella (2)
(1) University of New Hampshire, (2)Great Bay National Estuarine Research Reserve
(NERR), (3)Wells NERR, (4)Waquoit Bay NERR, (5)Narragansett Bay NERR.
POINT INTERCEPT VS. OCULAR COVER PLANT ASSESSMENTS A PART OF
NEW ENGLAND NERR CATALYST FOR SYNTHESIS OF SALT MARSH
SENTINEL SITE DATA

Coastal water quality

- WQ-1 (D) Lindsey Williams
Williams, L. (1), S. Carlson (2), A. Shea (2).
(1) Natural Resources and Earth System Science (NRESS) Program, University of New
Hampshire, Durham, NH; (2) Department of Natural Resources and the Environment
(NREN), University of New Hampshire, Durham, NH.
LEARNING FROM DISPUTES OVER SCIENCE: INITIAL LESSONS TO IMPROVE
SCIENCE AND ENGAGEMENT
- WQ-2 (D) Gabriella DiPreta
DiPreta, G.M and S.P. Grace
Department of Biology, Southern Connecticut State University.
SUCCESSIONAL STATE OF BENTHIC COMMUNITIES IN TEMPERATE CORAL
DOMINATED HABITATS IN RHODE ISLAND; WITH NOTES ON PREY
AVAILABILITY AND CORAL QUIESCENCE
- WQ-3 (W) Allison Mills
Mills, A.C. (1) and M.R. Doan (2)
(1) School of Marine Programs, University of New England, Biddeford, ME; (2) Friends of
Casco Bay, South Portland, ME.
DEPLOYMENT OF A CONTINUOUS WATER QUALITY AND COASTAL
ACIDIFICATION MONITORING STATION IN CASCO BAY, ME.

All about Oysters

- O-1 (D) Mara McDonough
Tracey, A. (1), C. Zarnoch (2), M. McDonough (1), D. Bruesewitz (1)
(1) Environmental Science Program, Colby College, Waterville, ME; (2) Department of Natural Science, Baruch College City University of New York, New York, NY.
UNDERSTANDING THE EFFECTS OF TEMPERATURE ON DENITRIFICATION BY THE EASTERN OYSTER (*CRASSOSTREA VIRGINICA*) MICROBIOME
- O-2 (W) Laura Fallon
Fallon, L.E. and A. Freeman
Adelphi University, Garden City, New York.
OYSTER SETTLEMENT ON LONG ISLAND

Coastal Geomorphology

- GEO-1 (W) Alyson L. Augenstein
Augenstein, A.L. (1), Varney, M.R.(1), Croteau, J.A.(1), August, P.V.(2), Oakley, B.A.(1)
(1) Department of Environmental Earth Science, Eastern Connecticut State University, (2) Natural Resources Science, University of Rhode Island, Kingston, RI.
BATHYMETRIC MODEL AND FLOOD-TIDAL DELTA SEDIMENTATION OF THE NAPATREE LAGOON, WATCH HILL, RHODE ISLAND
- GEO-2 (D) Tristan Taber
Taber, T (1) and Swanson, M (2)
(1) Department of Biology, University of Southern Maine, Portland, ME, (2) Department of Geography-Anthropology, University of Southern Maine, Portland, ME.
USING UAS AND PHOTOGRAMMETRY TO EXPLORE THE GEOLOGY THAT INFLUENCED WINSLOW HOMER IN PROUTS NECK, MAINE

3:00 Oral presentations resume

MENTAL YOGA: YOUR AFTERNOON STRETCH AND IGNITE SESSION

Session chair: Katelyn Frew, MA Division of Marine Fisheries
5 minute presentations, followed by 5 minutes for questions

- 3:00 Vitalii Sheremet
Sheremet, V.A. (1) and J.W. Mora (2)
(1) Graduate School of Oceanography, University of Rhode Island, Narragansett, RI. (2) Waquoit Bay National Estuarine Research Reserve, Falmouth, MA.
HYDRODYNAMIC DRAG ON GRASS IN SALT MARSH FROM DIGITAL IMAGES WITH IMPLICATIONS TO TURBULENCE ATTENUATION AND SEDIMENT DEPOSITION
- 3:10 Sara Grady
Grady, S.P.
Massachusetts Bays National Estuary Program South Shore, North and South Rivers Watershed Association, Norwell, MA.
SALT MARSH SENTINELS: ENGAGING DOCK OWNERS TO MONITOR WETLAND CHANGE

3:20 Briana Fischella
Fischella, B., T. Theodose, M. Bampton
University of Southern Maine.
LANDSCAPE PATTERNS OF FORB PANNES ON THE LITTLE RIVER SALT
MARSH IN WELLS, MAINE

EELGRASS AND A CHANGING SEASCAPE

“Seagrasses have a decided influence on the environments which they inhabit.” – Dr. Fred Short

Session Chair: Tay Evans, MA Division of Marine Fisheries

3:30 John Logan
Logan, J.M., N.T. Evans, K.H. Ford, S. Voss, M. Pol, V. Manfredi
Massachusetts Division of Marine Fisheries, New Bedford, MA.
DOES BAY SCALLOP DRAGGING IMPACT EELGRASS?

3:45 Jill Carr
Carr, J.L. (1), K. Ford (1), P. Vella (2), S. Grady (2,3)
(1) Massachusetts Division of Marine Fisheries; (2) MassBays National Estuary Program;
(3) North and South Rivers Watershed Association.
CROWDSOURCING EELGRASS MONITORING: LESSONS LEARNED IN A PILOT
PROJECT

4:00 (K) Katherine Haviland
Haviland, K.A. (1,2), R.W. Howarth (1,2,3), R. Marino (2), M. Hayn (2,3)
(1) Department of Natural Resources, Cornell University, Ithaca, NY; (2) Department of
Ecology and Evolutionary Biology, Cornell University, Ithaca, NY; (3) Ecosystems
Center, Marine Biological Lab, Woods Hole, MA.
SULFUR- AND CARBON- CYCLING IN THE SEDIMENTS OF A NITROGEN-
ENRICHED EELGRASS MEADOW

4:15 Tom Trott
Trott, T.J. and C. Enterline
Maine Coastal Mapping Initiative, Maine Coastal Program, Maine Department of Marine
Resources, Science Division.
PRELIMINARY ASSESSMENT OF EELGRASS (*ZOSTERA MARINA*) BEDS
DISCOVERS TWO INTRODUCED SPECIES NEW TO THE NORTHWEST
ATLANTIC PLUS NORTHWARD RANGE EXTENSIONS

4:30 (K) Alia Al-Haj
Al-Haj, A.N. (1) and R.W. Fulweiler (1,2)
(1) Department of Earth and Environment, Boston University, Boston, MA; (2)
Department of Biology, Boston University, Boston, MA.
METHANE EMISSIONS FROM VEGETATED COASTAL SYSTEMS

4:45 **Small-group discussions**

5:05 **NEERS BUSINESS MEETING** – Sue Adamowicz, NEERS President

5:50 **NEERS SOCIAL** – light refreshments, cash bar and stimulating conversations

7:00 Dinner on your own in York Harbor or at the Inn’s Cellar Pub.

Saturday, April 27, 2019

WASTEWATER TREATMENT SYSTEMS

“The sea is the universal sewer” – Jacques Yves Cousteau

Session Chair: Peg Pelletier, US EPA

8:30 (K) Sara Wigginton
Wigginton, S.K.(1,2), J.A. Amador (1), G. Loomis (1,2), G. Heufelder (3)
(1)University of Rhode Island, Laboratory of Soil Ecology and Microbiology,
Kingston, RI; (2) New England Onsite Wastewater Training Center, Kingston,
RI;(3)Barnstable County Dept. of Health and the Environment, Barnstable, MA.
ASSESSING PERFORMANCE AND GREENHOUSE GAS EMISSIONS FROM
A PASSIVE NITROGEN-REMOVING SEPTIC SYSTEM SOIL TREATMENT
AREA

8:45 (K) Bianca Ross
Ross, B.N., J. Amador, G. Loomis
Department of Natural Resources Science, University of Rhode Island, Kingston,
RI.
ASSESSING NITROGEN INPUTS TO THE CHARLESTOWN COASTAL
WATERSHED FROM ADVANCED ONSITE WASTEWATER TREATMENT
SYSTEMS

9:00 **Small-group discussions**

SEDIMENT AND WATER QUALITY	
“With every drop of water you drink, every breath you take, you’re connected to the sea. No matter where on earth you live.” – Sylvia Earle	
Session Chair: Nick Ray, Boston University	
9:15	Autumn Oczkowski Oczkowski, A. (1), E. Santos (2), R. Martin (3), A. Hanson (1), E. Huertas (4), E. Watson (5), C. Wigand (1) (1) US Environmental Protection Agency, Atlantic Ecology Division, Narragansett, RI; (2) Humboldt State University, College of Natural Resources and Sciences, Arcata, CA; (3) Dataquest, San Francisco, CA; (4) US Environmental Protection Agency, Region 2 Caribbean Office, Guaynabo, PR; (5) The Academy of Natural Sciences of Drexel University, Philadelphia, PA. NUTRIENT DYNAMICS IN A TROPICAL URBAN ESTUARY—A CASE STUDY FROM SAN JUAN, PUERTO RICO

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- 9:30 (K) Julia Masterman
Masterman, J., G. Hillyer, T. Maguire, R.W. Fulweiler
Department of Earth and Environment, Boston University, Boston, MA.
IMPACT OF CANADA GOOSE (*BRANTA CANADENSIS*) ON CHARLES RIVER
WATER QUALITY
- 9:45 Philip Conrad
Conrad, P.E. (1), S.M. Rohret (1), S.E. Fox (1), K.C. Medeiros (1), J.P. Cornett (1), A.
Mittermayr (2), T. Smith (1)
(1) Cape Cod National Seashore, Wellfleet, MA; (2) Center for Coastal Studies,
Provincetown, MA.
UNDERSTANDING SEASONAL AND INTER-ANNUAL WATER QUALITY
TRENDS WITHIN THE TIDALLY RESTRICTED HERRING RIVER ESTUARY,
WELLFLEET, MA
- 10:00 **BREAK**
- 10:15 (R) Ellen Laaker
Laaker, E.M. (1), N.E. Ray (2), A.J. Oczkowski (3), and R.W. Fulweiler (2,4)
(1) Department of Chemistry, Boston University, Boston, MA; (2) Department of
Biology, Boston University, Boston, MA; (3) Atlantic Ecology Division, U.S.
Environmental Protection Agency, Narragansett, RI (4) Department of Earth &
Environment, Boston University, Boston, MA.
TRACE METAL CONCENTRATIONS IN *MERCENARIA MERCENARIA* FROM
NARRAGANSETT BAY
- 10:30 (K) Claudia Mazur
Mazur, C.I. (1), I. Sanchez-Viruet (1), A. Al-Haj (1), R.W. Fulweiler (1,2)
(1) Department of Earth & Environment, Boston University, Boston, MA, (2) Department
of Biology, Boston University, Boston, MA.
BENTHIC METABOLISM ALONG A NUTRIENT GRADIENT IN LONG ISLAND
SOUND, NY
- 10:45 Shari Rohret
Rohret, S.M. (1), P. Conrad (1), S. Fox (1), A. Mittermayr (2), K. Medeiros (2)
(1) Cape Cod National Seashore, Wellfleet, MA; (2) Center for Coastal Studies,
Provincetown, MA.
UNDERSTANDING RELATIONSHIPS AMONG ECOSYSTEM COMPONENTS IN A
SUBMERGED HABITAT STUDY IN CAPE COD NATIONAL SEASHORE
- 11:00 **Small-group discussions**
- 11:30 PRESENTATION OF STUDENT AWARDS AND CLOSING WORDS – Sara Grady,
MassBays Program, Awards Committee Chair & Sue Adamowicz, Rachel Carson NWR,
NEERS President
- 12:00 MEETING ADJOURN
Collect bag lunches and join field trips

Notes:

- (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