



**NEERS FALL 2010 MEETING**  
**October 28 – 30, 2010**  
**Provincetown Center for Coastal Studies, Provincetown, MA**



**Co-hosted By**  
Provincetown Center for Coastal Studies  
Coastal Resource Specialists  
Cape Cod National Seashore

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**October 28 – 30, 2010**  
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**Program at-a-Glance**

*All events at the Provincetown Center for Coastal Studies unless noted otherwise*

**Thursday, October 28<sup>th</sup>**

11:00 am – 12:00 pm	Meeting registration
12:00 – 1:00 pm	Lunch
1:00 – 5:15 pm	Cape Cod Bay Symposium
5:45 – 6:45 pm	Meeting Registration (Cape Inn Resort)
6:00 – 8:00 pm	Welcoming Social with musical entertainment by NEERS's own dynamic duo, Mike Larkin and Chris Deacutis: "The 2 Left Standing" (Cape Inn Resort)

**Friday, October 29<sup>th</sup>**

7:00 – 8:00 am	Meeting registration
8:00 – 10:10 am	Oral presentations: Estuarine Fauna I
10:30 am – 12:10 pm	Oral presentations: Estuarine Fluxes
12:10 – 1:15 pm	Lunch
12:10 – 1:15 pm	Executive Committee Meeting (PCCS library)
1:20 – 3:00 pm	Oral presentations: Macrophyte Systems
3:00 – 4:00 pm	Poster presentations
4:00 – 5:20 pm	Oral presentations: Nearshore Ecosystems
5:30 – 6:30 pm	NEERS Business Meeting
6:30 – 9:00 pm	Social and NEERS Awards Banquet (Cape Inn Resort)
9:00 pm - ??	Music and dancing at the "A-House" off Commercial Street

**Saturday, October 30<sup>th</sup>**

8:20 – 10:10 am	Oral presentations: Estuarine Fauna II
10:30 am – 12:20 pm	Oral presentations: Marsh Ecology and Management
12:20 pm	Pre-ordered box lunches available
1:00 pm	Optional salt marsh or birding field trips – meet in parking lot of PCCS
1:30 pm	Optional whale watch – departs from MacMillan Pier

## Thursday, October 28<sup>th</sup>

**12:00 – 1:00 Lunch**

### **SPECIAL SYMPOSIUM: CAPE COD BAY**

Chair: Sandy Macfarlane

\* Presenter

**1:00** Welcome – Sandy Macfarlane, Coastal Resource Specialists  
Sarah Peake, Lower Cape State Representative

**1:15** Borrelli\*, Mark<sup>1</sup>, A. R. Norton<sup>2</sup>, and T. L. B. Brown<sup>3</sup>  
<sup>1</sup>Provincetown Center for Coastal Studies, Provincetown, MA  
<sup>2</sup>Dept. of Geological Sciences, Univ. of Delaware, Newark, DE  
<sup>3</sup>Dept. of Environ., Earth and Ocean Sciences, Univ. of Massachusetts at Boston, MA  
NEARSHORE SEAFLOOR MAPPING IN CAPE COD BAY, MASSACHUSETTS

**1:35** Ford\*, Kathryn H.<sup>1</sup>, M. Rousseau<sup>2</sup>, S. Voss<sup>1</sup>, R. Boeri<sup>3</sup>, D. Sampson<sup>3</sup>, and T. Callaghan<sup>3</sup>  
<sup>1</sup>Mass. Division of Marine Fisheries, 1213 Purchase St. 3rd Floor, New Bedford, MA  
<sup>2</sup>Mass. Division of Marine Fisheries, 30 Emerson Ave., Gloucester, MA  
<sup>3</sup>Mass. Office of Coastal Zone Management, 251 Causeway St., Suite 800 Boston, MA  
SEAFLOOR HABITATS IN NORTHERN CAPE COD BAY

**1:55** Giese\*, Graham S.  
Provincetown Center for Coastal Studies, Provincetown, MA  
BILLINGSGATE SHOAL, SEA LEVEL RISE AND DEVELOPMENT OF THE  
EASTERN SHORE OF CAPE COD BAY

**2:15** Mayo\*, C. “Stormy” A. and K. Stamieszkin  
Provincetown Center for Coastal Studies Provincetown, MA  
AT THE NEXUS: RIGHT WHALES AND THE ZOOPLANKTON RESOURCES OF  
CAPE COD BAY

**2:45** Correia\*, Steven J., J. King, M. Camisa, and V. Manfredi  
Mass. Division of Marine Fisheries, 1213 Purchase St., New Bedford, MA  
CHANGES IN THE DISPERSION OF RELATIVE ABUNDANCE OF SIX SPECIES  
IN CAPE COD AND MASSACHUSETTS BAYS IN THE SPRING BOTTOM TRAWL  
SURVEY, 1979-2007

**3:05 BREAK**

**3:25** Macfarlane, Sandy L.  
Coastal Resource Specialists, Orleans, MA  
SHELLFISH IN CAPE COD BAY: CENTURIES OF HARVESTING BOUNTIFUL  
BIVALVES

- 3:50** Faherty, Mark  
Mass Audubon Wellfleet Bay Wildlife Sanctuary, South Wellfleet, MA  
EXPERIMENTAL OYSTER REEF RESTORATION IN WELLFLEET: LESSONS FROM YEAR ONE
- 4:10** Costa, Amy S.  
Provincetown Center for Coastal Studies, Provincetown, MA  
TESTING THE WATERS: HOW HEALTHY IS CAPE COD BAY?
- 4:30** Brennessel\*, Barbara A.<sup>1</sup>, S. McCafferty<sup>1</sup>, J. Simindza<sup>1</sup>, A. Shorette<sup>1</sup>, and T. Spoon<sup>2</sup>  
<sup>1</sup>Wheaton College, Norton, MA  
<sup>2</sup>Mystic Aquarium, Mystic, CT  
DIAMONDBACK TERRAPINS OF CAPE COD: POPULATION STRUCTURE AND CONSERVATION STRATEGIES
- 4:50** Dill\*, Nathan L. and K. F. Bosma  
Woods Hole Group Inc., East Falmouth, MA  
NUMERICAL MODELING OF FLOW CONTROL STRUCTURES IN CAPE COD BAY'S ESTUARIES
- 5:10** Closing remarks – Sandy Macfarlane
- 6:00 – 8:00** NEERS Welcoming Social – Cape Inn Resort
- 8:00** Dinner on your own in Provincetown

### **Friday, October 29<sup>th</sup>**

- 8:00** Welcome and Introductory Remarks – Pam Morgan, NEERS President

#### **Estuarine Fauna I**

Chair: Pam Morgan

\* Presenter; **(K)** Ketchum Prize candidate for best graduate student presentation; **(R)** Rankin Prize candidate for best undergraduate student presentation

- 8:10** **(K)** Brown\*, D. Steven and R. Zajac  
Dept. of Biol. and Environ. Science, University of New Haven, West Haven, CT  
EFFECTS OF HABITAT COMPLEXITY AND COMPOSITION ON BENTHIC ASSEMBLAGES IN NEW HAVEN HARBOR, LONG ISLAND SOUND
- 8:30** **(K)** Schaller\*, Susanne Y.<sup>1</sup>, C. C. Chabot<sup>2</sup>, and W. H. Watson, III<sup>1</sup>  
<sup>1</sup>Department of Biological Sciences, University of New Hampshire, Durham, NH  
<sup>2</sup>Department of Biology, Plymouth State University, Plymouth, NH  
SEASONAL MOVEMENTS OF HORSESHOE CRABS, LIMULUS POLYPHEMUS, IN THE GREAT BAY ESTUARY, NEW HAMPSHIRE (USA)

- 8:50 (K)** Luk\*, Yi-Chuan and R. Zajac  
 Dept. of Biol. and Environ. Science, University of New Haven, West Haven, CT  
 FIDDLER IN THE MARSH- SPATIAL DISTRIBUTION AND ABUNDANCE OF  
*UCA SPP.* IN SALT MARSHES OF CENTRAL LONG ISLAND SOUND
- 9:10 (K)** Bayley\*, Holly K. and S. E. Fox  
 National Park Service, Cape Cod National Seashore, Wellfleet, MA  
 RECOVERY OF AN ESTUARINE NEKTON COMMUNITY FOLLOWING PARTIAL  
 RESTORATION OF TIDAL FLOW
- 9:30 (R)** Ares\*, Nichole L. and D. L. Taylor  
 Department of Marine Biology Roger Williams University, Bristol RI  
 MERCURY AND SELENIUM RELATIONSHIPS IN FISH
- 9:50 (R)** Gifford\*, Samantha J. and R. W. Fulweiler  
 Earth Science Department, Boston University, Boston, MA  
 BOSTONIAN PENGUINS AND THE FATE OF NITROGEN - USING STABLE  
 ISOTOPE ANALYSIS TO ASSESS ANTHROPOGENIC INFLUENCES ON WILD  
 AND CAPTIVE PENGUIN COLONIES

**10:10 BREAK**

**Estuarine Fluxes**

Chair: Pam Morgan

\* Presenter; **(K)** Ketchum Prize candidate for best graduate student presentation; **(R)** Rankin Prize candidate for best undergraduate student presentation

- 10:30 (R)** Vieillard\*, Amanda M.<sup>1</sup>, R. W. Fulweiler<sup>1</sup>, L. Deegan<sup>2</sup>, S. Fagherazzi<sup>1</sup>, and D. FitzGerald<sup>1</sup>  
<sup>1</sup>Department of Earth Sciences, Boston University Boston, MA  
<sup>2</sup>Marine Biological Laboratory Woods Hole, MA  
 EFFECTS OF FERTILIZATION ON BENTHIC AND PELAGIC SILICA FLUXES IN  
 A NEW ENGLAND SALT MARSH
- 10:50 (K)** Heiss\*, Elise M. and R. W. Fulweiler  
 Department of Earth Sciences, Boston University, Boston, MA  
 SEDIMENT N<sub>2</sub> FLUXES FROM ESTUARY TO OFFSHORE ALONG AN  
 ANTHROPOGENIC N-LOADING GRADIENT
- 11:10 (K)** Rempala\*, Erin C. and A. Frankic  
 Dept. of Environ., Earth, and Ocean Sciences, Univ. of Massachusetts, Boston, MA  
 PRELIMINARY ASSESSMENT OF SALT MARSH–EELGRASS CONNECTIVITY  
 WITH IMPLICATIONS FOR HABITAT RESTORATION

**11:30** Sokoloff\*, Paul D.<sup>1</sup> and F. T. Short<sup>2</sup>

<sup>1</sup>Mass. Division of Marine Fisheries, Gloucester, MA

<sup>2</sup>University of New Hampshire, Durham, NH

ESTUARINE WATER COLUMN FILTRATION BY *ZOSTERA MARINA* L.  
(EELGRASS) AND *CRASSOSTREA VIRGINICA* (EASTERN OYSTER) MEASURE  
USING MESOCOSMS

**11:50** (K) Fields\*, Lindsey, S.W. Nixon, and S. Granger

URI Graduate School of Oceanography, Narragansett, RI

BENTHIC METABOLIC RESPONSES TO LOW OXYGEN CONCENTRATIONS IN  
COASTAL ECOSYSTEMS

**12:10 – 1:15 LUNCH**

### Ecology and Biogeochemistry of Macrophyte Systems

Chair: Robert Buchsbaum

\* Presenter; (K) Ketchum Prize candidate for best graduate student presentation; (R) Rankin Prize candidate for best undergraduate student presentation

**1:20** (K) Heffner\*, Leanna R.<sup>1</sup>, A. Giblin<sup>2</sup>, R. Marino<sup>2,3</sup>, and S. Nixon<sup>1</sup>

<sup>1</sup>Graduate School of Oceanography, University of Rhode Island, Narragansett, RI

<sup>2</sup>The Ecosystems Center, Marine Biological Laboratory, Woods Hole, RI

<sup>3</sup>Dept of Ecology and Evolutionary Biology, Cornell University, Ithaca, NY

NITROGEN FIXATION AND DENITRIFICATION IN NARRAGANSETT BAY  
SALT MARSHES

**1:40** (K) Carey\*, Joanna and R. W. Fulweiler

Earth Sciences Department, Boston University, Boston, MA

DISSOLVED SILICA IN SALT MARSH POREWATER PROFILES - DO  
CONCENTRATIONS VARY ALONG A NUTRIENT GRADIENT?

**2:00** (K) Mitchell\*, Elizabeth E.<sup>1</sup> and K. A. Wilson<sup>2</sup>

<sup>1</sup>University of Southern Maine Department of Biology, ME

<sup>2</sup>University of Southern Maine Department of Environmental Science and Policy

VEGETATION RESPONSE TO PREDICTED INCREASED TIDAL MARSH  
INUNDATION IN NORTHERN NEW ENGLAND BRACKISH MARSHES:  
PRELIMINARY RESULTS

**2:20** (K) Novak\*, Alyssa B. and F. T. Short

Dept. of Natural Resources and the Environment, Univ. of New Hampshire, Durham, NH

WHY ARE *THALASSIA TESTUDINUM* LEAVES TURNING RED IN SOME AREAS  
OF THE LOWER FLORIDA KEYS?

- 2:40** Short\*, Fred T.<sup>1</sup>, A. S. Klein<sup>2</sup>, D. M. Burdick<sup>1</sup>, G. Moore<sup>2</sup>, S. Granger<sup>3</sup>, C. Pickerell<sup>4</sup>, J. Vaudrey<sup>5</sup>, H. Bayley<sup>6</sup>, and N. T. Evans<sup>7</sup>  
<sup>1</sup>Dept. of Nat. Resources and the Environ., UNH, Jackson Estuarine Lab., Durham, NH  
<sup>2</sup>Department of Biological Sciences, UNH; <sup>3</sup>University of Rhode Island, RI  
<sup>4</sup>Cornell Cooperative Extension, NY; <sup>5</sup>University of Connecticut, CT  
<sup>6</sup>Cape Cod National Seashore, MA; <sup>7</sup>Massachusetts Division of Fisheries, MA  
EELGRASS GENETICS AND RESILIENCE IN SOUTHERN NEW ENGLAND AND  
NEW YORK TO SUPPORT MANAGEMENT AND RESTORATION SUCCESS

**3:00 BREAK AND POSTER SESSION**

Poster titles are listed at the end of the program

**Nearshore Ecosystems: Models for Decision Making and Watershed Influences**

Chair: Robert Buchsbaum

\* Presenter; **(K)** Ketchum Prize candidate for best graduate student presentation

- 4:00 (K)** Byron\*, Carrie<sup>1</sup>, D. Bengtson<sup>1</sup>, B. Costa-Pierce<sup>1,2</sup>, J. Link<sup>3</sup>, R. Rheault<sup>4</sup>, D. Beutel<sup>5</sup>, and D. Alves<sup>6</sup>  
<sup>1</sup>Dept. of Fisheries, Animal and Vet. Sciences, University of Rhode Island, Kingston, RI  
<sup>2</sup>Rhode Island Sea Grant College Program, University of Rhode Island, Narragansett, RI  
<sup>3</sup>Nat. Marine Fisheries Service, Northeast Fisheries Science Center, Woods Hole, MA  
<sup>4</sup>41121 Moorsefield Rd., Wakefield, RI; <sup>5</sup>Cstl. Res. Manage. Council, Wakefield, RI;  
<sup>6</sup>NOAA Aquaculture Program, Nat. Marine Fisheries Serv., Gloucester, MA  
WORKING TOWARD CONSENSUS: APPLICATION OF SHELLFISH CARRYING  
CAPACITY IN MANAGEMENT OF RHODE ISLAND AQUACULTURE
- 4:20** Vaudrey\*, Jamie M. P.<sup>1</sup>, M. J. Brush<sup>2</sup>, D. S. Ullman<sup>3</sup> and J. N. Kremer<sup>1</sup>  
<sup>1</sup>Department of Marine Sciences, University of Connecticut  
<sup>2</sup>Virginia Institute of Marine Science, The College of William & Mary  
<sup>3</sup>Graduate School of Oceanography, University of Rhode Island  
DEVELOPMENT AND VALIDATION OF A HYBRID PHYSICAL-ECOLOGICAL  
MODEL OF NARRAGANSETT BAY, RI, USA.
- 4:40** Taylor, Dave I.  
Environmental Quality Dept., Massachusetts Water Resources Authority, Boston MA  
NON-LINEAR RESPONSES OF BOSTON HARBOR TO LARGE DECREASES IN  
NUTRIENT AND ORGANIC MATTER INPUTS
- 5:00** Kinney\*, Erin L. and I. Valiela  
The Ecosystems Center, Marine Biological Laboratory, Woods Hole, MA  
 $\delta^{15}\text{N}$  PROFILES IN SALT MARSH SEDIMENT CORES: EVIDENCE OF  
CHANGING LAND USE AND EXPERIMENTAL FERTILIZATION
- 5:30 NEERS BUSINESS MEETING**
- 6:30 SOCIAL AND NEERS AWARDS BANQUET – Clam Bake at the Cape Inn Resort**  
Presentation of Awards for Best Student Papers
- 9:00** Music and dancing at the A-House, 4-6 Masonic Place, P-town (off Commercial St.)

## Saturday, October 30<sup>th</sup>

### Estuarine Fauna II

Chair: Steve Hale

\* Presenter

**8:20** Gather for session

**8:30** Beekey\*, Mark B., C. Ryan, H. Potter, and J. H. Mattei  
Department of Biology, Sacred Heart University, Fairfield, CT  
MOVEMENT PATTERNS OF HORSESHOE CRABS IN LONG ISLAND SOUND:  
IMPLICATIONS FOR MANAGEMENT STRATEGIES

**8:50** Bartholomew, K. A., J. M. Kasinak, M. A. Beekey, and Jennifer H. Mattei\*  
Department of Biology, Sacred Heart University, Fairfield, CT  
MOVEMENT PATTERNS AND POPULATION GENETICS OF THE AMERICAN  
HORSESHOE CRAB IN RELATION TO LONG ISLAND SOUND CONSERVATION  
STRATEGIES

**9:10** James-Pirri, M.-J.  
Graduate School of Oceanography, University of Rhode Island, Narragansett, RI  
SEASONAL MOVEMENT OF THE AMERICAN HORSESHOE CRAB *LIMULUS*  
*POLYPHEMUS* IN A SEMI-ENCLOSED BAY ON CAPE COD, MASSACHUSETTS  
(USA) AS DETERMINED BY ACOUSTIC TELEMETRY

**9:30** Gear\*, Jason S., R. Gutjahr-Gobell, and D. Borsay Horowitz  
Atlantic Ecology Division, US Environmental Protection Agency, Narragansett, RI  
EFFECTS OF SEAWATER ACIDIFICATION ON THE LIFE CYCLE AND FITNESS  
OF OPOSSUM SHRIMP POPULATIONS

**9:50** Armstrong\*, Michael P.<sup>1</sup>, J. Sheppard<sup>2</sup>, P. Brady<sup>2</sup>, and G. Nelson<sup>1</sup>  
<sup>1</sup>Massachusetts Division of Marine Fisheries, 30 Emerson Ave, Gloucester, MA  
<sup>2</sup>Massachusetts Division of Marine Fisheries, 1213 Purchase St, New Bedford, MA  
EVIDENCE FOR POOR YEAR CLASS STRENGTH AS THE CAUSE OF ALEWIFE  
(*ALOSA PSEUDOHARENGUS*) SPAWNING POPULATION DECLINES IN  
SOUTHERN NEW ENGLAND

**10:10 BREAK**



## Marsh Ecology and Management

Chair: Steve Hale

\* Presenter

**10:30** Fox\*, Sophia E.<sup>1,2</sup>, Y. S. Olsen<sup>1,3</sup>, and I. Valiela<sup>1</sup>

<sup>1</sup>The Ecosystems Center, Marine Biological Laboratory, Woods Hole, MA

<sup>2</sup>Present address: National Park Service, Cape Cod National Seashore, Wellfleet, MA

<sup>3</sup>IMEDEA, Mallorca, Spain

THE EFFECTS OF WARMER TEMPERATURES ON *SPARTINA ALTERNIFLORA*  
AND SEDIMENT CHARACTERISTICS

**10:50** Yando\*, Erik, Ariella Cohen\*, C. Haight, and R. S. Warren

Connecticut College, New London, CT

QUANTIFYING AND DETERMINING A POSSIBLE MECHANISM FOR THE  
COLLAPSE OF ARTIFICIALLY FERTILIZED PLUM ISLAND SOUND SALT  
MARSH CREEK BANKS

**11:10** Donnelly, Grace M.

BIOSPEC, Inc., 147 Sixth St., Providence, RI

MEIOTIC CHROMOSOME BEHAVIOR IN *SPARTINA ALTERNIFLORA*:  
IMPLICATIONS FOR MANAGEMENT, GENOMICS, AND ECOLOGY

**11:30** Weishar, Lee

Woods Hole Group, East Falmouth, MA

SUCCESSFULLY DESIGNING WETLANDS RESTORATION PROJECT: CAN IT  
BE DONE?

**11:50** Smith\*, Stephen M. and M. C. Tyrrell

National Park Service, Cape Cod National Seashore, Wellfleet, MA

THE POTENTIAL FOR VEGETATION RESTORATION IN SALT MARSH  
DIEBACK AREAS USING EROSION CONTROL FABRIC (CAPE COD,  
MASSACHUSETTS)

**12:10** Closing Remarks – Steve Hale, NEERS President

**12:20** Pre-ordered box lunch – pick up at Provincetown Center for Coastal Studies

**1:00** Salt marsh field trip departs from Provincetown Center for Coastal Studies parking lot

**1:00** Birding field trip departs from Provincetown Center for Coastal Studies parking lot

**1:30** Whale watch departs from MacMillan Pier, Provincetown

## POSTER PRESENTATIONS

\* Presenter; **(D)** Dean Prize candidate for best graduate student poster; **(W)** Warren Prize candidate for best undergraduate student poster

**(D)** Barrett\*, Diana T. and T. K. Rajaniemi

Department of Biology, University of Massachusetts at Dartmouth, Dartmouth, MA  
EFFECT OF ENVIRONMENTAL FACTORS ON THE GERMINATION OF SEVERAL SPECIES OF COASTAL DUNE PLANTS

Costa\*, Amy S., M. S. Costa, and K. Stamieszkin

Provincetown Center for Coastal Studies, Provincetown, MA  
EELGRASS HABITAT MONITORING IN CAPE COD BAY AND THE CHALLENGES OF RESTORATION

Curran\*, Patrick B.<sup>1</sup>, C. D. Hunt<sup>1</sup>, D. M. Michelin<sup>1</sup>, and P. S. Libby<sup>2</sup>

<sup>1</sup>Battelle Memorial Institute, Duxbury, MA

<sup>2</sup>Battelle, Brunswick, ME

*In situ* CHARACTERIZATION OF PHYTOPLANKTON COMMUNITIES USING A NOVEL SUBMERSIBLE IMAGING FLOW CYTOMETER

Evans\*, Tay<sup>1</sup>, J. Baker<sup>2</sup>, A. Costa<sup>3</sup>, and B. Warren<sup>4</sup>

<sup>1</sup>Annisquam River Marine Fisheries Station, Mass. Div. of Marine Fisheries, Gloucester, MA

<sup>2</sup>Massachusetts Bays Program, Boston, MA

<sup>3</sup>Provincetown Center for Coastal Studies, Provincetown, MA

<sup>4</sup>Salem Sound Coastwatch, Salem, MA

USE OF "CONSERVATION MOORINGS" AS A COMPONENT OF EELGRASS RESTORATION AND REHABILITATION IN TWO MASSACHUSETTS HARBORS

**(W)** Gervasi\*, Carissa G. and D. L. Taylor

Department of Marine Biology, Roger Williams University, Bristol, RI  
ABUNDANCE, GROWTH, AND DIET OF JUVENILE SUMMER FLOUNDER (*PARALICHTHYS DENTATUS*) AND WINTER FLOUNDER (*PSEUDOPLEURONECTES AMERICANUS*) IN NARRAGANSETT BAY RI/MA

Kirtley\*, Stacey L.<sup>1</sup> and E. H. Dettmann<sup>2</sup>

<sup>1</sup>Contractor to U.S. EPA, ORD-NHEERL, Atlantic Ecology Division, Narragansett, RI

Current address: New England Aquarium, Boston, MA

<sup>2</sup>U.S. EPA, ORD-NHEERL, Atlantic Ecology Division, Narragansett, RI

NUTRIENT-CHLOROPHYLL RELATIONSHIPS IN THE INDIAN RIVER LAGOON, FLORIDA

Sharif\*, Rahat, V. M. Berounsky, L. Maranda, and D. Borkman

University of Rhode Island, Narragansett, RI

CHLOROPHYLL THIN LAYERS OF THE NORTHERN BASIN OF THE PETTAQUAMSCUTT RIVER ESTUARY: A PRELIMINARY STUDY