RUTGERS
New Jersey Agricultural Experiment Station
HASKIN SHELLFISH RESEARCH LABORATORY

Rutgers Aquaculture Research Symposium & Growers Workshop

Meeting Program and Abstract Book

January 31, 2025

Cape May County Technical High School Convention Center
188 Crest Haven Rd, Cape May Court House, NJ 08210

Sea Grant
NEW JERSEY SEA GRANT CONSORTIUM

JETTY ROCK FOUNDATION

Schedule of Events

8:30 – 9:00 AM – Registration and Light Refreshments

9:00 – 9:30 AM – Welcome messages

- *Overview of the day's objectives and schedule – Mike Acquafredda*
- *Overview and major accomplishments across HSRL, JCNERR, RUMFS, and other RU facilities – Dave Bushek, Mike De Luca, and Michael Zwick*

9:30 – 11:30 AM – Presentations (~10 min each)

Progress on priorities set at the 2023 Rutgers Shellfish Research Symposium

- 9:30 – Mike Acquafredda – ASAP: Apprenticeship in Shellfish Aquaculture Program
- 9:40 – Jenny Shinn – Aquaculture for Restoration and Living Shorelines
- 9:50 – Ximing Guo & Paul Coyne – Hard Clam Breeding Efforts
- 10:00 – Bob Rheault – Bird and Shellfish Sanitation

10:15 AM – Break

Other RU aquaculture initiatives

- 10:30 – Sam Ratcliff – Oyster Breeding Efforts
- 10:40 – Sean Towers – NJAIC Production Updates (2023, 2024 & 2025)
- 10:50 – Daphne Munroe & Mike Acquafredda – Surfclam Aquaculture Opportunities
- 11:00 – Dave Bushek – Regional Shellfish Seed Biosecurity Program (RSSBP)
- 11:10 – Dave Bushek – "Haskin Horizons" – An Overview of Upcoming Projects

11:30 AM – 1:00 PM – Lunch, Restoration Roundtable, and Mini-Poster Session

- *Lunch will be prepared by the Perch Café (Cape May Tech) and was made possible with a generous donation from the Jetty Rock Foundation.*
- *Attendees interested in discussing shellfish restoration can eat lunch together at the "Restoration Roundtable," a facilitated discussion led by Mike De Luca.*
- *Mini-poster session – attendees will be able to view posters that will showcase other aquaculture-focused research and programs occurring in NJ*

1:00 – 1:45 PM – Growers Panel moderated by Doug Zemeckis and Mike Acquafredda

- *Invited shellfish growers – Betsy Haskin (Cape Shore Salts), Dale Parsons (Parsons Seafood and Mariculture), and Dan Torre (Sapphire Shoals Mariculture) – will share their perspectives on collaborative research*

1:45 PM – Break

2:00 – 3:00 PM – Priority Setting Exercises

- *Attendees will review the results of the Aquaculture Priority Setting Survey (found in the event's registration form) and discuss why some topics outranked others.*
- *Attendees will also be asked to describe how they want their farms, their bays, and their industry to look in 2 years, 5 years, and 10 years.*

3:00 – 4:30 PM – Breakout Groups

- *In this exercise, attendees will be split into four breakout groups based on the top ranked priorities and discuss actionable ways of addressing these priorities. After 40-45 minutes, all attendees will switch groups.*
- *Snacks will be provided.*

4:30 – 5:00 PM – Report Out

- *Each breakout group will summarize their conversation and develop actionable charges for addressing the top priorities.*

Oral Presentation Abstracts

ASAP: Apprenticeship in Shellfish Aquaculture Program

Speaker: Michael Acquafredda

The Apprenticeship in Shellfish Aquaculture Program (ASAP) is a workforce development program with the mission of building a robust pipeline for the New Jersey aquaculture workforce by providing youth from diverse backgrounds with the knowledge, skills and inspiration to successfully transition from high school to aquaculture-related career paths. Through ASAP, students gain real-life work experience alongside commercial aquaculture practitioners. ASAP also includes an aquaculture literacy program, an intensive training course, and sustained professional development activities and community building for its participants. ASAP directly benefits New Jersey growers who receive subsidized labor and opportunities to train future employees and colleagues. ASAP is a collaborative effort jointly run by the New Jersey Sea Grant Consortium and the Rutgers University Haskin Shellfish Research Laboratory. So far, ASAP has trained two student cohorts, with a third planned during the summer of 2025.

Aquaculture for Restoration and Living Shorelines

Speaker: Jenny Shinn

Shellfish reef restoration and shellfish-based living shoreline creation are conservation priorities. Both require resilient oyster populations that can adapt to current and future predicted conditions at the reef location. Aquaculture can provide these when nature cannot. In a new project, genomic selection is being used to enhance oyster resilience to disease and climate change for restoration and coastal protection.

Hard Clam Breeding Efforts

Speaker: Paul Coyne & Ximing Guo

Rutgers has been conducted research on genetics and breeding of hard clams. One of the early research projects focused on the production and evaluation of triploid hard clams. Triploid clams showed improved growth. Later studies identified QPX-resistance markers and used the markers for marker-assisted selection. A current collaborative project is funded by the Sea Grant Aquaculture Program and led by Stony Brook University, involving scientists and extension teams in five Atlantic states. The goal of this project is to develop hard clam selective breeding programs using state of the art genomic tools. The project developed a 60K DNA chip which will be used to identify genetic markers associated with QPX and heat resistance. The application of genomic tools and information is expected to speed up hard clam breeding. Rutgers will initiate a hard clam breeding program as part of this project focusing on field survival. We hope to assess the genetic health of cultured stocks in NJ and work with the industry in developing the breeding program. We are also working on the development of tetraploid hard clams to hopefully enable triploid production for hard clam aquaculture.

Birds and Shellfish Sanitation

Speaker: Bob Rheault

I will discuss the challenges posed by birds on floating aquaculture gear and the potential health risks posed by the guano they leave behind. The development of floating gear has solved many problems and created new ones. I will discuss the FDA / ISSC regulatory response and the new 2023 guidance in the 2023 National Shellfish Sanitation Plan as well as ongoing issues with illness outbreaks and what we know about the risk of illness as well as deterrent options and purge rates.

Rutgers University Oyster Breeding Program

Speaker: Sam Ratcliff & Ximing Guo

The Rutgers Oyster Breeding Program, based at the Haskin Shellfish Research Laboratory (HSRL), focuses on developing disease-resistant, fast-growing, and resilient oyster strains for aquaculture industries. Central to the program are two primary oyster lines: the Haskin NEH® and the DBX line. These lines have been selectively bred for superior disease resistance, growth, and survival rates in challenging environments. The Haskin NEH® line is known for its robust performance against diseases such as Dermo and MSX, while the DBX line exhibits enhanced growth rates and improved survival under a variety of environmental conditions. Each year, multiple lines of diploid and tetraploid oysters were produced, and the best-performing lines are released to the industry for production. Rutgers is leading an Eastern Oyster Breeding Consortium project funded, where we are implementing advanced genomic selection to oyster improvement. Through continued selective breeding, these lines promote sustainable aquaculture practices along the U.S. East Coast.

NJ Aquaculture Innovation Center Production Updates (2023, 2024 & 2025)

Speaker: Sean Towers

The New Jersey Aquaculture Innovation Center at Rutgers University (NJAIC) is an extremely flexible facility designed to meet the research, technology, demonstration, and extension needs of the aquaculture community. The NJAIC provides a unique footprint, utility, and expertise to answer a vast array of marine aquaculture questions. The NJAIC is available for research and production partnerships with both academia and the private sector.

Surfclam Aquaculture Opportunities

Speakers: Daphne Munroe & Michael Acquafredda

Throughout much of the Northeast region of the United States, shellfish aquaculture is dominated by only two species: the hard clam and the Eastern oyster. The Atlantic surfclam represents a potential target species for crop diversification because it is native, grows rapidly, and is largely recognizable to the public. We have conducted a series of husbandry experiments in order to optimize surfclam production. Our results suggest that farmed surfclam can be reared in New Jersey's high-salinity coastal backbays, as well as in deeper water offshore. Surfclam aquaculture techniques can be readily adopted by existing shellfish growers.

Regional Shellfish Seed Biosecurity Program (RSSBP)

Speaker: David Bushek

Shellfish get sick just like any other living creature so it is important to maintain healthy animals and know how to tell if they are sick and what actions can be taken. Slow growth and increased mortality are the primary signs of a problem. Where and what you purchase can also affect health or your stocks as well as those of your neighbors making biosecurity an import component of responsible and successful shellfish farming.

"Haskin Horizons" – An Overview of Upcoming Aquaculture Projects

Speaker: David Bushek

Presenters' Biographies

Michael Zwick, PhD

Senior Vice President for Research, Rutgers University

Michael De Luca

Director of the NJ Aquaculture Innovation Center,
Director of Marine Outreach Programs, and
Manager of the Jacques Cousteau National Estuarine Research Reserve,
Rutgers University

Michael De Luca is the Director of the Rutgers Aquaculture Innovation Center which produces shellfish seed for the industry, and conducts research on new candidates for culture, supports selective breeding programs and research on shellfish ecology and diseases. He also manages the Cousteau National Estuarine Research Reserve and a Coastal Exploration Program. His research interests include coastal management, resilience of MPAs, aquaculture and the impacts of climate change on coastal ecosystems and communities.

David Bushek, PhD

Professor of Marine and Coastal Sciences
Director of Marine Stations at the School of Environmental and Biological Sciences
and New Jersey Agricultural Experiment Station, Rutgers University

Dr. David Bushek is a shellfish pathologist that also directs the HSRL. He has studied shellfish ecology and pathology for 37 years working along the East and Gulf Coasts. He heads the shellfish pathology lab at HSRL monitoring oyster disease in Delaware Bay and elsewhere, is the co-lead for the Regional Shellfish Seed Biosecurity Program and is leading a major project funded by DARPA to develop innovative methods for shoreline protection that involve shellfish reefs.

Ximing Guo, PhD

Distinguished Professor of Marine and Coastal Sciences
Director of the Shellfish Genetics & Breeding Program
Haskin Shellfish Research Laboratory, Rutgers University

Dr. Ximing Guo is a shellfish geneticist at HSRL. He directs the Shellfish Genetics and Breeding Program at Rutgers University. Dr. Guo has studied genetics and reproduction of marine molluscs for over 35 years. His research included the development of triploid oysters, breeding oysters for disease resistance, and bivalve genomics. He is leading the Eastern Oyster Breeding Consortium in developing technologies for genomic selection.

Daphne Munroe, PhD

Associate Professor of Marine and Coastal Sciences

Haskin Shellfish Research Laboratory, Rutgers University

Dr. Daphne Munroe is an associate professor at Rutgers University, Haskin Shellfish Research Laboratory in Port Norris, NJ. Her research focuses on the complex interactions of economically and ecologically important coastal invertebrate species.

Michael Acquafredda, PhD

Aquaculture Specialist (Laboratory Researcher II)

Haskin Shellfish Research Laboratory, Rutgers University

Mike Acquafredda conducts aquaculture-focused research, extension, education, and outreach efforts at Rutgers University. He also serves as the Aquaculture Program Coordinator for the New Jersey Sea Grant Consortium. His work aims to promote a responsible, resilient, and dynamic New Jersey aquaculture industry that balances environmental and economic sustainability.

Sam Ratcliff

Cape Shore Lab Operations Manager and Doctoral Candidate

Haskin Shellfish Research Laboratory, Rutgers University

Samuel Ratcliff and Dr. Ximing Guo manage the oyster breeding program. His background is in shrimp aquaculture, primarily with ornamental shrimp from the Lysmata and Stenopus genera. His interests include shellfish aquaculture and aquatic system design.

Jenny Shinn

Field Researcher III

Haskin Shellfish Research Laboratory, Rutgers University

Jenny Shinn primarily assists with the design, implementation and monitoring of living shoreline and oyster restoration projects. Jenny also leads K-12 education programs across HSRL facilities.

Sean Towers

Laboratory Researcher II and Hatchery Manager

New Jersey Aquaculture Innovation Center, Rutgers University

Sean Towers is a Laboratory Researcher and Hatchery Manager at the Rutgers University Aquaculture Innovation Center (NJAIC). His current focuses revolve around expanding bivalve shellfish aquaculture in a variety of species including the Bay Scallop, Eastern Oyster, Ribbed Mussel, and Atlantic Surf Clam as well as novel work in partnership with industry members exploring new aquaculture feed products, algal-based nutraceuticals, and marine-environment restoration improvements.

Paul Coyne

Cape Shore Technician and Graduate Student

Haskin Shellfish Research Laboratory, Rutgers University

Paul Coyne works under Dr. Ximing Guo to meet the demands of shellfish genetic enhancement programs, primarily for Hard Clam stocks. Aspects of this pursuit include studies of regional hybridization, selective breeding for heat and disease tolerance, identifying sex determination genes, and polyploid induction.

Doug Zemeckis, PhD

County Agent II (Associate Professor)

Marine Extension Agent for Ocean, Atlantic, and Monmouth Counties

Rutgers University Cooperative Extension

Doug Zemeckis serves as a County Agent II (Associate Professor) with Rutgers Cooperative Extension. In this role, he conducts educational programming and applied research to address local issues related to fisheries, aquaculture, and marine resources management. His efforts focus on Ocean, Atlantic, and Cape May Counties, but also include other counties as required.

Bob Rheault

Executive Director, East Coast Shellfish Growers Association

Bob Rheault started a small shellfish hatchery while he was working on his PhD. at URI's Graduate School of Oceanography. He trademarked the Moonstone Oysters brand and established a marketing cooperative to distribute locally-farmed oysters nationwide. He sold his farm in 2007 now serves as the Executive Director of the East Coast Shellfish Growers Association. He is a passionate advocate for the shellfish farming community.

Betsy Haskin

Cape Shore Salts

Dale Parsons

Parsons Seafood and Mariculture

Dan Torre

Sapphire Shoals Mariculture

Poster Presentation Abstracts

Using Underwater Video to Document Habitat Created by Oyster and Clam Farms in Barnegat Bay, NJ

Alexandria Ambrose *[1] & Daphne Munroe[1]

*aa2130@hsrl.rutgers.edu

[1] Haskin Shellfish Research Laboratory, Rutgers University
6959 Miller Avenue, Port Norris, NJ 08349 United States

Project Summary: Shellfish aquaculture provides habitat for fish and invertebrates, but how farm attributes like tending activities and biological fouling influence habitat usage remains unclear. To address this, underwater video footage was collected at an oyster (*Crassostrea virginica*) farm (2019) and a hard clam (Mercenaria mercenaria) farm (2023) in Barnegat Bay, New Jersey. Cameras were deployed on oyster cages, floating bags, clam nets, and nearby natural habitats to capture species interactions on aquaculture farms. Using MaxN, the maximum number of individuals per species in 1-minute segments, 37 species were identified. Species distribution differed between farm types, and both farms had higher abundances compared to natural habitats. Fouling on gear influenced habitat use, with heavily fouled floating bags at the oyster farm attracting the most individuals, while moderately fouled clam nets at the clam farm exhibited similar patterns. Tending activities on the oyster farm had minimal overall impact on species abundance.

Water Quality Benefits of Aquaculture Oysters in the Mid-Atlantic

Janine Barr*[1], Daphne Munroe[2], Julie M. Rose[3], Lisa Calvo[2], Kurt M. Cheng[4], Skylar Bayer[5], Danielle Kreeger[2], Laura Steves[2], Michael Aquafredda[2], Carrie Ferraro[6], Lucas Marxen[1], Dena Seidel[7] & Robert Muldowney[7]

*janine.barr@rutgers.edu

[1] Rutgers University, Bloustein School of Planning and Public Policy
33 Livingston Avenue, New Brunswick, NJ 08901

[2]Haskin Shellfish Research Laboratory, Rutgers University
6959 Miller Avenue, Port Norris, NJ 08349 United States

[3]NOAA Fisheries, Northeast Fisheries Science Center, Milford Laboratory, 212 Rogers Avenue, Milford, CT, 06460

[4]Partnership for the Delaware Estuary, 110 South Poplar Street, Suite 202, Wilmington, DE, 19801

[5]NOAA Fisheries, Alaska Regional Office, 700 W 9th Street, Juneau, AK, 99801, USA

[6]Rutgers University, Math and Science Learning Center, 607 Allison Rd, Piscataway, NJ 08854

[7]Rutgers University, School of Environmental and Biological Sciences, 88 Lipman Dr, New Brunswick, NJ 08901

Project Summary: Eastern oysters (Crassostrea virginica) are a both a commercially and ecologically valuable species. In the US oyster aquaculture production is valued at $192 million annually and these oysters provide many ecosystem benefits including water quality improvement. Unfortunately, the expense of owning an oyster farm can be detrimental to an oyster farmer's longevity in the industry. This is an especially true in southern New Jersey counties which rank second in economic dependence on shelled mollusks for livelihood in the nation. Given the State's dependence on shellfish resources, and the water quality improvement provided by these oysters, there is a clear value in providing tools that motivate farm-to-table oyster purchasing. As such, this project uses data collected at three oyster farms in the Mid-Atlantic from 2020-2021 to (1) create an online calculator to estimate each New Jersey oyster farms' water quality benefit and (2) generate educational materials regarding the benefits of oysters.

Navigating Shallow Waters: Advanced Capabilities of an Autonomous Surface Vehicle for Benthic Surveys

Patty McHugh*[1,3], Justin Procopio[2,3], & Thomas Grothues[1,2,3]

*pttmchugh@marine.rutgers.edu

[1] Jacques Cousteau National Estuarine Research Reserve
130 Great Bay Blvd, Tuckerton, NJ 08087 United States

[2] Rutgers University Marine Field Station
800 Great Bay Blvd, Tuckerton, NJ 08087

[3] Coastal Undersea Research Program
800 Great Bay Blvd, Tuckerton, NJ 08087

Project Summary: The Jacques Cousteau National Estuarine Research Reserve (JC NERR) acquired a new Autonomous Surface Vehicle (ASV) to advance our surveys of shallow water habitats and hard to reach areas of the reserve. The SR-Surveyor M1.8 ASV, manufactured by SeaRobotics, is a man portable system hosting an array of sensors that allows for various research applications such as habitat mapping, structure inspection, and bathymetric surveys. The onboard sensors include an SBG miniature inertial navigation system, dual-antenna global navigation satellite system receiver, micro sound velocity probe, and an advanced Multi-pulse sonar system. It boasts a proprietary Edgetech 2205 Multi-Pulse Echo sounder that has dual frequency (540 kHz and 1600 kHz) sidescan sonar, as well as 540 kHz swath bathymetry system. Edgetech's Multi-Pulse Sonar technology enables the ASV to collect multiple forms of acoustic data simultaneously, which maximizes the amount of information it can collect during surveys and results in high resolution imagery. In addition to sonar, the ASV will soon be equipped with a Velodyne Puck LiDAR system to utilize the vehicle for terrestrial mapping. This LiDAR will allow operators to capture a 360-degree point cloud images of near-shore terrestrial features such as the marsh edges or dock structures.

Multistressor laboratory experiments with the Atlantic surfclam (*Spisula solidissima*): Ocean warming and acidification

Laura Steeves[1], Shannon Meseck[2], Ximing Guo[1], and Daphne M. Munroe*[1]

*dmunroe @hsrl.rutgers.edu

[1]Haskin Shellfish Research Laboratory, Department of Marine and Coastal Sciences, Rutgers, The State University of New Jersey, 6959 Miller Avenue, Port Norris, NJ 08349, USA

[2]NOAA Fisheries Service, Northeast Fisheries Science Center, 212 Rogers Ave, Milford, CT, 06460, USA

Project Summary: The Atlantic surfclam (*Spisula solidissima*) supports a large commercial fishery in the mid-Atlantic region of the United States, where ocean conditions are subject to the effects of climate change. To examine how changing ocean conditions may impact surfclam growth and survival, laboratory experiments were conducted at the Rutgers Aquaculture Innovation Center to observe surfclam performance at ambient and manipulated levels of temperature and carbonate chemistry (reflective of ocean warming and ocean acidification, respectively). In the fall of 2023, 1-year-old hatchery reared surfclams were held in one of nine treatments, with three levels of pH (7.9,7.7, or 7.5) and temperature (ambient, +2°C, or +5°C) in a fully crossed design. During the experiment, unfiltered seawater was used in flow-through tanks, with surfclams held in 1mm upwellers. This provided the clams with natural diets and fluctuations in water quality (e.g., temperature). After six weeks, growth, feeding physiology, shell strength, and gene expression of surfclams were measured. Results from these studies suggest that for one year old surfclams, moderate ocean acidification may not be physiologically stressful in warmed, but not non-stressful, temperatures. The design of this experiment highlights the importance studying multiple environmental stressors concurrently while maintaining ecological relevance with natural conditions (i.e., natural flow-through seawater). These results will help to inform models of surfclam growth and distribution under different climate change scenarios.

Ribbed Mussel *(Geukensia demissa)* Aquaculture Techniques: Investigating an Alternative Diet

Emory Barrett*[1], Sean Towers[1], & Michael Acquafredda[1]

[1]Haskin Shellfish Research Laboratory, Rutgers University
6959 Miller Ave, Port Norris, NJ 08349, United States

*eb1009@scarletmail.rutgers.edu

Ribbed mussels (*Geukensia demissa*) are understudied bivalves that play a critical role in US East Coast marshes. They are in high demand due to their ecological engineering applications, but aquaculture for the species is underdeveloped. Ribbed mussels are one of the few bivalves capable of feeding on small-sized bacterioplankton. Due to their ability to feed upon small particles, we hypothesized that *Nannochloropsis oculata* (Nanno), a relatively small green microalgae with high lipid content, would be a beneficial supplement to the standard diet of *Tisochrysis lutea* (Tiso), improving survival and growth. We compared the results of feeding larval and juvenile ribbed mussels a controlled diet of 100% Tiso and an experimental diet of 2:1 Nanno:Tiso. Shell lengths of the two larval diets did not statistically differ at the termination of the diet, but the dataset's linear regression slopes did. The shell lengths of the two juvenile diets did not statistically differ on the termination of the diets well as in their linear regression slopes. A frequency distribution of all shell lengths on the final day of the study showed that Nanno-fed larval mussels displayed a bimodal distribution of shell lengths and Tiso-fed larval mussels displayed a unimodal distribution. This suggests competition among the Nanno-mix mussels for the Tiso portion of the mixed diet. This pattern was not seen in the juvenile frequency distributions, where both diets were distributed relatively normally. There was no statistical difference in percent survival between the two larval diets. These results show that while larval ribbed mussels prefer Tiso, Nanno can be used as a viable "backup" diet for their larviculture. Ribbed mussel juveniles equally prefer Tiso and Nanno. The difference in preference between larvae and juveniles suggests intraspecific niche partitioning, which outlines areas for further study into ribbed mussel population dynamics.

Beyond Boundaries: A Collaborative NERR/NEP Monitoring Partnership in the Mullica River/Great Bay and Barnegat Bay Estuaries

Gregg Sakowicz*[1], Nicole Petersen[2], & Samantha Adamczyk[2]

*sakowicz@marine.rutgers.edu

[1]Jacques Cousteau National Estuarine Research Reserve
130 Great Bay Blvd, Tuckerton, NJ 08087 United States

[2]Barnegat Bay Partnership

The Jacques Cousteau National Estuarine Research Reserve's (JC NERR) System-Wide Monitoring Program (SWMP) has been monitoring water quality, weather, and nutrients in the Mullica River/Great Bay estuary since 1996, 2002, and 2002, respectively. While the JC NERR's boundary map and research activities extend to the north into a southern portion of the Barnegat Bay watershed, the SWMP does not. The Barnegat Bay Partnership (BBP), a National Estuary Program (NEP), operates in the waters to the north, including the aforementioned shared parcel. In 2017 the BBP established three water quality monitoring stations in Barnegat Bay, including one in the overlapping waters and in close proximity to priority JC NERR research sites- designed and conducted according to NERRS SWMP Standard Operating Procedures (SOPs). JC NERR and BBP regularly mutually assist and share these data, cooperatively monitoring the majority of the two adjacent and mixing estuaries, resulting in de facto extensions of their respective datasets. This partnership may serve as guidance for collaboration at other neighboring NERRs and NEPs.

Acknowledgements

Michael Acquafredda for coordinating and planning this event.

Jenny Shinn for assisting with meeting planning and preparations.

Michael De Luca, Sam Ratcliff, and Doug Zemeckis for serving as Breakout Group facilitators and panel moderators.

Other Rutgers University faculty, staff, and graduate students for sharing presentations, assisting with notetaking, and providing additional meeting support.

Bob Rheault, Betsy Haskin, Dale Parsons, and Dan Torre for contributing meaningful insights and industry perspectives to this event.

Cape May Technical High School Conference Center staff for renting the meeting space and providing logistical support.

Kyle Gronostajski (Jetty Rock Foundation), Dr. Peter Rowe (New Jersey Sea Grant Consortium), and the Harold H Haskin Fisherman's Forum Fund for providing financial support that made this meeting possible.

All of the aquaculturists and aquaculture stakeholders who participated in this event!