

SHIFTING SEAS:



THE LAW'S RESPONSE TO CHANGING OCEAN CONDITIONS

9TH MARINE LAW SYMPOSIUM
NOVEMBER 14 & 15, 2012

ROGER WILLIAMS UNIVERSITY SCHOOL OF LAW



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WELCOME!

Much is at stake for our coastal communities in the face of changing ocean conditions. Over 50% of the U.S. population lives on the coast, with an average density of 319 people per square mile (excluding Alaska). Along the U.S. east coast, sea levels are rising faster between North Carolina and Massachusetts than anywhere else in the world. We need look back no further than two weeks ago to see how our current way of life on the coast is at risk. Superstorm Sandy, an unprecedented storm of devastating power and enormous reach, its' effects exacerbated by warming ocean temperatures and rising sea level, wreaked havoc on New York City and the New Jersey coast. The storm displaced millions of people and damage is so far estimated at \$50 billion dollars. The aftermath of Sandy puts hard questions directly before us. What should be rebuilt? How should we prepare for the predicted increase in damaging storm events? At what cost do we try to maintain coastal infrastructure that is increasingly vulnerable? How do we deal with a changed reality, when, as the mayor of New York City said, "we have a 100-year flood every two years now?"

To properly examine questions like these, we need to consider the context of existing law. The laws and policies that govern our actions on the coast are based on assumptions that will not be true in the future. Floodplain maps and insurance rates that have guided management decisions about where to build on the coast are being challenged. When the boundary between the land and the sea literally moves, complex new questions arise regarding private and public property rights. International boundaries in the Arctic are under scrutiny as the ice cap melts and resources are more accessible. Fisheries that have been successfully harvested for centuries will no longer exist in the same way, as species confront warmer, more acidic water and adapt, move or perish.

Decisions about how we manage our lives along the coastline are not going to get any easier. I hope our 9th Marine Law Symposium provides you an opportunity to learn, contemplate and converse, and to hopefully be better prepared to participate in future decisions. Over the course of the next two days, we will take a comprehensive look at many ways laws and policies are implicated by changing ocean conditions. Scientific experts will provide context, attorneys will confront emerging legal issues, and managers from coastal communities in New England, the Gulf of Mexico and California will share their experiences in responding to the changing coast.

You may continue to access Symposium information after the fact through our website where presentations and background materials will be posted <http://law.rwu.edu/sites/marineaffairs>.

Thank you for joining us for what I hope is a lively and informative experience!

Sincerely,

Susan E. Farady

Susan E. Farady
Director and Adjunct Faculty
Marine Affairs Institute, Roger Williams University School of Law
Rhode Island Sea Grant Legal Program

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AGENDA

WEDNESDAY, NOVEMBER 14, 2012

- 7:30 a.m. **Registration Opens**
- 8:00 – 8:30 a.m. **Continental Breakfast**
- 8:30 – 9:00 a.m. **Welcome**
Donald J. Farish, Ph.D., J.D., President, Roger Williams University
David A. Logan, Dean, Roger Williams University School of Law
Susan E. Farady, Director, Marine Affairs Institute, Roger Williams University School of Law
- 9:00 – 9:45 a.m. **Keynote Speaker: Dr. William B. Curry**, Bermuda Institute of Ocean Sciences
- 9:45 – 10:15 a.m. **Break**
- 10:15 – 11:45 a.m. **Panel I *Shifting Sands: Implications of Changing Ocean-Land Boundaries***
Our governance of public and private property on the coast is based on the assumed stability of the boundary between land and sea. As this boundary changes as a result of sea level rise and coastal environments are impacted by increasingly unpredictable storm events, many laws and policies are being tested and challenged in unprecedented ways. This panel will examine issues such as changes in public access, insurance, and zoning.
- Moderator:** **Robert Thompson**, University of Rhode Island
Panelists: **Dr. Isaac Ginis**, University of Rhode Island
 Thomas Ruppert, Florida Sea Grant
 Caroline A. Karp, Brown University
 Dr. Louis A. Gritz, FM Global Insurance
- 11:45 – 12:30 p.m. **Lunch**
- 12:30 – 1:15 p.m. **Keynote Speaker: Dr. Laura Petes**, NOAA Climate Programs Office
- 1:15 – 2:45 p.m. **Panel II *State and Municipal Case Studies – New England***
U.S. states and municipalities are responding in many ways to the changes in their coastal and ocean environments. These changes have many implications for coastal communities and how human behavior is governed. This panel will present case studies from the Northeast region to explore the range of law and policy options being developed.
- Moderator:** **Dennis Esposito**, RWU School of Law
Panelists: **Grover Fugate**, Rhode Island Coastal Resources Management Council
 William E. Taylor, Esq., Pierce Atwood LLP
 Joseph A. MacDougald, University of Connecticut School of Law
 Dr. Syma A. Ebbin, Connecticut Sea Grant
 Julia Knisel, Massachusetts Coastal Zone Management
- 2:45 – 3:15 p.m. **Break**



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3:15 – 4:45 p.m.

Panel III *The Emerging Arctic*

The melting Arctic ice cap is causing dramatic changes to how nations consider international boundaries and resource access in the Arctic region. Five nations are actively considering the implications of an ice-free Arctic on access to oil, gas and fishery resources, naval operations and maritime commerce. This panel will examine the range of legal issues in this literally fast-moving area.

Moderator: Michael Burger, RWU School of Law

Panelists: Dr. Larry Mayer, University of New Hampshire

Kirsten Ullbaek Selvig, Ministry of Fisheries and Coastal Affairs, Norway

Walter A. Berbrick, U.S. Naval War College

Betsy B. Baker, Vermont Law School

5:00 – 6:00 p.m.

Reception

Linden Place, Bristol, RI

6:00 – 8:00 p.m.

Dinner

THURSDAY, NOVEMBER 15, 2012

8:30 – 9:00 a.m.

Continental Breakfast

9:00 – 9:45 a.m.

Keynote Speaker: Geoff Feinberg, Yale Project on Climate Change Communication

9:45 – 10:15 a.m.

Break

10:15 – 11:45 a.m.

Panel IV *Warming Waters: Implications for Resource Management*

Marine waters are becoming warmer and more acidic. These changes affect fish populations, marine mammals and many other aspects of ocean and coastal ecosystems. Managers and stakeholders will confront increasingly complex management decisions as resource conditions become less stable and human demands for ocean resources increase. This panel will explore the current scientific information about ocean conditions, and the legal, governance and policy challenges posed by changing resource and environmental conditions.

Moderator: Dennis Nixon, University of Rhode Island

Panelists: Dr. Kevin Friedland, NOAA Northeast Fisheries Science Center

Alison Rieser, University of Hawaii at Manoa

Tricia K. Jedele, Conservation Law Foundation

Robin Kundis Craig, S.J. Quinney College of Law, University of Utah

12:00 – 1:00 p.m.

Lunch – Keynote Speaker: J. David Breemer, Pacific Legal Foundation



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1:00 – 2:30 p.m.

Panel V *Full Steam Ahead: Implications for the Maritime Industry*

The maritime industry is directly affected in port as well as in at sea operations by changes to coastal infrastructure and maritime operating conditions caused by climate change. This panel will consider specific issues of interest to the maritime industry such as risks to port infrastructure, and changes in emission and discharge regulations.

Moderator: Michael J. Daly, Esq., Pierce Atwood LLP

Panelists: Michael Savonis, ICF International
Austin Becker, Stanford University
Ronald E. Beck, U.S. Coast Guard
Paul Heylman, Saul Ewing, LLP

2:30 – 2:45 p.m.

Break

2:45 – 4:15 p.m.

Panel VI *State and Municipal Case Studies, - Beyond New England*

U.S. states and municipalities are responding in many ways to the changes in their coastal and ocean environments. These changes have many implications for coastal communities and how human behavior is governed. This panel will present case studies from states and municipalities outside the Northeast region to explore the range of law and policy options being developed.

Moderator: Julia Wyman, RWU School of Law

Panelists: Melissa Trosclair Daigle, Louisiana Sea Grant Law & Policy Program
Steve Goldbeck, San Francisco Bay Conservation and Development Commission
Dr. Thomas L. Linton, Texas A&M University at Galveston
Jessica Grannis, Georgetown Law School

4:15 – 4:45 p.m.

Wrap Up Discussion and Conclusion

Susan Farady, Marine Affairs Institute



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KEYNOTE SPEAKERS



William B. Curry, Ph.D.
President and Director
Bermuda Institute of Ocean Sciences

Dr. William Curry is President and Director of the Bermuda Institute of Ocean Sciences. Prior to joining BIOS, he was Senior Scientist in the Department of Geology and Geophysics at the Woods Hole Oceanographic Institution (WHOI) and Director of the WHOI Ocean and Climate Change Institute (OCCI). Dr. Curry served as Chair of the WHOI Department of Geology and Geophysics and was OCCI Director from 2001 to 2005. Dr. Curry has twice served as a Program Director at the National Science Foundation (NSF) in the Division of Atmospheric and Geospace Sciences. He was a member of the Ocean Studies Board of the National Research Council as well as numerous National Science Foundation and National Oceanic and Atmospheric Administration (NOAA) advisory and review panels. He is an elected Fellow of the American Geophysical Union (AGU). Dr. Curry studies the history of climate and ocean circulation, particularly how large changes in ocean circulation and chemistry have affected the carbon cycle and ice age climate. He has participated in 13 oceanographic expeditions (ten as Chief Scientist) to collect sediment cores for climate reconstructions, returning more than 400 cores from different regions in the North and South Atlantic Oceans. Dr. Curry received his undergraduate degree from the University of Delaware and earned the Ph.D. at Brown University.

Dr. Curry's presentation is entitled "The Early Signs of Global Warming and the Long-Term Outlook for the Oceans."



Laura Petes, Ph.D.
Ecosystem Science Advisor
NOAA Climate Program Office

Dr. Laura Petes is the Ecosystem Science Advisor in the NOAA Climate Program Office, where she works to connect and translate science in support of climate adaptation decision-making and policy development. Her efforts within NOAA focus primarily on strengthening partnerships between climate change and coastal ecosystem programs to enhance the ability of science to meet the needs of coastal decision makers and managers. Dr. Petes has been integrally involved in several major interagency climate and ocean initiatives, including the Interagency Climate Change Adaptation Task Force and the National Ocean Policy. She is a core member of the US Global Change Research Program's Adaptation Science Workgroup, which is coordinating science and services in support of climate adaptation across Federal agencies. In addition, she is a Lead Author for the National Climate Assessment's Coastal Zone Development and Ecosystems chapter. Dr. Petes has conducted extensive research on the impacts of climate change and diseases in coral reef, rocky intertidal, and estuarine ecosystems. She received a BA in Biology from Cornell University and a PhD in Zoology from Oregon State University. Dr. Petes conducted postdoctoral research at the Florida State University Coastal & Marine Laboratory and subsequently served as a AAAS Science & Technology Policy Fellow at NOAA.

Dr. Petes' talk will describe the emerging landscape of climate adaptation initiatives at the federal/national level (e.g. Interagency Climate Change Adaptation Task Force, National Climate Assessment, National Ocean Policy), as well as the relevance of these efforts to coastal and ocean decision making and management.



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Geoff Feinberg
Research Director
Yale Project on Climate Change Communication

Geoff Feinberg is research director of the Yale Project on Climate Change Communication, where he works with a multidisciplinary team. He specializes in: 1) discovering, through survey research and other methods, how people across social, educational and political segments think about climate change and sustainability, and 2) uses this knowledge to help design messaging platforms that effectively encourage environmentally sustainable attitudes and behaviors. Prior to joining Yale, he was a vice president at GfK North America, a large marketing research firm, where he specialized in public opinion, thought leadership, social marketing, and strategic communications research. At GfK, Mr. Feinberg co-founded and was the GfK director of the Associated Press-GfK Poll, which covers a range of current political and social topics and is one of the most widely reported media polls in the world, reaching upwards of an estimated two billion people monthly. He was also a chief research advisor for the Meth Project, a philanthropic organization devoted to reducing methamphetamine use among teens. In the environmental arena, Mr. Feinberg served as research consultant to the Sustaining Family Forests Initiative. He has also conducted national polls on environmental topics for Yale and Stanford. Mr. Feinberg has long been active in the research community. He served on the Executive Council of the New York chapter of the American Association for Public Opinion Research (NYAAPOR) as President, Vice President, Past President, Program Chair, and Secretary/Treasurer. He received its Distinguished Service Award in 2007 and was recently elected its Councilor-at-Large for 2012-2014. Mr. Feinberg is also a member of the Market Research Council. He grew up in Kent, Ohio, and was educated at Kent State University (B.A., double major in psychology and English) and Dartmouth College (M.A., experimental psychology).

Mr. Feinberg will present findings from *Climate Change in the American Mind*, the latest survey conducted by the Yale Project on Climate Change Communication. He will give an overview of key opinions held by the American public on a variety of issues related to perceptions of climate change, experiences with extreme weather, behaviors, and policy preferences.



J. David Breemer
Principal Attorney
Pacific Legal Foundation

J. David Breemer joined Pacific Legal Foundation in 2001 and serves the public interest as a Principal Attorney in PLF's Property Rights Practice Group. As a general matter, Mr. Breemer is heavily involved in litigation in state and federal courts concerning the right of property owners to obtain compensation when their property is excessively regulated for a public good. Specific focuses include securing federal court jurisdiction over federal property rights claims and defending private property rights in coastal areas. Cases representative of Mr. Breemer's work include: *Severance v. Patterson*, 370 S.W.3d 705 (Tex. 2012); *Acorn Land, LLC v. Balt. County*, 402 Fed. Appx. 809 (4th Cir. 2010); *Severance v. Patterson*, 566 F.3d 490 (5th Cir. 2009); *Crown Point Dev., Inc. v. City of Sun Valley*, 506 F.3d 851 (9th Cir. 2007); *Mikeska v. City of Galveston*, 451 F.3d 376 (5th Cir. 2006); *Burke v. California Coastal Com.*, 85 Cal. Rptr. 3d 909 (Cal. Ct. App. 2008). Mr. Breemer has been admitted to the State Bar of California since 2001. He is also admitted to many federal courts, including most federal appellate courts and the United States Supreme Court. Mr. Breemer received his J.D. at the University of Hawaii, graduating summa cum laude in 2001 and obtaining an



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Environmental Law Certificate. While at the University of Hawaii, Mr. Breemer worked closely with Professor David L. Callies, a respected land use law authority. Mr. Breemer received an M.A. in Political Science at the University of California, Davis, in 1994. Prior to that, he received a B.A. in English at the University of California, Santa Barbara.

Mr. Breemer will discuss several pending legal cases, including *Severance v. Patterson*, to illustrate and discuss the conflicts between private property rights and public beach access rights that arise when erosion is deemed to have moved a public beach boundary inland, and onto (or landward of), property that was previously in exclusive private use and ownership.



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WELCOME REMARKS



Donald J. Farish, Ph.D., J.D.
President
Roger Williams University

With more than 40 years experience in higher education including 11 as a full-time faculty member, esteemed educator, scientist and attorney **Donald J. Farish, Ph.D., J.D.**, became the 10th president of Roger Williams University in June 2011.

A native of Winnipeg, Manitoba, Canada, Dr. Farish immigrated to the United States in 1963 to pursue his graduate education after receiving his bachelor's degree in zoology from the University of British Columbia. He holds a master of science degree in entomology from North Carolina State University, a Ph.D. in biology from Harvard University and a *juris doctor* from the University of Missouri. A respected scientist in his field, Dr. Farish is the author of six biology textbooks and has authored and co-authored numerous articles on entomology and animal behavior.

A celebrated academic leader, Dr. Farish joined Roger Williams following a 13-year post as president of Rowan University in Glassboro, N.J., where he transformed the respected regional institution into a world-class university known for its innovative academic programs. At Rowan, Dr. Farish was responsible for the physical expansion of the campus, including the construction of new academic facilities for science, medicine, teacher education and technology research; almost 2,000 additional student residence beds to accommodate rapidly expanding enrollment; and a 26-acre downtown redevelopment project to connect the borough of Glassboro with the University.

Throughout his career in higher education, Dr. Farish has demonstrated tremendous commitment to teaching and learning, always considering himself a member of the faculty who also provides administrative leadership. During his tenure at Rowan, Dr. Farish elevated the institution from second tier to top tier, where it is ranked third among public master's level universities in the North by *U.S. News & World Report*. He also created incentive programs to enhance student-faculty interaction and established a plan to bring an additional 50 tenure-track faculty members to the university.

Prior to assuming presidency of Rowan University in 1998, Dr. Farish held academic and administrative positions at Sonoma State University, the University of Rhode Island and the University of Missouri. His commitment to shared governance has earned him a reputation as a collaborative and inspirational leader dedicated to preparing students for life in a just society, and to turning challenges into opportunities. A sought-after voice in higher education, Dr. Farish served as one of 20 sitting presidents and chancellors at a July 2010 Presidential Roundtable organized in Washington, D.C., by the National Center for Public Policy and Higher Education to discuss the future of higher education in the U.S.

Dr. Farish is committed to giving back to the community and has recently served in a volunteer capacity at the United Way of Gloucester County and on the Executive Committee of the Greater Camden Partnership, a group of leaders from business, medicine and education devoted to the revitalization of the city of Camden, N.J., the second-poorest city in America.



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David A. Logan
Dean and Professor of Law
Roger Williams University School of Law

David Logan has been Dean at the Roger Williams School of Law since 2003. After law school, David clerked for a federal judge and then joined a major Washington, D.C. law firm. During his time in practice he represented American Indian tribes, as well as being on brief in *Havens Realty v. Coleman*, in which the United States Supreme Court approved the use of “testers” to prove racial discrimination under the federal Fair Housing Act. From 1981-2003, Dean Logan was on the faculty at Wake Forest University School in Winston-Salem, North Carolina, where he taught and wrote about Torts. Dean Logan received his J.D. from the University of Virginia School of Law.

He has won awards for his teaching and public service, and is often called upon to provide expert commentary on controversial legal issues. Dean Logan has frequently been quoted in major newspapers and appeared on Nightline, The NBC Evening News, and CBS Morning News, National Public Radio, and the O'Reilly Factor.



Susan E. Farady
Director
Marine Affairs Institute/Rhode Island Sea Grant Legal Program
Adjunct Professor of Law, Roger Williams University School of Law

Susan Farady is the Director of the Marine Affairs Institute and the Rhode Island Sea Grant Legal Program, and adjunct faculty. She directs the education, outreach and research programs of the Institute, including the joint degree program with the University of Rhode Island Department of Marine Affairs, activities with Rhode Island Sea Grant, and marine affairs curriculum and outreach activities at the School of Law. Professor Farady has published and presented on marine protected areas, the National Marine Sanctuary Act and marine governance reform, teaches Ocean Management and Policy, and Marine Spatial Planning Law and Policy, and is co-author of a textbook, *Marine and Coastal Law 2nd ed* (2010). She serves as an advisor to several non-profit, education and marine management entities.

Prior to joining RWU, she directed the Ocean Conservancy's New England Regional Office, practiced both civil and criminal law, and crewed aboard sail-training ships and yachts. She received her Bachelor's Degree in Biology from the University of Colorado and her J.D. from Vermont Law School.



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PANEL I

SHIFTING SANDS: IMPLICATIONS OF CHANGING OCEAN-LAND BOUNDARIES



Robert Thompson - Moderator
Professor and Chair, Department of Marine Affairs
University of Rhode Island

Robert Thompson received his J.D. and Ph.D. from the University of California at Berkeley. He is a member of the California and Oregon bar associations. Professor Thompson's legal practice in both states included the National Environmental Policy Act, each state's version of NEPA, the Endangered Species Act, land use law, riparian and coastal access, and water law. He is currently at the University of Rhode Island and is the Chair of the Department of Marine Affairs. The Department of Marine Affairs has awarded an interdisciplinary master's degree in coastal and marine management for 43 years and is the oldest program of its type in the world. Professor Thompson's areas of research and teaching include mitigation planning with respect to coastal hazards and disasters, coastal community adaptation to climate change, the development of methods for collecting and mapping data on human activities in and attitudes about the marine environment, the social construction of environmental data in coastal and marine spatial planning, coastal access law, and property theory as it relates to coastal access and marine resources. His scholarly work has been published in law reviews, planning journals, and journals specializing in coastal and ocean management.



Dr. Isaac Ginis
Professor of Oceanography
University of Rhode Island

Dr. Isaac Ginis, Professor of Oceanography at the University of Rhode Island, has an international reputation as a leading expert in numerical modeling and forecasting of air-sea interaction during hurricanes. He has published over 70 papers in scientific journals and books on this topic and authored a chapter for the book "Global Perspectives on Tropical Cyclones" published by the World Meteorological Organization, Geneva, Switzerland. His ground-breaking work in developing coupled hurricane-ocean interaction models has led to significant improvement in hurricane forecasting. Dr. Ginis is one of the lead developers and science advisors of the most comprehensive internet resources on hurricanes, *Hurricanes: Science and Society*. He is a recipient of several national awards, including the 2001 NOAA Outstanding Scientific Paper Award. Dr. Ginis has been named the 2002 Environmental Hero by the National Oceanic and Atmospheric Administration. To learn more about his research please go to <http://www.gso.uri.edu/users/iginis>.

Dr. Ginis will speak about growing evidence of links between climate change and sea level rise and extreme weather events. Sea levels along the U.S. Northeast coast are rising up four times faster than the global average, making the region more vulnerable to storm surges and flooding. Weather and climate contributed to more than one-third of trillion dollars in damage worldwide in 2011, and this year's total may rival that amount.



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Thomas Ruppert
Climate and Policy Coordinator
Florida Sea Grant

Thomas Ruppert works with the Florida Sea Grant College Program as a statewide specialist in coastal planning. Mr. Ruppert is a licensed Florida attorney whose work with Florida Sea Grant focuses on legal aspects of adaptive planning for sea-level rise, hazard mitigation, post-disaster recovery planning, environmental protection, and associated long-term challenges and opportunities of Florida's coastal communities. In this role, Mr. Ruppert provides assistance to the network of county-based extension agents and local governments. Mr. Ruppert's areas of expertise include federal and state property rights law, beach and coastal policy in Florida, Florida's coastal construction control line permitting, comprehensive planning law, sea turtle habitat protection, and coastal and marine permitting programs.

Mr. Ruppert will discuss property issues related to climate change. Private property protections enshrined in the U.S. Constitution's Fifth Amendment play a central role in how local governments deal with the challenges of a dynamic coastline. Mr. Ruppert's presentation addresses a seminal case in Florida on erosion impacting public infrastructure along the beach. In addition, the presentation will briefly discuss how notice to property purchasers may be a useful tool in the toolbox of local governments confronting coastal conundrums of property and change.



Caroline A. Karp
Senior Lecturer, Center for Environmental Studies
Brown University

Carolina Karp is a Senior Lecturer in Brown University's Center for Environmental Studies. Professor Karp teaches international and domestic environmental law and policy courses, a property rights course, and occasional seminars on environmental topics. Her research interests include understanding human impacts on water use, water quality and living marine resources; management of coastal watersheds and marine resources; and the roles of women in use and management of marine resources. She has worked with students in Indonesia, Senegal, Madagascar and Rhode Island to examine the effects of land use, artisanal fishing, emerging markets and tourism on marine and coastal resources and the development of protected marine areas. Prior to joining Brown University, Professor Karp directed the Narragansett Bay Estuary Project, an \$11 million federal-state watershed-based initiative to better understand, protect and restore Narragansett Bay. Professor Karp holds a J.D. from Golden Gate University and a MA *ad eundem* from Brown University.

Professor Karp's talk is entitled "Adapting to Climate Change: When Retreat is the Better Part of Valor." Accelerated sea level rise, in combination with increasingly frequent extreme weather events caused by global warming-induced climate change, is very likely to result in increased inundation, flooding, and erosion of Rhode Island's coastal and riparian floodplains. However, FEMA's Flood Insurance Rate Maps (FIRMs) rarely account for the projected effects of climate change and therefore significantly underestimate the risk of flooding and erosion. Rhode Island and its municipal governments could pursue a variety of judgment-proof regulatory, information, and market-based strategies to motivate private property owners to retreat from high hazard areas.



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Louis A. Gritz, Ph.D.
Vice President and Manager of Research
FM Global

Dr. Louis Gritz is vice president and manager of research with FM Global, one of the world's largest commercial property insurers. He oversees FM Global's team of world-renowned scientists, with expertise in fire, explosions, natural hazards (windstorms, flood, and earthquakes) and risk and reliability, who seek to understand property hazards and identify solutions that can prevent loss at client facilities. Dr. Gritz also oversees activities at FM Global's US\$125-million, 1,600 acre, Research Campus in West Glocester, Rhode Island, the world's largest center for property loss prevention research. Prior to joining FM Global in 2006, Dr. Gritz was manager of fire science and technology at Sandia National Laboratories in Albuquerque, New Mexico, and was a member of its Advanced Concepts Group think tank. He currently serves on the Governing Board of the Global Earthquake Model, as the Chair of the Research Leadership Team of the Industrial Research Institute, on Advisory Committees for the Insurance Institute for Business and Home Safety and several universities, and on the Editorial Board of several technical journals. He has recently served as chair of the American Society of Mechanical Engineers Heat Transfer Division Executive Committee and on the Research Advisory Committee for the National Fire Protection Association. Dr. Gritz has a Ph.D. in mechanical engineering, with a minor in applied mathematics, from Texas Tech University, USA.

Dr. Gritz's talk is entitled "Managing Risk to Success in a Climate of Change and Uncertainty". The success of businesses that are vital to local and global well-being is increasingly being challenged by new risks including changes in the climate and global economic factors. Policies and practices that cost-effectively manage these risks are vital for businesses and in turn the policy makers and legal practitioners that affect them. In this presentation, the evolution of changing risks including hazards, vulnerability and economic impact will be summarized. Risk management solutions and opportunities for maintaining and increasing overall well-being from improvements in risk communication, planning, and mitigation will be presented.

PANEL II

STATE AND MUNICIPAL CASE STUDIES



Dennis Esposito - Moderator
Adjunct Professor
Roger Williams University School of Law

Dennis Esposito, a nationally recognized author, legal educator and lecturer, draws on 38-plus years experience in environmental law and regulations to determine pragmatic strategies for clients and academic education. An accomplished environmental practitioner in land use development, coastal development, hazardous waste issues, and environmental litigation, he has successfully represented clients in both the public and private sectors, including serving as legal counsel for a number of government commissions, the Environmental Committee of the Rhode Island Constitutional Convention and Rhode Island's Coastal Resources Management Council. Former Chairman of the Adler Pollock & Sheehan Environmental Practice Group, a large multi-state law firm, Professor Esposito has worked in siting and permitting the largest marina on the East Coast and was instrumental in drafting legislation that revamped Rhode Island's environmental and wetlands regulatory agencies. He is most recently serving as an Adjunct Professor at the Roger Williams University School of Law where he teaches Environmental, Ocean and Coastal, and International Environmental Law courses. He also serves on the Advisory Board of the Marine Affairs Institute at RWU School of Law.



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Grover Fugate
Executive Director
Rhode Island Coastal Resources Management Council

Grover Fugate is Executive Director of the Rhode Island Coastal Resources Management Council (CRMC) where for nearly 25 years, he has overseen the development of all policies and programs for the state's coastal program. Currently, he is the project manager of the Rhode Island Ocean Special Area Management Plan (SAMP), the CRMC's seventh such regulatory program. The SAMP will manage a variety of existing and new uses in state ocean waters, including guidance for the development of offshore renewable energy resources. Mr. Fugate has earned several significant awards, including the prestigious 2010 Susan Snow-Cotter Award for Excellence in Ocean and Coastal Resource Management from the National Oceanic and Atmospheric Administration (NOAA) and the 2008 Rhode Island Sea Grant Lifetime Achievement Award. Mr. Fugate is the author of several academic journal articles on coastal and natural resources management issues and is a guest lecturer at the University of Rhode Island and Roger Williams University. Prior to joining the CRMC, Mr. Fugate served as Director of Shore Zone Management with the Department of Development, Government of Newfoundland and Labrador, working on planning for the Province's offshore oil development. During his time there, Mr. Fugate developed the Environmental Protection Process for major onshore projects related to offshore development and was also a lecturer at the Department of Part-time Studies and Extension at Memorial University. Before this, he served in other key natural resources management positions in Newfoundland and Labrador. He holds an MBA from Memorial University with a program specialization in resource policy analysis in 1984, and graduated from the University of Connecticut in 1976, with a degree in Natural Resource Management. He also completed a certificate program in Public Administration from Memorial University.

Mr. Fugate's presentation is entitled "Rhode Island – Planning for a Shifting Shoreline."



William E. Taylor
Partner
Pierce Atwood LLP

Since joining Pierce Atwood's Environmental Group in 1984, **William Taylor** has devoted his legal practice to matters related to water law, waste discharge, wetland and natural resource licensing, compliance counseling, rulemaking, auditing, and enforcement. He regularly represents clients before local, state, and federal administrative agencies. Mr. Taylor is experienced in the negotiation and structuring of complex waste discharge and wetland alteration licenses, including site-specific water quality criterion development, use attainability analyses and preparation of alternative analyses. He recently represented a landowners' group in Long Creek Watershed on the first stormwater Residual Designation Authority petition acted on by EPA. Mr. Taylor received his J.D. and M.S., Masters in Environmental Law from Vermont Law School and a B.A. From the University of Massachusetts. He is admitted to the bar in Maine, Massachusetts, New Hampshire, U.S. District Court, District of Maine and U.S. District Court of Appeals, First Circuit. Mr. Taylor is recognized by *Chambers USA: America's Leading Business Lawyers* and *The Best Lawyers in America* for Environmental Law. He has also been recognized in the *2012 Super Lawyers Business Edition*.

Mr. Taylor's presentation will give a brief overview of Maine's regulatory provisions relating to protection of sensitive beaches and coastal areas. Two specific regulatory issues: sand dune protection and FEMA flood plain mapping will be addressed. Finally, a case study relating to construction of a sea wall will be presented.



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Joseph A. MacDougald, Esq.

Professor-in-Residence

Executive Director, Center for Energy and Environmental Law

University of Connecticut School of Law

Joseph MacDougald serves as a Professor-in-Residence as well as the Executive Director for the University of Connecticut School of Law's Center for Energy and Environmental Law (CEEL). He holds degrees from Brown University (AB Mathematics), New York University (MBA), the University of Connecticut School of Law (JD), and Yale University's School of Forestry and Environmental Studies (Masters in Environmental Management). Mr. MacDougald teaches and has created courses in Climate Law, Renewable Energy Law, Land Use and Environmental Law. Through CEEL and with others, he has held conferences on climate adaptation, climate change and insurance, and (upcoming) methane policy as well as placed students in clinical offerings at state agencies and he has held class on the White House grounds. In private industry, Mr. MacDougald served as general counsel, chief operating officer and finally president of an international biomaterials company. He has previously been a visiting scholar and member of the adjunct faculty at the University of Connecticut School of Law and also has held a lecturer's appointment to Yale School of Forestry & Environmental Studies. Mr. MacDougald has a long history of local service as a town zoning commission member and chairman, and a town selectman in his hometown of Madison (CT). He is a board member of the Madison Land Conservation Trust and has served as a board member or volunteered for other non-profit institutions.

Professors MacDougald and Ebbin will present the legal, policy, and practical implications arising from Connecticut's climate adaptation efforts inspired by recent storms. The presentation will include a review of a recent conference, "Legal Solutions for Coastal Climate Change Adaptation," sponsored in part by Connecticut Sea Grant and the National Sea Grant Law Center, and subsequent legislation.



Syma A. Ebbin, Ph.D.

Research Coordinator, Connecticut Sea Grant

Assist. Professor in Residence, Dept. of Agricultural and Resource Economics

University of Connecticut

Dr. Syma Ebbin is the Research Coordinator at Connecticut Sea Grant as well as faculty member in the Department of Agriculture and Resource Economics at the University of Connecticut. Dr. Ebbin is the co-chair of the Long Island Sound Assembly, appointed as a member of the eastern council by the Governor in 2008. Her research focuses on the cooperative management of fisheries and recent work also addresses climate change adaptation in coastal areas. She is a Subject Editor of the journal *Marine and Coastal Fisheries* and the author of numerous articles, chapters as well as an edited volume *"A Sea Change: The Exclusive Economic Zone and Governance Institutions for Living Marine Resources"* (2005). Previous work included her role as the Executive Officer of the project on the Institutional Dimensions of Global Environmental Change, a project focused on the role of institutions in the governance of marine, terrestrial and atmospheric systems. Dr. Ebbin worked in Washington state as a fisheries management biologist for the Squaxin Island Tribe and the Northwest Indian Fisheries Commission. She received her PhD, MSci, MPhil, and MEM from Yale University Department of Forestry and Environmental Studies; an MSci in Fisheries Science from the University of Alaska, Southeast and a BA in Biology from Williams College.



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Professors Ebbin and MacDougald will present the legal, policy, and practical implications arising from Connecticut's climate adaptation efforts inspired by recent storms. The presentation will include a review of a recent conference, "Legal Solutions for Coastal Climate Change Adaptation," sponsored in part by Connecticut Sea Grant and the National Sea Grant Law Center, and subsequent legislation.



Julia Knisel
Coastal Shoreline and Floodplain Manager
Massachusetts Office of Coastal Zone Management

Julia Knisel has ten years of experience in the coastal management field and is currently the Coastal Shoreline and Floodplain Manager for the Massachusetts Office of Coastal Zone Management (CZM). Julia staffed the Massachusetts Coastal Hazards Commission in 2006 and continues to work to develop and promote adaptive measures to address erosion, flooding and sea-level rise. Julia represents CZM on regional organizations including the Climate Change Work Group of the Coastal States Organization and the Northeast Regional Ocean Council's Coastal Hazards Resilience Committee, which she co-chairs. Julia previously worked for the U.S. Geological Survey Coastal and Marine Geology Program and was a NOAA Coastal Management Fellow in North Carolina. Julia has a B.S. in Biology and Marine Science from The Pennsylvania State University, and a M.S. in Marine Policy and Coastal Zone Management from The University of Maine.

Ms. Knisel will provide an overview of municipal adaptation projects that have been funded through a joint Northeast Regional Ocean Council and Gulf of Maine Council coastal hazards resilience initiative. These projects are assessing potential impacts of sea level rise and storm surge, and developing adaptation strategies, including modifications to coastal infrastructure.

PANEL III

THE EMERGING ARCTIC



Michael Burger - Moderator
Associate Professor of Law
Roger Williams University School of Law

Michael Burger teaches Environmental Law, Ocean & Coastal Law, Administrative Law, and Law & Literature at RWU Law. Prior to his arrival here, he was assistant acting professor of Lawyering at New York University School of Law. He also served for four years in the Office of the Corporation Counsel of the City of New York, where he worked on issues ranging from global warming to the protection of the City's drinking water supply to the renovation of Washington Square Park.

Professor Burger writes on environmental federalism and the intersection of environmental law and environmental literature. Recent articles have appeared or are forthcoming in the *University of Cincinnati Law Review*, the *University of Hawaii Law Review*, the *Environmental Law Reporter*, and other journals. He is a graduate of Columbia Law School, where he was a Harlan Fiske Stone Scholar and an articles editor for the *Columbia Journal of Environmental Law*; and of Brown University, where he graduated magna cum laude and received the Ratcliffe Hicks Prize for highest standing in language and literature. He also holds a Master of Fine Arts degree from the Graduate Creative Writing program at NYU.



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Larry Mayer, Ph.D.
Professor
Director, Center for Coastal and Ocean Mapping
University of New Hampshire

Dr. Larry Mayer is a Professor and the Director of the Center for Coastal and Ocean Mapping at the University of New Hampshire. He graduated magna cum laude with an Honors degree in Geology from the University of Rhode Island in 1973 and received a Ph.D. from the Scripps Institution of Oceanography in Marine Geophysics in 1979 where he investigated deep-sea mapping and the history of climate. After being selected as an astronaut candidate finalist for NASA's first class of mission specialists, Dr. Mayer studied as a post-doctorate at the School of Oceanography at the University of Rhode Island where he worked on the early development of the Chirp Sonar and problems of deep-sea sediment transport and paleoceanography. In 1982, he became an Assistant Professor in the Dept. of Oceanography at Dalhousie University and in 1991 took the NSERC Industrial Research Chair in Ocean Mapping at the University of New Brunswick. In 2000, Larry became the founding director of the Center for Coastal and Ocean Mapping at the University of New Hampshire and the co-director of the NOAA/UNH Joint Hydrographic Center. Dr. Mayer has participated in more than 90 cruises (over 70 months at sea!) during the last 37 years, and has been chief or co-chief scientist of numerous expeditions including two legs of the Ocean Drilling Program and five mapping expeditions in the ice covered regions of the high Arctic. He has served on, or chaired, far too many international panels and committees and has the requisite large number of publications on a variety of topics in marine geology and geophysics. He is the recipient of the Keen Medal for Marine Geology and an Honorary Doctorate from the University of Stockholm. He was a member of the President's Panel on Ocean Exploration, National Science Foundation's Advisory Committee for the Geosciences, and chaired a National Academy of Science Committee on national needs for coastal mapping and charting. He is currently co-chair of the NOAA's Ocean Exploration Advisory Working Group, a member of the National Science Foundation's Ocean Observatories Initiative Program Advisory Committee, and the State Dept's Extended Continental Shelf Task Force and is chairing a National Academy of Sciences Committee on the impact of the Deepwater Horizon spill on ecosystem services in the Gulf of Mexico. Dr. Mayer's current research deals with sonar imaging and remote characterization of the seafloor as well as advanced applications of 3-D visualization to ocean mapping problems and applications of mapping to Law of the Sea issues, particularly in the Arctic.

Dr. Mayer's talk will focus on U.S. mapping efforts in support of the establishment of an extended continental shelf under UNCLOS Article 76 and, in particular, mapping in the ice-covered regions of the Arctic. He will explore the impact that recent changes in ice extent have had on mapping as well as the implications of these changes to resource access and management.



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Kirsten Ullbæk Selvig
Director General
Ministry of Fisheries and Coastal Affairs
Norway

Kirsten Selvig holds a law degree from University of Copenhagen, and has since 1996 been director general in the Norwegian Ministry of Fisheries and Coastal Affairs with responsibilities including infrastructure for maritime transport and safety at sea, ports and port security, oil spill preparedness and civil radio navigation policy and the National Coastal Administration. Ms. Selvig has studied one year at the Norwegian Defense College and has previously been assistant director general in the Department for Petroleum Affairs in the Norwegian Ministry of Finance. Ms. Selvig has also worked as legal advisor in the Danish Ministry of Environment. Ms. Selvig has held various academic positions in the field of law at universities in Copenhagen and Oslo. She has over the years presented papers at various national and international conferences, and is author of articles published in Norwegian and foreign periodicals.

Ms. Selvig's talk is entitled "Transport Corridors and Maritime Infrastructure in the Arctic – the Norwegian Approach." Her talk will cover (1) the interest for the Arctic – who and how; (2) the Arctic is not a new ocean – but presents new regional and global opportunities and challenges; (3) knowledge, data, information is of outstanding importance; (4) cooperation, not competition, is needed; and (5) basic infrastructure is required for all activities in the Arctic.



Walter A. Berbrick
Assistant Professor, War Gaming Department
Center for Naval Warfare Studies
U.S. Naval War College

Walter Berbrick is an Assistant Professor in the War Gaming Department in the Center for Naval Warfare Studies at the U.S. Naval War College. He currently leads the project design and analytic efforts for multiple national security research projects in support of U.S. military strategy and defense policymaking. Professor Berbrick's work encompasses both basic research focusing on collective choice and social institutions, and applied research dealing with issues pertaining to military strategy, defense planning, and the Arctic region. Professor Berbrick's recent publication entitled *The Fleet Arctic Operations Game Report*, published by Naval War College Press in 2011, examines the gaps that limit sustained maritime operations in the Arctic and outlines DOTMLPF solutions to inform U.S. Navy and defense leadership. He frequently contributes to both national and local print and broadcast media, including *The Associated Press*, *Washington Times*, *Los Angeles Times*, *New York Daily News*, the *Huntington Post*, and *National Public Radio*. Professor Berbrick has lectured before a wide range of professional and academic audiences both in the U.S. and abroad. Professor Berbrick is a non-resident fellow at the Foreign Policy Research Institute and member of the International Institute for Strategic Studies. He also serves as an adjunct faculty member at Saint Peter's University where he teaches international security studies. Professor Berbrick received his bachelor's degree in criminology from Saint Peter's University and master's degree in international relations from Salve Regina University. He later earned his doctorate in law and policy at Northeastern University in Boston, MA. His doctoral thesis is entitled *Strengthening U.S. Arctic Policy through US-Russia Maritime Cooperation*.



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Betsy B. Baker

Associate Professor

**Senior Fellow for Oceans and Energy, Institute for Energy and the Environment
Vermont Law School**

Betsy Baker is associate Professor, Vermont Law School, and Senior Fellow for Oceans and Energy at the school's Institute for Energy and the Environment. She has published widely on law and regulation in the Arctic, recently preparing papers for the Inuit Circumpolar Council and the Arctic Council on resource development laws in Greenland and Russia; on marine scientific research; and other topics. Current projects include co-leading the PAME Arctic Ocean Review Phase II Report and heading up the report's Offshore Oil and Gas chapter. A member of the science crew on USCGC *Healy* Arctic Ocean extended continental shelf mapping 2008 and 2009 cruises, and a Dickey Research Fellow, Institute of Arctic Studies, Dartmouth College, 2009-2010, Professor Baker clerked for the Honorable John T. Noonan, U.S. Court of Appeals for the Ninth Circuit, holds a J.D. from Michigan, and LL.M. and Dr. jur. degrees from Christian-Albrechts-Universität in Kiel, Germany, where she was an Alexander von Humboldt Chancellors Scholar. Professor Baker is on leave for the 2012-2013 academic year as Visiting Scholar with the U.S. Extended Continental Shelf Task Force in Washington DC. She works with the inter-agency task force from the U.S. Department of State, Office of Ocean and Polar Affairs

Professor Baker's presentation is entitled "Resource Development in the Arctic Ocean: Legal and Institutional Infrastructure." As the Arctic Ocean becomes more accessible for a wide range of largely vessel-borne activities such as fishing, oil and gas exploration, and tourism, nations and international bodies are revisiting whether current laws and institutions are sufficient to manage the attendant risks of such activity. This talk provides an introduction to the Arctic Council, reviews the adequacy of international agreements relevant to the Arctic Ocean, and proposes areas that Arctic Ocean coastal states might consider for harmonizing their approach to regulating activities in their offshore areas.

PANEL IV

WARMING WATERS: IMPLICATIONS FOR RESOURCE MANAGEMENT



Dennis Nixon - Moderator

Associate Dean for Research and Administration

**Graduate School of Oceanography and Professor of Marine Affairs
University of Rhode Island**

Dennis Nixon joined the faculty of the University of Rhode Island in 1976, rising to the rank of Professor of Marine Affairs. He taught courses in admiralty, fisheries, marine pollution, and coastal zone law. He is the author of over 60 articles, papers, and reports as well as the textbook *Marine and Coastal Law*, now in its second edition. After 25 years on the faculty and Director of the Graduate Marine Affairs Program, Dean Nixon assumed the position of Associate Dean for Academic Affairs in the College of the Environment and Life Science in 2001, and has been in his current position in 2009. As Associate Dean at the Graduate School of Oceanography, he has the responsibility of administering all operations on the Narragansett Bay Campus, including those of the research vessel *Endeavor*. Dean Nixon has been involved with research vessel operations since 1986. He has



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conducted several studies on behalf of the National Science Foundation on research vessel insurance and liability issues, and became a regular advisor to the members of the academic research vessel fleet. Since 1991, he has served as Risk Manager and Legal Advisor for the University-National Oceanographic Laboratory System (UNOLS). In this capacity, he provides legal advice for UNOLS members and the sponsoring federal agencies and has restructured insurance requirements for the entire UNOLS fleet. Dean Nixon received two Outstanding Service Awards in 2009: the first from the National Science Foundation for his work as UNOLS Legal Counsel, and the second from the American Academy of Underwater Sciences for his work on the law of scientific diving. Dean Nixon received his J.D. from the University of Cincinnati College of Law, a Master of Marine Affairs from the University of Rhode Island and B.A. (*cum laude*) from Xavier University. He serves on the Advisory Board of the Marine Affairs Institute at the RWU School of Law.



Kevin Friedland, Ph.D.
Researcher
NOAA Northeast Fisheries Science Center

Dr. Kevin Friedland is a researcher with the National Marine Fisheries Service at the Narragansett Laboratory in Rhode Island, USA. He holds a bachelors degree in ecology from Rutgers College in New Jersey and a doctorate from the College of William and Mary in Virginia. During his professional career he has done research on numerous fish species including menhaden, eel, cod, haddock, and salmon. Dr. Friedland's publications cover a range of topics such as fisheries oceanography, ecosystem ecology, and climate change. His current research is on the effects of growth on the early maturation and survival of Atlantic salmon and the factors controlling the recruitment of cod and haddock. He has served as chair of several committees for the International Council for the Exploration of the Sea (ICES) and is the chair of the Regional Association for Research on the Gulf of Maine (RARGOM).

Dr. Friedland's presentation will examine shifts to the thermal regime of the northeast U.S. continental shelf and the effects on marine life. The shelf ecosystem has been warming in recent years and record highs were reached during the first half of 2012. Temperature can affect the distribution and productivity of many marine organisms. These changes will likely result in species shifts and extirpations resulting in climate "winners" and "losers" that will redefine the nature of the marine ecosystem.



Alison Rieser
Dai Ho Chun Professor of Ocean Policy
University of Hawai'i
Professor Emerita, University of Maine School of Law

Alison Rieser is the Dai Ho Chun professor of ocean policy at the University of Hawai'i and professor emerita at the University of Maine School of Law. She began her career with EPA's Office of General Counsel for Water and served as attorney-advisor for fisheries with NOAA's Office of General Counsel before joining the Maine Law faculty. Ms. Rieser has consulted for numerous state and federal agencies, including the Marine Mammal Commission, the North Pacific



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Fishery Management Council, the coastal programs of the five New England states, and the Maine Department of Marine Resources. Her work for the Alaska Oil Spill Commission led to provisions in the Oil Pollution Act of 1990 authorizing citizens' councils to oversee pipeline and tanker operations in Prince William Sound. Ms. Rieser's scholarship ranges from the public trust and takings doctrines to individual fishing quotas and the ecosystem approach to fisheries. In 1999 she became the only law professor to be named a Pew Fellow in Marine Conservation. Her first work of marine environmental history, *The Case of the Green Turtle: An Uncensored History of a Conservation Icon*, was published by The Johns Hopkins University Press in May 2012. Ms. Rieser earned a B.S. in human ecology from Cornell University, a J.D. cum laude from The George Washington University School of Law, an LL.M. from Yale Law School, and a post-doctoral fellowship in marine policy from the Woods Hole Oceanographic Institution.

Professor Rieser's presentation will examine the application of science to decision-making. Effective conservation of marine ecosystems depends upon identifying and using the best data and models available. The 'best available science' standard requires that agencies take a precautionary approach to scientific uncertainty and give imperiled species and ecosystems the benefit of the doubt. These controversial decision rules will be hotly contested as marine species and ecosystems change in response to warming and acidification and to the synergistic effects of resource development in sensitive regions like the Arctic Ocean. Extraordinary safeguards are needed now to ensure the integrity of climate-related policy decisions and to protect both the scientists and the information they produce, as the recent case of the "drowned polar bears" demonstrates.

Tricia K. Jedele **Vice President, Conservation Law Foundation** **Director, CLF's Rhode Island Advocacy Center**



Since June of 2009, **Tricia Jedele** has served as a Vice President of Conservation Law Foundation (CLF) and the Director of CLF's Rhode Island Advocacy Center. She has worked on the development of the Rhode Island Ocean Special Area Management Plan, the Deepwater Wind project, and most recently, coastal erosion issues in Matunuck, RI. Prior to joining CLF, Tricia worked for 10 years as a Special Assistant Attorney General in the environmental unit at the Rhode Island Attorney General's office. In 2004, she was appointed the State's Environmental Advocate. During her tenure with the State, she brought a natural resources damages lawsuit against the Navy, which resulted in a 1.4 million dollar settlement; she served as lead counsel and the lead author of briefs for Rhode Island, Connecticut, Delaware, Massachusetts, New Jersey, and New York in the case known as Riverkeeper v. EPA. Tricia successfully argued the Riverkeeper case in the U.S. Court of Appeals for the Second Circuit before then Judge Sonia Sotomayor before the case made its way to the Supreme Court of the United States where she served as counsel of record for the states. Tricia was also the State's lead attorney in the Brayton Point Station litigation, which ultimately resulted in closed-cycle cooling technology being required at the power plant. Tricia has represented Rhode Island in numerous Clean Air Act cases, including the American Electric Power Company lawsuit, which resulted in the single largest environmental settlement in U.S. history and the installation of \$4 billion worth of pollution controls at Midwestern power plants; and the "clean car" litigation where she defended the State's greenhouse gas regulations for automobiles against GM and Chrysler. Tricia graduated from Providence College in 1995. She earned her J.D. from Creighton University School of Law in 1998. She presently serves as President of the Environment Council of Rhode Island (a coalition of 56 environmental organizations in the State), and serves on the Advisory Board for the Marine Affairs Institute at Roger Williams University School of Law.



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Robin Kundis Craig
William H. Leary Professor of Law
S.J. Quinney College of Law
University of Utah

Robin Kundis Craig is the William H. Leary Professor of Law at the University of Utah S.J. Quinney College of Law in Salt Lake City, Utah. She specializes in all things water, including the water-energy nexus, the Clean Water Act, constitutional environmental law, water law and the public trust doctrine, water resources and climate change, coastal water pollution, the intersection of water issues and land issues, and marine biodiversity and marine protected areas. She is the author of *The Clean Water Act and the Constitution* (ELI: 2nd Ed. 2009), *Environmental Law in Context* (Thomson/West: 3rd ed. 2012), and *Comparative Ocean Governance: Place-Based Protections in an Era of Climate Change* (Edward Elgar: 2012); a co-author of *Toxic and Environmental Torts* (West 2010) and *Modern Water Law* (Foundation Press 2013); and the author of over 50 law review articles and book chapters. In addition, Professor Craig has served on three successive National Research Council Committees on the Clean Water Act and the Mississippi River; on the American Bar Association's Section on Environment, Energy, and Resources' Executive Council; as Chair of SEER's Marine Resources Committee; and as Supreme Court News Editor for the ABA Administrative Law Section's *Administrative & Regulatory Law News*. At the University of Utah, she teaches Environmental Law, Water Law, Ocean & Coastal Law, Toxic Torts, and Property, and she is affiliated with the Wallace Stegner Center for Land, Resources, and the Environment.

Professor Craig's talk will discuss marine spatial planning (MSP) which has been advocated both in the U.S. and internationally as a method for improving governance of the oceans; in particular, MSP can reduce the regulatory and jurisdictional fragmentation that plagues comprehensive ocean governance. However, because MSP is place-based, it risks becoming obsolete if the increasing effects of climate change are not incorporated into this comprehensive planning tool. Her talk will cover methods for making MSP climate-change adaptable, including anticipatory zoning and dynamic zoning.

PANEL V

FULL STEAM AHEAD: IMPLICATIONS FOR THE MARITIME INDUSTRY



Michael J. Daly, Esq. - Moderator
Attorney
Pierce Atwood LLP

Michael Daly is an attorney with the law firm of Pierce Atwood LLP where his practice focuses on litigation and resolution of commercial, insurance and maritime disputes. He has represented clients in connection with pending or potential litigation over business contracts, claims for health insurance benefits, maritime towage agreements, construction defects and accidental death, among other issues. In addition to being an assistant instructor of Federal Practice/Commercial Litigation at Roger Williams University School of Law, Mr. Daly is a frequent author and speaker on topics including federal court practice and procedure, admiralty law, and insurance coverage. He is an author and co-editor of a case book, *Marine and Coastal Law 2nd ed* (2010). While at law school, Mr. Daly was a published member of the Law Review, a member of the Moot Court Honor Society,



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and simultaneously earned a Master of Marine Affairs Degree from the University of Rhode Island. Upon graduation, Mr. Daly spent two years clerking for Rhode Island Supreme Court Chief Justice, Frank J. Williams (Ret.). Before going to law school, Mr. Daly worked for the U.S. Environmental Protection Agency and the U.S. Fish and Wildlife Service doing environmental fieldwork throughout the Chesapeake Bay, the Narragansett Bay and the rivers of California's Central Valley Delta. He received his J.D. from Roger Williams University School of Law, a M.S. in Marine Affairs and a B.S. in Fisheries Science from the University of Rhode Island. Mr. Daly is admitted to the bars of Maine, Massachusetts and Rhode Island.



Michael Savonis
Fellow
ICF International

Michael Savonis, currently a Fellow at ICF International, is an internationally-recognized expert on adapting transportation systems to climate change. He has worked with the United Nations, the Organisation for Economic Co-operation and Development, and the U.S. Agency for International Development. He was recently a lead author on two reports on infrastructure adaptation for the 2013 National Climate Assessment. Mr. Savonis served as Senior Policy Advisor and in other capacities for 19 years at the Federal Highway Administration. He was a contributing author to *Global Climate Change Impacts in the US* for the Executive Office of the President and led development of the Synthesis and Assessment Product 4.7, *Gulf Coast Study* for the United States Global Change Research Program. Mr. Savonis helped spearhead establishment of the U.S. Department of Transportation Center on Climate Change where he pioneered the study of impacts and adaptation there.

Mr. Savonis' presentation is entitled "The Impacts of Climate Change on Ports: Examples from the U.S. and Around the Globe." Climate change is likely to have a profound impact on ports and port facilities around the world. Vital to world trade as well as national interests and economies, ports are located in highly vulnerable areas to sea level rise and storm surge. Significant investment is necessary to adapt to the changing climate and build resilience in these critical freight gateways.



Austin Becker
Ph.D. Candidate
Emmett Interdisciplinary Program in Environment and Resources (E-IPER)
Stanford University

Austin Becker is a PhD candidate in the "Emmett Interdisciplinary Program in Environment and Resources" at Stanford University. Austin's research explores avenues to build resilience against natural disasters in coastal-infrastructure systems. Focusing on adaptation to climate change, he works across the disciplines of policy, engineering, and climate-change science to quantify the risks and vulnerabilities faced by seaports and the economies that depend upon them. He explores the decision-making systems responsible for long-term planning, potential resilience strategies, and the impediments to implementing these strategies. Before coming to Stanford, Austin worked for Rhode Island Sea Grant and the University of Rhode Island's Coastal Resources Center on policy for working waterfronts and ports, marine-based tourism, and coastal-environmental concerns. As a Marine Research Associate, he studied and analyzed geo-spatial data collected from maritime-



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industry stakeholders and collaborated on creating policy solutions that addressed conflicting demands on the urban waterfront. Austin earned a Master of Marine Affairs and a Master of Environmental Science and Management at the University of Rhode Island and holds a B.A. from Hampshire College. His previous career was as a captain of educational sailing ships and he maintains a 500-Ton U.S. Coast Guard captain's license for ocean-going vessels.

Mr. Becker's talk is entitled "Hurricane consequences in the face of climate change: a case study of a seaport cluster." This presentation uses the ports of Gulfport (MS) and Providence (RI) to explore the wide variety of impacts that can result from natural disasters, such as hurricanes Katrina or Sandy, on a seaport-centered cluster of stakeholders. It emphasizes the importance of understanding the "intangibles consequences," along with the direct damage assessments and indirect costs analysis that are more commonly employed after a major event. Climate change will likely result in more extreme events in coastal areas. Resilience planning for future environmental conditions requires stakeholder understanding of these intangibles *ex ante*. Since common assessment methods are more conducive to *ex post facto* analysis, qualitative assessments of intangibles can be a useful tool to guide decision making on a port-cluster level.



Ronald E. Beck
Chief, Energy and Facilities Branch
First Coast Guard District
U.S. Coast Guard

Ronald Beck is the First Coast Guard District's program manager for coastal energy projects including LNG facilities and Offshore Renewable Energy Initiatives (OREI). The First Coast Guard District extends from the Canadian border to New Jersey. He is a representative for the Coast Guard in the Bureau of Ocean Energy Management's (BOEM) state task forces for ME, MA, the Area of Mutual Interest between MA and RI, NY and NJ. He also is a member of the Northeast Regional Ocean Council and is the First Coast Guard District's representative to the Northeast Regional Planning Body formed under the National Ocean Council. Mr. Beck is a graduate of the U.S. Coast Guard Academy and holds Masters Degrees in Naval Architecture and Marine Engineering and Industrial and Operations Engineering from the University of Michigan. He holds a U.S. 100-Ton Master's License, is a life-long sailor and boater and lives in Gloucester, Massachusetts.

The following topics will be addressed by Mr. Beck as appropriate to the general conversation:

- Impacts of climate change and sea level rise at Coast Guard Facilities including Relocation/modification of CG facilities, storm inundation and potential loss of potable water supply
- Resiliency of the marine transportation system infrastructure
- Inundation of I-95 highway/rail
 - Short Sea Shipping mitigation potential
 - a.k.a. "America's Marine Highways"
- Opening up the Northwest Passage and other Alaskan climate change impacts
- Offshore Renewable Energy Initiatives – the Coast Guard's role
- Emission Control Areas and enforcement of new emission rules in 2015
- Coastal and Marine Spatial Planning, how this will change the historic NEPA-only process



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Paul Heylman
Partner
Saul Ewing LLP

Paul Heylman has been a partner at Saul Ewing LLP and its D.C. predecessor firm since 1983. During that time he has represented port authorities on the Atlantic, Gulf and Pacific coasts in a variety of maritime matters, representing ports in disputes with marine terminal operators and counseling ports on the legal and practical implications of a variety of infrastructure and operational issues. In recent years he has worked with Pacific and Atlantic ports, as well as cargo interests, on infrastructure issues relating to air quality and greenhouse gas emissions. His work on GHG emissions has included advising ports on compliance with regulations limiting access for non-green trucks and requiring shore power for container ships (cold-ironing), as well as issues relating to slow-steaming for container ships. Mr. Heylman is an active member of the Law Review Committee of the American Association of Port Authorities (AAPA) and presents seminars on Shipping Act issues as part of the Professional Port Manager training program jointly sponsored by AAPA and the marine terminal operators association (NAWE). He received his J.D. from American University Law School and his B.A. from St. John's College in Annapolis, Md.

Mr. Heylman will address recent greenhouse gas emission regulations covering port trucking and vessel emissions (both cold-ironing at berth and slow steaming). He will also address various "green-port" initiatives and the impact of the alliance of environmental groups and organized labor in the port trucking arena, and what this means for ports and the shipping industry.

PANEL VI

STATE AND MUNICIPAL CASE STUDIES, CONTINUED



Julia Wyman - Moderator
Staff Attorney
Marine Affairs Institute and Rhode Island Sea Grant Legal Program
Adjunct Professor of Law, RWU School of Law

Julia Wyman is the Staff Attorney at the Marine Affairs Institute at Roger Williams University School of Law/Rhode Island Sea Grant Legal Program. Prior to joining the Marine Affairs Institute, Ms. Wyman served as the Policy Analyst for the Coastal States Organization in Washington, DC, an organization that represents the interests of the Governors of the thirty-five coastal states, commonwealths, and territories. While at CSO, Ms. Wyman led the organization's climate change portfolio. Ms. Wyman also serves as an adjunct faculty member at RWU School of Law, where she teaches Climate Change Law and Policy. Ms. Wyman received her J.D. from the University of Maine School of Law and her B.A. from Trinity College.



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Melissa Trosclair Daigle
Research Associate & Resiliency Specialist
Louisiana Sea Grant Law & Policy Program

Melissa Trosclair Daigle received her B.A. in English from Nicholls State University in 2003, her M.A. in English from Louisiana State University in 2005, and her J.D. and B.C.L. from the Paul M. Heber Law Center at Louisiana State University in 2008. She began working for the Louisiana Sea Grant Law and Policy Program (SGLPP) in 2008 and is currently the Law Student Research Coordinator and Resiliency Specialist on staff. She oversees six legal research assistants and serves on a number of committees and boards related to natural resources, restoration, and fisheries issues. Her research interests include resiliency and hazard mitigation issues, access to waterways, and land use issues. The SGLPP strives to provide accurate, timely legal research and information on topics affecting the use, conservation, and management of Louisiana's ocean and coastal environment and resources.

Ms. Daigle's presentation will discuss the ways in which two coastal parishes – St. Tammany and Lafourche – have begun addressing the impacts of climate change. She will also discuss outreach efforts completed by the Louisiana Sea Grant Law and Policy Program to assist communities with this effort.



Steve Goldbeck
Chief Deputy Director
San Francisco Bay Conservation & Development Commission

Steve Goldbeck is the Chief Deputy Director at the San Francisco Bay Conservation and Development Commission (BCDC). Mr. Goldbeck has twenty-seven years experience at BCDC and has been overseeing the Commission's climate change and sea level rise response program for the last three years, including helping to prepare the coastal sector of the California State Adaptation Strategy. He served as the BCDC legislative coordinator for over a decade and was the Commission's lead staff member on dredging and sediment management issues for over 15 years.

Mr. Goldbeck will discuss the San Francisco Bay Conservation and Development Commission's (BCDC) adoption of enforceable policies for adaptation to sea level rise. The process to adopt those policies was controversial and he will address lessons learned from the Commission's challenging and path breaking initiative.



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Thomas L. Linton
Professor, Marine Sciences
Texas A&M University at Galveston

Dr. Thomas Linton holds a PhD in Resources Management from the University of Michigan. He served as Commissioner of Fisheries of the State of North Carolina and helped draft model legislation establishing the framework for the Magnuson-Stevens Fishery Conservation and Management Act. And as Director of the Office of Marine Affairs of North Carolina, he developed the draft legislation which became the State of North Carolina's coastal zone management program and served as its first Director. He later served as the Director of Environmental Studies at the State of Victoria's (Australia) Ministry for Conservation, where his Department developed the resource management database used in planning the future economic development of the three major river basins of the State of Victoria. Upon his return to the States, he joined the Department of Wildlife and Fisheries Science at Texas A&M University. In 2012, he was presented the Teaching Excellence Award, the Texas A&M System's highest honor for educators. Dr. Linton continues to be very active in protecting Texas's natural resources, and writes often for the *Galveston Daily News*. He co-authored a series of articles with Christine O'Shea Roper, a Galveston-based freelance writer, entitled "*Texas Beaches: The New Management Paradigm*" that are currently being compiled into a book. These articles were prompted by a Texas Supreme Court decision (*Severance v. Patterson*) regarding public beach access, and provide the basis for the presentation at this conference.

Dr. Linton's presentation is entitled "Chronicling How a New Paradigm for Beach Management in Texas is Being Developed," and will examine the consequences of the decision in *Severance v. Patterson*.



Jessica Grannis
Staff Attorney and Adjunct Professor, Harrison Institute for Public Law
Georgetown University Law Center

Jessica Grannis is a staff attorney and adjunct professor at the Harrison Institute for Public Law, at Georgetown University Law Center where she works with state and local governments to help them adapt to sea-level rise in coordination with the Georgetown Climate Center (GCC). Her recent publications include an *Adaptation Tool Kit for Sea Level Rise* (2012); *Coastal Retreat Measures*, a book chapter on *Coastal Retreat in the Law of Climate Change: U.S. and International Aspects* (2012, with Peter Byrne); and *Coastal Management in the Face of Rising Seas: Legal Strategies for Connecticut*, *Sea Grant Law and Policy Journal* (2012, with Meagan Singer and Jena Shoaf). Prior to coming to the Harrison Institute, she was staff counsel for two California state agencies: the State Coastal Conservancy and the Ocean Protection Council. Prior to her work in state government, she worked as an associate for a civil litigation firm focusing on real property disputes. Jessica received her LL.M. from Georgetown University Law Center in 2012, and her J.D. from University of California Hastings College of Law in 2005. She was admitted to the California State Bar in 2005 and the District of Columbia Bar in 2011.

Ms. Grannis will present an analysis of how local governments can use land-use regulations to begin to prepare for sea-level rise impacts. She will discuss a model sea-level rise ordinance that she and her students developed with Maryland Department of Natural Resources. She will also discuss potential state and federal law opportunities and barriers to local efforts to adapt, including recently passed reforms to the National Flood Insurance Program.



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GENERAL INFORMATION

Badges

All registrants and guests are requested to wear the Marine Law Symposium badge for ease of identification.

Food & Beverages

Symposium registration includes admission to all symposium programs, continental breakfasts and lunches. The Bay View Room and Second Floor Atrium are available for use during the breakfast, breaks and lunches.

November 14th Dinner – Linden Place, Bristol, RI

If you have signed up for the dinner, directions to Linden Place are provided on Page 28. We regret that no additional reservations can be taken for the dinner. Complimentary drink tickets for this event are provided behind your name badge.

Continuing Legal Education (CLE) Credit

The Rhode Island MCLE Commission has granted 12 credits (no ethics credits) for attending the Symposium. Please note rules differ in each jurisdiction. If you have signed up for CLE credits, please see Symposium staff at the registration table to obtain the attendance certificate. Credits will be adjusted based on the number of hours in attendance. CLE certification will only be provided up to 20 days after the event due to new guidelines issued by the RI MCLE Commission. The attendee is responsible for coordinating with their state Continuing Legal Education Commission regarding filing of credits and paperwork (usually, a final agenda and attendance certificate) from this Symposium for credit in their state of license.

Internet Access

Wireless access is accessible within the law school, however, it may run slow.

No Smoking

Roger Williams University has a no-smoking policy in effect within all buildings.

Telephones

There are two public telephones located in the School of Law: one located on the main floor next to the elevators and one on the lower level far side of the cafeteria near the mailboxes.



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DIRECTIONS

From Bristol Harbor Inn to the law school

Turn right out of the parking lot of the Inn. At the stop sign (immediately after turning right), turn left onto State Street. At the next stop, turn right onto Hope Street (Rt. 114S).

Follow Hope Street for approximately two miles. Roger Williams University will come into view on your left as you approach the Mt. Hope Bridge—there is a turnaround **before** the light that takes you over the bridge—it is not marked, but allows you to do a U-turn onto Rt. 114N to put the university on your right. Pass the main university entrance on the right and follow signs for Event Parking to the next right turn. Following that right turn, the lot will be on your left. Take the path along the ball field (to the right after crossing the street you came in on) – the law school will be on your right at the top of the walkway.

From the law school to Bristol Harbor Inn

Exiting from the University's lower parking lot:

If security has directed you to the university's lower parking lot, when you are leaving the campus, turn left onto Route 136S. Approximately 500 yards up the road, bear right onto Route 114S and follow Rt. 114 for approximately two miles.

*At the intersection of Hope and State streets, turn left onto State Street. At the bottom of State Street, turn right onto Thames Street, then take an immediate left into the Thames Street Landing parking lot (you will go through the arch of the building). The Bristol Harbor Inn entrance will be halfway down the parking lot on your right.

Exiting from the University's main entrance:

Exiting the main entrance of the law school, you will need to cross the lanes of traffic to the left lane heading onto Rt. 114N—there is a stop sign for crossing traffic. After the stop sign, follow Rt. 114N for approximately two miles. See the * above for the remaining directions.

Directions to November 14 Dinner at Linden Place, 500 Hope Street, Bristol

Linden Place is in the center of town between State and Franklin Streets, on the right side heading north. Parking is on Hope Street and surrounding streets. The dinner will be held in the carriage house, which is the building directly to the left of the main building.



Exiting from the University's main entrance, cross Rt. 136 to the stop sign heading north onto Ferry Road. Follow Ferry Road (Rt. 114N), which will turn into Hope Street, for approximately two miles.

Exiting from the University's North parking lot, turn left onto Rt. 136. Approx. 500 feet, bear right onto Ferry Road (Rt. 114N) and follow for approximately two miles. Ferry Road will turn into Hope Street.

From Linden Place to Bristol Harbor Inn

If you are heading North on Hope Street (Rt. 114), at Franklin Street, turn left. At the stop sign, turn left. The entrance to the Thames Street Landing parking lot will be on your right, immediately before the next stop sign and through the arch of the building.

If you are headed South on Hope Street (Rt. 114), turn right onto State Street. At the stop sign, turn right, then take an immediate left into the Thames Street Landing parking lot (you will go through the arch of the building).



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The Marine Affairs Institute would like to acknowledge the generous support of the following sponsors:

BRONZE SPONSOR



Conservation Law Foundation (CLF) protects New England's environment for the benefit of all people. We use the law, science and the market to create solutions that preserve our natural resources, build healthy communities, and sustain a vibrant economy for generations to come. Since 1966 CLF has fought for clean air, clean water, and vibrant, thriving communities. CLF has succeeded in cleaning up Boston Harbor, preserving Great Salt Pond on Block Island, protecting ocean fisheries to ensure continued supply, stopping unnecessary highway construction in scenic areas, and expanding access to public transportation. CLF also has been a staunch advocate for ocean use planning and renewable energy, and continues to support the offshore wind siting efforts throughout New England. CLF is driven to make all of New England a better place to live, work, and play.



Hanson Curran LLP, of Providence, RI, has a long tradition of legal excellence in maritime and coastal matters. Representative clients include marine businesses, insurers, institutions and municipalities on issues ranging from collisions; personal injury and DOHSA claims; marine salvage and wreck removal; COGSA; maritime liens/vessel arrests; casualty/hull losses; and, littoral/waterfront rights. We advocate in the region's federal and state courts and before governmental boards and commissions. Our varied maritime experience includes U.S.C.G. license revocation proceedings, Wreck Commission hearings in the U.K., expert testimony in Tortola, and arbitration through the Society of Maritime Arbitrators of N.Y. *Inquiries to:* James T. Murphy, Esq. (jtm@hansoncurran.com) or Mary Welsh Burney, Esq. (mwm@HansonCurran.com); Tel: (401) 421-2154; Fax: (401) 521-7040



Since its inception in 2000, the **National Marine Sanctuary Foundation** has established itself as the leading conservation organization dedicated to promoting national marine sanctuaries. By facilitating research, education, and outreach projects, NMSF has established a unique niche in the non-profit world as the premier partner of the National Marine Sanctuary Program. Through support for national marine sanctuaries, NMSF inspires responsible stewardship of our nation's ocean, coasts, and maritime legacy.

PATRON SPONSOR



The **Coastal States Organization (CSO)** was established in 1970 to represent the coastal states, commonwealths and territories on legislative and policy issues relating to the sound management of coastal, Great Lakes and ocean resources. CSO represents the interests of the Governors from the thirty-five coastal states, commonwealths, and territories of the United States. More information is available at www.coastalstates.org.



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ACKNOWLEDGEMENTS

The Symposium is co-sponsored by the following:



Roger Williams University School of Law, the only American Bar Association-accredited law school in Rhode Island, provides a broad-based legal education to over 500 students from across the United States. Founded in 1993, the School of Law earned full accreditation from the American Bar Association by February 1997, the earliest possible time under the Association's rules, and became a member of the Association of American Law Schools in 2006.

Approaching its twentieth year, its academic profile is rising sharply. The School of Law enrolls a talented and diverse class with 20% of this first year coming from racial and ethnic groups underrepresented in the legal profession. Graduates regularly pass the bar at very high levels in many states (Massachusetts and Rhode Island predominate but many grads also take the Connecticut, New York and New Jersey bars). And the Roger Williams Law faculty is among the tops in the field; in New England only Yale, Harvard, Boston University and Boston College have a better record of publishing in the nation's premier law reviews.

The Marine Affairs Institute, the Feinstein Institute for Legal Service, three exciting live-client clinics, and unique externship placements in public interest, judicial, and corporate settings provide students extensive opportunities to learn outside of the confines of the traditional classroom setting. Visit the School of Law at <http://law.rwu.edu>.



Based at the University of Rhode Island, Rhode Island Sea Grant is a partnership between the university, the National Sea Grant College Program, the National Oceanic and Atmospheric Administration (NOAA), and the state of Rhode Island. Rhode Island Sea Grant is one of 33 programs across the nation that work locally, regionally, and nationally to improve management and understanding of coastal and marine resources through research, education, extension and outreach programming. It also boasts of having one of the four Sea Grant Legal Programs in the country. The Legal Program, located at the Marine Affairs Institute at Roger Williams University School of Law, provides analysis and research of marine law issues to further innovative legal and policy approaches to coastal and fisheries management. Visit Rhode Island Sea Grant at <http://seagrant.gso.uri.edu/>.



The National Oceanic and Atmospheric Administration's (NOAA's) mission is to understand and predict changes in Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs. This mission is based on a vision that an informed society uses a comprehensive understanding of the role of the oceans, coasts, and atmosphere in the global ecosystem to make the best social and economic decisions to protect life and property and conserve and protect our natural resources. NOAA's data, scientific research and technical products are instrumental in advancing the environmentally-sound use of the marine environment by both traditional and evolving new technologies.



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THE UNIVERSITY OF RHODE ISLAND

COLLEGE OF THE ENVIRONMENT
AND LIFE SCIENCES

NOAA is extensively involved in coastal and ocean energy matters through its mandates related to fisheries, marine mammals and other protected marine resources, national marine sanctuaries, coastal zone management, oceanic and atmospheric research, etc. Energy facilities provide significant economic and energy self-sufficiency benefits to the nation. Energy projects also impact the coastal and ocean biological and physical environment as well as have socio-economic impacts on coastal and ocean uses and users. Energy demands are increasing the need to facilitate the appropriate siting of energy-related activities and to coordinate authorities of states and federal agencies and the interests of affected parties. NOAA, through its many mandates related to meeting the Nation's energy needs, seeks to reduce coastal use conflicts, conserve coastal resources, and to work with coastal managers, fishery managers, and decision makers to address energy facility technologies and siting.

The University of Rhode Island offers world-class training in the basic sciences combined with hands-on learning that will shape students into successful problem solvers. Students in CELS have the opportunity to learn in advanced research laboratories and community outreach settings, where they gain important real-world experiences. Our internationally renowned faculty members are student oriented and winners of numerous national teaching awards. Our programs integrate classroom studies, field training, internships and research experiences with faculty and staff. Students develop well-honed skills that prepare them to be scientists, managers and policymakers destined for key roles in the life sciences and in the stewardship of our environment and society.

DEPARTMENT OF MARINE AFFAIRS

Marine Affairs is the multi-disciplinary, systematic study of the human uses of coastal and ocean space and the resources found there and the myriad factors that influence that pattern of use. Central to marine affairs are concerns relating to conflict of use and the need to maintain the sustainability of the natural environment. To this end, the Department of Marine Affairs focuses on the governance of coastal and ocean uses, the need for and development of integrated approaches to governance, and the potential for governance systems and mechanisms to incorporate consideration of relevant ecosystems and their dynamics. Increasingly, as attention turns to management efforts on an ecosystem basis, whether in terms of coastal watersheds, the coastal zone, estuaries, large marine ecosystems or some combination thereof, the need to incorporate marine science in public policy becomes more pronounced and is a concern of marine affairs. A central goal is the development of appropriate governance systems that utilize adaptive management techniques on an ecosystem basis.

The mission of the Department of Marine Affairs is to provide leadership in the management of marine and coastal environments through distinction in teaching, research, and outreach programs. The department's teaching mission is accomplished through degree programs at the Bachelor's, Master's, and Doctoral levels. Through their coursework, independent research and internships, students develop the research, communication, and leadership skills necessary to make important professional contributions in the sustainable management of ocean and coastal resources. Department faculty engage in research on a wide range of issues related to the central mission of sustainable and effective ocean and coastal management. The faculty demonstrates "real world" applications of a Marine Affairs education through involvement with governments, international organizations, business, professional groups, and non-governmental organizations.



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We would like to thank those individuals on the planning committee who lent their time and energy to making this year's Symposium a success.

Terra Bowling, *Research Counsel, National Sea Grant Law Center*

Michael Burger, *Associate Professor, Roger Williams University School of Law*

Michael J. Daly, Esq., *Attorney, Pierce Atwood LLP*

Susan E. Farady, *Director, Marine Affairs Institute/RI Sea Grant Legal Program, Roger Williams University School of Law*

Charlotte Ferris, *Program Coordinator, Roger Williams University School of Law*

Kristen Fletcher, *Executive Director, Coastal States Organization*

Dennis Nixon, *Associate Dean, Graduate School of Oceanography, University of Rhode Island*

Robbin Peach, *Executive Director, Collaborative Institute for Oceans, Climate and Security, University of Massachusetts Boston*

We would also like to thank the following for their assistance with the Symposium:

Chelsie Horne, Meghan Hansen and Melanie Stone, Office of Alumni & Events, for their assistance with program planning.

RWU Media Services and Instructional Design for their audiovisual and webinar support.

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RWU law student volunteers: Elizabeth Blank, Melissa Chalek, Kaitlin Cox, Adam Deitz, Marc Fialkoff, Christina Huntley, Morgan McCarthy, Christopher McNally, Troy Peck, and Katie Zilgme.

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The Marine Affairs Institute/Rhode Island Sea Grant Legal Program at Roger Williams University School of Law educates and prepares exceptional marine law professionals and is the home of North America's expert marine law and policy researchers, educators and conveners. One of five law schools in the country specializing in marine and maritime law, we achieve our goals by:

- Offering rigorous and diverse maritime and marine law courses.
- Providing full extracurricular opportunities to develop excellent research, writing and advocacy skills.
- Convening local, regional, national and international experts in a neutral forum to address relevant maritime and marine law issues.
- Leveraging unique institutional strengths and interdisciplinary approaches of our partners, Rhode Island Sea Grant and the University of Rhode Island.

Curriculum

Courses are taught by full professors as well as by expert practitioners, and include:

Admiralty Law	Marine Insurance
Administrative Law	Marine Salvage
Climate Change Law & Policy	Maritime Security Law
Energy Law in the Maritime Economy	Maritime Transportation Regulatory Practice
Environmental Law	Ocean and Coastal Law
Fisheries Law	Ocean Management and Policy
Law of the Sea	Piracy

Sea Grant Law Fellows

One of only four designated Sea Grant Legal Programs in the U.S., the Rhode Island Sea Grant Legal Program housed at RWU Law supports student Sea Grant Law Fellows. Sea Grant Law Fellows respond to research requests from constituents, such as government agencies, industry and non-profit organizations. Fellows are supervised by a licensed attorney and work on a wide range of marine resource, coastal management and maritime issues. Students hone their legal research and writing skills while acquiring hands-on application of their classroom knowledge. Constituents benefit from receiving affordable, quality legal research.

Marine Affairs Joint Degree Program

Students interested in more extensive study of marine law and policy may simultaneously earn a JD from RWU and a Master of Marine Affairs degree from the University of Rhode Island (URI) in 3 ½ years through sharing of selected credits. Joint degree students enhance their legal education with additional courses at URI on economic, international and policy considerations, positioning them well to address today's complex maritime, ocean and coastal legal issues.

Events

The Institute sponsors speakers, symposia, and inter-disciplinary training programs that provide law students and practitioners with opportunities to meet with other marine law professionals in both formal and informal settings to learn about recent developments in ocean and coastal law. Topics include marine renewable energy, international cargo liability, eco-system based management and fishery law.



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