

## 2010 Ronald C. Baird Sea Grant Science Symposium

### Speaker Biographies

#### Dr. Bassem Allam

Dr. Allam was hired at Stony Brook University (SBU) as an Assistant Professor in 2003, and was promoted to the rank of Associate Professor in 2009. Before joining SBU, he served as a Teaching and Research Associate at the University of Guadeloupe and the University of Angers (France), and as a Post-doctoral Associate at Rutgers University. He received his PhD from the University of Western Brittany (Brest, France) in 1998 studying clam pathobiology. General interests include host-pathogen interactions in marine invertebrates and impact of environmental factors on the outcome of these interactions. He is particularly interested in studying the early interactions between pathogenic microorganisms and their hosts at interfaces. Other primary interests include immunobiology and resistance of marine invertebrates to infectious diseases, and how the environment impacts the resistance processes. Dr. Allam teaches graduate and undergraduate courses related to his domain of expertise. Please visit Allam's webpage for more information about his activities.

<http://www.somas.stonybrook.edu/~MADL/allam.html>

#### Dr. Jelle Atema

Dr. Jelle Atema is a Professor of Biology at Boston University, and an Adjunct Scientist at Woods Hole Oceanographic Institution and Marine Biological Laboratory. His labs in Boston and Woods Hole focus on three seemingly disparate research areas: chemical ecology of lobsters, navigation in sharks, and dispersal in larval reef fishes. These efforts are linked by a common theme: understanding how marine animals sense their environment, how they use this information to make decisions leading to food and mates while avoiding danger, and how these decisions play out in population dynamics. Application of this research can be found in public education via magazine articles (e.g., *New Scientist*, *New York Times*), popular books (*The Secret Life of Lobsters* by Trevor Corson) and TV programs (most recently: *Daily Planet*). Our work has contributed to lobster management and impacts reef conservation and marine protected areas. The lobster and shark research on sensing has led to navigation algorithms for autonomous underwater vehicles (“robo-lobster”). <http://www.bu.edu/biology/people/faculty/atema/>

#### Dr. Andrei Chistoserdov

Dr. Andrei Chistoserdov is an Associate Professor of Biology at the University of Louisiana at Lafayette. His primary scientific interests include different aspects of aquatic microbiology with emphasis on the role of microorganisms in the biogeochemistry of aquatic sediments, microbially induced diseases of aquatic animals and connection between the processes in sediments and epidemiology of human and aquatic animal pathogens. He and his students use both cultivation-dependent (enrichment and pure cultures) and cultivation-independent (16S rDNA and metabolic gene libraries) techniques to study various microbial communities. We also widely use transcriptomics and metagenomics to investigate expression of genes of bacteria of interest in their environments.

<http://www.louisiana.edu/Departments/BIOL/chistoserdov.html>

**Dr. Patrick Gillevet**

Dr. Patrick Gillevet is an Associate Professor of Environmental Biocomplexity at George Mason University. Dr. Gillevet is using state of the art molecular techniques to study problems in Molecular Environmental Sciences and Genomic Evolution. He is working on several molecular systematics projects which include: the use of molecular methods to characterize the genus *Pseudomonas* and *Bacillus*; the development of a prototype database to integrate phenotypic, metabolic, and genotypic data; the use of molecular methods to characterize the toxic dinoflagellate *Pfiesteria piscicida*; use of molecular techniques to monitor halophilic microbial communities, use of molecular techniques to monitor soil ecosystems during bioremediation processes, and the development of a new methods and techniques to detect molecular markers for scanning natural microbial populations. <http://binf.gmu.edu/gillevet/>

**Dr. Joseph Kunkel**

Dr. Joseph Kunkel is a Professor of Biology at the University of Massachusetts, Amherst. His current interests include the synthesis and function of storage proteins and the role of ions in osmotic regulation. Serum storage proteins in arthropods play a major role in the physiology of normal molting, tissue development and the reproductive process. Measurement of the titer of these molecules during development via specific antibodies is often an objective. His lab has focussed on the characterization and measurement of hexamerins, lipohorins and vitellogenins of arthropods and vertebrates. His expertise also includes the ability to non-invasively measure the flux of ions and small molecules in and out of tissues using the vibrating wire probe and oscillating specific-ion-electrodes. The 3-dimensional flux of protons, chloride, potassium, calcium, carbonate, cadmium, oxygen and NO are measured in my lab. The construction, calibration and dynamic properties of the necessary microelectrodes is studied in theory and for practical application. Advanced training in biometry allows a mathematical approach to the foregoing interests.

<http://myprofile.cos.com/kunkel228>    <http://www.bio.umass.edu/biology/kunkel/>

**Dr. Hans Laufer**

Dr. Hans Laufer is a Professor Emeritus of Molecular and Cell Biology at the University of Connecticut. His research Interests include gene regulation during development and reproduction; hormonal and molecular interactions; and comparative endocrinology of invertebrates. His work also includes studying hormones affecting reproduction, morphogenesis and metamorphosis of invertebrates and developing crustacean aquaculture techniques. He is particularly interested in elucidating the signal transduction pathways involved in the regulation of reproductive development in invertebrates, especially Crustacea and Annelids. His recent work at Woods Hole Marine Biological Laboratory has focused on the role of alkylphenols in lobster shell formation and molting.

[http://www.mbl.edu/news/press\\_releases/2008/2008\\_pr\\_08\\_13.html](http://www.mbl.edu/news/press_releases/2008/2008_pr_08_13.html)

### **Dr. Lawrence LeBlanc**

Dr. Lawrence LeBlanc is a Research Scientist at University of Maine at Orono. He received a BS in Biology from Bates College in 1979, a Master's Degree in Chemical Oceanography from the Graduate School of Oceanography at the University of Rhode Island in 1989 and a Ph.D. in Coastal Oceanography from the Marine Sciences Research Center at SUNY Stony Brook in 2001. In between degrees he worked as a bench chemist at the EPA Environmental Research Laboratory in Narragansett, RI, as an instructor with the Sea Education Association in Woods Hole, Massachusetts and as an environmental consultant with the Marine Sciences Group at Arthur D. Little in Cambridge, Massachusetts. Prior to coming to the University of Maine he was a Research Chemist with the U.S. Geological Survey Water Resources Division in Sacramento, California. He has worked on numerous projects involving hydrocarbon transport and fate, including the Natural Resources Damage Assessment Program for Exxon Valdez Oil Spill in Alaska, controls on PAH degradation in New York Harbor sediments and a pesticide fate and transport study in the Salton Sea in California. [www.umaine.edu/marine/people/phonelist.php](http://www.umaine.edu/marine/people/phonelist.php)

### **Anita Metzler**

Anita Metzler is an Assistant Scientist at the New England Aquarium's Lobster Research and Rearing Facility in Boston, MA. Anita received her Bachelor of Arts in Biology from the University of Delaware and her Master of Science in Marine Biology from the University of Massachusetts Dartmouth. Prior research work include the physiology of the common killifish, *Fundulus heteroclitus*, the ecology of the invasive Asian shore crab, *Hemigrapsus sanguineus*, genetic population studies of a cranberry vine parasite, and the developmental biology of zebrafish.

[http://www.neaq.org/conservation\\_and\\_research/projects/project\\_pages/AmericanLobsterResearchProgram.php](http://www.neaq.org/conservation_and_research/projects/project_pages/AmericanLobsterResearchProgram.php)

### **Dr. Anne McElroy**

Dr. Anne McElroy is currently the Graduate Programs Director and an associate professor in the School of Marine and Atmospheric Sciences (SoMAS) at the Stony Brook University where she teaches undergraduate and graduate courses on global environmental problems and solutions, and environmental toxicology and public health. Her research broadly focuses on how aquatic organisms interact with toxic chemicals in their environment, specifically how organisms accumulate and metabolize organic contaminants, and how they respond to such exposure at the cellular, biochemical, and physiological levels. Current projects include an examination of the combined effects of hypoxia and sewage derived contaminants in urban estuaries; evaluation of environmental factors associated with recruitment of young-of-the-year winter flounder in coastal estuaries, and the relationship between immune response and epizootic shell disease in lobsters from Long Island Sound. Dr. McElroy received a Science Bachelors in Aquatic Biology from Brown University, her Ph.D. in Oceanography from the Massachusetts Institute of Technology-Woods Hole Oceanographic Institution Joint Program, and completed a postdoc at the Environmental Protection Agency's research laboratory in Narragansett RI.

Before joining the faculty full time at Stony Brook, Dr. McElroy served as Director of the New York State Sea Grant College Program and was a faculty member in the Environmental Sciences Program at the University of Massachusetts at Boston. <http://www.somas.stonybrook.edu/people/mcelroy.html>

#### **Dr. Deanna Prince**

Deanna received a BA in Zoology from the University of New Hampshire in 1988, and a Ph.D. in Marine Bioresources from the University of Maine in 1997. She has worked as a research associate at the University of Maine, where her research has focused on various aspects of lobster pathology and physiology, including shell disease. She has worked directly with members of the lobster industry in the Northeastern US and Atlantic Canada for over 20 years. She has served on the board of the Lobster Institute, and is presently a cooperating researcher with that group. <http://www.lobsterinstitute.org/>

#### **Jeffrey D. Shields**

Professor of Marine Science, Virginia Institute of Marine Science, The College of William & Mary, Gloucester Point, VA 23062, USA, Tel: 804-684-7128; Fax: 804-684-7186

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Dr. Shields has expertise in the etiology and epidemiology of parasitic and microbial diseases of commercially important fish and shellfish. He has published extensively on the epidemiology and pathology of microbial and protozoal infections in crustaceans, the etiology of diseases in molluscs (oysters, hydrothermal vent mussels and abalone), and the alleged toxicity of *Pfiesteria*. He is currently funded to study several emerging diseases in crabs and lobsters. Through the New England Lobster Research Initiative, Shields and his colleagues are examining the etiology of epizootic shell disease in the American lobster, *Homarus americanus*, from Long Island Sound. Shields serves on the Board of the Crustacean Society, as a member of the ICES workgroup on commercially important crabs, on the Editorial Board of the Journal of Invertebrate Pathology, and as a member of the Community Advisory Council to BioOne.org.

#### **Education**

1980 B.S. – Aquatic Biology, University of California, Santa Barbara

1983 M.S. – Parasitology, University of California, Berkeley

1987 Ph.D. – Aquatic and Population Biology, University of California, Santa Barbara

#### **Dr. Roxanna Smolowitz**

Dr. Smolowitz graduated from Purdue University, School of Veterinary Medicine in 1981. She finished a residency in pathology at Angell Memorial Animal Hospital, Boston, MA, in 1984 and a Bang Fellowship at the Marine Biological Laboratory (MBL) in 1987 where she studied hemocytic leukemia in soft shell clams. From 1987 to 1989, she was a guest researcher with Dr. John Stegeman (Woods Hole Oceanographic Institution) and studied pollutant effects resulting in P 450 enzyme induction in tissues of fish (especially salmon exposed to the Valdez oil spill). In 1988, she was hired by the Laboratory for Aquatic Animal Medicine and Pathology, University of Pennsylvania's School of Veterinary School,

located at the MBL. She worked for several years as an aquatic pathologist and conducted research projects into diseases of aquatic animals. In 1999, she was hired by the MBL as the Laboratory Animal Veterinarian and as an associate researcher. From 2008 to 2009, she was the Director of Animal Health at the New England Aquarium. In 2009, she became the director of a new aquatic diagnostic laboratory at Roger Williams University in Bristol, R.I. Her research has included understanding the pathogenesis and epidemiology of diseases of commercially important bivalves and various species of fish used in the laboratory. A major focus of research has been the identification and description of shell disease, especially Epizootic Shell Disease (ESD) that occurs in populations of American lobsters.

<http://departments.rwu.edu/biology/facultystaff.html>

#### **Dr. Ann M. Tarrant**

Dr. Tarrant, Assistant Scientist, Woods Hole Oceanographic Institution, received her undergraduate degree in biology and marine science from the University of Miami and a Ph.D. in Biological Oceanography from the University of Hawaii. Her research focuses on comparative endocrinology and stress responses in marine invertebrates. In a recent research project, she collaboratively characterized the binding of hormones and environmental contaminants to the lobster ecdysteroid receptor. Her laboratory is actively investigating the regulation of dormancy (diapause) in marine copepods. The Tarrant lab is also currently investigating chemical stress responses, energetics, and hormonal signaling pathways in a model sea anemone and in reef-building corals. She is serving as guest editor of a special issue of the Journal of Steroid Biochemistry and Molecular Biology that will be devoted to steroid metabolism in marine animals. [www.whoi.edu/people/atarrant](http://www.whoi.edu/people/atarrant)

<http://www.whoi.edu/sbl/liteSite.do?litesiteid=22694&articleId=53170>

#### **Gordon T. Taylor, Ph.D.**

Dr. Taylor, Professor, School of Marine and Atmospheric Sciences at Stony Brook University, NY, received his undergraduate degree in Biology from the State University of New York at Binghamton and a Ph.D. in Biological Oceanography from the University of Southern California. His research covers a range of basic and applied topics that focus on microbial ecology, biogeochemistry and interfacial processes. In addition to lobster ESD, Dr. Taylor's lab has examined the bacterial etiology of juvenile oyster disease (JOD) in hatchery reared oysters. His lab has investigated marine biofilm dynamics and antifouling technologies for which Dr. Taylor was awarded two patents. Dr. Taylor has extensive experience working on hypoxia and eutrophication issues in Long Island Sound and other coastal waters. Since its inception in 1995, Dr. Taylor has participated in the NSF-sponsored international CARIACO biogeochemistry time series program, studying the molecular/microbial ecology of the permanently anoxic Cariaco Basin in the Caribbean Sea. He has served on a variety of scientific review panels for NOAA and NSF, is an associate editor of Limnology & Oceanography:Methods, as well as frequent reviewer for a number of scientific domestic and international funding agencies and professional journals. A summary of activities and recent publications can be found at <http://www.somas.stonybrook.edu/people/taylor.html>.

**Dr. Michael Tlusty**

Dr. Michael Tlusty, Ph.D., is the Director of Research for the Aquarium and serves as the senior aquaculture scientist for the Sustainable Seafood Programs. His current laboratory work examines the interaction of nutrition and climatic influences on disease expression in American lobsters. In addition, he is also a leader in the field of assessing environmental impacts of aquaculture, being the first to examine bottom impacts in marine systems using backscatter sonar technology, the first to demonstrate sound as a means to recall escaped fish, and examining how transport influences the overall environmental budget of seafood production and distribution. His last main thrust of work is to examine trade routes in the ornamental fish industry, and to evaluate the impact of improper shipping practices and the resultant fish stress on the overall sustainability of the industry. Michael has been at the Aquarium for 10 years. Before working at NEAq, he was modeling environmental effects of salmon aquaculture in Newfoundland, Canada. He has a Ph.D. in biology from Syracuse University, and a Bachelor of Science in animal science from the University of Illinois.

[http://www.neaq.org/conservation\\_and\\_research/projects/project\\_pages/AmericanLobsterResearchProgram.php](http://www.neaq.org/conservation_and_research/projects/project_pages/AmericanLobsterResearchProgram.php)

**Dr. Timothy Verslycke**

Dr. Timothy Verslycke is an expert in evaluating and predicting environmental effects of endocrine disruptors, pharmaceuticals, pesticides, and other industrial chemicals. His primary responsibilities include the design, oversight, analysis, and interpretation of ecotoxicological studies, environmental risk assessments, chemical screening and testing procedures, and product safety studies. Before joining Gradient, Dr. Verslycke was a postdoctoral investigator at the Woods Hole Oceanographic Institution, where he currently holds a position as a visiting scientist and oversees studies to elucidate hormone signaling in marine animals and its potential chemical disruption. Dr. Verslycke has been closely involved in research and priority setting for the regulatory screening and testing of endocrine disruptors. Dr. Verslycke has authored over 30 peer-reviewed articles in the field of environmental toxicology and has presented his research at numerous international conferences.

<http://www.gradientcorp.com/company/talent/verslycke.html>