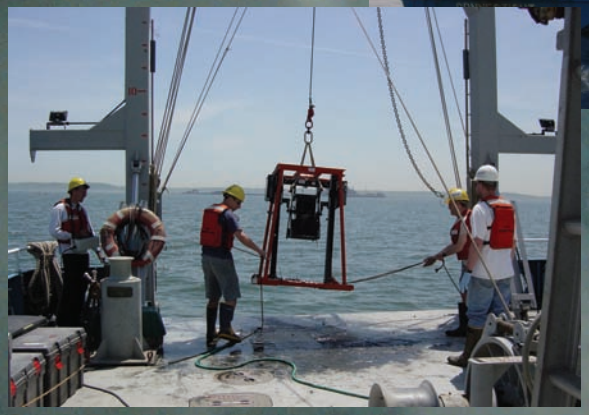
University of Connecticut

Department of Marine Sciences

Annual Report 2007



WELCOME TO THE DEPARTMENT OF MARINE SCIENCES

The Department of Marine Sciences is located on the shores of Long Island Sound at UConn's coastal campus at Avery Point. Our Program includes the Department of Marine Sciences and the Marine Sciences and Technology Center. Faculty, staff, and students within the department carry out cutting-edge research in coastal oceanography using cross-disciplinary approaches. We offer both undergraduate and graduate degrees that are characterized by an interdisciplinary foundation, high faculty-to-student ratio, and individualized plans of study and research. Our program offers the intimacy and support of a small campus, coupled with the resources of a top-notch public university and internationally renowned scientists. All of our faculty are engaged in active research programs that are supported by competitive grants from state and federal funding agencies.

The Department of Marine Sciences comprises 20 tenured and tenure-track faculty, 7 research and adjunct faculty, 6 post-doctoral fellows, and 23 staff members. Our undergraduate major, the Coastal Studies Program, consists of 75 students mostly from the New England region. Our graduate program confers M.S. and Ph.D. degrees in Oceanography. The curriculum is interdisciplinary, with strong foundations in biological, chemical, and physical oceanography. Our student population for 2007-2008 totals 49 students – 14 M.S. and 35 Ph.D. – with students from the USA and many other countries.

VISION STATEMENT

The Department of Marine Sciences pursues excellence in research, scholarship, education and service in the area of coastal ocean science. Our area of excellence is the cross-disciplinary analysis of patterns and processes in the coastal ocean. We seek integrative understanding of the physical, chemical, and biological processes of the coastal marine environment.

CONTACT INFORMATION

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MESSAGE FROM THE HEAD & DIRECTOR OF THE DEPARTMENT OF MARINE SCIENCES

Dear Colleagues and Friends of UConn Marine Sciences,

Since 2000, the State of Connecticut has contributed nearly $50M to the University of Connecticut marine enterprise on the coastal Avery Point campus, including buildings, research infrastructure and facilities, vessels, and personnel. Such largesse has proven to be a very wise investment. In recent years, the Department of Marine Sciences has retained the distinction as the top department in the College of Liberal Arts & Sciences in terms of extramural dollars per faculty member, with active awards during 2007 totaling $21.4M.

The UConn marine enterprise now includes diverse federal, state, university, and private partners (e.g., the Marine Sciences & Technology Center, Connecticut Sea Grant, the NOAA Undersea Research Center, and Long Island Sound Resource Center) who are working together to secure the position of the University of Connecticut as a leading center for coastal oceanographic research, education, and outreach.

Our signature cross-disciplinary approach to coastal marine sciences has allowed us to make significant contributions and new discoveries in both fundamental and strategic research. Our ongoing activities place us in the forefront of several national and international initiatives, including:

• Coastal Ocean Observation: The Long Island Sound Coastal Observing System (LISICOS) is developing our capability to understand the LIS ecosystem and predict its response to natural and anthropogenic changes, especially eutrophication and hypoxia.

• Coastal Ecosystem Health: UConn Marine Sciences' researchers and students are developing new information and understanding about the critical processes affecting the health of Long Island Sound and its watershed regions. We are laying the groundwork for integrated ecosystem assessment of the urbanizing coastline.

• Global Studies: Ongoing research efforts in coastal ecosystems throughout the world enable UConn marine researchers to keep pace with hot topics in global sciences, including ocean exploration, marine biodiversity, and environmental impacts of climate change.

On behalf of the faculty, students, and staff of Marine Sciences, we thank our alumni and many friends for your support of our programs and goals. I hope you will all enjoy this summary of our many activities during a very productive and enjoyable year.

Sincerely yours,

Ann Bucklin
Professor and Head, Department of Marine Sciences
Director, Marine Sciences and Technology Center

HIGHLIGHTS FROM THE DEPARTMENT OF MARINE SCIENCES

FACULTY HONORS AND AWARDS

High-impact research by Professors Fitzgerald & Mason

A scientific paper examining elevated levels of mercury in aquatic environments by UConn Board of Trustees Distinguished Professor William Fitzgerald and Prof. Robert Mason is the nineteenth most highly-cited paper featured on the ACS Publications website, according to Thomson Scientific (ISI) Essential Science Indicators. The paper, published in 1998, is titled, "The case for Atmospheric Mercury Contamination in Remote Areas" by W.F. Fitzgerald, D.R. Engstrom, R.P. Mason, and E.A. Nater.

Research Professor Shumway new AAAS Fellow

Marine Sciences Research Professor Sandra Shumway was elected a Fellow of the American Association for the Advancement of Science (AAAS). Dr. Shumway was honored for her pioneering use of flow cytometry and her research on the impacts of toxic algae on aquatic invertebrates.

Professors Bucklin and Dam new CASE members

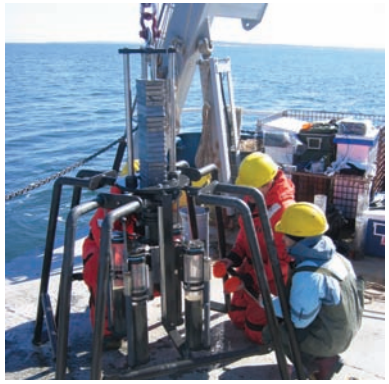
Two Marine Sciences faculty, Professor and Head Ann Bucklin and Professor and Associate Head Hans Dam, were elected this year to membership in the Connecticut Academy of Science and Engineering. The Academy was charted by the General Assembly in 1976 to provide the state with expert guidance on science and technology.

NEW EDUCATIONAL INITIATIVE

New NOAA/OHHI training grant for UConn

Marine Sciences Associate Professor J. Evan Ward will lead a new training program at UConn, after winning a new $460,000 award from NOAA's Oceans and Human Health Initiative (OHHI). In partnership with Connecticut Sea Grant, NOAA NMFS Milford Laboratory, and the Mystic Aquarium, UConn Marine Sciences will provide training for doctoral students and post-doctoral researchers in critical issues for the coastal zone, including harmful algal blooms, marine pollution, and marine diseases and pathogens.

RESEARCH PROGRAMS



Real-time data for coastal observing

The Long Island Sound Integrated Coastal Observing System (LISICOS) includes eight buoys that send real-time data to shore, giving our researchers an instant and continuous record of the biological, chemical and physical properties of the water, as well as the weather. LISICOS received a welcome assist from the Connecticut Legislature, which provided $200,000 in state funds to keep data flowing to researchers, coastal managers, fishermen, boaters, weather forecasters, and others.

Marine bioinvasions in Long Island Sound

An invasive seaweed, *Grateloupia turuturu*, from Japan was discovered in Long Island Sound in 2004. Marine Sciences Professors Robert (Bob) Whitlatch and Charles Yarish, and Associate Professor Senjie Lin are leading a collaborative effort to document the species' distribution, ecology, and potential impacts on the Long Island Sound ecosystem.

ON THE WEB

Video tour of Long Island Sound

A new website offers an underwater video tour of Long Island Sound. The popular site was designed by Marine Sciences faculty members Research Associate Professor Peter Auster and Assistant Professor in Residence Ralph Lewis, and is hosted by UConn College of Liberal Arts & Sciences, Department of Marine Sciences, Connecticut Sea Grant, NOAA Undersea Research Center (NURC), and Connecticut Department of Environmental Protection (CT-DEP). See http://www.lisrc.uconn.edu/lis_uwtour/index.asp

IN THE NEWS

Nitrogen fertilizer impacts on coastal ecosystems

Marine Sciences Professor James Kremer is educating coastal communities about the impacts of over-fertilization. Nitrogen in fertilizer applied to gardens, yards, and crops is threatening coastal ecosystems worldwide, including the Long Island Sound. Professor Kremer's comments were reported in *The New London Day* on July 1, 2007.

Auster, Peter J. (PhD, National University of Ireland)
Research Associate Professor
Science Director, National Undersea Research Center
Kari Heinonen (PhD. student), **Peter Auster**, Anya Watson (MSc student). Not pictured: Chiu-Yen Kuo (PhD student), Amy Ferland and Alison Tamsett (MSc students)

RESEARCH FOCUS

Ecology and conservation of fishes: how "landscape" variations mediate their distribution and abundance; how behavioral interactions mediate patterns of local diversity. From an applied perspective, research focuses on understanding the effects of fishing on marine ecosystems and on developing a scientific basis for using marine reserves as a conservation tool.

CURRENT PROJECTS

Deep Atlantic Stepping Stones: Linking NE ..	NOAA	$407,218
Web-based tour of diversity of habitat…	CT DEP	$24,576
Linking seafloor habitat mapping protocols…	EPA/LISS	$179.029
Linking biodiversity to ecosystem management	Sloan Foundation	$30,447

RECENT PUBLICATIONS

Auster, P., J. Lindholm, M. Plourde, K. Barber and H. Singh. 2007. Camera configuration and use of AUVs to census mobile fauna. *Marine Technology Society Journal* 41(3):15-18.

Waller, R., L. Watling, P. Auster and T. Shank. 2007. Anthropogenic impacts on the Corner Rise Seamounts, NW Atlantic Ocean. *Journal of the Marine Biological Association of the United Kingdom.* 87:1075-1076.

Lindholm, J., P.J. Auster, and A. Knight. 2007. Site fidelity and movement of Atlantic cod (*Gadus morhua*) at deep boulder reefs in the western Gulf of Maine. *Mar. Ecol. Prog. Ser.* 342: 239–247.Auster, P.J. 2007. Linking deepwater corals and fish populations. *Bulletin of Marine Science.* 81(Supplement 1):93-99.

CONTACT: Phone: (860) 405-9118 Email: peter.auster@uconn.edu Web Sites: http://www.nurc.uconn.edu/BigMouthFishes/homepage/
http://www.marinesciences.uconn.edu/faculty/auster.html

Bucklin, Ann (Ph.D., Univ. of California at Berkeley)
Professor and Head
Director, Marine Sciences and Technology Center
Seated: Lisa Nigro (research associate), Brian Ortman (PhD student); Back row: **Ann Bucklin**, Rob Jennings (postdoc), Liz Wageley (undergraduate), Ebru Unal Yigiterhan (PhD student). Not pictured: Paola Batta Lona (PhD student)

RESEARCH FOCUS

Molecular population genetics, systematics, phylogeography, and phylogeny of marine zooplankton, especially crustaceans (copepods and euphausiids). Current projects: global biogeographical patterns zooplankton; population genomics of a N. Atlantic copepod, population genetics of Antarctic krill.

CURRENT PROJECTS

Systematics and Adaption of the Thaliacea…	NSF	$157,649
Time/space patterns of microsattelite DNA..	NSF	$145,358
Zooplankton biodiversity in tropical/sub….	NOAA	$79,000
Census of Marine Zooplankton (CMarZ)	Sloan Foundation	$350,000
Census of Marine Zooplankton (CMarZ) Renewal	Sloan Foundation	$670,000
Trophic structure and interaction of the…	NSF	$142,383

RECENT PUBLICATIONS

Bucklin, A., P.H. Wiebe, S.B. Smolenack, N.J. Copley, J.G. Beaudet, K.G. Bonner, J. Färber Lorda, and J.J. Pierson. 2007. DNA barcodes for species identification of euphausiids (Euphausiacea, Crustacea) *J. Plankton Res.* 29: 483-493.

Manning, C.A. and A. Bucklin. 2005. Multivariate analysis of the copepod community of near-shore waters in the western Gulf of Maine (Northwest Atlamtic). *Mar. Ecol. Prog. Ser.* 292: 233-249.

Caudill, C.C. and A. Bucklin. 2004. Molecular phylogeography and evolutionary history of the estuarine copepod, Acartia tonsa, on the Northwest Atlantic coast. *Hydrobiol.* 511: 91-102.

CONTACT: Phone: (860) 405-9208 Email: ann.bucklin@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/bucklin.html

Dam, Hans G. (PhD, SUNY Stony Brook)
Professor and Associate Head

Front row: Shannon Burke (HS student), Amy Smith Siuda (PhD student), Tina Senft (PhD student); Alex Olsen (undergraduate); Back row: **Hans Dam**, Veronica Richards (HS student), **David Avery** (Research Assistant Professor)
Not pictured: Michael Finiguerra (PhD student)

RESEARCH FOCUS:

Biological oceanography, ecology and evolution of planktonic organisms, particularly pelagic copepods. Specifically we are currently resarching the evolution of grazer resistance to phytoplankton toxins as well as investigating the costs (trade offs), the genetics, and the mechanisms of grazer toxin resistance.

CURRENT PROJECTS

ECOHAB: linking food web-structure, grazer..	EPA	$408,315
A synthesis of water quality and plankton..	EPA	$121,908
Adaptive Importance of Toxin Resistant…	NSF	$370,000
Toxin Dynamics and resistence to toxin…	NOAA	$339,005
Meso/microzooplankton analysis...	CT DEP/EPA	$120,000

RECENT PUBLICATIONS

Avery, D.T. and H.G. Dam 2007. Newly discovered reproductive phenotypes of a marine copepod reveal the costs and advantages of resistance to a toxic dinoflagellate. *Limnol. Oceanogr*. 52: 2099-2108.

Colin and Dam 2007. Comparison of the functional and numerical responses of resistant versus non-resistant populations of the copepod *Acartia hudsonica* fed the toxic dinoflagellate *Alexandrium tamarense*. *Harmful Algae* 6: 875–882.

Dam, H.G. and S.P. Colin. 2005. *Prorocentrum minimum* (clone Exuv) is nutritionally insufficient, but not toxic to the copepod *Acartia tonsa*. *Harmful Algae* 4: 575-584.

CONTACT: Phone: (860) 405-9098 Email: hans.dam@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/dam.html

Kremer, James N. (PhD, University of Rhode Island)
Professor

Kaitlyn Shaw (undergraduate), Jamie Vaudrey (postdoc), **Jim Kremer**

RESEARCH FOCUS:

Coastal ecosystems ecology, using field studies and numerical modeling to explore interactions among organisms and their environment in a variety of coastal ecosystems, and to improve our understanding of how spatial and temporal patterns in the physical and chemical environment control productivity in marine systems.

CURRENT PROJECTS

Modeling tools to predict hypoxia/anoxia...	NOAA/URI	$215,869
Establishing restoration objectives for eelgrass...	CT DEP	$47,000

RECENT PUBLICATIONS

Kremer, J.N. and N. Goebel. 2007. Pelagic respiration in Western LIS in relation to sources of available carbon. Proceedings of Long Island Sound Research Conference, Oct. 27, 2007. New London CT. In press.

Goebel, N.L. and J.N. Kremer. 2007. Temporal and spatial variability of photosynthetic parameters and community respiration in Long Island Sound. *Mar. Ecol. Prog. Ser*. 329:23-42.Clark, H. and J.N. Kremer. 2005. Estimating direct and episodic atmospheric nitrogen deposition to coastal watersheds. *Marine Environmental Research* 59:349-366.

Goebel, N.L. C.A. Edwards, and J.N. Kremer. 2006. Primary production in Long Island Sound. *Estuaries and Coasts* 29(2):232-245.

Kremer, J.N. 2005. "Too many neighbors! Nitrogen in the Coastal Zone." Chapter 6 in *Our Changing Coast: Private Rights and Public Trust*, D. Whitelaw and G. Visiglio (eds). E. Elgar Publ.

CONTACT: Phone: (860) 405-9027 Email: james.kremer@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/jkremer.html

Kremer, Patricia (PhD, University of Rhode Island)
Associate Professor in Residence
Not pictured: Brennan Phillips (MSc student)

RESEARCH FOCUS

Ecology of gelatinous zooplankton, including quantitative investigations of elemental composition, metabolic rates, nutritional ecology, population impact and interannual population dynamics. Although my research focuses on the autecology of single species at a time, I try to evaluate the results in the context of the ecosystem in which the animals live and the biogeochemical cycles of which they are a part.

CURRENT PROJECTS

Salpa thompsoni in the southern ocean.	NSF	$266,847

RECENT PUBLICATIONS

Madin, L.P., P. Kremer, P.H. Wiebe, J.E. Purcell, E.H. Horgan, and D.A. Nemazie. 2006. Periodic swarms of the salp *Salpa aspera* in the slope water off the NE United States: Biovolume, vertical migration, grazing, and vertical flux. *Deep-sea Research* 53(5).

Phillips, B.T., P. Kremer and L.P. Madin. The contribution of salps to vertical flux in the Southern Ocean. Submitted to *Marine Biology*

Kremer, P. 2005. Ingestion and elemental budgets for *Linuche unguiculata*, a scyphomedusa with zooxanthellae. *J. Mar. Biol. Ass. U. K. 85:1-13.*

CONTACT: Phone: (860) 405-9140 Email: patricia.kremer@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/pkremer.html

Lin, Senjie (PhD, SUNY Stony Brook)
Associate Professor
Seated: Sheng Liu (postdoc), **Huan Zhang** (Research Assistant Professor), **Senjie Lin**; Back row: Yubo Hou (PhD student), Yunyun Zhuang (PhD student), Lilibeth Miranda (PhD student), Christina Haska (MSc student), Shuxian Zheng (visiting scholar), Xin Lin (visiting scholar)

RESEARCH FOCUS

Molecular ecology of marine phytoplankton and heterotrophic dinoflagellates. Adopting from the medical application to detect cancer growth, we try to develop cell cycle and growth stage-dependent markers for growth studies on phytoplankton. Research also involves dinoflagellate genome, transcriptome, mitochondrial and plastid genes as well as ribosomal RNA genes in studies of genetics, evolution, and ecology of various algae

CURRENT PROJECTS

PCNA Antibodies...	NSF	$279,406
Development of PCR and Immunofluorescence...	NOAA	$323,813
LIS Water Quality Monitoring Phytoplankton...	EPA/CT DEP	$40,000
AToL: An integrated approach to the phylogeny...	NSF/UMD	$173,086
Dinoflagellate Full-Length cDNA Sequencing...	NSF	$989,036

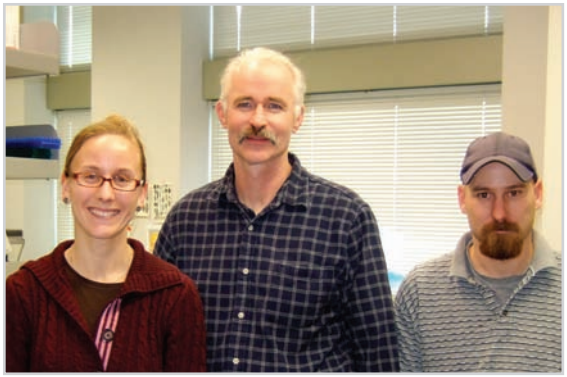
RECENT PUBLICATIONS

Lin, S., H. Zhang, and M.W. Gray. 2008. RNA editing in dinoflagellates and its implications for the evolutionary history of the editing machinery. In: H. Smith (ed.) *RNA and DNA editing: molecular mechanisms and their integration into biological systems.* John Wiley & Sons, Inc.

Zhang, H., D. Bhattacharya, L. Maranda, and S. Lin. 2008. Mitochondrial cob and cox1 and their mRNA editing in *Dinophysis acuminata* from Narragansett Bay, with special reference to the phylogenetic position of *Dinophysis*. *Appl. Envion. Microbiol.* 74(5) (in press).

Zhang, H., D. Bhattacharya, and S. Lin. 2007. A three-gene dinoflagellate phylogeny suggests monophyly of Prorocentrales and a basal position for *Amphidinium* and *Heterocapsa* *J. Mol. Evol.* 65: 463-474.

CONTACT: Phone: (860) 405-9168 Email: senjie.lin@uconn.edu Web Site: http://www.phytoplankton.uconn.edu/ and http://www.marinesciences.uconn.edu/faculty/lin.html



McManus, George B. (PhD, SUNY Stony Brook)
Professor
Joanna York (postdoc), **George McManus**, Don Schoener (PhD student)
Not pictured: Barbara Costas (PhD student)

RESEARCH FOCUS

Interactions between planktonic populations and physical processes, trophic role of protozoa and other microzooplankton, Nutritional aspects of zooplankton feeding, specifically the single-celled protozoans that are responsible for most of the consumption in planktonic food webs. These organisms form important links in the food web between microbial producers and multicellular organisms such as copepods and fish.

CURRENT PROJECTS

Development of an oligotrich ciliate as a food...	NOAA	$92,841
Foodweb support for the threatened delta...	CALFED/SFSU	$229,816
Testing hypotheses about diversity, gene...	NSF	$299,997

RECENT PUBLICATIONS

Costas, B.A., G.B. McManus, M. Doherty, and L.A. Katz. 2007. Use of species-specific primers and PCR to measure the distributions of planktonic ciliates in coastal waters. *Limnology and Oceanography: Methods* 5:163-173

Doherty, M., Costas, B.A., McManus, G.B., and Katz L.A. 2007. Culture-independent assessment of planktonic ciliate diversity in coastal Northwest Atlantic waters. *Aquatic Microbial Ecology* 48:141-154.

McManus, G.B., B.A. Costas, H.G. Dam, R.M. Lopes, S.A. Gaeta, S. Susini, and C. Rosetta. 2007. Microzooplankton grazing of phytoplankton in a tropical upwelling region. *Hydrobiologia* 575:69-81

CONTACT: Phone: (860) 405-9164 Email: george.mcmanus@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/mcmanus.html

Renaud, Paul E. (PhD, University of Gothenburg, Sweden)
Assistant Professor in Residence
Nathalie Morata (PhD student), **Paul Renaud**

RESEARCH FOCUS

Marine community ecology, polar oceanography, trophic dynamics, effects of fishing practices on benthic habitats.

CURRENT PROJECTS

Benthic responses to seasonal carbon...	NSF	$286,532

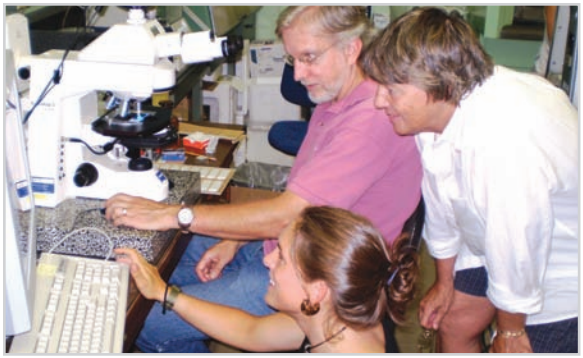
RECENT PUBLICATIONS

Morata, N., and P.E. Renaud. 2008. Sedimentary pigments in the western Barents Sea: a reflection of pelagic-benthic coupling? *Deep-Sea Research II* In press

Renaud, P.E., N. Morata, M.L. Carroll, S.G. Densienko, and M. Reigstad. 2008. Benthic-pelagic coupling in the western Barents Sea: Processes and time scales. *Deep-Sea Research II* In press

Renaud, P.E., M.L. Carroll, and W.G. Ambrose, Jr. 2007. Effects of global warming on Arctic sea-floor communities and its consequences for higher trophic levels. In: Duarte, C. (ed) *Impactos del calentamiento global sobre los ecosistemas polares. FBBVA Press, Bilbao. (in Spanish).*

CONTACT: Phone: (860) 405-9152 or +47 77 75 03 19 (Norway) Email: paul.renaud@uconn.edu Web Site: http://www.marinesciences.uconn.edu



Shumway, Sandra (PhD, D.Sc. University of Wales)
Research Professor
Hélène Hégaret (PhD student), Gary Wikfors (NOAA/NMFS Laboratory), **Sandy Shumway**
Not pictured: John Natale (MSc student)

RESEARCH FOCUS

Physiological ecology of marine invertebrates, shellfish biology, aquaculture, toxic algae. Specifically, the impacts of harmful algal species on shellfish and aquaculture.

CURRENT PROJECTS

Assessment of the potential for introduction of HAB	EPA	$477,526
Effects of temperature on the infection of clam...	USDA	$47,765
A multi-gene phylogeny of scallops	NSF/Iowa State	$11,500
Biofouling and aquaculture gear:…	PPG Industries	$16,851

RECENT PUBLICATIONS

Hégaret, H., P. Da Silva, G.H. Wikfors, C. Lambert, T. DeBettignies, S.E. Shumway and P. Soudant. 2007. Hemocyte responses of Manila clams, *Ruditapes philippinarum*, with varying parasite, *Perkinsus olseni*, severity to toxic algae exposures. *Aquatic Toxicology 84:469-479.*

Sampson, J.C., S.E. Shumway and J.S. Weis. 2007. Effects of the toxic dinoflagellate, *Alexandrium fundyense* on three species of larval fish: a food chain approach. *J. Fish Biology* 71: 1-2

Shumway, S.E. and G.J. Parsons (editors) 2006. *Scallops: Biology, Ecology and Aquaculture*. 2nd Edition. Elsevier Science Publishers. 1500 pp.

CONTACT: Phone: (860) 405-9282 Email: sandra.shumway@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/shumway.html

Ward, Evan (PhD, University of Delaware)
Associate Professor
Front row: Gina Ralph (undergraduate), Dane Frank (PhD student), Dustin Kach (MSc student); Back row: Maille Lyons (PhD student), **Evan Ward**, Bridget Holohan (research assistant)
Not pictured: John Doyle (PhD student)

RESEARCH FOCUS

Invertebrate physiological ecology, behavior and physiology of commercially important species (shellfish), oceans and human health. The research addresses processes ranging from the organism to ecosystem level in order to understand the dynamic relations between marine animals and their environment. Because suspension feeders play such a key role in near-shore ecosystems, it is important to understand how they obtain and process food and non-food particles, the factors that control feeding processes, and the diseases that affect their populations.

CURRENT PROJECTS

Functional mechanisms of control in the bivalve pump...	NSF	$429,558
Linking marine pathogens to molluscan shellfish...	NSF	$611,503
Interdisciplinary Research and Training Initiative...(IRICH)	NOAA	$460,248
Separating the grain from the chaff:…	NSF	$221,866

RECENT PUBLICATIONS

Frank, D.M., J.E. Ward, S.E. Shumway, C. Gray and B.A. Holohan, 2008. Application of particle image velocimetry to the study of suspension feeding in marine invertebrates. *Marine and Freshwater Behaviour and Physiology*. In press.

Kach, D.J. and J.E. Ward, 2008. The role of marine aggregates in the ingestion of picoplankton-size particles by suspension-feeding molluscs. *Mar. Biol.* In press.

Lyons, M.M., Y.T. Lau, W.E. Carden, J.E. Ward, S.B. Roberts, R.S. Smolowitz, J. Vallino and B. Allam, 2008. Characteristics of marine aggregates in shallow-water ecosystems: Implications for disease ecology. *EcoHealth*. In press.

CONTACT: Phone: (860) 405-9073 Email: evan.ward@uconn.edu Web Sites: http://web.uconn.edu/jevanward/ and http://www.marinesciences.uconn.edu/faculty/ward.html

Whitlatch, Robert B. (Ph.D., University. of Chicago)
Professor

Front row: Jessica Watson (EEB undergrad), Noreen Blaschik (research assistant), Emily Maung (MSc student), Katharine Grant (Duke U. undergrad); Back row: Lauren Stefaniak (PhD student), Jamie Reinhardt (PhD student), Ryan Patrylak (undergraduate), Danielle Calini (undergraduate), far right: **Bob Whitlatch**
Not pictured: Dean Janiak (MSc student)

RESEARCH FOCUS

Benthic population and community ecology, deep sea ecology, feeding and trophic dynamics. Primary focus has been to use both laboratory and field experimentation, in combination with modelling, to address how abiotic and biotic processes influence the distribution and composition of populations and communities, particularly in the role of local control of recruitment on persistence of dominance in subtidal benthic communities.

CURRENT PROJECTS

Evaluation of the importance ship hull fouling.	NOAA	$283,788
Stressor-response modeling of the interactive...	EPA	$564,430
Tunicate: Research on tunicate control…	NOAA	$49,889
Linkages between patterns of habitat...	NOAA/NURC	$23,002
Control and Economics of aquatic invasive...	NOAA	$298,918
NUSCO 1385 Cable Replacement Project	ESS Inc	$118,725

RECENT PUBLICATIONS

Altman, S. and R.B. Whitlatch. 2007. Space invaders: the effect of small-scale disturbanc on invasion success in marine communities. *J. Exp. Mar. Biol. Ecol.* 342: 15-19.

Osman, R. W. and R.B. Whitlatch. 2007. Habitat variability and the invasion of Long Island Sound by *Didemnum* sp. and its interaction with the resident community. *J. Exp. Mar. Biol. Ecol. 342: 40-53.*

Stachowicz, J.J. and R.B. Whitlatch. 2005. Multiple mutualists provide complementary benefits to their seaweed host. *Ecology* 86: 2418-2427.

CONTACT: Phone: (860) 405-9154 Email: robert.whitlatch@uconn.edu Web Sites: http://teambenthos.uconn.edu/Pages/Team%20Benthos.htm
http://www.marinesciences.uconn.edu/faculty/whitlatch.html

CHEMICAL OCEANOGRAPHY & GEOCHEMISTRY

Byrne, Timothy (PhD, University of California, Santa Cruz, CA)
Associate Professor
Co-Director, Environmental Science Program

RESEARCH FOCUS

Active tectonics, structural geology, plate kinematics and GPS studies along convergent plate boundaries. Integrating field-based structural studies and kinematics (data from GPS and the rock record) with seismology, regional-scale geophysics to understand the role of pre-existing crustal anisotropies in the growth of orogenic belts around the world.

CURRENT PROJECTS

Extrusion, extension, and exhumation in an emerging mountain belt.	NSF	$236,874
Anelastic strain recovery: an exploratory...	JOI	$36,814

RECENT PUBLICATIONS

Gourley, J., Byrne, T., Wu, F., Chan, Y. and Rau, R.-J., 2007. Fault geometries illuminated from seismicity in central Taiwan: Implications for crustal-scale structural boundaries and lateral flow in the Central Range, *Tectonophysic*s, in press.

Clendenen, W.S., Fisher, D., and Byrne, T., 2003. Cooling and exhumation history of the Kodiak accretionary prism, Southwest Alaska, in Sisson, V.B., Roeske, S.M., and Pavlis, T.L., eds., Geology of a transpressional orogen developed during ridge-trench interaction along the North Pacific margin: Boulder, Colorado, *Geological Society of America Special Paper 371*, p. 71-88. Geological Society of America.

Lewis, J.C. and T.B. Byrne, 2003. History of metamorphic fluids along outcrop-scale faults in a Paleogene accretionary prism, SW Japan: Implications for prism-scale hydrology, *Geochemistry Geophysics Geosystems* v. 4, no. 9, 9007, doi:10.1029/2002GC000359.

CONTACT: Email: tim.byrne@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/

Dupraz, Christophe (PhD, Fribourg University, Switzerland)
Assistant Professor

RESEARCH FOCUS

Microbially-mediated carbon cycle at the biosphere-lithosphere interface, focusing on the microbe-(carbonate) mineral interactions. Geomicrobiology of benthic microbial communities, carbonate sedimentology, paleontology and paleoecology; including studies in both fossil and modern ecosystems; in open-marine, hypersaline, freshwater and terrestrial environments. Microscopy techniques (ESEM, Cryo-scanning).

RECENT PUBLICATIONS

Braissant, O., A.W. Decho, C. Dupraz, C. Glunk, K.M. Przekop, and P.T. Visscher. 2007. Exopolymeric substances of sulfate-reducing bacteria : Interactions with calcium at alkaline pH and implication for formation of carbonate minerals. *Geobiology* 5, 401-411.

Dupraz, C., R. Patissina, and E.P. Verrecchia. 2006. Simulation of stromatolite morphospace using 'DLA-CA' growth model': translation of energy in morphology. *Sedimentary Geology* vol. 185, 185-203.

Baumgartner, L.K., R.P. Reid, C. Dupraz, A.W. Decho, D.H. Buckley, J.R. Spear, K.M. Przekop, and P.T. Visscher. 2006. Sulfate reducing bacteria in microbial mats: changing paradigms, new discoveries. *Sedimentary Geology* vol. 185, 131-145.

CONTACT: Phone: (860) 405-9281 Email: christophe.dupraz@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/dupraz.html

Fitzgerald, William F. (PhD, MIT - Woods Hole)
Board of Trustees Distinguished Professor
Chad Hammerschmidt (UConn/Wright State), Katie Bluske (U of Wisconsin-LaCrosse), Carl Lamborg (UConn/WHOI), **Bill Fitzgerald**, and Prentiss Balcom (research assistant)

RESEARCH FOCUS

Chemical oceanography, marine inorganic and atmospheric chemistry, with particular emphasis on cycles of trace metals, especially mercury, and the environmental impact resulting from metal emissions/discharges associated with human endeavors. This internationally recognized Mercury Laboratory, established in the 1970s to investigate the complexities of mercury in the environment, seeks tounderstand the nature of mercury's biogeochemical interactions and anthropogenic effects on its cycling. Current investigations emphasize mercury and methylmercury cycling in coastal and open ocean regions, and in arctic Alaskan tundra lakes and watersheds.

CURRENT PROJECTS

Biogeochemical cycling & fate of mercury..	NSF	$400,664
A synthesis and assessment of modern…	Hudson River Foundation	$70,389

RECENT PUBLICATIONS

Fitzgerald, W. F., C.H. Lamborg, and C.R. Hammerschmidt. 2007. Marine biogeochemical cycling of mercury. *Chemical Reviews.* 107, 641-662.

Hammerschmidt, C.R., and W.F. Fitzgerald, 2006. Methylmercury in freshwater fish linked to atmospheric mercury deposition. *Environmental Science & Technology*. 40, 7764-7770.

Hammerschmidt, C.R., and W.F. Fitzgerald. 2006. Bioaccumulation and trophic transfer of methylmercury in Long Island Sound. *Archives Environmental & Contamination Toxicology.* 51, 416-424.

CONTACT: Phone: (860) 405-9158 Email: william.fitzgerald@uconn.edu Web Site: http://teamhg.uconn.edu/ and http://www.marinesciences.uconn.edu/faculty/fitzgera.html

Lewis, Ralph S. (M.S., Franklin and Marshall College)
Assistant Professor In Residence

RESEARCH FOCUS

Marine geology, benthic mapping, coastal processes. Current research concentrates on understanding the Long Island Sound's modern sediment system as it relates to sediment budgets and benthic habitats.

CURRENT PROJECTS

Web-based tour of diversity of habitat…	CT DEP	$24,576

RECENT PUBLICATIONS

Stone, J.R., J.P. Shafer, E.H. London, M. DiGiacomo-Cohen, R.S. Lewis, and W.B. Thompson. 2005. Quaternary Geologic Map of Connecticut and Long Island Sound Basin. U.S. Geological Survey Geologic Investigations Series Map I-2784, scale 1:125,000, 2 sheets and pamphlet. 72p.

Zajac, R.N., R.S. Lewis, L.J. Poppe, D.C. Twichell, J. Vozarik, J. and M.L. DiGiacomo-Cohen. 2003. Responses of Infaunal Populations to Benthoscape Structure and the Potential Importance of Transition Zones. *Limnology and Oceanography*. 48 (2): p. 829-842.

CONTACT: Phone: (860) 405-9015 Email: ralph.s.lewis@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/lewis.html

Mason, Robert (PhD, University of Connecticut)
Professor

Kneeling: Oguz Yigiterhan (postdoc); Udonna Ndu (PhD student); Standing: Terill Hollweg (PhD student), **Rob Mason**, Amina Traore (PhD student), Genevieve Bernier (research assistant), Tristan Kading (undergraduate), Susan Gichuki (PhD student), Bian Liu (postdoc)

RESEARCH FOCUS

Fate, transport, and transformation of trace metals, primarily mercury, but also cadmium and lead, and the metalloids (arsenic and selenium) in aquatic systems and the atmosphere. Research includes the open ocean, the coastal zone and estuaries, and freshwater systems. Current research focuses on important transformation processes, both in sediment and in the water column, in particular methylation and demethylation and redox transformations, and how these impact bioavailability and bioaccumulation into aquatic organisms. Studies are also focused on the exchange across interfaces, such as processes controlling air-water and sediment-water exchange of metals and the role of biota in mediating the chemical transformations.

CURRENT PROJECTS

Mercury in the atmosphere in Bermuda	BBSR	$61,179
Assessing the impact of hurricanes….	NSF	$91,564
Valuation of mercury transformation and ….	USGS/CALFED	$188,493
Metaalicus: a whole-watersheded, stable..	NSF	$101,000
EPA fellowship for T. Hollweg	EPA	$34,172
Investigating the Importance of the coastal..	NSF	$272,590
Developing global scientists/engineers…	NSF	$118,374
Penobscot River Study	Environ International	$88,908

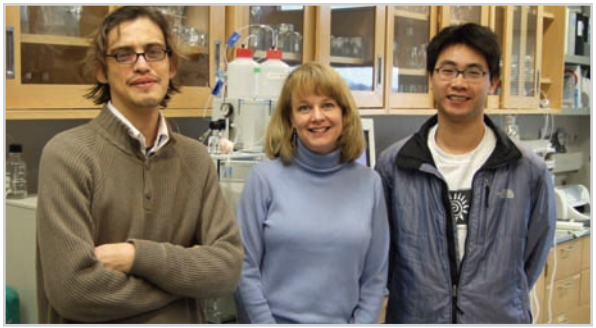
RECENT PUBLICATIONS

Laurier, F. and R.P. Mason. 2007. Mercury concentration and speciation in the coastal and open ocean boundary layer. *JGR-Atmos.* 112: Article # D06302.

Miller, C.L., R.P. Mason, C.C. Gilmour and A. Heyes. 2007. Influence of dissolved organic matter on the complexation of mercury under sulfidic conditions. *Environ. Toxicol. Chem*. 26: 624-633.

Whalin, L.M., E-H. Kim and R.P. Mason. 2007. Factors influencing the oxidation, reduction, methylation and demethylation of mercury species in coastal waters. *Mar. Chem*. 107: 278-294.

CONTACT: Phone: (860) 405-9129 Email: robert.mason@uconn.edu Web Site: sp.uconn.edu/~rom05001/ and http://www.marinesciences.uconn.edu/faculty/mason.html



Skoog, Annelie (Ph.D., University of Göteborg, Sweden)
Associate Professor

Alejandro Arias (PhD student), **Annelie Skoog**, Tzong-Yueh Chen (PhD student)
Not pictured: Eric Miller (PhD student), Elisabeth Svensson (PhD student)

RESEARCH FOCUS

Marine organic geochemistry and biogeochemistry. Marine organic chemical oceanography. The primary focus is the compound-specific study of marine organic matter cycling; investigating what compounds are present in seawater, their sources and sinks, and the biogeochemical processes involved in their cycling.

CURRENT PROJECTS

Hydroxly radicals in marine sediment…	NSF	$330,146

RECENT PUBLICATIONS

Skoog A., A. Alldredge, U. Passow, J. Dunne, J. Murray. 2008. Neutral aldoses in aggregation – indications of incorporation of dissolved precursors in marine snow. *Marine Chemistry* 108(3-4): 195-206.

Skoog A., P. Vlahos, K.L. Rogers, J.P. Amend. 2007. Concentrations, distributions, and energy yields of dissolved neutral aldoses in a shallow hydrothermal vent system of Vulcano, Italy. *Organic Geochemistry* 38(8): 1416-1430

Skoog M., M. Wedborg, R. Lara, G. Kattner. 2005. Spring-cycling of organic matter in a system encompassing the Northeast Water Polynya; Implications for early-season sources and sinks. *Marine Chemistry* 94:175-188.

CONTACT: Phone: (860) 405-9220 Email: annelie.skoog@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/skoog.html

Torgersen, Thomas (PhD, Columbia University)
Professor

RESEARCH FOCUS

Aqueous process geochemistry, geochemistry of rare gases, radiochemistry; specifically, ecosystem and environmental dynamics and the coupling of transport, reaction and biota; hydrology, limnology, sediment water exchange, gas exchange and carbon dynamics of shallow water. Other projects include fluid flow in the San Andreas Fault System and noble gas trapping in naturally occurring nanotubes and siliceous sediments.

CURRENT PROJECTS

Rare gas studies of fluids...	DOE	$628,381

RECENT PUBLICATIONS

Torgersen,T. and B. Branco. 2008. Carbon and oxygen fluxes from a small pond: temporal variability of a significant terrestrial carbon flux to the atmosphere. *Water Resources Research*, doi:1029/2006WR005634.

Torgersen, T. and B. Branco. 2007. Carbon and oxygen dynamics of shallow aquatic systems: process vectors and bacterial productivity, *J. Geophys. Res.*, 112, G03016, doi:10.1029/2007JG000401.

Branco, B.F., T. Torgersen, J.R. Bean, G. Grenier, and D. Arbige. 2005. A new water column profiler for shallow aquatic systems. *Limnol. Oceanogr. Methods* 3:190-202.

CONTACT: Phone: (860) 405-9094 Email: thomas.torgersen@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/torgerse.html

Visscher, Pieter T. (PhD, University of Groningen, The Netherlands)
Professor
Director, Center for Integrative Geosciences

Seated: Kim Gallagher (PhD student); Standing: **Pieter Visscher**, Olivier Braissant (postdoc), Beth Stephens (UMass), Kristin Przekop (research assistant).
Not pictured: Zamara Fuentes Figueroa (MSc student), Lyndsey Pyrke-Fairchild (MSc student).

RESEARCH FOCUS

Geomicrobiology, marine organic biogeochemistry, astrobiology, microbial ecology of coastal sediments and water bodies. Focusing on near-shore sediments and coastal waters, research studies the sulfur cycle and its role in the functioning of early marinecv ecosystems as these impact planetary evolution. Applied research focuses on problems such as halocarbon degradation (alternative freons, methyl bromide) and biofilm formation.

CURRENT PROJECTS

Mechanisms of calcium carbonate ….	NSF	$332,106
Biocomplexity: interaction between microbes...	NSF/U Miami	$304,349
Impacts of Salinity and Sulfate on microbes...	NASA	$50,000
RUI - Microbial observations Cabo Rojo….	NSF/UPR	$153,790

RECENT PUBLICATIONS

Braissant, O., A.W. Decho, C. Dupraz, C. Glunk, K.M. Przekop, and P.T. Visscher. 2007. Exopolymeric substances of sulfate-reducing bacteria: Interactions with calcium at alkaline pH and implications for formation of carbonate minerals. *Geobiology* 5(4):401-411.

Baumgartner, L.K., R.P. Reid, C. Dupraz, A.W. Decho, D.H. Buckley, J.R. Spear, K.M. Przekop, and P.T. Visscher. 2006. Sulfate-reducing bacteria in microbial mats: Changing paradigms, new discoveries. *Sedimentary Geology* 185:131-145.

Dupraz, C., and P.T. Visscher. 2005. Microbial lithification in modern marine stromatolites and hypersaline mats. Trends in *Microbiology* 13(9):429-438.

CONTACT: Phone: (860) 405-9159 Email: pieter.visscher@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/visscher.html

Vlahos, Penny (PhD, University of Massachusetts)
Assistant Professor

Front Row: Joanne Elmoznino (PhD student), Meg Graustein (undergraduate); Back row: Tiffany St. George (MSc student), **Penny Vlahos**, David Cady (undergraduate), Ben Adams (undergraduate).

RESEARCH FOCUS

Chemical engineering and chemical oceanography with specific interest in: 1) the geochemistry of carbon in order to better understand and identify processes that control the global cycling of carbon (with an emphasis on organic carbon), 2) the transport and fate of organic contaminants in the environment and the development of passive chemical sample, and 3) the cycling of nutrients in Long Island Sound.

CURRENT PROJECTS

Southern Ocean air-sea CO_2 exchange...	NSF	$166,882
Hydroxly radicals in marine sediment…	NSF	$330,146

RECENT PUBLICATIONS

St. George, T., P. Vlahos, T. Harner, and B. Wilford. Application of a thin-film, rapid equilibrating passive Sampler for the detection of organic contaminants in coastal waters. (submitted 2008) *Chemosphere*

Skoog A., P. Vlahos, K.L. Rogers, and J.P. Amend. 2007. Concentrations, distributions, and energy yields of dissolved neutral aldoses in a shallow hydrothermal vent system of Vulcano, Italy. *Organic Geochemistry* 38(8): pp. 1416-1430.

Shoeib, M., T. Harner, and P. Vlahos. Perfluorinated chemicals in the Arctic atmosphere. 2006. *Env. Sci. & Tech.* (40, pp. 7577-7583.

CONTACT: Phone: (860) 405-9269 Email: penny.vlahos@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/vlahos.html

Bohlen, W. Frank (PhD, MIT-Woods Hole)
Professor
John Bayreuther (research assistant), **Frank Bohlen**, Kay Howard-Strobel (research associate) Not pictured: Erick Rivera Lemus (MSc student)

RESEARCH FOCUS

To increase our understanding of the dynamics governing the transport of fine-grained sediments in coastal and estuarine waters and to document the response of the sediment-water interface to both long-term persistent and short-term aperiodic events, both natural and man induced. Particular emphasis is placed on time-series observations. Ongoing work seeks to extend and refine observations to permit resolution of the specific factors governing transport non-linearities including consideration of biologically mediated variations in sediment fabric, particulate associated alterations in boundary shear stress, and advective effects associated with variations in the local flow field.

CURRENT PROJECTS

Broadwater Energy Metocean Study	Broadwater	$536,977
Field Investigation of Sediment Suspension...	NU/ESS Inc.	$111,221

RECENT PUBLICATIONS

O'Donnell, J., H.G. Dam, W.F. Bohlen, W. Fitzgerald, P. Gay, A.E. Houk, D.C. Cohen, and M.M. Howard-Strobel. 2006. Intermittant variation in the hypoxic zone of Western Long Island Sound during the summer of 2004. (Submitted)

Tedesco, M., W.F. Bohlen, M.M. Howard-Strobel, D.R. Cohen, and P.A. Tebeau 2003. The MYSOUND Project: Building an estuary wide monitoring network for Long Island Sound, N.Y. Env. Monitoring and Assessment 81:35-42.

Howard-Strobel, M.M. and W.F. Bohlen 2003. Local climate trends and the occurrence of hypoxia in western Long Island Sound. Final Report. Submitted to the Office of Long Island Sound Programs. State of Connecticut Dept. of Env. Protection.

CONTACT: Phone: (860) 405-9176 Email: walter.bohlen@uconn.edu Web Sites: http://www.mysound.uconn.edu/ and http://www.marinesciences.uconn.edu/faculty/bohlen.html

Dierssen, Heidi (PhD, University of California)
Assistant Professor
Dirk Aurin (PhD student), **Heidi Dierssen**, Kate Randolph (PhD student), Chris Buonassissi (MSc student)

RESEARCH FOCUS

Coastal optics and remote sensing to address questions related to biological and physical processes in the ocean. My research involves collecting field data from ships or with scuba diving to develop and validate approaches for estimating biogeochemical properties (productivity), physical features (sediment plumes, whitecaps), and benthic habitats (seagrass) from remote sensing imagery obtained from satellites and aircraft.

CURRENT PROJECTS

Benthic ecology from space: algorithms for..	NASA	$418,255
Improving Coastal Ocean Color Validation…	NASA/Wet Labs	$24,931
Benthic productivity studies and support of..	NOAA/Oregon State	$70,000
Differentiating sources of backscattering...	NASA	$471,800

RECENT PUBLICATIONS

Dierssen, H.M., J. Acker, S. Bernard and G. Pitcher. Submitted. Chapter 9: Ocean Colour Radiometry and Hazards. In *Why Ocean Color*. Ed. T. Platt. International Ocean Colour Coordinating Group Report.

Gao, B., M.J. Montes, R. Li, H.M. Dierssen, and C.O. Davis. 2007. An atmospheric correction algorithm for remote sensing of bright coastal waters using MODIS land and ocean channels in the solar spectral region. *IEEE Transactions on Geoscience and Remote Sensing* 45 (6): 1835-1843.

Dierssen, H.M., J. Ryan, R. Kudela, and R.C. Zimmerman. 2006. Red and black tides: Quantitative analysis of water-leaving radiance and perceived color for phytoplankton, colored dissolved organic matter, and suspended sediments. *Limnology and Oceanography* 55 (6):2646-2659.

CONTACT: Phone: (860) 405-9239 Email: heidi.dierssen@uconn.edu Web Site: http://www.colors.uconn.edu/ and http://www.marinesciences.uconn.edu/faculty/dierssen.html

Edson, James B. (PhD Penn State University)
Associate Professor
Associate Professor of Physics

Alejandro Cifuentes (PhD student), **Jim Edson**, Raju Venkata (postdoc)

RESEARCH FOCUS

Marine meteorology with a focus on the turbulent exchange (or flux) of momentum, heat, and water vapor to and from the ocean surface. Particular interest is in how waves affect the transfer of momentum and heat across the air-sea interface. More recently, we have been working to improve our understanding of the exchange of CO_2 between the ocean and atmosphere, and thereby the role of the ocean is modulating climate change.

CURRENT PROJECTS

CBLAST	DOD	$170,672
OHATS	NSF	$114,098
Air-Sea Exchange in the 18 degree C water..	NSF	$301,024
Southern Ocean Air-Sea CO_2 Exchange	NSF	$166,882

RECENT PUBLICATIONS

Gerbi, G.P., J.H. Trowbridge, J.B. Edson, A.J. Plueddemann, E.A. Terray, and J.J. Fredericks. 2008. Measurement of momentum and heat transfer across the air-sea interface. *J. Phys. Oceanogr.*, in press.

Sullivan, P.P., J.B. Edson, T. Hristov, and J.C. McWilliams. 2008. Large eddy simulations and observations of atmospheric marine boundary layers above non-equilibrium surface waves. *J. Atmos. Sci.*, in press.

Miller, S., C. Friehe, T. Hristov, and J. Edson. 2008. Platform motion effects on measurements of turbulence and air-sea exchange over the open ocean, *J. Atmos. Oceanic Tech.*, in press.

CONTACT: Phone: (860) 405-9165 Email:james.edson@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/edson.html

Monahan, Edward C. (Ph.D. MIT, D.Sc. Nat. Univ. of Ireland)
Professor Emeritus

RESEARCH FOCUS

Physical oceanography, particularly on investigations of those physical processes involved in air-sea exchange, with particular focus on the various bubble-mediated air-sea exhange mechanisms. Research also continues to focus on obtaining a better understanding of the evolution with time of the bubble plumes that form when waves break.

PROJECTS

The sea surface aerosol generation model of Monahan, Spiel, and Davidson as set out in Oceanic Whitecaps (Monahan and McNiociall, eds., 1986) was described in a 2004 AGU monograph (Lewis and Schwartz) as "perhaps the most widely used parameterization for SSA production flux in [climate models]." The same paper is cited in the IPCC's *Climate Change 2001: the Scientific Basis.*

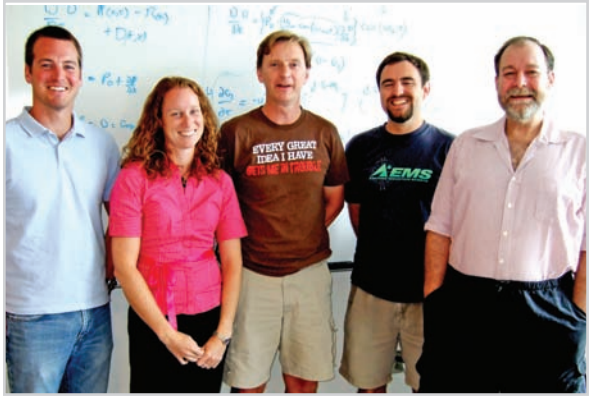
PUBLICATIONS

Vlahos, P., E. Monahan, and A. Skoog. 2006. Chemical Transformations. *EOS,* Transactions of the American Geophysical Union 87 (3) OS15E-17.

Jähne, B. and E. Monahan, (eds.) 1995. *Air-Water Gas Transfer*. AEON-Verlag. 900pp.

Monahan, E.C. and I.G. O'Muircheartaigh. 1980. Optimal Power Law Description of Oceanic Whitecap Coverage Dependence on Wind Speed, *J. Phys. Ocean.* 10; 2094-2099.

CONTACT: Phone: (860) 405-9110 Email: edward.monahan@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/monahan.html



O'Donnell, James (PhD, University of Delaware)
Professor

Todd Fake (IT/Research Support), Diane Bennett (PhD student), **Jim O'Donnell**, Adam Houk (research assistant), Grant McCardell (PhD student).

RESEARCH FOCUS

Physical oceanography, circulation modeling, frontal dynamics. To understand the physical processes that determine the circulation in the coastal ocean. Research is also focused on fundamental geophysical and environmental fluid dynamics and the application of mathematical and statistical methods to the development of models of biogeochemical processes.

CURRENT PROJECTS

LISICOS	NOAA	$3,652,151
Simulation of LIS...	EPA/LISS	$251,164
NE Regional assoc coastal observing system	NOAA/WHOI	$225,000
Phased deployment... of MARCOOS	NOAA/Rutgers	$150,000

RECENT PUBLICATIONS

O'Donnell, J., S.G. Ackleson and E.R. Levine 2007. On the Spatial Scales of a River Plume. *J. Geophys. Res. Oceans.* (In Press).

Levine, E.R., L. Goodman, and J. O'Donnell. 2006. Turbulence in Coastal Fronts near the Mouth of Long Island Sound, *J. Marine Systems* (In Press)

Gay, P.S. and J. O'Donnell. 2007. A one dimensional model of the salt flux in estuaries. *J. Geophys. Res.* 112,

Ullman, D.S., J. O'Donnell, J. Kohut, T. Fake, and A. Allen (2006). Trajectory Prediction using HF Radar Surface Currents: Monte Carlo Simulations of Prediction Uncertainties. *J. Geophys. Res.* 111, C12005, DOI 10.1029/2006JC003717.

CONTACT: Phone: (860) 405-9171 Email: james.odonnell@uconn.edu Web Site: http://http://www.marinesciences.uconn.edu/faculty/odonnell.html

Whitney, Michael M. (PhD, University of Delaware)
Assistant Professor

Melissa Hacker-Gibson (MSc student), **Mike Whitney**, R.J. Jiorle (MSc student)

RESEARCH FOCUS

Physical oceanography, coastal circulation and estuarine dynamics studying how currents and density fields respond to winds, surface heat flux, tides, and buoyant river inputs as well as adapting hydrodynamic models to construct simulations and idealized process models.

CURRENT PROJECTS

Coastal wind-driven circulation over submarine banks; Interannual variability of river discharges and coastal salinities Tidal interactions with marine sand waves; Circulation and stratification in the Thames River Estuary; Wind-driven dynamics in the Long Island Sound

RECENT PUBLICATIONS

Whitney, M. M. and R. W. Garvine. 2008. Estimating tidal current amplitudes outside estuaries and characterizing the zone of estuarine tidal influence. *Cont. Shelf Res.*, 28, 280-290.

Garvine, R. W. and M. M. Whitney. 2006. An estuarine box model of freshwater delivery to the coastal ocean for use in climate models. *J. Mar. Res.*, 64, 173-194.

Wetz, M. S., B. Hales, P. A. Wheeler, Z. Chase, and M. M. Whitney. 2006. Riverine input of macronutrients, iron, and organic matter to the coastal ocean off Oregon, USA, during the winter. *Limnol. Oceanogr.*, 51, 2221-2231.

CONTACT: Phone: (860) 405-9157 Email: michael.whitney@uconn.edu Web Site: http://www.marinesciences.uconn.edu/faculty/whitney.html

MARINE SCIENCES AND TECHNOLOGY CENTER

The Marine Sciences and Technology Center (MSTC) seeks to facilitate research and to provide facilities, logistical and technical support in the field of marine sciences and marine-related research at the University of Connecticut. MSTC facilities include the Marine Sciences Vessel Operations, Rankin Seawater Facility, Machine Shop, and Electronics Shop. In addition to these facilities, MSTC has an extensive diving program and also provides Information Technology and analytical laboratory support to the Department of Marine Sciences.

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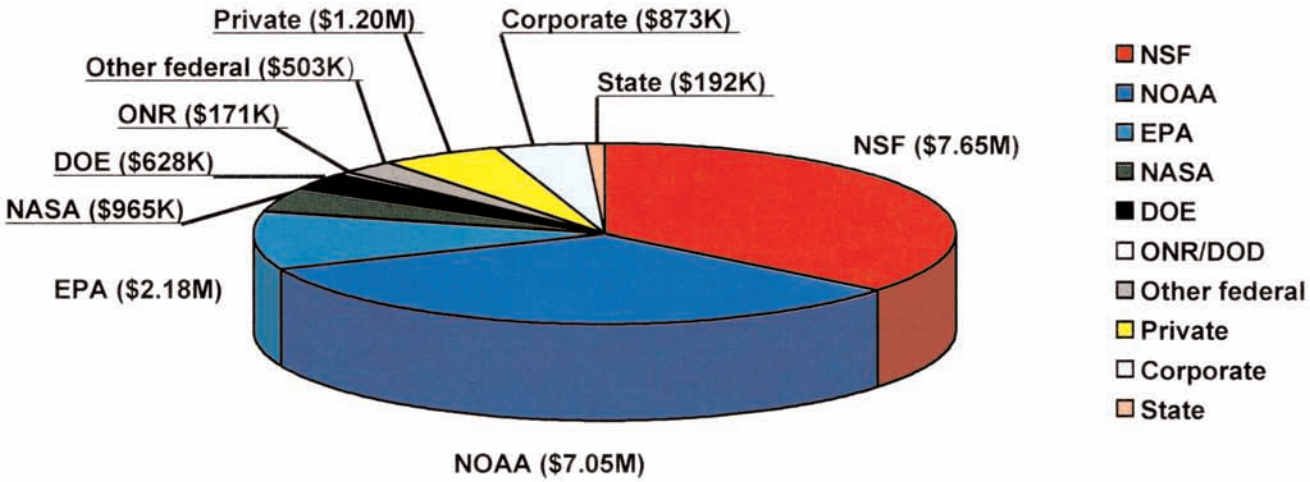
Jeff Godfrey, Diving Officer	860-405-9137	jeff.godfrey@uconn.edu
Peter Boardman, Rankin Lab Manager	860-405-9181	peter.boardman@uconn.edu

FAX: 860-405-9153
Web: www.marinesciences.uconn.edu/mstc.html

FUNDING SUPPORT & FINANCIAL OVERVIEW

In 2007, the Department of Marine Sciences operating budget was $2,750,000, with funds received from the College of Liberal Arts & Sciences (CLAS) and the University of Connecticut – Avery Point campus. The affiliated Marine Sciences & Technology Center received $850,000, with resources provided from both CLAS and the office of the UConn Vice Provost for Research and Graduate Educations. Indirect cost return to the department added another $52,000.

Marine Sciences faculty receive the highest level of extramural support per faculty member of any department in the College of Liberal Arts & Sciences. Extramural funding to the department for 2007 included 77 active grants and contracts totaling $21.4M. This total reflects multi-year funds for all awards active during the year. Extramural funding to the department is diversified among many federal and state sources (see chart).



Extramural funding to Department of Marine Sciences during 2007 by source.

PRIVATE GIFTS AND BEQUESTS

Private gifts and bequests are essential to fulfilling our research and education goals. The Department of Marine Sciences has several endowments and funds available, especially for undergraduate and graduate student activities.

If you are interested in supporting Marine Sciences, please consider contributing to one of the existing funds or starting a fund of your own. Contributions should be sent to the University of Connecticut Foundation and donations may be made by check or online (please see below). You may indicate the fund to which you wish to contribute. Existing funds are described briefly here.

Marine Sciences Research & Outreach Fund: This fund provides support for the Department of Marine Sciences, to meet priority needs of the program.

William A. Lund, Jr. Fellowship in Marine Sciences: The purpose of this fund is to provide fellowship support to graduate students enrolled in the University's Department of Marine Sciences; priority consideration is given to students demonstrating potential to submit work for publication.

Northeast Utilities Marine Science Program Fund: provides support for programs in the Department of Marine Sciences, especially for the development of programs to encourage participation and retention of women and minorities in environmental marine sciences; and development of educational programs that make use of the R/V Connecticut.

Northeast Utilities Marine Science Award Fund: provides financial support for students and faculty in the Department of Marine Sciences.

Sung Yen Feng Memorial Scholarship Fund: provides financial support for graduate students studying in the field of oceanography.

Sung Yen Feng Marine Sciences Student Activity Fund: provides financial support for research and educational activities for students in the field of oceanography.

Marine Sciences Internship Program Fund: supports undergraduate and graduate internships in the Department of Marine Sciences.

Do you wish to make a contribution to UConn Marine Sciences?

By mail:
The University of Connecticut Foundation, Inc.
2390 Alumni Drive Unit 3206
Storrs, CT 06269-3206

The University of Connecticut FOUNDATION

Or on the world wide web at **https://secure.ga4.org/01/uconn_foundation_giving**

APPLICATION GUIDELINES

Undergraduate Studies:

To be admitted to the Department of Marine Science, Coastal Studies major, you must complete the regular University of Connecticut application process. To receive a UConn application, contact:

Office of Undergraduate Admissions, 2131 Hillside Road, Unit 3088, Storrs, CT 06269-3088 (Tel. 860-486-3137)

For questions regarding general admission to University of Connecticut, please visit http://admissions.uconn.edu, or call the above phone number for assistance. We encourage you to take a tour of the Avery Point campus. Depending on the day and time, you can choose to tour the campus, meet a Coastal Studies faculty member, attend a class, attend a lecture, and meet some Coastal Studies students. Call 860-405-9026 or e-mail coastal@uconn.edu to arrange an appointment. To tour the Storrs campus, contact 860-486-4866. For additional information and answers to frequently asked questions, please visit: http://www.marinesciences.uconn.edu/MSCSS/degree.html.

Graduate Studies:

The University of Connecticut Department of Marine Sciences confers M.S. and PhD. degrees in Oceanography. Application deadlines are January 10 for Fall semester entry and October 1 for Spring semester entry. Submission prior to these dates is strongly encouraged. For more information, see http://www.marinesciences.uconn.edu/grad.html. You are strongly encouraged to contact a faculty member whose research interests are most closely aligned with your own. You may obtain an application form from the Graduate Application web page or by contacting the Graduate School at 860-486-3617. You should fill out the application online or paper copy, prepare a personal letter of application, and obtain official transcripts, and three letters of recommendation. Financial aid request form (if you are eligible), and non-refundable application fee. Your Graduate Record Examination (GRE) scores and TOEFL scores (if English is not your first language) must be electronically sent to UConn (code 3915).

Send all the application materials to:
Graduate Coordinator
Department of Marine Sciences
1080 Shennecossett Road
Groton, CT 06340

Phone: 860-405-9152; Fax: 860-405-9153
E-mail: marinesciences@uconn.edu

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