

# Kristen E. Whalen

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## Professional Preparation

- Massachusetts Institute of Technology/ Woods Hole Oceanographic Institution Bio. Oceanography Ph.D., 2008

Thesis entitled: *Functional Characterization and Expression of Molluscan Detoxification Enzymes and Transporters Involved in Dietary Allelochemical Resistance*  
Adviser: Dr. Mark Hahn

- University of North Carolina at Wilmington Marine Biology B.S., 2001  
*Honors in Biology*  
*Summa cum laude*

Honors Thesis entitled: *Antifouling Activity of Caribbean Sponge Extracts*  
Adviser: Dr. Joseph Pawlik

## Appointments

- NSF Postdoctoral Fellow, UNSW and UCSB, 2008-present
- Postdoctoral Investigator, WHOI, 2008
- Graduate Research Assistant, MIT/WHOI, 2006-present
- Graduate Teaching Assistant, MIT/WHOI, Biological Oceanography, Spring 2006
- National Science Foundation Graduate Research Fellow, 2003-2006
- Research Assistant, Georgia Institute of Technology, Supervisor: J. Kubanek, 2002
- Woods Hole Oceanographic Institution, Summer Student Fellow, 2001

## Publications/Abstracts/Book Chapters

- 2008 - Sotka, E.E. and **Whalen, K.E.**, Herbivore offense in the sea: the detoxification and transport of secondary metabolites, *Algal Chemical Ecology*, Amsler, C.D. Editor, Springer, New York, pp. 203-221
- 2008 - **Whalen, K.E.**, and Hahn, M.E., Diet-dependent expression of allelochemical detoxifying genes in the predator *Cyphoma gibbosum*. (in preparation)
- 2008 - **Whalen, K.E.**, Morin, D., Lin, C.Y., Tjeerdema, R., Goldstone, J.V., Hahn, M.E., Proteomic characterization and cDNA cloning of glutathione S-transferases from the generalist marine gastropod, *Cyphoma gibbosum*. *Archives of Biochemistry and Biophysics* (in press)
- 2004 - **Whalen, K.E.**, Carvan, M.J., Hestermann, E.V., Jensen, B.A., Hahn, M.E., Structure-activity relationships for polychlorinated biphenyl binding to the aryl hydrocarbon receptor in a Dolphin kidney cell line. *Marine Environmental Research*. **58**:131-141. (Abstract)
- 2003 - Hahn, M.E., Jensen, B.A., Kim, E-Y., Karchner, S.I., Franks, D.G., Lapseritis, J.M., **Whalen, K.E.**, Carvan, M.J., Molecular and cellular approaches to understanding the

sensitivity of marine mammals to persistent organic pollutants. *Organohalogen Compounds*. **62**:253-256.

2001 - Kubanek, J., **Whalen, K.E.**, Engle, S., Kelly, S., Henkel, T.P., Fenical, W., and Pawlik, J.R., Multiple defensive roles for triterpene glycosides from two Caribbean sponges. *Oecologia*. **131**:125-136.

### **Oral/Poster Presentations**

- Poster presentation at 24<sup>th</sup> Annual Meeting of the New England Membrane Enzyme Group, October 14-16, 2007, Woods Hole, MA. Entitled: "Effects of gorgonian secondary metabolites on marine consumer detoxification enzymes."
- Oral presentation at the 36<sup>th</sup> Annual Benthic Ecology Meeting, March 21-25, 2007; Atlanta, GA. *Session Chair*: Consumer-Prey Interactions. Entitled: "A proteomic and molecular approach to chemical ecology: Identifying detoxification enzymes possibly involved in allelochemical resistance."
- Oral presentation at the Woods Hole Oceanographic Institution, October 26, 2006, Woods Hole, MA. Entitled: "When corals leave a bad taste in your mouth: Understanding molluscan detoxification of gorgonian chemical defenses".
- Poster presentation at 22<sup>nd</sup> Annual Meeting of the New England Membrane Enzyme Group, November 7-8, 2005, Sturbridge, MA. Entitled: "Detoxification enzymes and transporters in marine molluscs: An evolutionary answer to gorgonian chemical defenses?"
- Poster presentation at 34<sup>th</sup> Annual Benthic Ecology Meeting, April 6-10, 2005; Williamsburg, VA. Entitled: "Detoxification enzymes and transporters in marine molluscs: An evolutionary answer to gorgonian chemical defenses?"
- Poster presentation at the Pollution Response in Marine Organisms Meeting, May, 2003; Tampa, Florida. Entitled: "Structure-activity relationships for polychlorinated biphenyl binding to the aryl hydrocarbon receptor in a dolphin kidney cell line."
- Oral presentation at the 31<sup>st</sup> Annual Benthic Ecology Meeting, March 21- 24, 2002; Orlando, Florida. Entitled: "Localization of ecologically active secondary metabolites in two Caribbean sponges."
- Oral presentation of summer research project at Woods Hole Oceanographic Institution, Summer 2001, Entitled: "Are bottlenose dolphins (*Tursiops truncatus*) susceptible to polychlorinated biphenyls". Summer Student Fellowship, Woods Hole Oceanographic Institution
- Poster presentation at the 18<sup>th</sup> International Society of Chemical Ecology Meeting, July 7-12, 2001; North Lake Tahoe, CA. Entitled: "More bang for your buck: Multiple defenses roles of triterpene glycosides in marine sponges."
- Oral presentation at the 29<sup>th</sup> Annual Benthic Ecology Meeting/ Marine Chemical Ecology Symposium, March 9-12, 2000; University of North Carolina at Wilmington. Entitled: "Antifouling activity of Caribbean sponge extracts."

### **Fellowships, Grants and Awards**

2008-2010 National Science Foundation – International Postdoctoral Research Fellowship (*NSF0754319*); Hosts: Peter Steinberg, University of New South Wales, Sydney, Australia; Gretchen Hofmann, University of California, Santa Barbara

2003-2006 National Science Foundation - Graduate Research Fellowship

2006-2008 Lead PI.-Ocean Life Institute (WHOI) -Tropical Research Initiative Award, Grant entitled "Biochemical Ecology on Coral Reefs"; **\$74,923.00**

- 2005 Lead PI.-Ocean Ventures Fund, Grant entitled “Characterization of Detoxification Enzymes in the Marine Gastropod (*Cyphoma gibbosum*) in Response to a Gorgonian Diet; **\$14,960.00**
- 2004 Conchologists of America, Student award, Grant entitled “Detoxification and Transport of Dietary Metabolites in Marine Molluscs”; **\$1,476.04**
- 2005 SEASPACE Student Scholarship; **\$2,000.00**
- 2003 Lead PI.- Caribbean Marine Research Center, National Undersea Research Center, Grant entitled “Physiological fate of dietary allelochemicals in generalist and specialist marine molluscs”; **\$7,520.00**
- 2002 UNC-Wilmington Undergraduate Student Research & Travel Award
- 2002 Biology Achievement Award, UNCW
- 2000-2001 Charles and Kay Bolles Marine Biology Scholarship, UNCW
- 2000 DeLoach Scholarship – Excellence in Organic Chemistry, UNCW
- 1998-2001 Chancellor’s Achievement Award of Excellence, UNCW
- 1999-2001 Glaxo-Wellcome ‘Women in Science’ Scholarship
- 1999 Outstanding General Chemistry Student Award, UNCW

**Scientific Cruises/Field Work**

- 2006, 2004 Principle investigator studying natural product detoxification in coral reef invertebrates, Perry Institute for Marine Science, Lee Stocking Island, Bahamas
- 2005 SUNY-Buffalo/U of Miami cruise; Research Scientist aboard the R/V Walton Smith, Bahamas, investigating coral recruitment on Grand Bahama Bank, H. Lasker (lead PI.-SUNY Buffalo)
- 2004 Research Assistant under the direction of A. Tarrant (lead PI-WHOI), studying endocrine disruption in scleractinian corals, Perry Institute for Marine Science, Lee Stocking Island, Bahamas
- 2004 WHOI Research Scientist studying nudibranch and coral abundance at the Liquid Jungle Lab located on the island of Canales de Tierra, Veraguas province of Panama
- 2001, 2000 National Science Foundation – Chemical Ecology Cruise; Research Scientist and Dive Team Member aboard the R/V Seaward Johnson investigating chemical defense in coral reef invertebrates, Bahamas, J. Pawlik (lead PI.-UNCW)
- 1999-2001 Research Dive Team member, investigating sponge health and ecology in Key Largo, FL in conjunction with the National Undersea Research Center and Center for Marine Science, UNCW, J.Pawlik (lead PI.-UNCW)
- 2001-2003 Cape Cod Stranding Network Volunteer under the direction of M. Moore (WHOI); assisted in marine mammal necropsies
- 1999-2001 UNCW Stranding Team Member Volunteer under the direction of A. Pabst (UNCW); assisted in marine mammal necropsies.

## Teaching Experience

- Guest Lecturer, Endangered Waters – Human Interaction with Ocean Ecosystems, Tufts University Experimental College, Medford, MA. Lecture – Emerging threats to coral reefs: are we already at the ‘tipping point’ (Fall 2007)
- Guest Lecturer, Biological Oceanography (Graduate Level), WHOI/MIT Course 7.47, Lecture entitled – Introduction to Coral Reefs: Biology, Ecology & Global Threats (Feb-June 2006)
- Ocean Sciences Enrichment Teacher, Mullen Hall Elementary, Falmouth, MA; as part of the Centers of Ocean Sciences Education Excellence program of New England (COSEE-NE) (Feb-June 2006)

## Synergistic Activities

- American Academy of Underwater Sciences (AAUS) Diving Control Board Member for Woods Hole Oceanographic Institution (2004 – 2008).
- SCUBA certifications: PADI Open water certification; NAUI Nitrox and Dry Suit certification; AAUS scientific diving certification (1999 – present) Over 300 research dives logged.
- Advanced First Aid, CPR, and DAN oxygen administration certified
- Falmouth High School Science Fair Judge (2006) and Lawrence Middle School Science Mentor (2005)
- Science Judge, National Ocean Sciences Bowl, MIT, (January 2007)
- Volunteer for the Marine Mammal Standing Network, Wilmington, NC (1998-2001)
- Reviewer for California Sea Grant
- Membership: American Chemical Society; Society for Integrative and Comparative Biology