

## CARRIE JO THOMAS

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### EDUCATION

**Ph.D., Marine, Earth and Atmospheric Sciences**, North Carolina State University, 1998  
**M.S., Biological Oceanography**, University of North Carolina at Wilmington, 1992  
**B.S., Biology**, College of Charleston, 1990

### RESEARCH AND ADMINISTRATIVE EXPERIENCE

**Director of Undergraduate Programs and Associate Research Professor**, Marine, Earth and Atmospheric Sciences, NCSU, 2008-present.  
**Director of Undergraduate Programs and Assistant Research Professor**, Marine, Earth and Atmospheric Sciences, NCSU, 2006-2008.  
**Sponsored Program Development Director and Assistant Research Professor**, Marine, Earth and Atmospheric Sciences, NCSU, 2003-2006.  
**Academic Coordinator**, Women in Science & Engineering Living and Learning Community, NCSU, 2003.  
**Interim Director of Undergraduate Programs**, Marine, Earth and Atmospheric Sciences, NCSU, 2001-2002.  
**Coordinator**, NC Ocean Science Bowl, 1999-2003.  
**Post-doctoral Research Associate**, North Carolina State University, 1998-2000.  
**Research Assistant**, North Carolina State University, 1993-1998.  
**Internship**, Consortium for Oceanographic Research and Education, 1996.  
**Research Technician**, University of North Carolina at Wilmington, 1993.  
**Research Assistant**, University of North Carolina at Wilmington, 1990-1992.

### TEACHING EXPERIENCE

NCSU, 1991- present. Introductory oceanography, environmental science, marine biology, water resources, natural hazards, research and professional development seminar, undergraduate/graduate level field training course, master's level special topics course in coastal processes.  
**St. Augustine's College**, Raleigh, NC, 1999. Instrumental analysis lecture and laboratory.  
PAMS Science Camp, 1997-1999. Introduced NC high school students to oceanography as a career.  
**Coastal Carolina Community College**, Jacksonville, NC, 1993. Introductory biology lecture and laboratory.

## FUNDING HISTORY

Benthic Dinoflagellate Migration: Occurrence and Processes. PIs: Daniel Kamykowski, John Morrison, Carrie Thomas and Gerald Janowitz; 8/01/07-7/31/10; NSF; \$560,000.

Collaborative Research: Benthic Faunal Feeding Dynamics on the Antarctic Shelf and the Effects of Global Climate Change on Benthic-Pelagic Coupling. PIs: David DeMaster and Carrie Thomas; 7/1/07-6/30/10; \$602,604.

Southeast Center for Ocean Science Education Excellence- Research Support. PI: Carrie Thomas; 9/01/05-8/31/10; SC SeaGrant (NSF-subaward); \$150,088.

Integrating Active Learning into the Geosciences; PIs: Carrie Thomas, John Fountain, Edward Stoddard, Donna Wolcott; 01/01/05-06/30/05; NCSU: Learning in a Technology-Rich Environment; \$4150.

Collaborative Research: Enhancing Diversity in Geosciences in North Carolina. PIs: John Fountain, Carrie Thomas, Fredrick Semazzi, William Showers, David Haase; 8/15/03-6/30/07; NSF; \$459,591.

Settlement on a New Artificial Reef at AR-330. PI: Carrie Thomas; 6/1/03-12/31/04; NC SeaGrant Mini Grant; \$4996.

Collaborative Research: NCSU/NC A&T Program for STEM Enrollment Enhancement. PIs: John Fountain, Carrie Thomas, Robert Borden, David Haase, Joel Ducoste, Christine Grant, Christopher Gould, Jesus Rodriguez, William Switzer; 1/1/03-12/31/06; NSF; \$350,016.

Southeast Center for Ocean Science Education Excellence- Research Support. PI: Carrie Thomas; 9/01/02-8/31/05; SC SeaGrant (NSF-subaward); \$59,741.

## GRADUATE STUDENTS

Mark McClintic (Committee, M.S. 2002)

Brett Purinton (Co-advisor, M.S. 2005)

Kim Null (Committee, Ph.D. student)

Alyssa Hopkins (Advisor, M.S. student)

## PUBLICATIONS

**Thomas, C.J.**, D.J. DeMaster, S.E. Boehme and H.E. Hartnett. Benthic fluxes and carbon diagenesis in the Palmer Long Term Ecological Research Area. In prep.

Hartnett, H., Boehme, S., **Thomas, C.**, DeMaster, D., and Smith, C. 2008. Benthic oxygen fluxes and denitrification rates from high-resolution porewater profiles from the Western Antarctic

Peninsula continental shelf. *Deep Sea Research Part II: Topical Studies in Oceanography* 55:2415-2424

McClintic, M., DeMaster, D., **Thomas, C.**, and Smith, C. 2008. Testing the FOODBANCS hypothesis: Seasonal variations in near-bottom particle flux, bioturbation intensity, and deposit feeding based on  $^{234}\text{Th}$  measurements, *Deep Sea Research Part II: Topical Studies in Oceanography* 55:2425-2437

Purinton, B., DeMaster, D., **Thomas, C.**, and Smith, C. 2008.  $^{14}\text{C}$  as a tracer of labile organic matter in Antarctic benthic food webs, *Deep Sea Research Part II: Topical Studies in Oceanography* 55:2438-2450

Gallinari, M., Ragueneau, O., DeMaster, D., Hartnett, H., Rickert, D., **Thomas, C.** 2008. Influence of seasonal phytodetritus deposition on biogenic silica dissolution in marine sediments--Potential effects on preservation, *Deep Sea Research Part II: Topical Studies in Oceanography*, Volume 55, Pages 2451-2464

Titus-Becker, K., S. Rajala, L. Bottomley, D. Raubenheimer, J. Cohen, K. Bullett, S. Grant, F. Cobb Payton, B. Kirby, A. Kirkman, W. Krause, and **C. Thomas**. 2007. An Integrated Living and Learning Community for First and Second Year Undergraduate Women in Science & Engineering. Proceedings from American Society for Engineering Education 2007 Annual Conference and Exposition. <http://www.asee.org/acPapers/>

Spence, L.L., B.A. Schaeffer, **C.J. Thomas**, T.K. Hathaway, and M. Olsen. 2006. Coastal Ocean Observing Technology Transfer to Educators. *Marine Technology Society Journal* 39:20-24.

Spence, L.L. and **C.J. Thomas**. 2004. The Ocean Sciences and Education in *Proceedings of the Conference on K-12 Outreach from University Science Departments: 2004*. Haase, D.G. and S.K. Schulze (eds.) The Science House, North Carolina State University. pp. 24-30.

S.A. Rajala, L.J. Bottomley, E.A. Parry, J.D. Cohen, S.C. Grant, **C.J. Thomas**, T.M. Doxey, G. Perez, R.E. Collins, and J.E. Spurlin. 2004. The North Carolina State University Women in Science and Engineering Program: A Community for Living and Learning. Proceedings from American Society for Engineering Education 2004 Annual Conference and Exposition. [http://www.asee.org/acPapers/2004-633\\_Final.pdf](http://www.asee.org/acPapers/2004-633_Final.pdf)

**Thomas, C.J.** and N.E. Blair. 2002. Transport and digestive alteration of uniformly  $^{13}\text{C}$ -labeled diatoms in mudflat sediments. *Journal of Marine Research* 60:517-535.

**Thomas, C.J.**, N.E. Blair, M.J. Alperin, D.J. DeMaster, R.A. Jahnke, C.S. Martens, and L. Mayer. 2002. Organic carbon deposition on the North Carolina continental slope off Cape Hatteras (USA). *Deep-Sea Research II* 49:4687-4709.

DeMaster, D.J., **C.J. Thomas**, N.E. Blair, W.L. Fornes, G. Plaia, and L.A. Levin. 2002.

Deposition of Bomb  $^{14}\text{C}$  in continental slope sediments of the mid-Atlantic Bight: Assessing organic matter sources and burial rates. *Deep-Sea Research II* 49:4667-4685.

Blair, N., L. Levin, D. DeMaster, G. Plaia, C. Martin, W. Fornes, **C. Thomas**, and R. Pope. 2001. The biogeochemistry of carbon in continental slope sediments. *Organism-Sediment Interactions*, University of South Carolina Press.

Levin, L., N. Blair, C. Martin, D. DeMaster, G. Plaia, and **C. Thomas**. 1999. Macrofaunal processing of phytodetritus at two sites on the Carolina margin: *In situ* experiments using  $^{13}\text{C}$ -labeled diatoms. *Marine Ecology Progress Series* 182:37-54.

Levin, L., N. Blair, D. DeMaster, G. Plaia, W. Fornes, C. Martin and **C. Thomas**. 1997. Rapid subduction of organic matter by malmanid polychaetes on the North Carolina slope. *Journal of Marine Research* 55:1-17.

Cahoon, L.B., R.A. Laws and **C.J. Thomas**. 1994. Viable diatoms and chlorophyll *a* in continental slope sediments off Cape Hatteras, North Carolina. *Deep-Sea Research* 41:767-782.

Cahoon, L.B., G.R. Beretich, Jr., **C.J. Thomas** and A.M. McDonald. 1993. Benthic microalgal production at Stellwagon Bank, Massachusetts Bay, USA. *Marine Ecology Progress Series* 102:179-185.

**Thomas, C.J.** and L.B. Cahoon. 1993. Stable isotope analyses differentiate between different trophic pathways supporting rocky-reef fishes. *Marine Ecology Progress Series* 95:19-24.

Harvey, H.R., L.B. Cahoon and **C.J. Thomas**. 1993. Sediment chlorophyll *a*, viable diatoms, and lipids. Chapter 4 (pp21-29) in Diaz, R., J. Blake and D. Lohse (eds) *Benthic studies of the continental slope off Cape Hatteras, North Carolina. Volume II, Final Report to Minerals Management Service, Herndon VA.*

## EDUCATIONAL MATERIALS

Oceanographic posters for distribution to middle school classrooms by Sea Grant:

**Making waves:** [http://seacoos.org/Community%20and%20Classroom/WavesClassroom/seacoos\\_wave\\_poster.pdf](http://seacoos.org/Community%20and%20Classroom/WavesClassroom/seacoos_wave_poster.pdf)

**Flowing ocean:** <http://seacoos.org/Community%20and%20Classroom/currents-classroom/flowing-ocean-poster.pdf>

## ABSTRACTS

Null, K. A., J.M. Burkholder, D.J. DeMaster, D.R. Corbett, C.J. Thomas, and R.E. Reed.

Ammonium Fluxes from Channel Deposits in the Neuse River Estuary, North Carolina, USA: Implications for Ammonium Increase in Estuarine Waters. ASLO Aquatic Sciences meeting, Nice, France, January 2009.

Pointer, B. H., D.J. DeMaster, C.J. Thomas, and C.R. Smith. Exploring Benthic-Pelagic Coupling Along the Continental Shelf of the Western Antarctic Peninsula using the Radiogenic Tracer  $^{234}\text{Th}$ : Initial Results. ASLO Aquatic Sciences meeting, Nice, France, January 2009.

Null, K., J. Burkholder, D. DeMaster, R. Corbett, C. Thomas, R. Reed. Seasonal Dynamics of Groundwater and Benthic Nitrogen Flux in the Neuse River Estuary, North Carolina. 2007. WRRRI Annual Conference, Raleigh, NC, March 27-28, 2007.

Fountain, John C., Thomas, Carrie J., and Smith, Mike C. 2004. Combining Lectures and Laboratory to Enhance Inquiry-Based Learning: A Major Component of a Comprehensive Recruitment and Retention Strategy. Geological Society of America Abstracts with Programs, Vol. 36, No. 5, p. 353.

\* Thomas, C.J., J.C. Fountain, C.B. Bartek and G. Tang. 2004. A Collaborative Effort to Increase Enrollment and Retention in Geoscience Majors in North Carolina, *Eos Trans. AGU*, 85(47), Fall Meet. Suppl., Abstract ED22A-06.

DeMaster, D.J., C.R. Smith, C.J. Thomas, and B.L. Purinton. 2004. Radiocarbon Measurements of Benthic Fauna as Indicators of Benthic-Pelagic Coupling and Feeding Strategy. *Eos Trans. AGU*, 84(52), Ocean Sci. Meet. Suppl., Abstract OS52H-08.

Spence, L.L., C.J. Thomas, J.J. Clair, and M. Olsen. 2004. Strategies for Connecting Ocean Scientists to Educators. ASLO/TOS Ocean Research Conference, Honolulu, HI, February 15-20.

Mincks, S.L., C.R. Smith, D.J. DeMaster, and C.J. Thomas. 2004. Microbial Response to Seasonal Phytodetritus Deposition on the West Antarctic Peninsula Continental Shelf: A Cold-limitation Hypothesis. ASLO/TOS Ocean Research Conference, Honolulu, HI, February 15-20.

\*Thomas, C.J., D.J. DeMaster, S.E. Boehme, H.E. Hartnett, and C. Smith. 2004. Benthic fluxes and carbon diagenesis in the Palmer Long Term Ecological Research Area. ASLO/TOS Ocean Research Conference, Honolulu, HI, February 15-20.

H.E. Hartnett, S.E. Boehme, C.J. Thomas, D.J. DeMaster, and C.R. Smith. 2004. Seasonal and annual denitrification rates in Antarctic Peninsula shelf sediments. ASLO/TOS Ocean Research Conference, Honolulu, HI, February 15-20.

D.J. DeMaster, C.J. Thomas, M.A. McClintic, and C.R. Smith. 2004. Radiochemical measurements from FOODBANCS: Examining carbon cycling and benthic-pelagic coupling on the Antarctic continental shelf. ASLO/TOS Ocean Research Conference, Honolulu, HI, February 15-20.

Spence, L.L. and C.J. Thomas. 2003. The Southeastern Center for Ocean Sciences Education Excellence. National Marine Educators Association, Wilmington, NC, July 23, 2003.

\* Spence, L.L. and C.J. Thomas. 2003. Southeast Center for Ocean Sciences Education Excellence: Building Connections Between Ocean Scientists and Educators Through Partnerships. Oceans 2003, San Diego, CA, September 24, 2003.

\*Thomas, C.J., N.E. Blair, D.J. DeMaster, R.A. Jahnke, C.S. Martens and L. Pietrefesa. 2001. A benthic carbon budget for the continental slope off Cape Hatteras, N.C. ASLO Aquatic Sciences Meeting, Albuquerque.

McClintic, M.A., D.J. DeMaster, C.J. Thomas, and C.R. Smith. 2001. Coupling of pelagic and benthic fluxes on the continental shelf of the west Antarctic Peninsula. Aquatic Sciences Meeting, Albuquerque.

Hartnett, H.E., S.E. Boehme, and C.J. Thomas. 2001. Nitrogen, oxygen and nutrient fluxes in continental shelf sediments from the western Antarctic peninsula. Aquatic Sciences Meeting, Albuquerque.

DeMaster, D.J., N.E. Blair, C.R. Smith, W.L. Fornes, C.J. Thomas, and G. Plaia. 2001. Deposition of bomb C-14 in continental slope sediments: use of radiocarbon in understanding benthic food web dynamics. Aquatic Sciences Meeting, Albuquerque.

Blair, N., L. Levin, D. DeMaster, G. Plaia, C. Martin, C. Thomas, and W. Fornes. 2001. Fate of phytodetritus in continental slope sediments. ACS National Meeting, San Diego.

\*C.J. Thomas. 1999. Individual deposit-feeder and community level controls on organic matter diagenesis in marine benthic communities. DISCO. Honolulu, HI.

\*C.J. Thomas and N.E. Blair. 1998. Observations of Organic Matter Transport in Marine Sediments and Coincident Geochemical Alterations. Organism-Sediment Interactions Symposium. Georgetown, SC.

\*Thomas, C.J. and N.E. Blair. 1998. A comparison of organic matter transport and decay in sediments from coastal and slope sediments using  $^{13}\text{C}$  labeled diatoms. ASLO Ocean Sciences Meeting, San Diego.

Blair, N.E., C.J. Thomas, D.J. DeMaster and R.H. Pope. 1998. Diagenetic processes in rapidly accumulating slope sediments. ASLO Ocean Sciences Meeting, San Diego.

\*Thomas, C.J. 1997. The alteration of the amino acid composition of diatoms during gut passage through deposit feeding annelids. Fall National GSA Meeting, Salt Lake City, UT.

Blair, N., L. Levin, D. DeMaster, C.J. Thomas, W. Fornes and G. Plaia. 1997. Extremely early diagenesis of phytodetritus in slope sediments. Fall National GSA Meeting, Salt Lake City, UT.

Levin, L., N. Blair, D. DeMaster, G. Plaia, C. Martin, C. Thomas and W. Fornes. 1997. Who eats how, when and where on the continental margin: C-13 tracer studies of phytodetritus fates. 25th Annual Benthic Ecology Meeting, Portland, ME.

Levin, L., C. Martin, N. Blair, D. DeMaster, G. Plaia and C. Thomas. 1997. Macrofaunal processing of phytodetritus at two sites on the NC slope: An *in situ*, time series approach. 1997 ASLO Meeting, Santa Fe, NM.

\*Plaia, G., N. Blair, L. Levin, D. DeMaster and C. Thomas. 1995. Carbon transport and benthic respiration in slope sediments off Cape Hatteras, NC: A comparison of field and laboratory experiments. 1995 Benthic Ecology Meeting, Rutgers University, New Brunswick, NJ.

Cahoon, L.B., C.J. Thomas and R.A. Laws. 1994. Benthic microalgal production in continental shelf ecosystems: Coupling to other processes. South Eastern Coastal Ocean Research Meeting.

\*Thomas, C.J., L.B. Cahoon, D.G. Lindquist and I.E. Clavijo. 1992. Use of multiple stable isotopes to determine trophic bases supporting reef fishes. UNCW Sigma Xi Chapter Meeting.

\* I presented or will present.