

Cynthia N. Cudaback, Ph.D.

Marine Earth and Atmospheric Science
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Education

1998 Ph.D. Geophysics, University of Washington, Seattle, WA
Title: *The effect of vertical mixing on along-channel transport in a layered flow.*

1986 B.A. Physics, with honors, University of California, Berkeley, CA

Employment History

2004- : Assistant Professor, North Carolina State University, Raleigh, NC
2000-2003: Assistant Researcher, University of California, Santa Barbara, CA
2000-2001: Post-graduate Researcher, University of California, Santa Barbara, CA
1998-1999: Post-graduate Researcher, Scripps Institution of Oceanography, La Jolla, CA
1991-1998: Research Assistant, University of Washington Geophysics Program
1994 : Summer Intern, Naval Undersea Warfare Center, New London, CT
1989-1991: Researcher, NOAA Pacific Marine Environmental Laboratory, Seattle, WA
1986-1991: NOAA Corps Officer, Atlantic and Pacific Oceans
1983-1985: Programmer, Max Planck Institute for Extraterrestrial Physics, Munich

Teaching

2006 : PhD Advisor, Amy Haase, NCSU
2004 : Masters Thesis Committee, Harvey Walsh, NCSU
2004 : PhD Thesis Committee, Nathalie Reyns, NCSU
2004-2006: Instructor, Honors Introductory Oceanography, NCSU
2002-2003: Instructor, Introductory Oceanography, UCSB
1997 : Teaching Assistant, University of Washington Physics Department
1985-1986: Teaching Assistant, UC Berkeley Physics Department

Outreach

2006 : Presentation at Oyster Day, North Carolina Aquarium at Manteo
2004-2005: Faculty Advisor, National Ocean Science Bowl, North Carolina
1999-2000: Moderator, National Ocean Sciences Bowl, Southern California

Cynthia Cudaback, PhD

Service to Science

- 2002-2003: Co-Chair, Huntington Beach Contamination Study (Phase III) Review Panel
2004: Convened Estuaries session at EPOC Meeting, Victoria BC

Sponsored Research

- 2006: NOAA Environmental Literacy, submitted, \$184,869
C. Cudaback, J. Lambert, T Kirby-Hathaway
A collaborative proposal to promote ocean literacy in college-level introductory courses
- 2006: EPA ECOHAB, submitted, \$482,248
D. Kamykowski, T. Wolcott, G. Janowitz and C. Cudaback
*Application of a behaviorally programmable Lagrangian drifter to *Karenia brevis* bloom dynamics on the west Florida shelf.*
- 2005: NSF Geoscience Education, submitted, \$ 44,166
C. Cudaback
Measuring Ocean Literacy
- 2005: Center for Sponsored Coastal Ocean Research, NOAA, submitted, \$1,500,380
S. Grant, C. Cudaback, C. Lopes, B. Sanders
Ecofore 06, The California Sustainable Wetland Information Manager
- 2005: North Carolina Sea Grant, \$119,988
C. Cudaback, D. Eggleston, L. Xie
*Oyster dispersal and meta-population dynamics in Pamlico Sound
Part 1: Dispersal*
- 2005: North Carolina Sea Grant mini-grant \$4,550
C. Cudaback
Circulation near Oyster Sanctuaries in Pamlico Sound
- 2004: US Army Corps of Engineers, Portland District, \$84,909
D. Jay, C. Cudaback, T. Chisholm
Impacts of Maintenance Dredging at the Mouth of the Columbia River

Publications: Journal Articles

Cudaback, EOS

Grant, S.B, J. H. Kim, B. H. Jones, S. A. Jenkins, J. Wasyl, and C. N. Cudaback, 2005, *Surf zone entrainment, along-shore transport, and human health implications of pollution from tidal outlets*, Journal of Geophysical Research, 110 (C10025)
doi:10.1029/2004JC002401.

Cudaback, C. N., L. Washburn and E. Dever, 2005, *Inner-Shelf circulation near Point Conception, California*, Journal of Geophysical Research 110 (C7),
doi:10.1029/2004JC002608.

Cudaback, C. N. and J. L. Largier, 2001, *The cross-shelf structure of wind- and buoyancy-driven circulation over the North Carolina inner shelf*, Continental Shelf Research, 21(15), pp 1649-1668.

Cudaback, C. N. and D. A. Jay, 2001, *Tidal asymmetry in an estuarine pycnocline, 2, Transport*, Journal of Geophysical Research, 106(C2), pp 23,237-26,257.

Cudaback, C. N. and D. A. Jay, 2000, *Tidal asymmetry in an estuarine pycnocline, 1, Depth and thickness*, Journal of Geophysical Research, 105(C11), pp 2639--2652.

Cudaback, C. N, 1998, *The effect of vertical mixing on along-channel transport in a layered flow*, Ph. D. Thesis, University of Washington.

Cudaback, C. N. and D. A. Jay, 1996, *Formation of the Columbia River plume -- hydraulic control in action?*, in: D. Aubrey(ed), Buoyancy effects on Coastal Dynamics, An AGU Coastal and Estuarine Sciences Monograph, pp 139--154.

Lavelle, J. W., C. N. Cudaback, A. J. Paulson and J. A. Murray, 1991, *A rate for the scavenging of fine particles by macroaggregates in a deep estuary* Journal of Geophysical Research, 96(C1), pp783-790.

Publications: Submitted

Lin et al

Cudaback, C. N. and E. E. McPhee-Shaw, 2005, *Diurnal period internal waves in the Santa Barbara Channel*, submitted to JGR

Cudaback, C. N. and D. Eggleston, 2005, *The (f)utility of larval behaviors to aid transport in Pamlico Sound, North Carolina*, in prep, for submission to Marine Ecological Progress Series.

Cudaback, C. N. and D. A. Jay, *Lateral variability and forcing in the Columbia River entrance channel*, revisions submitted to Journal of Geophysical Research, May 2005.

Publications: Reports and Technical Memos

Jay, D.A., C.N. Cudaback and T.A. Chisholm, 2004, *Evaluation of impacts of maintenance dredging at the mouth of the Columbia River on plume salinity*, peer-reviewed report to the Army Corps of Engineers, Portland District.

Lemus, J, and C.N. Cudaback, 2003, *Executive Summary of Review Panel Comments on the Huntington Beach Phase III Final Draft Report*, report to Orange County Sanitation District.

Cudaback, C. N., A. J. Paulson and J. W. Lavelle, 1991, *A modeling study of the vertical distribution and transport of manganese in Puget Sound*, NOAA Technical Memorandum ERL PMEL-93, 27 pp.

Selected Presentations

Invited

Jay, D.A, T. Chisholm and C.~N. Cudaback, *Impacts of MCR Maintenance dredging on plume salinity*, Army Corps of Engineers, Portland Office, June, 2004.

Cudaback, C. N. and J. Lemus, *Huntington Beach Phase III Sewage Transport Study: Peer-review panel report to the OCSD board of Directors*, May, 2002.

Conferences

Cudaback, C. N., *Tenure Track or Mommy Track?* Ocean Sciences Meeting, Honolulu, HI, Feb 2006.

Cudaback, C. N. and D. Eggleston, *The (f)utility of larval behaviors to aid transport in Pamlico Sound, North Carolina*, Ocean Sciences Meeting, Honolulu, HI, Feb 2006.

- Cudaback, C. N. and D. Eggleston, *Flood Tide Transport of Blue Crab Postlarvae: Limitations in a Lagoonal Estuary*, ERF, Norfolk, VA., October, 2005
- Cudaback, C. N. and D. Eggleston, *Flood Tide Transport of Blue Crab Postlarvae: Limitations in a Lagoonal Estuary*, AGU, New Orleans, LA, May, 2005
- Cudaback, C. N. and D. A. Jay, *Columbia River Plume Salinity: the effect of maintenance dredging in the mouth of the Columbia River*. AGU, San Francisco, December, 2004
- Cudaback, C. N., L. Washburn, J. Caselle, C. Blanchette and B. Gaylord, *High Frequency Sampling of Nearshore Coastal Circulation and Invertebrate Settlement near Santa Barbara, California*, EPOC, Mt Hood, OR, September 2002
- Cudaback, C. N. and L. Washburn, *Inner-Shelf Circulation near Point Conception, California*, AGU/ASLO Ocean Sciences Mtg., Honolulu, HI, February 2002.
- Cudaback, C. N., *Spatial and Seasonal Patterns of Physical Processes Around Point Conception, CA: Implications for Larval Transport*, Connections and Dynamics in Coastal Systems: Bays and Open Coasts, Santiago, Chile, October 2000.
- Cudaback, C. N., *Spatial and Seasonal Patterns of Physical Processes Around Point Conception, CA: Implications for Larval Transport*, Eastern Pacific Ocean Circulation, Victoria, BC., Canada, September 2000.
- Cudaback, C. N. and J. L. Largier, , *Larval transport in a reversing flow*, Larval Transport Meeting, Santa Cruz, CA, June 2000.
- Cudaback, C. N. and J. L. Largier, *A Model of Larval Transport Based on Observed Cross-Shelf Circulation*, European Geophysical Society, Nice, France, April 2000.
- Cudaback, C. N. and J. L. Largier, *The cross-shelf structure of wind and buoyancy driven circulation over the North Carolina inner shelf*, American Geophysical Union, San Francisco, CA, December 1999.
- Cudaback, C. N. and D. A. Jay, *Parameterized friction and mixing in a layered flow with tidal currents: a new three-layer model* Ocean Sciences, San Diego, CA, February, 1998.
- Cudaback, C. N. and D. A. Jay, *The link between vertical mixing and along-channel transport in a layered flow* American Geophysical Union, San Francisco, CA, December, 1996.
- Cudaback, C. N. and D. A. Jay, *Formation of the Columbia River plume -- hydraulic control in action?* poster, Physics of Estuaries and Coastal Seas, Woods Hole, MA, November 1994.

Cudaback, C. N. and D. A. Jay, *Estuary-Plume coupling at the Columbia River entrance*
Estuarine Research Federation, Hilton Head, SC, December 1993.

Seminars

UNC, NCSU (2),
Oyster Day
Alumni Day

Awards and Associations

1996-present: Member Sigma Xi - scientific research society
1991-1995: Office of Naval Research Graduate Student Fellowship
1992-1993: Vice President, Geophysical Society of the University of Washington
1992: Student Member, Geophysics Program Admissions Committee
1990-present: Member American Geophysical Union
1985-present: Charter Member, UC Berkeley chapter Sigma Pi Sigma - physics honors society