

Thomas P. Connolly, Ph.D.

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Research interests

Dynamics and ecological impacts of physical processes in the coastal ocean. Inner shelf response to wind and surface waves, upwelling dynamics, coastal trapped waves, interannual variability, formation and transport of harmful algal blooms, and hypoxia.

Education

University of Washington	Oceanography	Ph.D., 2012
University of Washington	Oceanography	M.S., 2008
Stanford University	Environmental Engineering	B.S., 2002

Research experience

Postdoctoral Investigator, Woods Hole Oceanographic Institution	2014 (present)
USGS Postdoctoral Scholar, Woods Hole Oceanographic Institution	2012–2014
Graduate Research Assistant, University of Washington	2005–2012
Summer Student Fellow, Woods Hole Oceanographic Institution	2002

Peer-reviewed journal articles

Connolly, T. P. and S. J. Lentz, 2014. Interannual variability of wintertime temperature on the inner continental shelf of the Middle Atlantic Bight. *J. Geophys. Res.*, 119, 6269–6285, doi:10.1002/2014JC010153

Connolly, T. P., B. M. Hickey, I. Shulman, and R. E. Thomson. 2014. Coastal trapped waves, alongshore pressure gradients, and the California Undercurrent. *J. Phys. Oceanogr.*, 44, 319–342, doi:10.1175/JPO-D-13-095.1

Connolly, T. P. and B. M. Hickey. 2014. Regional impact of submarine canyons during seasonal upwelling. *J. Geophys. Res.*, 119, 953–975, doi:10.1002/2013JC009452

Giddings, S. N., P. MacCready, B. M. Hickey, N. S. Banas, K. A. Davis, S. A. Siedlecki, V. L. Trainer, R. Kudela, N. Pelland, and **T. P. Connolly**, 2014. Hindcasts of potential harmful algal bloom transport on the Pacific Northwest coast. *J. Geophys. Res.*, 119, 2439–2461, doi:10.1002/2013JC009622

Hickey, B. M., V. L. Trainer, P. M. Kosro, N. G. Adams, **T. P. Connolly**, N. B. Kachel, and S. L. Geier. 2013. A springtime source of toxic *Pseudo-nitzschia* cells on razor clam beaches in the Pacific Northwest. *Harmful Algae*, 25, 1–14, doi:10.1016/j.hal.2013.01.006

Connolly, T. P., B. M. Hickey, S. L. Geier, and W. P. Cochlan, 2010. Processes influencing seasonal hypoxia in the northern California Current System, *J. Geophys. Res.*, 115, C03021, doi:10.1029/2009JC005283

Submitted manuscripts

Siedlecki, S. A., N. S. Banas, K. A. Davis, S. N. Giddings, P. MacCready, **T. P. Connolly**, S. L. Geier and B. M. Hickey, Seasonal and interannual oxygen variability on the Washington and Oregon continental shelves. *In revision, J. Geophys. Res.*

Other publications

Connolly, T. P., 2013. Increasing occurrence of coastal hypoxia and anoxia. In: Miller, I.M., Shishido, C., Antrim, L, and Bowlby, E.C. Climate Change and the Olympic Coast National Marine Sanctuary: Interpreting Potential Futures. Marine Sanctuaries Conservation Series ONMS-13-01. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD, 50–60. sanctuaries.noaa.gov/science/conservation/cc_ocnms.html

Research Funding

Along-shelf transport and cross-shelf exchange driven by surface waves on the inner continental shelf, T. P. Connolly and S. J. Lentz, National Science Foundation – Physical Oceanography, September 2014–August 2017, \$247,440.

Field observations of wave-induced bottom streaming over the inner continental shelf, T. P. Connolly, J. H. Trowbridge and S. J. Lentz, WHOI Coastal Ocean Institute, Four-month extension of postdoctoral scholarship. May–September 2014.

Fellowships and Awards

- USGS Postdoctoral Scholarship, Woods Hole Oceanographic Institution, 2012-14
- Sarchin Graduate Fellowship in Oceanography, University of Washington, 2007
- American Meteorological Society/Office of Naval Research Graduate Fellowship, 2005–2006
- Summer Student Fellow, Woods Hole Oceanographic Institution, 2002
- Tau Beta Pi National Engineering Honor Society, 2001

Teaching and Advising Experience

Research advisor, independent undergraduate project, Riley Linder, University of Washington, Summer 2009–Spring 2010. Oversaw independent research project, originally funded by an REU grant from the Center for Oceans and Human Health. Guided calculation and mapping of geostrophic velocity and water properties. Demonstrated shipboard processing of CTD and ADCP data in the field. Provided feedback on written report and public oral presentation.

Teaching Assistant, Advanced Field Oceanography, University of Washington, Spring 2009. Senior undergraduates. Evaluated and critiqued senior thesis manuscripts and presentations. Led tutorials on data analysis. Guided interpretation of results in individual student meetings.

Teaching Assistant, Design of Oceanographic Field Experiments, University of Washington, Winter 2009. Senior undergraduates. Evaluated and critiqued senior thesis research proposals. Lectured on proposal writing and instrumentation. Assisted with cruise planning. Assisted with collection of field measurements. Designed class website and organized cruise blog.

Instrumentation advisor, Advanced Field Oceanography, University of Washington, Winter 2008. Assisted senior undergraduate in preparing equipment for drifter experiment. Prepared instructions for deployment, tracking and recovery. Responsible for equipment loaned to student.

Teaching Assistant, Geophysical fluid dynamics, University of Washington, Winter 2007. Graduate level. Led tutorial sessions. Graded and prepared answer keys for homework and exams. Lectured on shallow water equations and geostrophic balance.

Lectures, Woods Hole Oceanographic Institution

- Hypoxia in the coastal ocean, 2013 Summer Student Fellow Lecture Series
- Oceanographic questions in the Mid-Atlantic Bight, 2013 MIT/WHOI Joint Program Orientation Cruise

Guest Lectures, University of Washington

- Coastal circulation near Washington and British Columbia, Advanced Field Oceanography (senior undergraduates), Spring 2010
- Shelf hypoxia off the Washington/Oregon coast, Climate Change Impacts on Marine Ecosystems (junior and senior undergraduates), Spring 2010, 2011, 2012
- Lagrangian measurements, Coastal Oceanography (graduate level), Spring 2007, 2009
- Hypoxia off the Washington coast: Physical and biological process, Coastal Oceanography (graduate level), Spring 2009

Science instructor, Camp Sea Lab, Summer 2004–Spring 2005. Taught activities from the Marine Activities, Resources and Education (MARE) curriculum. Demonstrated scientific concepts such as “adaptation” and “buoyancy” to grade school students.

Field Experience

June-July 2014, Deployment and installation of fiber-optic distributed temperature sensing system at the Martha's Vineyard Coastal Observatory (day trips).

July 2013, MIT/WHOI Joint Program Orientation, New England shelf break (SSV Corwith Cramer, 8 days), Assisted with cruise planning. Participated in science operations and sailing.

November 2009, Oceans and Human Health, Puget Sound, WA (R/V Thompson, 3 days). Assisted with cruise planning and trained students.

March 2009, student cruise, Kermadec Volcanic Arc, NZ (R/V Thompson, 10 days). Assisted with cruise planning and trained students.

January 2009, mooring cruise, WA shelf (R/V Centennial, 3 days). Mooring recovery and dissolved oxygen calibration.

July 2007, NOAA BIOTOX, WA and BC shelf (R/V MacArthur, 10 days). Assisted with cruise planning. Collected dissolved oxygen samples. Operated CTD. Tracked, deployed and recovered surface drifters.

September 2006, ECOHAB-PNW, WA and BC shelf (R/V Thompson, 21 days). Collected dissolved oxygen samples. Tracked, deployed and recovered surface drifters. Operated CTD.

August 2006, San Juan Islands, WA (R/V Centennial and small boats). Designed, assembled, deployed and recovered moorings with other students. Organized daily small boat CTD surveys.

September 2005, ECOHAB-PNW, WA and BC shelf (R/V Melville, 21 days). Tracked, deployed and recovered surface drifters. Operated CTD.

Outreach and Scientific Service

- Reviewer, Journal of Physical Oceanography, Geophysical Research Letters, Journal of Geophysical Research, Ocean Dynamics, Aquaculture Research, Fisheries Oceanography
- Proposal Reviewer, National Science Foundation, Woods Hole Sea Grant, Oregon Sea Grant, California Sea Grant.
- Volunteer, Geophysical Fluid Dynamics Laboratory Open House, Woods Hole Oceanographic Institution, May 2013, 2014.
- Scientific Contributor, Physical summary and forecast. Pacific Northwest Harmful Algal Bloom Bulletin, 2009-2011.
- Reviewer, Sea Grant, *West Coast Regional Marine Research and Information Needs*. Sea Grant, 2009.
- Posters, Low oxygen and coastal upwelling in the Pacific Northwest, Centers for Ocean Sciences Education Excellence (COSEE), Communicating Ocean Sciences event, November 2008; University of Washington Science and Policy Summit, May 2011.

- Guest Speaker, Coastal Upwelling and Dead Zones - The Study of Hypoxia on Washington's Pacific Coast, WSU Beach Watchers Program, Anacortes, WA, May 2008
- Guest Speaker, Coastal upwelling in the Pacific Northwest, Ballard High School, Seattle, WA, February 2007
- Volunteer, Monterey Bay Aquarium, Fall 2004 - Spring 2005

Selected Conference Presentations

Connolly, T. P. and S. J. Lentz (2014) Interannual variability of inner-shelf temperature in the Mid-Atlantic Bight, Poster presentation, AGU Ocean Sciences Meeting, Honolulu, HI.

Connolly, T. P. and S. J. Lentz (2013) Interannual variability of wintertime temperature on the inner shelf, Oral presentation, Mid-Atlantic Bight Physical Oceanography and Meteorology, Narragansett, RI.

Connolly, T. P. and S. J. Lentz (2013) Interannual variability of temperature on the Martha's Vineyard inner shelf, Poster presentation, Gordon Research Conference – Coastal Ocean Circulation, Biddeford, ME.

Connolly, T. P. and B. M. Hickey (2012), Topographic effects on source water distribution over the Washington shelf, Poster presentation, AGU Ocean Sciences Meeting, Salt Lake City, UT.

Connolly, T. P. and B. M. Hickey (2011), Coastal trapped waves and the California Undercurrent, Oral presentation, Eastern Pacific Ocean Conference, Fallen Leaf Lake, CA.

Connolly, T. P. and B. M. Hickey (2011), Remote wind forcing of the California Undercurrent off Washington and British Columbia, Poster presentation, Gordon Research Conference - Coastal Ocean Modeling, Mount Holyoke, MA.

Connolly, T. P. and B. M. Hickey (2010), Seasonal upwelling over the Washington shelf: effects of submarine canyons and the California Undercurrent, Oral presentation, Eastern Pacific Ocean Conference, Mt. Hood, OR.

Connolly, T. P., B. M. Hickey and S. L. Geier (2009), Physical and biochemical processes influencing hypoxia over the Washington continental shelf, Poster presentation, Gordon Research Conference - Coastal Ocean Circulation, New London, NH.

Connolly, T. P., B. M. Hickey and S. L. Geier (2008), Hypoxia and upwelling off the Pacific coast of Washington, Oral presentation, Fisheries and Marine Ecosystems Conference, Port Angeles, WA.