

Robert E. Todd

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- RESEARCH INTERESTS** Coastal processes, upper ocean processes, coastal and boundary current systems (e.g., the California Current System, Middle Atlantic Bight shelf break, Gulf Stream and Loop Current, Arabian Sea), thermohaline structure, autonomous observations.
- APPOINTMENTS** Assistant Scientist (9/2013–present), Postdoctoral Investigator (11/2012–9/2013), Postdoctoral Scholar (5/2011–11/2012); Physical Oceanography Department, Woods Hole Oceanographic Institution, Woods Hole, MA
Graduate Research Assistant (7/2005–5/2011), Scripps Institution of Oceanography, La Jolla, CA
- EDUCATION** Ph.D., Oceanography (4/2011), M.S., Oceanography (12/2006), Scripps Institution of Oceanography, UC San Diego
B.S., Physics, Applied Mathematics, and Marine Science (5/2005), North Carolina State University
- REFEREED PUBLICATIONS** **Todd, R.E.**, W.B. Owens, D.L. Rudnick (2015), Potential vorticity structure in the North Atlantic western boundary current from underwater glider observations, in preparation for *J. Phys. Oceanogr.*
Cenedese, C., **R.E. Todd**, G.G. Gawarkiewicz, W.B. Owens, A.Y. Shcherbina (2013), Offshore transport of shelf waters through interaction of vortices with a shelfbreak current, *J. Phys. Oceanogr.*, 43(5), 905–919, doi:10.1175/JPO-D-12-0150.1.
Todd, R.E., G.G. Gawarkiewicz, W.B. Owens (2013), Horizontal scales of variability over the Middle Atlantic Bight shelf break and continental rise from finescale observations, *J. Phys. Oceanogr.*, 43(1), 222–230, doi:10.1175/JPO-D-12-099.1.
Gawarkiewicz, G.G., **R.E. Todd**, A.J. Plueddemann, M. Andres, J.P. Manning (2012), Direct interaction between the Gulf Stream and the shelfbreak south of New England, *Sci. Rep.*, 2, 553, doi:10.1038/srep000553.
Todd, R.E., D.L. Rudnick, M.R. Mazloff, B.D. Cornuelle, R.E. Davis (2012), Thermohaline structure in the California Current System: observations and modeling of spice variance, *J. Geophys. Res.*, 117, C02008, doi:10.1029/2011JC007589.
Johnston, T.M.S., D.L. Rudnick, G.S. Carter, **R.E. Todd**, S.T. Cole (2011), Internal tidal beams and mixing near Monterey Bay, *J. Geophys. Res.*, 116, C03017, doi:10.1029/2010JC006592.
Todd, R.E., D.L. Rudnick, M.R. Mazloff, R.E. Davis, B.D. Cornuelle (2011), Poleward flows in the southern California Current System: Glider observations and numerical simulation, *J. Geophys. Res.*, 116, C02026, doi:10.1029/2010JC006536.
Todd, R.E., D.L. Rudnick, R.E. Davis, M.D. Ohman (2011), Underwater gliders reveal

rapid arrival of El Niño effects off California's coast, *Geophys. Res. Lett.*, 38, L03609, doi:10.1029/2010GL046376.

Todd, R.E., D.L. Rudnick, R.E. Davis (2009), Monitoring the greater San Pedro Bay region using autonomous underwater gliders during fall of 2006, *J. Geophys. Res.*, 114, C06001, doi:10.1029/2008JC005086.

RESEARCH
FUNDING

Advancing glider-based Doppler current estimates: Ground truthing and improving data processing. **R.E. Todd**, W.B. Owens. WHOI Access to the Sea, \$66,964, June 2012–June 2014.

Integrated rapid-response observations and ocean ensemble optimization to improve storm intensity forecasts in the northeast US. G.G. Gawarkiewicz and 18 Co-PIs including **R.E. Todd**. NOAA, \$5,497,000, September 2013–August 2016.

Monitoring the Gulf Stream with autonomous underwater gliders. **R.E. Todd**. Jointly funded by the WHOI Oceans and Climate Change Institute, the W. Van Alan Clark, Jr. Chair for Excellence in Oceanography, Eastman Chemical Company, and NOAA \$135,401, March 2015–June 2016.

Potential vorticity structure in the North Atlantic western boundary current from underwater glider observations. **R.E. Todd**. WHOI Independent Research and Development, \$38,532, April–August 2015.

Temporal and spatial variability within the Arabian Sea from autonomous glider observations. **R.E. Todd**. ONR Northern Arabian Sea Circulation–autonomous research (NASCar) DRI, amount to be determined, 2015–2019.

FELLOWSHIPS
AND AWARDS

Postdoctoral Scholarship, Woods Hole Oceanographic Institution, 2011–2012

Outstanding Student Paper Award, 2010 American Geophysical Union Fall Meeting

Achievement Rewards for College Scientists (ARCS) Foundation, Inc. Scholarship, Los Angeles Chapter, 2010

UCSD Chancellor's Fellowship, 2005–2009

National Defense Science and Engineering Graduate Fellowship, 2005–2008

Phi Kappa Phi Graduate Fellowship, 2005–2006

Woods Hole Oceanographic Institution Summer Student Fellowship, Summer 2004

STUDENTS
ADVISED

Joleen Heiderich, WHOI Summer Student Fellow from Jacobs University, Summer 2014.

TEACHING
EXPERIENCE

Instructor, MIT-WHOI Coastal Physical Oceanography course (12.862): Co-taught a graduate course on dynamical processes from estuaries to the outer continental shelf. Fall 2014.

Instructor, Woods Hole Partnership Education Program: Co-developed and co-taught a physical oceanography module for undergraduate students from underrepresented groups. Summers 2012–2013.

Visiting Scientist, MIT-WHOI Joint Program Orientation cruise: Introduced new graduate students to sea-going oceanography and the Middle Atlantic Bight shelfbreak frontal

region in collaboration with Sea Education Association. Summer 2012.

Teaching Assistant, UCSD, SIO 30: The Oceans. Lower division undergraduate course covering physical, biological, chemical, and geological oceanography. Attended lectures, led two discussion sessions per week, and held office hours. Fall 2009.

Supplemental Instruction Leader and Tutor, NCSU Undergraduate Tutorial Center. Led discussion sessions for undergraduate physics courses and tutored undergraduate mathematics and physics. Regular training in effective teaching methods. Spring 2002–Spring 2005.

FIELD
EXPERIENCE

Spray glider operations, Florida Strait off Miami, 1 day, April 2015.

Slocum glider operations, Middle Atlantic Bight shelf, 2 days, *R/V Tioga* and *R/V Discovery*, March and July 2014.

Spray glider, mooring, and CTD operations, Line W, northwestern Atlantic, 15 days, *R/V Knorr*, August 2012.

MIT-WHOI Joint Program Orientation cruise, Middle Atlantic Bight shelfbreak, 9 days, *SSV Corwith Cramer*, June-July 2012.

CTD surveys of shelfbreak front, Middle Atlantic Bight south of Cape Cod, 2 days, *R/V Tioga*, July 2011.

Spray glider recovery and deployment, Philippine Sea off Palau, 5 days total, September 2009, February and November 2010.

Spray glider recovery and deployment, Santa Barbara Channel, California, 1 day, August 2009.

SeaSoar surveys along 158°W, north of Oahu, Hawaii, 13 days, *R/V Kilo Moana*, December 2007.

Glider operations (Spray and Seaglider) and Underway CTD surveys in the Kuroshio, off Taiwan and the Philippines, 22 days total, *R/V Melville*, July and October 2007.

SeaSoar surveys as part of the AESOP program, off Monterey, California, 31 days, *R/V Wecoma*, August 2006.

Equipment testing and CTD casts, off San Diego, California, 1 day, *R/V Robert Gordon Sproul*, August 2005.

Duke/UNC Oceanographic Consortium ROV Training Cruise, Onslow Bay, North Carolina, 4 days, *R/V Cape Hatteras*, October 2003.

WORKSHOP
PARTICIPATION

CINAR Shelfbreak Ecosystem Workshop. Providence, RI. 7–8 January 2013

Oceanography of the Continental Shelf and Slope: Pioneer Array Science Workshop. New Bedford, MA. 4–5 June 2012.

Velocity Measurements from Gliders Workshop, Ocean Sciences Meeting. Salt Lake City, UT. 21 February 2012.

SERVICE

Reviewer for *J. Geophys. Res.*, *J. Phys. Oceanog.*, *J. Atmos. Oceanic Technol.*, *Prog. Oceanog.*, *Deep-Sea Res. I*, *J. Mar. Res.*, National Science Foundation, CONICYT (Chile), Alaska Coastal Marine Institute

WHOI Coastal Ocean Institute Advisory Committee, 2015–present
 WHOI Physical Oceanography Seminar Coordinator, 2013–present
 WHOI Physical Oceanography Department, Scientific Staff Recruitment Committee, 2014
 WHOI Educational Council, Postdoctoral Representative, 2011-2012
 WHOI Postdoctoral Association, Vice President and Physical Oceanography Representative, 2011–2012
 SIO Oceans and Atmospheres Faculty Search Committee, Student Representative, Spring 2010
 SIO Marine Operations Committee, Student Representative, 2009–2010
 SIO Physical Oceanography Curriculum Review, Student Representative, 2009
 International Meeting of Students in Physical Oceanography 2008, Organizing Committee

MEMBERSHIPS AND CERTIFICATIONS American Geophysical Union, Member
 Scuba Diving: AAUS Scientific Diver (100ft, expired), IANTD Nitrox, DAN O₂ Administration, Medic First Aid/CPR/AED/O₂, PADI Rescue Diver

SELECTED PRESENTATIONS **Todd, R.E.**, W.B. Owens, D.L. Rudnick. Potential vorticity structure in the North Atlantic western boundary current from underwater glider observations. School of Oceanography, University of Washington. Seattle, WA. 27 May 2015.
Todd, R.E., W.B. Owens, D.L. Rudnick. Potential vorticity structure in the North Atlantic western boundary current from underwater glider observations. Graduate School of Oceanography, University of Rhode Island. Narragansett, RI. 13 March 2015.
Todd, R.E., J. Heiderich, G.G. Gawarkiewicz. Storms and stratification on the Middle Atlantic Bight shelf. Mid-Atlantic Bight Physical Oceanography and Meteorology Meeting. Gloucester Point, VA. 30 October 2014.
Todd, R.E., W.B. Owens, D.L. Rudnick. Potential vorticity in the Loop Current and Gulf Stream. Ocean Sciences Meeting. Honolulu, HI. 27 February 2014. Poster.
Todd, R.E., W.B. Owens, D.L. Rudnick. Potential vorticity in the Gulf Stream and Loop Current. Mid-Atlantic Bight Physical Oceanography and Meteorology Meeting. Narragansett, RI. 17 October 2013.
Todd, R.E., Doppler current measurements from Spray gliders. 2013 Nortek Technical Symposium. San Diego, CA. 20 September 2013.
Todd, R.E., G.G. Gawarkiewicz, W.B. Owens. Horizontal scales of variability over the Middle Atlantic Bight shelfbreak and continental rise from finescale observations. Gordon Research Conference and Seminar, Coastal Ocean Circulation. Biddeford, ME. 8–14 June 2013. Poster.
Todd, R.E., Cross-shelfbreak exchange in the Middle Atlantic Bight. Dept. of Ocean, Earth, and Atmospheric Sciences, Old Dominion University. Norfolk, VA. 4 June 2013.
Todd, R.E., Cross-shelfbreak exchange in the Middle Atlantic Bight. Physical Oceanog-

raphy Seminar, Woods Hole Oceanographic Institution. Woods Hole, MA. 29 May 2013.

Todd, R.E., Western boundary current influences on the coastal ocean. CASPO Seminar, Scripps Institution of Oceanography. La Jolla, CA. 9 May 2013.

Todd, R.E., Cross-shelfbreak exchange in the Middle Atlantic Bight. Sack Lunch Seminar, Dept. of Earth, Atmospheric, and Planetary Sciences, Massachusetts Institute of Technology. Cambridge, MA. 6 March 2013.

Todd, R.E., Cross-shelfbreak exchange in the Middle Atlantic Bight. Physics Colloquium, California Polytechnic State University. San Luis Obispo, CA. 7 February 2013.

Todd, R.E., Cross-shelfbreak exchange in the Middle Atlantic Bight. CASPO Seminar, Scripps Institution of Oceanography. La Jolla, CA. 17 January 2013.

Todd, R.E., G.G. Gawarkiewicz, W.B. Owens. Horizontal scales of variability over the Middle Atlantic Bight shelfbreak and continental rise from finescale observations. CINAR 5 Year Review. Woods Hole, MA. 6 September 2012. Poster.

Todd, R.E., Processing Methods for Doppler Current Measurements from Gliders. Velocity Measurements from Gliders workshop, Ocean Sciences Meeting. Salt Lake City, UT. 21 February 2012.

Todd, R.E., G.G. Gawarkiewicz, W.B. Owens. Finescale Observations of the Middle Atlantic Bight Shelfbreak and Slope. Ocean Sciences Meeting. Salt Lake City, UT. 21 February 2012.

Todd, R.E., G.G. Gawarkiewicz, W.B. Owens. Glider observations of the MAB shelfbreak and slope. Mid-Atlantic Bight Physical Oceanography and Meteorology Meeting. Cambridge, MD. 11 October 2011.

Todd, R.E., Thermohaline structure in coastal systems. Physical Oceanography seminar, Graduate School of Oceanography, University of Rhode Island. Narragansett, RI. 7 October 2011.

Todd, R.E., Thermohaline structure in coastal systems. Physical Oceanography seminar, Woods Hole Oceanographic Institution. Woods Hole, MA. 13 September 2011.

Todd, R.E., D.L. Rudnick, R.E. Davis. Mesoscale and submesoscale thermohaline structure in the California Current System from glider observations. American Geophysical Union Fall Meeting. San Francisco, CA. 13 December 2010. Poster.

Todd, R.E., Mesoscale and submesoscale processes observed by underwater gliders in the California Current System. Coastal Ocean Fluid Dynamics Laboratory seminar, Woods Hole Oceanographic Institution. Woods Hole, MA. 12 November 2010.

Todd, R.E., D.L. Rudnick, M.R. Mazloff, R.E. Davis, B.D. Cornuelle. Poleward flows and westward propagation in the southern California Current System. Ocean Sciences Meeting. Portland, OR. 22 February 2010. Poster.

Todd, R.E., D.L. Rudnick, R.E. Davis. Glider Observations of Annual Cycles and Horizontal Variability in the Southern California Current System. American Geophysical Union Fall Meeting. San Francisco, CA. 18 December 2008. Poster.

Todd, R.E., D.L. Rudnick. Physical and biological observations in San Pedro Bay,

California, using Spray gliders. Ocean Sciences Meeting. Orlando, FL. 5 March 2008.

OTHER
PUBLICATIONS

Carroll, J.W., S. Carpenter, B. Ehrlich, K. Harrison, G. Maddrey, K. Martell, S. Miller, N. Sasser, S. Sutton, **R. Todd**, D. Tysinger, L. Wingler (2014), *A Time Travel Dialogue*. Open Book Publishers. Cambridge, UK. doi:10.11647/OBP.0043.