Curriculum Vitae: Adrienne J. Sutton

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RESEARCH INTERESTS: My current research focus is on characterizing the extent and magnitude of ocean acidification in the surface waters of the open ocean and coral reef environments. Specifically, I am interested in using interdisciplinary approaches to explore how physical and biological mechanisms, such as the El Nino/Southern Oscillation and coral reef metabolism, drive variations in ocean carbon chemistry across time and space. One of these approaches uses autonomous instrumentation on mooring platforms to better understand the natural variability and long-term trends in ocean carbon.

EDUCATION

Ph.D., University of Maryland Center for Environmental Science (UMCES), Horn Point Laboratory, Cambridge, MD **2000-2006**
GPA 3.7, Area of Study: Oceanography, Advisor: Dr. Thomas Fisher
Dissertation: *Evaluation of agricultural nutrient reductions in restored riparian buffers*

B.S., University of North Carolina at Wilmington (UNCW), Wilmington, NC **1996-2000**
GPA 3.6, B.S. in Biology and Marine Biology with Chemistry minor, *cum laude*
Honors Directed Individual Study with Dr. Stephen Skrabal **2000**
Research Experience for Undergraduates (REU), Scripps Institution of Oceanography with Dr. Peter J.S. Franks **1999**

PROFESSIONAL AND RESEARCH EXPERIENCE

Research Scientist, National Oceanic and Atmospheric Administration (NOAA) - University of Washington (UW) Joint Institute for the Study of the Atmosphere and Ocean (JISAO), Pacific Marine Environmental Laboratory (PMEL), Seattle, WA **2012-present**
Research Scientist in PMEL Carbon Program; oversee scientific and technical details of the PMEL ocean acidification mooring network in open ocean and coral reef environments

National Research Council (NRC) Research Associate, NOAA, PMEL, Seattle, WA **2010-2012**
Postdoctorate researcher with Dr. Richard Feely
Cruise experience: R/V Wecoma, West Coast Cruise, 9 August – 3 September 2011
Lab work: DIC measurements; use of autonomous sensors (CO_2, pH, SSTC, dissolved oxygen, fluorescence, and turbidity); ocean acidification mooring data quality control

Assistant Director of Strategic Planning, Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), Oregon State University, Corvallis, OR **2008-2009**
Postdoctorate researcher with Drs. Jane Lubchenco and Bruce Menge
Developed PISCO's 5-Year Science Plan

Congressional Affairs Specialist, NOAA Office of Legislative Affairs, Washington, DC **2007-2008**
Issue areas: NOAA's Office of Oceanic and Atmospheric Research, including climate science, ocean exploration and undersea research, weather and air quality research, hurricane research, invasive species, NOAA's Laboratories and Cooperative Institutions, National Sea Grant College Program
Congressional Affairs Specialist for NOAA's role in the U.S. Climate Change Science Program and the Intergovernmental Panel on Climate Change
Office of Legislative Affairs representative for NOAA's Science Advisory Board

Knauss Sea Grant Fellow, NOAA Office of Legislative Affairs 2006-2007
Issue areas: harmful algal blooms, hypoxia, oceans and human health, fishery regulations, marine protected areas, coral reefs, northeast and Chesapeake Bay fisheries, sea turtles

Research Assistant, laboratory of Dr. Thomas Fisher, UMCES 2000-2006
Lab work: nutrient analyses (NH_4, NO_{3+2}, NO_2, TN, PO_4, TP, PP, TSS, Si, DOC); gas and liquid chromatography; membrane inlet mass spectrometry; stream water flow measurements; groundwater hydrologic characterizations; soil property characterizations; use of ISCO 3700 portable samplers; use of Solinst automatic temperature and pressure loggers; use of GPS

Undergraduate Honors Student, laboratory of Dr. Stephen Skrabal, UNCW 2000
Lab work: trace metal analyses including cathodic stripping voltammetry

REU Fellow, laboratory of Dr. Peter J.S. Franks, 1999
Scripps Institution of Oceanography (SIO)
Lab work: methods used to culture phytoplankton; fluorometer for analysis of photosynthesis in phytoplankton; water column measurements (e.g., phytoplankton, zooplankton, chlorophyll, CTD)

SELECTED GUEST LECTURES AND PRESENTATIONS

Sutton, A.J., R.A. Feely, C.L. Sabine, C.E. Cosca, and S. Maenner-Jones. 2012. Rising Atmospheric CO_2 and Ocean Acidification: the Tropical Oceans and Beyond. Tropical Oceans: Challenges of the 21st Century Meeting, Universidade Federal of Pernambuco, Recife, Brazil (invited).

Sutton, A.J., R.A. Feely, C.L. Sabine, S.R. Alin, J. Mathis. 2012. Rising Atmospheric CO_2 and Ocean Acidification: From the Poles to Puget Sound. NOAA Senior Research Council Meeting, Seattle, WA (invited).

Sutton, A.J., R.A. Feely, C.L. Sabine, and S.R. Alin. 2012. From the global ocean to the Puget Sound: how OA is playing out locally and afar. JISAO Annual Luncheon, Seattle, WA (invited).

Sutton, A.J., M. Conathan, C.A. English, A. Mace, and J.J. Meyer. 2012. Pups in the Shark Tank: skills marine studies graduates develop while navigating Washington's political waters. Ocean Sciences Meeting, Salt Lake City, UT.

Sutton, A.J., R.A. Feely, C.L. Sabine, J. Newton, J. Salisbury, D. Vandemark, S. Musielewicz, S. Maenner, R. Bott, and N. Lawrence-Slavas. 2011. Natural variability of pCO_2 and pH in the Atlantic and Pacific coastal margins of the U.S. AGU Fall Meeting. San Francisco, CA (poster).

Sutton, A.J. 2011. Ocean acidification: the other CO_2 Problem. Institutes for Journalism and Natural Resources Puget Sound Learning Expedition, Quilcene, WA (Invited).

Sutton, A.J. 2011. Biogeochemistry overview: global and coastal ocean acidification. National Council for Science and the Environment, Washington, DC (Invited).

Sutton, A.J. 2010. Ocean acidification: an overview. Centers for Ocean Sciences Education Excellence (COSEE) Pacific Partnerships - Community College Faculty Summer Teaching Institute: Climate change and eutrophication in coastal and marine ecosystem. Shannon Point Marine Center, Western Washington University, Anacortes, WA (Invited).

Sutton, A.J. 2010. Ocean acidification and the Global Carbon Cycle. COSEE Pacific Partnerships - Community College Faculty Summer Teaching Institute: Climate change and eutrophication in coastal and marine ecosystem. Shannon Point Marine Center, Western Washington University, Anacortes, WA (Invited).

Regular presentations on ocean and climate policy and legislation to NOAA's Science Advisory Board and other NOAA Leadership panels. 2006-2008.

Sutton, A.J. 2008. Ocean issues in the 110th Congress and why Washington needs more scientists. UMCES Horn Point Laboratory Cambridge, MD (Invited).

Sutton, A.J. and T.R. Fisher. 2006. Watershed-scale assessment of restored riparian buffers and water quality. American Water Resources Association Annual Conference, Baltimore, Maryland.

Sutton, A.J. 2005. Water quality effects of restored riparian buffers at multiple scales in the natural environment, Delmarva Peninsula, USA. ESA Annual Meeting, Montreal, Canada.

PEER-REVIEWED PUBLICATIONS

Sutton, A.J., C.L. Sabine, C. Meinig, et al. [in prep]. A high-frequency atmospheric and seawater pCO_2 data set from 14 open ocean sites using a moored autonomous system. *Earth Syst. Sci. Data.*

Sutton, A.J., R.A. Feely, C.L. Sabine, M.J. McPhaden, T. Takahashi, F.P. Chavez, G.E. Friederich, and J.T. Mathis. [in press]. Natural variability and anthropogenic change in equatorial Pacific surface ocean pCO_2 and pH. *Global Biogeochemical Cycles.*

Bakker, D.C.E., B. Pfeil, K. Smith, S. Hankin, A. Olsen, S.R. Alin, C. Cosca, S. Harasawa, A. Kozyr, Y. Nojiri, K.M. O'Brien, U. Schuster, M. Telszewski, B. Tilbrook, C. Wada, J. Akl, L. Barbero, N. Bates, J. Boutin, W.-J. Cai, R.D. Castle, F.P. Chavez, L. Chen, M. Chierici, K. Currie, H.J.W. de Baar, W. Evans, R.A. Feely, A. Fransson, Z. Gao, B. Hales, N. Hardman-Mountford, M. Hoppema, W.-J. Huang, C.W. Hunt, B. Huss, T. Ichikawa, T. Johannessen, E.M. Jones, S.D. Jones, S. Jutterström, V. Kitidis, A. Körtzinger, P. Landschützer, S.K. Lauvset, N. Lefèvre, A.B. Manke, J.T. Mathis, L. Merlivat, N. Metzl, A. Murata, T. Newberger, T. Ono, G.-H. Park, K. Paterson, D. Pierrot, A.F. Ríos, C.L. Sabine, S. Saito, J. Salisbury, V.V.S.S. Sarma, R. Schlitzer, R. Sieger, I. Skjelvan, T. Steinhoff, K. Sullivan, H. Sun, **A.J. Sutton**, T. Suzuki, C. Sweeney, T. Takahashi, J. Tjiputra, N. Tsurushima, S.M.A.C. van Heuven, D. Vandemark, P. Vlahos, D.W.R. Wallace, R. Wanninkhof, and A.J. Watson [in revision]. An update to the surface ocean CO2 atlas (SOCAT version 2). *Earth Syst. Sci. Data.*

Wada, A., M.F. Cronin, **A.J. Sutton**, Y. Kawai, and M. Ishii. 2013. Numerical simulations on interactions between Typhoon Choi-wan (0914) and the ocean measured by the Kuroshio Extension Observatory mooring. *J. Geophys. Res.,* 118(5), doi: 10.1002/jgrc.20203, 2667–2684.

Hively, W.D., C.J. Hapeman, L.L. McConnell, T.R. Fisher, C.P. Rice, G.W. McCarty, A.M. Sadeghi, D.R. Whitall, P.M. Downey, G.N. de Guzman, K. Bialek, M.W. Lang, A.B. Gustafson, **A.J. Sutton**, K.A. Sefton, J.A. Harman Fetcho. 2011. Relating Nutrient and Herbicide Fate with Landscape Features and Characteristics of 15 Subwatersheds in the Choptank River Watershed. *Science of the Total Environment.*

Sutton, A.J., T.R. Fisher, and A.B. Gustafson. 2010. Effects of re-established stream buffers on water quality in non-tidal streams in the Choptank River basin. *Water, Air, and Soil Pollution* 208: 101-118.

Sutton, A.J., T.R. Fisher, and A.B. Gustafson. 2009. Historical changes in water quality at German Branch watershed in the Choptank River basin. *Water, Air, and Soil Pollution* 199: 353-369.

Fisher, T.R., J.A. Benitez, K.-Y. Lee, and **A.J. Sutton**. 2006. History of land cover change and biogeochemical impacts in the Choptank River basin in the mid-Atlantic region of the U.S. *International Journal of Remote Sensing* 27: 3683-3703.

BOOK CHAPTERS, WHITEPAPERS, AND REPORTS

Wanninkhof, R., D. Bakker, N. Bates, A. Olsen, T. Steinhoff, and **A. Sutton**. 2013. Incorporation of Alternative Sensors in the SOCAT Database and Adjustments to Dataset Quality Control Flags. http://cdiac.ornl.gov/oceans/Recommendationnewsensors.pdf. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, US Department of Energy, Oak Ridge, Tennessee.

doi: 10.3334/CDIAC/OTG.SOCAT_ADQCF

Sutton, A.J. 2013. Acidification of Ocean Water. In: Miller, I.M., C. Shishido, L. Antrim, and C.E. Bowlby. 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. 238pp.

Alin, S.R., R.A. Feely, C.L. Sabine, **A.J. Sutton**, and others. 2012. Puget Sound Marine Waters: 2011 Overview. PSEMP Working Group, S. Moore, R. Runcie, K. Stark, J. Newton and K. Dzinbal (Eds.).

Wanninkhof, R., R. Feely, **A.J. Sutton**, C. Sabine, K. Tedesco, N. Gruber, and S. Doney. 2013. An integrated ocean carbon observing system (IOCOS). In Proceedings of the IOOS Summit, Interagency Ocean Observation Committee (IOOC), Herndon, Virginia, 13-16 November 2012.

Gledhill, D.K., E.B. Jewett, K. Arzayus, J. Newton, J. Salisbury, and **A.J. Sutton**. 2013. An integrated coastal ocean acidification observing system (ICOAOS). In Proceedings of the IOOS Summit, Interagency Ocean Observation Committee (IOOC), Herndon, Virginia, 13-16 November 2012.

Sutton, A.J. 2012. Ocean Acidification – Measurements. In Encyclopedia of Sustainability: Measurements, Indicators, and Research Methods for Sustainability, edited by I. Spellerberg, D. Fogel, and S. Fredericks: Berkshire Publishing. Great Barrington, MA.

Feely, R.A., R. Wanninkhof, J. Stein, M.F. Sigler, E. Jewett, F. Arzayus, D.K. Gledhill, and **A.J. Sutton.** 2010. NOAA Ocean and Great Lakes Acidification Research Plan. NOAA Special Report, April 2010, 143 pp.

Fisher, T.R., T.E. Jordan, K.W. Staver, A.B. Gustafson, A.I. Koskelo, R.J. Fox, **A.J. Sutton**, T. Kana, K.A. Beckert, J.P. Stone, G. McCarty, and M. Lang. 2010. The Choptank Basin in transition: intensifying agriculture, slow urbanization, and estuarine eutrophication. In Coastal Lagoons: Systems of Natural and Anthropogenic Change, edited by M. J. Kennish and H. W. Paerl: CRC Press. Boca Raton, FL.

Sutton, A.J. 2006. Evaluation of agricultural nutrient reductions in restored riparian buffers. University of Maryland Dissertation.

OUTREACH PUBLICATIONS

Sutton, A.J. 2012. Everyday Scientists: High School Poets, Home Brewers, and Scuba Divers. *Sources: The Journal of Underwater Education* 24(4): 56-57. [pdf]

Sutton, A.J. 2011. Coral Reefs Face Increasing Stress from Local Human Activities, Warming Waters, and Ocean Acidification. *Sources: The Journal of Underwater Education* 23(3): 34-35. [pdf]

Sutton, A.J. 2010. Ocean Acidification: A Fundamental Problem for the Future of Recreational Diving. *Sources: The Journal of Underwater Education* 22(2): 54-57. [pdf]

Sutton, A.J. 2010. Deep-Sea Corals and the Changing Chemistry of the Sea. NOAA National Marine Sanctuary Deep-Sea Coral Expedition online cruise report. [website]

SELECTED AWARDS

UNCW Athletic Hall of Fame inductee (2014)

National Research Council Postdoctoral Research Associate Fellowship (2010)

One of 25 honorary members of the Colonial Athletic Association's (CAA) Silver Anniversary Team for Women's Swimming and Diving (2009)

NOAA Administrator's Award for outstanding leadership in and dedication to developing U.S. Climate Change Science Program (CCSP) Synthesis & Assessment Products integrating climate research for decision support (July 2008)
NOAA Recognition Award for exceptional performance (July 2007 and Nov 2007)
John A. Knauss Marine Policy Fellowship (Feb. 2006-Jan. 2007)
"Most Outstanding Poster" MEES Colloquium (October 2005)
Horn Point Laboratory Graduate Fellowship (2000-2002)
UNCW Departmental Honors in Biology (2000)
CAA Conference Scholar Athlete (1997-2000)
UNCW Golden Seahawk Academic Award (1997-2000)
Dean's List UNCW (1996-2000)
Athletic scholarship (1996-2000)
NSF Research Experience for Undergraduates Fellowship, SIO (1999)
CAA Conference Rookie of the Year (1997)

COMMITTEES

Science Steering Committee, OceanSITES, 2011 to present.
Advisor, Wendy Schmidt Ocean Health X PRIZE, 2012 to present.
Science Communication Task Force, UW College of the Environment, 2012 to present.
Steering Committee, Coral Reef Ocean Acidification Monitoring Portfolio Workshop, 2012.
Steering Committee, International Ocean Acidification Monitoring Workshop, 2012.

SCIENCE EDUCATION AND COMMUNITY OUTREACH ACTIVITIES

High school student mentor, pilot project of the Educurious Expert Network, Bellevue Big Picture School, 2011.
Workshop presenter, Expanding Your Horizons for Middle School Girls, Bellevue Community College, annual since 2011.
Guest speaker/lecturer, Washington State Ocean Caucus, Westport, WA, 2010; Seattle Girls School science class, 2010; UW School of Marine and Environmental Affairs, Contemporary Issues in Marine Affairs course, 2012; JISAO summer intern lecture series, 2012; UW School of Marine and Environmental Affairs, Society and Oceans course, 2012; Central Washington Univ. Oceans and Atmosphere course, 2013; Western Washington Univ. Huxley College of the Environment on the Peninsulas, Puget Sound Research course, 2013; Guest Scientist, tOAStER (the Oceanography All Student Educational Retreat), UW School of Oceanography, 2013.
National Association of Underwater Instructors (NAUI) SCUBA Instructor, 2007-present.
American Red Cross First Aid and CPR Instructor, 1995-2008.
Swim coach, various teams, 1993-2005.
Summer science camp teacher, Wilmington, NC, 1998.

PROFESSIONAL SERVICE

American Geophysical Union. Member, 2009-present.
American Society of Limnology and Oceanography, Dissertations Initiative for the Advancement of Limnology and Oceanography, 2007-2011.
NOAA Science Advisory Board Congressional Liaison, 2007-2008.
Scientific Session Convener at AGU Fall Meeting 2010, Ocean Sciences 2012, Ocean Sciences 2014.

Reviewer for *Limnology and Oceanography*, *Journal of Geophysical Research – Oceans, Biogeosciences, Journal of Advances in Modeling Earth Systems*.
NAUI Member, 2007-present.