

DAVID WILLIAM MURRAY

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Education

- B.S. 1978 Geology (Honors), University of Rhode Island, Sr. Thesis: Synoptic conditions before and after dune scarp erosion at Charlestown Beach, R.I. (Advisor: J. Boothroyd)
M.S. 1982 Oceanography (geological), Oregon State University, Thesis: Paleo-oceanography of the Gulf of California based on silicoflagellates from marine varved sediments (Advisor: Hans Schrader)
Ph.D. 1987 Oceanography (geological), Oregon State University, Thesis: Spatial and temporal variations in sediment accumulation in the central tropical Pacific (Advisor: G. Ross Heath)

Research Interests

Biogeochemical Cycles in rivers, estuaries, and the Oceans; Stable Isotope Geochemistry; Late Cenozoic Paleooceanography; Marine Record of ENSO and Other High Frequency Climatic Events

Professional Training and Academic Career

Post-doctoral Research Associate/Senior Research Associate, Department of Geological Sciences, Brown University, Oct. 1986-Sept 1998 and April 2000-present
Environmental Science Curricular and Technical Manager, Center for Environmental Studies, Brown University, Sept. 1998 – present
Research Scientist, College of Ocean and Atmospheric Sciences, Oregon State University, May to July 1998 and Sept. 1999
Lecturer, Department of Earth Sciences, Boston University, Fall'97, Spring'98

Professional Service

Member, American Geophysical Union
Member, Estuarine Research Federation
NSF Panel Member, Global Biogeochemical Cycles, June 2001, Earth System History, March 2003, January 2004
ODP Janus User Group member, 1995-1996, Advisory committee for chemical data portion of Janus project (Networked database)

Recent and Ongoing Research Projects

- NIH P42 ES013660-01, "Reuse in Rhode Island: A State-Based Approach to Complex Exposures", \$345,637, 4/1/05-3/31/09, PI's: K. Boekelheide, A. Zhitkovich, E. Suuburg, A. Kane, M. Hixon, J. Calo, D. Murray, S. Sharma, R. Hurt, and P. Brown, Brown's Superfund Basic Research Program grant to study exposures and remediation of complex mixtures of toxic chemicals, Director of the Analytical Core (Core C), <http://brown.edu/Research/SBRP/>
- NOAA/URI, URI-020606/0000848, "Modeling Tools to Predict Hypoxia/Anoxia in Upper Narragansett Bay", \$385,033, 8/1/05-7/31/10, PI's: C. Oviatt, D. Bergondo, M. Brush, D. Codiga, C. Deatutis, C. Kincaid, J. Kremer, S. Nixon, W. Prell, D. Ullman. This project is to study the interactions between nutrient loads, physical processes, and biological processes that are attributed to the development of summertime hypoxia in Upper Narragansett Bay and to develop predictive models of these conditions. My effort is to coordinate the spatial surveys and supervise data synthesis, <http://www.geo.brown.edu/georesearch/insomniacs/index.html>
- EPA/URI, CP-98195401, "Advancing Nutrient TMDL Efforts for Upper Narragansett Bay Through Retrospective Analysis of Available Dissolved Oxygen Data and Application to ROMS Model", \$12,810, 9/1/03-8/31/04, Grant to URI. PI's August, Deacutis, Kiernan, Kincaid (URI), Murray, Prell (Brown), This project synthesized data collected during spatial surveys of dissolved oxygen, temperature, and salinity in Narragansett Bay since 1999, continue time series monitoring, and model circulation in upper Narragansett Bay to address water quality issues.
- NSF OCE-9905612, "High resolution reconstruction of Arabian Sea denitrification and its forcing by productivity and hydrography", \$49,428, 8/1/99-7/31/02, subcontract to UMass-Dartmouth, M. Altabet, co-PI, This project used microfossil and chemical proxies in marine sediments in the Arabian Sea to separate influences of productivity and hydrography on Arabian Sea denitrification and its linkage to global climate records over the past 60,000 years.
- Camille and Henry Dreyfus Foundation, Postdoctoral Program in Environmental Chemistry, co-Project director with M. Altabet. (UMass-Dartmouth) and R. Francois (WHOI). Funding for Post-Doc Matt Higginson.

Publications (total of 35)

- Saarman, E., Prell, W., **Murray, D.W.**, Deacutis, C., 2008. Chapter 11: Summer bottom water dissolved oxygen in Upper Narragansett Bay. In: Science for Ecosystem-based Estuarine Management: Narragansett Bay in the 21st Century, Desbonnet & Costa-Pierce (eds.), Springer Series In Environmental Management, 325-347.
- Liu, X., Gurel, V., Morris, D., **Murray, D.**, Zhitkovich, A., Kane, A.B., Hurt, R.H., 2007. Bioavailability of nickel in single-wall carbon nanotubes, *Advanced Materials* **19**:2790-2796
- Deacutis, C.F., **Murray, D.**, Prell, W., Saarman, E., and Korhun, L., 2006. Hypoxia in the upper half of Narragansett Bay, RI, during August 2001 and 2002. *Northeastern Naturalist*, **13**, 173-198.
- Higginson, M.J., Altabet, M.A., **Murray, D.W.**, Murray, R.W., Herbert, T.D., 2004. Geochemical evidence for abrupt changes in relative strength of the Arabian monsoons during a stadial/interstadial climate transition. *Geochimica et Cosmochimica Acta*, **68**, 3807-3826.
- Higginson, M.J., Altabet, M.A., Wincze, L., Herbert, T.D., **Murray, D.W.**, 2004. A solar (irradiance) trigger for millennial-scale abrupt changes in the southwest monsoon? *Paleoceanography*, **19**, PA3015.
- Kryc, K.A., Murray, R.W., **Murray, D.W.**, 2003. Elemental speciation of Si, Al, Ti, Fe, Ca, Mn, P, and Ba in five marine sedimentary standard reference materials: Results from sequential extractions. *Analytica Chimica Acta*, **487**, 117-128.
- Kryc, K.A., Murray, R.W., **Murray, D.W.**, 2003. Al-to-oxide and Ti-to-organic linkages in biogenic sediment: Relationships to paleoexport production and bulk Al/Ti. *Earth and Planetary Research Letters*, **211**, 125-141.
- Hargrave, B.T., Walsh, I.D., **Murray, D.W.**, 2002. Seasonal and spatial patterns in mass and organic matter sedimentation in the North Water Polynya. *Deep Sea Research II*, **49**, 5227-5244.
- Altabet, M.A., Higginson, M. J., **Murray, D.W.**, 2002. The effect of millennial-scale changes in Arabian Sea denitrification on atmospheric CO₂. *Nature*, **415**, 159-162.
- Altabet, M.A., **Murray, D.W.**, Prell, W.L., 1999. Climatically linked oscillations in Arabian Sea denitrification over the past 1 m.y.: Implications for the marine N cycle. *Paleoceanography*, **14**, 732-743.
- Lee, C., **Murray, D.W.**, et al., 1998. Particulate organic carbon fluxes: compilation of results from the 1995 US JGOFS Arabian Sea process study. *Deep-Sea Research II*, **45**, 2489-2501.
- Murray, D.W.**, Peterson, L.C., 1997. Biogenic carbonate production and preservation changes between 5 and 10 MA from the Ceara Rise, Western Equatorial Atlantic. *Proc. ODP Sci. Results*, **154**, College Station, TX (Ocean Drilling Program), 375-388. (co-author on two other papers in this volume)
- Lin, H-L, Peterson, L.C., Overpeck, J.T., Trumbore, S., and **Murray, D.W.**, 1997. Late Quaternary climate change from δ18O records of multiple species of planktic foraminifera: High-resolution records from the anoxic Cariaco Basin (Venezuela). *Paleoceanography*, **12**, 415-427.
- Clemens, S.C., **Murray, D.W.**, and Prell, W.L., 1996. Nonstationary phase of the Plio-Pleistocene Asian Monsoon. *Science*, **274**, 943-948.
- Schrag, D.P., Hampt, G., **Murray, D.W.**, 1996. Pore fluid constraints on the temperature and oxygen isotopic composition of the glacial ocean. *Science*, **272**, 1930-1932.

Web Sites

- Prell, W., **Murray, D.**, Deacutis, C., 2006. Summer-Season survey of dissolved oxygen in upper Narragansett Bay beginning in 2005. Data available at <http://www.geo.brown.edu/georesearch/insomniacs/index.html>
- Prell, W., Saarman, E., **Murray, D.**, Deacutis, C., 2004. Summer-Season, Nighttime Surveys of Dissolved Oxygen in Upper Narragansett Bay (1999-2003). Data available at <http://www.geo.brown.edu/georesearch/insomniacs>.

Community Projects And Committees

- Brown Leadership Institute Advisory Board, 2005-present.
- Brown Summer Studies (BELL) instructor on Narragansett Bay and environmental conditions, 2002-present.
- Save the Bay's Project Narragansett Instructor, Summer 2003-present
- Member Narragansett Terrace Yacht Club and junior sailing instructor, 2003-present
- Assistant Coach and Coach AYSO Fall soccer, 2003-present
- East Providence Harbor Commission (member and chair), Feb'00 to Feb'07
- IAQ Tools for Schools, Waddington Elementary School (chair), April'02-June'05, Sept'07-present
- Brown University Staff Advisory Committee, July'00 to Dec.'02