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Howarth, R.W.
*In:* A. Desbonnet, B.A. Costa-Pierce (eds.), Science for Ecosystem-based Management. Springer 2008. pp. 43-61 WHOI-R-08-001

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Limnol. Oceanogr., Vol. 52, No. 1, pp. 230-239, 2007 WHOI-R-07-008

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Bernhard, A.E., J. Tucker, A.E. Giblin, and D.A. Stahl
Environmental Microbiology, Vol. 9, No. 6, pp. 1439-1447, 2007 WHOI-R-07-007

The Influence of Climate on Average Nitrogen Export from Large Watersheds in the Northeastern United States
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Howarth, R.W., D.P. Swaney, E.W. Boyer, R. Marino, N. Jaworski, and C. Goodale
Biogeochemistry, Vol. 79, pp. 163-186, 2006 WHOI-R-06-010

Atmospheric Deposition and Nitrogen Pollution in Coastal Marine Ecosystems
Also available as a PDF -- click here.
Howarth, R.W.
*In:* Visgilio, G.R. and D.M. Whitelaw (eds.), Acid in the Environment: Lessons Learned and Future Prospects. Springer, NY. pp. 97-116, 2006 WHOI-R-06-009

Groundwater-transported Dissolved Organic Nitrogen Exports from Coastal Watersheds
Kroeger, K.D., M.L. Cole, and I. Valiela
Limnol. Oceanogr., Vol. 51, No. 5, pp. 2248-2261, 2006 WHOI-R-06-005

Effects of Watershed Land Use on Nitrogen Concentrations and in Groundwater
Cole, M.L., K.D. Kroeger, J.W. McClelland, and I. Valiela
Biogeochemistry, Vol. 77, pp. 199-215, 2006 WHOI-R-06-001

Mechanisms of Metal Release from Contaminated Coastal Sediments
Only available on loan from the National Sea Grant Library
Kalnejais, L.H.
Ph.D. Thesis, MIT/WHOI Joint Program in Oceanography/Applied Ocean Science and Engineering, 238 pp., 2005 WHOI-X-05-001

Loss of Diversity of Ammonia-oxidizing Bacteria Correlates with Increasing Salinity in an Estuary System
Also available as a PDF -- click here.
Bernhard, A.E., T. Donn, A.E. Giblin, and D.A. Stahl
Environmental Microbiology, Vol. 7, No. 9, pp. 1289-1297, 2005 WHOI-R-05-004

Estuarine Respiration: An Overview of Benthic, Pelagic, and Whole System Respiration
Also available as a PDF -- click here.
Hopkinson, Jr., C.S. and E.M. Smith
*In:* P. del Giorgio and P.J. leB. Williams. Respiration of Aquatic Ecosystems of the World, Academic Press, NY. 328 pp, pp. 122-146, 2004 WHOI-R-04-005

Elm, An Estuarine Nitrogen Loading Model: Formulation and Verification of Predicted Concentrations of Dissolved Inorganic Nitrogen
Valiela, I., S. Mazzilli, J.L. Bowen, K.D. Kroeger, M.L. Cole, G. Tomasky, and T. Isaji
Water, Air, and Soil Pollution, Vol. 157, pp. 365-391, 2004 WHOI-R-04-004

Assessment of a Isotopic Method to Indicate Anthropogenic Eutrophication in Aquatic Ecosystems
Cole, M.L., I. Valiela, K.D. Kroeger, G.L. Tomasky, J. Gebrian, C. Wigand, R.A. McKinney, S.P. Grady, and M.H. Carvalho da Silva
J. Environ. Qual, Vol. 33, pp. 124-132, 2004 WHOI-R-04-001

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Carmichael, R.H., B. Annett, and I. Valiela
Elsevier, Marine Pollution Bulletin, Vol. 48, pp. 137-143, 2004 WHOI-R-04-002

A Radiocarbon Method and Multi-Tracer Approach to Quantifying Groundwater Discharge to Coastal Waters
Only available on loan from the National Sea Grant Library
Gramling, C.M.
Ph.D. Thesis, MIT/WHOI Joint Program in Oceanography/Applied Ocean Science and Engineering, 347 pp., 2003 WHOI-X-03-002

Detection of Eutrophication in Aquatic Ecosystems: Nitrogen Stable Isotopes in Macrophytes and Groundwater
Only available on loan from the National Sea Grant Library
Cole, M.L.
Ph.D. Thesis, Boston University Graduate School of Arts and Sciences, 153 pp., 2003 WHOI-X-03-001

Sediment DIN Fluxes and Preferential Recycling of Benthic Microalgal Nitrogen in a Shallow Macrotidal Estuary
Tobias, C., A. Giblin, J. McClelland, J. Tucker, and B. Peterson
Marine Ecology Progress Series, Vol. 257, pp. 25-26, 2003 WHOI-R-03-005

Sampling Marine Pore Waters for Mn, Fe, U, Re and Mo: Modifications on Difusional Equilibration Thin Film Gel Probes
Morford, J., L. Kalnejais, W. Martin, R. Francois, and I.-M. Karle
Journal of Experimental Marine Biology and Ecology, Vol. 285-286, pp. 85-103, 2003 WHOI-R-03-002

Nitrogen Sources to Watersheds and Estuaries: Role of Land Cover Mosaics and Losses within Watersheds
Valiela, I. and J.L. Bowen
Elsevier, Environmental Pollution, Vol. 118, pp. 239-248, 2002 WHOI-R-02-009

Response of Growth and Density of a Population of Geukensia demissa to Land-Derived Nitrogen Loading, in Waquoit Bay, Massachusetts
Evgenidou, A. and I. Valiela
Estuarine, Coastal and Shelf Science, Vol. 55, pp. 125-138, 2002 WHOI-R-02-006

Use of Stable Isotopes to Investigate Individual Differences in Diets and Mercury Exposures Among Common Terns Sterna hirundo in breeding and Wintering Grounds
Nisbet, I.C.T., J.P. Montoya, J. Burger, and J.J. Hatch
Marine Ecology Progress Series, Vol. 242, pp. 267-274, 2002 WHOI-R-02-005

New Tools for Assessing Water Quality: Stable Isotope Analysis of Nutrients
*Helpful to educators and students.*
WHOI Sea Grant
Focal Points, 3 pp., 2002 WHOI-G-02-001
Also available online: click here

Using Stable Isotopes to Trace Sewage-derived Material through Boston Harbor and Massachusetts Bay
Tucker, J., N. Sheats, A.E. Giblin, C.S. Hopkinson, and J.P. Montoya
Elsevier Marine Environmental Research, Vol. 48, pp. 353-375, 1999 WHOI-R-99-008

Salinity Effects on Nitrogen Dynamics in Estuarine Sediment Investigated by a Plug-flux Method
Mondrup, T.
Biol. Bull., Vol. 197, pp. 287-288, 1999 WHOI-R-99-007

Effect of Salinity on the Fate of Inorganic Nitrogen in Sediments of the Parker River Estuary, Massachusetts
Morlock, S., D. Taylor, A. Giblin, C. Hopkinson, and J. Tucker
Biol. Bull., Vol. 193, pp. 290-292, 1997 WHOI-R-97-007

Estimating Denitrification in Sediments of the Parker Rivery Estuary, Massachusetts
Weston, N., S. Carini, A. Giblin, G. Banta, C. Hopkinson, and J. Tucker
Biol. Bull., Vol. 191, pp. 334-335, 1996 WHOI-R-96-016

Gas Exchange Rates in the Parker River Estuary, Massachusetts
Carini, S., N. Weston, C. Hopkinson, J. Tucker, A. Giblin, and J. Vallino
Biol. Bull., Vol. 191, pp. 333-334, 1996 WHOI-R-96-015

Analysis of Acid Volatile Sulfide and Metals to Predict the Toxicity of Boston Harbor Sediments
Zago, C. and A.E. Giblin
Biol. Bull., Vol. 187, pp. 290-291, 1994 WHOI-R-94-009

Short Residence Time of Colloids in the Upper Ocean Estimated from 238U-234Th Disequilibria
Moran, S.B. and K.O. Buesseler
Nature, Vol. 359, pp. 221-223, 1992 WHOI-R-92-006

Nutrient and Phosphorous Geochemistry in the Taunton River Estuary, Massachusetts
Only available on loan from the National Sea Grant Library
Boucher, J.M.
Ph.D. Thesis, University of Rhode Island, School of Oceanography, 316 pp., 1991 RIU-X-91-002

In-situ Chemical Sensors for Detecting and Exploring Ocean Floor Hydrothermal Vents: Report of a Workshop
Only available on loan from the National Sea Grant Library
Hennet, R.J-C. and J.K. Whelan
Woods Hole Oceanographic Institution Technical Report No. WHOI-88-53, 69 pp., 1988 WHOI-W-88-001

Carbon Dioxide Exchange Between Air and Seawater: No Evidence for Rate Catalysis
Goldman, J.C. and M.R. Dennett
Science, Vol. 220, pp. 199-201, 1983 WHOI-R-83-004

Analyses of Organic Particulates from Boston Harbor by Thermal Distillation-pyrolysis
Whelan, J.K., M.G. Fitzgerald, and M. Tarafa
Environmental Science & Technology, Vol. 17, pp. 292-298, 1983 WHOI-R-83-005

Volatile Organic Compounds at a Coastal Site: 1. Seasonal Variations
Gschwend, P.M., O.C. Zafiriou, R.F.C. Mantoura, R.P. Schwarzenbach, and R.B. Gagosian
Environ. Sci. Technol., Vol. 16, pp. 31-38, 1982 WHOI-R-82-015

Technique for Simultaneous Determination of [35S] Sulfide and [14C] Carbon Dioxide in Anaerobic Aqueous Samples
Taylor, C.D., P.O. Ljungdahl, and J.J. Molongoski
Applied and Environmental Microbiology, Vol. 41, No. 3, pp. 822-825, 1981 WHOI-R-81-006

Volatile Organic Compounds in Seawater from the Peru Upwelling Region
Gschwend, P.M., O.C. Zafiriou, and R.B. Gagosian
Limnol. Oceanogr., Vol. 25, No. 6, pp. 1044-1053, 1980 WHOI-R-80-018

Applications of Thermal Distillation-pyrolysis to Petroleum Source Rock Studies and Marine Pollution
Only available on loan from the National Sea Grant Library
Whelan, J.K., J.M. Hunt, and A.Y. Huc
1980 WHOI-R-80-010

Volatile Organic Compounds in Seawater
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Gschwend, P.M.
1979 WHOI-X1-79-001

Determination of Total Nitrogen in Aqueous Samples Using Persulfate Digestion
D'Elia, C.F., P.A. Steudler, and N. Corwin
1977 WHOI-R-77-008

The Cycling of Labile Organic Compounds: Sterols in the North Atlantic Ocean
Gagosian, R.B.
1977 WHOI-R-77-004
Sterols, a class of biochemicals, are among the most important hormone regulators of growth, respiration, and reproduction in organisms. Cholesterol and related steroid alcohols are not only the immediate biosynthetic precursors for all steroidal hormones, but they also have hormonal activity themselves. These steroidal alcohols, the sterols, are of special interest from a geochemical point of view. Their chemical stability and structural diversity, along with their inherent optical activity, allow them to be used as indicators of biological activity in the oceans. This paper documents the results of three oceanographic cruises concerned with the sterol concentrations and individual sterol distributions in the North Atlantic Ocean. From the vertical profiles of these compounds, along with particulate organic carbon (POC), hydrographic and total particulate matter data, an attempt to understand sterol distributions in the ocean and the transport mechanisms governing their movement into the deep sea was undertaken.

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