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Nitrogen News is a summary of recent papers, news articles and reports related to the cycling, effects and management of nitrogen
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May 2009

News

Top scientists call for cuts in nitrogen use
EE News, May 29, 2009
http://www.eenews.net/Greenwire/most_read/2009/05/29/16/

Chesapeake Bay: Obama Declares Bay National Treasure In Executive Order Calling for Restoration
Daily Environment Report, 05/13/2009
http://news.bna.com/deln/display/split_display.adp?fedfid=12375872&vname=dennotallissues&wsn=497765000&searchid=7927059&doctypeid=1&type=date&scm=DELNWB&pg=0&split=0&mode=doc

CHESAPEAKE BAY: U.S., states announce new goals, oversight
Environment & Energy Daily, 05/12/2009
http://www.eenews.net/eenewspm/2009/05/12/archive/7?terms=nitrogen

Water Agencies Develop Proposal To Promote 'Watershed' Approach
Daily Environment Report, 05/05/2009
http://news.bna.com/deln/display/split_display.adp?fedfid=12360839&vname=dennotallissues&wsn=497967500&searchid=7927059&doctypeid=1&type=date&scm=DELNWB&pg=0&split=0&mode=doc

CHESAPEAKE BAY: Maryland officials call for Blue Plains upgrade
Environment & Energy Daily, 04/24/2009
http://www.eenews.net/EEDaily/2009/04/24/archive/10?terms=nitrogen

Air Pollution: Carper, Alexander Plan to Introduce Bill to Control Mercury, Nitrogen, Sulfur
Daily Environment Report, 04/24/2009
http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=11814681&vname=dennotallissues&wsn=498316500&searchid=7691933&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=0

Carper, Alexander Plan to Introduce Bill to Control Mercury, Nitrogen, Sulfur
Daily Environment Report: 04/20/2009

http://news.bna.com/deln/display/split_display.adp?fedfid=11825029&vname=dennotallissues&wsn=498180500&searchid=7927059&doctypeid=1&type=date&scm=DELNWB&pg=0&split=0&mode=doc

Air Pollution: Climate Change Could Increase Frequency, Severity of Ozone Formation, Study Finds
Daily Environment Report, 4/20/2009
http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=11814681&vname=dennotallissues&wsn=498316500&searchid=7691933&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=0

AIR POLLUTION: Acid levels still rising in Adirondack lakes -- study
Greenwire, 04/20/2009
http://www.eenews.net/Greenwire/2009/04/20/archive/18?terms=nitrogen

AIR POLLUTION: Climate change could worsen smog -- EPA
Greenwire, 04/17/2009
http://www.eenews.net/Greenwire/2009/04/17/archive/18?terms=nitrogen

EPA Finds Greenhouse Gases Pose Threat to Public Health, Welfare / Proposed Finding Comes in Response to 2007 Supreme Court Ruling
Release date: 04/17/2009
http://yosemite.epa.gov/opa/admpress.nsf/0/0EF7DF675805295D8525759B00566924

CHESAPEAKE BAY: Md. passes bill to curb septic runoff
Greenwire, 04/15/2009
http://www.eenews.net/Greenwire/2009/04/15/archive/21?terms=nitrogen

AIR POLLUTION: Chicken poop-powered plants may be more noxious than coal
Greenwire, 04/13/2009
http://www.eenews.net/Greenwire/2009/04/13/archive/21?terms=nitrogen

Activists Seek Tight Downstream Nutrient Levels In Novel Permit Fight
InsideEPA.com, Friday, April 10, 2009
http://insideepa.com/secure/docnum.asp?f=epa_2001.ask&docnum=492009_downstream

Water Pollution: USGS Identifies Top 150 Watersheds Responsible for Gulf of Mexico 'Dead Zone'
Daily Environment Report, 04/07/2009
http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=11772225&vname=dennotallissues&wsn=498594000&searchid=7691933&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=0

ETHANOL: Report raises concerns about GHG emissions, water pollution
Greenwire, 04/02/2009
http://www.eenews.net/Greenwire/2009/04/02/archive/9?terms=nitrogen

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Special Issues

Biogeochemistry, 93(3), April 2009
http://springerlink.metapress.com/content/w2117h888x48/?p=85254a23d3584b339c722bd177bdf1b2&pi=1

Harmful Algae, 8(1): 1-188, December 2008
HABs and Eutrophication
Edited by Patricia M. Glibert, JoAnn M. Burkholder, Edna Granéli and Donald M. Anderson.
http://www.sciencedirect.com/science?_ob=PublicationURL&_tockey=%23TOC%2311463%232008%23999919998%23703081%23FLA%23&_cdi=11463&_pubType=J&_auth=y&_acct=C000001678&_version=1&_urlVersion=0&_userid=14684&md5=9835c9d8a2f3f1afd8a87a393204f765

Journal of Hydrology, 369(3-4): 223-440, May 15, 2009
Transfer of pollutants in soils, sediments and water systems: From small to large scale (AquaTerra)
Edited by M. Finkel, D. Barcelo, J.A.C. Barth and P. Grathwohl.
http://www.sciencedirect.com/science?_ob=PublicationURL&_tockey=%23TOC%235811%232009%23996309996%231075051%23FLA%23&_cdi=5811&_pubType=J&_auth=y&_acct=C000001678&_version=1&_urlVersion=0&_userid=14684&md5=47e6db9ad4f4aa5c5ef2a8fbe860b451

Documents

Assessment of the Impacts of Global Change on Regional U.S. Air Quality: A Synthesis of Climate Change Impacts on Ground-Level Ozone (An Interim Report of the U.S. EPA Global Change Research Program)
Washington, DC: U.S. Environmental Protection Agency, EPA/600/R-07/094F, 2009.
http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=203459

Phosphorus and Nitrogen Delivery to the Gulf of Mexico.
http://water.usgs.gov/nawqa/home_maps/phosphorus_nitrogen_gulf.html
Source: National Water-Quality Assessment (NAWQA) Program

Robertson, Dale M., Gregory E. Schwarz, David A. Saad, and Richard B. Alexander.
Incorporating uncertainty into the ranking of SPARROW model nutrient yields from Mississippi/Atchafalaya River Basin watersheds.
Washington, DC: U.S.G.S., 2009.
http://water.usgs.gov/nawqa/sparrow/nutrient_yields/index.html
Source: National Water-Quality Assessment (NAWQA) Program

Articles

Alkemade, Rob, Mark van Oorschot, Lera Miles, Christian Nellemann, Michel Bakkenes, and Ben ten Brink.
GLOBIO3: A framework to investigate options for reducing global terrestrial biodiversity loss.
Ecosystems, 12(3): 374-390, April 2009. ISSN 1432-9840.
doi: 10.1007/s10021-009-9229-5.
http://springerlink.metapress.com/content/tr13200728471072/?p=f8a9eaf4aaf945f69438249f2c88375f&pi=2

Allen, Andrew P. and James F. Gillooly.
Towards an integration of ecological stoichiometry and the metabolic theory of ecology to better understand nutrient cycling.
Ecology Letters, 12(5): 369-384, May 2009. ISSN 1461-023X.
doi: 10.1111/j.1461-0248.2009.01302.x.
http://www3.interscience.wiley.com/journal/122286794/abstract

Andrianarisoa, Kasaina Sitraka, Bernd Zeller, Jean Luc Dupouey, and Etienne Dambrine.
Comparing indicators of N status of 50 beech stands (Fagus sylvatica L.) in northeastern France.
Forest Ecology and Management, 257(11): 2241-2253, May 10, 2009. ISSN 0378-1127.
http://dx.doi.org/10.1016/j.foreco.2009.02.037

Aneja, Viney P, William H. Schlesinger, and Jan Willem Erisman.
Effects of agriculture upon the air quality and climate: research, policy, and regulations.
Environmental Science & Technology, Articles ASAP (As Soon As Publishable).
Publication Date (Web): May 7, 2009 (Policy Analysis). ISSN 1520-5851.
doi: 10.1021/es8024403
http://pubs.acs.org/doi/full/10.1021/es8024403

Arnold, Julia, Marife D. Corre, and Edzo Veldkamp.
Soil N cycling in old-growth forests across an Andosol toposequence in Ecuador.
Forest Ecology and Management, 257(10): 2079-2087, April 30, 2009. ISSN 0378-1127.
http://dx.doi.org/10.1016/j.foreco.2009.02.014

Bai, Edith and Benjamin Z. Houlton.
Coupled isotopic and process-based modeling of gaseous nitrogen losses from tropical rain forests.
Global Biogeochemical Cycles, 23: GB2011, May 9, 2009. ISSN 0886-6236.
doi: 10.1029/2008GB003361.
http://www.agu.org/journals/gb/gb0902/2008GB003361/

Battarbee, Richard W., Martin Kernan, and Neil Rose.
Threatened and stressed mountain lakes of Europe: Assessment and progress.
Aquatic Ecosystem Health & Management, 12(2): 118-128, 2009. ISSN 1463-4988.
doi: 10.1080/14634980902905742.
http://www.aehms.org/Journal/12_2.html

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[Coming soon.]
AB: Mountain regions are cold environments that are hostile to human occupation and widely regarded as places where the air is clean, water is pure and ecosystems are pristine. Yet many mountain regions, especially in Europe, are far from pristine. In the 1980s, research showed that mountain lakes were especially vulnerable to acid deposition and sediment core studies at many sites demonstrated that some mountain lakes had become acidified over the course of the last century. Since then, studies of the water chemistry, biology and history of lakes across the different European mountain regions have increased our understanding of the processes within these systems, their ecological condition and the threats facing them. These studies have demonstrated that: gradients of sulphur, nitrogen, metals and persistent organic pollutant deposition occur from relatively uncontaminated regions in Spain and Central Norway to regions of heavy pollution loading in central and eastern Europe; nitrate and sulphate concentrations in lake water reflect the gradients in atmospheric deposition; concentrations of mercury, lead and cadmium in fish tissue show marked regional differences; the spatial pattern of organochlorine concentrations in fish and in sediments follow the pattern for other pollutants, although there is also good evidence for the selective cold trapping of some compounds both at high latitudes and at high altitudes; fish suffer physiological stress in mountain lake-water of low ionic strength; climate change over the last century is likely to have induced significant changes in lake ice-cover and water column stratification and mixing in some regions and these have in turn influenced the structure and productivity of biological communities; This paper provides a review of the research undertaken on European mountain lakes over the past 30 years. In particular, it highlights the stresses faced by these vulnerable systems and the effects these have had, continue to have, and are likely to have on mountain lake ecosystems in future.

Beine, Harry, Agustin J. Colussi, Antonio Amoroso, Giulio Esposito, Mauro Montagnoli, and Michael R. Hoffmann.
HONO emissions from snow surfaces.
Environmental Research Letters, 3(4): 045005, October-December 2008. ISSN 1748-9326.
doi: 10.1088/1748-9326/3/4/045005.
http://www.iop.org/EJ/abstract/1748-9326/3/4/045005/

Burkhart, John F., Roger C. Bales, McConnell, Joseph R., Manuel A. Hutterli, and Markus M. Frey.
Geographic variability of nitrate deposition and preservation over the Greenland Ice Sheet.
Journal of Geophysical Research – Atmospheres, 114: D06301, March 18, 2009. ISSN 0148-0227.
doi: 10.1029/2008JD010600.
http://www.agu.org/pubs/crossref/2009/2008JD010600.shtml

Burns, Douglas A., Elizabeth W. Boyer, Emily M. Elliott, and Carol Kendall.
Sources and transformations of nitrate from streams draining varying land uses: evidence from dual isotope analysis.
Journal of Environmental Quality, 38(3): 1149-1159, May-June 2009. ISSN: 0047-2425.
doi. 10.2134/jeq2008.0371.
http://intl-jeq.scijournals.org/cgi/content/abstract/38/3/1149

US EPA ARCHIVE DOCUMENT

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Cardinale, Bradley J., Danuta M. Bennett, Craig E. Nelson, and Kevin Gross.
Does productivity drive diversity or vice versa? A test of the multivariate productivity-diversity hypothesis in streams.
Ecology, 90(5): 1227-1241, May 2009. ISSN: 0012-9658.
doi: 10.1890/08-1038.1.
http://www.esajournals.org/doi/abs/10.1890/08-1038.1

Cunha, A. and A. Almeida.
Inorganic nutrient regulation of bacterioplankton heterotrophic activity in an estuarine system (Ria de Aveiro, Portugal).
Hydrobiologia, 628(1): 81-93, July 2009. ISSN: 0018-8158.
doi: 10.1007/s10750-009-9747-3
http://www.springerlink.com/content/t6856276026j7164/?p=0c5591f1a39b4dbb9dc7f28d5861e66c&pi=5

Dail, David Bryan, David Y. Hollinger, Eric A. Davidson, Ivan Fernandez, Herman C. Sievering, Neal A. Scott and Elizabeth Gaige.
Distribution of nitrogen-15 tracers applied to the canopy of a mature spruce-hemlock stand, Howland, Maine, USA.
Oecologia, 160(3): 589-599, June 2009. ISSN: 0029-8549.
doi: 10.1007/s00442-009-1325-x.
http://springerlink.metapress.com/content/01221m22wglg1h37/?p=92e3a7aa8b444a2394d442ebff9fa1bd&pi=16

Day Jr., John W., Charles A. Hall, Alejandro Yáñez-Arancibia, David Pimentel, Carles Ibáñez Martí, and William J. Mitsch.
Ecology in times of scarcity.
BioScience, 59(4): 321-331, April 2009. ISSN: 0006-3568.
doi: 10.1525/bio.2009.59.4.10.
http://www.bioone.org/doi/abs/10.1525/bio.2009.59.4.10

Edlund, Mark B., Daniel R. Engstrom, Laura D. Triplett, Brenda Moraska Lafrancois, and Peter R. Leavitt.
Twentieth century eutrophication of the St. Croix River (Minnesota-Wisconsin, USA) reconstructed from the sediments of its natural impoundment.
Journal of Paleolimnology, 41(4): 641-657, May 2009. ISSN 0921-2728.
doi: 10.1007/s10933-008-9296-1.
http://www.springerlink.com/content/hp85182l44173444/?p=fa7ace5b8ce74f50a2ddd02556275312&pi=6

Eshleman, Keith N., Brenden E. McNeil, and Philip A. Townsend.
Validation of a remote sensing based index of forest disturbance using streamwater nitrogen data.
Ecological Indicators, 9(3): 476-484, May 2009. ISSN 1470-160X.
http://dx.doi.org/10.1016/j.ecolind.2008.07.005

Felzer, Benjamin S., Timothy W. Cronin, Jerry M. Melillo, David W. Kicklighter, and C. Adam Schlosser.
Importance of carbon-nitrogen interactions and ozone on ecosystem hydrology during the 21st century.
Journal of Geophysical Research – Biogeosciences, 114: G01020, March 18, 2009. ISSN: 0148-0227.
doi: 10.1029/2008JG000826.
http://www.agu.org/pubs/crossref/2009/2008JG000826.shtml

Fernandes, Milena, Simon Bryars, Genevieve Mount, and David Miller.
Seagrasses as a sink for wastewater nitrogen: The case of the Adelaide metropolitan coast.
Marine Pollution Bulletin, 58(2): 303-308, February 2009. ISSN 0025-326X.
http://dx.doi.org/10.1016/j.marpolbul.2008.10.006

Feuchtmayr, Heidrun, Rebecca Moran, Keith Hatton, Les Connor, Tom Heyes, Brian Moss, Ian Harvey, and David Atkinson.
Global warming and eutrophication: effects on water chemistry and autotrophic communities in experimental hypertrophic shallow lake mesocosms.
Journal of Applied Ecology, 46(3): 713-723, June 2009. ISSN 0021-8901.
doi: 10.1111/j.1365-2664.2009.01644.x.
http://www3.interscience.wiley.com/journal/122290051/abstract

Filippino, Katherine C., Peter W. Bernardt, and Margaret R. Mulholland.
Chesapeake Bay plume morphology and the effects on nutrient dynamics and primary productivity in the coastal zone.
Estuaries and Coasts, 32(3): 410-424, May 2009. ISSN 1559-2723.
doi: 10.1007/s12237-009-9139-y.
http://www.springerlink.com/content/u331122m37801410/?p=44ed046c2db446a7bdfdeb6a064fba64&pi=1

Fraterrigo, Jennifer M., Scott M. Pearson, and Monica G. Turner.
The response of understory herbaceous plants to nitrogen fertilization in forests of different land-use history.
Forest Ecology and Management, 257(10): 2182-2188, April 30, 2009. ISSN 0378-1127.
http://dx.doi.org/10.1016/j.foreco.2009.02.036

Frost, Joshua W., Tymeri Schleicher, and Christopher Craft.
Effects of nitrogen and phosphorus additions on primary production and invertebrate densities in a Georgia (USA) tidal freshwater marsh.
Wetlands, 29(1): 196-203, March 2009. ISSN 0277-5212.
doi: 10.1672/07-79.1.
http://www.bioone.org/doi/abs/10.1672/07-79.1

Gascuel-Odoux, Chantal, Florence Massa, Patrick Durand, Philippe Merot, Olivier Troccaz, Jacques Baudry, and Claudine Thenail.

US EPA ARCHIVE DOCUMENT

Framework and tools for agricultural landscape assessment relating to water quality protection.
Environmental Management, 43(5): 921-935, May 2009. ISSN 0364-152X.
doi: 10.1007/s00267-008-9244-x.
http://www.springerlink.com/content/232628l756g24136/?p=5b4ef3398b5c4f62a3fc9a6a60d84039&pi=14

Goodale, Christine L., Steven A. Thomas, Guinevere Fredriksen, Emily M. Elliott, Kathryn M. Flinn, Thomas J. Butler, and M. Todd Walter.
Unusual seasonal patterns and inferred processes of nitrogen retention in forested headwaters of the Upper Susquehanna River.
Biogeochemistry, 93(3): 197-218, April 2009. ISSN 0168-2563.
doi: 10.1007/s10533-009-9298-8.
http://springerlink.metapress.com/content/p38307208872061t/?p=878620e359ff455db8f7e4e234ac5d71&pi=1

Gravelle, J. A., G. Ice, T.E. Link and D.L. Cook.
Nutrient concentration dynamics in an inland Pacific Northwest watershed before and after timber harvest.
Forest Ecology And Management, 257(8): 1663-1675, March 31, 2009. ISSN 0378-1127.
http://dx.doi.org/10.1016/j.foreco.2009.01.017

Hautier, Yann, Pascal A. Niklaus, and Andy Hector.
Competition for light causes plant biodiversity loss after eutrophication.
Science, 324(5927): 636-638, May 1, 2009. ISSN 0036-8075.
doi: 10.1126/science.1169640.
http://www.sciencemag.org/cgi/content/abstract/324/5927/636

Herrera-Silveira, Jorge A. and Sara M. Morales-Ojeda.
Evaluation of the health status of a coastal ecosystem in southeast Mexico: Assessment of water quality, phytoplankton and submerged aquatic vegetation.
Marine Pollution Bulletin, 59(1-3, Sp. Iss.): 72-86, 2009. ISSN 0025-326X.
http://dx.doi.org/10.1016/j.marpolbul.2008.11.017

Hill, Alan R. and Tim P. Duval.
Beaver dams along an agricultural stream in southern Ontario, Canada: their impact on riparian zone hydrology and nitrogen chemistry.
Hydrological Processes, 23(9): 1324-1336, April 30, 2009. ISSN 0885-6087.
doi: 10.1002/hyp.7249.
http://www3.interscience.wiley.com/journal/121675092/abstract

Howarth, Robert W.
Coastal nitrogen pollution: A review of sources and trends globally and regionally.
Harmful Algae, 8(1): 14-20, December 2008. ISSN 1568-9883.
http://dx.doi.org/10.1016/j.hal.2008.08.015

US EPA ARCHIVE DOCUMENT

Howden, N. J. K. and T. P. Burt.
Statistical analysis of nitrate concentrations from the Rivers Frome and Piddle (Dorset, UK) for the period 1965-2007.
Ecohydrology, 2(1): 55-65, March 2009. ISSN 1936-0584.
doi: 10.1002/eco.39.
http://www3.interscience.wiley.com/journal/121587738/abstract

Ishijima, K., T. Nakazawa, and S. Aoki.
Variations of atmospheric nitrous oxide concentration in the northern and western Pacific.
Tellus Series B-Chemical and Physical Meteorology, 61(2):408-415, April 2009. ISSN 0280-6509.
doi: 10.1111/j.1600-0889.2008.00406.x.
http://www3.interscience.wiley.com/journal/121675683/abstract

Ito, Akinori, Sanford Sillman, and Joyce E. Penner.
Global chemical transport model study of ozone response to changes in chemical kinetics and biogenic volatile organic compounds emissions due to increasing temperatures: Sensitivities to isoprene nitrate chemistry and grid resolution.
Journal of Geophysical Research-Atmospheres, 114: D09301, May 1, 2009. ISSN 0148-0227.
doi: 10.1029/2008JD011254.
http://www.agu.org/pubs/crossref/2009/2008JD011254.shtml

Jacobson, Mark Z. and David G. Streets.
Influence of future anthropogenic emissions on climate, natural emissions, and air quality.
Journal of Geophysical Research-Atmospheres, 114: D08118, April 28, 2009. ISSN 0148-0227.
doi: 10.1029/2008JD011476.
http://www.agu.org/pubs/crossref/2009/2008JD011476.shtml

Jiang, Yefang and George Somers.
Modeling effects of nitrate from non-point sources on groundwater quality in an agricultural watershed in Prince Edward Island, Canada.
Hydrogeology Journal, 17(3): 707-724, May 2009. ISSN 1431-2174.
doi: 10.1007/s10040-008-0390-2.
http://www.springerlink.com/content/u047517902n7418t/?p=bbc61264868c46ab9ed7828a71a377d9&pi=17

Johnson, Heather O. Satish C. Gupta, Aldo V. Vecchia, and Francis Zvomuya.
Assessment of water quality trends in the Minnesota River using non-parametric and parametric methods.
Journal of Environmental Quality, 38(3): 1018-1030, May-June 2009. ISSN 0047-2425.
doi: 10.2134/jeq2008.0250.
http://intl-jeq.scijournals.org/cgi/content/abstract/38/3/1018

Jovanovic, N. Z., S. Israel, G. Tredoux, L. Soltau, D. LeMaitre, F. Rusinga, A. Rozanov, and N. van der Merwe.

US EPA ARCHIVE DOCUMENT

Nitrogen dynamics in land cleared of alien vegetation (Acacia saligna) and impacts on groundwater at Riverlands Nature Reserve (Western Cape, South Africa).
Water SA, 35(1): 37-44, January 2009. ISSN 0378-4738.
http://www.wrc.org.za/downloads/watersa/2009/Vol%2035%20no%201/05%20-%202299.pdf

Khalili, Maria I. and Gesa A. Weyhenmeyer.
Growing season variability of nitrate along a trophic gradient - contrasting patterns between lakes and streams.
Aquatic Sciences, 71(1): 25-33, March 2009. ISSN 1015-1621.
doi: 10.1007/s00027-008-8145-7.
http://www.springerlink.com/content/ahx08k1336ggr075/?p=c75b3bf081dd423e809a5b04152a0dd8&pi=3

Kokaly, Raymond F., Gregory P. Asner, Scott V. Ollinger, Mary E. Martin, and Carol A. Wessman.
Characterizing canopy biochemistry from imaging spectroscopy and its application to ecosystem studies.
Remote Sensing of Environment, In Press, Corrected Proof, Available online 23 April 2009. ISSN 0034-4257.
http://dx.doi.org/10.1016/j.rse.2008.10.018

Krull, Kandice and Christopher Craft.
Ecosystem development of a sandbar emergent tidal marsh, Altamaha River estuary, Georgia, USA.
Wetlands, 29(1): 314-322, March 2009. ISSN 0277-5212.
doi: 10.1672/06-178.1.
http://www.bioone.org/doi/abs/10.1672/06-178.1

Kvennefors, E. C. E. and G. Roff.
Evidence of cyanobacteria-like endosymbionts in Acroporid corals from the Great Barrier Reef.
Coral Reefs, 28(2): 547, June 2009. ISSN 0722-4028.
doi: 10.1007/s00338-009-0473-0.
http://www.springerlink.com/content/h268q7357196753l/?p=f623cf7f9b144b118670d77e90685973&pi=28

Lafrancois, Brenda Moraska, Suzanne Magdalene, and D. Kent Johnson.
Recent water quality trends and a comparison to sediment-core records for two riverine lakes of the Upper Mississippi River basin: Lake St. Croix and Lake Pepin.
Journal of Paleolimnology, 41(4): 603-622, May 2009. ISSN 0921-2728.
doi: 10.1007/s10933-008-9294-3.
http://www.springerlink.com/content/6757l5715qm51768/?p=533460a0950442a186c8cccea2d3905f&pi=4

US EPA ARCHIVE DOCUMENT

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Lam, Phyllis, Gaute Lavik, Marlene M. Jensen, Jack van de Vossenberg, Markus Schmid, Dagmar Woebken, Dimitri Gutiérrez, Rudolf Amann, Mike S. M. Jetten, and Marcel M. M. Kuypers
Revising the nitrogen cycle in the Peruvian oxygen minimum zone.
Proceedings of the National Academy of Sciences of the United States of American, 106(12): 4752-4757, March 24, 2009. ISSN 0027-8424.
doi:10.1073/pnas.0812444106.
http://www.pnas.org/content/106/12/4752.abstract

Langner, Joakim, Camilla Andersson, and Magnuz Engardt.
Atmospheric input of nitrogen to the Baltic Sea basin: present situation, variability due to meteorology and impact of climate change.
Boreal Environment Research, 14(1): 226-237, February 27, 2009. ISSN 1239-6095.
[network error, 6/8/2009]
AB: We present estimates of the present and future deposition of atmospheric nitrogen into the Baltic Sea made using the Eulerian chemical transport model MATCH, and compare these with earlier model estimates. The average total nitrogen deposition for periods of five to ten years from 1992 to 2001 was estimated to be in the range of 261-300 Gg N yr(-1). The deposition across the whole catchment area for 2001 was estimated to be 1.55-1.73 Tg N yr(-1). Inter-annual variability of nitrogen deposition into the Baltic Sea was calculated to be in the range of 5.1%-8.0%. Investigating one climate change scenario using emissions for year 2000 indicated a rather small impact on total deposition of nitrogen due to climate change, i.e. increase of total nitrogen deposition by similar to 5% by the end of the 21st century as compared with present conditions. The combined effect of climate change and future changes in anthropogenic emissions of nitrogen to the atmosphere remains an open question. Additional climate change scenarios using different combinations of global and regional climate models and greenhouse gas emission scenarios need to be explored.
http://www.borenv.net/BER/pdfs/ber14/ber14-226.pdf

Latza, Ute, Silke Gerdes, and Xaver Baur.
Effects of nitrogen dioxide on human health: Systematic review of experimental and epidemiological studies conducted between 2002 and 2006.
International Journal of Hygiene and Environmental Health, 212(3): 271-287, May 2009. ISSN 1438-4639.
http://dx.doi.org/10.1016/j.ijheh.2008.06.003

Li, Shu, Tijian Wang, Bingliang Zhuang, and Yong Han.
Indirect radiative forcing and climatic effect of the anthropogenic nitrate aerosol on regional climate of China.
Advances in Atmospheric Sciences, 26(3): 543-552, May 2009. ISSN 0256-1530.
doi: 10.1007/s00376-009-0543-9.
http://www.springerlink.com/content/m931w42522kg1615/?p=73db77c4b1424bbbbb40f64cd8056b31&pi=15

Longphuirt, Sorcha Ní, Jae-Hyun Lim, Aude Leynaert, Pascal Claquin, Eun-Jung Choy, Chang-Keun Kang, Soonmo An.

Dissolved inorganic nitrogen uptake by intertidal microphytobenthos: nutrient concentrations, light availability and migration .
Marine Ecology Progress Series, 379: 33-44, March 30, 2009. ISSN 1616-1599.
doi: 10.3354/meps07852
http://www.int-res.com/abstracts/meps/v379/p33-44/

Mayer, Audrey L., Leena Vihermaa, Noora Nieminen, Annukka Luomi, and Maximilian Posch.
Epiphytic macrolichen community correlates with modeled air pollutants and forest conditions.
Ecological Indicators, 9(5):992-1000, September 2009. ISSN 1470-160X.
http://dx.doi.org/10.1016/j.ecolind.2008.11.010

Mian, Ishaq Ahmad, Muhammad Riaz, and Malcolm S. Cresser.
The importance of ammonium mobility in nitrogen-impacted unfertilized grasslands: A critical reassessment.
Environmental Pollution, 157(4): 1287-1293, April 2009. ISSN 0269-7491.
http://dx.doi.org/10.1016/j.envpol.2008.11.041

Mohan, Jacqueline E., Roger M. Cox, and Louis R. Iverson.
Composition and carbon dynamics of forests in northeastern North America in a future, warmer world.
Canadian Journal of Forest Research, 39(2): 213-230, February 2009. ISSN 0045-5067.
doi: 10.1139/X08-185.
http://rparticle.web-p.cisti.nrc.ca/rparticle/AbstractTemplateServlet?calyLang=eng&journal=cjfr&volume=39&year=0&issue=2&msno=x08-185

Nielsen, Michael, Armin Gieseke, Dirk De Beer, and Niels Peter Revsbech.
Nitrate, nitrite, and nitrous oxide transformations in sediments along a salinity gradient in the Weser Estuary.
Aquatic Microbial Ecology, 55(1): 39-52, 2009. ISSN 0948-3055.
doi: 10.3354/ame01275.
http://www.int-res.com/abstracts/ame/v55/n1/p39-52/

O'Shea, Lucy and Andrew Wade.
Controlling nitrate pollution: An integrated approach.
Land Use Policy, 26(3): 799-808, July 2009. ISSN 0264-8377.
http://dx.doi.org/10.1016/j.landusepol.2008.10.017

Ogbebo, Fortune E., Marlene S. Evans, Marley J. Waiser, Vijay P. Tumber, and Jonathan J. Keating.
Nutrient limitation of phytoplankton growth in Arctic lakes of the lower Mackenzie River Basin, northern Canada.
Canadian Journal of Fisheries and Aquatic Sciences, 66(2): 247-260, February 2009. ISSN 0706-652X.
doi: 10.1139/F08-202.

US EPA ARCHIVE DOCUMENT

http://rparticle.web-p.cisti.nrc.ca/rparticle/AbstractTemplateServlet?calyLang=eng&journal=cjfas&volume=66&year=0&issue=2&msno=f08-202

Paerl Hans W.
Controlling eutrophication along the freshwater-marine continuum: dual nutrient (N and P) reductions are essential.
Estuaries and Coasts, Tuesday, April 21, 2009. ISSN 1559-2731.
doi: 10.1007/s12237-009-9158-8
http://www.springerlink.com/content/21283v0660773jw1/

Pauer, James J. and Martin T. Auer.
Formulation and testing of a novel river nitrification model.
Ecological Modelling, 220(6): 857-866, March 24, 2009. ISSN 0304-3800.
http://dx.doi.org/10.1016/j.ecolmodel.2008.12.014

Payne, E. K., A. J. Burgin, and S. K. Hamilton.
Sediment nitrate manipulation using porewater equilibrators reveals potential for N and S coupling in freshwaters.
Aquatic Microbial Ecology, 54(3): 233-241, 2009. ISSN 0948-3055.
doi: 10.3354/ame01272.
http://www.int-res.com/abstracts/ame/v54/n3/p233-241/

Raivonen, Maarit, Timo Vesala, Liisa Pirjola, Nuria Altimir, Petri Keronen, Markku Kulmala, and Pertti Hari.
Compensation point of NOx exchange: Net result of NOx consumption and production.
Agricultural and Forest Meteorology, 149(6-7): 1073-1081, June 15, 2009. ISSN 0168-1923.
http://dx.doi.org/10.1016/j.agrformet.2009.01.003

Reichard, James S. and Chandra M. Brown.
Detecting groundwater contamination of a river in Georgia, USA using baseflow sampling.
Hydrogeology Journal, 17(3): 735-747, May 2009. ISSN 1431-2174.
doi: 10.1007/s10040-008-0382-2.
http://www.springerlink.com/content/w44826660n5p7512/?p=eec6c32fa6b647fb858f247e80e32750&pi=0

Reinds, Gert Jan, Maximilian Posch, and Wim de Vries.
Modelling the long-term soil response to atmospheric deposition at intensively monitored forest plots in Europe.
Environmental Pollution, 157(4): 1258-1269, April 2009. ISSN 0269-7491.
http://dx.doi.org/10.1016/j.envpol.2008.11.046

Repo, Maija E., Sanna Susiluoto, Saara E. Lind, Simo Jokinen, Vladimir Elsakov, Christina Biasi, Tarmo Virtanen, and Pertti J. Martikainen.
Large N2O emissions from cryoturbated peat soil in tundra.
Nature Geoscience, 2(3): 189-192, March 2009. ISSN 1752-0894.

US EPA ARCHIVE DOCUMENT

doi:10.1038/ngeo434
http://www.nature.com/ngeo/journal/v2/n3/abs/ngeo434.html

Riscassi, Ami L. and Todd M. Scanlon.
Nitrate variability in hydrological flow paths for three mid-Appalachian forested watersheds following a large-scale defoliation.
Journal of Geophysical Research – Biogeosciences, 114: G02009, May 9, 2009. ISSN: 0148-0227.
doi: 10.1029/2008JG000860.
http://www.agu.org/pubs/crossref/2009/2008JG000860.shtml

Robertson, Dale M., Gregory E. Schwarz, David A. Saad, and Richard B. Alexander.
Incorporating uncertainty into the ranking of SPARROW model nutrient yields from Mississippi/Atchafalaya River Basin watersheds.
Journal of the American Water Resources Association, 45(2): 534-549, 2009. ISSN 1752-1688.
http://dx.doi.org/10.1111/j.1752-1688.2009.00310.x

Rode, Michael, Enrico Thiel, Uwe Franko, Gerald Wenk, Fred Hesser.
Impact of selected agricultural management options on the reduction of nitrogen loads in three representative meso scale catchments in Central Germany.
Science of The Total Environment, 407(11): 3459-3472, May 15, 2009. ISSN 0048-9697.
http://dx.doi.org/10.1016/j.scitotenv.2009.01.053

Schaefer, Sylvia C., James T. Hollibaugh, and Merryl Alber.
Watershed nitrogen input and riverine export on the west coast of the US.
Biogeochemistry, 93(3): 219-233, April 2009. ISSN 0168-2563.
doi: 10.1007/s10533-009-9299-7.
http://springerlink.metapress.com/content/n3813vng61jr4572/?p=cdebfffe849d46f09a6fb5134048263b&pi=2

Schindler, D. W. and R. E. Hecky.
Eutrophication: More nitrogen data needed. [Letter]
Science, 324(5928): 721-722, May 8, 2009. ISSN 0036-8075.
doi: 10.1126/science.324_721b.
http://www.sciencemag.org/cgi/content/full/324/5928/721-b

Sebestyen, Stephen D, Elizabeth W. Boyer, and James B. Shanley.
Responses of stream nitrate and DOC loadings to hydrological forcing and climate change in an upland forest of the northeastern United States.
Journal of Geophysical Research – Biogeosciences, 114: G02002, April 7, 2009. ISSN: 0148-0227.
doi: 10.1029/2008JG000778.
http://www.agu.org/pubs/crossref/2009/2008JG000778.shtml

Serhal, Hani, Daniel Bernard, Jamal El Khattabi, Bastin-Lacherez Sabine, and Isam Shahrour.

US EPA ARCHIVE DOCUMENT

Impact of fertilizer application and urban wastes on the quality of groundwater in the Cambrai Chalk aquifer, Northern France.
Environmental Geology, 57(7): 1579-1592, June 2009. ISSN 1432-0495.
doi: 10.1007/s00254-008-1433-7.
http://www.springerlink.com/content/q73527825kq034w3/?p=0db5a8c64f674e5791507958cf328c07&pi=10

Shiozaki, Takuhei, Ken Furuya, Taketoshi Kodama, and Shigenobu Takeda.
Contribution of N2 fixation to new production in the western North Pacific Ocean along 155°E.
Marine Ecology Progress Series, 377: 19-32, 2009. ISSN 1616-1599.
doi: 10.3354/meps07837.
http://www.int-res.com/abstracts/meps/v377/p19-32/

Sigman, Daniel M., Peter J. DiFiore, Mathis P. Hain, Curtis Deutsch, and David M. Karl.
Sinking organic matter spreads the nitrogen isotope signal of pelagic denitrification in the North Pacific.
Geophysical Research Letters, 36: L08605, April 25, 2009. ISSN 0094-8276.
doi: 10.1029/2008GL035784.
http://www.agu.org/pubs/crossref/2009/2008GL035784.shtml

Smith, Kristin A. and Jane M. Caffrey.
The effects of human activities and extreme meteorological events on sediment nitrogen dynamics in an urban estuary, Escambia Bay, Florida, USA.
Hydrobiologia, 627(1): 67-85, July 2009. ISSN 0018-8158.
doi: 10.1007/s10750-009-9716-x.
http://www.springerlink.com/content/gg2219501g727g27/?p=74736ef96eb74c2383a522cb41dad5e1&pi=5

Smith, Richard L., Deborah A. Repert, and Charles P. Hart.
Geochemistry of inorganic nitrogen in waters released from coal-bed natural gas production wells in the Powder River Basin, Wyoming.
Environmental Science & Technology, 43(7): 2348-2354, April 1, 2009. ISSN 0013-936X.
doi: 10.1021/es802478p.
http://pubs.acs.org/doi/abs/10.1021/es802478p

Sobota, Daniel J., John A. Harrison, and Randy A. Dahlgren.
Influences of climate, hydrology, and land use on input and export of nitrogen in California watersheds.
Biogeochemistry, 94(1): 43-62, May 2009. ISSN 0168-2563.
doi: 10.1007/s10533-009-9307-y.
http://www.springerlink.com/content/qvkx1m270704777q/?p=7cd2877fd8ce4b65a7c4a196a5a99296&pi=3

Stander, Emilie K. and Joan G. Ehrenfield.

US EPA ARCHIVE DOCUMENT

Rapid assessment of urban wetlands: functional assessment model development and evaluation.
Wetlands, 29(1):261-276, March 2009. ISSN 0277-5212.
doi: 10.1672/07-145.1.
http://www.bioone.org/doi/abs/10.1672/07-145.1

Stevens, C. J., L. C. Maskell, S. M. Smart, S. J. M. Caporn, N. B. Dise, and D. J. G. Gowing.
Identifying indicators of atmospheric nitrogen deposition impacts in acid grasslands.
Biological Conservation, In Press, Corrected Proof, Available online 26 April 2009. ISSN 0006-3207.
http://dx.doi.org/10.1016/j.biocon.2009.04.002

Stief, Peter, Morton Poulsen, Lars Peter Nielsen, Hans Brix, and Andreas Schramm.
Nitrous oxide emission by aquatic macrofauna.
Proceedings of the National Academy of Sciences of the United States of America, 106(11): 4296-4300, March 17, 2009. ISSN 0027-8424.
doi: 10.1073/pnas.0808228106.
http://www.pnas.org/content/106/11/4296.abstract

Sutton, Adrienne J., Thomas R. Fisher, and Anne B. Gustafson.
Historical changes in water quality at German Branch in the Choptank River Basin.
Water Air and Soil Pollution, 199(1-4): 353-369, May 2009. ISSN 0049-6979.
doi: 10.1007/s11270-008-9884-8.
http://www.springerlink.com/content/d65v44r4pj0x5135/?p=3acc7eb845dd4cfb92ce1bb022b4bc53&pi=30

Sutton, M. A., E. Nemitz, M. R. Theobald, C. Milford, J. R. Dorsey, M. W. Gallagher, A. Hensen, P. A. C. Jongejan, J. W. Erisman, M. Mattsson, J. K. Schjoerring, P. Cellier B. Loubet, R. Roche, A. Neftel, B. Hermann, S. K. Jones, B. E. Lehman, L. Horvath, T. Weidinger, K. Rajkai, J. Burkhardt, F. J. Löpmeier, and U. Daemmgen.
Dynamics of ammonia exchange with cut grassland: strategy and implementation of the GRAMINAE Integrated Experiment.
Biogeosciences, 6(3): 309-331, 2009. ISSN 1726-4170.
http://www.biogeosciences.net/6/309/2009/bg-6-309-2009.html

Sutton-Grier, Ariana E., Mengchi Ho, and Curtis J. Richardson.
Organic amendments improve soil conditions and denitrification in a restored riparian wetland.
Wetlands, 29(1):343-352, March 2009. ISSN 0277-5212.
doi: 10.1672/08-70.1.
http://www.bioone.org/doi/abs/10.1672/08-70.1

Thiel, Aaron L. and Steven S. Perakis.
Nitrogen dynamics across silvicultural canopy gaps in young forests of western Oregon.
Forest Ecology and Management, 258(3): 273-287, June 30, 2009. ISSN 0378-1127.
http://dx.doi.org/10.1016/j.foreco.2009.04.015

US EPA ARCHIVE DOCUMENT

Ullah, Sami, Rebeccah Frasier, Luc Pelletier, and Tim R. Moore.
Greenhouse gas fluxes from boreal forest soils during the snow-free period in Quebec, Canada.
Canadian Journal of Forest Research, 39(3): 666-680, March 2009. ISSN 0045-5067.
doi: 10.1139/X08-209.
http://rparticle.web-p.cisti.nrc.ca/rparticle/AbstractTemplateServlet?calyLang=eng&journal=cjfr&volume=39&year=0&issue=3&msno=x08-209

Volk, Martin, Stefan Liersch, Gerd Schmidt.
Towards the implementation of the European Water Framework Directive? Lessons learned from water quality simulations in an agricultural watershed.
Land Use Policy, 26(3): 580-588, July 2009. ISSN 0264-8377.
http://dx.doi.org/10.1016/j.landusepol.2008.08.005

Walters, Annika W., Rebecca T. Barnes, and David M. Post.
Anadromous alewives (Alosa pseudoharengus) contribute marine-derived nutrients to coastal stream food webs.
Canadian Journal of Fisheries and Aquatic Sciences, 66(3): 439-448, March 2009. ISSN 0706-652X.
doi:10.1139/F09-008.
http://rparticle.web-p.cisti.nrc.ca/rparticle/AbstractTemplateServlet?calyLang=eng&journal=cjfas&volume=66&year=0&issue=3&msno=f09-008

Wang, Shilu, Congqiang Liu, Kevin M. Yeager, Guojiang Wan, Jun Li, Faxiang Tao, Yingchun Lue, Fang Liu, and Chengxin Fan.
The spatial distribution and emission of nitrous oxide (N2O) in a large eutrophic lake in eastern China: Anthropogenic effects.
Science of the Total Environment, 407(10): 3330-3337, May 1, 2009. ISSN 0048-9697.
http://dx.doi.org/10.1016/j.scitotenv.2008.10.037

Wei, Yongping, Brian Davidson, Deli Chen, and Robert White.
Balancing the economic, social and environmental dimensions of agro-ecosystems: An integrated modeling approach.
Agriculture, Ecosystems & Environment, 131(3-4): 263-273, June 2009. ISSN 0167-8809.
http://dx.doi.org/10.1016/j.agee.2009.01.021

Williams, Michael, Ben Longstaff, Claire Buchanan, Roberto Llanso, and William Dennison.
Development and evaluation of a spatially-explicit index of Chesapeake Bay health.
Marine Pollution Bulletin, 59(1-3, Sp. Iss.), 14-25, 2009. ISSN 0025-326X.
http://dx.doi.org/10.1016/j.marpolbul.2008.11.018

US EPA ARCHIVE DOCUMENT

Wookey, Philip A., Rien Aerts, Richard D. Bardgett, Florence Baptist, Kari Anne Bråthen, Johannes H. C. Cornelissen, Laura Gough, Iain P. Hartley, David W. Hopkins, Sandra Lavorel, and Gaius R. Shaver.
Ecosystem feedbacks and cascade processes: understanding their role in the responses of Arctic and alpine ecosystems to environmental change.
Global Change Biology, 15(5): 1153-1172, May 2009. ISSN 1354-1013.
doi: 10.1111/j.1365-2486.2008.01801.x.
http://www3.interscience.wiley.com/journal/121501319/abstract

Xia, Jianyang, Shuli Niu, and Shiqiang Wan.
Response of ecosystem carbon exchange to warming and nitrogen addition during two hydrologically contrasting growing seasons in a temperate steppe.
Global Change Biology, 15(6): 1544-1556, June 2009. ISSN 1354-1013.
doi: 10.1111/j.1365-2486.2008.01807.x.
http://www3.interscience.wiley.com/journal/121501327/abstract

Xue, Dongmei, Jorin Botte, Bernard De Baets, Frederik Accoe, Angelika Nestler, Philip Taylor, Oswald Van Cleemput, Michael Berglund and Pascal Boeckx.
Present limitations and future prospects of stable isotope methods for nitrate source identification in surface- and groundwater.
Water Research, 43(5): 1159-1170, March 2009. ISSN 0043-1354.
http://dx.doi.org/10.1016/j.watres.2008.12.048

Zehr, Jonathan P.
New twist on nitrogen cycling in oceanic oxygen minimum zones.
Proceedings of the National Academy of Sciences of the United States of American, 106(12): 4575-4576, March 24, 2009. ISSN 0027-8424.
doi:10.1073/pnas.0901266106.
http://www.pnas.org/content/106/12/4575.extract

US EPA ARCHIVE DOCUMENT