US EPA ARCHIVE DOCUMENT

Nitrogen Newsletter is a summary of recent publications, news and reports related to the cycling, effects and management of nitrogen. Prepared by Mary O'Brien and Jana Compton. Contact Jana Compton with any questions (Compton.jana@epa.gov)

Please note: Most of these links are available to EPA staff through library access – not all links will be available to folks outside EPA, depending on your access to specific journals and websites.

US EPA ARCHIVE DOCUMENT

Table of Contents

Special Issues 1
Articles 1
News 11
Reports 14
Web Pages 14

Special Issues

Special section: Riparian buffer strips as a multifunctional management tool in agricultural landscapes. J Environ Qual 2012 Mar; 41(2):297-426. Available from: https://www.agronomy.org/publications/jeq/tocs/41/2#top

Articles

Adriaenssens S, Hansen K, Staelens J, Wuyts K, De Schrijver A, Baeten L, Boeckx P, Samson R, Verheyen K. 2012. **Throughfall deposition and canopy exchange processes along a vertical gradient within the canopy of beech (Fagus sylvatica L.) and Norway spruce (Picea abies (L.) Karst).** Sci Total Environ 420:168-182. Available from: http://dx.doi.org/10.1016/j.scitotenv.2011.12.029

Agyin-Birikorang S, Newman YC, Obour AK, Kasozi GN. 2012. **Erratum to: Agro-ecological nitrogen management in soils vulnerable to nitrate leaching: A case study in the Lower Suwannee Watershed.** Nutr Cycl Agroecosys 92(2):237. Available from: http://dx.doi.org/10.1007/s10705-012-9485-1

Alvaro-Fuentes J, Morel FJ, Plaza-Bonilla D, Arrue JL, Cantero-Martinez C. 2012. **Modelling tillage and nitrogen fertilization effects on soil organic carbon dynamics.** Soil Till Res 120:32-39. Available from: http://dx.doi.org/10.1016/j.sti1l.2012.01.009

Atalah J, Crowe TP. 2012. **Nutrient enrichment and variation in community structure on rocky shores: The potential of molluscan assemblages for biomonitoring.** Estuar Coast Shelf S 99:162-170. Available from: http://dx.doi.org/10.1016/j.ecss.2011.12.034

Barlow JRB, Kingsbury JA, Coupe RH. 2012. **Changes in shallow groundwater quality beneath recently urbanized areas in the Memphis, Tennessee area.** J Am Water Resour As 48(2):336-354. Available from: http://dx.doi.org/10.1111/j.1752-1688.2011.00616.x

Bartoli M, Racchetti E, Delconte CA, Sacchi E, Soana E, Laini A, Longhi D, Viaroli P. 2012. **Nitrogen balance and fate in a heavily impacted watershed (Oglio River, Northern Italy): In quest of the missing sources and sinks.** Biogeosciences 9(1):361-373. Available from: http://dx.doi.org/10.5194/bg-9-361-2012

Bell MJ, Jones E, Smith J, Smith P, Yeluripati J, Augustin J, Juszczak R, Olejnik J, Sommer M. 2012. **Simulation of soil nitrogen, nitrous oxide emissions and mitigation scenarios at 3 European cropland sites using the ECOSSE model.** Nutr Cycl Agroecosys 92(2):161-181. Available from: http://dx.doi.org/10.1007/s10705-011-9479-4

Berdanier AB, Conant RT. 2012. **Regionally differentiated estimates of cropland N2O emissions reduce uncertainty in global calculations.** Global Change Biol 18(3):928-935. Available from: http://dx.doi.org/10.1111/j.1365-2486.2011.02554.x

Blanco JA, Wei XH, Jiang H, Jie CY, Xin ZH. 2012. **Impacts of enhanced nitrogen deposition and soil acidification on biomass production and nitrogen leaching in Chinese fir plantations.** Can J Forest Res 42(3):437-450. Available from: http://dx.doi.org/10.1139/X2012-004

Bragazza L, Buttler A, Habermacher J, Brancaleoni L, Gerdol R, Fritze H, Hanajik P, Laiho R, Johnson D. 2012. **High nitrogen deposition alters the decomposition of bog plant litter and reduces carbon accumulation.** Global Change Biol 18(3):1163-1172. Available from: http://dx.doi.org/10.1111/j.1365-2486.2011.02585.x

Bunch ND, Bernot MJ. 2012. **Nitrate and ammonium uptake by natural stream sediment microbial communities in response to nutrient enrichment.** Res Microbiol 163(2):137-141. Available from: http://dx.doi.org/10.1016/j.resmic.2011.11.004

Cabezas A, Gelbrecht J, Zwirnmann E, Barth M, Zak D. 2012. **Effects of degree of peat decomposition, loading rate and temperature on dissolved nitrogen turnover in rewetted fens.** Soil Biol Biochem 48:182-191. Available from: http://dx.doi.org/10.1016/j.soilbio.2012.01.027

Carmen Blanes MC, Emmett BA, Vinegla B, Carreira JA. 2012. **Alleviation of P limitation makes tree roots competitive for N against microbes in a N-saturated conifer forest: A test through P fertilization and N-15 labelling.** Soil Biol Biochem 48:51-59. Available from: http://dx.doi.org/10.1016/j.soilbio.2012.01.012

US EPA ARCHIVE DOCUMENT

Carreiro-Silva M, Kiene WE, Golubic S, McClanahan TR. 2012. **Phosphorus and nitrogen effects on microbial euendolithic communities and their bioerosion rates.** Mar Pollut Bull 64(3):602-613. Available from: http://dx.doi.org/10.1016/j.marpolbul.2011.12.013

Chen XL, Wu PT, Zhao XN, Li SQ. 2012. **Effects of atmospheric ammonia enrichment and nitrogen status on the growth of maize.** Soil Sci Plant Nutr 58(1):32-40. Available from: http://dx.doi.org/10.1080/00380768.2011.654349

Dai GZ, Shang JL, Qiu BS. 2012. **Ammonia may play an important role in the succession of cyanobacterial blooms and the distribution of common algal species in shallow freshwater lakes.** Global Change Biol 18(5):1571-1581. Available from: http://dx.doi.org/10.1111/j.1365-2486.2012.02638.x

Daniels SM, Evans MG, Agnew CT, Allott THE. 2012. **Ammonium release from a blanket peatland into headwater stream systems.** Environ Pollut 163:261-272. Available from: http://dx.doi.org/10.1016/j.envpol.2012.01.004

de Schrijver A, de Frenne P, Staelens J, Verstraeten G, Muys B, Vesterdal L, Wuyts K, van Nevel L, Schelfhout S, de Neve S, Verheyen K. 2012. **Tree species traits cause divergence in soil acidification during four decades of postagricultural forest development.** Global Change Biol 18(3):1127-1140. Available from: http://dx.doi.org/10.1111/j.1365-2486.2011.02572.x

Deolal SP, Brunner D, Steinbacher M, Weers U, Staehelin J. 2012. **Long-term in situ measurements of NOx and NOy at Jungfraujoch 1998-2009: time series analysis and evaluation.** Atmos Chem Phys 12(5):2551-2566. Available from: http://dx.doi.org/10.5194/acp-12-2551-2012

Dias T, Martins-Loucao MA, Sheppard L, Cruz C. 2012. **The strength of the biotic compartment in retaining nitrogen additions prevents nitrogen losses from a Mediterranean maquis.** Biogeosciences 9(1):193-201. Available from: http://dx.doi.org/10.5194/bg-9-193-2012

Fenech C, Rock L, Nolan K, Tobin J, Morrissey A. 2012. **The potential for a suite of isotope and chemical markers to differentiate sources of nitrate contamination: A review.** Water Res 46(7):2023-2041. Available from: http://dx.doi.org/10.1016/j.watres.2012.01.044

Finger R. 2012. **Nitrogen use and the effects of nitrogen taxation under consideration of production and price risks.** Agr Syst 107:13-20. Available from: http://dx.doi.org/10.1016/j.agsy.2011.12.001

Flewelling SA, Herman JS, Hornberger GM, Mills AL. 2012. **Travel time controls the magnitude of nitrate discharge in groundwater bypassing the riparian zone to a stream on Virginia's coastal plain.** Hydrol Process 26(8):1242-1253. Available from: http://dx.doi.org/10.1002/hyp.8219

US EPA ARCHIVE DOCUMENT

Fritz C, van Dijk G, Smolders AJP, Pancotto VA, Elzenga TJTM, Roelofs JGM, Grootjans AP. 2012. **Nutrient additions in pristine Patagonian Sphagnum bog vegetation: Can phosphorus addition alleviate (the effects of) increased nitrogen loads.** Plant Biology 14(3):491-499. Available from: http://dx.doi.org/10.1111/j.1438-8677.2011.00527.x

Geels C, Hansen KM, Christensen JH, Skjoth CA, Ellermann T, Hedegaard GB, Hertel O, Frohn LM, Gross A, Brandt J. 2012. **Projected change in atmospheric nitrogen deposition to the Baltic Sea towards 2020.** Atmos Chem Phys 12(5):2615-2629. Available from: http://dx.doi.org/10.5194/acp-12-2615-2012

Gelfand I, Grunzweig JM, Yakir D. 2012. **Slowing of nitrogen cycling and increasing nitrogen use efficiency following afforestation of semi-arid shrubland.** Oecologia 168(2):563-575. Available from: http://dx.doi.org/10.1007/s00442-011-2111-0

Granath G, Strengbom J, Rydin H. 2012. **Direct physiological effects of nitrogen on Sphagnum: A greenhouse experiment.** Funct Ecol 26(2):353-364. Available from: http://dx.doi.org/10.1111/j.1365-2435.2011.01948.x

Guertal EA, Howe JA. 2012. **Nitrate, ammonium, and urea leaching in hybrid bermudagrass as affected by nitrogen source.** Agron J 104(2):344-352. Available from: http://dx.doi.org/10.2134/agronj2011.0262

Hagedorn F, Kammer A, Schmidt MWI, Goodale CL. 2012. **Nitrogen addition alters mineralization dynamics of 13C-depleted leaf and twig litter and reduces leaching of older DOC from mineral soil.** Global Change Biol 18(4):1412-1427. Available from: http://dx.doi.org/10.1111/j.1365-2486.2011.02603.x

Helmers MJ, Zhou X, Baker JL, Melvin SW, Lemke DW. 2012. **Nitrogen loss on tile-drained Mollisols as affected by nitrogen application rate under continuous corn and corn-soybean rotation systems.** Can J Soil Sci 92(3, SI):493-499. Available from: http://dx.doi.org/10.4141/CJSS2010-043

Hey DL, Kostel JA, Crumpton WG, Mitsch WJ, Scott B. 2012. **The roles and benefits of wetlands in managing reactive nitrogen.** J Soil Water Conserv 67(2):47A-53A. Available from: http://dx.doi.org/10.2489/jSWC.67.2.47A

Hietanen S, Jantti H, Buizert C, Jurgens K, Labrenz M, Voss M. Kuparinen J. 2012. **Hypoxia and nitrogen processing in the Baltic Sea water column.** Limnol Oceanogr 57(1):325-337. Available from: http://dx.doi.org/10.4319/lo.2012.57.1.0325

Howarth R, Swaney D, Billen G, Garnier J, Hong BG, Humborg C, Johnes P, Morth CM, Marino R. 2012. **Nitrogen fluxes from the landscape are controlled by net anthropogenic nitrogen inputs and by climate.** Front Ecol Environ 10(1):37-43. Available from: http://dx.doi.org/10.1890/100178

US EPA ARCHIVE DOCUMENT

Huang JC, Lee TY, Kao SJ, Hsu SC, Lin HJ, Peng TR. 2012. **Land use effect and hydrological control on nitrate yield in subtropical mountainous watersheds.** Hydrol Earth Syst Sc 16(3):699-714. Available from: http://dx.doi.org/10.5194/hess-16-699-2012

Huang X, Song Y, Li MM, Li JF, Huo Q, Cai XH, Zhu T, Hu M, Zhang HS. 2012. **A high-resolution ammonia emission inventory in China.** Global Biogeochem Cy 26:GB1030. Available from: http://dx.doi.org/10.1029/2011GB004161

Ibrikci H, Cetin M, Karnez E, Kirda C, Topcu S, Ryan J, Oztekin E, Dingil M, Korkmaz K, Oguz H. 2012. **Spatial and temporal variability of groundwater nitrate concentrations in irrigated Mediterranean agriculture.** Commun Soil Sci Plan 43(1-2, SI):47-59. Available from: http://dx.doi.org/10.1080/00103624.2012.631413

Isobe K, Koba K, Suwa Y, Ikutani J, Fang YT, Yoh M, Mo JM, Otsuka S, Senoo K. 2012. **High abundance of ammonia-oxidizing archaea in acidified subtropical forest soils in southern China after long-term N deposition.** FEMS Microbiol Ecol 80(1):193-203. Available from: http://dx.doi.org/10.1111/j.1574-6941.2011.01294.x

Jin XB, Huang JY, Zhou YK. 2012. **Impact of coastal wetland cultivation on microbial biomass, ammonia-oxidizing bacteria, gross N transformation and N2O and NO potential production.** Biol Fert Soils 48(4):363-369. Available from: http://dx.doi.org/10.1007/s00374-011-0631-8

Kagalou I, Leonardos I, Anastasiadou C, Neofytou C. 2012. **The DPSIR approach for an integrated river management framework. A preliminary application on a Mediterranean site (Kalamas River -NW Greece).** Water Resour Manag 26(6):1677-1692. Available from: http://dx.doi.org/10.1007/s11269-012-9980-9

Katz BG, Kingsbury JA, Welch HL, Tollett RW. 2012. **Processes affecting geochemistry and contaminant movement in the middle Claiborne aquifer of the Mississippi embayment aquifer system.** Environ Earth Sci 65(6):1759-1780. Available from: http://dx.doi.org/10.1007/s12665-011-1157-y

Kay P, Grayson R, Phillips M, Stanley K, Dodsworth A, Hanson A, Walker A, Foulger M, McDonnell I, Taylor S. 2012. **The effectiveness of agricultural stewardship for improving water quality at the catchment scale: Experiences from an NVZ and ECSFDI watershed.** J Hydrol 422:10-16. Available from: http://dx.doi.org/10.1016/j.jhydrol.2011.12.005

Kimura SD, Yan XY, Hatano R, Hayakawa A, Kohyama K, Ti CP, Deng MH, Hojito M, Itahashi S, Kuramochi K, Cai ZC, Saito M. 2012. **Influence of agricultural activity on nitrogen budget in Chinese and Japanese watersheds.** Pedosphere 22(2):137-151. Available from: http://dx.doi.org/10.1016/S1002-0160(12)60001-0

Kirschbaum MUF, Saggar S, Tate KR, Giltrap DL, Ausseil AGE, Greenhalgh S, Whitehead D. 2012. **Comprehensive evaluation of the climate-change implications of shifting land use**

US EPA ARCHIVE DOCUMENT

between forest and grassland: New Zealand as a case study. Agr Ecosyst Environ 150:123-138. Available from: http://dx.doi.org/10.1016/j.agee.2012.01.004

Laliberte E, Turner BL, Costes T, Pearse SJ, Wyrwoll KH, Zemunik G, Lambers H. 2012. **Experimental assessment of nutrient limitation along a 2-million-year dune chronosequence in the south-western Australia biodiversity hotspot.** J Ecol 100(3):631-642. Available from: http://dx.doi.org/10.1111/j.1365-2745.2012.01962.x

Lansdown K, Trimmer M, Heppell CM, Sgouridis F, Ullah S, Heathwaite AL, Binley A, Zhang H. 2012. **Characterization of the key pathways of dissimilatory nitrate reduction and their response to complex organic substrates in hyporheic sediments.** Limnol Oceanogr 57(2):387-400. Available from: http://dx.doi.org/10.4319/lo.2012.57.2.0387

Lassaletta L, Romero E, Billen G, Garnier J, Garcia-Gomez H, Rovira JV. 2012. **Spatialized N budgets in a large agricultural Mediterranean watershed: high loading and low transfer.** Biogeosciences 9(1):57-70. Available from: http://dx.doi.org/10.5194/bg-9-57-2012

Lee KL, Kim JH, Yoon HS, Kim HS. 2012. **Growth characteristics of two bloom-forming synurophytes (Mallomonas elongata and Synura petersenii) at different nitrate and phosphate concentrations.** Nord J Bot 30(1):104-108. Available from: http://dx.doi.org/10.1111/j.1756-1051.2011.01170.x

Lee MA, Davies L, Power SA. 2012. **Effects of roads on adjacent plant community composition and ecosystem function: An example from three calcareous ecosystems.** Environ Pollut 163:273-280. Available from: http://dx.doi.org/10.1016/j.envpol.2011.12.038

Levicnik-Hofferle S, Nicol GW, Ausec L, Mandic-Mulec I, Prosser JI. 2012. **Stimulation of thaumarchaeal ammonia oxidation by ammonia derived from organic nitrogen but not added inorganic nitrogen.** FEMS Microbiol Ecol 80(1):114-123. Available from: http://dx.doi.org/10.1111/j.1574-6941.2011.01275.x

Levine SN, Lini A, Ostrofsky ML, Bunting L, Burgess H, Leavitt PR, Reuter D, Lami A, Guilizzoni P, Gilles E. 2012. **The eutrophication of Lake Champlain's northeastern arm: Insights from paleolimnological analyses.** J Great Lakes Res 38(1, SI):35-48. Available from: http://dx.doi.org/10.1016/j.jglr.2011.07.007

Lin JT. 2012. **Satellite constraint for emissions of nitrogen oxides from anthropogenic, lightning and soil sources over East China on a high-resolution grid.** Atmos Chem Phys 12(6):2881-2898. Available from: http://dx.doi.org/10.5194/acp-12-2881-2012

Liu YJ, Shi GX, Mao L, Cheng G, Jiang SJ, Ma XJ, An LZ, Du GZ, Johnson NC, Feng HY. 2012. **Direct and indirect influences of 8 yr of nitrogen and phosphorus fertilization on Glomeromycota in an alpine meadow ecosystem.** New Phytol 194(2):523-535. Available from: http://dx.doi.org/10.1111/j.1469-8137.2012.04050.x

US EPA ARCHIVE DOCUMENT

Lomsky B, Sramek V, Novotny R. 2012. **Changes in the air pollution load in the Jizera Mts.: Effects on the health status and mineral nutrition of the young Norway spruce stands.** Eur J Forest Res 131(3):757-771. Available from: http://dx.doi.org/10.1007/s10342-011-0549-6

Machado DA, Imberger J. 2012. **Managing wastewater effluent to enhance aquatic receiving ecosystem productivity: A coastal lagoon in Western Australia.** J Environ Manage 99:52-60. Available from: http://dx.doi.org/10.1016/j.jenvman.2011.12.020

Macreadie PI, Allen K, Kelaher BP, Ralph PJ, Skilbeck CG. 2012. **Paleoreconstruction of estuarine sediments reveal human-induced weakening of coastal carbon sinks.** Global Change Biol 18(3):891-901. Available from: http://dx.doi.org/10.1111/j.1365-2486.2011.02582.x

Marton JM, Herbert ER, Craft CB. 2012. **Effects of salinity on denitrification and greenhouse gas production from laboratory-incubated tidal forest soils.** Wetlands 32(2):347-357. Available from: http://dx.doi.org/10.1007/s13157-012-0270-3

Medalie L, Hirsch RM, Archfield SA. 2012. **Use of flow-normalization to evaluate nutrient concentration and flux changes in Lake Champlain tributaries, 1990-2009.** J Great Lakes Res 38(1, SI):58-67. Available from: http://dx.doi.org/10.1016/j.jglr.2011.10.002

Miller SM, Kort EA, Hirsch AI, Dlugokencky EJ, Andrews AE, Xu X, Tian H, Nehrkorn T, Eluszkiewicz J, Michalak AM, Wofsy SC. 2012. **Regional sources of nitrous oxide over the United States: Seasonal variation and spatial distribution.** J Geophys Res-Atmos 117:D06310. Available from: http://dx.doi.org/10.1029/2011JD016951

Miyazaki K, Eskes HJ, Sudo K. 2012. **Global NOx emission estimates derived from an assimilation of OMI tropospheric NO2 columns.** Atmos Chem Phys 12(5):2263-2288. Available from: http://dx.doi.org/10.5194/acp-12-2263-2012

Molter A, Lindley S, de Vocht F, Agius R, Kerry G, Johnson K, Ashmore M, Terry A, Dimitroulopoulou S, Simpson A. 2012. **Performance of a microenviromental model for estimating personal NO2 exposure in children.** Atmos Environ 51:225-233. Available from: http://dx.doi.org/10.1016/j.atmosenv.2012.01.030

Nagumo T, Yosoi T, Aridomi A. 2012. **Impact of agricultural land use on N and P concentration in forest-dominated tea-cultivating watersheds.** Soil Sci Plant Nutr 58(1):121-134. Available from: http://dx.doi.org/10.1080/00380768.2012.656297

Nielsen R. 2012. **Introducing individual transferable quotas on nitrogen in Danish fresh water aquaculture: Production and profitability gains.** Ecol Econ 75:83-90. Available from: http://dx.doi.org/10.1016/j.ecolecon.2012.01.002

Ortega-Retuerta E, Jeffrey WH, Ghiglione JF, Joux F. 2012. **Evidence of heterotrophic prokaryotic activity limitation by nitrogen in the Western Arctic Ocean during summer.** Polar Biol 35(5):785-794. Available from: http://dx.doi.org/10.1007/s00300-011-1109-8

US EPA ARCHIVE DOCUMENT

Parker AE, Dugdale RC, Wilkerson FP. 2012. **Elevated ammonium concentrations from wastewater discharge depress primary productivity in the Sacramento River and the Northern San Francisco Estuary.** Mar Pollut Bull 64(3):574-586. Available from: http://dx.doi.org/10.1016/j.marpolbul.2011.12.016

Petersen DG, Blazewicz SJ, Firestone M, Herman DJ, Turetsky M, Waldrop M. 2012. **Abundance of microbial genes associated with nitrogen cycling as indices of biogeochemical process rates across a vegetation gradient in Alaska.** Environ Microbiol 14(4):993-1008. Available from: http://dx.doi.org/10.1111/j.1462-2920.2011.02679.x

Petersen SO, Hoffmann CC, Schafer CM, Blicher-Mathiesen G, Elsgaard L, Kristensen K, Larsen SE, Torp SB, Greve MH. 2012. **Annual emissions of CH4 and N2O, and ecosystem respiration, from eight organic soils in Western Denmark managed by agriculture.** Biogeosciences 9(1):403-422. Available from: http://dx.doi.org/10.5194/bg-9-403-2012

Pfab H, Palmer I, Buegger F, Fiedler S, Muller T, Ruser R. 2012. **Influence of a nitrification inhibitor and of placed N-fertilization on N2O fluxes from a vegetable cropped loamy soil.** Agr Ecosyst Environ 150:91-101. Available from: http://dx.doi.org/10.1016/j.agee.2012.01.001

Phoenix GK, Emmett BA, Britton AJ, Caporn SJM, Dise NB, Helliwell R, Jones L, Leake JR, Leith ID, Sheppard LJ, Sowerby A, Pilkington MG, Rowe EC, Ashmorek MR, Power SA. 2012. **Impacts of atmospheric nitrogen deposition: Responses of multiple plant and soil parameters across contrasting ecosystems in long-term field experiments.** Global Change Biol 18(4):1197-1215. Available from: http://dx.doi.org/10.1111/j.1365-2486.2011.02590.x

Pinho P, Theobald MR, Dias T, Tang YS, Cruz C, Martins-Loucao MA, Maguas C, Sutton M, Branquinho, C. 2012. **Critical loads of nitrogen deposition and critical levels of atmospheric ammonia for semi-natural Mediterranean evergreen woodlands.** Biogeosciences 9(3):1205-1215. Available from: http://dx.doi.org/10.5194/bg-9-1205-2012

Rogora M, Arisci S, Marchetto A. 2012. **The role of nitrogen deposition in the recent nitrate decline in lakes and rivers in Northern Italy.** Sci Total Environ 417:214-223. Available from: http://dx.doi.org/10.1016/j.scitotenv.2011.12.067

Sanz-Cobena A, Sanchez-Martin L, Garcia-Torres L, Vallejo A. 2012. **Gaseous emissions of N2O and NO and NO3- leaching from urea applied with urease and nitrification inhibitors to a maize (Zea mays) crop.** Agr Ecosyst Environ 149:64-73. Available from: http://dx.doi.org/10.1016/j.agee.2011.12.016

Sardans J, Rivas-Ubach A, Penuelas J. 2012. **The C:N:P stoichiometry of organisms and ecosystems in a changing world: A review and perspectives.** Perspect Plant Ecol 14(1):33-47. Available from: http://dx.doi.org/10.1016/j.ppees.2011.08.002

US EPA ARCHIVE DOCUMENT

Schroeder-Moreno MS, Greaver TL, Wang SX, Hu SJ, Rufty TW. 2012. **Mycorrhizal-mediated nitrogen acquisition in switchgrass under elevated temperatures and N enrichment.** GCB Bioenergy 4(3):266-276. Available from: http://dx.doi.org/10.1111/j.1757-1707.2011.01128.x

Smith JG, Sconiers W, Spasojevic MJ, Ashton IW, Suding KN. 2012. **Phenological changes in alpine plants in response to increased snowpack, temperature, and nitrogen.** Arct Antarct Alp Res 44(1):135-142. Available from: http://dx.doi.org/10.1657/1938-4246-44.1.135

Smith SM, Lee KD. 2012. **Nitrogen-stimulated growth of algae in surface-water samples collected from freshwater kettle ponds of Cape Cod National Seashore (Massachusetts, USA).** J Freshwater Ecol 27(1):151-157. Available from: http://dx.doi.org/10.1080/02705060.2011.628416

Sparrius LB, Sevink J, Kooijman, AM. 2012. **Effects of nitrogen deposition on soil and vegetation in primary succession stages in inland drift sands.** Plant Soil 353(1-2):261-272. Available from: http://dx.doi.org/10.1007/s11104-011-1029-y

Stewart KJ, Brummell ME, Farrell RE, Siciliano SD. 2012. **N2O flux from plant-soil systems in polar deserts switch between sources and sinks under different light conditions.** Soil Biol Biochem 48:69-77. Available from: http://dx.doi.org/10.1016/j.soilbio.2012.01.016

Stone MM, Weiss MS, Goodale CL, Adams MB, Fernandez IJ, German DP, Allison, SD. 2012. **Temperature sensitivity of soil enzyme kinetics under N-fertilization in two temperate forests.** Global Change Biol 18(3):1173-1184. Available from: http://dx.doi.org/10.1111/j.1365-2486.2011.02545.x

Syswerda SP, Basso B, Hamilton SK, Tausig JB, Robertson GP. 2012. **Long-term nitrate loss along an agricultural intensity gradient in the Upper Midwest USA.** Agr Ecosyst Environ 149:10-19. Available from: http://dx.doi.org/10.1016/j.agee.2011.12.007

Teixeira C, Magalhaes C, Joye SB, Bordalo AA. 2012. **Potential rates and environmental controls of anaerobic ammonium oxidation in estuarine sediments.** Aquat Microb Ecol 66(1):23-32. Available from: http://dx.doi.org/10.3354/ame01548

Vallack HW, Leronni V, Metcalfe DB, Hogberg P, Ineson P, Subke JA. 2012. **Application of nitrogen fertilizer to a boreal pine forest has a negative impact on the respiration of ectomycorrhizal hyphae.** Plant Soil 352(1-2):405-417. Available from: http://dx.doi.org/10.1007/s11104-011-1005-6

van der Weerden TJ, Kelliher FM, de Klein CAM. **Influence of pore size distribution and soil water content on nitrous oxide emissions.** 2012. Soil Res 50(2):125-135. Available from: http://dx.doi.org/10.1071/SR11112

Vidal J, Marce R, Serra T, Colomer J Rueda F, Casamitjana X. 2012. **Localized algal blooms induced by river inflows in a canyon type reservoir.** Aquat Sci 74(2):315-327. Available from: http://dx.doi.org/10.1007/s00027-011-0223-6

US EPA ARCHIVE DOCUMENT

Vilain G, Garnier J, Passy P, Silvestre M, Billen G. 2012. **Budget of N2O emissions at the watershed scale: role of land cover and topography (the Orgeval basin, France).** Biogeosciences 9(3):1085-1097. Available from: http://dx.doi.org/10.5194/bg-9-1085-2012

Walker CM, Kin, RS, Whigham DF, Baird SJ. 2012. **Landscape and wetland influences on headwater stream chemistry in the Kenai Lowlands, Alaska.** Wetlands 32(2):301-310. Available from: http://dx.doi.org/10.1007/s13157-011-0260-x

Wang LM, Duggin JA, Nie DP. 2012. **Nitrate-nitrogen reduction by established tree and pasture buffer strips associated with a cattle feedlot effluent disposal area near Armidale, NSW Australia.** J Environ Manage 99:1-9. Available from: http://dx.doi.org/10.1016/j.jenvman.2012.01.008

Weilhartner A, Muellegger C, Kainz M, Mathieu F, Hofmann T, Battin TJ. 2012. **Gravel pit lake ecosystems reduce nitrate and phosphate concentrations in the outflowing groundwater.** Sci Total Environ 420:222-228. Available from: http://dx.doi.org/10.1016/j.scitotenv.2012.01.032

Wilkinson A, Solan M, Alexander I, Johnson D. 2012. **Species richness and nitrogen supply regulate the productivity and respiration of ectomycorrhizal fungi in pure culture.** Fungal Ecol 5(2):211-222. Available from: http://dx.doi.org/10.1016/j.funeco.2011.08.007

Woodward CA, Potito AP, Beilman DW. 2012. **Carbon and nitrogen stable isotope ratios in surface sediments from lakes of western Ireland: implications for inferring past lake productivity and nitrogen loading.** J Paleolimnol 47(2): 167-184. Available from: http://dx.doi.org/10.1007/s10933-011-9568-z

Wu L, Long TY, Cooper WJ. 2012. **Simulation of spatial and temporal distribution on dissolved non-point source nitrogen and phosphorus load in Jialing River Watershed, China.** Environ Earth Sci 65(6):1795-1806. Available from: http://dx.doi.org/10.1007/s12665-011-1159-9

Wu Z, Dijkstra P, Koch GW, Hungate BA. 2012. **Biogeochemical and ecological feedbacks in grassland responses to warming.** Nat Clim Change 2:458–461. Available from: http://dx.doi.org/10.1038/nclimate1486

Xiang FH, Geng LL, Lu K, Zhang J, Minter EJA, Yang Z. 2012. **Effect of long-term nitrite exposure on the cladoceran Daphnia obtusa: Survival, moults, and reproduction.** Biochem Syst Ecol 41:98-103. Available from: http://dx.doi.org/10.1016/j.bse.2011.12.006

Yang JY, Huffman T, Drury CF, Yang XM, De Jong R, Campbell CA. 2012. **Estimating changes of residual soil nitrogen in Chernozemic soils in Canada.** Can J Soil Sci 92(3, SI):481-491. Available from: http://pubs.aic.ca/doi/abs/10.4141/cjss2010-037

US EPA ARCHIVE DOCUMENT

Yang Z, Geng LL, Wang W, Zhang J. 2012. **Combined effects of temperature, light intensity, and nitrogen concentration on the growth and polysaccharide content of Microcystis aeruginosa in batch culture.** Biochem Syst Ecol 41:130-135. Available from: http://dx.doi.org/10.1016/j.bse.2011.12.015

Yevenes MA, Mannaerts CM. 2012. **Untangling hydrological pathways and nitrate sources by chemical appraisal in a stream network of a reservoir catchment.** Hydrol Earth Syst Sc 16(3):787-799. Available from: http://dx.doi.org/10.5194/hess-16-787-2012

Yue J, Han SH, Zheng XH. 2012. **Designing a regional nitrogen cycle module of grassland for the IAP-N model.** Adv Atmos Sci 29(2):320-332. Available from: http://dx.doi.org/10.1007/s00376-011-0165-x

Zhang SH, Chen DD, Sun DS, Wang XT, Smith JL, Du GZ. 2012. **Impacts of altitude and position on the rates of soil nitrogen mineralization and nitrification in alpine meadows on the eastern Qinghai-Tibetan Plateau, China.** Biol Fert Soils 48(4):393-400. Available from: http://dx.doi.org/10.1007/s00374-011-0634-5

Zhang Y, Song L, Liu XJ, Li WQ, Lu SH, Zheng LX, Bai ZC, Cai GY, Zhang FS. 2012. **Corrigendum to Atmospheric organic nitrogen deposition in China [Atmos. Environ. 46C (2011) 195–204].** Atmos Environ 49:422. Available from: http://dx.doi.org/10.1016/j.atmosenv.2011.12.024

Zhu B, Wang ZH, Wang T, Dong ZX. 2012. **Non-point-source nitrogen and phosphorus loadings from a small watershed in the Three Gorges Reservoir area.** J Mt Sci-Engl 9(1):10-15. Available from: http://dx.doi.org/10.1007/s11629-012-2196-x

News

Mills L. **Wetlands initiative tests the ability to clean up runoff water.** The Gazette 2012 Apr 2. Available from: http://thegazette.com/2012/04/02/wetlands-initiative-tests-the-ability-to-clean-up-runoff-water/

Curtis B. **California almond industry protecting groundwater quality: Almond industry aims for nitrogen efficiency.** Western Farm Press 2012 Apr 3. Available from: http://westernfarmpress.com/tree-nuts/california-almond-industry-protecting-groundwater-quality

For Bloomberg BNA subscribers (including EPA staff):

Air pollution: EPA to publish rule on nitrogen, sulfur deposition. Daily Environ Rep 2012 Apr 3. Available from: http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=25769926&vname=dennotallissues&wsn=505458000&searchid=17569131&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=1

US EPA ARCHIVE DOCUMENT

Chesapeake Bay: Most Chesapeake watershed plans timely, EPA says. Daily Environ Rep 2012 Apr 4. Available from: http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=25775577&vname=dennotallissues&wsn=505316000&searchid=17569131&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=1

Whetzel C. **Climate change: Study links nitrogen-based fertilizer use, increase in atmospheric nitrous oxide levels.** Daily Environ Rep 2012 Apr 4. Available from: http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=25775576&vname=dennotallissues&wsn=505282000&searchid=17569131&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=1

Roeder L. **Drinking water: New report urges Congress to act to ensure that farm bill protects water.** Daily Environ Rep 2012 Apr 13. Available from: http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=25814508&vname=dennotallissues&wsn=504400000&searchid=17569131&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=1

Chesapeake Bay: Decline seen in Chesapeake Bay health in 2011. Daily Environ Rep 2012 Apr 18. Available from: http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=25843880&vname=dennotallissues&wsn=504034000&searchid=17569131&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=1

Coomes, Jessica. **Air pollution: EPA to phase in first emissions standards for natural gas fracking operations by 2015.** Daily Environ Rep 2012 Apr 19. Available from: http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=25848948&vname=dennotallissues&wsn=503846000&searchid=17569131&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=0

Saiyid AH. **Water pollution: EPA working on guidance to help States develop, revise TMDLs for water bodies.** Daily Environ Rep 2012 Apr 24. Available from: http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=25904405&vname=dennotallissues&wsn=503450000&searchid=17569131&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=0

Saiyid AH. **Water pollution: Water agencies support comprehensive monitoring of impacts from nutrients.** Daily Environ Rep 2012 Apr 24. Available from: http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=25904416&vname=dennotallissues&wsn=503454000&searchid=17569131&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=0

Roeder L. **Water pollution: Overall quality of coastal waters rated as 'fair' in new assessment by EPA.** Daily Environ Rep 2012 Apr 26. Available from: http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=25945738&vname=dennotallissue

US EPA ARCHIVE DOCUMENT

s&wsn=503146000&searchid=17569131&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=0

For *Greenwire* subscribers (including EPA staff):

Stecker T. **Agriculture: Tech firm hopes crops that reduce the need for nitrogen fertilizers can earn carbon credits.** ClimateWire 2012 Apr 4. Available from: http://www.eenews.net/climatewire/2012/04/04/archive/7

Stecker T. **Science: Ariz. grasses will have a harder time absorbing nitrogen in warmer climate.** ClimateWire 2012 Apr 10, 2012. Available from: http://www.eenews.net/climatewire/2012/04/10/archive/4

Winter A. **Oceans: Corals risk extinction due to climate change -- NOAA.** Greenwire 2012 Apr 16. Available from: http://www.eenews.net/Greenwire/2012/04/16/archive/6

Quinlan P. **Water: Utilities to lobby Hill today seeking more money for ... farms.** E&E Daily 2012 Apr 24. Available from: http://www.eenews.net/EEDaily/2012/04/24/archive/6

For *Inside EPA* subscribers (including EPA staff):

States seek formal EPA process to review draft water quality standards. Environ Policy Alert 2012 Apr 4. Available from: http://insideepa.com/Environmental-Policy-Alert/Environmental-Policy-Alert-04/04/2012/states-seek-formal-epa-process-to-review-draft-water-quality-standards/menu-id-160.html

Heltman J. **Remand of Florida water rule seen having mixed impact on nutrients suit.** Inside EPA 2012 Apr 6. Available from: http://insideepa.com/Inside-EPA/Inside-EPA-04/06/2012/remand-of-florida-water-rule-seen-having-mixed-impact-on-nutrients-suit/menu-id-153.html

Activists warn EPA-Chicago sewer system decree violates water law. Water Policy Rep 2012 Apr 9. Available from: http://insideepa.com/Water-Policy-Report/Water-Policy-Report-04/09/2012/activists-warn-epa-chicago-sewer-system-decree-violates-water-law/menu-id-155.html

LaRoss D. **EPA claims industry lacks standing for suit over Chesapeake Bay TMDL.** Water Policy Rep 2012 Apr 9. Available from: http://insideepa.com/Water-Policy-Report/Water-Policy-Report-04/09/2012/epa-claims-industry-lacks-standing-for-suit-over-chesapeake-bay-tmdl/menu-id-155.html

Agriculture groups expect EPA to settle Mississippi nutrient suit. Water Policy Rep 2012 Apr 9. Available from: http://insideepa.com/Water-Policy-Report/Water-Policy-Report-04/09/2012/agriculture-groups-expect-epa-to-settle-mississippi-nutrient-suit/menu-id-155.html

US EPA ARCHIVE DOCUMENT

Bills would pave way for interstate nutrient trading in Chesapeake Bay. Water Policy Rep 2012 Apr 23. Available from: http://insideepa.com/Water-Policy-Report/Water-Policy-Report-04/23/2012/bills-would-pave-way-for-interstate-nutrient-trading-in-chesapeake-bay/menu-id-155.html

Virginia retreats on stricter bay pollutant reductions for federal facilities. Water Policy Rep 2012 Apr 23. Available from: http://insideepa.com/Water-Policy-Report/Water-Policy-Report-04/23/2012/virginia-retreats-on-stricter-bay-pollutant-reductions-for-federal-facilities/menu-id-155.html

Reports

Naidenko OV, Cox C, Bruzelius N. 2012 Apr. **Troubled waters: Farm pollution threatens drinking water.** [Internet]. Washington, D. C.: Environmental Working Group. Available from: http://www.ewg.org/report/troubledwaters

EcoCheck (NOAA-UMCES Partnership) and the Integration and Application Network, University of Maryland Center for Environmental Science. 2012 Apr. **Chesapeake Bay report card 2011.** [Internet]. Oxford, Md.: EcoCheck. Available from: http://ian.umces.edu/pdfs/ian_report_card_365.pdf

U.S. Environmental Protection Agency. 2012 Apr 17. **Oil and natural gas sector: New source performance standards and national emission standards for hazardous air pollutants reviews. 6560-50-P. Environmental Protection Agency 40 CFR Part 63 [EPA-HQ-OAR-2010-0505; FRL-] RIN 2060-AP76. Final rule.** [Internet]. Washington, D.C.: U.S. Environmental Protection Agency, Available from: http://www.epa.gov/airquality/oilandgas/pdfs/20120417finalrule.pdf

National Association of Clean Water Agencies. 2012 Apr 22. **Resolution by the National Association of Clean Water Agencies on comprehensive water quality monitoring to address nutrient-related impacts.** [Internet]. Washington, D.C.: National Association of Clean Water Agencies. Available from: http://op.bna.com/env.nsf/id/jsun-8tmseg/$File/Nutrient%20Monitoring.pdf

Web Pages

Nitrogen dioxide regulatory actions. [Internet]. Washington, D.C.: U.S. Environmental Protection Agency. [Last updated on Tuesday, April 10, 2012.] Available from: http://www.epa.gov/airquality/nitrogenoxides/actions.html

National coastal condition reports. [Internet]. Washington, D.C.: U.S. Environmental Protection Agency. [Last updated on Tuesday, May 22, 2012.] Available from: http://water.epa.gov/type/oceb/assessmonitor/nccr/index.cfm

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT