Nitrogen Attenuation Literature								
				Electronic copy	Wetland	Climate similar or		
Authors	Title	Citation	Year	provided?	type	same as MA?	Size	Depth
And D. Markenner, ITA and D.F. Wilder		E - 1 90(7) 2170 2191	1000		Desa Essa Desdenda		•	•
Aerts, K., Vernoeven, J.1.A., and D.F. whigham	Plant-mediated controls on nutrient cycling in temperate lens and bogs	Ecology 80(7), pp. 2170-2181	1999	1	Bogs, Fens, Peatlands	1	U	0
Bridgham, S.D., Updegraff, K., and J. Pastor	Carbon, nitrogen, and phosphorus mineralization in northern wetlands	Ecology 79(5), pp. 1545-1561	1998	1	Bogs, Fens, Peatlands	1	0	0
	Riparian alder fens - source or sink for nutrients and dissolved organic carbon? - 1.							
Busse, L.R., G. Gunkel	Effects of water level fluctuations.	Limnologica 31, pp. 307-315	2001	1	Bogs, Fens, Peatlands	1	1	0
Pusse I. P. C. Cunkel	Riparian alder tens - source or sink for nutrients and dissolved organic carbon? - 2.	Limnologico 22 nn 44 53	2002	1	Page Fong Dootlands	1	1	0
Dusse, L.K., G. Guikei	nH and nutrient effects on above-ground net primary production in a Minnesota USA	Linnologica 32, pp. 44-35	2002	1	bogs, rens, reatianus	1	1	
Chapin, C.T., Bridgham, S.D., J. Pastor	bog and fen	Wetlands 24(1), pp. 186-201	2004	1	Bogs, Fens, Peatlands	1	1	0
••••• F •••, ••••, •••• B •••••, •••• , ••••		Ecological Monographs 50(4), pp. 507-				_		
Hemond, H.F.	Biogeochemistry of Thoreau's Bog, Concord, Massachusetts	526	1980	1	Bogs, Fens, Peatlands	1	1	1
Leonardson, L., L. Bengtsson, T. Davidsson, T.								
Persson and U. Emanuelsson	Nitrogen retention in artificially flooded meadows	Ambio 23(6), pp. 332-341	1994	0	Bogs, Fens, Peatlands	1	1	1
Verhoeven, J.T.A.	Nutrient dynamics in minerotrophic peat mires	Aquatic Botany 25, pp. 117-137	1986	1	Bogs, Fens, Peatlands	1	0	0
	Seasonal bioavailability of dissolved organic carbon and nitrogen from pristine and	Limnology and Oceanography 49(5),						
Wiegner, T.N., and S.P. Seitzinger	polluted freshwater wetlands	pp. 1703-1712	2004	1	Bogs, Fens, Peatlands	1	0	1
Hamman D.L. and I.M. Taal	Nutient balance in a Massachusetts cranberry bog and relationships to coastal	Environmental Science and	1005	0	Course barren Da a	1		1
Howes, B.L. and J. M. Teal	eutrophication	1 echnology 29. 960-974	1995	U	Cranberry Bog	1	1	1
Mitsch WI I Zhang CI Anderson and AF Alter	offoots	Ecological Engineering 25:510-527	2005	1	Constructed Wotlands	1	1	1
Peterson S.B. and J.M. Teal	The role of plants in ecologically engineered wastewater treatment systems	Ecological Engineering 25.510-527.	1996	1	Constructed Wetlands	1	1	1
receising 5.15. and 5.34. real	The fold of plants in ecologically engineered wastewater treatment systems	Ecological Englicering 0.137-140	1))0	-	Constructed Wethands	-	-	-
Allen, W.C., P.B. Hook, J.A. Biederman and O.R.	Temperature and wetland plant species effects on wastewater treatment and root zone	Journal of Environmental Quality 31,						
Stein	oxidation	рр. 1010-1016	2002	1	Constructed Wetlands	1	1	1
		Natural Resources Research Institute,						
	NERCC Individual Alternative Wastewater Treatment Systems: Pollutant Removal in	University of Minnesota, Duluth						
Axler, R., B. McCarthy, and J. Henneck	2003 and Long-term Performance	NRRI Tech Report 2004/28	2004	1	Constructed Wetlands	1	1	1
		Water Science and Technology 44(11-						
Axler, R., J. Henneck, and B. McCarthy	Residential subsurface flow treatment wetlands in northern Minnesota	12), pp. 345-352	2001	1	Constructed Wetlands	1	1	1
		Ch. 29 In Constructed Wetlands for						
	Eato of non-naint source nitrate loads in freshwater wetlands: results from	Water Quanty Improvement. GA						
Crympton W.C. T.M. Isophart and S.W. Fishar	avancimental watered mesocosme	Poton	1002	0	Constructed Wotlands	0	1	1
Crumpton, W.G., 1.M. Ischnart, and S.W. Fisher	experimental wetand mesocosms	Ch 37 in Constructed Wetlands for	1993	U	Constructed wettands	U	1	- 1
		Wastewater Treatment: Municipal.						
		Industrial, and Agricultural, DA						
Davido, R.L. and T.E. Conway	Nitrification and denitrification at the Iselin marsh/pond/meadow facility	Hammer, Ed.	1997	0	Constructed Wetlands	1	1	1
· · ·		Ch. 63 in Constructed Wetlands for						1
	Constructed wastewater wetlands: the answer in South Dakota's challenging	Water Quality Improvement. GA						
Dornbush, J.N.	environment	Moshiri, Ed.	1993	0	Constructed Wetlands	0	1	1
		Electronic database created by R.						
		Knight, R Ruble, R Kadlec and S						
		Reed for USEPA; copies available						
		from Don Brown, USEPA 513-569-	1002					
LľA	INADB (North American Treatment Wetland Database)	/030	1993	1	Constructed Wetlands	Throughout US	1	1

Nitrogen Attenuation Literature								
		<u> </u>		Electronic copy	Wetland	Climate similar or	~	
Authors	litte	Citation	Year	provided?	type	same as MA?	Size	Depth
			1000					
EPA	Free Water Surface Wetlands for Wastewater Treatment: A Technology Assessment	EPA 832-S-99-002, Office of Water	1999	1	Constructed Wetlands	1	0	0
EDA	Treatment Wetland Database (NADP) Version 2	EPA 832-8-99-001. Prepared by	1000			Thursday I and U.C.		•
	Treatment wettand Database (INADD) Version 2	CH ₂ M Hill	1999	1	Constructed Wetlands	Throughout US	U	U
Floischar S. A. Custafson A. Joalsson J. Pansar								
and I Stibe	Nitrogen removal in created nands	Ambia 23(6) pp. 349-357	100/	0	Constructed Wetlands	Throughout US	1	1
	Ivitrogen removar in createu ponus	Ch. 33 in Constructed Wetlands for	1774	U	Constructed wettanus	Throughout US	1	1
	Nitrogen and phosphorus reduction in secondary effluent using a 15-acre multiple-	Water Quality Improvement, G						
Geiger, S., J. Luzier and J. Jackson	celled reed canarygrass (Phalaris arundinacea) wetland	Moshiri, Ed.	1993	0	Constructed Wetlands	0	1	1
			1,,,0	Ŭ	construction () changes		-	-
Gersberg, R.M., B.V. Elkins and C.R. Goldman	Nitrogen removal in artificial wetlands	Water Research 17(9), pp. 1009-1014	1983	1	Constructed Wetlands	1	1	1
G , , D D D D D D D D D D		Ch. 57 in Constructed Wetlands for		_		_	-	_
		Water Quality Improvement, GA						
Green, M.B. and J. Upton	Reed Bed Treatment for Small Communities - UK Experience	Moshiri, Ed. CRC Press	1993	0	Constructed Wetlands	1	1	1
Hansson, L.A., C. Bronmark, P. Anders Nilsson and	Conflicting demands on wetland ecosystem services: nutrient retention, biodiversity, or							
K. Abjornsson	both?	Freshwater Biology 50, pp. 705–714	2005	1	Constructed Wetlands	0	1	1
		Journal of Environmental Quality 31,						
Healy, M. and A.M. Cauley	Nutrient processing capacity of a constructed wetland in Western Ireland	рр. 1731-1739	2002	1	Constructed Wetlands	1	1	1
Hey D.L., A.L. Kenimer and K.R. Barrett	Water quality improvement by four experimental wetlands.	Ecological Engineering 3, pp. 381-397.	1994	1	Constructed Wetlands	1	1	1
Hey, D.L., J.A. Kostel, A.P. Hurter, and R.H.		Water Environment Research						
Kadlec	Nutrient farming and traditional removal: An economic comparison.	Foundation (WERF) 03-WSM-6CO	2005	1	Constructed Wetlands	1	0	0
		Cli. 17, pages 185-190 lif Ecological Engineering for Westewater						
		Treatment C Etnier and B						
		Cuterstam editors 2nd Edition CBC						
Hofmann K	The role of plants in subsurface flow constructed wetlands	Pross	1007	0	Constructed Wetlands	1	0	0
	The fole of plants in subsurface now constructed wetlands	11055	1))/	U	Constructed Wettahus	1	U	U
		Ch. 26 in Treatment Wetlands, Lewis						
Kadlec, R.H. and R.L. Knight	Wetland Treatment System Inventory	Publishers, pp. 717-737	1996	0	Constructed Wetlands	Throughout US	1	0
Kadlec, R.H., C.C. Tanner, V.M. Hally, and M.M.	Nitrogen spiraling in subsurface-flow constructed wetlands: implications for treatment	Ecological Engineering 25, pp. 365-						
Gibbs	response	381	2005	1	Constructed Wetlands	1	1	1
		Ch. 2 in Constructed Wetlands for						
		Wastewater Treatment in Cold						
Kadlec, R.H., R. Axler, B. McCarthy, and J.		Climates U Mander and PD Jenssen,						
Henneck	Subsurface treatment wetlands in the cold climate of Minnesota	eds. WIT Press, Southampton, Boston	2003	0	Constructed Wetlands	1	1	1
		Ch. 4 in Constructed Wetlands for						
		Water Quality Improvement. GA						
		Moshiri, Ed. Lewis Publishing Boca	4000	-				
Knight, R.L., R.W. Ruble, R.H. Kadlec and S. Reed	Wetlands for Wastewater Treatment: Performance Database	Katon	1993	0	Constructed Wetlands	1	1	0
	Estimating denitrification in a large constructed wetland using stable nitrogen isotope		3000		Constant 1 NV 41	•		
Lund, L.J., A.J. Horne, and A.E. Williams	Fallos Creating rivaring watlands: Foological succession nutriant extention and multi-	Ecological Engineering 14, pp. 67-76.	2000	1	Constructed Wetlands	U	1	1
ond M.F. Hornondoz	offorte	Ecological Engineering 25, pp. 510-	2005	Δ	Constructed Watles 1-	1	1	1
anu M.E. HEIHanuez	CHECUS	341	2005	U	Constructed wetlands	1	1	1

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Nervan, J. J. C. Chusen, and J.A. Nadory 6 Competed Engineering 14/137-139 600 1 Constructed Weinhold 1 1 1 Charsha Pempkonial, II. Genomian Unifation in the efficiency of matrix retroaval from obserity of thomans. Fragmential field of reed/field primations and the primation of the field primation of the primation of th		Seasonal performance of a wetland constructed to process dairy milkhouse wastewater			-	••			
Overlag Projection Chi 20, pages 207-216 h. Ecological and provide of volume in a quasi-antral field creds (Phragnites surtails) - </td <td>Newman I IC Clausen and IA Neafsey</td> <td>in Connecticut</td> <td>Ecological Engineering 14.181-198</td> <td>2000</td> <td>1</td> <td>Constructed Wetlands</td> <td>1</td> <td>1</td> <td>1</td>	Newman I IC Clausen and IA Neafsey	in Connecticut	Ecological Engineering 14.181-198	2000	1	Constructed Wetlands	1	1	1
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Phips, R.C. and W.G. Crumpton Proof Construction wetlands, so in the performance of a construction wetland, so in the relation is a process treatment wetland. Construction wetlands, and the setland of the performance of a construction wetland, being and information. Proof Construction wetlands, and the performance of a construction wetlands, a comparison of low- and high-nutrient reventine systems. Construction wetlands, a comparison of low- and high-nutrient reventine systems. Construction wetlands, a comparison of low- and high-nutrient reventine systems. Construction wetlands, a comparison of low- and high-nutrient reventine systems. Construction wetlands. 1 1 Steiner G.R. and D.W. Comb Stain construction wetlands, a comparison of low- and high-nutrient reventine systems. Construction wetlands. 1 1 1 1 Stainer G.R. and D.W. Comb Stainer G.R. and D.W. Comb Statiner Construction wetlands. 1 1 1 1 Proformance Wastewater nutrient removal and recovery in an infiltration wetland Redox K. and Hans-B. Wittgren Wastewater nutrient removal and polylical and Construction Wetlands. 1 1 1 Proformance of a constructed marsh in the tertiary treatment of black K. Kard pupal. Construction Wetlands. 1 1 1 Finderis, R.F. S.G. Howell, R.F. Raweres B. Feroformanc		Factors offecting nitrogen loss in experimental wotlands with different hydrologie							
Fringe, K., and W. G., Minghoff, K., and M. Valyndic, "Matching and physical systems for density learning and physical systems for density watereart retrained with an analysical systems for density watereart retrained with an analysical systems for density watereart retrained and their performance 200 1 Constructed Weilands for Wei	Distance D. C. and W. C. Communitari	ractors affecting introgen loss in experimental wenands with different hydrologic	Early starl English and a 2 min 200 400	1004					1
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Schuper, LA. and M. Vayodic Vukovic The effects of second and hydrologic and chemical loading on nitrate retention in the effects of second and hydrologic and chemical loading on nitrate retention in the effects of second and hydrologic and chemical loading on nitrate retention in the effects of second and hydrologic and chemical loading on nitrate retention in the effects of second match wellands a comparison of low- and high-nutricent ivertine systems Ecological Expineering 14, pp. 77–18 2000 1 Constructed Wellands 1 1 1 Steiner G. R. and D. W. Combs performance (Constructed Wellands systems for domestic wastewater treatment and their Wish Addient, Ed. CRC Press. 193 0 Constructed Wellands 1 1 1 Steiner G. R. and D. W. Combs performance (Constructed Wellands of the effect of second treatment of black Kraft burg in the tertiary treatment of black Kraft burg in Massirie (L. CRC Press. 197 0 Constructed Wellands 1 1 0 Steinbard, K. and Hans-B. Wittgren Wastewater matrient removal and recovery in an infiltration welland B directs in sufficient. CRC Press. 197 0 Constructed Wellands 1		Nitrate removal from groundwater and denitrification rates in a porous treatment wall	Ecological Engineering 14, pp. 269-	• • • •					
Spiels, D.J. and W.J. Mitsch Inte direct of season and hydrologic and definited ladding on initrate versions in and hydrologic and definited ladding on initrate versions. Cological Engineering 14, pp. 77-01 200 L Constructed Wetlands I I Spiels, D.J. and W.J. Mitsch Small constructed Wetlands systems for domestic wastewater treatment and their Water Quality Inprovement. (b. 10) Stafin Constructed Wetlands (b) I Constructed Wetlands I I Steiner G.R. and D.W. Combs performance In Dimensional Dimensi Dimensional Dimensional Dimensional Dimensional Dimensi Dimension	Schipper, L.A. and M. Vojvodic-Vukovic	amended with sawdust	278	2000	1	Constructed Wetlands	0	1	0
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Nitrogen Attenuation Literature								
				Electronic copy	Wetland	Climate similar or		
Authors	Title	Citation	Year	provided?	type	same as MA?	Size	Depth
Ogilvie, B., Nedwell, D.B., Harrison, R.M.,	High nitrate, muddy estuaries as nitrogen sinks: the nitrogen budget of the River Colne	Marine Ecology Progress Series 150.						
Robinson, A., and A. Sage	estuary (United Kingdom)	pp. 217-228	1997	0	Estuaries	1	1	0
Reav. W.G., Gallagher, D.L., and G.M. Simmons	Sediment-water column oxygen and nutrient fluxes in nearshore environments of the	Marine Ecology Progress Series 118.						
Jr.	lower Delmarva Peninsula. USA	pp. 215-227	1995	0	Estuaries	1	1	1
	Coupled nitrification-denitrification in autotrophic and heterotrophic estuarine	Limnology and Oceanography 48(1).						
Risgaard-Petersen, N.	sediments: On the influence of benthic microalgae	pp. 93-105	2003	1	Estuaries	0	0	0
Seitzinger, S., Nixon, S., Pilson, M.E.O., and S.	scallenast on the initiaties of scalar initiation and	Geochimica et Cosmochimica Acta 44.		-	Lovum res	Ŭ	Ű	
Burke	Denitrification and N2O production in near-shore marine sediments	nn. 1853-1860	1980	1	Estuaries	1	0	0
	Denitrification in freshwater and coastal marine ecosystems: Ecological and	Limnology and Oceanography 33(4).	1,00	-	Lovum res	-	Ű	0
Seitzinger, S.P.	geochemical significance	nn 702-724	1988	1	Estuaries	1	0	0
	Eutrophication and the rate of denitrification and N20 production in coastal marine	Limnology and Oceanography 30(6).	1,00	-	Loturito	-	Ű	
Seitzinger S.P. and S.W. Nixon	sediments	nn 1332-1339	1985	1	Fetuaries	1	1	1
Shaver C.R. and I.M. Melillo	Nutrient budgets of marsh plants: efficiency concepts and relation to availability	Feology 65(5) pp. 1491-1510	1984	1	Estuaries	1	0	0
Aber ID A Magill R D Boone IM Melillo P	Plant and soil responses to chronic nitrogen additions at the Harvard forest	Ecological Applications 3(1) pp. 156-	1704	-	Estuaries	-	U	U
Steudler and R Bowden	Massachusetts	166	1003	1	Forested Watersheds	1	1	0
Aber ID A Magill S.G. McNulty R.D. Boone	massachuseus	Water Air and Soil Pollution 85:1665.	1775		Forested Watersheus	1	1	U
K I Nodolboffor M Downs and P Hallott	Forest biogoochemistry and primary production altered by nitrogen seturation	1670	1005	0	Forested Watersheds	1	0	0
Aber ID IM Melillo K I Nedelhoffer I Pestor	Forest biogeochemistry and primary production aftered by introgen saturation Eactors controlling nitrogen cycling and nitrogen saturation in northern temperate	Feelogical Applications 1(3) pp. 303-	1995	0	Foresteu watersneus	1	U	U
and P.D. Boono	forest encountry introgen cycling and introgen saturation in northern temperate	215	1001	1	Forested Watersheds	1	0	0
Aher ID K I Nadelhoffer P Steudler and I	iorest ecosystems	515	1331	1	Foresteu watersneus	1	U	U
Molillo	Nitragan saturation in forest acceptance	Bioscience 30(6) pp. 378 386	1090	1	Forested Watersheds	1	0	0
Menno	Nutrogen saturation in forest ecosystems	Bioscience 39(0), pp. 378-380	1909	1	roresteu watersneus	1	U	U
Abon JD, S.V. Ollinon and C.T. Drizzall	Modeling introgen saturation in forest ecosystems in response to faid use and	Ecological Madelling 101 pp (7.78	1007	1	Fanatad Watanahada	1	•	0
Aber, J.D., S.V. Olliner and C.I. Driscoll	atmospheric deposition	Ecological Modelling 101, pp. 67-78	1997	1	rorested watersneds	1	U	U
Aber, J.D., W. McDowell, K.J. Nadelholler, A.								
Magin, G. Bernison, M. Kamakea, S. Michury, W.		Diagonal and AP(11) and AP1 AP1	1000	1		1	•	
Currie, L. Rustad, and I. Fernandez	Nitrogen saturation in forest ecosystems: hypotheses revisited	Bioscience 48(11), pp. 921-934	1998	1	Forested watersneds	1	U	U
Alle V ALCell DM Coefference and DA								
Addy, K., A.J. Gold, P.M. Groffman and P.A.		Journal of Environmental Quality 28,	1000			_		
Jacinthe	Ground water nitrate removal in subsoil of forested and mowed riparian buffer zones.	pp. 962-970	1999	1	Forested Watersheds	1	0	1
		Soil Biology and Biochemistry 32, pp.	••••					
Berntson, G.M. and J.D. Aber	Fast nitrate immobilization in N saturated temperate forest soils	151-156	2000	1	Forested Watersheds	1	1	0
Bischoff, J.M., P. Bukaveckas, M.J. Mitchell and T.	N Storage and cycling in vegetation of a forested wetland: implications for watershed	water, Air, and Soil Pollution 128,				_		
Hurd	N processing	рр. 97-114	2001	0	Forested Watersheds	1	1	1
	Close correlation between the nitrate elimination rate by denitrification and the							
Brettar I. and M.G. Hofle	organic matter content in hardwood forest soils of the upper Rhine floodplain (France)	Wetlands 22(2), pp. 214-224	2002	1	Forested Watersheds	1	1	0
Campbell, J.L., Hornbeck, J.W., Mitchell, M.J.,								
Adams, M., Castro, M.S., Driscoll, C.T., Kahl, J.S.,								
Kochenderfer, J.N., Likens, G.E., Lynch, J.A.,	Input-output budgets of inorganic nitrogen for 24 forest watersheds in the	Water, Air, and Soil Pollution 151,						
Murdoch, P.S., Nelson, S.J., and J.B. Shanley	northeastern United States: a review	рр. 373-396	2004	1	Forested Watersheds	1	0	0
Compton, J.E., Boone, R.D. Motzkin G. and Foster,	Soil carbon and nitrogen in a pine-oak sand plain in central Massachusetts: role of							
D.R.	vegetation and land use history	Oecologia 116, pp. 536-542	1998	0	Forested Watersheds	1	1	0

Nitrogen Attenuation Literature								
				Electronic copy	Wetland	Climate similar or		
Authors	Title	Citation	Year	provided?	type	same as MA?	Size	Depth
	Dynamic redistribution of isotopically labeled cohorts of nitrogen in two temperate							
Currie, W.S. and K.J. Nadelhoffer	forests	Ecosystems 2, pp. 4-18	1999	1	Forested Watersheds	1	1	0
	The imprint of land use history: patterns of carbon and nitrogen in downed woody							
Currie, W.S. and K.J. Nadelhoffer	debris at the Harvard Forest	Ecosystems 5, pp. 446-460	2002	1	Forested Watersheds	1	1	0
Dail, D.B., E.A. Davidson and J. Chorover	Rapid abiotic transformation of nitrate in an acid forest soil	Biogeochemistry 54, pp. 131–146	2001	1	Forested Watersheds	1	1	0
Fenn, M.E., M.A. Poth, J.D. Aber, J.S. Baron, B.T.								
Bormann, D.W. Johnson, A.D. Lemly, S.G.	Nitrogen excess in North American Ecosystems: Predisposing factors, ecosystem	Ecological Applications 8(3), pp. 706-						
McNulty, D.F. Ryan, and R. Stottlemyer	responses, and management strategies	733	1998	1	Forested Watersheds	1	0	0
Flite, O.P., R.D. Shannon, R.R. Schnabel, and R.R.	Nitrate removal in a riparian wetland of the Appalachian valley and ridge	Journal of Environmental Quality 30,						
Parizek	physiographic province	рр. 254-261	2001	1	Forested Watersheds	1	1	1
Goodale, C.L., K. Lajtha, K.J. Nadelhoffer, E.W.	Forest nitrogen sinks in large eastern US watersheds: estimates from forest inventory							
Boyer and N.A. Jaworski	and an ecosystem model	Biogeochemistry 57/58, pp. 239-266	2002	1	Forested Watersheds	1	1	0
Hill, A.R., Kemp, W.A., Buttle, J.M., and D.		Water Resources Research 35(3), pp.						
Goodyear	Nitrogen chemistry of subsurface storm runoff on forested Canadian Shield hillslopes	811-821	1999	1	Forested Watersheds	1	1	0
		Soil Science Society of America						
Hunter, R.G. and S.P. Faulkner	Denitrification potentials in restored and natural bottomland hardwood wetlands	Journal 65, pp. 1865-1872	2001	0	Forested Watersheds	0	1	0
	Nitrogen input-output budgets for lake-containing watersheds in the							
Ito, M., M.J. Mitchell, C.T. Driscoll and K.M. Roy	Adirondack Region in New York	Biogeochemistry 72, pp. 283-314	2005	1	Forested Watersheds	1	1	1
Jacks, G., Joelsson, A., and S. Fleischer	Nitrogen retention in forested wetlands	Ambio 23(6), pp. 358-362	1994	0	Forested Watersheds	1	1	0
Lewis, W.M.	Yield of nitrogen from minimally disturbed watersheds of the United States	Biogeochemistry 57/58, pp. 375-385	2002	1	Forested Watersheds	1	1	0
Magill, A.M., J.D. Aber, G.M. Berntson, W.H.								
McDowell, K.J. Nadelhoffer, J.M. Melillo, and P.								
Steudler	Long-term nitrogen additions and nitrogen saturation in two temperate forests	Ecosystems 3, pp. 238-253	2000	1	Forested Watersheds	1	1	0
McHale, M.R., McDonnell, J.J., Mitchell, M.J., and	A field-based study of soil water and groundwater nitrate release in an Adirondack	Water Resources Research 38(4), pp.						
C.P. Cirmo	forested watershed	1031	2002	1	Forested Watersheds	1	1	0
Mitchell, M.J., C.T. Driscoll, J.S. Owen, D.	Nitrogen biogeochemistry of three hardwood ecosystems in the Adirondack region of							
Schaefer, R. Michener, and D.J. Raynal	New York	Biogeochemistry 56(2), pp. 93-133	2001	1	Forested Watersheds	1	1	0
Mitchell, M.J., C.T. Driscoll, S. Inamdar, G.G.	Nitrogen biogeochemistry in the Adirondack Mountains of New York: hardwood	Environmental Pollution 123, pp. 355-						_
McGee, M.O. Mbila and D.J. Raynal	ecosystems and associated surface waters	364	2003	1	Forested Watersheds	1	1	0
Nadelhotter, K.J., M. Downs, B. Fry, A. Magill and		Environmental Monitoring and	1000					
J. Aber	Controls on N retention and exports in a forested watershed	Assessment 55, pp. 187-210	1999	1	Forested Watersheds	1	1	0
	Spatial and Temporal Variation in Groundwater Nitrate Removal in a	Journal of Environmental Quality 24,						
Nelson W.M., A.J. Gold, and P.M. Groffman	Riparian Forest	рр. 691-699	1995	1	Forested Watersheds	1	1	0
Perakis, S.S., J.E. Compton and L.O. Hedin	Nitrogen retention across a gradient of 15N additions to unpolluted forest soil in Chile.	Ecology 86(1), pp. 96-105	2005	1	Forested Watersheds	0	1	0
Rotkin-Ellman, M., K. Addy, A.J. Gold, and P.M.	Tree species, root decomposition, and subsurface denitrification potential in riparian							
Groffman	wetlands.	Plant and Soil 263, pp. 335-344	2004	1	Forested Watersheds	1	1	0
Seely B., K. Lajtha and G.D. Salvucci	Transformation and retention of nitrogen in a coastal forest ecosystem	Biogeochemistry 42, pp. 325-343	1998	0	Forested Watersheds	1	1	0
Jacinthe, P.A., P.M. Groffman, A.J. Gold, and A.		Journal of Environmental Quality 27,						
Mosier	Patchiness in microbial nitrogen transformations in groundwater in a riparian forest	рр. 156-164	1998	1	Forested Watersheds	1	1	1
Bartlett, M.S., Brown, L.C., Hanes, N.B., and N.H.		Journal of Environmental Quality						
Nickerson	Denitrification in freshwater wetland soil	8(4), pp. 460-464	1979	0	Freshwater emergent	1	0	0

Nitrogen Attenua	tion Literature								
									_
					Electronic copy	Wetland	Climate similar or		
Au	ithors	Title	Citation	Year	provided?	type	same as MA?	Size	Depth
		Seasonal changes in standing crop, primary production, and nutrient levels in a Carex							
Bernard, J.M. and G. Ha	ankinson	rostrata wetland	Oikos 32, pp. 328-336	1979	0	Freshwater emergent	1	1	0
		Nitrogen transport and transformations in a shallow aquifer receiving wastewater	Water Resources Research 34(2), pp.						
DeSimone L.A. and B.L.	Howes	discharge: A mass balance approach	271-285	1998	0	Mixed-Use Watersheds	1	1	1
			Massachusetts Estuaries Project,						
			Massachusetts Department of						
			Environmental Protection, Boston,						
Howes B., J.S. Ramsey, S	S.W. Kelley, R. Samimy, D.	Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for	MA. 205 pp + Executive Summary, 11						
Schlezinger, E. Eichner		Great/Perch Pond, Green Pond, and Bournes Pond, Falmouth, Massachusetts	рр	2005	1	Mixed-Use Watersheds	1	1	1
		Effectiveness of a coastal wetland in reducing pollution of a Laurentian Great Lake:							
Krieger, K.A.		hydrology, sediment, and nutrients	Wetlands 23(4), pp. 778-791	2003	1	Mixed-Use Watersheds	1	1	1
		Retention and leaching losses of atmospherically-derived nitrogen in the aggrading							
Lajtha,K. et al.		coastal watershed of Waquoit Bay, MA	Biogeochemistry 28, pp. 33-54	1995	1	Mixed-Use Watersheds	1	1	0
Nowicki, B.L., E. Requin	itina, D. Van Keuren, and	The role of sediment denitrification in reducing groundwater-derived nitrate inputs to							
J. Portnoy		Nauset Marsh Estuary, Cape Cod, Massachusetts	Estuaries 22(2A), pp. 245-259	1999	1	Mixed-Use Watersheds	1	1	1
		Differential transport of sewage-derived nitrogen and phosphorus through a coastal	Environmental Science and						
Weiskel P.K. and B.L. H	owes	watershed.	Technology 26(2), pp. 352-368	1992	0	Mixed-Use Watersheds	1	0	0
Alexander, R.B., P.B. Jol	hnes, E.W. Boyer and R.A.	A comparison of models for estimating the riverine export of nitrogen from large							
Smith	**	watersheds	Biogeochemistry 57/58, pp. 295-339	2002	1	Modeled Wetlands	0	0	0
Arheimer B. and H.B. W	ittgren	Modelling the effects of wetlands on regional nitrogen transport	Ambio 23(6), pp. 378-386	1994	0	Modeled Wetlands	I	0	0
Demon I and I Vale		Nitrogen loads to estuaries: using models to assess the effectiveness of management	Februaries 27	2004					
Bowen, J., and I. Vallela		options to restore estuarine water quality Modelling nitrogen transformations in freshwater watering a Estimating nitrogen	Estuaries 27, pp. 482-500	2004	1	Modeled Wetlands	1	<u> </u>	1
		with the second se	Ecological Modelling 75/76 np. 400						
Dongo I		leadings	420	1004	1	Modeled Wetlands	0	0	0
Dorge, J.		loaunigs	420 Desearch & Extension Degional	1994	1	would we trained	U		
Hicks D.M. and I.A. Mo	10 2 0	Modeling nitrogen dynamics in treatment wetlands: the use of plant officiency concents	Water Quality Conference	2002	1	Modeled Wetlands	0	0	0
HICKS, D.WI. and J.A. WIO	Jore	Modeling introgen dynamics in treatment wenands: the use of plant efficiency concepts	water Quanty Conference	2002	1	would we trained	U		
		Evaluation and management of the impact of land use change on nitrogen and	Journal of Hydrology 183 np. 323-						
Johnes P.J.		nhosphorus load delivered to surface waters: the export coefficient modelling approach	349	1996	1	Modeled Wetlands	0	0	0
bollites, 1 is:		Landscape, regional, and global estimates of nitrogen flux from land to sea: errors and		1770	1	Wouched Wethands	v		-
Johnes, P.J. and D. Butte	erfield	uncertainties	Biogeochemistry 57/58, pp. 429-476	2002	1	Modeled Wetlands	0	0	0
					_		-		-
Valiela, I., J. Bowen and	K. Kroeger	Assessment of models for estimation of land-derived nitrogen loads to shallow estuaries	Applied Geochemistry 17, pp. 935-953	2002	1	Modeled Wetlands	0	0	0
								-	
Schwintzer, C.R.		Nitrogen fixation by Myrica gale root nodules in a Massachusetts wetland	Oecologia 43, pp. 283-294	1979	0	Bogs, Fens, Peatlands	1	1	1
									_
Bowden, W.B.		The biogeochemistry of nitrogen in freshwater wetlands	Biogeochemistry 4, pp. 313-348	1987	1	Reviews	1	0	0
Galloway, J.N., J.D. Abe	r, J.W. Erisman, S.P.								
Seitzinger, R.W. Howart	h, E.W. Cowling, and J.								
Cosby		The nitrogen cascade	Bioscience 53(4), pp. 341-356	2003	1	Reviews	0	0	0
		Cycling and retention of nitrogen and phosphorus in wetlands: a theoretical and							
Howard-Williams, C.		applied perspective	Freshwater Biology 15, pp. 391-431	1985	0	Reviews	0	0	0
Jansson, M.R. Andersson	n, H. Berggren, and L.								
Leonardson		Wetlands and lakes as nitrogen traps	Ambio 23(6), pp. 320-325	1994	0	Reviews	0	0	0

Nitrogen Attenuation Literature								
				Electronic copy	Wetland	Climate similar or		
Authors	Title	Citation	Year	provided?	type	same as MA?	Size	Depth
		Report prepared for the					1	
Johnston C. T. Johnson M. Kuehl D. Taylor and		Environmental Protection Agency						
I Westman	The affects of freshwater wetlands on water quality: a compilation of literature values	November 15, 1000	1000	Throughout US	Reviews	1	0	0
J. Westman	Sediment and nutrient retention by freshwater wetlands: affacts on surface water	Critical Reviews in Environmental	1770	Throughout 05	KCVICW5	1	U	U
Johnston C A	auglity	Control 21(5.6) pp. 491-565	1001	0	Doviows	1	0	0
Johnston, C.A.	quanty	Control 21(3,0), pp. 491-303 Ch. 30 in Constructed Wetlands for	1991	U	Keviews	L	U	U
		Water Quality Improvement CA						
		Mashini Ed Lamis Dublishons Dago						
Liberton C.A.	Markanian franklandan and kan and kan adalah	Mosniri, Ed. Lewis Publishers Doca	1002	0	D	1	•	0
Johnston, C.A.	Mechanisms of wetland water quality interaction	Raton	1993	U	Reviews	1	U	0
		Critical Reviews in Environmental	1001		. .			
Reddy, K.R. and W.H. Patrick	Nitrogen transformations and loss in flooded soils and sediments	Control 13(4), pp. 273-302	1984	0	Reviews	1	0	0
		Cn. 8 in Environmental Chemistry of						
		Lakes and Reservoirs. LA Baker, Ed.						
		Advances in Chemistry Series #237.						
		American Chemical Society,						
Stoddard, J.L.	Long-term changes in watershed retention of nitrogen	Washington, DC.	1994	0	Reviews	1	0	0
		Prepared for Christine Conn						
		Maryland Department of Natural						
Straughan Environmental Services Inc.	Literature Review: Nitrogen Sequestration in Headwater Streams	Resources	2003	1	Reviews	1	0	0
vanBreeman, N., E.W. Boyer, C.L. Goodale, N.A.								
Jaworski, K. Paustian, S.P. Seitzinger, K. Lajtha, B								
Mayer, D. VanDam, R. Howarth, K.J. Nadelhoffer,	Where did all the nitrogen go? Fate of nitrogen inputs to large watersheds of the							
M. Eve, and G. Billen	northeastern USA	Biogeochemistry 57/58, pp. 267-293	2002	1	Reviews	1	1	0
Addy, K., D.Q. Kellog, A.J. Gold, P.M. Groffman,		Journal of Environmental Quality 31,						
G. Ferendo and C. Sawer	In situ push-pull method to determine ground water denitrification in riparian zones	pp. 1017-1042.	2002	1	Riparian Zones	1	1	0
Burns, D.A.	Retention of NO3- in an upland stream environment: a mass balance approach	Biogeochemistry 40, pp. 73-96	1998	1	Riparian Zones	1	1	0
		Journal of Environmental Quality 30,			•			
Casey, R.E. and S.J. Klaine	Nutrient attenuation by a riparian wetland during natural and artificial runoff events	pp. 1720–1731	2001	1	Riparian Zones	0	1	0
	Linking the hydrologic and biogeochemical controls of nitrogen transport in near-				F			
Cirmo, C.P., and J.J. McDonnell	stream zones of temperate -forested catchments: a review.	Journal of Hydrology 199, pp. 88-120	1997	1	Riparian Zones	1	0	0
		••••••••••••••••••••••••••••••••••••••		_				
Forshav, K. I. and F. H. Stanley	Ranid nitrate loss and denitrification in a temperate river floodplain	Biogeochemistry 75, pp. 43-64	2005	1	Rinarian Zones	1	1	0
Gold A J. P.M. Jacinthe W.R. Wright and R.H.		Journal of Environmental Quality 27	2000	-	Tupur lun Bones	-	-	•
Puffer	Patchiness in groundwater nitrate removal in a rinarian forest	nn 147-155	1008	1	Rinarian Zones	1	1	1
Kellog D.O. A.I. Gold P.M. Groffman K. Addy	In-situ ground water denitrification in stratified nermeable soils underlying riparian	Journal of Environmental Quality 34	1770	1	Alparian 20105	1	-	1
H Stolt and C Blazeiewski	water activity in the strained, permease sons underlying riparian	nn 524-533	2005	1	Rinarian Zones	1	1	0
Mander II V Kuusements D Lohmus and T	wettanus.	pp. 324-335	2003	1	Kiparian Zones	1	-	U
Mauring	Ffficiency and dimensioning of rinarian huffer zones in agricultural catchmonts	Ecological Engineering 8 nn. 200.324	1997	1	Rinarian Zones	1	Ω	A
	Rinarian Ruffer Width Vegetative Cover and Nitrogen Removal Effectiveness: A	Ecological Englicering 6, pp. 299-324	1771	1	Niparian Zones	1	v	v
Mover DM SK Devolds and TI Confield	Daview of Current Science and Degulations	EDA 600/D 05/118 October	2005	1	Dinarian Zanas	1	1	1
wayer, five, SK Reynolus, and 15 Califield.	Nutrient and hydrologie hudgets of a Creat Lakes exacted fushwater wetland during a	E1 A 000/K-05/110, October, Wotlands Faalagy and Management	2005	1	Ripartali Lolles	1	1	1
Mitsah W L and Deader P. C.	nutrient and nyurologic budgets of a Great Lakes coastal freshwater wetland during a	1(4) nr 211 222	1002		Dimension Zerrer	4		
Mitsen, W.J. and Reeder, B. C.	arougnt year	1(4), pp. 211-222	1992	1	Kiparian Zones	1	1	1
		Journal of Applied Ecology 30, pp.	1000		N . 7		_	
Pinay, G., Roques, L., and A. Fabre	Spatial and temporal patterns of denitrification in a riparian forest	581-591	1993	1	Riparian Zones	1	0	0

Nitrogen Attenuation Literature								
				Electronic copy	Wetland	Climate similar or		
Authors	Title	Citation	Year	provided?	type	same as MA?	Size	Depth
Rosenblatt, A.E., A.J. Gold, M.H. Stolt, P.M.		Journal of Environmental Ouality 30.						
Groffman, and D.O. Kellog	Identifying riparian sinks for watershed nitrate using soil surveys	pp. 1596-1604	2001	1	Riparian Zones	1	0	0
 Vought, L.B-M., J. Dahl, C.L. Pedersen, and J.O.					1 · · · · · ·		-	
Lacoursiere	Nutrient retention in riparian ecotones	Ambio 23(6), pp. 342-347	1994	0	Riparian Zones	1	1	0
		Proceedings of the National Academy			1			
Bertness, M.D., P.J. Ewanchuk, and B.R. Silliman.	Anthropogenic Modification of New England Salt Marsh Landscapes.	of Science 99:1395-1398.	2002	1	Salt Marshes, Mudflats	1	1	0
 Emery, N, P Ewanchuk, and MD Bertness. Ecology	Competition and salt-marsh plant zonation: stress tolerators may be dominant							
82(9): 2471-2485.	competitors.	Ecology 82(9): 2471-2485.	2001	1	Salt Marshes, Mudflats	1	1	0
	Shoreline Development Drives the Invasion of Phragmites australis and the Loss of							
Silliman, B. R. and M. D. Bertness.	New England Salt Marsh Plant Diversity.	Conservation Biology 18: 1424- 1434	2004	1	Salt Marshes, Mudflats	1	1	0
Wigand, C., McKinney, R., Chintala, M.,	Relationships of nitrogen loadings, residential development, and physical							
Charpentier, M., and G. Thursby.	characteristics with plant structure in New England salt marshes.	Estuaries 26(6): 1494-1504	2003	1	Salt Marshes, Mudflats	1	1	1
 Addy, K., A. Gold, B. Nowicki, J. McKenna, M.	Denitrification capacity in a subterranean estuary below a Rhode Island fringing salt							
Stolt, and P. Groffman	marsh.	Estuaries 2(6), pp. 896-908	2005	1	Salt Marshes, Mudflats	1	1	1
	Seasonal variation in denitrification and dissolved nitrogen fluxes in intertidal	Marine Ecology Progress Series 202,			,			
Cabrita, M.T. and V. Brotas	sediments of the Tagus estuary, Portugal	pp. 51-65	2000	1	Salt Marshes, Mudflats	0	1	1
 Dausse, A., Merot, P., Bouzille, JB., Bonis, A., and	Variability of nutrient and particulate matter fluxes between the sea and a polder after	Estuarine, Coastal, and Shelf Science						
JC. Lefeuvre	partial tidal restoration, Northwestern France	64, pp. 295-306	2005	1	Salt Marshes, Mudflats	1	1	1
		/ 1 1			,			
Davis, J.L., Nowicki, B., and C. Wigand	Denitrification in fringing salt marshes of Narragansett Bay, Rhode Island, USA	Wetlands 24(4), pp. 870-878	2004	1	Salt Marshes, Mudflats	1	1	0
	Microbial growth and nitrogen retention in litter of Phragmites australis compared to				,			
Findlay, S.E.G., S. Dye, and K.A. Kuehn	Typha augustifolia	Wetlands 22(3), pp. 616–625	2002	1	Salt Marshes, Mudflats	1	1	1
	Contribution of denitrification to nitrogen, carbon, and oxygen cycling in tidal creek	Marine Ecology Progress Series 262.						
Hamersley, M.R. and B.L. Howes	sediments of a New England salt marsh	nn. 55-69	2003	1	Salt Marshes, Mudflats	1	1	1
	Nitrogen fluxes and mitigation strategies in the Audubon Skunknett River Wildlife	Report to the Town of Barnstable		_	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			_
Hamersley, M.R. and B.L. Howes	Sanctuary	April 27, 2004	2004	0	Salt Marshes, Mudflats	1	1	1
 	~~~~y	<b>F</b>		-	~			
		Pp. 287-310 in Nordstrom, K.F. and						
		C.T. Roman, eds. Estuarine Shores:						
Howes, B.L., Weiskel, P.K., Goehringer, D.D., and	Interception of freshwater and nitrogen transport from uplands to coastal waters: the	Environmental and Human						
J.M. Teal	role of salt marshes	Alterations. John Wiley and Sons Ltd	1996	0	Salt Marshes, Mudflats	1	1	1
		Soil Science Society of America			,			
Hussein, A.H. and M.C. Rabenhorst	Modeling of nitrogen sequestration in coastal salt marsh soils	Journal 66, pp. 324-330	2002	1	Salt Marshes, Mudflats	0	1	0
		Estuarine, Coastal and Shelf Science						
Jordan, T.E., Correll, D.L., and D.F. Whigham	Nutrient flux in the Rhode River: tidal exchange of nutrients by brackish marshes	17, pp. 651-667	1983	1	Salt Marshes, Mudflats	0	1	1
		Limnology and Oceanography 24(4),			, 			
Kaplan, W., Valiela, I., and J.M. Teal	Denitrification in a salt marsh ecosystem	рр. 726-734	1979	1	Salt Marshes, Mudflats	1	1	0
Mortimer, R.J.G, Davey, J.T., Krom, M.D., Watson,	The effect of macrofauna on the porewater profiles and nutrient fluxes in the intertidal	Estuarine, Coastal and Shelf Science			, 			
P.G., Frickers, P.E., and R.J. Clifton	zone of the Humber Estuary	48, pp. 683-699	1999	1	Salt Marshes, Mudflats	1	1	1
Mortimer, R.J.G., Krom, M.D., Watson, P.G.,	Sediment-water exchange of nutrients in the intertidal zone of the Humber Estuary,	Marine Pollution Bulletin 37(3-7), pp.						
Frickers, P.E., Davey, J.T., and R.J. Clifton	UK	261-279	1999	1	Salt Marshes, Mudflats	1	1	0
		Estuarine, Coastal and Shelf Science						
Owens, N.J.P. and W.D.P. Stewart	Enteromorpha and the cycling of nitrogen in a small estuary	17, pp. 287-296	1983	1	Salt Marshes, Mudflats	1	1	1
Portnoy, J., B.L. Nowicki, C.T. Roman, and D.W.	The discharge of nitrate-contaminated groundwater from developed shoreline to	Water Resources Research 34(2), pp.						
Urish	marsh-fringed estuary	3095-3104	1998	1	Salt Marshes, Mudflats	1	1	1
	Tidal time-scale variation in nutrient flux across the sediment-water interface of an	Estuarine, Coastal and Shelf Science						
Sakamaki, T., Nishimura, O., and R. Sudo	estuarine tidal flat	67, pp. 653-663	2006	1	Salt Marshes, Mudflats	0	1	1

Nitrogen Attenuation Literature								
				Electronic copy	Wetland	Climate similar or		
Authors	Title	Citation	Year	provided?	type	same as MA?	Size	Depth
Thompson, S.P., Paerl, H.W., and M.C. Go	Seasonal patterns of nitrification and denitrification in a natural and a restored marsh	Estuaries 18(2), pp. 399-408	1995	1	Salt Marshes, Mudflats	0	1	0
	Long-term 15N-nitrogen retention in the vegetated sediments of a New England salt	Limnology and Oceanography 39(8),			, , , , , , , , , , , , , , , , , , ,			
White, D.S. and B.L. Howes	marsh	рр. 1878-1892	1994	1	Salt Marshes, Mudflats	1	1	0
Ahlgren, I., F. Sorensson, T. Waara, and K. Vrede	Nitrogen budgets in relation to microbial transformations in lakes	Ambio 23(6), pp. 367-377	1994	0	Streams, Rivers, Lakes	1	1	1
Alexander, R.B., R.A. Smith, and G.E. Schwarz	Effect of stream channel size on the delivery of nitrogen to the Gulf of Mexico	Nature 403, pp. 758-761	2000	1	Streams, Rivers, Lakes	0	0	0
	Whole-system estimates of nitrification and nitrate uptake in streams of the Hubbard							
Bernhardt, E., R.O. Hall, and G.E. Likens	Brook experimental forest	Ecosystems 5, pp. 419-430	2002	1	Streams, Rivers, Lakes	1	1	0
Bernot, M.J. and W.K. Dodds	Nitrogen retention, removal, and saturation in lotic ecosystems	Ecosystems 8, pp. 442-453	2005	1	Streams, Rivers, Lakes	0	1	0
Boulton, A.J., S. Findlay, P. Marmonier, E.H.		Annual Review of Ecology and						
Stanley, and H.M. Valett	The functional significance of the hyporheic zone in streams and rivers	Systematics 29, pp. 59-81	1998	1	Streams, Rivers, Lakes	1	0	0
Boyer, E., C.L. Goodale, N.A. Jaworski, and R.W.	Anthropogenic nitrogen sources and relationships to riverine nitrogen export in the							
Howarth	Northeastern USA	Biogeochemistry 57/58, pp. 137-169	2002	1	Streams, Rivers, Lakes	1	1	0
	The role of ammonium and nitrate retention in the acidification of lakes and forested							
Dillon, P.J. and L.A. Molot	catchments	Biogeochemistry 11, pp. 23-43	1990	1	Streams, Rivers, Lakes	1	1	1
	Do dams and levees impact nitrogen cycling? Simulating the effects of flood alterations	Global Change Biology 11, pp. 1352-						
Gergel, S.E., S.R. Carpenter, and E.H. Stanley	on floodplain denitrification	1367	2005	1	Streams, Rivers, Lakes	0	1	0
	The long-term effects of disturbance on organic and inorganic nitrogen export in the							
Goodale, C.L., J.D. Aber, and W. McDowell	White Mountains, New Hampshire	Ecosystems 3, pp. 433-450	2000	1	Streams, Rivers, Lakes	1	1	0
		Journal of the American						
Grimm, N.B., R.W. Sheibley, C.L. Crenshaw, C.N.		Benthological Society 24(3), pp. 626-						
Dahm, W.J. Roach, and L.H. Zeglin	N retention and transformation in urban streams	642	2005	1	Streams, Rivers, Lakes	0	1	1
		Limnology and Oceanography 47(1),						
Hall, R.O., E.S. Bernhardt, and G.E. Likens	Relating nutrient uptake with transient storage in forested mountain streams	pp. 255-165	2002	1	Streams, Rivers, Lakes	I	1	1
Hamilton, S.K., J.L. Tank, D.F. Kaiko, W.M.	Nitrogen uptake and transformation in a Midwestern U.S. stream: a stable isotope		2001			0		
wollneim, B.J. Peterson, and J.K. webster	enrichment study	Biogeochemistry 54, pp. 297-340	2001	1	Streams, Rivers, Lakes	U	1	1
Hill A D and K Sanmugadag	Depituification notes in relations to stream adjuant characteristics	Water Decemb 10(12) pp. 1570 1586	1005	1	Stucoma Dimona Lakoa	1	1	1
Hill, A.R. and K. Sanmugadas	Dentrification rates in relations to stream sediment characteristics	Water Research 19(12), pp. 15/9-1580	1985	1	Streams, Rivers, Lakes	1	1	1
Hill A. D. D.C. F. Viden and I. Langet	Depituification notantial in relation to lithology in five headwater vinevien gauge	pp. 011 010	2004	1	Stroome Divore Lakes	0	1	0
Thii, A.K., I.G.F. Viuoli, and J. Langat	Dentri incation potentiar in relation to incloogy in rive neadwater riparian zones	pp. 911-919	2004	1	Streams, Kivers, Lakes	U	1	U
Jansson M.R. I. Leonardson and I. Feies	Denitrification and nitrogen retention in a farmland stream in couthern Sweden	Ambia 23(6) np. 326-331	100/	0	Strooms Rivers Lakes	1	1	1
Jansson M.R., L. Leonaruson, and J. Fejes	Nitrogen saturation and retention in the forested watersheds of the Catskill Mountains	Ecological Applications 10(1), pp. 73-	1))4	v	Streams, Kivers, Lakes	1	1	1
Lovett G.M. K.C. Weathers and W.B. Sobczak	New York	84	2000	1	Streams Rivers Lakes	1	1	1
Lovet, Gava, K.C. Weathers, and W.D. Sobezak	Regulation of nutrient concentrations in a temperate forest stream: roles of unland	Limnology and Oceanography 37(7)	2000	-	Streams, Kivers, Lakes	-	-	-
Mulholland P.J	ringerian and in-stream processes	nn. 1512-1526	1992	1	Streams Rivers Lakes	0	1	1
Mulholland, P.J., Tank, J.L., Sanzone, D.M.,		FF		-		3	-	
Wollheim, W.M., Peterson, B.J., Webster, J.R., and		Ecological Monographs 70(3), pp. 471-						
J.L. Mever	Nitrogen cycling in a forest stream determined by a 15-N tracer addition	493	2000	1	Streams, Rivers, Lakes	1	1	1
Peterson, B.J., W.M. Wollheim, P.J. Mulholland,				_		-	_	
J.R. Webster, J.L. Meyer, J.L. Tank, E. Marti,								
W.B. Bowden, H.M. Valett, A.E. Hershey, W.H.								
McDowell, W.K. Dodds, S.K. Hamilton, S. Gregory,								
and D.D. Morall	Control of nitrogen export from watersheds by headwater streams	Science 292, pp. 86-90	2001	1	Streams, Rivers, Lakes	1	0	0

Nitrogen Attenuation Literature								
				Electronic copy	Wetland	Climate similar or		
Authors	Title	Citation	Year	provided?	type	same as MA?	Size	Depth
Rysgaard, S., Risgaard-Petersen, N., Sloth, N.P.,		Limnology and Oceanography 39(7),						
Jensen, K., and Nielsen, L.P.	Oxygen regulation of nitrification and denitrification in sediments	рр. 1643-1652	1994	1	Streams, Rivers, Lakes	0	0	0
Saunders, D.L. and J. Kalff	Nitrogen retention in wetlands, lakes, and rivers	Hydrobiologia 443, pp. 202-212	2001	1	Streams, Rivers, Lakes	1	0	0
Seitzinger S.P., R.V. Styles, E.W. Boyer, R.B.								
Alexander, G.H. Billen, R.W. Howarth, B. Mayer,	Nitrogen retention in rivers: model development and application to watersheds in							
and N. Van Breeman	northeastern USA	Biogeochemistry 57/58, pp. 199-237	2002	1	Streams, Rivers, Lakes	0	0	0
Tank, J., J.L. Meyer, D.M. Sanzone, P.J.								
Mulholland, J.R. Webster, B.J. Peterson, W.L.	Analysis of nitrogen cycling in a forest stream during autumn using a 15-N tracer	Limnology and Oceanography 45(5),						
Wollheim, and N.E. Leonard	addition	рр. 1013-1029	2000	1	Streams, Rivers, Lakes	0	1	1
Willet, V.B., B.A. Reynolds, P.A. Stevens, S.J.		Journal of Environmental Quality 33,						
Ormerod, and D.L. Jones	Dissolved organic nitrogen regulation in fresh waters	рр. 201-209	2004	1	Streams, Rivers, Lakes	1	1	1
Windolf, J., E. Jeppesen, J.P. Jensen, and P.	Modelling of seasonal variation in nitrogen retention and in-lake concentration: a four-							
Kristensen	year mass balance study in 16 shallow Danish lakes.	Biogeochemistry 33(1), pp. 25-44	1996	1	Streams, Rivers, Lakes	1	1	1
Wollheim, W.M., B.J. Peterson, L.A. Deegan, J.E.								
Hobbie, B. Hooker, W.B. Bowden, K.J. Edwardson,		Limnology and Oceanography 46(1),						
D.A. Arscott, A.E. Hershey, and J. Finlay	Influence of stream size on ammonium and suspended particulate nitrogen processing	рр. 1-13	2001	1	Streams, Rivers, Lakes	0	1	1

Water	Soil	Sediment	Sediment	Sediment	Grain	Stream	Vegetation	Vegetation	Vegetation	Vegetation	Wildlife		Redox										
Volume	Туре	Volume	Depth	Drganic Matte	Size	Sinuosity	Taxa	Abundance	Density	Diversity	Types	Eutrophic	Potential	DO	BOD	Total N	NHx	NO3	ТР	Pathogens	Contaminants	Sunny	Windy
0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0
0	1	0	0	1	1	0	1	1	0	0	0	0	0	1	0	1	1	1	1	0	0	0	0
0	1	0	0	I	1	U	1	1	0	0	U	0	0	1	U	1	1	1	1	U	U	U	U
0	1	0	0	1	1	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0
0	1	0	1	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	1	0	0	0	0
0	1	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0
1	1	0	1	0	0	0	1	0	0	0	0	1	0	0	0	1	1	1	1	0	0	0	0
0	1	0	1	0	0	0	1	1	0	0	0	1	0	0	0	1	1	1	1	0	0	0	0
1	1	0	0	1	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0	0
1	0	0	0	0	0	0	1	1	1	0	0	1	0	0	1	1	0	0	1	0	0	0	0
1	0	0	0	0	0	0	1	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0
0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0
1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
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1	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0
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1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0
1	1	0	0	0	0	0	1	0	0	0	0	1	0	1	1	1	1	1	1	1	1	0	0

Water	Soil	Sediment	Sediment	Sediment	Grain	Stream	Vegetation	Vegetation	Vegetation	Vegetation	Wildlife		Redox										
Volume	Туре	Volume	Depth	Organic Matte	Size	Sinuosity	Taxa	Abundance	Density	Diversity	Types	Eutrophic	Potential	DO	BOD	Total N	NHx	NO3	ТР	Pathogens	Contaminants	Sunny	Windy
0	0			0	0			0	0	0	0		0								-	0	
U	U	U	U	U	0	U	1	U	U	0	U	1	U	1	1	1	1	1	1	1	1	0	U
0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	1	1	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
U	0	U	U	U	0	U	1	U	0	U	U	U	U	U	U	1	U	U	U	U	0	U	U
0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0
1	1	0	1	0	0	0	1	0	0	0	0	1	0	1	1	1	1	1	0	0	0	0	0
0	1	0	0	0	0	0	1	0	0	0	0	1	0	1	0	1	1	1	0	0	0	0	0
U	1	U	U	U	U	U	1	U	U	U	U	1	U	1	U	1	1	1	U	U	0	U	U
0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	1	1	1	1	0	0	0	0
1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0
1	U	U	U	U	U	U	1	U	U	U	U	U	U	1	1	1	1	1	1	1	U	U	U
1	1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	0	0	0	0	some	0	0	1	1	1	1	1	0	0	0	0
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1	1	1	1	0	1	0	1	1	1	0	0	0	0	0	COD	1	1	1	0	0	0	0	0
1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	1	1	0	0
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0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	0	1	1	1	1	0	0	0	0

Water	Soil	Sediment	Sediment	Sediment	Grain	Stream	Vegetation	Vegetation	Vegetation	Vegetation	Wildlife		Redox										
Volume	Туре	Volume	Depth	Drganic Matte	Size	Sinuosity	Taxa	Abundance	Density	Diversity	Types	Eutrophic	Potential	DO	BOD	Total N	NHx	NO3	ТР	Pathogens	Contaminants	Sunny	Windy
1	1	0	0	1	0	0	1	1	1	1	0	0	0	1	1	1	1	1	0	1	0	0	0
0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0
v	-	V	•	v	U	v	-	U	•	0	v	v	v	-	-	-	-	-	-	v	Ū	v	
0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Ŭ	Ū	0	•	Ŭ	Ū	v	Ū	0	0	0	0	v	v	v	0	v	v	-	v	0	•	•	-
1	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
1	0	0	1	0	0	0	1	0	0	0	0	1	0	0	1	1	0	0	1	1	0	0	0
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					0	0			0	0		0	0	0					0	0	0		
1	1	0	U	1	U	U	1	1	U	U	U	U	U	0	1	1	1	1	U	U	U	U	0
0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	COD	1	1	1	1	1	1	0	0
v	v	v	•	v	0	v		0	0	0	v	v	v	U	COD	-	-	-	-	-	1	U	0
0	1	0	0	0	0	0	1	1	1	0	0	1	0	0	0	1	1	1	0	0	0	0	0
				0	0					0		0	0	0					0	0	0	0	
U	1	U	U	U	U	U	1	1	1	U	U	U	U	U	U	1	1	1	U	U	U	U	U
0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	0	0	0	0	0	0	4			0		0	0	•	•	1	•	•	1	0	0	0	•
U	U	U	U	U	U	U	1	1	1	U	U	U	U	U	U	1	U	U	1	U	U	U	U
0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	1	1	0	0	0	0
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0	1	1	1	1	1	0	1	1	0	1	0	0	0	0	0	1	1	1	1	0	0	0	0
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1	1	1	1	0	1	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0

Water	Soil	Sediment	Sediment	Sediment	Grain	Stream	Vegetation	Vegetation	Vegetation	Vegetation	Wildlife		Redox										
Volume	Туре	Volume	Depth	Organic Matte	Size	Sinuosity	Taxa	Abundance	Density	Diversity	Types	Eutrophic	Potential	DO	BOD	Total N	NHx	NO3	ТР	Pathogens	Contaminants	Sunny	Windy
1	1	1	1	1	1	0	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	0
1	1	-	1	1		0	0	0	Ū	v	0	-	v			U	-	-	v	v	v		
1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	1	1	1	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0
0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
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0	1	0	1	1	1	0	1	0	0	0	1	1	1	1	0	1	0	1	1	0	0	0	0
1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	1
0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0
0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	0	•	0	0	0	0	-	0	0	0	0	0	Ŭ	0	•	-	•	v	v	0	0		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	U	v	0	0	U	U	1	1		0	U	U	v	U	U		1	1	U	v	v		U
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	1	U	U	U	U	U	0	U
								0												0	0		
1	1	1	1		1	0	1	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
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0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0
0	1	0	1	1	1	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0

Water	Soil	Sediment	Sediment	Sediment	Grain	Stream	Vegetation	Vegetation	Vegetation	Vegetation	Wildlife		Redox									+	
Volume	Туре	Volume	Depth	Organic Matte	Size	Sinuosity	Taxa	Abundance	Density	Diversity	Types	Eutrophic	Potential	DO	BOD	Total N	NHx	NO3	ТР	Pathogens	Contaminants	Sunny	Windy
0	1	0	1	1	0	0	1	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	1	1	1	-	U	1	0	0	0	U	U	U	U	U	1	1	1	U	0	v		U
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	U	1	U	U	U	1	1	U	U	U	U	U	U	U	1	1	1	U	U	U	-	0
0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
1	1	0	0	1	0	0	1	1	0	1	0	0	1	0	0	1	0	1	0	0	0	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
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U	1	U	0	1	U	U	1	U	U	U	U	U	U	U	U	1	1	1	U	U	U		U
1	1	1	1	0	1	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0
0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	•	1	1	1	0	0	0	0	0
0	1	U	0	U	U	U	1	1	1	U	U	U	U	U	U	1	1	1	U	U	U		U
0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0
0	1	0	0	0	Δ	0	1	1	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	v	0	v	0	U	1	-	1	0	U	U	U	U	U	1	1	1	U	0	v		U
0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0
0	1	0	1	0	0	0	1	0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	0
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	1	0	0	1	0	0	1	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0
0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0

																							+
Water	Soil	Sediment	Sediment	Sediment	Grain	Stream	Vegetation	Vegetation	Vegetation	Vegetation	Wildlife		Redox									-	
Volume	Туре	Volume	Depth	Organic Matte	Size	Sinuosity	Taxa	Abundance	Density	Diversity	Types	Eutrophic	Potential	DO	BOD	Total N	NHx	NO3	ТР	Pathogens	Contaminants	Sunny	Windy
0	0	0	1	0	•	0	1		-	0		0	0	0	•			•	1	0	0	•	•
U	U	U	1	U	U	U	1	1	1	U	U	U	U	U	U	1	U	U	1	U	U	0	U
1	1	1	1	1	1	0	1	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0
1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
1	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	•	0
1	1	U	U	1	U	U	1	U	U	U	U	U	U	U	U	1	1	1	1	U	U	0	U
0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	1	0	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	DO4	0	0	•	•
0	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	1	1	1	PO4	U	U		U
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0		•
U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0	U
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		, ,	<u> </u>		, v	0			0		0					1	1	1	0	0			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0

Water	Soil	Sediment	Sediment	Sediment	Grain	Stream	Vegetation	Vegetation	Vegetation	Vegetation	Wildlife		Redox										-
Volume	Туре	Volume	Depth	Drganic Matte	Size	Sinuosity	Taxa	Abundance	Density	Diversity	Types	Eutrophic	Potential	DO	BOD	Total N	NHx	NO3	TP	Pathogens	Contaminants	Sunny	Windy
0	0	0		0	0	0	0	0	0	0	0				•	1	1	1	1	1	1	•	0
U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	1	1	1	1	1	1	U	U
0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
	-																						
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
v	U	U	U	U	U	U	U	U	0	0	U	U	v	U	U	-	1	1	U	U	0	U	U
0	0	0	0	0	0	0	0	0	0	0	0	0	•	0	0	1	1	1	•	0	0	0	0
U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	1	1	1	U	U	U	U	U
0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0
0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	0	1	1	1	0	1	0	0	0	0	0	0	0	0	1	1	1	PO4	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0
				_			_																
1	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0
0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
	1	0	0	•	0	0	1	0	0	0	0	•			•	•		0	1	0	0	•	•
	1	U	U	U	U	U	1	U	U	U	U	U	U	U	U	U	U	U	1	U	U	U	U
0	1	0	1	0	1	0	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0

Water	Soil	Sediment	Sediment	Sediment	Grain	Stream	Vegetation	Vegetation	Vegetation	Vegetation	Wildlife		Redox										
Volume	Туре	Volume	Depth	Drganic Matte	Size	Sinuosity	Taxa	Abundance	Density	Diversity	Types	Eutrophic	Potential	DO	BOD	Total N	N NHx	NO3	TP	Pathogens	Contaminants	Sunny	Windy
0	0	0	0	1	1	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
U	U	0	0	0	U	0		U	U	0	U	U	0	U	U	1	U	U	U	U	U	0	0
0	1	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0
0	1	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	1	1	0	0	0	0
0	1	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0
0	1	0	1	1	1	0	1	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0
1	1	0	0	1	1	0	1	1	1	0	0		0	1	0	1	1	1	PO4	0	0	0	0
1	0	0	0	ganic suspend	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
1	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	1	1	1	0	0	0	0
0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0
1	1	1	1	1	1	0	1	0	0	1	1	0	0	1	1	1	1	1	0	0	0	0	0
1	1	0	0	1	0	0	1	0	1	0	0	1	0	0	0	1	1	1	PO4	0	0	0	0
0	1	0	1		1	0	1	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	0	1	0	1	0	1	1	U	0	U	U	0	U	U	1	1	1	U	U	U	U	
0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
1	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	1	1	1	1	0	0	0	0
1	1	1	1	0	0	0	1	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0
1	1	1	1	0	1	0	1 (fauna)	1 (fauna)	1 (fauna)	0	1	0	1	0	0	0	1	1	(PO4	0	0	0	0
0	1	0	1	1	1	0	0	0	0	0	0	0	1	0	0	1	1	1	and P	0	0	0	0
0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0
0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
1	1	1	1	1	1	0	1 (fauna)	1 (fauna)	1 (fauna)	0	1	0	0	1	0	0	1	1	(PO4	0	0	1	0

Water	Soil	Sediment	Sediment	Sediment	Grain	Stream	Vegetation	Vegetation	Vegetation	Vegetation	Wildlife		Redox										
Volume	Туре	Volume	Depth	Drganic Matte	Size	Sinuosity	Taxa	Abundance	Density	Diversity	Types	Eutrophic	Potential	DO	BOD	Total N	NHx	NO3	ТР	Pathogens	Contaminants	Sunny V	Windy
0	1	1	1	1	1	0	1	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0
1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
													•				-	-					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0
1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
								0	0		0	0	0	•	0		•	•	•		0		
U	U	U	U	1	1	1	1	U	U	U	U	U	U	U	U	1	U	U	U	U	U	0	0
1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	0	0	0	0	0	ſ	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0
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1	1	1	0	1	0	0	1	1	0	0	1	0	0	0	0	1	1	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0

																							_
Water	Soil	Sediment	Sediment	Sediment	Grain	Stream	Vegetation	Vegetation	Vegetation	Vegetation	Wildlife		Redox										
Volume	Туре	Volume	Depth	<b>Drganic Matte</b>	Size	Sinuosity	Taxa	Abundance	Density	Diversity	Types	Eutrophic	Potential	DO	BOD	Total N	NHx	NO3	TP	Pathogens	Contaminants	Sunny	Windy
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0
1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0
			-								_		-										-
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	0	0	0	0
0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0

Hadaalaata Daataa (									
Hydrologic Regime/		n · 1		F1 1.		XX7 4			
Groundwater	Sancon	Time	Tidal	Flushing	Alr	water	Calinita	A nun atata d 2	Notos
Depti	Scason	Time	Tidai	Kate	Temp	Temp	Sannity	Annotated:	Notes
Plant nutrients no water									
measures	year round	0	0	0	0	0	0	0	Also measured plant N, P uptake, resorption, decomposition.
Surface and near			_	_	_	_	_	-	
subsurface	September-October	0	0	0	0	0	0	0	
			_	_	_			-	Part 1: Seasonal Study of O2, PO4, NO3, NH4, DOC in alder fen
Subsurface, surface	year round	0	0	0	0	1	1	0	and stream
			_	_	_	_	_	-	Part 2: Seasonal Study of Denitrification, sedimentation, and an N
Subsurface, surface	year round	0	0	0	0	0	0	0	& P Budget for an alder fen and stream
			_	_	_	_		_	
Surface vegetation	year round	0	0	0	0	0	0	0	Looks at annual net primary production due to nutrient limitation
			_	_	_	_		_	
bog groundwater	year round	0	0	0	0	0	0	0	
Generally wet but not									
completely covered with	Ten irrigation cycles								
water throughout	during the year	1	0	0	0	0	0	1	Also looked at denitrification
Subsurface water	year round	0	0	0	0	0	0	0	Reported average N, NO3, P, PO4 values
Bog groundwater	spring, summer, fall	0	0	0	0	1	0	0	Nutrient cycling in pristine/eutrophic cedar bogs
Bog groundwater, surface									
water	Year round	0	0	0	0	0	0	0	
Surface water	Year round	1	0	0	0	1	1	1	
Surface water	Year round	1	0	0	0	0	0	1	
	year round 28-mo								
	study with a series of								
NA - microcosms	20-day incubations	0	0	0	1	1	0	0	Also measured COD and DOC in water
Surface and near surface									Report gives data from a number of sampling events, plus
groundwater	year round	0	0	0	0	1	0	1	seasonal (winter vs. summer) averages over several years
Near surface	year round	0	0	0	0	0	0	0	
	Short-term studies								Evaluated percent nitrate retention during flowthrough studies
	during the growing								with low (3mg/l) and high (15 mg/l) nitrate nitrogen
Mesocosms - subsurface	season	0	0	0	0	0	0	1	concentrations
Surface water	summer	1	0	0	0	1	0	0	
Surface water	October-November	1	0	0	0	0	0	0	
									Electronic database with summary data from a variety of
Surface and subsurface	Annual estimates	1	0	0	0	0	0	1	treatment wetlands

Huduologia Dogima/									
nyurologic Kegime/		Desidence		Fluching	A :	Watan			
Groundwater	Seecon	Time	Tidal	Flushing	Alr	water	Solinity	Annotatad?	Notes
Deptii	Scason	Time	Tiuai	Kate	Temp	Temp	Samily	Annotateu:	10005
Surface water	Annual Estimates	1	0	0	1	1	0	1	
									Evaluated habitat use by wildlife in treatment wetlands, and
Surface and subsurface	Annual estimates	0	0	0	0	0	0	1	potential contamination of these by waterfowl
	various sampling								
	times throughout the								
Surface water	growing season	0	0	1	0	0	0	1	Also measured denitrification
Surface water	Summer	1	0	0	0	0	0	0	
Surface water	Summer	-	•	v	v	v	v	0	
Surface water	4 Seasons	0	0	0	0	0	0	1	
Subsurface	Growing season	1	0	0	0	0	0	1	
G . A	summer and winter								Looked at biodiversity and N retention in relation to various
Surface water	(Nov and July)	1	0	0	0	0	0	1	wetland characteristics
Surface water	Year round	1	0	0	0	0	0	0	
Surface - diverted river		-	v	v	v	v	v	•	
water	April-Sept	1	0	0	0	0	0	0	Also measured total suspended solids (TSS)
	· ·								Using a data summary from various other studies, evaluates the
									cost of removing nutrients using wetlands and compares with
Not given	Annual averages	0	0	0	0	0	0	1	septic treatment upgrades
Surface water	Not certain	0	0	0	0	0	0	0	
			v	v	v	v	v	•	Description of Constructed Wetland Systems, including nutrient
Subsurface and surface									retention, in EPA's North American Wetland Treatment System
water	Annual averages	0	0	0	0	0	0	1	Database
	Southern Hemisphere								Measured denitrification, water detention time and 15-N
Surface water	summer	1	0	0	0	0	0	0	detention time
Subsurface	Year round	1	0	0	1	1	0	0	
									EPA sponsored database of treatment wetlands throughout the
Various	Annual averages	1	0	0	0	0	0	0	northeast
Surface water	September-December	0	0	0	0	0	0	0	
Surface - diverted river	Year round, 10 year								Describes two experimental wetland systems, one planted with
water	study	1	0	0	1	1	0	1	macrophytes one not planted.

Hydrologic Regime/									
Groundwater		Residence		Flushing	Air	Water			
Depth	Season	Time	Tidal	Rate	Temp	Temp	Salinity	Annotated?	Notes
	year round; two year				-				
Surface water	study	1	0	0	0	0	0	0	
Surface water	Year round	0	0	0	0	0	0	0	
	tomps controlled to								
Sumface water	leafs of affact of town	1	0	0	1	1	•	1	
Surface water	Sont Oct Nov Doc	1	U	U	1	1	U	1	Also massured donitrification rate donitrification potential
aballow anoundwatan	sept, Oct, Nov, Dec,	0	0	0	0	coil tomp	0	1	Also measured demitrification rate, demitrification potential,
snanow groundwater	and June samples	U	U	U	U	son temp	U	1	
Surface water	vear round	1	0	0	1	1	0	1	
		_	-			_	-		
Surface water	July	1	0	0	0	0	0	0	
									Also measured hismoso of read superturness. Clusteric merime often
Funda a matan	Spring through Fall	•	0	0		0	•	0	Also measured biomass of reed sweetgrass, Giyceria maxima after
Surface water	Spring through ran	U	U	U	average	U	U	U	
	values for first vear								
	April-Sept in second								
Surface water	vear	1	0	0	0	0	0	0	
	j cui	-	v	0	v	v	v		
Surface water	Year round	1	0	0	0	0	0	0	
shallow groundwater	year round	0	0	0	1	0	0	0	
									Looked at nitrogen fixation by Alders and potential contribution
Near surface and surface	May-November	0	0	0	1	1	0	1	to N budgets
			_				_	_	Looked at nitrogen fixation by Alders and contribution to N
Near surface and surface	Summer	0	0	0	0	0	0	0	budgets for these wetlands
									Compared five species with respect to N and P accumulation over
<b>N</b> 7/A •	a • a	0	0	0	0	0		0	a growing season; also looked at decomposition rate over a 150-
N/A microcosms	Spring-Summer	U	U	0	U	U	U	U	day period
Surface or near curface	through mid								Watlands with high Alder density had about significant kinker NV2
groundwater	un ouogn milu- November 1988	0	0	0	0	0	0	0	accumulation than other wetlands
gioundwatci	1101011001 1700	U	U	U	U	U	U	U	
	One-time survey								
Not given	during growing season	0	0	0	0	0	0	1	
		Ŭ	•		Ŭ		v	-	
Estuarine water/sediments	year round	0	1	0	0	0	1	0	quantification of N and P conc. in fresh marsh sediments
									-
Estuarine water/sediments	spring, summer, fall	0	1	0	0	0	1	0	Lab/field experiment in Massachusetts
Estuarine sediments, water									
column	year round	0	1	1	1	1	1	0	Evaluates MA/RI estuarine sediments denitrification

1				1	1	1	1	1	
Hudnologia Dogimo/									
Croundwatan		Decidence		Fluching	A ;	Watan			
Denth	Season	Time	Tidal	Rate	Temn	Temp	Salinity	Annotated?	Notes
Depti	Stubbil	Time	Tiuai	Nate	Temp	Temp	Samity	Annotateu.	10005
Estuarine mud/sand flat	year round	0	1	1	0	1	1	0	UK study
Estuarine subtidal mudflat	year round	0	1	0	0	1	1	0	Chesapeake Bay
	Various studies; sampling dates not								
Estuarine water/sediments	given	0	1	0	0	1	1	0	
Estuarine water/sediments	July	0	1	0	0	0	0	0	
Estuarine water/sediments	year round	0	1	0	1	1	1	1	Review of denitrification rates in various aquatic ecosystems
		0	0						
Estuarine water/sediments	3 month, June start	0	0	1	1	1	1	1	Lab microcosm experiment to model Narragansett Bay
Plant material	year round 3 year	U	U	U	1	U	U	1	Quantified plant nutrient efficiencies
Near surface	study	0	0	0	0	0	0	0	
Not given	Annual estimates	0	0	0	0	0	0	0	
NA - model	N/A - model	0	0	0	0	0	0	0	
									Discusses mechanisms underlying response of forest ecosystems to
NA - review article	0	0	0	0	0	0	0	0	increased nitrogen input
									Validated model with data from Hubbard Brook and Harvard
NA - model	N/A - model	0	0	0	0	0	0	0	forest
									Discusses mechanisms underlying response of forest ecosystems to
NA - review article	0	0	0	0	0	0	0	1	increased nitrogen input
	controlled environment - 11degrees C to simulate spring and fall groundwater								
Near surface	temps	0	0	0	1	1	0	1	Also measured soil organic carbon, denitrification rates
									Looked at nitrate immobilization in various soil types (conifer
Near surface	September	0	0	0	0	0	0	0	forest vs. hardwood)
Near surface	Summer and Fall	0	0	0	1	0	0	0	
Near surface	growing season	0	0	0	1	1	0	1	
Near surface	year round	0	0	0	0	0	0	0	N budgets, N Retention
Noon mufo oo	Veen nound		0		•				Soli U and IN in various stands, some of which had been in
inear surface	i ear round	U	U	0	0	U	0	U	agricultural use

Hydrologic Regime/									
Groundwater		Residence		Flushing	Air	Water			
Depth	Season	Time	Tidal	Rate	Temp	Temp	Salinity	Annotated?	Notes
Noor surface	voor round 4 vr study	0	0	0	0	0	0	0	
Near surface	year round 4-yr study	U	U	U	U	U	U	U	Annual carbon and nitrogen budgets for nine and Oak -
Near surface	Year round	0	0	0	0	0	0	0	dominated stands at Harvard Forest
	short experiments	v	v	v	v	v	v	0	
	during the warm								
Near surface	season	0	0	0	0	0	0	0	
									Overview article - potentially useful for background information
N/A	N/A	0	0	0	0	0	0	0	on nitrogen saturation, retention, and leaching in forests
									Sampled nitrate removal in a constructed wetland serving a
Near surface	Summer	0	0	0	0	0	0	0	summer campground
Various; mostly near-									Developed nitrogen budgets for 16 forests in the northeast using
surface	various studies	0	0	0	nual aver	0	0	0	both empirical data and a model
Near surface	October-November	0	0	0	0	0	0	1	
									Located in Louisiana - different climate; measured denitrification
									potential; found it was significantly higher in natural wetlands
Surface and near surface	Year round	0	0	0	0	0	0	1	than in restored ones.
	Year round multi-year	_							Annual input-output N budgets for a number of lakes in the
Surface water	study	1	0	0	0	0	0	0	Adirondacks
forested wetland, fen/bog	year round	0	0	0	1	0	0	1	Swedish forest NO3 retention
Naan guufaaa	A	0	•	0	0	0	0	0	Used USGS discharge data to look at correlation between N
Near surface	Annual averages	U	U	U	U	U	U	U	discharge and elevation, runoit volume, and watersned area
	Annual averages 0								
Near surface	voar study	0	0	0	0	0	0	0	
stream, soil, and	year study	U	U	U	U	U	U	0	Watershed NO3 chemistry, upland nitrification and transport to
groundwater	vear round	0	0	0	1	0	0	1	streams
groundator	Year round multi-year		, ,	Ŭ	-		•	-	
Near surface	study	0	0	0	0	0	0	0	
								-	
Forested stream	year round	0	0	0	0	0	0	0	Soil N chemistry in forested watershed
	Year round multi-year								
Near surface	study	0	0	0	0	0	0	0	
Near surface	vear round	0	0	0	1	1	0	0	
	<b>J</b>								
Near surface	vear round	0	0	0	1	1	0	1	
	*								Measured denitrification enzyme activity and sediment organic
Near surface	Summer	0	0	0	1	0	0	1	matter and root decomposition rate in pine and red maple stands
Near surface			0	0	0	0	0	1	
Near surface	July	1	0	0	1	1	0	1	
Sediment porewater	NOV-DEC	0	0	0	0	1	0	0	Denitrification rates/percentage use in fresh marsh soils

Hydrologic Regime/									
Groundwater	Cooger	Residence	<b>T</b> 1 1	Flushing	Air	Water	<b>G 1</b> 14	4 4 4 19	Natas
Depth	Season	Time	Tidal	Rate	Temp	Temp	Salinity	Annotated?	Notes
Plant material	year round	0	0	0	0	0	0	0	Study on N & P use in Carex
Near surface		0	0	0	0	0	0	1	
Shallow groundwater	year round	1	1	1	1	1	1	0	Estimates of N attenuation in streams and ponds; measures N flux from sediments in coastal ponds
	year round; two year								
Surface and near-surface	study	0	0	0	0	0	0	0	
Near surface	Vear round	0	0	0	0	0	0	0	
Tidal marsh: measured	I car I bunu	0	v	v	U	0	Ū	0	
groundwater near surface	Year round	1	1	1	1	1	1	1	
0	Dec-June monthly								
Groundwater near surface	samples	0	0	0	0	0	0	1	
Modeled riverine/riparian									Looked at 6 different models and evaluates error and accuracy of
systems	0	0	0	0	0	0	0	0	prediction of total N and nitrate export
NA - model	NA Model	0	0	0	0	0	0	1	
Near surface		0	0	0	0	0	0	0	
Not given	0	0	0	0	0	0	0	1	
NA - model	0	0	0	0	0	0	0	0	
Not given	0	0	0	0	0	0	0	0	
Not given	0	0	0	0	0	0	0	0	
Not given	0	0	0	0	0	0	0	0	
Peat	0	U	U	U	U	U	U	U	
porewater/groundwater,									
lake water column	year round	0	0	0	0	1	0	0	Nitrogenase activity used to quantify N fixation
Noor surface and surface	Annual astimatos	0	0	0	0	0	0	0	Overview of nitrogen cycling in various types of freshwater
	minual confidences	U	U	U	U	U	U	U	weitanu
N/A Review article	N/A	0	0	0	0	0	0	0	
N/A Review article	0	0	0	0	0	0	0	0	A review of nutrient (N) in wetlands
Various	0	0	0	0	0	0	0	1	

Hydrologic Regime/									
Groundwater	0	Residence		Flushing	Air	Water	a		
Depth	Season	Time	Tidal	Rate	Тетр	Тетр	Salinity	Annotated?	Notes
Various	Annual averages	0	0	0	0	0	0	1	Review of data on freshwater wetland retention of nutrients and
v ul louis	rimuur uver uges	0	v	v	v	v	v	-	Looked at mechanisms of N uptake and storage in freshwater
Surface and near surface	Annual averages	0	0	0	0	0	0	1	wetland
NA - review article	N/A	0	0	0	0	0	0	0	Overview of nitrogen uptake in plants, leaching and litterfall loss, net annual retention, and percent retention for various types of wetlands (fen. bog. wet tundra)
		0	Ŭ	v	•	v		0	Review article, discusses N transformations and losses in hydric
N/A - review article	0	0	0	0	0	0	0	0	soils. Discusses the role of roots in redox potential; also derives first-order rate coefficients for nitrification and denitrification in various soil types at different temps
IVA - Itview article	0	U	U	U	U	U	U	0	various son types at unrerent temps
Various	Annual Average	0	0	0	0	0	0	1	Discusses long-term changes in N retention using long-term monitoring data
N/A - review article	0	0	0	0	0	0	0	1	
N/A -review article	annual average	0	0	0	1 (annual	0	0	1	Evaluated N input and export for 16 watersheds in the northeast
Noon cunfooo	yoon nound	٥	0	0	1	1	0	1	Also many and DEA in soil matrix and augania natches
Near surface	year round	0	0	U leebongo w	1	1	0	1	Also measured DEA in son matrix and organic patches
Surface water	ran	U	U	istinai ge 17	U	1	U	U	Simulated artificial storm/runoff events and evaluated N
Near surface	vear round	0	0	0	1	0	0	1	attenuation
	year round	0	v	v	-	U	U		
Surface	0	0	0	0	0	0	0	0	Literature review article
									Evaluated nitrogen uptake and denitrification before, during and
									after natural flooding, and simulated flooding using spray
Periodic flooding	Spring/Summer	0	0	0	0	0	0	1	nitrogen additions
Near surface	Summer	0	0	0	0	1	0	1	
Near surface	Year round	0	0	0	1	1	1	1	
	_				_	_		_	Reviews N and P budgets for a number of different wetland types
Shallow and surface	year round	0	0	0	0	0	0	0	and reports on nutrient retention and removal in each
0	Various	0	0	0	0	0	0	1	
Surface and near-surface	March-Sept	0	0	0	0	0	0	0	
	_								
groundwater	year round	0	0	0	1	0	0	1	Focus on denitrification

Hydrologic Regime/									
Croundwater		Residence		Fluching	Air	Water			
Depth	Season	Time	Tidal	Rate	Temp	Temp	Salinity	Annotated?	Notes
					Temp	Temp	Sumity		
Near surface	0	0	0	0	0	0	0	1	Model study aimed at identifying N sinks
surface or near surface	0	0	U	, v	v	v	Ū	-	Looked at width of buffer strips from grass pasture, brush/grass.
groundwater	review article -	0	0	0	0	0	0	1	and beech forest areas
groundater		0	Ū	, ,	Ŭ	, , , , , , , , , , , , , , , , , , ,		-	
Tidal marsh	Summer	0	1	0	0	0	0	0	
Tidal marsh	Summer	0	1	0	0	0	0	1	
	Summers 2001 and								
Tidal marsh	2002	0	1	0	0	0	1	1	
Tidal marsh	Summer	0	1	0	0	0	0	1	
Near surface	warm and cold season	0	0	0	0	1	1	1	
Estuarine water/sediments	year round	1	1	1	0	1	1	1	Also measured denitrification
Surface water	Year round	0	1	1	0	0	1	0	
									Quantification of N2 flux (nitrification[-]/denitrification[+]) in
Salt marsh sediments/water	summer	0	1	0	1	1	1	1	Narragansett Bay salt marshes
	~ .								Looked at differences in N uptake in plant biomass and associated
Tidal	Spring-summer	0	1	0	0	0	0	1	microbes in stands dominated by Typha and Spartina
									Field/lab measurements of denitrification and C, O cycling on
Estuarine water/sediments	year round	0	1	0	0	1	1	1	Cape Cod; good comprehensive study.
Surface water	Year round	1	1	1	0	1	0	1	
Shallow groundwater,									
surface water	growing season	1	1	1	0	0	1	1	
Groundwater near surface									Also looked at deep cores and dated them to evaluate long-term
and at surface	Not certain	0	0	0	0	0	0	0	changes in N sequestration and organic matter
Salt marsh/mud flat									Fflux along a gradient of salt marsh to mud flat, with quantified
sediments	year round	0	1	1	0	0	1	0	concentrations and retentions
Marsh and creek sediments	year round	0	1	0	1	0	0	1	Great Sippewisset Marsh denitrification rate
Estuarine intertidal mud									Nutrient flux at sediment-water interface of UK mud flats, and
flats	year round	0	1	0	1	1	1	0	benthic macrofaunal effects
Estuarine intertidal mud									
flats	year round	0	1	0	1	1	1	0	Nutrient flux at sediment-water interface of UK mud flats
									NH4-N assimilation of an algae growing on mud flats:
Plant uptake/assimilation	year round	0	1	0	0	0	0	0	assimilation, burial, and association with N-fixing bacteria
a	-				_	_			
Shallow	year round	1	1	1	0	0	1	1	
Estuarine intertidal flats,			~					_	Nutrient flux at sediment-water interface of Japanese mud and
mud and sand	summer	0	1	0	0	1	1	0	sand flats

Hydrologic Regime/		<b>D</b> 11							
Groundwater	Saagan	Residence	T: 1 - 1	Flushing	Air	Water	G - 1224	4	Notes
Deptil	Season	Time	Tidai	Kate	Temp	Temp	Sannity	Annotated ?	INDIES
	_								Review of rates of nitrification and denitrification in mature and
Salt marsh sediments/water	year round	0	1	0	0	0	0	1	restored (new/young) salt marshes
Marsh sediments, plants	year round	U	1	U	U	0	U	U	Great Sippewisset Marsh
S	year round, 2 year	1	•	0	0	0	•	1	Nites and the second stress has denote from terms had a
Surface water	study	1	0	0	0	0	0	1	Nitrogen, phosphorus and iron budgets for two lakes
N/A	U	U	U	U	U	U	U	U	
S	6 2	0	•	0	0	0	•	0	
Surface water	summers for 2 years	U	U	U	U	U	U	U	Daview entirely based on data from USCS monitoring studies
Surface water	waan namud	0	0	0	0	0	0	1	throughout the US
Surface water	year round	U	U	U	U	U	U	1	Device outide discusses machanisms and factors involved in
NI/A	0	0	0	0	0	0	0	1	nitrogen transforg in hypothesis zone
N/A Various mostly poor	U	U	U	U	U	U	U	1	Evaluated nitrogen budgets for 16 large watersheds in the
various mostry near	0	0	•	0	A	0	•	0	northoast
surface	U	U	U	U	Annual a	U	U	U	Nitrogen budgets for NO3 and NH4 for getchments and lakes in
Surface water	Annual avarages	1	0	0	0	0	0	0	Ontorio
Surface water	Alliuai avei ages	1	U	U	U	U	U	U	Modeled the effects of dams and levees on nitrate loss via
Modeled river floodplain	0	0	0	0	0	0	0	0	denitrification
Nioucicu Tiver nooupiani	U	0	U	U	U	U	U	U	
Surface water	Growing season	Estimated r	0	0	0	0	0	1	
	8					÷		_	
Surface water	Year round	1	0	0	0	0	0	0	
Surface water	Year round	0	0	0	0	0	0	0	
Surface water	June-July	0	0	0	0	0	0	0	
Surface water	May-June	0	0	0	1	0	0	0	
	March, May, July,								
Shallow	and Sept	0	0	0	0	0	0	1	Measured denitrification potential
									Also measured denitrification in three types of sediment from the
Surface water	March-November	0	0	discharge	0	1	0	1	study area (low, med, high OM sediment)
Surface water	Year round	0	0	0	0	0	0	0	
	year round; two year								
Surface water	study	0	0	0	0	0	0	0	
Surface water	Spring (April-May)	1	0	0	1	1	0	0	
	various - comparative			_		~			
Surface water	15-N study	0	0	0	1 0	0	1 0	0	

Hydrologic Regime/									
Groundwater		Residence		Flushing	Air	Water			
Depth	Season	Time	Tidal	Rate	Temp	Temp	Salinity	Annotated?	Notes
Surface water	not indicated	0	0	0	0	1	0	0	
Various - surface and	not mulcateu	•	U	U	U	1	U	v	Review article - uses annual average N data from a number of
shallow	0	0	0	0	0	0	0	1	other site-specific studies
Surface water	0	0	0	0	0	0	0	0	Applied the model to various river systems; compares to measured values
Surface water	Nov-Dec	0	0	0	1	1	0	0	
Surface water	Dec-September	1	0	0	0	0	0	0	Also measured DON, pH, and DOC
Lakes	year round	1	0	0	1	1	0	0	
Surface water	Summers 1991-1997	0	0	0	0	0	0	0	Also provides a conceptual model for looking at physical vs. biological/chemical controls on nitrate retention in streams