

**Dennis Peter Swaney**  
**Curriculum Vitae**

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**Contact Information:** Dept. of Ecology and Evolutionary Biology  
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**Education:**

B.A., Physics – 1977      New College; Sarasota, FL  
M.S., Environmental Engineering Science/Systems Ecology - 1978  
University of Florida; Gainesville, FL

**Professional Experience:**

2003 – present    Research Support Specialist/Coordinator of Environmental Modelling,  
Dept. of Ecology and Evolutionary Biology, Cornell University, Ithaca, NY.  
1999 – 2004      Environmental Systems Analyst, Boyce Thompson Institute, Ithaca, NY.  
1998 – 1999      Environmental Research Scientist, Dept. of Systems Ecology, Stockholm  
University, Stockholm, Sweden.  
1994 –1997      Environmental Systems Analyst, Cornell Center for the Environment, Cornell  
University, Ithaca, NY.

**Research Interests:**

Understanding hydrological and biogeochemical processes and their relationships to aquatic and terrestrial ecosystem dynamics; nutrient cycles from field to global scales; effects of land-use changes, management practices, and climate change on nutrient fluxes from the landscape; response of estuaries and other coastal systems to anthropogenic nutrient loads; practical analytical approaches for management, including nutrient budgets and nutrient accounting methods in watersheds and coastal waters; mathematical modeling of transport and dispersal of materials in the environment, including development of advection/diffusion/reaction models.

**Selected Publications**

Peer-Reviewed Journal Articles

Gao, W., R.W. Howarth, **D.P. Swaney**, B. Hong, H.C. Guo. 2015. Enhanced N input to Lake Dianchi Basin from 1980 to 2010: Drivers and consequences. *Science of the Total Environment*. 505:376–384. DOI: 10.1016/j.scitotenv.2014.10.016

**Swaney, D.P.**, B. Hong, A. Paneer Selvam, R.W. Howarth, R. Ramesh, R. Purvaja.

2014. Net Anthropogenic Nitrogen Inputs and Nitrogen Fluxes from Indian Watersheds: an Initial Assessment. *Journal of Marine Systems*. doi:10.1016/j.jmarsys.2014.09.004

Gao, W., R. W. Howarth, B. Hong, **D. P. Swaney**, H. C. Guo. 2014. Estimating net anthropogenic nitrogen inputs (NANI) in the Lake Dianchi Basin of China. *Biogeosciences*. 11, 4577-4586. doi:10.5194/bg-11-4577-2014

Sha, J., Li, Z., **Swaney, D.P.**, Hong, B., Wang, W. and Wang, Y. 2014. Application of a Bayesian watershed model linking multivariate statistical analysis to support watershed-scale nitrogen management in China. *Water Resources Management*. DOI: 10.1007/s11269-014-0696-x. Published online: 7 June 2014.

Levin, L.A, K.-K. Liu, K.-C. Emeis, D. L. Breitburg, J. Cloern, C. Deutsch, M. Giani, A. Goffart, E. E. Hofmann, Z. Lachkar, K Limburg, S.-M. Liu, E. Montes, W. Naqvi., O. Ragueneau, C. Rabouille, S. K. Sarkar, **D. P. Swaney**, P. Wassman, K. F. Wishner. 2014. Comparative biogeochemistry-ecosystem-human interactions on dynamic continental margins. *Journal of Marine Systems*. DOI: 10.1016/j.jmarsys.2014.04.016. Published online: 3 June 2014.

Gao, W., R. W. Howarth, B. Hong, **D. P. Swaney**, H. C. Guo. 2014. Estimating net anthropogenic nitrogen inputs (NANI) in the Lake Dianchi Basin of China. *Biogeosciences Discussions*,11:4123-4150. [www.biogeosciences-discuss.net/11/4123/2014/](http://www.biogeosciences-discuss.net/11/4123/2014/) doi:10.5194/bgd-11-4123-2014

Wulff, F., C. Humborg, H.E. Andersen, G. Blicher-Mathiesen, M. Czajkowski, K. Elofsson, A. Fønnesbech-Wulff, B. Hasler, B. Hong, V. Jansons, C.-M. Mörth, J.C.R. Smart, E. Smedberg, P. Stålnacke, **D. P. Swaney**, H. Thodsen, A. Was and T. Żyłicz.. 2014. Reduction of Baltic Sea Nutrient Inputs and Allocation of Abatement Costs within the Baltic Sea Catchment. *Ambio*. 43(1):11-25.

Hong, B., **D.P. Swaney** and R. W. Howarth. 2013. Estimating net anthropogenic nitrogen inputs (NANI) to US watersheds: comparison of methodologies. *Environmental Science and Technology*. 47(10): 5199–5207. DOI: 10.1021/es303437c Online Publication Date: April 15, 2013. <http://pubs.acs.org/doi/abs/10.1021/es303437c>

Sha, J., M. Liu, D. Wang, **D.P. Swaney**, and Y. Wang. 2013. Application of the ReNuMa model in the Sha He river watershed: Tools for watershed environmental management. *Journal of Environmental Management*. 124:40-50, ISSN 0301-4797, 10.1016/j.jenvman.2013.03.030.

Limburg, K.E., **D. P. Swaney**, and M.H. Hall. 2012. Temporal and spatial dynamics of a "Rust-Belt" urban stream: Metabolic and water quality responses to hardened land. *Urban Ecosystems*. Published online: DOI 10.1007/s11252-012-0273-0

**Swaney, D. P.**, Hong, B., C. Ti, R.W. Howarth and C. Humborg. 2012. Net anthropogenic nitrogen inputs to watersheds and riverine N export to coastal waters: a brief overview. *Current Opinion in Environmental Sustainability*. 4:1-9.

<http://dx.doi.org/10.1016/j.cosust.2012.03.004>

**Swaney, D.P.**, Santoro, R., Howarth, R.W. and Donaghy, K. 2011. Historical changes in the food and water supply systems of the New York Metropolitan Area. *Regional Environmental Change*. DOI: 10.1007/s10113-011-0266-1

Hong, B., **D. P. Swaney**, C.-M. Mörth, E. Smedberg, H. Eriksson Hägg, C. Humborg, R. W. Howarth, and F. Bouraoui. 2012. Evaluating regional variation of net anthropogenic nitrogen and phosphorus inputs (NANI/NAPI), major drivers, nutrient retention pattern and management implications in the multinational areas of Baltic Sea basin. *Ecological Modelling*. 227:117-135. <http://dx.doi.org/10.1016/j.ecolmodel.2011.12.002>

Hägg, H.E., C. Humborg, **D.P. Swaney**, and C.-M. Mörth. 2011. Riverine nitrogen export in Swedish catchments dominated by atmospheric inputs. *Biogeochemistry*. DOI 10.1007/s10533-011-9634-7

**Swaney, D. P.**, C. Humborg, K. Emeis, A. Kannen, W. Silvert, P. Tett, R. Pastres, C. Solidoro, M. Yamamuro, Y. Hénocque, R. Nicholls. 2012. Five critical questions of scale for the coastal zone. *Estuarine Coastal and Shelf Science*. 96(1):9-21 Available online: doi:10.1016/j.ecss.2011.04.010

Galante, T. E., T. R. Horton, and **D.P. Swaney**. 2011. 95% of Spores Fall Within 65cm of the Cap- A Field and Modeling Based Study. *Mycologia*. 103(6):1175–1183. DOI: 10.3852/10-388

Howarth, R.W., **D.P. Swaney**, G. Billen, J. Garnier, B. Hong, C. Humborg, P. Johnes, C.-M. Mörth, and R.M. Marino. 2012. Nitrogen fluxes from large watersheds to coastal ecosystems controlled by net anthropogenic nitrogen inputs and climate. *Frontiers in Ecology and the Environment*. 10(1): 37–43. DOI:10.1890/100178

Hong, B., **Swaney, D.P.**, Howarth, R.W. 2011. A toolbox for calculating net anthropogenic nitrogen inputs (NANI). *Environmental Modelling & Software* 26, 623-633. doi:10.1016/j.envsoft.2010.11.012

**Swaney, D.P.**, D. Scavia, R.W. Howarth, and R.M. Marino. 2008. Estuarine Classification and Response to Nitrogen Loading: Insights from Simple Ecological Models. *Estuarine, Coastal and Shelf Science* 77:253-263.

Giordani, G., M. Austoni, J. M. Zaldívar, **D. P. Swaney** and P. Viaroli. 2008. Modelling ecosystem functions and properties at different time and spatial scales in shallow coastal lagoons: an application of the LOICZ biogeochemical model. *Estuarine, Coastal and Shelf Science* 77:264-277.

Buddemeier, R.W., S.V. Smith, **D.P. Swaney**, C.J. Crossland and B.A. Maxwell. 2008. Coastal Typology: An integrative "neutral" technique for coastal zone characterization and analysis. *Estuarine, Coastal and Shelf Science* 77:197-205.

Berg, P., **D.P. Swaney**, S. Rysgaard, B. Thamdrup, and H. Fossing. 2007. A fast numerical solution to the general mass-conservation equation for solutes and solids in aquatic sediments. *Journal of Marine Research*. 65(3):317-343.

Mörth, C.-M., C. Humborg, H. Eriksson, Å. Danielsson, M. Rodriguez Medina, S. Löfgren, **D.P. Swaney** and L. Rahm. 2007. Modelling riverine nutrient transport to the Baltic Sea – A large scale approach. *Ambio* 36:124-133.

Howarth, R.W., **D.P. Swaney**, E.W. Boyer, R.M. Marino, N. Jaworski and C.L. Goodale. 2006. The influence of climate on average nitrogen export from large watersheds in the Northeastern United States. *Biogeochemistry* 79:163-186.

Smedberg, E., C.-M. Mörth, **D.P. Swaney**, C. Humborg. 2006. Modelling hydrology and silicon-carbon interactions in taiga and tundra biomes from a landscape perspective - Implications for global warming feedbacks. *Global Biogeochemical Cycles*. 20, doi:10.1029/2005GB002567

Hong, B., D. A. Weinstein, and **D.P. Swaney**. 2006. Assessment of ozone effects on nitrate export from Hubbard Brook Watershed 6. *Environmental Pollution* 141:8-21.

Hong, B., **D.P. Swaney**, and D. A. Weinstein. 2006. Simulating spatial nitrogen dynamics in a forested reference watershed, Hubbard Brook Watershed 6, New Hampshire, USA. *Landscape Ecology*. 21:195-211.

Smith, S. V., **D. P. Swaney**, R. W. Buddemeier, M. R. Scarsbrook, M. A. Weatherhead, C. Humborg, H. Eriksson, F. Hannerz. 2005. River Nutrient Loads and Catchment Size. *Biogeochemistry* 75: 83–107.

Hong, B., R. L. Strawderman, **D. P. Swaney**, and D. A. Weinstein. 2005. Bayesian estimation of input parameters of a nitrogen cycle model applied to a forested reference watershed, Hubbard Brook Watershed Six. *Water Resources Research* 31(3):W03007

Hong, B., **D.P. Swaney**, P.B. Woodbury, and D. A. Weinstein. 2005. Long-term nitrate export from Hubbard Brook Watershed 6 driven by climatic variation. *Water, Air and Soil Pollution*. 160: 293-326

**Swaney, D.P.** and C.A.S. Hall. 2004. Odum in Texas: A Brief Review of H.T. Odum's Texas Bays studies. *Ecological Modelling*. 178:59-63.

S. V. Smith, **D. P. Swaney**, L. Talue-McManus, J. D. Bartley, P. T. Sandhei, C. McLaughlin, V. C. Dupra, C. J. Crossland, R. W. Buddemeier, B. A Maxwell, F. Wulff. 2003. Humans, Hydrology, and the Distribution of Inorganic Nutrient Loading to the Ocean. *Bioscience* 53(3):235-245.

Woodbury P. B., R.M. Beloin, **D. P. Swaney**, B.G. Gollands, D.A. Weinstein. 2002. Using the ECLPSS software environment to build a spatially explicit component-based model of ozone effects on forest ecosystems. *Ecological Modelling*. 150:211-238.

Norberg, J., **D.P. Swaney**, J. Dushoff, J. Lin, R. Casagrandi and S.A. Levin. 2001. Phenotypic diversity and ecosystem functioning in changing environments: A theoretical framework. *Proc. Nat. Acad. Sci.*, 98(20):11376-11381.

Howarth, R.W., **D.P. Swaney**, T.J. Butler, and R. Marino. 2000. Climatic control on eutrophication of the Hudson estuary. *Ecosystems* 3:210-215.

**Swaney, D. P.**, T. A. Butler, and R.W. Howarth. 1999. A Novel Approach for Estimating Ecosystem Production and Respiration in Estuaries: Application to the Oligohaline and Mesohaline Hudson River. *Limnol. Oceanogr.* 44:1509-1521.

**Swaney, D.P.** 1999. Analytical solution of Boudreau's equation for a tracer subject to food-feedback bioturbation. *Limnol. Oceanogr.* 44:697-698.

Kuo, W.L., T. S. Steenhuis, C. E. McCulloch, C. L. Mohler, D. Weinstein, S. DeGloria, and **D. P. Swaney**. 1999. Effect of grid size on runoff and soil moisture in a GIS-based, variable-source-area hydrology model. *Water Resources Res.* 35:3419-3428.

**Swaney, D.P.**, D. Sherman, and R.W. Howarth. 1996. Modeling Water, Sediment, and Organic Carbon Discharges in the Hudson/Mohawk Basin: Coupling to Terrestrial Sources. *Estuaries*, 19(4):833-847.

Howarth, R.W., R. Schneider, **D. P. Swaney**. 1996. Metabolism and Organic Carbon Fluxes in the Tidal Freshwater Hudson River. *Estuaries*, 19(4):848-865.

Howarth, R.W., G. Billen, **D. P. Swaney**, A. Townsend, N. Jaworski, K. Lajtha, J. A. Downing, R. Elmgren, N. Caraco, T. Jordan, F. Berendse, J. Freney, V. Kudryarov, P. Murdoch, Zhu Zhao-liang. 1996. "Riverine Inputs of Nitrogen to the North Atlantic Ocean: Fluxes and Human Influences". *Biogeochemistry*, 35:75-139.

In press, in preparation, etc

Lyon, S.W., van der Velde, Y., Dahlke, H.E., Meidani, R., **Swaney, D.P.**, Mörth, C.-M., Humborg, C. Accepted for publication. Seasonal and regional patterns in performance for a Baltic Sea drainage basin hydrologic model. *Journal of the American Water Resources Association*.

Gao, W., **D. P. Swaney**, B. Hong, Y. Liu, R. W. Howarth, H. C. Guo. Submitted. Evaluating Anthropogenic N inputs to Diverse Lake Basins: A Case Study of Three Chinese Lakes. *Ambio*.

Sha, J., **D.P. Swaney**, B. Hong, J. Wang, Y. Wang, and Z.-L. Wang. Submitted. Estimation of watershed hydrologic processes in arid conditions with a modified watershed model. *Journal of Hydrology*.

## Book Chapters and Reports

**Swaney, D.P.** & Giordani, G. 2011. Proceedings of the LOICZ Workshop on biogeochemical budget methodology and applications, Providence, Rhode Island, November 9-10, 2007. LOICZ Research & Studies No. 37. Helmholtz-Zentrum Geesthacht, 195 pp. ([http://www.loicz.org/imperia/md/content/loicz/print/rsreports/biogeochemical\\_budget\\_methodology\\_and\\_applications.pdf](http://www.loicz.org/imperia/md/content/loicz/print/rsreports/biogeochemical_budget_methodology_and_applications.pdf))

Hong, B., **D.P. Swaney**, C.-M. Mörth, E. Smedberg, H. Eriksson Hägg, and C. Humborg. 2011. NANI/NAPI Calculator Toolbox - Version 2 Documentation: Net Anthropogenic Nutrient Inputs in Baltic Sea Catchments. Baltic Nest Institute Technical Report No. 3 (March 2011) ISBN: 978-91-86655-02-0. Available online at: [http://balticnest.org/download/18.2beb0a011325eb5811a8000153756/BNI+Technical+Report+3+-+NANI\\_NAPI\\_15June2011.pdf](http://balticnest.org/download/18.2beb0a011325eb5811a8000153756/BNI+Technical+Report+3+-+NANI_NAPI_15June2011.pdf)

**Swaney, D.P.** 2011. Biogeochemical Budgeting in Estuaries, Chapter 5.11 (pp 343-362) In: Wolanski, E. and McLusky, D. Editor(s)-in-Chief, Treatise on Estuarine and Coastal Science, Academic Press, Waltham. ISBN 9780080878850, 10.1016/B978-0-12-374711-2.00513-1. (<http://www.sciencedirect.com/science/article/pii/B9780123747112005131>)

**Swaney, D.P.**, Smith, S.V. and Wulff, F. 2011. The LOICZ Biogeochemical Modeling Protocol and its Application to Estuarine Ecosystems, Chapter 9.08 (pp 135-159) In: Wolanski, E. and McLusky, D. Editor(s)-in-Chief, Treatise on Estuarine and Coastal Science, Academic Press, Waltham. ISBN 9780080878850, 10.1016/B978-0-12-374711-2.00907-4. (<http://www.sciencedirect.com/science/article/pii/B9780123747112009074>)

Smith, S.V., **D.P. Swaney**, and L. Talaue-McManus. 2010. Carbon–Nitrogen–Phosphorus Fluxes in the Coastal Zone: The LOICZ Approach to Global Assessment. Chapter 14 (pp 575-586) in: Carbon and Nutrient Fluxes in Continental Margins A Global Synthesis Series: Global Change - The IGBP Series. Liu, K.-K.; Atkinson, L.; Quiñones, R.; Talaue-McManus, L. (Eds.) 2010, XXVIII, 744 p.

Buddemeier, R. W., S.V. Smith, S.B. Bricker, **D.P. Swaney**, S.D. Dunham, and B. Maxwell. 2007. “Determining Typology”, Pp 144-152, in: Bricker, S., B. Longstaff, W. Dennison, A. Jones, K. Boicourt, C. Wicks, and J. Woerner (eds). Effects of Nutrient Enrichment In the Nation’s Estuaries: A Decade of Change. NOAA Coastal Ocean Program Decision Analysis Series No. 26. National Centers for Coastal Ocean Science, Silver Spring, MD. 328 pp.

Billen, G., J. Garnier and **D.P. Swaney**. 2007. Some highlights of the workshop on integrated budgeting of nitrogen fluxes in regional watersheds: Linking atmospheric, terrestrial, aquatic and coastal Interactions. LOICZ INPRINT 2007/1. April, 2007. pp7-11. LOICZ, Geesthacht, Germany. [http://www.loicz.org/public/loicz/newsletters/inprint\\_2007-1.pdf](http://www.loicz.org/public/loicz/newsletters/inprint_2007-1.pdf)

**Swaney, D.P.**, K.E. Limburg and K. Stainbrook. 2006. Some Historical Changes in

the Patterns of Population and Land Use in the Hudson River Watershed. In: J. Waldman, K.E. Limburg and D. Strayer, (eds.), *Hudson River Fishes and their Environment*. American Fisheries Society, Bethesda, MD. 365 pp.

Howarth, R.W., R. Marino, **D.P. Swaney**, and E.W. Boyer. 2006. Wastewater and watershed influences on primary productivity and oxygen dynamics in the Lower Hudson River Estuary. In: Levinton, J. S., (ed.) *The Hudson River Ecosystem*. Oxford University Press. 488 pp.

**Swaney, D.P.** and R.W. Howarth. 2005. The North American Nitrogen Center. LOICZ Newsletter #36. December, 2005. pp. 6-8. LOICZ, Texel, The Netherlands. <http://www.loicz.org/public/loicz/newsletters/number36.pdf>

Smith, S. V., R. W. Buddemeier, F. Wulff, and **D. P. Swaney**. 2005. C, N, P Fluxes in the Coastal Zone. Chapter 3 in: Crossland, C.J.; Kremer, H.H.; Lindeboom, H.J.; Marshall Crossland, J.I.; Le Tissier, M.D.A. (eds). *Coastal Fluxes in the Anthropocene. The Land-Ocean Interactions in the Coastal Zone Project of the International Geosphere-Biosphere Programme*. Springer-Verlag, Berlin Heidelberg.

Giordani, G., P. Viaroli, **D.P. Swaney**, C.N. Murray, J.M. Zaldivar and J.I. Marshall Crossland (eds). 2005. Nutrient fluxes in transitional zones of the Italian coast., LOICZ Reports & Studies No. 28, ii + 157 pages, LOICZ IPO, Texel, The Netherlands.

Buddemeier, R.W., S.V. Smith, **D.P. Swaney** and C.J. Crossland (eds). 2002. The role of the coastal ocean in the disturbed and undisturbed nutrient and carbon cycles. LOICZ Reports & Studies No. 24, ii + 83 pages, LOICZ, Texel, The Netherlands.

Okubo, A., J.A. Ackerman and **D.P. Swaney**. 2002. Passive Diffusion in Ecosystems. Chapter 3 in: Okubo, A. and S. A. Levin (eds). *Diffusion and Ecological Problems*, Revised Edition. Springer, New York.

Buddemeier, R.W., C.J. Crossland, B.A. Maxwell, S.V. Smith, **D.P. Swaney**, J.D. Bartley, G. Misgna, C. Smith, V.C. Dupra and J.I. Marshall Crossland (eds). 2002. LOICZ/UNEP Regional Synthesis Workshops: Australasia-Asia, the Americas, Africa-Europe: Summary report and compendium. LOICZ Reports & Studies No. 22. LOICZ, Texel, The Netherlands.

Howarth, R.W., N. Jaworski, **D.P. Swaney**, A. Townsend, and G. Billen. 2000. Some Approaches for Assessing Human Influences on Fluxes of Nitrogen and Organic Carbon to Estuaries. In: J. Hobbie (ed.), *Estuarine Synthesis: The Next Decade*. Island Press, Washington D.C.

Limburg, K.E., **D.P. Swaney** and D.L. Strayer. 2000. River Ecosystems, In: S.A. Levin (ed.) *The Encyclopedia of Biodiversity*. Academic Press, New York.

Ittekkot, V., L. Rahm, **D.P. Swaney**, and C. Humborg. 2000. Perturbed Silicon Cycle Discussed. *EOS Trans. AGU*. 81(18):198-200.

**Swaney, D.P.**, W-L. Kuo, D. A. Weinstein, F. Tsai, C. Pelkie, S. DeGloria, , C. Mohler, T. Steenhuis, C. McCulloch , 1996. "Response of a Watershed Model to Varying Spatial Landscape Characteristics", in H.T. Mowrer, ed., Proceedings of the 2nd International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences, May 21-23, 1996, Fort Collins, CO.

Woodbury, P. B., R. M. Beloin, **D. P. Swaney**, B. E. Gollands, D. A. Weinstein and J. Laurence The ECLPSS environment for developing spatial ecological models using reusable components. EPA Final Report. Assistance Agreement No. R 825208-01-0. Boyce Thompson Institute, Ithaca, NY.

Boyer, E.W., C.J. Post, **D.P. Swaney**, D.R. Bouldin, and S.D. DeGloria. 1999. Hydrology and nitrogen dynamics in a tributary of Cayuga Lake. In: A symposium on environmental research in the Cayuga Lake watershed, Cornell University, October 12, 1999.

### **Society memberships, committees, affiliations, etc**

Member, Sigma Xi

Member, American Geophysical Union

Member, Estuarine Research Federation

Member, American Society of Limnology and Oceanography

Member, Hudson River Environmental Society

### **Other Professional Activities and Service**

Associate Editor, Estuaries and Coasts

Corresponding Member, Scientific Steering Committee, Land Ocean Interactions in the Coastal Zone (LOICZ)

Member, Scientific Steering Committee, Land Ocean Interactions in the Coastal Zone (LOICZ), 2006-2011

Visiting Scientist, Baltic Nest Institute, Stockholm Resilience Centre, Stockholm, Sweden, 2005-present

Website developer & manager, LOICZ Biogeochemical budget website, Stockholm University, Stockholm, Sweden (<http://nest.su.se/mnode> )

Member of the USDA/NIFA proposal review panel, September, 2014

Member of the Institutional Review Panel, Center for Tropical Marine Ecology (ZMT), Bremen, Germany, May 2-3, 2013

Member of the Review Panel for a UNDP-supported Project (the Fenhe River Constructed Wetland Project of the Fenhe River Regional Management Committee). Taiyuan, Shanxi Province, China, Aug. 27-30, 2005

### **Other**

Publication H-Index: 18 (Web of Science); 24 (Google Scholar)