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Research Interests:

Mathematical modeling of environmental processes; primary production; underwater optics; sediment resuspension; biogeochemical cycles; surface hydrology, climate change water supply operations.

Education:

Ph.D. 1990 Division of Hydrology Uppsala University.

Thesis: "Effects of Vertical Mixing on Phytoplankton Photosynthesis and Phosphorus Deficiency"

Research jointly carried out with the Institute of Limnology examining the effects of vertical lake circulation on measurements and modelling of phytoplankton photosynthesis. Swedish graduate scholarship.

M.Sc. 1983 Trent University, Watershed Ecosystems Program, Depts. of Biology and Geography

Thesis: "The Role of Hydrologic and Chemical Processes in Determining Ion Export from a Low Relief Wetland Watershed"

This study involved estimating the cation export from three sub-basins within a small watershed and examining the factors which led to spatially distinct export responses. The hydrology, stream chemistry, and soil chemistry of the watershed were examined.

B.A. 1978 State University of New York, College at Purchase, Dept. of Environmental Science.

Thesis: "A Study of the Mechanisms Affecting the Cation Concentration of a Suburban Stream: Blind Brook"

This thesis examined spatial variations in stream cation concentration and discharge in a suburban environment.

A.A.S. 1975 Westchester Community College, Dept. of Electrical Engineering.

Research- Work Experience:

Research Scientist Erken Laboratory, Department of Limnology, Uppsala University 2014-Present. Responsible for developing the Erken Laboratory's automated monitoring and data sharing capabilities, and stimulating Erken's participation in scientific research networks

Section Chief of Water Quality Modelling Program. New York City Dept of Environmental Protection. 2003- 2014. . Responsible for leading modelling program which develops and applies hydrodynamic and water quality models for all New York City drinking water reservoirs. Duties include original research, project management, and management of 4 full time scientific staff and 7 post doctoral researchers.

Research Scientist Erken Laboratory, Department of Limnology, Uppsala University 1996-2003. Participant in several European Union and Swedish national projects with the goal of examining the potential for monitoring freshwater quality through the use of remote sensing methods. Participant in the EU sponsored REFLECT and CLIME projects which examined the effects of climate change on European Lakes. Other duties include, project management, and the supervision of graduate and undergraduate students.

Research Scientist. New York City Dept of Environmental Protection, Mapping and Modelling Group, Division of Water Quality Control. 1992-1996. Responsible for the development of a GIS linked water quality modelling system to estimate nutrient and sediment loading to New York City's drinking water reservoirs. The water supply watersheds cover 5000 Km² and contain a wide variety of landuse and physiographic characteristics.

Research Assistant/Post Doctoral Fellow Erken Laboratory, Institute of Limnology, Uppsala University 1991-1992. Research involved aquatic primary productivity and sediment resuspension

Supervision of Ph.D. Students.

Niklas Strömbeck. Ph.D. 2001 Uppsala University. Water Quality and Optical Properties of Swedish Lakes and Coastal Waters in Relation to Remote Sensing.

Hampus Markensten Ph.D. 2005 Uppsala University. Climate Effect of Phytoplankton Biomass and Functional Groups.

Karen Moore Ph.D. 2007 Uppsala University. Climate Change impacts on the Catchment Contribution to Lake Water Quantity and Quality.

Supervision of Post Docs:

Anu Reinart	2000-2003	Development of atmospheric correction and remote sensing algorithms for Swedish Great Lakes EU Marie Curie Fellowship
Niklas Strömbeck	2001-2003	Optical measurements of phytoplankton absorption and scattering-Impacts on remote sensing chlorophyll algorithms
Tiit Kutser	2001-2003	Satellite based estimates of Boreal lake CDOM and DOC concentration
Hampus Markensten	2006-2010	Merging PROTECH phytoplankton model into 1D hydrodynamic model for use in NYC water supply reservoirs
Aavudai Anandhi	2009-2011	Developing methods to downscale GCM simulation data to NYC reservoir watershed scale. Comparison and ranking of GCM data from different models
Adao Matonse	2009-2013	Simulating the effects of climate change on reservoir system operation and reliability
Soni Pradhanang	2009-2014	Simulation of the effects of climate change on watershed hydrology and nutrient export using the SWAT model

Rajith Mukundan	2009-2014	Improve methods for predicting stream water turbidity both through statistical analysis and modeling.
Nihar Samal	2010-2014	Evaluate the effects of future climate change on reservoir thermal structure and trophic status
Yongtai Huang	2010-2014	Improve methods of calibrating reservoir water quality models. Develop CE Qual W2 model simulations for NYC reservoirs
Antoine Randolph	2012-2014	Working with the RHESSys eco-hydrological model to simulate the forest processes and their effects on the hydrology and biogeochemistry of NYC reservoir watersheds
Malgorzata Golub	2018-	Lake modelling of effects of future climate change co-ordination of ISIMIP Lake Sector.

Teaching and Demonstrating

Uppsala University

2011 Organizer and one of the teachers in the NORFA and GLEON sponsored course "Automatic stations and high-frequency data analysis"

2006-2010 Leader and main teacher of course on Hydrologic and water quality modelling For students from Eastern Europe and Belarus SIDA funded two week course run at the Erken Laboratory

1999 Leader and Lecturer in the Nordic Research Academy (NORFA) course "Remote sensing applications for water quality monitoring in lakes"

1994-1996 Visiting Lecturer Erken Laboratory, Institute of Limnology

1987-1992 Occasional Lectures for undergraduate and graduate courses in Limnology and Hydrology

Trent University 1980-1983

Introductory Geography - Taught and graded first year physical and human geography labs. Marked mid-term and final projects.

Field Assistance - Have served as a field instructor for parts of the following courses.

Hydrology

Plant Ecology

Hydrometeorology (fieldwork in sub-arctic Labrador)

Project Management:

While working at NYC DEP I have been responsible for managing multiple contracts which developed water quality models for DEP, provided scientific and engineering support for evaluating reservoir infrastructure and operations, and provide post doc support to the water quality modeling group. Tasks included, developing the contracts, tracking contract progress, and reviewing reports and invoices.

Contractor	Purpose of Contract	Contract Amount
City University of New York	Post Doc Support	\$786,884
City University of New York	Post Doc Support	\$2,109,901
Upstate Freshwater Institute	Computer Model Development	\$613,956
Upstate Freshwater Institute	Computer Modeling and Monitoring Development and Maintenance of Automated Reservoir and Stream Monitoring Systems	\$4,700,000
Upstate Freshwater Institute	Development and Maintenance of Automated Stream Monitoring Systems	\$2,069,727
United States Geologic Survey	Development and Maintenance of Automated Stream Monitoring Systems	\$337,118

Grant Funding:

Below is a list of all of the major grants that I have been the principle author of, and which were successful in obtaining funding. All of these were obtained while working at Uppsala University. I have also participated in several EU research framework projects: SALMON, REFLECT, and CLIME. I did not lead any of these; however, I was involved in developing the applications, and wrote parts of the applications related to the work packages I was most strongly involved with.

Funding Agency	Applicants	Year	Amount	Title
NFR	D Pierson K Pettersson U Heyman	1988	704,400 SEK	Effects of vertical mixing on primary production in Lake Erken
EU		1996		Satellite Remote Sensing for Lake Monitoring (SALMON (EU Contract ENV4-CT96-0311
SNV	D Pierson C Forsberg	1997	517,100 SEK	Swedish national support of SALMON project
Rymdstyrelsen	D Pierson B Håkansson	1998	370,800 SEK	Water quality monitoring of Lakes Vänern and Vättern: A remote sensing study using the SeaWiFS and MERIS sensors
Rymdstyrelsen	D Pierson	2000	3,096,000 SEK	A satellite Based Water Quality Monitoring System for Lakes Vänern and Vättern
Formas	D Pierson L Tranvik	2001	1,612,000 SEK	Estimation of Boreal lake dissolved organic matter and carbon dioxide export over geographic regions
Rymdstyrelsen	D Pierson N Strömbeck	2001	975,000 SEK	Remote sensing estimates of freshwater phytoplankton: Parameterization of optical processes between 600-700 nm
EU JPI Water	D Pierson Coordinator partners: Ireland Denmark Norway Israel	2016	1,375,000 Euro	PROGNOS Predictin in-lake responses to change using near real time models

Peer Reviewed Journal Publications:

Googel Scholar Profile http://scholar.google.com/citations?user=yj2_I3sAAAAJ&hl=en

- Klemer, A.R., D.C. Pierson, and M.C. Whiteside. 1983. Algal nutrition, buoyancy, and bloom formation. *Ver. Int. Theor. Angew. Limnol.* 22.
- Taylor, C.H., and D.C. Pierson. 1985. The effect of a small wetland on runoff response during spring snowmelt. *Atmosphere and Oceans* 23: 137-154.
- Pierson, D.C., and C.H. Taylor. 1985. The influence of snowcover development and ground freezing on cation loss from a wetland watershed during spring runoff. *Canadian Journal of Fisheries and Aquatic Sciences.* 42: 1979-1985.
- Cullen, J.J., M. Zhu, R.F. Davis, and D.C. Pierson. 1985. Vertical migration, carbohydrate synthesis, and nocturnal nitrate uptake during growth of *Heterocapsa Niei* . in a laboratory water column. In Anderson, White, and Baden (eds.) *Toxic Dinoflagellates.* Elsevier, New York.

- Cullen, J.J., M. Zhu, and D.C. Pierson. 1986. A technique to assess the harmful effects of sampling and containment for determination of primary production. Limnol. Oceanogr. 31: 1364-1373.
- Pierson D.C. 1987. Stream Research in the Colour Lake Basin - Axel Heiberg Island N.W.T. Canada. In Field Research on Axel Heiberg Island, N.W.T. Canada W.P. Adams(ed.) Occasional Paper No. 12 Dept of Geography, Trent University, Peterborough, Ontario, Canada.
- Taylor, C.H., and D.C. Pierson. Effect of Variable Source Areas on Cation Delivery from a Small Wetland Watershed. Canadian Water Resources Journal 13(2): 85-97.
- Pierson D.C. 1989. The Importance of Photoadaptation in affecting estimates of integral primary production. Nordic Hydrology 20: 53-72.
- Istvanovics, V., K. Pettersson, and D.C. Pierson. 1990. Partitioning of phosphorus uptake between different size groups of planktonic microorganisms in Lake Erken. Ver. Int. Theor. Angew. Limnol. 24: 231-235.
- Pettersson, K. V. Istvanovics, and D. C. Pierson. 1990. Effects of vertical mixing on phytoplankton phosphorus supply during summer in Lake Erken. Ver. Int. Theor. Angew. Limnol. 24: 236-241.
- Istvanovics, V., K. Pettersson, D.C. Pierson, and R. Bell. 1992. Phosphorus deficiency index as an indicator of algal phosphorus status in Lake Erken during the summer. Limnol. Oceanogr. 37:890-900.
- Pierson, D.C., K. Pettersson, and V. Istvanovics. 1992. Temporal changes in biomass specific photosynthesis during the summer: The regulation by environmental factors, and the importance of phytoplankton succession. Hydrobiologica. 243/244: 119-135.
- Istvanovics, V., K. Pettersson, M. A. Rodrigo, D.C. Pierson, J. Padisak, and W. Colom. 1993. Gloeotrichia echinulata, a colonial cyanobacterium with a unique phosphorus uptake and life strategy. J. Plankton Res: 15: 531-552.
- Pettersson, K., R. Bell, V. Istvanovics, J. Padisak, and D. Pierson. 1993. Phosphorous status of size fractionated seston in Lake Erken. Ver. Int. Theor. Angew. Limnol. 25: 137-143.
- Pierson, D.C., and C.H. Taylor. 1994. The role of surface and sub-surface runoff processes in controlling cation export from a wetland watershed. Aquatic Science: 56: 80-96.
- Pierson, D. C., and G. A. Weyhenmeyer. 1994. High resolution measurements of sediment resuspension above an accumulation bottom in a stratified lake. Hydrobiologica: 284: 43-57.
- Pierson, D. C., W. Colom, and M. A. Rodrigo. 1994. The influence of photoinhibition and algal size on vertical variations in chlorophyll a specific photosynthesis. Archiv Fur Hydrobiologie: 129: 293-309.
- Istvanovics, V., J. Padisak, K. Pettersson, and D.C. Pierson. 1994. Growth and phosphorus uptake of summer phytoplankton in Lake Erken (Sweden). J. Plankton Res 16:1167-1196.
- Weyhenmeyer, G. A., M. Meili, and D. C. Pierson 1994. A simple method to quantify sources of settling particles in lakes: resuspension versus new production. Marine and Freshwater Research 46: 223-231.
- Bell, R. T., U. Stensdotter, V. Istvanovics, D.C. Pierson, and K. Pettersson. 1998 Microbial dynamics and nutrient turnover in Lake Erken. Arch. Hydrobiol. Spec. Issues Advanc. Limnol. 51: 1-20.
- M.A. Rodrigo, D.C. Pierson, K. Pettersson, E. Kaup and J. Padisák 1998. Sinking and floating rates of natural phytoplankton assemblages in Lake Erken (Sweden). Arch. Hydrobiol. Spec. Issues Advanc. Limnol. 51: 143-156.
- Pierson, D.C., and N. Strömbäck. 2000. A modelling approach to evaluate preliminary remote sensing algorithms: Use of water quality data from Swedish great lakes. Geophysica , 36(1-2), 177-202.
- Strömbäck, N., and D.C. Pierson. 2001. The effects of Variability in the Inherent Optical Properties on Estimations of Chlorophyll a by remote in Swedish Freshwaters. The Science of the Total Environment 268: 123-137.
- Pierson, D.C., and N. Strömbäck. 2001. Estimation of radiance reflectance and the concentrations of optically active substances in Lake Mälaren, Sweden Based on direct and inverse solutions of a simple model. The Science of the Total Environment 268:171-188.
- Östlund, C. P. Flink, N. Strömbeck, D. Pierson, and T. Lindell. 2001. Mapping of the Water Quality of Lake Erken, Sweden from Imaging Spectrometry and Landsat TM. The Science of the Total Environment 268: 139-154.

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- Schneiderman, E.M., D.C. Pierson and D.G. Lounsbury. 2002. Modelling the hydrochemistry of the Cannonsville watershed with GWLF. Journal of the American Water Resources Association. 38(5): 1323-1347.
- Pierson, D.C., H. Markensten, and N. Strömbeck 2003. Long and Short Term Variations in Suspended Particulate Material: The Influence on Light Available to the Phytoplankton Community. Hydrobiologica 494: 299-304.
- Markensten, H., and D.C. Pierson. 2003. A dynamic model for flow and wind driven sediment resuspension in a shallow basin. Hydrobiologica 494: 305-311.
- Reinart, A., H. Arst, D. Pierson 2005. Optical properties and light climate in Lake Verevi. Hydrobiology 547:41-49
- Moore, K., Pierson, D.C., Rosenzweig, C., Goldberg, R., Pettersson, K., Schneiderman, E.M., Zion, M.S., Lounsbury, D.G. 2006. Impacts of Projected Climate Change on Phosphorus and Sediment Loadings for a New York City Water Supply Reservoir. Verh. Int. Ver. Limnol. 29(4):1829-1832.
- Reinart, A.E., B. Paavel, D.C. Pierson, and N. Strömbeck 2004. Inherent and apparent optical properties of Lake Peipsi, Estonia. Boreal Environment Research 9(5):429-446.
- Kutser, T., D.C. Pierson, L. Tranvik, A. Reinart, S. Sobek, K.Y. Kallio. 2005. Estimating the colored dissolved organic matter absorption coefficient in lakes using satellite remote sensing. Ecosystems 8: 709-720.
- Kutser, T., D.C. Pierson, K.Y. Kallio, A. Reinart, and S. Sobek. 2005 Mapping lake CDOM by satellite remote sensing. Remote Sensing of Environment 94: 535-540.
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- Markensten, H., and D.C. Pierson. 2008. Long term and high frequency monitoring of beam attenuation coefficient as a proxy for suspended particulate inorganic matter: use in the calibration of a sediment resuspension model. Verh. Int. Ver. Limnol. 30(1): 113-116.
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- Gelda, R. K., S. W. Effler, F. Peng, E. M. Owens and D. C. Pierson. 2009. A turbidity model for Ashokan Reservoir, NY: Case Study. Journal of Water Resources Planning and Management ASCE 135:885-895.
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- T Kutser, L Tranvik, DC Pierson, 2009. Variations in colored dissolved organic matter between boreal lakes studied by satellite remote sensing. Journal of applied remote sensing 3(1), 033538 (July 1, 2009). doi:10.1117/1.3184437
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- Aavudai A., A. Frei, D. C. Pierson, E. M. Schneiderman, M. S. Zion, D. Lounsbury and A. H. Matonse. 2011. Examination of change factor methodologies for climate change impact assessment. Water Resources Research 47: W03501, doi:10.1029/2010WR009104,
- Pierson, D.C., G. A. Weyhenmeyer, L. Arvola, B. Benson, T. Blenckner, T. Kratz, D.M. Livingstone, H. Markensten, G. Marzec, K. Pettersson, K. Weathers. 2011. An automated method to monitor lake ice phenology. Limnology and Oceanography Methods 9: 74-83
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- Pradhanang, S. M., A. Anandhi, R. Mukundan, M. S. Zion, D. C. Pierson, E. M. Schneiderman, A. Matonse, and A. Frei. 2011. Application of SWAT model to assess snowpack development and streamflow in the Cannonsville watershed, New York, USA. Hydrological Processes: DOI: 10.1002/hyp.8171.
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Participation on Board of Experts

Examining Committee Rolf Erikson PhD dissertation Uppsala University 1998
 Opponent Thorsten Blenckner Licentiate thesis Uppsala University 1999
 Participant US National Climate Assessment 2012
 Participant in US Water Utility Climate Alliance 2010-2012
 Examining Committee Elin Lavonen PhD dissertation SLU 2015
 Examining Committee Jean-Marc Mayotte PhD dissertation Uppsala University 2016
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