

TODD GOUIN

TG Environmental Research
18 Wellpond Close, Sharnbrook MK44 1PL, UK
telephone. +44(0)1234783548 email. todd.gouin@environresearch.com

EDUCATION

Trent University Peterborough, Ontario, Canada.

PhD

September 2002 – 2005 (Conferred June 2006)
Watershed Ecosystems Graduate Programme
Supervisor: Dr. Tom Harner, Dr. Donald Mackay
Thesis: Environmental fate and distribution of polybrominated diphenyl ethers in the Great Lakes

M. Sc.

September 2000 – 2002 (Conferred June 2002)
Applications of Modelling in the Natural and Social Sciences
(Environmental Modelling)
Supervisor: Dr. Donald Mackay
Thesis: Long-range transport of organic contaminants: The role of air-surface exchange

B. Sc.

September 1997 – 2000 (Conferred June 2000) (Dean's List, President's List)
Environmental Chemistry
Thesis: A framework for screening chemicals for persistence and long-range transport in the environment

Georgian College of Applied Arts and Technology Barrie, Ontario, Canada.

Diploma

September 1989 – 1993 (Dean's List)
Environmental Engineering Technologist

CURRENT POSITIONS

President, Principal Scientist

TG Environmental Research
August 2017 – present

Research Interests

- Environmental and human risk assessment of chemicals used in commerce.

PREVIOUS EMPLOYMENT

Chemical Risk Assessor

Safety & Environmental Assurance Centre
Unilever
June 2009 – August 2017

Research Interests

- Application and development of exposure models to assess the environmental and human risks of chemicals used in personal care products

Assistant Professor

Department of Chemistry & Biochemistry
University of Alaska Fairbanks
August 2007 – May 2009

Courses Taught

- General chemistry II (CHEM-106)
- Instrumental analytical chemistry (CHEM-412 and CHEM-413)
- Environmental fate and transport (CHEM-631)

Postdoctoral Research Fellow Department of Physical and Environmental Sciences
University of Toronto at Scarborough
October 2005 – August 2007

Research Interests

- modelling and field work to assess the environmental fate and transport of persistent organic pollutants

Waste Water Treatment Operator Waste Recovery Systems of Windsor Inc.
May 1994 - August 1997

- supervised the operation of the waste water treatment process

PROFESSIONAL ASSOCIATIONS & COMMITTEE SERVICE

- ICCA workshop chair: Environmental Risk Assessment of microplastic, November, 2018.
- SETAC – Chair, member and active participant of workshops:
 - **Global Guidance Life Cycle Impact Category Indicators Pellston workshop, 2018.**
 - **Chair of the Exposure Modelling Advisory Group 2015-2018.**
 - **Pellston workshop on passive sampling, November, 2012.**
 - **Pellston workshop and workgroup chair on Global Climate Change, July 2011.**
 - **Workshop on PPCPs in the environment, April 10-12, 2011.**
- ECETOC – Chair and member of industry-sponsored task forces and workshops:
 - **Task force: Aquatic toxicity and bioaccumulation of particulates, 2015 – 2018.**
 - **Workshop chair on the use of exposure models in risk assessment, May, 2017.**
 - **Workshop chair on use of chemical activity in risk assessment, October, 2015.**
 - **Task force chair: Environmental risk assessment of ionisable organics, 2013.**
- CEFIC – Chair of Research Liaison Team for several LRI research projects:
 - ECO36 “Paving the way for QIVIVE – from nominal to free to cellular concentrations in *in vitro* assays” 2017-2019.
 - ECO34 “A tiered testing strategy for rapid estimation of bioaccumulation by a combined modelling – *in vitro* testing approach” 2016-2019.
 - ECO33 “Strengthening the use and interpretation of dietary bioaccumulation tests for hydrophobic chemicals” 2016-2017.
 - ECO30 “Mining data(bases) to expand the domain of applicability of chemical activity” 2015-2018.
 - ECO21 “Improving the performance and expanding the applicability of a mechanistic bioconcentration model for ionogenic organic compounds (IOCs) in fish (BIONIC)” 2013-2016.
- Environment Canada/CEFIC Workshop chair Environmental Risk Assessment: Ionizable organic chemicals, Oct, 2014
- PCPC International Plastic Task Force, 2015 – 2017.
- Cosmetics Europe task force on use of Microplastics in consumer products, 2013.
- Trent University Graduate Student Association, Vice President, 2004.

RESEARCH GRANTS

ACC-LRI “Comparison of PBT vs. holistic methods for chemical prioritization and screening assessment” (2018-2020)

CEFIC-LRI “Development of an *in silico* model for dermal absorption” LRI-B13 (2014-2016)

National Science Foundation “Persistent organic pollutants in Alaska: New GC-MS experiments and experiences for College and pre-College students”, Course, Curriculum, and Laboratory Improvement (CCLI) program (2007-2009)

Association of Universities and Colleges of Canada “Investigating the temporal variability and transport mechanisms of persistent toxic substances in the atmosphere of Costa Rica”, Canada-Latin America and the Caribbean Research Exchange Grant (LACREG) (2005)

LIST OF PUBLICATIONS

Peer Reviewed (*h-index*: 25)

1. **Gouin, T.**, Mackay, D., Webster, E., Wania, F. Screening chemicals for persistence in the environment. *Environ. Sci. Technol.* **2000**, *34*, 881-884. (**79 citations**)
2. **Gouin, T.** Thomas, G.O., Cousins, I., Barber, J., Mackay, D., Jones, K.C. Air-surface exchange of polybrominated diphenyl ethers and polychlorinated biphenyls. *Environ. Sci. Technol.* **2002**, *36*, 1426-1434. (**127 citations**)
3. Beyer, A., Wania, F., **Gouin, T.**, Matthies, M., Mackay, D. Selecting internally consistent physical-chemical properties of organic compounds. *Environ. Toxicol. Chem.* **2002**, *21*, 941-953. (**122 citations**)
4. Beyer, A. Wania, F., **Gouin, T.**, Matthies, M., Mackay, D. Temperature dependence of the characteristic travel distance. *Environ. Sci. Technol.* **2003**, *37*, 766-771. (**68 citations**)
5. **Gouin, T.**, Harner, T. Modelling the environmental fate of the polybrominated diphenyl ethers. *Environ. Int.* **2003**, *29*, 717-724. (**124 citations**)
6. Cousins, I.T., **Gouin, T.** Vegetation-air exchange facilitates the long-range transport of some SVOCs. *Stoch. Env. Res. Risk. Ass.* **2003**, *17* (4): 241-243, October, 2003. (**1 citation**)
7. **Gouin, T.**, Mackay, D., Jones, K.C., Harner, T., Meijer, S.N. Evidence for the "grasshopper" effect and fractionation during long-range atmospheric transport of organic contaminants. *Environ. Pollution.* **2004**, *128*, 139-148. (**119 citations**)
8. **Gouin, T.**, Cousins, I., Mackay, D. Comparison of two methods for obtaining degradation half-lives. *Chemosphere*, **2004**, *56*, 531-535. (**29 citations**)
9. **Gouin, T.**, Harner, T., Daly, G.L., Wania, F., Mackay, D., Jones, K.C. Variability of concentrations of polybrominated dipenyl ethers and polychlorinated biphenyls in air: Implications for monitoring, modeling, and control. *Atmos. Environ.* **2005**, *39*, 151-166. (**91 citations**)
10. **Gouin, T.**, Bocking, S., Mackay, D. Policy by analogy: Precautionary principle, science and polybrominated diphenyl ethers. *Int. J. Global Env. Issues.* **2005**, Vol. *5*, Nos. *1/2*, 54-67. (**2 citations**)
11. **Gouin, T.**, Harner, T., Blanchard, P., Mackay, D. Passive and active air samplers as complementary methods for investigating persistent organic pollutants in the Great Lakes Basin. *Environ. Sci. Technol.* **2005**, *39*, 9115-9122. (**138 citations**)
12. **Gouin, T.**, Thomas, G.O., Chaemfa, C., Harner, T., Mackay, D., Jones, K.C. Concentrations of decabromodiphenyl ether in air from Southern Ontario: Implications for particle-bound transport. *Chemosphere.* **2006**, *64*, 256-261. (**74 citations**)

13. Harner, T., Shoeib, M., **Gouin, T.**, Blanchard, P. Polychlorinated naphthalenes in Great Lakes air: Assessing spatial trends and combustion inputs using PUF disk passive air samplers. *Environ. Sci. Technol.* **2006**, *40*, 5333-5339. (**38 citations**)
14. Harner, T., Pozo-Gallardo, K., **Gouin, T.**, Macdonald, A.M., Hung, H., Caine, J., Peters, A. Global pilot study for persistent organic pollutants (POPs) using PUF disk passive air samplers. *Environ. Pollution*, **2006**, *144*, 445-452. (**114 citations**)
15. **Gouin, T.**, Jantunen, L., Harner, T., Blanchard, P., Bidleman, T. Spatial and temporal trends of chiral organochlorine signatures in Great Lakes air using passive air samplers. *Environ. Sci. Technol.* **2007**, *41*, 3877-3883. (**24 citations**)
16. **Gouin, T.**, Wania, F. Time trends of Arctic contamination in relation to emission history and chemical properties. *Environ. Sci. Technol.* **2007**, *41*, 5986 - 5992. (**36 citations**)
17. **Gouin, T.**, Wania, F., Ruepert, C., Castillo, L. Field testing passive air samplers for current-use pesticides in a tropical environment. *Environ. Sci. Technol.* **2008**, *42*, 6625-6630. (**71 citations**)
18. **Gouin, T.**, Shoeib, M., Harner, T. Atmospheric concentrations of current-use pesticides across south-central Ontario using monthly-resolved passive air samplers. *Atmos. Environ.*, **2008**, *42*, 8096 - 8104. (**31 citations**)
19. Hayward, S., **Gouin, T.**, Wania, F. Levels and seasonal variability of pesticides in the rural atmosphere of southern Ontario. *J. Agr. Food Chem.* **2010**, *58*, 1077-1084. (**16 citations**)
20. **Gouin, T.**, Wilkinson, D., Hummel, S., Meyer, B., Culley, A. Polycyclic aromatic hydrocarbons in air and snow from Fairbanks, AK. *Atmos. Pol. Res.* **2010**, *1*, 9-15. (**11 citations**)
21. **Gouin, T.** The precautionary principle and persistence: Prioritizing the decision-making process. *Environ. Sci. & Policy* **2010**, *13*, 175-184. (**15 citations**)
22. Hayward, S., **Gouin, T.**, Wania, F. Comparison of four active and passive sampling techniques for pesticides in air. *Environ. Sci. Technol.* **2010**, *44*, 3410-3416. (**53 citations**)
23. Shunthirasingham, C., Oyiliagu, C.E., Cao, X., **Gouin, T.**, Wania, F., Lee, S.C., Pozo, K., Harner, T., Muir, D.C.G. Spatial and temporal pattern of pesticides in the global atmosphere. *J. Environ. Monit.* **2010**, *12*, 1650-1657. (**57 citations**)
24. **Gouin, T.**, Roche, N., Lohmann, R., Hodges, G. A thermodynamic approach for assessing the environmental exposure of chemicals absorbed to micro-plastic. *Environ. Sci. Technol.* **2011**, *45*, 1466-1472. (**109 citations**)
25. Slater, H., Leigh, M.B., **Gouin, T.** Assessing the potential for rhizoremediation of PCB contaminated soils in northern regions using native species. *Chemosphere.* **2011**, *84*, 199-206. (**43 citations**)

26. Shunthirasingham, C., **Gouin, T.**, Lei, Y.D., Ruepert, C., Castillo, L.E., Wania, F. Current use pesticide transport to Costa Rica's high altitude tropical cloud forest. *Environ. Toxicol. Chem.* **2011**, 2709-2717. (**11 citations**)
27. **Gouin, T.**, van Egmond, R., Price, O., Mortimer, J. Prioritising chemicals used in personal care products in China for environmental risk assessment: Application of the RAIDAR model. *Environ. Pollut.* **2012**, 208-214. (**19 citations**)
28. Boxall, A.B.A., Rudd, M.A., Brooks, B.W., Caldwell, D.J., Choi, K., Hickmann, S., Innes, E., Ostapyk, K., Staveley, J.P., Verslycke, T., Ankley, G.T., Beazley, K.F., Belanger, S.E., Berninger, J.P., Carriquiriborde, P., Coors, A., DeLeo, P.C., Dyer, S.D., Ericson, J.F., Gagne, F., Giesy, J.P., **Gouin, T.**, Hallstrom, L., Karlsson, M., Larsson, D.G.J., Lazorchak, J.M., Mastrocco, F., McLaughlin, A., McMaster, M.E., Meyerhoff, R.D., Moore, R., Parrott, J.L., Snape, J.R., Murray-Smith, R., Servos, M.R., Sibley, P.K., Straub, J.O., Szabo, N.D., Topp, E., Tetreault, G.R., Trudeau, V.L., van der Kraak, G.I. Pharmaceuticals and personal care products in the environment: What are the big questions? *Environ. Health Persp.* **2012**, 1221-1229. (**401 citations**)
29. Stahl, R.G., Hooper, M.J., Balbus, J.M., Clements, W., Fritz, A., **Gouin, T.**, Helm, R., Hickey, C., Landis, W., Moe, S.J. The influence of global climate change on the scientific foundations and applications of Environmental Toxicology and Chemistry: Introduction to at SETAC International workshop. *Environ. Toxicol. Chem.* **2013**, 13-19. (**26 citations**)
30. **Gouin, T.**, Armitage, J., Cousins, I., Muir, D.C.G., Ng, C.A., Tao, S. Global climate change and influence on chemical fate and bioavailability. *Environ. Toxicol. Chem.* **2013**, 20-31. (**49 citations**)
31. Alaee, M., Wang, D.G., **Gouin, T.** Cyclic volatile methyl siloxanes in the environment. *Chemosphere.* **2013**, 709-710. (**9 citations**)
32. **Gouin, T.**, van Egmond, R., Sparham, C., Hastie, C., Chowdhury, N. Simulated use and wash-off release of decamethylcyclopentasiloxane used in anti-perspirants. *Chemosphere.* **2013**, 726-734. (**19 citations**)
33. Franco, A., Struijs, J. **Gouin, T.**, Price, O.R. Evolution of the sewage treatment plant model SimpleTreat : Applicability domain and data requirements. *Integrated Environmental Assessment and Management.* **2013**, 560-568. (**15 citations**)
34. Franco, A., Struijs, J. **Gouin, T.**, Price, O.R. Evolution of the sewage treatment plant model SimpleTreat: Use of realistic biodegradability tests in probabilistic model simulations. *Integrated Environmental Assessment and Management.* **2013**, 569-579. (**12 citations**)
35. Maxwell, G., MacKay, C., Cubberley, R., Davies, M., Gellatly, N., Glavin, S., **Gouin, T.** Jacquilleot, S., Moore, C., Pendlington, R., Saib, O., Sheffield, D., Stark, R., Summerfield, V. Applying the skin sensitisation adverse outcome pathway (AOP) to quantitative risk assessment. *Toxicology in vitro*, **2014**, 8-12. (**34 citations**)

36. Koelmans, A.A., **Gouin, T.**, Thompson, R., Wallace, N., Arthur, C. Plastics in the marine environment. *Environ. Toxicol. Chem.* **2014**, 5-10. **(28 citations)**
37. Mayer, P., Parkerton, T.F., Adams, R.G., Cargill, J.G., Gan, J., **Gouin, T.**, Gschwend, P.M., Hawthorne, S.B., Helm, P., Witt, G., You, J., Escher, B.I. Passive sampling methods for contaminated sediments: Scientific rationale supporting use of freely dissolved concentrations. *Integrated Environmental Assessment and Management.* **2014**, 197-209. **(60 citations)**
38. Gawor, A., Shunthirasingham, C., Hayward, S.J., Lei, Y.D., **Gouin, T.**, Mmereki, B.T., Masamba, W., Ruepert, C., Castillo, L.E., Shoeib, M., Lee, S.C., Harner, T., Wania, F. Neutral polyfluoroalkyl substances in the global atmosphere. *Environmental Science Processes & Impacts.* **2014**, 404-413. **(22 citations)**
39. **Gouin, T.**, Avalos, J., Brunning, I., Brzuska, K., de Graaf, J., Kaumanns, J., Koning, T., Meyberg, M., Rettinger, K., Schlatter, H., Thomas, J., van Welie, R., Wolf, T. Use of micro-plastic beads in cosmetic products in Europe and their estimated emissions to the North Sea environment. *SOFW-Journal.* (3) **2015**, 40-46.
40. Karlsson, M.V., Marshall, S., **Gouin, T.**, Boxall, A.B.A. Routes of uptake of diclofenac, fluoxetine, and triclosan into sediment-dwelling worms. *Environmental Toxicology & Chemistry.* **2016**, 836-842. **(12 citations)**
41. McLachlan, M., Hongyan, Z., **Gouin, T.** Using benchmarking to strengthen the assessment of persistence. *Environ. Sci. Technol.* **2017**, 51, 4-11. **(5 citations)**
42. Gobas, F.A.P.C., Mayer, P., Parkerton, T., Burgess, R., van de Meent, D., **Gouin, T.** A Chemical Activity Approach to Exposure and Risk Assessment of Chemicals. *Environ. Toxicol. Chem.* **2018**, 37, 1235-1251. **(1 citation)**
43. MacLeod, M., **Gouin, T.**, McKone, T.E. Modeling in Environmental Chemistry. *Environ. Sci. Processes Impacts.* **2018**, 20, 10-11.
44. Di Guardo, A., **Gouin, T.**, MacLeod, M., Scheringer, M. Environmental fate and exposure models: Advances and challenges in 21st century chemical risk assessment. *Environ. Sci. Processes Impacts.* **2018**, 20, 58-71. **(1 citation)**
45. Timmer, N., **Gouin, T.**, Gore, D., Sanders, D., Hodges, G., Droge, S.T.J. Toxicity mitigation and bioaccessibility of the cationic surfactant cetyltrimethylammonium bromide in a sorbent-modified biodegradation study. *J. Haz. Sub.* **2018** (in review).

Special Publications:

Refereed Reports

1. Cousins, I.T., **Gouin, T.W.**, Mackay, D. Screening organic chemicals for persistence in the environment and potential for long-range transport. Canadian Environmental Modelling Centre, Trent University, Peterborough, Ontario (Final Report for Environment Canada, Roger Sutcliffe, project manager) **May 2000**.
2. Mackay, D., Webster, E., Cousins, I., Cahill, T., Foster, K. **Gouin, T.** An introduction to multimedia models. Canadian Environmental Modelling Centre Report No.

200102 (Final report prepared as a background paper for OECD workshop, Ottawa, October 2001), Trent University, Peterborough, ON, **July 2001**.

3. **Gouin, T.**, Mackay, D., Cowan-Ellsberry, C. A review and discussion of scientific and regulatory definitions of environmental persistence: Part III models used to estimate persistence. Canadian Environmental Modelling Centre Report No. 200103, Trent University, Peterborough (A report prepared under contract to ECETOC; Dr. I Martin Holt and Dr. J.M. Libre, Scientific Authorities) **2002**.
4. Mackay, D., Webster, E., Cahill, T., **Gouin, T.** Towards consistent evaluation of the persistence of organic, inorganic, and metallic substances. Canadian Environmental Modelling Centre, Trent University (A report submitted to Human and Environmental Risk Assessment (HERA), Environment Canada. Project managers; Patrick Doyle, Yves Couillard, Don Gutzman) **2002**.
5. Webster, E., Mackay, D., Wania, F., Arnot, J., Gobas, F., **Gouin, T.**, Hubbarde, J., Bonnell, M. Development and application of models of chemical fate in Canada: Modelling Guidance document. Report for Environment Canada. Canadian Environmental Modelling Network Report No. 200502, Trent University, Peterborough, Ontario **2005**.
6. Arnot, J.A., Mackay, D., **Gouin, T.** Development and application of models of chemical fate in Canada: Practical methods for environmental biodegradation rate estimation. Report for Environment Canada. Canadian Environmental Modelling Network Report No. 2005xx (*in review*).
7. Mackay, D., Webster, E., **Gouin, T.** Partitioning, persistence and long-rang transport of chemicals in the environment. *in Chemicals in the Environment: Assessing and managing risk*. Hester, R.E., Harrison, R.M. eds. Royal Society of Chemistry, Cambridge, UK **2006**.

Significant contributions to Non-refereed Technical Reports

1. ECETOC. (2013). Environmental Exposure Assessment of Ionisable Organic Compounds. Brussels, Belgium: Technical Report No. 123 (Leading role as Task Force Chair)
2. ECETOC. (2016). Defining the Role of Chemical Activity in Environmental Risk Assessment within the context of Mode-of-Action: Practical Guidance and Advice. Brussels, Belgium: Workshop Report No. 29 (Leading role as Chair of the Workshop)
3. ECETOC. (2018). Advances in (environmental) Exposure Modelling: Bridging the gap between research and application. 4-5 May 2017. Brussels, Belgium: Workshop Report No. 35 (Leading role as Chair of the Workshop).
4. ECETOC. (2018). An evaluation of the challenges and limitations associated with aquatic toxicity and bioaccumulation studies for sparingly soluble and manufactured particulate substances: Technical Report (in review) (Leading role in coordinating and drafting the Technical Report).

AWARDS AND SCHOLARSHIPS

Environmental Science: Processes & Impacts Outstanding Reviewer Award (2017)

Environmental Science & Technology Excellence in Review Award (2010)

T.H.B. Symons Seminar Series Award of Excellence Top student lecturer (2006)

Natural Sciences and Engineering Research Council of Canada Post-doctoral Fellowship (2005–2007)

Trent University Dean's PhD scholarship (2004 – 2005)

Natural Sciences and Engineering Research Council of Canada Postgraduate Scholarship B (2002–2004)

Ontario Graduate Scholarship (2000–2002)

REFEREES

Dr. Don Mackay Trent University, ERS; tel. 705 748 1011 ext 7489; dmackay@trentu.ca
Dr. Dan Salvito RIFM; +1 201 689 8089 ext 114; dsalvito@rifm.org
Dr. Frank Gobas Simon Fraser University; 778 782-5928: gobas@sfu.ca
Dr. Frank Wania University of Toronto; 416-287-7225 frank.wania@utoronto.ca