

David G. Delaney, Ph.D.

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EDUCATION

- 2005-2009 **Doctor of Philosophy in Marine Biology and Conservation**
McGill University, Department of Biology, Montreal, Quebec, Canada
- 2000-2004 **Bachelor of Science, Water Environments and Ecosystems – Biological Focus**
McGill University, Faculty of Agricultural and Environmental Sciences, Montreal, Quebec, Canada

AWARDS

- 2009 Alma Mater Student Travel Grant Award (\$750)
- 2009 Graduate Training Committee Travel Award (\$500)
- 2008 Gulf of Maine Visionary Award for innovating thinking and commitment to protecting the Gulf of Maine environment and surrounding waters
- 2007 University of Maine's Addison E. Verrill Award for Marine Biology (\$2,000)
- 2006 McGill Graduate Studies Fellowship Award (\$5,000)
- 2005 Co-P.I. on a grant from N.O.A.A.'s National Sea Grant (\$205,755)
- 2005 Ecological Society of America's E.C. Pielou Award (\$200)
- 2005 McGill Graduate Studies Fellowship Award (\$5,000)

PEER-REVIEWED PUBLICATIONS

Delaney, D.G. and Leung, B. In press. An empirical probability model of detecting species at low densities. *Ecological Applications*.

Delaney, D.G. 2009. Monitoring and managing the spread of marine introduced species: development of approaches and application to the European green crab (*Carcinus maenas*) and the Asian shore crab (*Hemigrapsus sanguineus*). Ph.D. dissertation, McGill University, Montreal, Quebec, Canada.

Delaney, D.G., Sperling, C.D., Adams, C.S. and Leung, B. 2008. Marine invasive species: validation of citizen science and implications for national monitoring networks. *Biological Invasions* 10: 117-128.

Griffen, B.D. and **Delaney, D.G.** 2007. Species invasion shifts the importance of predator dependence. *Ecology* 88: 3012-3021.

Leung, B. and **Delaney, D.G.** 2006. Managing sparse data in biological invasions: a simulation study. *Ecological modeling* 198: 229-239.

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NON-PEER REVIEWED PUBLICATIONS

Delaney, D.G. In press. The global problem of invasive species and how to ameliorate the problem. Beyond Blue.

Delaney, D.G. 2009. Report on the European green crab, *Carcinus maenas*. Center for Agricultural Bioscience International Invasive Species Compendium.

Delaney, D.G. 2008. Verifying the validity of volunteer monitoring to increase its utility: An academic perspective. U.S. Environmental Protection Agency's The Volunteer Monitor.

Delaney, D.G. 2007. In the Spotlight: The Marine Invasive Species Monitoring Organization. The National Institute of Invasive Species Science Citizen Science Newsletter.

Delaney, D.G. 2006. Meet the scientists. National Sea Grant's Nab the Aquatic Invader Website.

Delaney, D.G. 2005. Asian shore crab spreads north. The Massachusetts Office of Coastal Zone Management Newsletter (C.Z. Mail).

Delaney, D.G. and Solecki, A. 2005. Citizen science as a solution to invasive species. Gulf Stream Newsletter: A publication of the Gulf of Maine Marine Educators' Association.

PEER-REVIEWER OR EXPERT OPINION FOR GOVERNMENTAL DOCUMENTS

Asian Carp in the Great Lakes Region. A summary report for Members of the U.S. Congress. Buck, E.H., Upton, H.F. and Stern, C.V. In Press. Congressional Research Service.

Risk assessment for the Chinese mitten crab (*Eriocheir sinensis*) and the European green crab (*Carcinus maenas*) in Canadian waters. 2010. Therriault, T.W., Herborg, L.M., Locke, A. and McKindsey, C.W. Fisheries and Oceans Canada.

Identifying significant range extensions of invasive marine pests – C.C.I.M.P.E. Range Decision Guidelines Project. Darbyshire, R. and Caley, P. 2009. Australian Government's Bureau of Rural Sciences.

Marine Pest Incursions – A tool to predict the cost of eradication based on expert assessments by Crombie, J., Knight, E. and Barry, S. 2007. Australian Government's Bureau of Rural Sciences.

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SELECTED LIST OF ORAL PRESENTATIONS

16th International Conference on Aquatic Invasive Species. 2009. Application of citizen science and search theory to optimally detect a species at low density.

Canadian Society of Ecology and Evolution Annual Meeting. 2008. False negatives: Exactly how reliable is presence-absence data? Also I chaired a session of oral presentations on the topics of theoretical and statistical ecology.

Fifth International Conference on Marine Bioinvasions. 2007. Are citizen scientists the solution to early detection?

Canadian Conference for Fisheries Research and Society of Canadian Limnologists. 2007. To detect or not to detect: Do ecologists properly interpret survey data?

90th Ecological Society of America annual meeting. 2005. Predicting discrete secondary spread of aquatic invasive species, which won the E.C. Pielou Award for the best oral presentation on statistical ecology. Also I presided over the contributed oral session on invasive species.

SELECTED LIST OF INVITED ORAL PRESENTATIONS

Zavora Marine Laboratory Presentation Series. 2010. Biology and conservation of sharks.

The Northeast Aquatic Nuisance Species Panel on Citizens Monitoring for Marine Invasive Species: A Regional Approach to Covering the Coast. 2006. I was invited and presented a talk entitled “Validation study of citizen science and implications for regional monitoring networks” and was a panelist for the round table discussion.

New England Aquarium’s Conservation Fundraising Night. 2006. Keynote address.

National Parks Service’s Plight and Promise: A sharing of research perspectives. 2006. Application of citizen science and G.I.S. technologies to the field of invasion biology.

Brockton High School’s Science Department and Club. 2005 and 2006. How to become a marine biologist: a case study of citizen science and marine invasion ecology.

The New York Biology Teachers Association. 2005. The role of teachers in rapid dissemination of research on current environmental problems and the possibilities for collaboration.

Cornell University Extension Program of Suffolk County. 2005. Citizen Science Initiative: Marine Invasive Species Monitoring Organization (C.S.I.: M.I.S.M.O.).

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PROFESSIONAL EXPERIENCE

- 2002-Present **Executive Director:** Invasive Tracers, Quincy, Massachusetts, U.S.A.
- Recruited and trained over 6,000 volunteers to monitor over 60 sites in New England and New York and participate in my research
 - Produced an educational video featuring interviews with Drs. James E. Byers and James T. Carlton (<http://madere.biol.mcgill.ca/dgdelaney/>)
 - Conducted data analysis and produced final reports
 - Obtained and renewed collections permits
- 2010 **Research Assistant:** Mossel Bay Marine Laboratory, Mossel Bay, South Africa
- Conducted photo identification, sighting rate, and mark-recapture methods to establish and monitor the population status and abundance of great white sharks and bottlenose dolphins in Mossel Bay
 - Executed genetic and stable isotope sampling to establish genetic relationships of white sharks in South Africa and internationally to map energy flow through the marine ecosystem of Mossel Bay
 - Conducted active acoustic tracking to determine habitat use, home range and movement patterns of white sharks in Mossel Bay
- 2010 **Research Assistant:** Zavora Marine Laboratory, Zavora, Mozambique
- Conducted visual surveys of recreational scuba divers to establish the impact of divers on manta ray cleaning stations, benthic communities, and the health of coral reefs
 - Executed standardised coral reef monitoring protocols (Reef Check) to monitor long term impact on reef structure
 - Conducted underwater photo identification of manta rays and whale sharks
- 2008-2009 **Research Assistant:** The Tomlinson Project in University-Level Science Education, McGill University, Montreal, Quebec, Canada
- Conducted a study on the sustainability of student response systems (clickers) in undergraduate science classes to determine if it is worth investing up to \$500,000 dollars or if a student pays system or an alternative model is feasible
 - Created questionnaires to assess the students' satisfaction with clickers
 - Conducted in-class observations to identify effective ways to use clickers
- 2008-2009 **Research Assistant:** Teaching and Learning Services, McGill University, Montreal, Quebec, Canada
- Evaluate the perception and satisfaction of student response systems by conducting in-class surveys in courses across the Faculty of Science
 - Created a database for assessing the effectiveness of using clickers
- 2004 **Research Assistant:** Dr. Brian Leung Lab, McGill University, Montreal, Quebec, Canada
- Coded a spread model that manages sparse data on biological invasions
 - Prepared a successful grant proposal and assisted in writing a peer-reviewed

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publication

- 2004 **Field Assistant:** Charles Darwin Research Institute, Galapagos, Ecuador
- Conducted ethological study on the feeding habits of different species of Darwin's finches as well as collected finches and other species by mist net, banded, measured them, and recorded morphological and bite force data
 - The data was published in Proceedings of Royal Society of London Series B
- 2002-2004 **Educator:** New England Aquarium, Boston, Massachusetts, U.S.A.
- Planned, designed, and implemented a complete curriculum for four different themes of an environmental and marine based education programs
 - Supervised and maintained group dynamics to optimize work success, efficiency, and enjoyment of the students, parents, and staff
 - Taught science in the classroom and at sea (*e.g.*, 90' schooner, 113' catamaran)
- 2003 **Consultant:** Sierra Club of Canada, Montreal, Quebec, Canada
- Gathered data from various sources and determined the best ways to overcome sparse data to create an accurate predictive model
 - Designed and implemented a statistical model to predict in real time, where and when it is safe to swim in the Lac St. Louis area of Quebec
- 2001 **Paid Intern:** Massachusetts Department of Environmental Protection's Ride Share Program. Boston, Massachusetts, U.S.A.
- Helped implement and expand a state environmental regulation
 - Maintained a database in Microsoft Access of pertinent information for all businesses in Massachusetts
 - Participated in the functioning of a state environmental regulatory agency

TEACHING EXPERIENCE

Cell and Molecular Biology (Biology 112): 2008
Limnology Field Course (Biology 432/632): 2005, 2006, 2007, 2008
Marine Biology (Biology 442): 2007
Essential Biology (Biology 115): 2005, 2006, 2007
Evolving Earth (Environment 202): 2005, 2006

TEACHER AND COMMUNICATION TRAINING

Attended the Global Environmental and Climate Change Centre's Understanding Global Climate Models: Communicating the Basics to Non-Climate Scientist: 2009
Attended Learning to Teach: A Professional Development Workshop: 2008
Attended Professor L. Cooper's Writing Science Articles Course (REDM610): 2008
Attended Tomlinson Science Teaching Development Workshop: 2007

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EXTRACURRICULAR ACTIVITIES

- **Chairperson:** McGill University's Post-Graduate Student Society Constitutional Committee from 2007 to 2008
- **P.A.D.I. certified for dry suit diving:** Monterey, California in 2008
- **Volunteer educator:** Teaching about current research and environmental issues to local elementary and high school students from 2002 to 2007
- **President:** Biology Graduate Student Association in 2005 to 2006
- **Member:** McGill University's Department of Biology Graduate Student Association in 2004 to 2005
- **P.A.D.I. certified advanced open water diver:** Galapagos in 2004
- **World Traveler:** Have travelled to 5 continents with a goal to visit all 7

WEBSITES

- www.DGDelaney.com
- www.InvasiveTracers.com
- <http://madere.biol.mcgill.ca/dgdelaney/>
- <http://massbay.mit.edu/exoticspecies/crabs/>
- <http://www.salemsound.org/mis/miskids.htm>

MEDIA COVERAGE

BioScience. 2008. Jeffrey P. Cohn. Citizen science: Can volunteers do real research?
(<http://www.bioone.org/doi/pdf/10.1641/B580303>)

Boston Globe. 2006. Drift cards to track tidal flow by Carolyn Johnson
(http://www.boston.com/news/local/articles/2006/06/29/adrift_at_sea_cards_track_tidal_flow/)

Boston Globe. 2006. Marine water invaders on most wanted list by Beth Daley
(http://www.boston.com/news/local/articles/2006/01/09/marine_water_invaders_on_most_wanted_list)

Shore Line Times. 2006. Crab cove: Kids search for invasive crabs by Jim Murtagh
(<http://myexclamation.com/odc-crabs.htm>)

South Coast Today. 2006. Highlighting volunteer monitoring network by Brian Fraga
(<http://www.southcoasttoday.com/daily/05-06/05-11-06/05local.htm>)

Patriot Ledger. 2005. David Delaney is the pied piper of science by P. Amy MacKinnon
(<http://www.highbeam.com/doc/1P2-9437867.html>)

Fishermen's voice. 2005. Asian Crab Threatens Acadia Region by Steve Cartwright
(<http://www.fishermensvoice.com/archives/asiancrab1005.html>)