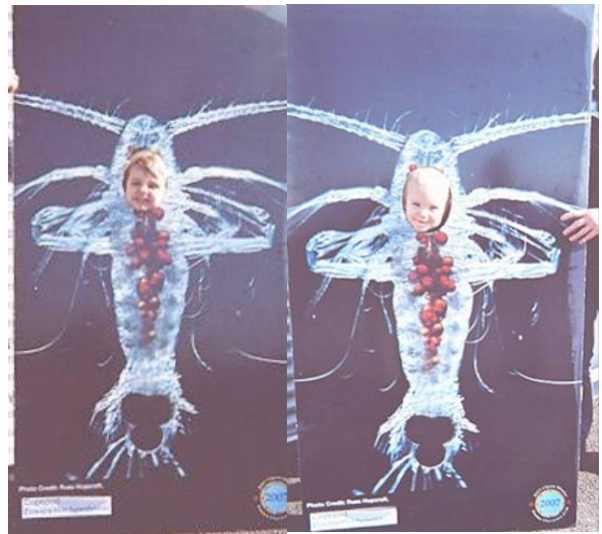


1. Personal Information



Wendy Claire Gentleman



My children as copepods

Postal Address: 1340 Barrington St., Halifax, NS, Canada, B3J 1Y9

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Fax: +1 902 423 1801

Email: wendy.gentleman@dal.ca

Citizenship: Canada and USA

Mother of two young children (ages 4 & 5)

2. Educational Background

2000. Doctor of Philosophy

Thayer School of Engineering, Dartmouth College, Hanover, NH, USA

Thesis title: Factors controlling the seasonal abundance and distribution of *Calanus finmarchicus* in the Gulf of Maine/Georges Bank region. 272pp.

Co-Supervisors: D. R. Lynch & C. S. Davis

1994. Bachelor of Engineering, Honours

Mechanical Engineering, McGill University, Montreal, PQ, Canada

Thesis title: A numerical investigation to solve 2nd-order nonlinear differential equations. 77pp.

Supervisor: M. P. Paidoussis

3. Professional Experience

2009 – present. Associate Professor with tenure

2002 – 2009. Assistant Professor

Department of Engineering Mathematics and Internetworking
Cross-Appointment with Department of Oceanography
Dalhousie University
Halifax NS, Canada

Please note: I took maternity leave for 8 months in 2004/2005, returned to work full-time for one year, and then took one additional year of maternity leave in 2006/2007. In order to have more time to care for my young children, I chose to return to work in 2007 at part-time status, with a 50% workload from May 2007 until Oct 2009, when my elder child started school and I increased my workload to 80%. It is my intention to continue to ramp up my work responsibilities, ultimately returning to full-time status as my children mature.

2000-2002. Post-doctoral Researcher

Departments of Biological and Chemical Oceanography
School of Oceanography
University of Washington
Seattle, WA, USA
Supervisors: B. Frost & J. Murray

1999-2000. Graduate Research Assistant

Biological Oceanography
Woods Hole Oceanographic Institution, Woods Hole, MA, USA
Supervisor: C. Davis

1994-1999. Graduate Research Assistant

Thayer School of Engineering
Dartmouth College, Hanover, NH, USA
Supervisor: D. Lynch

4. Research Interests

- Development of realistic mathematical characterizations of zooplankton physiology and phenology, including associated environmental dependencies
- Analyses of the roles of zooplankton diet and feeding behavior on ecosystem dynamics and production
- Use of physical-biological coupled models to study effects of circulation and behavioral transport on distributions of planktonic organisms
- Quantification of the relative importance of temperature vs. food-limitation in controlling zooplankton growth and development
- Assessment of predation rates and role of cannibalism for zooplankton dynamics and trophic linkages
- Mortality estimation, including sensitivity to assumptions in different methods, as well as correlations with environmental factors
- Determination of appropriate sensitivity studies to quantify model uncertainty and identify types of data needed to narrow such uncertainty
- Analysis of time series and spatially-varying biological data to aid interpretation and formulate robust empirical relationships

5. Publications

1. Anderson, T. R. & **W. C. Gentleman**, in prep for Journal of Marine Research. Gordon Arthur Riley (1911-1985) and the development of mathematical models in biological oceanography.
2. **Gentleman, W. C.**, P. Pepin & S. Doucette, in prep for Journal of Marine Systems. Improving confidence in copepod mortality estimates: Choosing formulas and quantifying errors.
3. Neuheimer, A.B., C.T. Taggart & **W.C. Gentleman**, in prep for Journal of Fisheries Biology. Estimating food consumption in fish: what really matters?
4. Johnson, C.L., **W.C. Gentleman**, E.G. Durbin, J.A. Runge & J.M. Pringle, in prep for Progress in Oceanography. Biological and physical control of copepod population dynamics on Georges Bank: a synthesis of GLOBEC and MARMAP data.
5. Gilbert, C. S., **W. C. Gentleman**, C. L. Johnson, C. DiBacco, J. M. Pringle & C. Chen, Accepted for Progress in Oceanography. Sea Scallop (*Placopecten magellanicus*) Larvae on Georges Bank: The influence of depth-distribution, planktonic duration and spawning seasonality on modelled dispersal.
6. Anderson, T. R., **W. C. Gentleman** & B. Sinha, Accepted for Progress in Oceanography. Influence of grazing formulations on the emergent properties of a complex ecosystem model in a global ocean general circulation model.
7. Neuheimer, A. B., **W. C. Gentleman** & P. Pepin, In review for Progress in Oceanography. Explaining regional variability in copepod recruitment: Implications for a changing climate.
8. Neuheimer, A. B., **W. C. Gentleman**, P. Pépin & E. J. H. Head, 2010. How to build and use individual-based models (IBMs) as hypothesis testing tools. Journal of Marine Systems, 81(1-2), 122-133.
9. Neuheimer, A.B., **W. C. Gentleman** & C. L. Galloway, 2009. Modelling larval *Calanus finmarchicus* on Georges Bank: Time-varying mortality rates and a cannibalism hypothesis. Journal of Fisheries Oceanography, 18(3): 147-160.
10. **Gentleman, W. C.** & A. B. Neuheimer, 2008. Functional responses and ecosystem dynamics: How clearance rates explain the influence of satiation, food-limitation and acclimation. Journal of Plankton Research, 30(11): 1215-1231.
11. **Gentleman, W. C.**, A. B. Neuheimer & R. C. Campbell, 2008. Modelling copepod development: current limitations and a new realistic approach. ICES Journal of Marine Science, 65(3), 399-413.
12. Runge, J. A., P. S. Franks, **W. C. Gentleman**, B. A. Megrey, K. A. Rose, F. E. Werner & B. A. Zakardjian, 2005. Diagnosis and prediction of variability in secondary production and fish recruitment processes. in The Sea: Ideas and observations on progress in the study of the seas,

Vol 13: The global coastal ocean: Multi-scale interdisciplinary processes. A. R. Robinson & K. H. Brink, eds. Harvard University Press, Cambridge, MA. Chapter 14: 413-474.

13. **Gentleman, W.**, A. Leising, B. Frost, S. Strom & J. Murray, 2003. Functional responses for zooplankton feeding on multiple resources: a review of assumptions and biological dynamics. *Deep Sea Research II* 50: 2847-2875.

(Cited 60 times as of July 2010, Web of Science.)

14. Leising, A., **W. Gentleman** & B. Frost, 2003. The threshold feeding response of microzooplankton within Pacific high-nitrate low-chlorophyll ecosystem models under steady and variable iron input. *Deep Sea Research II* 50: 2877-2894.

15. **Gentleman, W.**, 2002. A chronology of plankton dynamics *in silico*: How computer models have been used to study marine ecosystems, *Hydrobiologia* 480: 69-85.

16. McGillicuddy, D., D. Lynch, P. Wiebe, J. Runge, E. Durbin, **W. Gentleman** & C. Davis, 2001. Evaluating the synopticity of the U. S. GLOBEC Georges Bank broad-scale sampling pattern with observational system simulation experiments. *Deep Sea Research* 48(1-3): 483-500.

17. Lynch, D., **W. Gentleman**, D. McGillicuddy & C. Davis, 1998. Biological/physical simulations of *Calanus finmarchicus* population dynamics in the Gulf of Maine. *Marine Ecology Progress Series* 169: 189-210.

(Cited 66 times as of July 2010, Web of Science.)

18. C. Miller, D. Lynch, F. Carlotti, **W. Gentleman** & C. Lewis, 1998. Coupling of an individual-based population dynamics model for stocks of *Calanus finmarchicus* with a circulation model for the Georges Bank region. *Fisheries Oceanography* 7(3/4): 219-234.

(Cited 73 times as of July 2010, Web of Science.)

19. McGillicuddy, D., D. Lynch, A. Moore, **W. Gentleman** & C. Davis, 1998. An adjoint data assimilation approach to diagnosis of physical and biological controls on *Pseudocalanus* spp. in the Gulf of Maine/Georges Bank region. *Fisheries Oceanography* 7(3/4): 205-218.

(Cited 35 times as of July 2010, Web of Science.)

20. Semler, C., **W. Gentleman** & M. Paidoussis, 1996. Numerical solutions of second order implicit non-linear ordinary differential equations. *Journal of Sound and Vibration* 195(4): 553-574.

(Cited 23 times as of July 2010, Web of Science.)

6. Presentations

Topic 1. Thinking outside the Z box: How IBMs can advance zooplankton ecology.

W. C. Gentleman

2011. **INVITED** 5th International Zooplankton Production Symposium., Pucon, Chile

Topic 2: Improving confidence in copepod mortality estimates

W. C. Gentleman, P. Pepin, & S. Doucette

2010. **INVITED** ICES Mortality Workshop (WKMOR), Aberdeen, Scotland

2009. ICES Annual Science Meeting, Berlin, Germany

2009. GLOBEC Open Science Meeting, Victoria, BC, Canada

Topic 3: The role of the functional response for ecosystem dynamics

W. C. Gentleman & A. B. Neuheimer

2009. Mathematical Biology Conference, Halifax, NS, Canada

2008. ICES Annual science meeting, Halifax, NS, Canada

2008. ASLO Summer meeting, St. Johns, NL, Canada

Topic 4: Limitations to modeling copepod development & a new realistic approach

W. C. Gentleman, A. B. Neuheimer, & R. C. Campbell

2008. AMEMR Symposium, Plymouth, UK

2007. ICES/PICES/GLOBEC Zooplankton Production Symp., Hiroshima, Japan

Topic 5: Functional responses for zooplankton feeding on multiple prey types

W. Gentleman, A. Leising, B. Frost, S. Strom & J. Murray

2003. ICES/PICES/GLOBEC Zooplankton Production Symposium, Gijón, Spain

2002. ICES WGPBI, Warnemunde, Germany

2001. ASLO Aquatic Sciences Meeting, Albuquerque, NM, USA

2000. US JGOFS Synthesis and Modelling PI Meeting, Woods Hole, MA, USA

Topic 6: Analysis of new production variability in HNLC regions

W. Gentleman, A. Aufdenkampe & J. Murray

2002 ASLO/AGU Ocean Sciences Meeting, Honolulu, HI, USA

Topic 7: How models are used to study marine ecosystems and zooplankton

W. Gentleman

2003 Copepod dynamics in the Gulf of Maine workshop, Durham, NH, USA

2001 Progress in Zooplankton Biology Symposium, Seattle, WA, USA

Topic 8: Modelling copepod population dynamics on Georges Bank

W. Gentleman, D. Lynch, D. McGillicuddy & C. Davis

1999 TASC/GLOBEC/ICES Symposium, Tromso, Norway

1998 **INVITED**. LANL/LLNL High-speed computing conf., Gleneden Beach, OR, USA

1998 ASLO/AGU Ocean Sciences Meeting, San Diego, CA, USA

7. Teaching at Dalhousie

- I. ENGM 6680/4680 (OCEA 5680)
 - Ecosystem Modelling of Marine and Freshwater Environments
 - Graduate and Undergraduate (4th year)
 - 5-10 students, 4 contact hrs/wk
 - Number of times taught: 4

- II. ENGM 2041
 - Applied Linear Algebra
 - Undergraduate (2nd year)
 - 40-60 students, 5 contact hrs/wk.
 - Number of times taught: 6

- III. ENGM 2062
 - Engineering Math IVa
 - Undergraduate (2nd year)
 - 100 students, 5 contact hrs/wk
 - Number of times taught: 3

- IV. ENGM 2262
 - Engineering Mathematics IVb
 - Undergraduate (2nd year)
 - 40-60 students, 5 contact hrs/wk
 - Number of times taught: 2

8. Supervision

In the table below:

S = supervisor/co-supervisor; A = thesis advisor

PGR = post-graduate researcher; G = graduate student; U = undergraduate student

Year(s)	My Role	Level	Trainee	Project/thesis title
2010	S	U	Katherine Latham	Quantifying copepod dynamics and production in the Northwest Atlantic
2010	S	U	Gillian Fung	Quantifying copepod dynamics and production in the Northwest Atlantic
2010	S	U	Kathleen Svendsen	Sustainability of scallop populations on Georges Bank: quantifying spring vs. fall production
2009	S	U	Scott Doucette	Improving copepod mortality estimates: choosing formulae and quantifying errors
2009 - present	S	G – M.Sc.	Chad Gilbert	Influence of physical and biological factors on connectivity of scallop populations on Georges Bank
2007 - 2009	S	PGR	Anna Neuheimer	Simulation of copepod population dynamics in the Northwest Atlantic
2008	S	U	Chad Gilbert	Modelling population connectivity of sea scallops on Georges Bank
2007	S	U	Christina Galloway	Where have the nauplii gone? Modelling copepod dynamics on Georges Bank
2007	S	U	Chad Gilbert	Improving user interface for tidal prediction program WebTide
2006-2007	S	G – Ph. D.	Romero Advincula	The influence of food variability on copepod population dynamics: a case study for Lunenburg Bay
2004-2007	A	G – Ph. D.	Anna Neuheimer	Growth in fishes: Size-at-age, temperature and food
2004 - 2007	A	G – Ph.D.	Moritz Lehmann	Environmental Control of Phytoplankton Size Distribution
2004	S	U	Alyaa Abouzied	Model investigations of diapause phenology of copepods
2004	S	U	Sean Sangster	Modelling population dynamics of <i>Calanus finmarchicus</i>
2004	S	U	Mary McCormick	Modelling zooplankton growth and development
2003	S	PGR	Catherine Johnson	Simulating Transport of dormant copepods
2003	S	PGR	Haiying Zhou	Analyses of development times in existing copepod dynamics models
2003	S	U	Holly Goulding	Modelling effects of diet on zooplankton population dynamics