

CURRICULUM VITAE

Russell Ross Hopcroft

CURRENT POSITION:

Professor, Institute of Marine Science, University of Alaska, Fairbanks, AK 99775-7220.
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Adjunct Faculty: Greenland Climate Research Center, Nuuk, Greenland

PROFESSIONAL PREPARATION:

2005 - 2010 – Associate Professor, Institute of Marine Science, UAF

2006 - 2007 – Visiting Scientist, Australian Institute of Marine Sciences, Townsville, QLD (6 months)
– Visiting Scientist, Australian Antarctic Division, Hobart, TAS (6 months)

2000 - 2005 – Assistant Professor, Institute of Marine Science, UAF

1999 - 2000 – Post-doctoral Fellow, University of Massachusetts Dartmouth

1997 - 1999 – Post-doctoral Fellowship, Monterey Bay Aquarium Research Institute (MBARI)

1991 - 1997 – Doctorate of Philosophy, emphasis Plankton Ecology, the University of Guelph, Ontario, Canada. **Thesis:** *Size-related patterns in growth rate and production of tropical marine planktonic communities along a trophic gradient.* 280p.

1988 - Masters of Science, emphasis Plankton Ecology, University of Guelph. **Thesis:** *Size fractionated biomass and primary production of tropical neritic phytoplankton near Kingston, Jamaica.* 130p.

1983 - Honours Bachelor of Science, specialization Marine Biology, University of Guelph.

1978 - Ontario Honours Secondary School Graduation Diploma, Waterdown District High School.

AWARDS AND SCHOLARSHIPS:

1991 - 1994 – Ontario Graduate Scholarships held at the University of Guelph; field studies undertaken at the University of the West Indies, Jamaica.

1985 - 1987 – Canadian International Development Agency (CIDA) Scholarship; field studies undertaken at the University of the West Indies, Jamaica.

RESEARCH:

My primary interests focus on the composition, production and energy flow of marine pelagic ecosystems using a combination of classical and modern tools, particularly in polar and sub-polar ecosystems. I pursue the development of better methods of assessing the biomass and production of planktonic organisms, and the modeling of these communities. Although the majority of this effort is expended on copepod crustaceans, I maintain a broad based research approach, with some specialization on the taxonomy, biology and ecology of pelagic tunicates and snails. My interests extend to most pelagic free-living invertebrate taxa, and I share this interest through widely distributed digital imagery of these creatures. These “lower” trophic levels ultimately shape the structure of all aquatic communities, and have been shown to be key indicators of environmental change.

PUBLICATIONS (Peer-reviewed): *students supervised are underlined*

54. Kosobokova, K.N., H.-J. Hirche & **R.R. Hopcroft** (2011) Patterns of zooplankton diversity through the depths of the Arctic's central basins. *Mar. Biodiv.* **41**: 29-50
53. Wiebe, P.H., A. Bucklin, L. Madin, M.V. Angel, T. Sutton, F. Pagés, **R.R. Hopcroft**, D. Lindsay (2010) Deep-sea sampling on CMarZ cruises in the Atlantic Ocean – an Introduction. *Deep-sea Res. II.* 2157-2166.
52. Jennings, R.M., A. Bucklin, H. Ossenbrügger, **R.R. Hopcroft**. (2010) Species diversity of planktonic gastropods (Pteropoda and Heteropoda) from six ocean regions based on DNA barcode analysis. *Deep-Sea Res. II.* 2199-2210.
51. Bucklin, A., **R.R. Hopcroft**, K.N. Kosobokova, L.M. Nigro, B.D. Ortman, C.J. Sweetman and R.M. Jennings. 2010. DNA barcoding of Arctic Ocean holozooplankton for species identification and recognition *Deep-Sea Res. II.* 57:40-48
50. **Hopcroft, R.R.** & K.N. Kosobokova. 2010. Distribution and egg production of *Pseudocalanus* species in the Chukchi Sea. *Deep-Sea Res. II.* 57:49-56
49. **Hopcroft, R.R.**, K.N. Kosobokova & A.I. Pinchuk. 2010. Zooplankton community patterns in the Chukchi Sea during summer 2004. *Deep-Sea Res. II.* 57:27-39
48. Kosobokova, K.N. & **R.R. Hopcroft**. 2010. Diversity and vertical distribution of mesozooplankton in the Arctic's Canada Basin. *Deep-Sea Res. II.* 57:96-110
47. Raskoff, K.A., **R.R. Hopcroft**, K.N. Kosobokova, J.E. Purcell & M. Youngbluth. 2010. Jellies under ice: ROV observations from the 2005 Hidden Ocean Expedition. *Deep-Sea Res. II.* 57:111-126
46. Purcell, J.E., T.E. Whitley, K.N. Kosobokova, & **R.R. Hopcroft**. 2010. Distribution, abundance, and predation effects of epipelagic ctenophores and jellyfish in the western Arctic Ocean. *Deep-Sea Res. II.* 57:127-135
45. Reid, P.C., E. Lewis-Brown, A. Fischer, et al. (**R.R. Hopcroft** among 28 additional contributors) 2009. Impacts of the Oceans on Climate Change. *Adv. Mar. Biol.* 56: 1-150
44. Tsagkogeorga, G., Turon, X., **Hopcroft, R.R.**, Tilak, M.-K., Feldstein, T., Shenkar, N., Loya, Y., Huchon, D., Douzery, E.J., and Delsuc, F. 2009. An updated 18S rRNA phylogeny of tunicates based on mixture and secondary structure models. *BMC Evol. Biol.* 9:187.
43. Jaspers, C., T.G. Nielsen, J. Carstensen, **R.R. Hopcroft**, and E.F. Møller. 2009. Mesozooplankton distribution across the Southern Indian Ocean with emphasis on the role of Larvaceans. *J. Plankton Res.* **31**: 525-540.
42. Bell, J.L., & **R.R. Hopcroft**. 2008. Assessment of ZooImage as a tool for the classification of zooplankton. *J. Plankton Res.* **30**: 1351-1367
41. Liu, H. & **R.R. Hopcroft**. 2008. Growth and development of *Pseudocalanus* spp. in the northern Gulf of Alaska. *J. Plankton Res.* **30**: 923-935.
40. Pinchuk, A.I., K.O. Coyle & **R.R. Hopcroft**. 2008. Climate-related variability in abundance and reproduction of euphausiids in the northern Gulf of Alaska in 1998-2003. *Prog. Oceanogr.* **77**: 203-216.
39. Liu, H. & **R.R. Hopcroft**. 2007. A comparison of seasonal growth and development of the copepods *Calanus marshallae* and *C. pacificus* in the northern Gulf of Alaska. *J. Plankton Res.* **29**: 569-581.
38. Kosobokova, K.N., H.-J. Hirche & **R.R. Hopcroft**. 2007. Egg production of deep-water copepods in the Arctic Ocean. *Mar. Biol.* **151**:919-934.

37. Pinchuk, A.I. & **R.R. Hopcroft**. 2007. Seasonal variations in the growth rate of euphausiids (*Thysanoessa inermis*, *T. spinifera*, and *Euphausia pacifica*) from the northern Gulf of Alaska. *Mar. Biol.* **151**: 257-269
36. Kimmerer, W.J., A.G. Hirst, **R.R. Hopcroft**, & A.D. McKinnon. 2007. Measurement of juvenile copepod growth rates: corrections, inter-comparisons and recommendations. *Mar. Ecol. Prog. Ser.* **336**:187-202.
35. Liu, H. & **R.R. Hopcroft**. 2006. Growth and development of *Metridia pacifica* in the northern Gulf of Alaska. *J. Plankton Res.* **28**: 769-781
34. Pinchuk, A.I. & **R.R. Hopcroft**. 2006. Reproduction and early development of *Thysanoessa inermis* and *Euphausia pacifica* (Crustacea: Euphausiacea) in the northern Gulf of Alaska. *J. Exp. Mar Biol. Ecol.* **332**:206-215.
33. Liu, H. & **R.R. Hopcroft**. 2006. Growth and development of *Neocalanus flemingeri/plumchrus* in the northern Gulf of Alaska: validation of the artificial cohort method in cold waters. *J. Plankton Res.* **28**: 87-101.
32. **Hopcroft, R.R.**, & B.H. Robison. 2005. New mesopelagic larvaceans in the genus *Fritillaria* from Monterey Bay, California. *J. Mar. Biol. Assoc.* **85**: 665-678.
31. Napp, J.M., **R.R. Hopcroft**, C.T. Baier & C. Clarke 2005. Distribution and species-specific egg production of *Pseudocalanus* in the Gulf of Alaska. *J. Plankton Res.* **27**: 415-426.
30. **Hopcroft, R.R.**, C. Clarke, R.J. Nelson, & K.A. Raskoff. 2005. Zooplankton Communities of the Arctic's Canada Basin: the contribution by smaller taxa. *Polar Biol.* **28**: 197-206.
29. **Hopcroft, R.R.**, C. Clarke, A.G. Byrd & A.I. Pinchuk. 2005. The paradox of *Metridia* spp. egg production rates: A new technique and measurements from the coastal Gulf of Alaska. *Mar. Ecol. Prog. Ser.* **286**: 193-201.
28. Raskoff, K.A., J.E. Purcell & **R.R. Hopcroft**. 2005. Gelatinous zooplankton of the Arctic Ocean: *in situ* observations under the ice. *Polar Biol.* **28**: 207-217.
27. Slater, L.M. & **R.R. Hopcroft**. 2005. Development, growth, and egg production of *Centropages abdominalis* in the subarctic Pacific. *J. Plankton Res.* **27**: 71-78.
26. **Hopcroft, R.R.** 2005. Diversity in larvaceans: How many species? pp. 45-57. *In*: Response of marine ecosystems to global change: ecological impact of appendicularians. Gorsky, G, M.J. Youngbluth & D. Deibel (eds), Gordon and Breach Scientific Publishers. Paris.
25. Rose, K., J.C. Roff & **R.R. Hopcroft**. 2004. Production of *Penilia avirostris* in Kingston Harbour, Jamaica. *J. Plankton Res.* **26**: 605-615.
24. **Hopcroft, R.R.**, & J.C. Roff. 2003. Response of tropical marine phytoplankton communities to manipulations of nutrient concentration and grazing pressure. *Bull. Mar. Sci.* **73**: 397-420
23. Persad, G., **R.R. Hopcroft**, M.K. Webber & J.C.Roff. 2003. Abundance, biomass and production of ctenophores and medusae off Kingston Jamaica. *Bull. Mar. Sci.* **73**: 379-396
22. **Hopcroft, R.R.**, C. Clarke & F.P. Chavez. 2002. Copepod communities in Monterey Bay during the 1997 to 1999 El Niño and La Niña. *Prog. Oceanogr.* **54**: 251-263.
21. Weingartner, T.J. *et al.* (**R.R. Hopcroft** among 18 others) 2002. The Northeast Pacific GLOBEC program: coastal Gulf of Alaska. *Oceanography* **15**: 48-63.

20. Nielsen, T.G., E.F. Møller, S. Satapoomin, M. Ringuette & **R.R. Hopcroft**. 2002. Egg hatching rate of the cyclopoid copepod *Oithona similis* in arctic and temperate waters. *Mar. Ecol. Prog. Ser.* **236**: 301-306.
19. Marine Zooplankton Colloquium 2. 2001. (**R.R. Hopcroft** among 40 contributors) Future marine zooplankton research – a perspective. *Mar. Ecol. Prog Ser.* **222**: 297-308.
18. **Hopcroft, R.R.**, F.P. Chavez & J.C. Roff. 2001. Size paradigms in copepod communities: a re-examination. *Hydrobiologia* **453/454**:133-141.
17. **Hopcroft, R.R.**, & B.H. Robison. 1999. A new mesopelagic larvacean, *Mesochordaeus erythrocephalus*, sp. nov., from Monterey Bay, with description of its filtering house. *J. Plankton Res.* **21**: 1923-1937.
16. **Hopcroft, R.R.**, & J.C. Roff. 1998. Zooplankton growth rates: the influence of female size and resources on egg production of tropical marine copepods. *Mar. Biol.* **132**: 79-86.
15. **Hopcroft, R.R.**, & J.C. Roff. 1998. Zooplankton growth rates: the influence of size in nauplii of tropical marine copepodites. *Mar. Biol.* **132**: 87-96.
14. **Hopcroft, R.R.**, & J.C. Roff. 1998. Production of tropical larvaceans in Kingston Harbour, Jamaica: are we ignoring an important secondary producer? *J. Plankton Res.* **20**: 557-569.
13. **Hopcroft, R.R.**, J.C. Roff. & H.A. Bouman. 1998. Zooplankton growth rates: larvaceans of the genus *Appendicularia*, *Fritillaria* and *Oikopleura* from tropical waters. *J. Plankton Res.* **20**: 539-555.
12. **Hopcroft, R.R.**, J.C. Roff & D. Lombard. 1998. Production of tropical copepods in nearshore waters off Kingston, Jamaica: the importance of small species. *Mar. Biol.* **130**: 593-604.
11. **Hopcroft, R.R.**, J.C. Roff, M.K. Webber, & J.D.S. Witt. 1998. Zooplankton Growth Rates: the influence of size and resources in tropical marine copepodites. *Mar. Biol.* **132**: 67-77.
10. Turner, J.T., **R.R. Hopcroft**, J.A. Lincoln, C. Sassman Huestis, P.A. Tester, & J.C. Roff. 1998. Zooplankton feeding ecology: grazing by marine copepods and cladocerans upon cyanobacteria from Kingston Harbour, Jamaica. *Mar.Ecol.* **19**: 195-208.
9. **Hopcroft, R.R.**, & J.C. Roff. 1996. Zooplankton growth rates: diel egg production in the copepods *Oithona*, *Euterpina* and *Corycaeus* from tropical waters. *J. Plankton Res.* **18**: 789-803.
8. **Hopcroft, R.R.**, & J.C. Roff. 1995. Zooplankton Growth Rates: Extraordinary production by the larvacean *Oikopleura dioica* in tropical waters. *J. Plankton Res.* **17**: 205-220.
7. Roff, J.C., J.T. Turner, M.K. Webber, & **R.R. Hopcroft**. 1995. Bacterivory by tropical copepod nauplii: extent and possible significance. *Mar. Micro. Ecol.* **9**: 165-175.
6. Lynn, D.H., J.C. Roff & **R.R. Hopcroft**. 1991. The annual cycle of abundance and biomass of aloricate ciliates in tropical neritic waters off Kingston, Jamaica. *Mar. Biol.* **110**: 437-448.
5. **Hopcroft, R.R.**, & J.C. Roff. 1990. Phytoplankton size fractions in a tropical neritic ecosystem near Kingston, Jamaica. *J. Plankton Res.* **12**: 1069-1088.
4. **Hopcroft, R.R.**, J.C. Roff & J.A. Berges. 1990. Size-fractionated sedimentation in a tropical neritic ecosystem near Kingston, Jamaica. *Contin. Shelf Res.* **10**: 795-806.
3. Roff, J.C., **R.R. Hopcroft**, C. Clarke, L.A. Chisholm, D.H. Lynn, & G.L. Gilron. 1990. Structure and energy flow in a tropical neritic planktonic community off Kingston, Jamaica. In: *Trophic relationships in the marine environment. (Proc. 24th Europ. Mar. Biol. Symp.)* Barnes, M. and R.N. Gibson (eds), Aberdeen University Press. pp. 266-280.

2. Roff, J.C. & **R.R. Hopcroft**. 1986. High precision microcomputer based measuring system for ecological research. *Can. J. Fish. Aquat. Sci.* **43**: 2044-2048.
1. **Hopcroft, R.R.**, D.B. Ward & J.C. Roff. 1985. The relative significance of body surface and cloacal respiration in *Psolus fabricii* (Holothuroidea: Dendrochirotida). *Can. J. Zool.* **63**: 2878-2881.

PUBLICATIONS (editorial review only)

8. Gradinger, R., B.A. Bluhm, & **R.R. Hopcroft**. (2011) Arctic Ocean Diversity: synthesis. *Mar. Biodiv.* **41**: 1-4
7. Schiaparelli, S. & **R.R. Hopcroft** (2011) The Census of Antarctic Marine Life: Diversity and Change in Southern Ocean Ecosystems. *Deep-Sea Res. II.* **58**: 1-4
6. Gradinger, R., B.A. Bluhm, **R.R. Hopcroft**, A. Gebruk, K.N. Kosobokova, B. Sirenko, & J.M. Wesławski (2010) Marine Life in the Arctic. In: A.D. D. McIntyre. (ed) *Life in the World's Oceans*, Blackwell Publishing Ltd., New York, pp.183-202
5. Bluhm, B.A., K. Iken, **R.R. Hopcroft** (2010) Observations and exploration of the Arctic's Canada Basin and the Chukchi Sea: the Hidden Ocean and RUSALCA expeditions. *Deep-Sea Res. II.* **57**:1-14
4. Davis, C. S. and **R.R. Hopcroft**. 2008. The drifters. *Ocean Geogr. Mag.*, **July 2008**, 23-40.
3. Bluhm, B. A., R. Gradinger, F. Hüttmann, **R.R. Hopcroft**, A. Grebuk & B.I. Sirenko. 2008. Ein Zensus des Marinen Lebens in der Arktis. *Biol. unserer Zeit* **38**: 40-49.
2. Crane, K., J. Potter & **R.R. Hopcroft**. 2005. NOAA's Arctic Exploration Program. *Arctic Res. U.S.* **19**: 3-10
1. **Hopcroft, R.R.** 2003. Spineless wonders: the pelagic fauna. *Current: J. Mar. Ed.* **19**: 10-12.

REPORTS:

5. Mundy, P., D. Allen, J.L. Boldt, N.A. Bond, S. Dressel, E. Farley Jr., D. Hanselman, J. Heifetz, **R.R. Hopcroft**, M.A. Janout, C. Ladd, R. Lam, P. Livingston, C. Lunsford, J.T. Mathis, F. Mueter, C. Rooper, N. Sarkar, K. Shotwell, M. Sturdevant, A.C. Thomas, T.J. Weingartner & D. Woodby. 2010. Status and trends of the Gulf of Alaska Coastal region, 2003-2008. pp. 142-195. In: S.M. McKinnell & M. Dagg (ed.) *Marine Ecosystems of the North Pacific Ocean; 2003-2008. PICES Special Publication 4.* 393p.
4. **Hopcroft, R.R.**, B.A. Bluhm, & R.R. Gradinger. 2008. Arctic Ocean Synthesis: Analysis of Climate Change Impacts in the Chukchi and Beaufort Seas with Strategies for Future Research (2nd edition). *North Pacific Research Board, Anchorage, Alaska.* 153 p
3. **Hopcroft, R.R.**, B.A. Bluhm, R.R. Gradinger, T.E. Whittledge, T.J. Weingartner, B. Norcross, & A.M. Springer. 2006. Arctic Ocean Synthesis: Analysis of Climate Change Impacts in the Chukchi and Beaufort Seas with Strategies for Future Research. *Prepared for the North Pacific Research Board, Anchorage, Alaska*
2. **Hopcroft, R.R.** 2002. Comparison of plankton size spectra from net tow samples and OPC measurements in marine waters. pp. 7-11. In: M. Zhou & K. Tande (ed.) *Optical Plankton Counter Workshop. GLOBEC Report No.17*, 17-20 June 2001, Tromso, Norway.
1. Roff, J.C. & **R.R. Hopcroft**. 1985. Determination of efficiency of sediment traps with respect to their size and aspect ratio, and water velocity and particle size. *Final report for Department of Supplies and Services, Government of Canada, Contract #01SE KW405-4-0039.*

PUBLICATIONS IN PRESS:

Howard, W., D. Roberts, A. Moy, M. Lindsay, **R.R. Hopcroft**, T.W. Trull & S. Bray (*in press*).
Distribution, abundance and seasonal flux of pteropods in the Sub-Antarctic Zone. *Deep-sea Res. II*.

Roberts, D., W.R. Howard, A.D. Moy, J.L. Roberts, T.W. Trull, S.G. Bray and R.R. Hopcroft. (*accepted*)
Interannual pteropod variability in long-term sediment traps deployed at 500, 1000, 2000 and 3800m
between 1997 and 2006 in the Sub-Antarctic Southern Ocean. *Polar Biol*.

PUBLICATIONS IN REVIEW OR PREPARATION:

Slater, L.M. & **R.R. Hopcroft** (*in revision*) Development, growth, and egg production of *Neocalanus flemingeri* in the eastern subarctic Pacific. *J. Plankton Res.*

Grossmann, M., Hopcroft, R., Fuentes, V. and Lindsay, D.J. (*submitted*) The gelatinous mesozooplankton in eastern Antarctica in austral summer 2007-2008 with a description of *Sphaeronectes pughi* sp. nov. *Polar Science*

Bluhm, B.A., A.V. Gebruk, R. Gradinger, R.R. Hopcroft, F. Huettmann, K.N. Kosobokova, S.I. Sirenko, J.M. Weslawski (*submitted*) Arctic marine biodiversity – an update of species richness and examples of biodiversity change. *Oceanography*

Byrd, A.G. & **R.R. Hopcroft**. Production of cyclopoid copepods in the northern Gulf of Alaska.

Coyle, K.O., Hinckley, S., Hermann, A., Lessard, E.J., Whitley, T.E., **Hopcroft, R.R.** Northern Gulf of Alaska simulations of oceanic and shelf ecosystems: refining and tuning an NPZ model embedding in a general circulation model.

Dagg, M., S. Strom, K.O. Coyle, **R.R. Hopcroft**, & T.E. Whitley. Controls on primary production on the shelf in the Gulf of Alaska

Hopcroft, R.R., J.M. Napp, C. Clarke & C.T. Baier. Egg production rates of *Pseudocalanus mimus*, *Pseudocalanus minutus* and *Pseudocalanus newmani* in the Gulf of Alaska.

Hopcroft, R.R. & K.N. Kosobokova. Reproduction of *Metridia longa* and *Calanus glacialis* in the Arctic's Canada Basin.

Kosobokova, K.N. & **R.R. Hopcroft**. Reproduction and population structure of the chaetognath *Eukrohnia hamata* in the Arctic's Canada Basin.

Lindsay, D.J., Fuentes, V., Bentlage, B., Collins, A.G., Toda, R., Hopcroft, R. & Kirby, R. 2010. Biodiversity of pelagic cnidarians and ctenophores in eastern Antarctica in austral summer 2007-2008. *Polar Science*.

Toda, R., Lindsay, D.J., Fuentes, V., Hopcroft, R., Ishimaru, T. & Hosie, G. Community analysis of gelatinous macroplankton in eastern Antarctica in austral summer 2007-2008. *Polar Science*.

CONFERENCES:

2011 – Alaska Marine Science Symposium – Anchorage, Alaska (January) - **Paper presented:** (1) Arctic Ocean Diversity (ArcOD) Synthesis: How many species are there? **Posters:** (1) Measuring the pulse of the Gulf of Alaska: oceanographic observations along the Seward Line, 1997-2010 (2) Reconstructing the ocean's past: Rescue of 1970s zooplankton data from the Beaufort Sea WEBSEC cruises (3) Assembling pan-arctic patterns of zooplankton abundance (4) Inter-annual Variability of the Planktonic Communities in the Northeastern Chukchi Sea

2010 – Census of Marine Life - A Decade of Discovery – London, U.K. (October) **Posters:** (1) Arctic Ocean Diversity (ArcOD): The strategy. (2) Arctic Ocean Diversity Synthesis: How many species are there? (3) Arctic Ocean Diversity: Exploration in the field.

- IPY Open Science Meeting – Oslo, Norway (June) - **Papers presented:** (1) Bipolarity in marine invertebrates: myth or marvel (2) Patterns of Biodiversity in the Arctic Ocean.
 - ASLO/AGU Open Science Meeting – Portland, Oregon (February) - **Paper presented:** Measuring the pulse of the Gulf of Alaska: oceanographic observations along Seward Line, 1997-2009
Posters: (1) Inter-annual Variability of the Planktonic Communities in the Northeastern Chukchi Sea. (2) Ocean acidification impacts on Southern Ocean calcareous zooplankton
 - Arctic Frontiers – Tromso, Norway (January) - **Papers presented:** (1-Invited) Patterns of zooplankton diversity through the depths of the Arctic’s central basins. (2-Invited) A Pan-arctic analysis of Biodiversity patterns for zooplankton on Arctic shelves. **Poster:** Predicting zooplankton abundance and distribution throughout the Arctic Ocean.
 - Alaska Marine Science Symposium – Anchorage, Alaska (January) - **Papers presented:** (1) Measuring the pulse of the Gulf of Alaska: oceanographic observations along Seward Line, 1997-2009 (2) Inter-annual Variability of the Planktonic Communities in the Northeastern Chukchi Sea. (3) A decade of change in the Alaska Gyre: Comparison of three NE Pacific zooplankton time series. **Poster:** Predicting zooplankton abundance and distribution throughout the Arctic Ocean.
- 2009 – PICES XVIII – Jeju, Korea (October) **Paper presented:** A decade of change in the Alaska Gyre: Comparison of three NE Pacific zooplankton time series.
- SCAR Open Science Meeting – Sapporo, Japan (July) **Paper presented:** Gelatinous plankton community of Eastern Antarctica during 2008 CEMARC expedition.
 - 3rd GLOBEC Open Science Meeting – Victoria, Canada (June) **Paper presented:** Oceanographic conditions and lower trophic level responses leading to variable pink salmon recruitment in the coastal Gulf of Alaska
 - Census of Antarctic Marine Life Symposium – Genoa, Italy (May) **Paper presented:** Frozen Jelly in the Blender: ubiquitous species, endemic species, and community segregation in the gelatinous plankton community of Eastern Antarctica
 - ASLO – Nice, France (February) **Paper presented:** Has the summer zooplankton community of the Arctic’s Chukchi Sea changed over the past 50 years?
 - Alaska Marine Science Symposium – Anchorage, Alaska (January) - **Paper presented:** (1) Temperature controlling processes and the recent cooling in the Gulf of Alaska (2) Oceanographic conditions along the northern Gulf of Alaska’s Seward Line, 1997-2008.
 - Arctic Frontiers – Tromso, Norway (January) - **Paper presented:** Distribution of the zooplankton Biomass in the Eurasian and Canadian Basins of the Arctic Ocean: between-basin comparison. **Poster:** Predicting the pan-arctic distribution of zooplankton through consolidation of data sources.
- 2008 – World Conference on Marine Biodiversity – Valencia, Spain (November)
- 10th International Conference on Copepoda – Pattaya, Thailand (July) **Poster:** Population structure and egg production of *Metridia longa* in the Arctic Ocean
 - ASLO/AGU – Orlando, Florida (March) - **Papers presented:** (1) Diversity & vertical distribution of zooplankton in the Arctic’s Canada Basin (2) Phylogenetics and global diversity of pteropods (pelagic marine snails)
 - Pacific Seabird Group – Seattle, WA (February) – **Poster:** Arctic Ocean Diversity (ArcOD), a census of marine life project: the need for public Arctic data related to seabirds and beyond.
 - Alaska Marine Science Symposium – Anchorage, Alaska (January) - **Paper presented:** Assessment of ZooImage as a tool for the classification of zooplankton. **Poster:** Oceanographic conditions along the northern Gulf of Alaska’s Seward Line, 1997-2008.
- 2007 – CoML Program meeting, Auckland, New Zealand (November) - **Paper presented:** Arctic Ocean Diversity studies. **Poster:** Arctic Ocean Diversity (ArcOD), a census of marine life project: the need for public Arctic data related to seabirds and beyond.

- OBIS annual meeting, Halifax, Canada (October) - **Paper presented:** Towards Global Data Synthesis: A predictive model for the Circumpolar Arctic using high-quality public online ‘presence only’ data sources for zooplankton
 - 4th International Zooplankton Production Symposium, Hiroshima, Japan (May) - **Paper presented:** Population structure and reproduction of the chaetognath *Eukrohnia hamata* in the Canada Basin, Arctic Ocean **Posters:** (1) Inter-annual variations of zooplankton in the northern coastal Gulf of Alaska (2) Integrated at-sea morphological and molecular assessment of zooplankton biodiversity in the Northwestern Atlantic Ocean from the surface to 5000 m
 - Alaska Marine Science Symposium – Anchorage, Alaska (January) - **Posters:** (1) The Gulf of Alaska Seward Line - 2005 & 2006. (2) Arctic Ocean synthesis: Analysis of Climate Change impacts in the Chukchi and Beaufort Seas with strategies for future research (3) The Arctic Ocean Biodiversity (ArcOD) – a Census of Marine Life project
- 2006 – AGU – San Francisco (December) - **Papers presented:** A census of marine zooplankton in the tropical/subtropical Atlantic from the surface to 5000 m.
- ASLO/AGU – Honolulu, Hawaii (February) - **Papers presented:** (1) Species discovery in the Arctic Ocean: the 2005 Hidden Ocean expedition (2) Deep-sea gelatinous zooplankton of the Arctic Ocean: surprising results from the 2005 Hidden Ocean Expedition. (3) The Optimal Stability Window Hypothesis and copepod concentrations on the Gulf of Alaska shelf during spring and summer, 1998 – 2005. **Posters:** (1) Growth and development of *Metridia pacifica* (Copepoda: Calanoida) in the northern Gulf of Alaska. (2) Seasonal variability in the growth rates of dominant euphausiids from the Northern Gulf of Alaska. (3) Egg Production of deep-water calanoid copepods in the Arctic Ocean (4) Errors in copepod growth rate estimates are large and widespread
 - Alaska Marine Science Symposium – Anchorage, Alaska (January) - **Paper presented:** Climate change research in the Gulf of Alaska: the Seward Line. **Poster:** The Arctic Ocean Biodiversity (ArcOD) – a Census of Marine Life project
- 2005 - ASLO – Santiago de Compostela, Spain (June) - **Papers presented:** Production of *Pseudocalanus* species in the Chukchi Sea. **Poster:** The Arctic Ocean Biodiversity (ArcOD) – a Census of Marine Life project
- ESSAS – Victoria, Canada (May) - **Poster:** (1) Rates of production by larvaceans in the northern Bering Sea (2) Egg production rates of the larger copepods in the Gulf of Alaska: *Calanus marshallae*, *Calanus pacificus*, *Eucalanus bungii* and *Neocalanus flemingeri* (3) The Arctic Ocean Biodiversity (ArcOD) – a Census of Marine Life project
- 2004 - PICES XIII – Honolulu, Hawaii (October) - **Papers presented:** (1) Community composition and production of larvaceans in the Northern Bering Sea. **Posters:** (1) Growth rates, fecundity and development times of *Neocalanus flemingeri* in the Gulf of Alaska: a synthesis of laboratory and field approaches (2) Egg production and early development of *Thysanoessa inermis* and *Euphausia pacifica* (Crustacea: Euphausiacea) in the northern Gulf of Alaska
- ASLO & TOS – Honolulu, Hawaii - **Papers presented:** (1) Gelatinous zooplankton of the Arctic Ocean: *in situ* ROV observations under the ice. (2) Particle Size-spectra in Mesopelagic Waters of Monterey Bay, California. **Posters:** (1) Abundance, biomass and production of *Oithona similis* in the Gulf of Alaska. (2) Development and growth rates of the copepod *Centropages abdominalis* reared in the laboratory at subarctic temperatures. (3) Growth rates of Euphausiids in the Northern Gulf of Alaska in 2001-2003.
 - AGU – Portland, Oregon - **Posters:** (1) Controls of growth and reproduction rates of copepods in the Gulf of Alaska. (2) Growth rates of Euphausiids in the Northern Gulf of Alaska in 2001-2003
- 2003 - 3rd International Zooplankton Production Symposium, Gijon, Spain - **Paper presented:** A comparison of copepod egg production rates in the Gulf of Alaska. **Posters:** (1) Egg production rates of *Metridia pacifica* and *Metridia okhotensis* in the Gulf of Alaska (2) Growth rates of

- Neocalanus flemingeri* in the northern Gulf of Alaska in 2001 and 2002. (3) Egg production rates of *Pseudocalanus mimus* and *Pseudocalanus newmani* in the Gulf of Alaska. (4) Abundance, biomass and production of *Oithona similis* in the Gulf of Alaska
- ASLO - Albuquerque, New Mexico - **Paper presented:** Egg production rates of *Metridia pacifica* and *Metridia okhotensis* in the Gulf of Alaska. **Poster:** Growth rates of *Neocalanus flemingeri* in the northern Gulf of Alaska in 2001 and 2002
 - Marine Science in the Northeast Pacific – EVOS/NPRB/GLOBEC - Anchorage, Alaska - **Paper presented:** A comparison of copepod egg production rates in the Gulf of Alaska. **Posters:** (1) Egg production rates of *Metridia pacifica* and *Metridia okhotensis* in the Gulf of Alaska (2) Growth rates of *Neocalanus flemingeri* in the northern Gulf of Alaska in 2001 and 2002. (3) Egg production rates of *Pseudocalanus mimus* and *Pseudocalanus newmani* in the Gulf of Alaska. (4) Abundance, biomass and production of *Oithona similis* in the Gulf of Alaska.
- 2002 - AGU & ASLO – Honolulu, Hawaii - **Paper presented:** (1) Growth Rates of *Neocalanus* Species in the Northern Gulf of Alaska. (2) The Gulf of Alaska Ecosystem: An Interdisciplinary View After Four Years. **Poster:** Preliminary Data on Euphausiid Distribution and Growth in the Northern Gulf of Alaska
- 2001 - ASLO – Albuquerque, New Mexico - **Paper presented:** Mesopelagic Larvaceans: New species and vertical distribution
- 2000 - Ocean Sciences Meeting - AGU & ASLO - San Antonio, Texas - **Paper presented:** Size Structure in Planktonic Communities: the Search for Unifying Concepts
- 1999 - Seventh International Conference on Copepoda - Curitiba, Brazil - **Paper presented:** Size paradigms in copepod communities: a re-evaluation. **Poster:** A simple Computer-assisted measurement systems for processing zooplankton samples
- Marine Zooplankton Colloquium 2, Savannah, Georgia
 - ASLO - Santa Fe, New Mexico - **Papers presented:** (1) The significance of small copepods off central California (2) Growth rates in tropical marine zooplankton: size does matter (3) Fluorescent Exoskeletons: A novel method for the calculation of crustacean growth rates.
- 1998 - Ocean Sciences Meeting - AGU & ASLO - San Diego, California - **Paper presented:** Use of the Optical Plankton Counter in the deep ocean: are we being snowed?
- 1997 - Eighth Deep-Sea Symposium - Monterey, California - **Paper presented:** Assessment of mid-water mesozooplankton by an Optical Plankton Counter deployed on an ROV.
- ASLO - Santa Fe, New Mexico - **Paper presented:** Production of tropical larvaceans in Kingston Harbour, Jamaica.
- 1996 - ASLO - University of Wisconsin-Milwaukee - **Papers presented:** (1-*invited*) Energy flow in tropical planktonic food webs - the search for growth rates. (2) Zooplankton growth rates: larvaceans from tropical marine ecosystems. Are we ignoring the dominant secondary producers?
- Ocean Sciences Meeting - AGU & ASLO - San Diego, California - **Poster:** Phytoplankton community response to the manipulation of nutrients and grazing pressure.
- 1994 - Ocean Sciences Meeting - AGU & ASLO - San Diego, California - **Paper presented:** Growth rates of tropical marine mesozooplankton determined by the creation of artificial cohorts.

INVITED PRESENTATIONS:

- 2010 - A decadal view of patterns in zooplankton in the sub-arctic North Pacific **Presented at:** Technical University of Denmark, Copenhagen
- 2009 - Exploration of the deep-arctic basins **Presented at:** University of Guelph, Ontario, Canada
- Arctic Ocean Synthesis: Analysis of Climate Change Impacts in the Chukchi and Beaufort Seas with Strategies for Future Research **Presented at:** Arctic Research and Monitoring workshop, Anchorage
- 2007 - The Hidden Ocean II Expedition. **Presented at:** Australian Institute of Marine Science (AIMS), Townsville; Australian Antarctic Division, Hobart; Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO), Hobart
- 2006 - Visualization in the Census of Marine Life. **Presented at:** Capital Hill Ocean Week, Washington, DC
- The consequences of climate change on Alaskan marine life. **Presented at:** Alaska Forum, Anchorage, AK
- RUSALCA: Zooplankton. **Presented at:** Arctic Science Summit Week, Potsdam, Germany
- 2005 - Chukchi Sea zooplankton communities patterns. **Presented at:** RUSALCA Joint US-Russian Arctic workshop, Kotar, Montenegro.
- An Overview of Arctic Ocean Ecosystems. **Presented at:** Marine Mammal Commission meeting. Anchorage, AK
- The Arctic Ocean Diversity project. **Presented at:** Circumpolar Biodiversity Monitor Program workshop, Circumpolar Arctic Flora and Fauna (CAFF) program. Cambridge, UK.
- The Hidden Ocean II Expedition. **Presented at:** Census of Marine Life U.S. National Steering Group meeting, Seward AK
- 2004 - The Arctic Ocean Diversity project. **Presented at:** Canadian Census of Marine Life: Three oceans Biodiversity workshop. Ottawa, Canada
- 2003 - Chukchi Sea zooplankton communities. **Presented at:** Joint US-Russian Arctic planning for workshop, Moscow, Russia.
- 2002 - The Hidden Ocean: explorations under the ice of the Western Arctic. **Presented at:** First China-United States Workshop on Polar Science. Qingdao, China
- 2001 - Diversity in larvaceans: How many species? (Are we looking in the right places?) **Opening presentation:** Response of marine ecosystems to global change: ecological impact of appendicularians, NATO Advanced Research Workshop, Villefrance-sur-mer, France
- Size-spectra of zooplankton assemblages in Monterey Bay, California: comparison of nets to the OPC. **Presented at:** International Optical Plankton Counter Workshop, Tromso, Norway
- 2000 - (1) The structure and importance of copepods in the pelagic food web off Jamaica. (2). Developments in Larvacean Research: it's snot for everyone. **Presented at:** Workshop on tropical mesozooplankton and larval fish ecology, Phuket, Thailand
- 1998 - New developments in larvacean research: it's snot for everyone. **Presented at:** University of California, Santa Cruz
- 1994 - Planktonic community structure: the biotic relationships. **Presented at:** Department of Zoology, University of the West Indies, Jamaica.
- 1990 - Structure and energy flow in a tropical planktonic community. **Presented at:** Centre for Ocean Studies. Memorial University of Newfoundland.

TEACHING:

GRADUATE STUDENTS:

Committee Chair

2010-20XX – Ayla Doubleday, M.Sc.

2010-20XX – Heather Oleson, Ph.D.

2010-20XX – Elizaveta Ershova, Ph.D.

2007-20XX – Jennifer Questel, Ph.D.

2007-20XX – Imme Rutzen, Ph.D.

2005-2009 – Jenefer Bell, **Thesis:** The inter-annual variability of zooplankton within Prince William Sound, Alaska: Assessment of the ZooImage system as a tool for optimizing juvenile pink salmon release (M.Sc. Dec 2009)

2002-2006 – Hui Liu, **Thesis:** Growth rates of calanoid copepods in the northern Gulf of Alaska, and their relationships to temperature, chlorophyll and body size (Ph.D. Dec. 2006)

2002-2006 – Amanda Byrd, M.Sc. – incomplete

2002-2006 – Alexei Pinchuk, **Thesis:** Distribution growth and egg production of euphausiids in the northern Gulf of Alaska (Ph.D. Sept. 2006)

2001-2004 – Laura Slater. **Thesis:** Development, growth, and egg production of *Centropages abdominalis* and *Neocalanus flemingeri* in the eastern subarctic Pacific. (M.Sc., Aug. 2004)

Committee Member

2004-2006 – Xian Wang, M.Sc.

2001-2005 – Georgina Gibson, Ph.D.

External Examiner

2010 – Robert McNabb, UAF Geophysical Institute, Comprehensive examination

2008 – Amanda Roberts, UAF Wildlife, Comprehensive examination

2004 – Elizabeth Manning, M.Phil, University of the West Indies, Jamaica

2002 – Suree Satapoomin, PhD thesis, Copenhagen University.

1999 – Trion Clarke, M.Phil, University of the West Indies, Jamaica

GRADUATE: * denotes distance delivery

2010 – MSL650 Biological Oceanography (3,0) co-lectured – 16 students

2009 – MSL653 Zooplankton Ecology (3,0) – 4 students

– MSL650* Biological Oceanography (3,0) co-lectured – 14 students

2008 – MSL650* Biological Oceanography (3,0) - 13 students

2007 – MSL653 Zooplankton Ecology (3,0), 2 students

– MSL650* Biological Oceanography (3,0) co-lectured – 2 students

2006 – Sabbatical year

2005 – MSL650* Biological Oceanography (3,0) co-lectured, 12 students

– MSL111 The Oceans (3,3) co-lectured

2004 – MSL653 Zooplankton Ecology (3,0)

– MSL650* Biological Oceanography (3,0) co-lectured, 12 students

2003 – MSL692 Impacts of Climate Change on Marine Organisms Seminar (1,0), 6 Students

- MSL653 Zooplankton Ecology (3,0), 7 students
- MSL650* Biological Oceanography (3,0) co-lectured, 20 students
- MSL692 Biological Oceanography Seminar (1,0), 3 students
- 2002 – MSL650 Biological Oceanography (3,0) co-lectured
 - MSL692 Biological Oceanography Seminar (1,0), 5 students
- 2001 – MSL650 Biological Oceanography (3,0) co-lectured, 12 students
 - MSL692 Biological Oceanography Seminar (1,0), 4 students
- 2000 – MSL650 Biological Oceanography (3,0), 14 students
- 1992 - 1996 - Co-supervision of M.Phil. student Gale Persad at UWI
- 1986 - 1985 - Computing consultant/instructor, Caribbean Coastal Management Study, UWI.

UNDERGRADUATE:

- 2005 – MSL111 The Oceans (3,3) co-lectured, 48 students
- 2004 – MSL111 The Oceans (3,3) co-lectured, 53 students
- 1999 - 1988 - Occasional Lecturer for undergraduate courses in Introduction to the Oceans, Limnology & Oceanography, Marine Environment, and Marine Biology, the U of Guelph, and UMass Dartmouth.
- 1997 - 1993 - Supervision of senior undergraduates in *Personal Research Project* courses, U of Guelph.
- 1994 & 1992 - Teaching team for Tropical Biology Field Course offered by the University of Guelph at the Discovery Bay Marine Lab, Jamaica.
- 1991 - 1985 - Teaching assistant for Introductory and Invertebrate Zoology, University of Guelph.

PUBLIC:

- 1995 - 1977 - Lecturing, practical instruction, and examination of students and neo-instructors on over 30 basic scuba courses, and 3 instructor programs.
- 1982 - Instruction of marine sciences to senior public and high school students at Seacamp, Florida Keys.

SERVICE:

- Editorial Board: Journal of Marine Biodiversity (2007-present)
- Guest Editor: Journal of Marine Biodiversity – 2011 – Arctic Ocean Diversity Project
 - Journal Deep-Sea Research II – 2011 – Census of Antarctic Marine Life
 - Journal Deep-Sea Research II – 2010 – NOAA’s Arctic expeditions in 2004 & 2005
- Panel Member: NSF Antarctic Biology and Medicine (2004)
 - NSF Biological Oceanography (2008)
- Steering Committee: Census of Marine Life: Zooplankton (2004-2010)
 - Census of Marine Life: Arctic (2004-2010)
 - Census of Marine Life: Antarctic (2004-2010)
 - Circumpolar Biodiversity Monitoring Program (Marine Division) 2007-present
- Executive committee: Northeast Pacific GLOBEC (2001-2006)
- Past Member: EVOS Kenai River Watershed Science Advisory Committee (2002-2004)
- Search Committees: UAF Oceanographer (Chair 2010/11)
 - UAF/IMS Director (Chair)
 - UAF BioGeochemsist (2008/9)
 - UAF Marine Biologist (2001/2002)

Chair: SFOS-UW seminar exchange (2007-present)
GPMSL masters comprehensive committee (2006-present)
IMS Faculty meetings (2003-2007)
IMS Distance delivery committee (2005-2007)

Member: UAF Indirect Cost Recovery Distribution Review Committee
UAF Arboretum committee (2004-2005)
UAF Graduate Academic & Advisory Committee (2005)
IMS Ship's equipment committee (2001-2005)
GPMSL Promotion & Tenure committee (2005-present)

Manuscripts reviewed for:

- Marine Biology
- Marine Ecology Progress Series
- Journal of Plankton Research
- Canadian Journal Fisheries & Aquatic Sciences
- Progress in Oceanography,
- Deep-Sea Research I & II
- Hydrobiologia
- Limnology and Oceanography
- typical accepted load is 12 per year, requested ~30-40 per year in 2007-2009
- Journal of Experimental Marine Biology and Ecology
- Global Change Biology
- Journal of the Marine Biology Association
- Polar Biology
- Caribbean Journal of Science
- Bulletin of Marine Science
- ICES Journal of Marine Science

Proposals reviewed for:

- National Science Foundation
- SeaGrant
- National Ocean Partnership Program
- Ocean Exploration Program
- Canadian Research Council
- typical load, 3-6 per year
- North Pacific Research Board
- Exxon Valdez Oil Spill Trustee Council
- National Environmental Research Council (UK)

AT-SEA EXPERIENCE:

Participant in numerous oceanographic cruises from medium sized (40-120m) vessels. ~700 days at sea on cruises of up to 35 days duration.

PI or participant on over 100 mid-water ROV and submersible dives (*Johnson-Sea-Link, Ventana, Tiburon, Global Explorer*). Scuba Instructor (1982-1999), now retired.

SYNERGISTIC ACTIVITIES:

Public outreach through numerous contributions to textbooks, magazines (National Geographic, Current: Journal of Marine Education), radio, newspaper, and television on Arctic/Subarctic and Planktonic ecosystems

Educational web-pages:

- <http://www.arcodiv.org/>
- <http://www.sfos.uaf.edu/sewardline/>
- <http://www.oceanexplorer.noaa.gov/explorations/05arctic/welcome.html>,
- <http://www.oceanexplorer.noaa.gov/explorations/02arctic/welcome.html>,
- <http://oceanexplorer.noaa.gov/explorations/09arctic/welcome.html>