

# CURRICULUM VITAE

## JOHN ALEXANDER BERGES

### *Biographical Data*

Birthdate: August 26, 1964                      Birthplace: Kitchener, Ontario  
Citizenship: Canadian                              Languages: English, French

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### *Academic Record*

B. Sc. Specialized Honours Marine Biology (Distinction), University of Guelph, Guelph, Ontario. 1983-1987.  
M. Sc. Aquatic Ecology, University of Guelph, Guelph, Ontario. 1987-1989. J. C. Roff, Supervisor. Thesis:  
Relationships between maximal enzyme activity and growth rate in aquatic microcrustaceans  
Ph. D. Biological Oceanography, University of British Columbia, Vancouver, British Columbia. September  
1989-1993. P. J. Harrison, Supervisor. Thesis: Enzymes as indices of growth and nitrate metabolism in  
marine phytoplankton

### *Academic Awards*

1983-4              University of Guelph Entrance Scholarship  
1986, 1987              Natural Sciences and Engineering Research Council Fellowships  
1987              College of Biological Science Alumni Association Scholarship  
1987              College of Biological Science Gold Medal  
1988-9              Ontario Graduate Scholarship  
1988-9              Keith Ronald Graduate Fellowship  
1989-91              NSERC Postgraduate Fellowship  
1989-91, 1991-3      Killam Predoctoral Fellowships  
1993              Kit Malkin Scholarship  
1994              Governor General's Gold Medal  
1994              Captain Thomas Byrne Prize (Doctoral Thesis)  
1994-6              NSERC Postdoctoral Fellowship

### *Professional Employment*

Summer Research Assistant, National Research Council, Canada. Summer 1985. J. MacLachlan, Supervisor,  
Marine macrophyte survey of coastal Prince Edward Island.  
Research Assistant, Dept. Zoology, University of Guelph. Summer 1986. J. C. Roff, Supervisor. Survey of  
phyto- and zooplankton in harbour and surrounding regions of Kingston, Jamaica, as part of a Canadian  
International Development Agency-sponsored coastal management study.  
Research Assistant, Dept. Zoology, University of Guelph. Summer 1986. V. G. Thomas, Supervisor. Marine  
production study of frontal zones of tide-water glaciers, Pond Inlet, Baffin Island.  
Research Assistant, Dept. Zoology, University of Guelph. Summer 1987. J. S. Ballantyne, Supervisor.  
Experiments involving salinity acclimations of fatty acid and ketone body metabolism in oysters.  
Postdoctoral Fellow. Brookhaven National Laboratory, Upton, New York. 1994-1996. P. G. Falkowski,  
Supervisor.  
Lecturer in Aquatic Environmental Biology (Confirmed in post September 1998). Queen's University, Belfast,  
Northern Ireland. 1996-2002  
Assistant Professor. Dept. Biological Sciences, University of Wisconsin, Milwaukee. 2002-2005.  
Associate Professor. Dept. Biological Sciences, University of Wisconsin, Milwaukee, 2005-present.

## **Publications**

*ISI Citation analysis: 56 articles, 2565 citations, h-index : 25*

### **Book chapters and on-line publications (refereed)**

- Berges, J. A. and M. Mulholland. 2008. Chapter 32: Enzymes and N Cycling. pp. 1361-1420. In D. G. Capone *et al.* Nitrogen in the Marine Environment. Elsevier.
- Bootsma, H., E. Jensen, E. B. Young and J. A. Berges [Organizers]. 2005. *Cladophora* Research and Management in the Great Lakes . Proceedings of a Workshop Held at the Great Lakes WATER Institute, December 8, 2004. University of Wisconsin-Milwaukee.  
[http://www.uwm.edu/Dept/GLWI/cladophora/page\\_report.html](http://www.uwm.edu/Dept/GLWI/cladophora/page_report.html)
- Harrison, P. J. & J. A. Berges. 2005. Chapter 3. Marine culture media. pp. 21-33. In R. A. Andersen [ed.], Algal Culturing Techniques. Elsevier.
- Andersen, R. A., J. A. Berges, P. J. Harrison & M. M. Watanabe. 2005. Appendix A. Recipes for freshwater and seawater media. pp. 429-538. In R. A. Andersen [ed.], Algal Culturing Techniques. Elsevier.
- Berges, J. A., I. Joint, and C. S. Reynolds. 2003. Microalgal ecology, p. 131-150. In T. A. Norton [ed.], Out of the Past: Collected reviews to celebrate the Jubilee of the British Phycological Society. The British Phycological Society.
- Collos, Y., and J. A. Berges. 2003. Nitrogen metabolism in phytoplankton. In C. M. Duarte [ed.], Encyclopedia of Life Support Systems. EOLSS Publishers (UNESCO). Online: <http://www.eolss.net>

### **Refereed Papers:**

- Choi, C. J. and J. A. Berges. 2013. New types of metacaspases in phytoplankton reveal diverse origins of cell death proteases. Cell Death and Disease 4: e490; doi:10.1038/cddis.2013.21
- Gronquist, D. and J. A. Berges. 2013. Effects of aquarium-related stressors on the zebrafish: a comparison of behavioral, physiological, and biochemical indicators. Journal of Aquatic Animal Health 25: 53–65.
- Choi, C. J., J. A. Berges, and E. B. Young. 2012. Rapid effects of diverse toxic water pollutants on chlorophyll a fluorescence: variable responses among freshwater microalgae. Water Res. 46: 2615-2626.
- Franklin, D. J., Airs, R. L., Fernandes, M., Bell, T. G., Bongaerts, R. J., Berges, J. A. & Malin, G. 2012. Identification of senescence and death in *Emiliania huxleyi* and *Thalassiosira pseudonana*: cell staining, chlorophyll alterations, and dimethylsulfoniopropionate (DMSP) metabolism. Limnol. Oceanog. 57:305-17.
- Fuhrman, K. M., G. A. Pinter, and J. A. Berges. 2011. Dynamics of a virus-host model with an intrinsic quota. Mathematical and Computer Modelling 53: 716-730.
- Xiao, L., E. B. Young, J. A. Berges, and Z. He. 2012. Integrated photo-bioelectrochemical system for contaminants removal and bioenergy production. Environ Sci Technol 46: 11459-11466.
- Franklin, D. J., Choi, C. J., Hughes, C., Malin, G. & Berges, J. A. 2009. Effect of dead phytoplankton cells on the apparent efficiency of Photosystem II. Mar. Ecol. Prog. Ser. 382:35-40.
- Segovia, M. & Berges, J. A. 2009. Inhibition of caspase-like activities prevents the appearance of reactive oxygen species and dark-induced apoptosis in the unicellular chlorophyte *Dunaliella tertiolecta*. J. Phycol. 45:1116-26.
- Young, E. B., Berges, J. A. & Dring, M. J. 2009. Physiological responses of intertidal marine brown algae to nitrogen deprivation and resupply of nitrate and ammonium. Physiol. Plant. 135:400-11.
- Bowler, C., Allen, A. E., Badger, J. H., Grimwood, J., Jabbari, K., Kuo, A., Maheswari, U., Martens, C., Maumus, F., Otililar, R. P., Rayko, E., Salamov, A., Vandepoele, K., Beszteri, B., Gruber, A., Heijde, M., Katinka, M., Mock, T., Valentin, K., Verret, F., Berges, J. A., Brownlee, C., Cadoret, J. P., Chiovitti, A., Choi, C. J., Coesel, S., De Martino, A., Detter, J. C., Durkin, C., Falciatore, A., Fournet, J., Haruta, M., Huysman, M. J. J., Jenkins, B. D., Jiroutova, K., Jorgensen, R. E., Joubert, Y., Kaplan, A., Kroger, N., Kroth, P. G., La Roche, J., Lindquist, E., Lommer, M., Martin-Jezequel, V., Lopez, P. J., Lucas, S., Mangogna, M., McGinnis, K., Medlin, L. K., Montsant, A., Oudot-Le Secq, M. P., Napoli, C., Obornik, M., Parker, M. S., Petit, J. L., Porcel, B. M., Poulsen, N., Robison, M., Rychlewski, L., Rynearson, T. A., Schmutz, J., Shapiro, H., Siaut, M., Stanley, M., Sussman, M. R., Taylor, A. R., Vardi, A., von Dassow, P., Vyverman, W., Willis, A., Wyrwicz, L. S., Rokhsar, D. S., Weissenbach, J., Armbrust, E. V., Green, B. R., Van De Peer, Y. & Grigoriev, I. V. 2008. The *Phaeodactylum* genome reveals the evolutionary history of diatom genomes. Nature 456:239-44.
- Montsant A., Allen A. E., Coesel S., De Martino A., Falciatore A., Mangogna M., Siaut M., Heijde M., Jabbari K., Maheswari U., Rayko E., Vardi A., Apt K. E., Berges J. A., Chiovitti A., Davis A. K., Thamatrakoln K., Hadi M. Z., Lane T. W., Lippmeier J. C., Martinez D., Parker M. S., Pazour G. J., Saito M. A., Rokhsar D. S., Armbrust E. V., and Bowler C. 2007. Identification and comparative genomic analysis of signaling and regulatory components in the diatom *Thalassiosira pseudonana*. J. Phycol. 43: 585-604.
- Ribalet F., Berges J. A., Ianora A., and Cassotti R. 2007. Growth inhibition of cultured marine phytoplankton by toxic algal-derived polyunsaturated aldehydes. Aquat. Toxicol. 85: 219-227.

- Young E. B., Dring M. J., and Berges J. A. (2007) Distinct patterns of nitrate reductase activity in brown algae: light and ammonium sensitivity in *Laminaria digitata* is absent in *Fucus* species. *J. Phycol.* 43: 1200-1208.
- Young E. B., Dring M. J., Savidge G., Birkett D. A., Berges J. A. 2007. Seasonal variations in nitrate reductase activity and internal N pools in intertidal brown algae are correlated with ambient nitrate concentrations. *Plant Cell Environ.* 30: 764-774.
- Kirkpatrick, A.J., Gerhardt, A., Dick, J.T.A., McKenna, M. & Berges, J.A. 2006. Use of the multispecies freshwater biomonitor to assess behavioral changes of *Corophium volutator* (Pallas, 1766) (Crustacea, Amphipoda) in response to toxicant exposure in sediment. *Ecotoxicol. Environ. Saf.* 64: 298-303.
- Kirkpatrick, A.J., Gerhardt, A., Dick, J.T.A., Laming, P. & Berges, J.A. 2006. Suitability of *Crangonyx pseudogracilis* (Crustacea: Amphipoda) as an early warning indicator in the Multispecies Freshwater Biomonitor. *Env. Sci. Pollut. Res.* 13: 242-250.
- Franklin, D.J., Brussaard, C.P.D. & Berges, J.A. 2006. What is the role and nature of programmed cell death in phytoplankton ecology? *Eur. J. Phycol.* 41: 1-14.
- Young, E.B., Lavery, P.S., van Elven, B., Dring, M.J. & Berges, J.A. 2005. Nitrate reductase activity in macroalgae and its vertical distribution in macroalgal epiphytes of seagrasses. *Mar. Ecol. Prog. Ser.* 288: 103-114.
- Segovia, M. & Berges, J.A. 2005. Effect of inhibitors of protein synthesis and DNA replication on the induction of proteolytic activities, caspase-like activities and cell death in the unicellular chlorophyte *Dunaliella tertiolecta*. *Eur. J. Phycol.* 40: 21-30.
- Tomas, J., Geffen, A.J., Allen, I.S. & Berges, J.A. 2004. Analysis of the soluble matrix of vaterite otoliths of juvenile herring (*Clupea harengus*): do crystalline otoliths have less protein? *Comp. Biochem. Physiol. A Comp. Physiol.* 139: 301-308.
- Armbrust, E.V., Berges, J.A., Bowler, C., Green, B.R., Martinez, D., Putnam, N.H., Zhou, S., Allen, A.E., Apt, K.E., Bechner, M., Brzezinski, M.A., Chaal, B.K., Chiovitti, A., Davis, A.K., Demarest, M.S., Detter, J.C., Glavina, T., Goodstein, D., Hadi, M.Z., Hellesten, U., Hildebrand, M., Jenkins, B.D., Jurka, J., Kapitonov, V.V., Kroger, N., Lau, W.W.Y., Lane, T.W., Larimer, F.W., Lippmeier, J.C., Lucas, S., Medina, M., Monstant, A., Obornik, M., Parker, M.S., Palenik, B., Pazour, G.J., Richardson, P.M., Rynearson, T.A., Saito, M.A., Schwartz, D.C., Thamatrakoln, K., Valentin, K., Vardi, A., Wilkerson, F.P. & Rokhsar, D.S. 2004. The genome of the diatom *Thalassiosira pseudonana*: ecology, evolution and metabolism. *Science* (Washington, D.C.). 306: 79-86.
- Franklin, D. J., & J. A. Berges. 2004. Mortality in cultures of the dinoflagellate *Amphidinium carterae* during culture senescence and darkness. *Proc. R. Soc. Lond. B.* 271: 2099-2107.
- Montagnes, D. J. S. & J. A. Berges. 2004. Determining parameters of the numerical response. *Microb. Ecol.* 48: 139-144.
- Wilson, S., C. Blake, J. A. Berges, & C. A. Maggs. Environmental tolerances of free-living coralline algae (maerl): implications for European marine conservation. *Biological Conservation.* 120: 283-293.
- Franklin, D. J., O. Hoegh-Guldberg, R. J. Jones & J. A. Berges, 2004, Cell death and degeneration in the symbiotic dinoflagellates of the *Stylophora pistillata* (Esper) in response to the combined effects of elevated temperature and light. *Mar. Ecol. Prog. Ser.* 272:117-130.
- Berges, J. A., C. E. Gibson & B. M. Stewart, 2004, Physiological responses of phytoplankton communities in the Irish Sea to simulated upwelling. *Hydrobiologia* 517: 121-132.
- Segovia, M., L. Haramaty, J. A. Berges, and P. G. Falkowski. 2003. Caspases and cell death in a unicellular chlorophyte alga: the evolution of apoptosis. *Plant Physiol.* 132: 95-105.
- Berges, J. A., D. E. Varela and P. J. Harrison. 2002. Effects of temperature on growth rate, composition and nitrogen metabolism in the marine diatom *Thalassiosira pseudonana* (Bacillariophyceae). *Mar. Ecol. Prog. Ser.* 225: 139-146.
- Boyd, P. W., N. D. Sherry, J. A. Berges, J. K. B. Bishop, S. E. Calvert, M. A. Charette, S. J. Giovannoni, R. Goldblatt, P. J. Harrison, S. B. Moran, S. Roy, M. Soon. 1999. Transformations of biogenic particulates from the pelagic to the deep ocean realm. *Deep-Sea Research* 46: 2761-2792.
- Berges, J. A. and P. G. Falkowski. 1998. Physiological stress and cell death in marine phytoplankton: induction of proteases in response to nitrogen- or light-limitation. *Limnol. Oceanogr.* 43: 129-135.
- Berges, J. A., and P. G. Falkowski. 1996. Cell-associated proteolytic enzymes from marine phytoplankton. *J. Phycol.* 32: 566-574.
- Berges, J. A., D. O. Charlebois, D. C. Mauzerall, and P. G. Falkowski. 1996. Differential effects of nitrogen limitation on photosynthetic efficiency of Photosystems I and II in microalgae. *Plant. Physiol.* 110: 689-696.
- Fisher, A. E., J. A. Berges, and P. J. Harrison. 1996. Does light quality affect the sinking rate of marine diatoms? *J. Phycol.* 32: 353-360.
- Hurd, C. L., J. A. Berges, J. Osborne and P. J. Harrison. 1995. An *in vitro* nitrate reductase assay for marine macroalgae: optimization and characterization of the enzyme for *Fucus gardneri* (Phaeophyta). *J. Phycol.* 31: 835-843.

- Berges, J. A., W. P. Cochlan, and P. J. Harrison. 1995. Laboratory and field responses of algal nitrate reductase to diel periodicity in irradiance, nitrate exhaustion, and the presence of ammonium. *Mar. Ecol. Prog. Ser.* 124: 259-269.
- Berges, J. A., and P. J. Harrison. 1995a. Nitrate reductase activity quantitatively predicts the rate of nitrate incorporation under steady-state light limitation: a revised assay and characterization of the enzyme in 3 species of marine phytoplankton. *Limnol. Oceanogr.* 40: 82-93.
- Berges, J. A., and P. J. Harrison. 1995b. Relationships between nitrate reductase activity and rates of growth and nitrate incorporation under steady-state light or nitrate limitation in the marine diatom *Thalassiosira pseudonana* (Bacillariophyceae). *J. Phycol.* 31: 85-95.
- Berges, J. A., D. J. S. Montagnes, C. L. Hurd, and P. J. Harrison. 1994. Fitting ecological and physiological data to rectangular hyperbolae: a comparison of methods using Monte Carlo simulations. *Mar. Ecol. Prog. Ser.* 114: 175-183.
- Montagnes, D. J. S., J. A. Berges, F. J. R. Taylor, and P. J. Harrison. 1994. Estimating carbon, nitrogen, protein and chlorophyll a from cell volume in marine phytoplankton: a comparison of optical and electronic particle counting techniques and the effect of fixation with Lugol's iodine. *Limnol. Oceanogr.* 39: 1044-1060.
- Berges, J. A., and C. Virtanen. 1993. Expanding the capabilities of laboratory instruments using built-in microprocessors and serial interfaces: adapting an LKB Ultraspec II UV spectrophotometer for scanning and enzyme kinetic analyses. *Comput. Biol. Med.* 23: 131-141.
- Berges, J. A., and P. J. Harrison. 1993. Relationship between nucleoside diphosphate kinase activity and light-limited growth rate in the marine diatom *Thalassiosira pseudonana* (Bacillariophyceae). *J. Phycol.* 29: 45-53.
- Berges, J. A., A. E. Fisher, and P. J. Harrison. 1993. A comparison of Lowry, Bradford, and Smith protein assays using different protein standards and protein purified from the marine diatom *Thalassiosira pseudonana*. *Mar. Biol. (Berl.)* 115: 187-193.
- Berges, J. A., J. C. Roff, and J. S. Ballantyne. 1993. Enzymatic indexes of respiration and ammonia excretion: relationships to body size and food levels. *J. Plankton Res.* 15: 239-254.
- Berges, J. A., and J. S. Ballantyne. 1991. Size-scaling of whole-body maximal enzyme activities in aquatic crustaceans. *Can J. Fish. Aquat. Sci.* 48: 2385-2394.
- Berges, J. A., J. C. Roff, and J. S. Ballantyne. 1990. Relationship between body size, growth rate, and maximal enzyme activities in the brine shrimp, *Artemia franciscana*. *Biol. Bull.* 179: 287-296.
- Hopcroft, R. R., J. C. Roff, and J. A. Berges. 1990. Size-fractionated sedimentation in a tropical neritic ecosystem near Kingston, Jamaica. *Cont. Shelf Res.* 10: 795-806.
- Berges, J. A., and J. S. Ballantyne. 1989. 3-Hydroxy-3-methylglutaryl coenzyme A lyase from tissues of the oyster, *Crassostrea virginica*, the little skate, *Raja erinacea* and the lake charr, *Salvelinus namaycush*: a simplified spectrophotometric assay. *Comp. Biochem. Physiol. B* 93: 583-588.

**Other Publications:**

- Berges, J. A. 2002. Protease (LAP) measurements. pp. 9-15. In C. D. P. Brussaard [ed.] Cruise Report: MOMAP1 (64PE194) 19 April-3 May 2002. Netherlands Institute of Sea Research. Texel. 24 p.
- Andersen, R. A., and J. A. Berges. 2001. Meeting Report: 7th International Phycological Congress, Thessaloniki, Greece, August 18-25, 2001. *Protist* 152: 249-253.
- Benitez, E., J. J. Vergara, J. A. Berges, and J. L. Perez-Llorens. 2001. Actividades proteolíticas en macroalgas marinas, p. 378. In F. M. Canovas and F. J. Florencio, [eds.], *Anvances en el metabolismo del nitrogeno: bioúmica, fisiología y biología molecular*. Universidad de Málaga.
- Berges, J. A. 1996. Book Review: Round & Chapman 1995. *Eur. J. Phycol.* 31: 291-292.
- Berges, J. A. 1999. Book review: Cooksey 1998. *Eur. J. Phycol.* 34: 317-318.
- Vergara, J. J., J. A. Berges, and P. G. Falkowski. 2001. Ciclos diarios de la nitrato reductasa en la diatomea marina *Thalassiosira weissflogii*, p. 215-223. In F. M. Canovas and F. J. Florencio, [eds.], *Anvances en el metabolismo del nitrogeno: bioúmica, fisiología y biología molecular*. Universidad de Málaga.

**Conference and Other Presentations:**

- Chang Jae 2009 France
- Hanson, A. M., J. A. Berges and E. B. Young. 2008. Examining the freshwater virus community in Lake Michigan and a eutrophic pond. American Society of Limnology and Oceanography Summer Meeting, St. John's. June 8-13. [POSTER]
- Farley R. A. and J. A. Berges. 2008. Sulfur content of marine and freshwater phytoplankton: taxonomic and environmental variations American Society of Limnology and Oceanography Summer Meeting, St. John's. June 8-13. [POSTER]

- Berges, J. A. 2008. Are nuisance blooms of benthic algae reshaping nearshore silicate cycling in Lake Michigan? International Association of Great Lakes Research. 51<sup>st</sup> Annual Conference on Great Lakes Research. Peterborough. May 19-23.
- Hanson, A. M. Young, E. B. and Berges, J. A. 2008. Viruses in Lake Michigan: examining the virus community and the role of viruses in the phosphorus cycle. International Association of Great Lakes Research. 51<sup>st</sup> Annual Conference on Great Lakes Research. Peterborough. May 19-23. [POSTER]
- Sandgren, C.D. & J. A. Berges. 2007. A blueprint for interpreting the impact of exotic invading invertebrates on the Lake Michigan planktonic foodweb. North-West Algal Symposium. Friday Harbor. Feb 23-25.
- Berges, J. A. 2007. Silica: not just for diatoms anymore. Stazione Zoologica Napoli "Anton Dohrn". March 18th.
- Choi, C. J. & J. A. Berges. 2007. Contrasting features of cell death in response to oxidative stress in marine and freshwater chlorophyte algae. Plant Biology and Botany 2007. Chicago. July 7-11. [POSTER]
- Berges, J. A. 2007. Death and the alga. Haines-Morris Seminar Series. U. Tennessee. September 24. [INVITED]
- Choi, C. J. , J. A. Berges & E. B Young. 2007. Rapid detection of aquatic toxins using chlorophyll fluorescence in microalgae. Society for Environmental Toxicology and Chemistry. Milwaukee. November 11-15. [POSTER]
- Berges, J. A. 2006. Phytoplankton cell death: a critical link between physiology and biogeochemistry. American Society of Limnology and Oceanography Meeting. Victoria. June 4-9. [INVITED]
- Berges, J. A. 2006. From ecosystems to genes: exploring algal nitrate metabolism using nitrate reductase. Stazione Zoologica Napoli "Anton Dohrn". February 28.
- Berges, J. A. 2005. Algal cell death: a significant factor in nearshore carbon and nutrient dynamics? International Association of Great Lakes Research Annual Meeting. Ann Arbor, Michigan. May 23-27. [Also Co-Organizer and Co-Chair of this Session]
- Berges, J. A. and C. D. P. Brussaard. 2005. Detection of programmed cell death induced by viruses in marine phytoplankton. 4th Algal Virus Workshop. Amsterdam, Netherlands. April 17-21. [Poster]
- Berges, J. A. 2004. What can genes tell us about ecology? The case of the diatom *Thalassiosira pseudonana*. UWM Center for Functional and Environmental Genomics. Retreat/Workshop. October 23.
- Berges, J. A. 2004. Cell death in phytoplankton: how important is it? Stazione Zoologica Napoli "Anton Dohrn". November 17.
- Berges, J. A. Phytoplankton ecology: from ecosystems to genes. UWM Biological Sciences Colloquium Seminar. October 8, 2004.
- Sommerville, K., J. A. Berges, G. Savidge, and T. Preston. The importance of dissolved organic nitrogen in macroalgal-dominated coastal systems. American Society of Limnology and Oceanography Aquatic Sciences Meeting. Salt Lake City, February 9-13, 2003.
- Berges, J. A. and C. D. P. Brussaard. Detection of apoptosis in marine phytoplankton using flow cytometry. 3rd European Phycological Congress. Belfast, July 21-26, 2003.
- Berges, J. A. 2002. Natural mortality; a missing term in understanding phytoplankton productivity?, Phytoplankton Productivity: An Appreciation of 50 Years of the Study of Production in Oceans and Lakes, Bangor, March 18th – 22nd.
- Franklin D. J., O. Hoegh-Guldberg, R. J. Jones and J. A. Berges. 2002. Bleaching stress kills coral symbiotic dinoflagellates in hospite: photoinhibition, oxidative stress and symbiont cell death are the first steps in coral bleaching. British Phycological Society Meeting, Greenwich College, London. January 2nd-5th
- Segovia, M. and J. A. Berges. Apoptosis in unicellular algae. Cell and Molecular Biology of Apoptosis. British Society of Cell Biology. Edinburgh, Scotland. September 10-13.
- Berges J. A. 2000. Mortality in phytoplankton: what's going on inside the membrane? American Society of Limnology and Oceanography Meeting, Copenhagen, Denmark. June 5-9. [INVITED]
- Segovia, M. and J. A. Berges. 2000. Phytoplankton mortality: the importance of the cellular death process. American Society of Limnology and Oceanography Meeting, Copenhagen, Denmark. June 5-9.
- Berges, J. A. and M. Segovia. 2000. Natural mortality in aquatic ecosystems: does cell death play a role? Ocean Sciences Meeting, San Antonio, Texas. January 24-28. [INVITED]
- Berges, J. A. 1999. Involvement of proteases in responses to environmental stress in marine algae. 2<sup>nd</sup> European Phycological Congress, Montecatini Terme, Italy. September 20-26. [INVITED]
- Berges, J. A., J. J. Vergara, L. Perez-Llorens and M. J. Dring. 1999. Proteolytic enzymes in marine macroalgae. 47th British Phycological Society Meeting. Dundee, Scotland. January 4-7.
- Berges, J. A. 1998. Apoptosis in a unicellular alga? Cell Death in Health and Disease. Society of Experimental Biology. Exeter, UK. December 14-18.
- Berges, J. A. 1998. Algal cell death: another pathway from POM to DOM? Ocean Sciences Meeting, San Diego. February 9-13.

- Berges, J. A., C. Gibson and B. Stewart. 1998. Differing responses of phytoplankton communities in the Irish Sea to simulated upwelling. 46th British Phycological Society Meeting. Royal Holloway, UK. January 5-8.
- Roberts, D., H. M. Moore, J. Berges, J. Patching, M. Carton and D. Eardley. 1997. Sediment distribution, enzymes profiles and bacterial activities in the guts of *Oneirophanta mutabilis* (Theel 1879), *Psychropotes longicauda* (Theel 1882) and *Pseudostichopus* sp. - What do they tell us about digestive strategies of abyssal holothurians? Eighth Deep Sea Symposium. Monterey. Sept. 21-26.
- Berges, J. A., S. Coey, and J. J. Vergara. 1997. Diel periodicity of nitrate reductase activity in marine chromophyte micro- and macroalgae. Sixth International Phycological Congress. Leiden, Netherlands. August 9-16.
- Roberts, D., H. Moore, J. Berges, J. Patching, M. Carton and D. Eardley. 1997. Sediment distribution, enzyme profiles and bacterial activities in the guts of *Oneirophanta mutabilis* (Theel 1879), and *Pseudostichopus* sp. 8th Deep Sea Symposium. Monterey. September 21-26.
- Berges, J. A. 1997. Death in the sea? Involvement of proteases in mortality or survival of marine phytoplankton under environmental stress. 45th British Phycological Society Meeting. Sheffield, UK. January 2-5.
- Vergara, J. J., J. A. Berges, and P. G. Falkowski. 1996. Diel periodicity of nitrate reductase in *Thalassiosira weissflogii*. First European Phycological Congress. Cologne, Germany. August 11-17.
- Berges, J. A., and P. G. Falkowski. 1996. Proteolytic enzymes in marine phytoplankton. Ocean Sciences Meeting. San Diego. February 12-16.
- Berges, J. A., D. O. Charlebois, D. C. Mauzerall, and P. G. Falkowski. 1996. Differential effects of nitrogen limitation on photosynthetic efficiency of Photosystems I and II in microalgae. Xth Photosynthesis Congress. Montpellier, France. August 20-25. (Poster)
- Berges, J. A., and P. J. Harrison. 1994. Enzyme indices of nitrate assimilation in marine phytoplankton. Molecular Ecology of Aquatic Microbes. NATO Advanced Studies Institute. Castelveccchio Pascoli, Italy. August 28-September 9. (Poster)
- Berges, J. A., P. J. Harrison, and W. P. Cochlan. 1994. Nitrate reductase activity as a predictor of *in situ* rates of nitrate incorporation: laboratory and field comparisons. Ocean Sciences Meeting. San Diego. February 21-25.
- Cochlan, W. P., and J. A. Berges. 1994. Ammonium inhibition of nitrate uptake and reduction in natural phytoplankton assemblages: fact or fiction? Ocean Sciences Meeting. San Diego. February 21-25.
- Berges, J. A., and P. J. Harrison. 1993. Predicting nitrate incorporation rate using nitrate reductase: NR activity versus growth rate under light- or nutrient-limitation. American Society of Limnologists and Oceanographers Meeting. Edmonton. May 30-June 3.
- Montagnes, D. J. S., and J. A. Berges. 1993. Estimating carbon, nitrogen, protein and chlorophyll *a* from cell volume in marine phytoplankton: a comparison of optical and electronic particle counting techniques and the effects of fixation with Lugol's iodine. ASLO Meeting. Edmonton. May 30-June 3.
- Berges, J. A., and P. J. Harrison. 1993. Fitting ecological and physiological data to rectangular hyperbolae: a comparison of methods using Monte-Carlo simulations. Oceanographic Society Meeting. Seattle. April 13-16. (Poster)
- Berges, J. A., and P. J. Harrison. 1992. Nitrate reductase in marine phytoplankton: a re-evaluation of activity assays and relationships with growth rate. ASLO Meeting. Santa Fe. February 9-14.
- Roff, J. C., and J. A. Berges. 1991. Nucleoside diphosphate kinase: a potential enzymatic index of growth rate in zooplankton. European Marine Biological Society Meeting. Copenhagen. June 10-14.
- Berges, J. A., and J. C. Roff. 1989. Enzymatic indices of respiration and ammonia excretion: relationships to body size and food levels. Ocean Sciences Meeting. New Orleans. February 14-17.
- Ballantyne, J. S., and J. A. Berges. 1988. The effects of salinity acclimation on the metabolism of the oyster *Crassostrea virginica*. American Society of Zoologists Meeting. Tampa. December 7-12.
- Berges, J. A. 1988. Enzymatic indices of aquatic secondary production. Canadian Society of Zoologists Meeting. Halifax. May 15-19. (Poster)

## **Research Grants**

### a. External funds

- Natural Environment Research Council Small Grant: Incidence, triggering factors, and characterization of autocatalysed cell death in marine phytoplankton. J. Berges \$22, 500 (08/96-08/98)
- Nuffield Foundation Award to newly Appointed Lecturers: Biochemical indices of algal nitrogen metabolism and environmental stress, J. Berges \$6, 000 (06/97-06/99)
- British Council Joint Research Award (Spain). Involvement of proteases in seasonal declines of intertidal macroalgae. J. Berges, M. Dring, L. Perez-Llorens and J. Vergara \$3, 000 (05/97-05/98)
- British Council Joint Research Award (Norway). Autocatalysed and viral mortality in marine phytoplankton. J. Berges and G. Bratbak \$3, 000 (02/98-06/99)

QUESTOR (Queen's University Industry-University Consortium). Use of macroalgae to remove heavy metals from wastewater. J. Berges and M. Dring \$60, 000 (06/98-05/02)

Natural Environment Research Council Joint Research Equipment Initiative. Nutrient dynamics in coastal environments. M. Dring, G. Savidge and J. Berges \$60, 000 (01/99-12/03)

Natural Environment Research Council Grant to New Investigators: Ecological aspects of mortality in marine phytoplankton. J. Berges. \$37, 500 (08/99-08/00)

Nuffield Foundation. Undergraduate research bursary (W. Booth). J. Berges \$1, 700 (06/99-08/99)

Nuffield Foundation. Undergraduate research bursary (L. Tinkler). J. Dick and J. Berges \$1, 700 (06/99-08/99)

Natural Environment Research Council Grant: Macroalgal nitrate metabolism in coastal ecosystems. J. Berges, M. Dring. \$225, 000 (11/99-10/02)

British Council Joint Research Award (Netherlands). Methods of assessing mortality in marine phytoplankton. J. Berges and C. Brussaard \$3, 000 (12/99-03/00)

EU-TMR, Marie Curie Fellowship: Cell death in marine phytoplankton. M. Segovia, J. Berges. \$75, 000 (07/00-06-03)

Natural Environment Research Council Grant: Roles of macroalgae in production and cycling of dissolved organic nitrogen. G. Savidge, J. Berges \$292, 500 (10/00-09/03)

European Union: Marie Curie Training Centre (M. Dring, J. Berges, G Savidge and C. Maggs) Marine macroalgae: physiological and biochemical ecology, molecular phylogeny, and aquaculture. Contract HPMT-CT-2001-00268; Amount unspecified, but to cover student travel, support and consumable supplies for two graduate students per year. (01/01-12/04)

Milwaukee Metropolitan Sewage District. Water quality management options to control *Cladophora* growth in the Milwaukee Region of Lake Michigan. H. Bootsma, E. B. Young, J. Berges. \$83,400 (07/03 – 10/04)

Wisconsin Sea Grant. Recent advances in limnology and oceanography seminar series. J. A. Berges and A. Brooks. \$9, 923. (11/03-10/04).

Wisconsin Sea Grant. Recent Advances in Limnology and Oceanography Seminar Series 2006-8. J. A. Berges & A. Brooks \$36, 000 (03/06-02/08)

Wisconsin Sea Grant. *Ceropagis* invasion of Lake Michigan. C. Sandgren & J. Berges \$390, 000 (03/06-02/09)

United States Department of Agriculture. Small business innovation research. Submersible LED Lighting for Photobioreactors (SLLP). R. C..Morrow & T. M. Crabb. Orbital Technologies Corporation. \$81, 445 (06/07-02/08) [JAB named as a Contractor]

Natural Environmental Research Council UK. Mortality rates in key phytoplankton functional types. G. Malin & D. Franklin. £331, 720 [JAB named as a Project Partner; PI paid a visit to UWM and \$4, 000 in consumables will come through UWM].

National Science Foundation. Division of Undergraduate Education. UBM-Group: Integrated Undergraduate Research Experiences in Aquatic Biology and Mathematical Sciences. Lauko, I. J. A. Berges, M. Carvan, S. McLellan & G. Pinter. \$236,983 (09/08-08-11)

b. Internal funds

UWM Graduate School Research Committee: Mortality in freshwater phytoplankton. J. Berges \$14, 932 (06/03-06/04)

UWM Research Growth Initiative. Phosphorus Acquisition : Exploring New Paradigms in Freshwater Phytoplankton. E.B. Young and J.A. Berges. \$62,966 (04/07-03/08)

**Teaching Experience**

*Teaching Assistant:* U. Guelph. 92-102 Introductory Zoology, 15-110 Developmental Biology, 92-430 Marine Biology (Field course), 92-424 Marine Biology I, 92-312 Limnology and Oceanography

U. British Columbia. BIOL 205 Invertebrate Zoology (2 years), BIOL 403 Biological Oceanographic Methods,

*Lab Coordinator:* U. British Columbia. BIOL 403 Biological Oceanographic Methods

*Instructor:* U. British Columbia. OCGY 310 The Oceans, Past and Present (2 years)

*Guest Lecturer:* U. British Columbia. BOTA 451 Algal Physiology

U. Guelph. 92-424 Marine Biology I

Bamfield Marine Station Algal Physiology

*Co-supervisor:* U. British Columbia OCGY 448 Directed Studies (BSc student)

*Lecturer:* Queen's. Introductory Biology II (Level 0, 4 years), Plant and Animal Diversity (Level 1, 4 years), Invertebrate Zoology (Level 2, 4 years), Marine Biology (Level 2, 4

years), Marine Processes (Level 3, 4 years), Practical Marine Ecology (Level 3 Field Course, 2 years), Aquatic Plants (MSc Programme)  
UWM. Aquatic Photosynthesis (928, 3 years), Recent Advances in Limnol and Oceanogr (611, 4 years), Comparative Ecophysiology (499/349, 3 years), Marine Biology (406, 4 years), Topics in Modern Biology (103, 2 years), Limnology Laboratory (513), Freshman Seminar (194), Independent studies (699, 2), Internships (489, 2)

*Supervisions:* Queen's 21 Honours Students, 20 MSc Students, 3 PhD Students  
UWM 1 PhD Student (current), 4 MS Students (2 current)

*Programme coordinator:* Queen's. MSc in Applied Environmental Science (1999-2002)

### ***Society Memberships***

American Society of Limnology and Oceanography (1989- present)  
Phycological Society of America (1994-present)  
British Phycological Society (1996-present)  
American Society of Plant Biologists (2002-present)  
International Association for Great Lakes Research (2003-present)  
National Marine Educators Association (2003-present)

Editorial Board, European Journal of Phycology (1998-present)  
Editorial Board, Botanica Marina (2008-present)  
Treasurer, British Phycological Society (1997-2001)

### ***Professional Activities***

#### ***Department/college service***

University of Guelph: Dept. Zoology Graduate Studies Committee  
U. British Columbia: Dept. Oceanography Safety Committee, Earth and Ocean Sciences Building Planning Committee  
UWM Biological Sciences Graduate Committee (Member, 2003, 2008; Co-Chair 2005)  
UWM Biological Sciences Personnel Committee (Member, 2003-4)  
UWM Academic Policies and Curriculum Committee (Member 2004-2007)  
Numerous UWM Student supervisory committees

#### ***University-wide committees***

University of Guelph: BSc Program Committee, Library Fines Appeals Committee,  
U. British Columbia: Student Housing Planning Committee, Faculty of Science Teaching Committee  
Member of Academic Council, Queen's University (2000-2001)  
UWM Honorary Degree Committee (Member 2003-2006)  
UWM Libraries Committee (Member 2004-2008)

#### ***Community***

I offered a "Science Bag" seminar on "Lakes and Oceans: Just a matter of size?" April 2006.  
I participated in Milwaukee's "Lake Sturgeon Bowl" (part of the National Ocean Science Bowl) as a Science Judge in 2003.  
Member, Northern Ireland Educational Support Unit, Biology Panel 1998-2001; Semesterly meetings of N. Ireland educators in Biology at Secondary and University levels. Discussion of common issues, clarification of procedures, running of update courses.  
Member of Local Organising Committee, 3<sup>rd</sup> European Phycological Congress, Belfast. (2002/3)

### ***Certificates***

University of Guelph: Short Course for Learning in Laboratories, Experimental Animal Care, Course in Mammalian Allometry and Growth  
U. British Columbia: Radiation Safety, Practical Course in Plant Molecular Biology  
Queen's University: Postgraduate Certificate in Higher Education Teaching