

**DEBORAH L. ROBERTSON**  
Clark University  
Biology Department  
950 Main Street  
Worcester, MA 01610  
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**EDUCATION**

<i>The University of Chicago</i>	Chicago, IL
Ph.D. Molecular Genetics and Cell Biology	1997
<i>California State University, Long Beach</i>	Long Beach, CA
M.S. Biology	1988
<i>Kalamazoo College</i>	Kalamazoo, MI
B.A. Biology	1981

**POSITIONS HELD**

Professor of Biology, Clark University	2015-present
Associate Professor of Biology, Clark University	2006-2015
Assistant Professor of Biology, Clark University	2000-2006
Faculty Advisor, REU Program, Cornell University, Shoals Marine Laboratory	2001, 2002
Lecturer, Cornell University, Shoals Marine Laboratory	1999-2001
National Research Service Award, Post-doctoral Fellow, Harvard University	1997-2000

**FELLOWSHIPS AND SCHOLARSHIPS**

NRSA-NIH Post-Doctoral Fellow, Harvard University	1997-2000
E.H. Myers and E.M. Myers Oceanographic and Marine Biology Trust.	1991, 1992
Graduate Fellowship Program for Under Represented and Minority Students.	1986
Women's League of Long Beach Scholarship.	1986

**ACADEMIC HONORS**

<i>Outstanding Teacher Award.</i> Clark University	2015, 2005
<i>Hodgkins Junior Faculty Award.</i> Clark University	2003
<i>Harold C. Bold Award</i> (Honorable Mention). Phycological Society of America.	1995
<i>Outstanding Student Presentation.</i> Western Society of Naturalists Annual Meeting.	1994
<i>Kenneth Johnson Outstanding Thesis Award.</i> California State University, Long Beach	1989
<i>Graduate Dean's List of Artists and Scholars.</i> California State University, Long Beach	1988
<i>Southern California Edison Award for Outstanding Academic Performance.</i>	1986

**SCHOLARLY AND CREATIVE ACTIVITY**

**GRANTS AND AWARDS**

*Federal Grants as Principal Investigator:*

Robertson, D.L. 2011-2015. Regulation of nitrogen assimilation in marine diatoms: Investigation of the importance of post-transcriptional processes. National Science Foundation (Funded: \$385,381, 36 mos, 1 year no cost extension)

Robertson, D.L. 2003-2009. CAREER: Nitrogen Assimilation in Marine Algae: Evolution, Physiology, and Educational Opportunities. National Science Foundation. (Funded: \$541,433, 60 mos with 1 year no cost extension).

Robertson, D.L. May 2005 - 2007. REU Supplement for CAREER: Nitrogen Assimilation in Marine Algae: Evolution, Physiology, and Educational Opportunities. National Science Foundation. (Funded: 2007: \$6,000 12 mos; 2006: \$6,000 12 mos; 2005: \$11,340 12 mos)

Robertson, D.L. July 1997. Translational regulation of a circadian expressed protein. Individual National Research Service Award, National Institutes of Health. (Funded: \$87,168, 36 mos.)

*Institutional Awards as Principal Investigator:*

Robertson, D.L. 2013-2014. Population Genetic Structure of Two Seagrass Species in a Mixed Species Ecosystem (Padilla Bay, WA, USA) Faculty Development Award, Clark University (Funded: \$1369)

*Collaborative Grants and Awards:*

Smith, G.J. (Lead) and D.L. Robertson. 2015-2016. Application of electroporation for transfection and transformation of the cosmopolitan diatom genus *Pseudo-nitzschia* to enable molecular dissection of domoic acid biosynthesis. Gordon and Betty Moore Foundation: Experimental Model Systems. (\$171,842 12 mos.)

Del Prete, T., L.J. Smith, D.L. Robertson, A. A. Kudrolli, N. C. Sternberg. 2013-2018. Clark Science Math Teaching and Education Partnership (C-STEP) funded by the Robert Noyce Teacher Scholarship Program (\$1,130,705, 60 mos.)

Foster, S.A., Livdahl, T., Robertson, D.L., and Hibbett, D.S. (co-directors). 2006. Complementary Curricular Networks: Tools to Enhance Undergraduate Biology Education. (Funded: \$300,000)

Livdahl, T. (PI) and Robertson, D.L. (Co-PI). 2005-2009. Ecology of large and small scale mosquito invasions. NIH, Academic Research Enhancement Award (Funded: \$216, 900, 36 mos; with a 1 year no cost extension)

*MANUSCRIPTS IN PREPARATION*

Perera, M., R. Littlefield, and D.L. Robertson. Post-transcriptional regulation of key nitrogen assimilating enzymes in the marine diatom *Thalassiosira pseudonana*. To be submitted to Journal of Phycology.

Perera, M., B. Worthing, and D.L. Robertson. The use of *in vivo* metabolic labeling to monitor changes in *de novo* transcription in *Thalassiosira pseudonana*. To be submitted to BMC Molecular Biology.

Littlefield, R., G.J. Smith, and D.L. Robertson. Analyses of formaldehyde detoxification in marine diatoms. To be submitted to Journal of Phycology.

Robertson, D.L. D.S. Scott, and K.L. Brown. Interactions between nitrate and ammonium assimilation: Is mRNA stability important? To be submitted to Journal of Phycology.

Sullivan, H.L., K.A. Friedman, D.S. Johnson, and D.L. Robertson. The effects of nitrate fertilization on the photosynthetic performance of *Spartina alterniflora*. To be submitted to Estuaries and Coasts.

Alexander, J.A., M. Perera, S. Ghoshroy, D. Thurlow, and D.L. Robertson. Identification and characterization of the PUF-family of proteins in marine diatoms. To be submitted to Eukaryotic Cell.

Johnson, C.J., E.B. Young and D.L. Robertson. Characterization of nitrate reductase from the brown alga, *Fucus vesiculosus*. To be submitted to the European Journal of Phycology.

*PUBLICATIONS*

Reich, H.G., D.L. Robertson, and G. Goodbody-Gringley. 2017. Do the shuffle: Changes in *Symbiodinium* consortia throughout juvenile coral development. **PLoS ONE**. 12(2): e0171768. <https://doi.org/10.1371/journal.pone.0171768>.

Ghoshroy, S. and D.L. Robertson. 2015. The role of horizontal gene transfer in the evolution of nitrogen assimilating enzymes in the Prasinophytes. **Journal of Molecular Evolution**. 80(1):65-80. doi: 10.1007/s00239-014-9659-3. Epub 2014 Dec 11.

Boissonneault, K.R., B.M. Henningsen, S.S. Bates, D.L. Robertson, S. Milton, J. Pelletier, D.A. Hogan, and D.E. Housman. 2014. Gene expression studies for the analysis of domoic acid production in the

- marine diatom *Pseudo-nitzschia multiseriata*. **BMC Molecular Biology**. 14:25 doi:10.1186/1471-2199-14-25
- Ghoshroy, S. and D.L. Robertson. 2012. Molecular evolution of glutamine synthetase II and III in the chromalveolates. **Journal of Phycology**. 48:768–783. doi: 10.1111/j.1529-8817.2012.01169.x.
- Ghoshroy, S., M. Binder, A. Tartar, and D.L. Robertson. 2010. Molecular evolution of glutamine synthetase II: Phylogenetic evidence of a non-endosymbiotic gene transfer event early in plant evolution **BMC Evolutionary Biology**. 10:198. doi:10.1186/1471-2148-10-198 (<http://www.biomedcentral.com/1471-2148/10/198> ).
- Kaplan, L., D. Kendell, D.L. Robertson, T. Livdahl, and C. Khatchikian. 2010. *Aedes aegypti* and *Aedes albopictus* in Bermuda: extinction, invasion, invasion and extinction. **Biological Invasions**. 12:3277-3288.
- Morgenstern, I., D.L. Robertson, D.S. Hibbett. 2010. Characterization of three *mnp* genes of *Fomitiporia mediterranea* and report of additional class II peroxidases in the order hymenochaetales. **Applied and Environmental Microbiology**. 6(19):6431-40. DOI: 10.1128/AEM.00547-10.
- Slot, J.C., K.N. Hallstrom, P.B. Matheny, K. Hosaka, G. Mueller, D.L. Robertson, and D.S. Hibbett. 2009. Structural and functional diversity of high affinity nitrate transporters in three clades of mushroom forming fungi from different ecologies. **Fungal Ecology**. <http://dx.doi.org/10.1016/j.funeco.2009.10.001>
- Brown, K.L., K. Twing\*, and D.L. Robertson. 2009. Unraveling the regulation of nitrogen assimilation in the marine diatom *Thalassiosira pseudonana* (Bacillariophyceae): diurnal variations in transcript levels for five genes involved in nitrogen assimilation. **Journal of Phycology**. 45: 413–426
- Banerjee, G., D.L. Robertson, T. Leonard. 2008. Hydrophobins Sc3 and Sc4 gene expression in mounds, fruiting bodies and vegetative hyphae of *Schizophyllum commune*. **Fungal Genetics Biology**. 45: 171-178 (doi:10:1016/j.fgb.2007.10.018)
- Robertson, D.L. and A. Tartar. 2006. Evolution of glutamine synthetase in heterokonts: evidence for endosymbiotic gene transfer and the early evolution of photosynthesis. **Molecular Biology and Evolution**. 23(5):1048-1055.
- Takabayashi, M. F. Wilkerson, and D. Robertson. 2005 Response of glutamine synthetase gene transcription and enzyme activity to external nitrogen sources in the diatom *Skeletonema costatum* (Bacillariophyceae). **Journal of Phycology**. 41: 84-94
- Robertson, D.L., G.J. Smith, and R.S. Alberte. 2001. Glutamine synthetase in marine algae: New surprises from an old enzyme. **Journal of Phycology**. 37(5): 37:793-795.
- Okamoto, O.K., L. Liu, D.L. Robertson, and J.W. Hastings. 2001. Members of a dinoflagellate luciferase gene family differ in synonymous substitution rates. **Biochemistry**. 40:15862-15868.
- Okamoto, O.K., D.L. Robertson, T.Fagan, J.W. Hastings and P. Colepicolo. 2001. Different regulatory mechanisms modulate the expression of a dinoflagellate iron-superoxide dismutase. **Journal of Biological Chemistry**. 276: 19989-19993
- Li, L., L. Liu, R. Hong\*, D.L. Robertson, and J.W. Hastings. 2001. N-terminal histidines are responsible for the decrease in luciferase activity at pH 8. **Biochemistry**. 40(6):1844-1849.
- Robertson, D.L., G.J. Smith, and R.S. Alberte. 1999. Characterization of a cDNA encoding glutamine synthetase from the marine diatom *Skeletonema costatum*. **Journal of Phycology**. 35:786-797.
- Robertson, D.L., and R.S. Alberte. 1996. Purification and biochemical characterization of glutamine synthetase from *Skeletonema costatum*. **Plant Physiology**. 111:1169-1175.
- Coyer, J.A., D.L. Robertson, R.S. Alberte. 1995. Genetic variability and parentage in *Macrocystis pyrifera* (Phaeophyceae) using multi-locus DNA fingerprinting. **Journal of Phycology**. 31:819-823.
- Coyer, J.A., D.L. Robertson, and R.S. Alberte. 1994. Genetic variability within a population and between diploid/haploid tissue of *Macrocystis pyrifera* (Phaeophyceae). **Journal of Phycology**. 30:545-552.
- Urbach, E., D.L. Robertson, and S.W. Chisholm. 1992. Multiple origins of prochlorophytes revealed by 16s rRNA phylogeny. **Nature**. 335:267-270.

- Swift, H. and D.L. Robertson. 1991. Structural aspects of a *Prochloron*-tunicate symbiosis. **Symbiosis**. 10:95-113.
- Bray, R.N., A.C. Miller, S.C. Johnson, P.R. Krausse, D.L. Robertson, A.M. Westcott. 1988. Ammonium excretion by macroinvertebrates and fishes on a subtidal rocky reef in southern California. **Marine Biology**. 100:21-30.
- Zimmerman, R.C. and D.L. Robertson. 1986. Effects of El Niño on local hydrography and growth of the giant kelp, *Macrocystis pyrifera*, at Santa Catalina Island, California. **Limnology and Oceanography**. 30(6):1298-1302.

#### INVITED SEMINARS

University of Connecticut, Avery Point, Groton CT	2015
Northeastern University, Department of Biology, Boston, MA	2012
Worcester Polytechnic Institute, Department of Biology, Worcester, MA	2012
University of Rhode Island, Department of Biology. Kingston, RI	2011
Marine Biological Laboratory, Ecosystem Center, Woods Hole, MA	2008
University of Rhode Island, Department of Biology. Kingston, RI	2007
Marine Research Center, Stony brook University, Stony brook, NY	2005
University of New Hampshire, Biology Department, Durham NH	2003
University of Connecticut. Department of Ecology and Evolution Biology, Storrs, CT	2002
University of Göttingen. Zoologisches Institut. Göttingen. Germany	2000
Northeastern University. Department of Biology. Boston, MA	1999
Cornell University. Shoals Marine Laboratory, Portsmouth, NH	1999
University of Rhode Island. Department of Biology. Kingston, RI	1998
Purchase College. Division of Natural Sciences. Purchase, NY	1998
Universidad Autónoma de Baja California. Ensenada Mexico	1994

#### RECENT PRESENTATIONS

2016. Reich, H.G., D.L. Robertson, and G.G. Goodbody. Do the shuffle: Changes in Symbiodinium consortia throughout juvenile coral development. International Coral Reef Symposium. Honolulu, HI.
2016. Reich, H.G., D.L. Robertson, and G. Goodbody-Gringley. Symbiosis and Survival: Evaluating *Symbiodinium* populations during maternal transmission and early development in the coral *Porites astreoides*. Northeast Algal Society (Springfield, MA)
2016. Littlefield, R., B. Worthing\*, G.J. Smith, and D.L. Robertson. Analysis of the formaldehyde detoxification pathway in eukaryotes. Northeast Algal Society (Springfield, MA)
2016. <sup>1</sup>Perera, M., R. Littlefield, and D.L. Robertson. Metabolic labeling of RNA opens up new horizons for diatom research. Northeast Algal Society (Springfield, MA)  
**<sup>1</sup>Francis R. Trainer Award for Best Graduate Student Poster**
2016. Reich, H.G., D.L. Robertson, and G. Goodbody-Gringley. Symbiosis and Survival: Evaluating *Symbiodinium* populations during maternal transmission and early development in the coral *Porites astreoides*. Benthics (Portland, ME)
2016. Savage, T.J., R. Kudela, K. Negrey, A. Woods, H.A. Bowers, D.L. Robertson, and G.J. Smith. Transcriptome analysis of *Pseudo-nitzschia australis* yields insights on nitrogen, isoprene and domoic acid metabolism in this toxicogenic diatom. A new Age of Discovery for Aquatic Microeukaryotes. EMBO/EMBL Symposium (Heidelberg, Germany)
2015. Johnson, C.J., E.B. Young, and D.L. Robertson. Seasonal patterns of nitrate uptake and expression of nitrate assimilating enzymes in *Fucus vesiculosus*. Phycological Society of America (Philadelphia, PA)
2015. Perera, M. and D.L. Robertson. Metabolic labeling of RNA opens up new horizons for diatom research. Molecular Life of Diatoms (Seattle, WA)

2014. Perera, M., S. Ghoshroy, and D.L. Robertson. Coordinated Post-Transcriptional Regulation of Nitrogen Assimilation in Marine Diatoms. Joint Aquatic Sciences Meeting (Portland, OR)
2014. Sullivan, H.L., K. Friedman, D.S. Johnson, and D.L. Robertson. The effect of nitrate fertilization on the photosynthetic performance of the salt marsh cordgrass, *Spartina alterniflora*. I Joint Aquatic Sciences Meeting (Portland, OR)
2013. Ghoshroy, S. and D.L. Robertson. Molecular Evolution of Nitrogen Assimilatory Pathways in Select Marine Prasinophytes. 10<sup>th</sup> International Phycological Congress (Orlando, FL)
2013. Perera, M. J. Alexander, S. Ghoshroy, and D.L. Robertson. Posttranscriptional Regulation of Nitrogen Assimilation in Marine Diatoms – the Role of RNA-binding Proteins. Northeast Algal Society (Mystic, CT)
2012. Ghoshroy, S., M. Perera, J. Alexander, and D. L. Robertson. Regulation of nitrogen assimilation in marine diatoms: Are post-transcriptional processes important? Plant Biology 2012 (Austin, TX)
2012. Scott, D.W. and D.L. Robertson. Exploration of the role of 3'UTRs in regulating mRNA stability in the marine diatom *Thalassiosira pseudonana*. Phycological Society of America (Charleston, SC)
2012. Alexander, J., M. Perera, S. Ghoshroy, and D.L. Robertson. Identification and characterization of PUF family RNA-binding proteins in the marine diatom *Thalassiosira pseudonana*. Northeast Algal Society (Schoodic Point, ME)
2012. Perera, M., J. Alexander, S. Ghoshroy, and D.L. Robertson. Characterization of 3'UTR sequences in mRNA encoding nitrogen assimilating enzymes from marine diatoms. Northeast Algal Society (Schoodic Point, ME)
2012. Scott, D.W. and D.L. Robertson. Exploration of the role of 3'UTRs in regulating mRNA stability in the marine diatom *Thalassiosira pseudonana*. Northeast Algal Society (Schoodic Point, ME)
2011. Robertson, D.L., G. Goodrich, M. Perera, S. Ghoshroy, and P. Kapur\*. Post transcriptional regulation of nitrogen assimilation in marine diatoms. Phycological Society of America (Seattle, WA)
2011. Robertson, D.L., G. Goodrich, M. Perera, S. Ghoshroy, and P. Kapur\*. Post transcriptional regulation of nitrogen assimilation in marine diatoms. Molecular Life of Diatoms (Atlanta, GA)
2011. S. Ghoshroy and D.L. Robertson. Molecular evolution of glutamine synthetase II and III in select chromalveolate lineages. Northeast Algal Society (Woods Hole, MA)
2011. Robertson, D.L., G. Goodrich, M. Perera, and P. Kapur\*. Post-transcriptional regulation of nitrogen assimilation in marine diatoms. Northeast Algal Society (Woods Hole, MA)
2010. Robertson, D.L. and S. Ghoshroy. 2010. Phylogenetic analyses of glutamine synthetase III provides evidence of a recent horizontal gene transfer from diatoms to the prasinophytes. Phycological Society of America (East Lansing, MI)
2009. Brown, K.L. and D.L. Robertson. Regulation of nitrogen assimilation in marine diatoms: Is RNA turnover important? Plant Biology 2009. American Society of Plant Biologists/Phycological Society of America (Honolulu, HI).
2009. Ghoshroy, S., A. Tartar, and D.L. Robertson. Molecular evolution of the glutamine synthetase II gene family: Evidence of lateral gene transfer from prokaryotes to eukaryotes during the early evolution of the Viridiplantae. Northeast Algal Symposium (Amherst, MA)
2008. Brown, K.L., B. Winant\*, V. Chesler-Munoz, J. Foley, and D.L. Robertson. Who, what, and when? Using molecular tools to examine temporal changes in diatom gene expression in response to nutrient availability. Oceans Sciences Meeting.
2007. Brown, K.L., Twing, K\*, and D.L. Robertson. Steps towards unraveling the regulation of nitrogen assimilation in the marine diatom *Thalassiosira pseudonana* (Bacillariophyceae): variations in mRNA levels of five key nitrogen-assimilating enzymes in response to environmental cues. Botany 2007.

2007. Brown, K.L, Twing, K\*, and D.L. Robertson. Steps towards unraveling the regulation of nitrogen assimilation in the marine diatom *Thalassiosira pseudonana* (Bacillariophyceae): variations in mRNA levels of five key nitrogen-assimilating enzymes in response to environmental cues. Phycological Society of America.
2007. Twing, K\*, K. Brown, and D.L. Robertson. Diurnal oscillations in nitrate reductase transcript abundance in the marine diatom *Thalassiosira pseudonana* (Bacillariophyceae): Influence of nitrate, light, and the circadian oscillator. Northeast Algal Society.
2007. Tartar, A., S. Ghoshroy, Brown, K.E.\* , and D.L. Robertson. Phylogenetic analyses of GSIII and GSII: Evidence for a shared evolutionary history among heterokonts and haptophytes? Northeast Algal Society.
2007. Brown, K.L. and D.L. Robertson. Diurnal oscillations in the abundance of nitrate reductase mRNA in the marine diatom *Thalassiosira pseudonana*. Northeast Algal Society.
2006. Tartar,A., S. Ghoshroy, and D.L. Robertson. 2006. Phylogenetic analyses of GSIII and GSII: Evidence for a shared evolutionary history among heterokonts and haptophytes? Phycological Society of America.
2006. Ghoshroy, S., A. Tartar, and D.L. Robertson. Unraveling the evolutionary history of glutamine synthetase II in photosynthetic lineages with an emphasis on rhodophytes. Northeast Algal Society.
2005. Ghoshroy, S. and D.L. Robertson. Evolution of glutamine synthetase in rhodophytes. Northeast Algal Society
2005. Zadykovicz, E. and D.L. Robertson. Phylogenetic relationships among glutamate synthase (GOGAT) enzymes. Northeast Algal Society
2004. Robertson, D.L. S. Ghoshroy, M.L. Letsch\*.Glutamine synthetase gene families: An evolutionary perspective. Northeast Algal Society
2004. Robertson, D.L. and M. Gershenovich. Glutamine synthetase expression in the marine diatom *Skeletonema costatum*. ASLO Ocean Sciences Meeting
2003. Robertson, D.L., M. Takabayshi, and F. Wilkerson. Molecular evolution of glutamine synthetase in protists. Phycological Society of America
2003. Dubois, J\*. and D.L. Robertson. Bottom-up effects in the rocky intertidal: Do gulls make a difference. Benthic Ecology Meetings.
2000. Robertson, D.L. and J.W. Hastings. Evolution of bioluminescence in dinoflagellates. Phycological Society of America.
2000. Liu, L. D.L. Robertson and J.W. Hastings. N-terminal histidines are responsible for the decrease in luciferase activity at pH 8. 11th International Symposium on Bioluminescence and Chemiluminesce.
- 1997: Smith, G.J., Y. Gao, D.L. Robertson, A. Cabello-Pasini, F. Jochem, R.C. Zimmerman, D.G. Kohrs, and R.S. Alberte. Response of nitrate metabolism in *Skeletonema costatum* to variations in N-source availability. AGU/ASLO Ocean Sciences Meeting.
1997. Jochem, F.J., G.J. Smith, Y. Gao, R.C. Zimmerman, D.L. Robertson, A. Cabello-Pasini, D.G. Kohrs, and R.S. Alberte. Temporal changes in cell composition and growth of *Skeletonema costatum* upon a shift in N supply. AGU/ASLO Ocean Sciences Meeting.
1996. Robertson, D.L., G.J. Smith, and R.S. Alberte. Molecular analysis of glutamine synthetase from *Skeletonema costatum*: A tale of two genes. Phycological Society of America.
1996. Robertson, D.L., G.J. Smith, and R.S. Alberte. Glutamine synthetase: A molecular indicator of N-limited growth in *Skeletonema costatum*. AGU/ASLO Ocean Sciences Meeting.
1995. Robertson, D.L. and R.S. Alberte. Purification of glutamine synthetase from the diatom *Skeletonema costatum* reveals a novel form of the enzyme. Phycological Society of America.
1994. Robertson, D.L. and R.S. Alberte. Purification of glutamine synthetase from the diatom *Skeletonema costatum*. Western Society of Naturalists.

1994. Coyer, J.A., D.L. Robertson, and R.S. Alberte. Parentage analysis by multi-locus DNA fingerprinting in the giant kelp, *Macrocystis pyrifera* (Phaeophyceae). Western Society of Naturalists.
1994. Robertson, D.L. and R.S. Alberte. Molecular characterization of glutamine synthetase from the marine diatom *Skeletonema costatum*. AGU/ASLO Ocean Sciences Meeting.

\*denotes undergraduate students

### **TEACHING, ADVISING, AND MENTORING**

#### **COURSES TAUGHT AT CLARK UNIVERSITY**

Marine Biology (Biol. 114: Lecture/Field Trips; 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2008, 2009; 2010 addition of lab sections, 2011, 2012, 2013, 2016)

Introductory Biology (Biol. 102: Lecture/Lab; 2002, 2006, 2007, 2009, 2011, 2012, 2013, 2015, 2017 [team taught])

Topics in Marine Biology (Biol. 223/323: Seminar; 2002, 2005, 2007, 2009, 2011, 2013, 2017)

Ecology of Atlantic Shores (Biol. 201/301: Lecture/Field; 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016 [with T. Livdahl])

Physiological Ecology of Marine Algae (Biol. 232/332: Lecture/Lab 2005, 2006, 2008, 2012, 2014)

Island Tales (HS116: 2014; co-taught with Prof. Acosta Cruz, sponsored by the Higgins School)

Molecular Genetics (Biol/BCMB 228/328 Lecture; 2009)

Directed Readings (Biol. 299, 2001, 2017)

Directed Research (Biol. 299/399, every semester 2000-2017)

Biodiversity (Biol. 104: Lecture/Lab; 2001 [with D. Hibbett], 2003)

Molecular Systematics & Evolution (Biol. 254/354: Lecture/Lab, 2003 [with D. Hibbett])

#### **UNDERGRADUATE ADVISING**

First year and undergraduate advisor (2000-2001 8 students; 2001-2002 18 students; 2002-2003 20 students; 2003-2004 24 students; 2004-2005 19 students; 2005-2006 19 students, 2006-2007 28 students, 2007-2008 14 students, 2008-2009 16 students; 2010-2011 26 students; 2011-2012 27 students; 2012-2013 28 students; 2013-2014 24 students, 2014-2015 23 students; 2015-2016 21 students, 2016-2017 27 students)

#### **POST-GRADUATE RESEARCH ASSOCIATES**

Tartar, Aurelien 2004- 2006. Currently, Associate Professor at Nova Southeastern University, Florida.

Ghoshroy, Sohini. 2011-2014. Currently, Research Scientist Clark University and Adjunct Faculty Worcester State University and Framingham State University.

#### **GRADUATE STUDENTS**

##### *PhD students*

*Perera, Minoli*. Ph.D. (2017) Post-transcriptional regulation and coordination of key nitrogen assimilating enzymes in the marine diatom *Thalassiosira pseudonana*

*Ghoshroy, Sohini*. Ph.D. (2011) Glutamine synthetase gene family evolution in select lineages of photosynthetic eukaryotes.

##### *Fifth year students (M.S. and M.A)*

*Stone, Emily* (2017) Obligate microbial communities associated with the toxic diatom *Pseudo-nitzschia australis* genome? Implications for genome assemblies

*Worthing, Baxter* (2017) Deciphering in responses to nitrogen depletion in *Thalassiosira pseudonana* using a bioinformatics-based analysis of newly synthesized mRNA transcripts

- Littlefield, Rebecca A. (2016) Analysis of the formaldehyde detoxification pathway in eukaryotes.
- Reich, Hannah G. (2016). Symbiosis and survival.
- Bugge, Joshua. (2015) Electroporation-mediated transformation and post-transcriptional gene regulation of the nitrate reductase in the marine diatom *Thalassiosira pseudonana*.
- Johnson, Caroline H. (2014) Seasonal, zonal, and inducibility of nitrate uptake and nitrate reductase expression in *Fucus vesiculosus*.
- Minnix, Katherine R. (2014) pH effects on the growth and toxicity of *Pseudo-nitzschia multiseriata* (Hasle) Hasle.
- Mitchell, Jacqueline V. (2014) Characterization of a gene encoding glutamine synthetase from *Spartina alterniflora* (smooth cordgrass).
- Sullivan, Hillary L. (2014). The effect of nitrate fertilization on the photosynthetic performance of the salt marsh cordgrass, *Spartina alterniflora*.
- Alexander, Jessica (2013). Identification and characterization of PUF-family proteins in marine diatoms.
- Friedman, Katherine MS (2013). The effects of nitrate fertilization on the physiology of a common salt marsh cordgrass species, *Spartina alterniflora*
- Scott, Dylan. (2012) Examining the role of the 3'-UTR in altering mRNA stability of the nitrogen assimilatory enzyme nitrate reductase in the marine diatom *Thalassiosira pseudonana*.
- Goodrich, Grant. (2011) Examining RNA-protein binding interactions and their potential effect on NR and GSII expression in *Skeletonema costatum*.
- Brown, Katherine. (2006) Regulation of nitrate reductase mRNA levels in the marine diatom *Thalassiosira pseudonana*.
- Gershenovich, Michael. (2003) Glutamine synthetase expression in marine diatoms.
- Hendrickson, Freya. (2003) Influences of Habitat on Fish Behavior: Comparing Spatial Memory of Cichlids (supervised by Carol Shumaway, New England Aquarium).

#### UNDERGRADUATE HONORS RESEARCH

- Sheldon, Kristen (2017) Thermal Legacies: A review of environmental epigenetics and case study of transgenerational plasticity in the sheepshead minnow (Highest Honors, Biology)
- Stone, Emily (2016) Examining the contribution of ammonia oxidizing bacteria and archaea to nitrification in estuarine sediments along a eutrophic gradient (Highest Honors, Biology)
- Bugge, Joshua (2014) Post-transcriptional gene regulation of nitrate reductase expression in the marine diatom *Thalassiosira pseudonana* (High Honors, Biology)
- Lear, Karissa (2013) Demographic and Genetic Characterization of the Eelgrass *Zostera marina* and *Z. japonica* in a mixed species ecosystem from Padilla Bay, WA, USA (Highest Honors, Biology)
- Lemahieu, Magali (2013) Investigating the Post-Transcriptional and Post-Translational Regulation of Nitrate Reductase in *Thalassiosira pseudonana* (High Honors, Biology)
- Friedman, Katherine (2012) The effects of nitrate fertilization on the physiology of a common salt marsh cordgrass species, *Spartina alterniflora* (Highest Honors, Biology)
- Scott, Dylan (2012) Examining the role of the 3'-UTR in altering mRNA stability of the nitrogen assimilatory enzyme nitrate reductase in the marine diatom *Thalassiosira pseudonana*. (High Honors, Biology)
- Kapur, Priyanka (2011) RBP mediated post-transcriptional regulation of nitrate reductase in *Thalassiosira pseudonana* (High Honors, BCMB)
- Brown, Kevin (2008) Molecular characterization of GSII and GSIII from the marine haptophyte *Emiliania huxleyi* provides insights into the evolution of the GS superfamily (Honors, Biology)
- Winant, Bryce (2008) Internal nitrate pools and nitrate reductase transcript levels in the marine diatom *Skeletonema costatum*: variability due to light and nitrogen source (Honors, Biology)



*Twing, Katrina* (2007) Diurnal oscillations in nitrate reductase transcript abundance in the marine diatom *Thalassiosira pseudonana* (Bacillariophyceae): Influence of nitrate, light, and the circadian oscillator (High Honors, Biology)  
*Letsch, Molly* (2004) Characterization of glutamine synthetase in *Emiliana huxleyi* (Highest Honors, Biology)  
*Gaur, Kriti* (2004) Characterization of glutamine synthetase in *Alexandrium tamarense* (Honors, BCMB)  
*Stein, Miquel* (2004) Glutamine synthetase expression in *Skeletonema costatum* (Honors, BCMB)  
*Byfield, Victoria* (2002) Regulation of luciferase expression in *Alexandrium tamarense*. (High Honors, Biology)  
*Gershenovich, Michael* (2002) Development of immunological probes to study glutamine synthetase expression. (High Honors, Biology)  
*Wood, Misha* (2002). Uptake and seasonal growth patterns in *Ascophyllum nodosum*: Response to variations in nitrogen availability (High Honors, Biology)  
*Firth, Crystal* (2001) Temporal changes in phytoplankton abundance and composition throughout the best growth season for the American Oyster (*Crassostrea virginica*): Implications for aquaculture (High Honors, Biology)

#### *UNDERGRADUATE DIRECTED RESEARCH*

Thirty seven undergraduates have conducted independent research in my laboratory since Sept. 2000

Faculty advisor for two students (Joanna Dubois [Clark University], Jamie Yassif [Swarthmore]) in the NSF funded REU program at Shoals Marine Laboratory, Cornell University. Faculty sponsor of students in the Clark/NOAA summer program (Karissa Lear, 2012; Faye Harwell, 2013; Kristen Sheldon 2016)

#### *DOCTORAL DISSERTATION COMMITTEES*

Sohini Ghoshroy (Chair, 2002-2010)  
Rishi Aryal (Chair, 2008-2010, left program)  
Minoli Perera (Chair, 2010 – 2017)  
Sonja Dolan (degree awarded 2002; deceased)  
Paula Hartzell (degree awarded 2005)  
Jason Slot (degree awarded 2008)  
Rachel Stock (2002 – 2006, left program)  
Zheng Wang (degree awarded 2006)  
Ingo Morgenstern (2001 – 2009, degree awarded, 2009)  
Brian Seitzman (2008 – 2012, MA degree awarded)  
Stephan Burrows (2009 – 2012, degree awarded 2013)  
Xiaoling Yang (2009-2012, MA awarded 2012)  
Yingjiao Wang (2010- 2015)  
John Soghigian (2011-2016)  
Jamie Fitzgerald (2007-present)  
Xiang Ren (2011-2016)  
Mandy Gaudreau (2013-present)  
Allan Carrillo-Baltodano (2013-present)

#### *RESEARCH EXPERIENCE FOR TEACHERS*

Jody Bird, UPCS High School, Worcester, MA (2003, 2004)  
Anthony Giampiatruzzi, UPCS High School, Worcester, MA (2004)  
Joann Foley, ALL School, Worcester, MA (2006, 2007)  
Vanessa Munoz-Chesler, Sullivan Middle School, Worcester, MA (2006, 2007, 2009)

## ***PROFESSIONAL, DEPARTMENTAL, UNIVERSITY, AND COMMUNITY SERVICE***

### ***PROFESSIONAL SERVICE***

Membership Director, Phycological Society of America (2011-2013; 2014-2016)  
Member, Editorial Board of the Journal of Phycology (2010-2013; 2014-2016; 2017-2020)  
Member at Large, Northeast Algal Society (2009-2012)  
Reviewer, University of San Francisco Biology Department (2007)

Panel Member: NSF Organism-Environment Interactions (2007, 2008, 2009, 2015)  
Panel Member: NOAA ECOHAB (2017)  
Ad hoc reviewer NSF Biological Oceanography, NSF Organism-Environmental Interactions, Environmental Genomics, DOE GTL, Washington Sea Grant, Connecticut Sea Grant, Massachusetts Sea Grant; Research Competitiveness Program (AAAS)  
Panel Member: DOE Microbial Genome Program (2004, 2005), DOE Genomes to Life Program (2004).  
Northeast Algal Society, Nominations Committee and Executive Board (2004-2006), Member at Large (2009-2012)  
Ad hoc Journal Reviewer: Journal of Phycology, Hydrobiologia, Marine Biology Progress Series, Molecular Biology and Evolution, Phycologia, Plant Physiology, Protist, Experimental and Ecological Botany, PloS One, Proceedings for the National Academy of Sciences, Life, BMC Molecular Biology, Environmental Microbiology and Environmental Microbiology Reports, BMC Evolutionary Biology, Frontiers in Aquatic Microbiology  
Diving Control Board, Shoals Marine Lab, Cornell University (2001-2003)

### ***DEPARTMENTAL SERVICE***

Coordinator, Summer Science Undergraduate Research Program (2013-2014, 2014-2015; 2017)  
Curriculum Committee (2004-2015)  
Member of faculty search committees (Genomics and Microbiology).  
Campus liaison for Semester in Environmental Sciences, Ecosystem Center, Marine Biological Laboratory, Woods Hole, MA  
Development team for the Complementary Curriculum Network proposal (2003-2005) funded by the Keck Foundation (January 2006, \$300,000)  
Robertson, D.L. and T. Livdahl (2005) HP Technology for Teaching Grant Initiative (\$50,000 equipment request, not funded)  
Robertson, Blatt, Hibbett, Thurlow, and Turnbull. (2004). GK-12 Fellows in the Natural Sciences: A Collaboration between the Worcester Public Schools and the Departments of Biology, Chemistry, and Physics, of Clark University (submitted to NSF \$1,090,519, not funded)  
Departmental Seminar Coordinator (2001-2002)

### ***UNIVERSITY SERVICE***

Planning, Budget, and Review Committee (2016-2019)  
Faculty Director, Steinbrecher Fellowship Program (2016- )  
Program of Liberal Studies Review Committee (2016 Spring/Summer)  
Mosakowski Advisory Committee (2016-present)  
LEEP Capstone Group (2016 Spring/Summer)  
New Earth Conversation Steering Committee and Co-convener (2016-2017)  
Chair of the Faculty (2012-2015)  
Board of Trustees Academic Affairs Committee (2012-2015)  
Committee on Diversity and Inclusion (2013-2014)

Undergraduate Advisory Board (2011-2012)  
Faculty Work Task Force (2010-2012)  
Summer Advising of First Year Students (2010)  
Graduate Board (2008-2011, chair AY09-10 and AY10-11)  
IT Committee (2006-2007)  
Library Committee (2006-2007)  
Biochemistry and Molecular Biology Program Faculty (2001-present)  
Faculty Steering Committee (2003-2006 at large, 2009-2011 as chair of Graduate Board)  
Provost Review Committee (PBR subcommittee – Spring 2006)  
Active Learning Focus Group (Fall 2003)  
College Board (2001 - Fall 2003)  
Committee on Academic Convocation (2000- 2003)  
Curriculum Study Team and Summer Science Institute (2001, 2002)  
Science Open House (2001, 2003, 2004, 2005, 2006, 2008, 2009)  
Traina/Carlson Scholarship Interviews (2001, 2002, 2003, 2005, 2006, 2007, 2008, 2009)  
Family Weekend Presenter (2001)  
Admitted Student Open House (2012, 2013, 2014, 2015. 2017)