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Education

Ph.D. Biochemistry, 1997, University of Delaware, Newark, DE
B.S. Chemistry, 1986, University of Delaware, Newark, DE
A.A.S. Biology, 1979, SUNY Morrisville Ag. and Tech. College, Morrisville, NY

Professional Experience

2018-present Director, Delaware Sea Grant College Program, College of Earth, Ocean, and Environment, University of Delaware, Lewes, DE

2012-present Associate Professor, Marine Biosciences, College of Earth, Ocean, and Environment, University of Delaware, Lewes, DE

2005-2012 Assistant Professor, Marine Biosciences, College of Earth, Ocean, and Environment, University of Delaware, Lewes, DE

2004-2005 Research Scientist, Graduate College of Marine Studies, University of Delaware, Lewes, DE

1997-2004 Postdoctoral Research Assistant, Graduate College of Marine Studies, University of Delaware, Lewes, DE

1991-1997 Graduate Research Assistant, Department of Chemistry and Biochemistry, University of Delaware, Newark, DE

1986-1993 Chemistry Instructor, Wesley College, Dover, DE

1986-1988 Chemist, L.D. Caulk Co., Milford, DE

Professional Affiliations

Strategies for Preventing and Managing Harmful Cyanobacterial Blooms (HCBs), Interstate Technology & Regulatory Council (ITRC), Nutrient Management Team Leader, 2018-present.

ITRC is a public-private coalition that produces documents and training to broaden and deepen technical knowledge and expedite quality regulatory decision making while protecting human health and the environment.

Scientific and Technical Advisory Committee member, Center for the Inland Bays (CIB), 2018-present.

The mission of CIB is to preserve, protect and restore Delaware's Inland Bays, the water that flows into them, and the watershed around them.

Member, Bioinformatics Affiliated Faculty for the Center for Bioinformatics and Computational Biology (CBCB).

The mission of the CBCB is to promote, coordinate and support interdisciplinary activities in Bioinformatics and Computational Biology.

Editorial Board Member: Scientific Reports, Frontiers of Microbial Chemistry.

Professional Activities (2009 - Present)

UD College of Env. Engineering, Invitational seminar, "Development of algicidal bacteria for control of harmful algal blooms", April 19, 2019.

Local organizing committee, Ninth US Symposium on Harmful Algae, Baltimore, MD, Nov., 2017.

QPCR Enumeration of HAB Species in Environmental Water Samples, a full-day, hands-on workshop for symposium participants, Nov. 10, 2017, University of Maryland, Baltimore, MD.

Gordon Conference on Mycotoxins and Phycotoxins, Invited Speaker, June 12-19, 2015.

HAB Task Force Meeting, MD DNR, Baltimore, MD, Dec. 7, 2011, Invited speaker.

Steering Committee, Sixth Symposium on Harmful Algae in the US, Austin, TX, November 13 - 17, 2011.

Memberships

Phycological Society of America

International Society for the Study of Harmful Algae

Atlantic Estuarine Research Society

Patents

Coyne, K.J. and Wang, Y.F. Preventing Harmful Dinoflagellate Blooms Using Algicidal Bacteria Immobilized in Alginate Beads. Patent pending, 62/867.251, filed June 27, 2019.

Stewart, J. J. and Coyne, K. J. Novel Nitrate Reductase Fusion Proteins and Uses Thereof. U.S. Patent No. 8,409,827 B2. Issued April 2, 2013.

Hydrothermal Vent Oceanographic Cruises

Extreme 2008, Nov. 9-Dec. 3, 2008, Guaymas and 9° N, EPR

Extreme 2007, Oct. 18-Nov. 8, 2007, Guaymas and 9° N, EPR

Extreme 2001, Oct. 13-Nov. 1, 2001, 9° N, East Pacific Rise Vent Expedition

Extreme 1, May 7-June 5, 1999, 9° N, East Pacific Rise Vent Expedition

Antarctic Expeditions

Jan., 2015, McMurdo Dry Valleys

Jan., 2014, McMurdo Dry Valleys

Current Funding

Coyne, K.J., York, J.Y. and Fulweiler, R. ECOHAB: The role of nitric oxide in promoting *Heterosigma* blooms. NOAA, Sept. 1, 2018 – Aug. 31, 2021, \$746,354.

Coyne, K.J. and Pettay, D. Phytoplankton dynamics and the role of *Heterosigma akashiwo* in promoting blooms of the toxic dinoflagellate, *Dinophysis acuminata*. DE Sea Grant, Feb. 1, 2018 – Jan. 31, 2020, \$105,992.

Warner, M. E., Coyne, K. J. and Cohen, J. ECOHAB: Climate change impacts on the physiology and trophic dynamics of harmful algal species from Delaware's inland bays. NOAA, Sept. 1, 2015 – Aug. 31, 2019, \$614,598.

Coyne, K.J., Warner, M.E., Cohen, J. and Targett, T. PCMHAB: The dinoflagellate-specific algicide IRI-160AA: Isolation, characterization and potential impacts on ecologically relevant metazoan species. NOAA, Sept. 1, 2015 – Aug. 31, 2019, \$739,595.

Publications

1. Faktorova, D. et al. (2019) Genetic tool development in marine protists: Emerging model organisms for experimental cell biology. BioRxiv (not peer reviewed), DOI: <https://doi.org/10.1101/718239>.
2. Niederberger, T.D., Sohm, J.A., Gunderson, T, Parker, A., Bottos, E.M., Coyne, K.J., Capone, D.G., Carpenter, E.J. and Cary, S.C. (2019) Rapid microbial dynamics in response to an induced wetting event in Antarctic Dry Valley soils. *FEMS Microbiol Ecol*, in press.
3. Torre, D., Kroeger, K., Coyne, K.J. and York, J. (2019) Phytoplankton community structure response to groundwater-borne nutrients in the Inland Bays, Delaware. *Marine Ecology Progress Series* 624:51-63.
4. Pasulka, A., Hu, S.K., Countway, P.D., Coyne, K.J., Cary, S.C., Heidelberg, K.B. and Caron, D.A. (2019) SSU-rRNA gene sequencing survey of benthic microbial eukaryotes from Guaymas Basin hydrothermal vent. In press, *Journal of Eukaryotic Microbiology*; doi: 10.1111/jeu.12711.
5. Ternon, E., Wang, Y. and Coyne, K.J. (2019) Small polar molecules: A challenge in marine chemical ecology. *Molecules* 24(1): 135; doi:10.3390/molecules24010135
6. Wang, Y., Bouchard, J. N. and Coyne, K. J. (2018) Expression of novel nitrate reductase genes in the harmful alga, *Chattonella subsalsa*. *Scientific Reports* 8:13417; DOI:10.1038/s41598-018-31735-5
7. Chintapenta, L. K., Coyne, K. J., Pappas, A., Lee, K., Dixon, C., Kalavacharla, V. and Ozbay, G. (2018) Diversity of diatom communities in Delaware tidal wetland and their relationship to water quality. *Frontiers in Environmental Science*, 6: Article 57; doi:3389/fenvs.2018.00057
8. Main, C. R., Greenfield, D. I., Doll, C., Wang, Y., Whereat, E., Coyne, K. J. (2018) Critical comparison of molecular methods for detection and enumeration of the harmful algal species, *Heterosigma akashiwo*, in environmental water samples. *Journal of Applied Phycology*, doi.org/10.1007/s10811-018-1444-z.

9. Pokrzywinski, K. L., Tilney, C. L., Warner, M. E. and Coyne, K. J. (2017) Cell cycle arrest and biochemical changes accompanying cell death in harmful dinoflagellates following exposure to bacterial algicide IRI-160AA. *Scientific Reports* 7: article number 45102.
10. Pokrzywinski, K. L., Tilney, C., Caplan, J., Modla, S., Ross, J., Warner, M. E. and Coyne, K. J. (2017) Effects of the bacterial algicide IRI-160AA on cellular morphology of harmful dinoflagellates. *Harmful Algae* 62:127-135.
11. Archer, S.D.J., de los Ríos, A., Lee, K.C., Niederberger, T.S., Cary, S.C., Coyne, K.J., Douglas, S., Lacap-Buger, D.C., Pointing, S.B. (2017) Endolithic microbial diversity in sandstone and granite from the McMurdo Dry Valleys, Antarctica. *Polar Biol* 40:997-1006; DOI 10.1007/s00300-016-2024-9.
12. Karlson, B., C.R. Anderson, K.J. Coyne, R. Kudela, K.G. Sellner, and D.M. Anderson. Designing an observing system for early detection of harmful algal blooms. In: Anderson D. M., S. F. E. Boerlage, M. B. Dixon (Eds), Harmful Algal Blooms (HABs) and Desalination: A Guide to Impacts, Monitoring and Management. Paris, Intergovernmental Oceanographic Commission of UNESCO, 2017. 539 pp. [IOC Manuals and Guides No.78. (IOC/2017/MG/78)].
13. Bianco, C.M., Stewart, J.J., Miller, K.R., Fitzgerald, C., Coyne, K.J. (2016) Light intensity impacts the production of biofuel intermediates in *Heterosigma akashiwo* growing on simulated flue gas containing carbon dioxide and nitric oxide. *Bioresource Technology* 219:246-251.
14. Mazzoleni, M. J., Antonelli, T., Coyne, K. J., and Rossi, L. (2016) Simulation and analysis of a model dinoflagellate predator-prey system. *Eur. Phys. J Special Topics* 224:3257-3270.
15. Main, C. R., Salvitti, L., Whereat, E. and Coyne, K. J. (2015) Community-level and species-specific associations between phytoplankton and particle-associated *Vibrio* species in Delaware's inland bays. *Applied and Environmental Microbiology* 81:5703-5713.
16. Stewart, J. J., Bianco, C. M., Miller, K. R. and Coyne, K. J. (2015) The marine microalga, *Heterosigma akashiwo*, converts industrial waste gases into valuable biomass. *Frontiers in Energy Research* 3:12. doi: 10.3389/fenrg.2015.00012.
17. Turner, C. R., Miller, D. J., Coyne, K. J. and Corush, J. (2014) Improved Methods for Capture, Extraction, and Quantitative Assay of Environmental DNA from Asian Bigheaded Carp (*Hypophthalmichthys* spp.) *PLoS ONE* 9(12): e114329. doi: 10.1371/journal.pone.0114329
18. Tilney, C.L., Pokrzywinski, K. L., Coyne, K. J., and Warner, M.E. (2014) Effects of a bacterial algicide, IRI-160AA, on dinoflagellates and the microbial community in microcosm experiments. *Harmful Algae* 30:210-222. <http://dx.doi.org/10.1016/j.hal.2014.08.001>
19. Keeling, P. J., Burki, F., Wilcox, H. M., Allam, B., Allen, E., Amaral-Zettler, L. A., Armbrust, E. V. and 71 others. (2014) The Marine Microbial Eukaryote Transcriptome Sequencing Project (MMETSP): Illuminating the functional diversity of eukaryotic life in the oceans through transcriptome sequencing. *PLoS Biology* 12(6):e1001889. doi:10.1371/journal.pbio.1001889

20. Main, C. R., Doll, C., Bianco, C., Greenfield, D. I., and Coyne, K. J. (2014) Effects of growth phase, diel cycle and macronutrient stress on the quantification of *Heterosigma akashiwo* using qPCR and SHA. *Harmful Algae* 37:92-99.
21. Cary, S. C., Coyne, K. J., Rueckert, A., Wood, S. A., Kelly, S., Gemmill, C. E. C., Vieglais, C. and Hicks, B. J. (2014) Development and validation of a quantitative PCR assay for the early detection and monitoring of the invasive diatom *Didymosphenia geminata*. *Harmful Algae* 36:63-70. DOI: 10.1016/j.hal.2014.04.003
22. Doll, C., Main, C. R., Bianco, C., Coyne, K. J., Greenfield, D. I. (2014) Comparison of sandwich hybridization assay and quantitative PCR for the quantification of live and preserved cultures of *Heterosigma akashiwo* (Raphidophyceae). *Limnology and Oceanography: Methods* 12:232-245.
23. Tilney, C. L., Pokrzywinski, K. L., Coyne, K. J. and Warner, M. E. (2014) Growth, death and photobiology of dinoflagellates (Dinophyceae) under bacterial-algicide control. In press, *Journal of Applied Phycology*, DOI: 10.1007/s10811-014-0248-z.
24. Coyne, K. J., Countway, P. D., Pilditch, C. A., Lee, C. K., Caron, D. A. and Cary, S. C. (2013) Diversity and distributional patterns of ciliates in Guaymas Basin hydrothermal vent sediments. *Journal of Eukaryotic Microbiology* 60:433-447. DOI: 10.1111/jeu.12051.
25. Hennige, S. Coyne, K. J., MacIntyre, H., Liefer, J. and Warner, M. E. (2013) The photobiology of *Heterosigma akashiwo*: Photoacclimation, diurnal periodicity and its ability to rapidly exploit exposure to high light. *Journal of Phycology* 49 (2):349-360. DOI: 10.1111/jpy.12043.
26. Demir-Hilton, E., Hutchins, D. A., Czymmek, K. J. and Coyne, K. J. (2012) Description of *Viridilobus marinus* (gen. et sp. nov.), a new raphidophyte from Delaware's inland bays. *Journal of Phycology* 48:1220-1231.
27. Pokrzywinski, K. L., Place, A. R., Warner, M. E. and Coyne, K. J. (2012) Investigation of the algicidal exudate produced by *Shewanella* sp. IRI-160 and its effect on dinoflagellates. *Harmful Algae* 19:23-29.
28. Stewart, J. J. and Coyne, K. J. (2011) Analysis of raphidophyte assimilatory nitrate reductase reveals unique domain architecture incorporating a truncated hemoglobin. *Plant Molecular Biology* 77 (6):565-575. DOI 10.1007/s11103-011-9831-8.
29. Gobler, C. J., Berry, D. L., Dyhrman, S. T., Wilhelm, S. W., Salamov, A., Lobanov, A. V., Zhang, Y., Collier, J. L., Wurch, L. L., Krustka, A. B., Dill, B. D., Shah, M., VerBerkmoes, N. C., Kuo, A., Terry, A., Pangilinan, J., Lindquist, E., Lucas, S., Paulsen, I., Hattenrath-Lehmann, T., Talmage, S., Walker, E., Koch, F., Burson, A., Marcoval, M., Tang, Y., LeClerc, G., Coyne, K., Berg, G., Bertrand, E., Saito, M., Gladyshev, V. and Grigoriev, I. (2011) Niche strategy of harmful algae revealed through comparative genomics of competing phytoplankton species. *PNAS*, 108 (11):4352-4357.
30. Fredrickson, K.A., Strom, S. L., Crim, R. and Coyne, K. J. (2011) Inter-strain variability in physiology and genetics of *Heterosigma akashiwo* (Raphidophyceae) from the west coast of North America. *Journal of Phycology* 47:25-35.

31. Coyne, K. J. (2010) Nitrate reductase (NR1) sequence and expression in the harmful alga *Heterosigma akashiwo* (Raphidophyceae). *Journal of Phycology* 46: 135-142. DOI: 10.1111/j.1529-8817.2009.00781.x
32. Portune, K. J., Coyne, K. J., Hutchins, D. A., Handy, S. M. and Cary, S. C. (2009) Germination of *Heterosigma akashiwo* and *Chattonella subsalsa* (Raphidophyceae) cysts in Delaware's Inland Bays, DE. *Aquatic Microbial Ecology* 55: 229-239.
33. Demir, E., Coyne, K. J., Doblin, M. E., Handy, S. M. and Hutchins, D. A. (2008) Microzooplankton grazing rates on *Heterosigma akashiwo* in the Delaware Inland Bays: A species-specific approach combining quantitative real-time PCR (QPCR) and dilution methods. *Microbial Ecol.* 55: 583-594.
34. Handy, S. M., Demir, E., Hutchins, D. A., Portune, K. J., Whereat, E. B., Hare, C. E., Rose, J. M., Warner, M., Farestad, M., Cary, S. C., and Coyne, K. J. (2008) Using quantitative real-time PCR to study competition and community dynamics among Delaware Inland Bays harmful algae in field and laboratory studies. *Harmful Algae* 7:599-613.
35. Doblin, M. E., Coyne, K. J., Rinta-Kanto, J. M., Wilhelm, S. W., and Dobbs, F. C. (2007) Dynamics and short-term survival of cyanobacteria species in ballast water—implications for HAB invasions. *Harmful Algae* 6:519-530.
36. Gobler, C. J., Davis, T. W., Coyne, K. J., and Boyer, G. L. (2007) The interactive influences of nutrient loading and zooplankton grazing on the growth and toxicity of cyanobacteria blooms in a eutrophic lake. *Harmful Algae* 6:119-133.
37. Coyne, K. J., Hare, C. E., Popels, L. C., Hutchins, D. A., and Cary, S. C. (2006) Distribution of *Pfiesteria piscicida* cyst populations in sediments of the Delaware Inland Bays, USA. *Harmful Algae* 5:363-373.
38. Handy, S. M., Cary, S. C., Hutchins, D. A., and Coyne, K. J. (2006) Simultaneous enumeration of multiple raphidophyte species by quantitative real-time PCR: capabilities and limitations. *Limnol. Oceanog: Methods* 3:193-204.
39. Zhang, Y., F.-X. Fu, E., Whereat, K.J. Coyne and D. A. Hutchins. (2006) Bottom-up controls on a mixed-species HAB assemblage: A comparison of sympatric *Chattonella subsalsa* and *Heterosigma akashiwo* (Raphidophyceae) isolates from the Delaware Inland Bays, USA. *Harmful Algae* 5:310-320.
40. Phleger, C. F., M. M. Nelson, A. K. Groce, S. C. Cary, K. J. Coyne, J. A. E. Gibson, and P. D. Nichols. (2005) Lipid biomarkers of deep-sea hydrothermal vent polychaetes - *Alvinella pompejana*, *A. caudata*, *Paralvinella grasslei* and *Hesiolyra bergii*. *Deep Sea Research Part I: Oceanographic Research Papers* 52:2333-2352.
41. Coyne, K. J., Handy, S. M., Demir, E., Whereat, E. B., Hutchins, D. A., Portune, K. J., Doblin, M. E. and Cary, S. C. (2005) Improved quantitative real-time PCR assays for enumeration of harmful algal species in field samples using an exogenous DNA reference standard. *Limnology and Oceanography Methods* 3:381-391.

42. Handy, S. M., Coyne, K. J., Portune, K. J., Demir, E., Doblin, M. E., Hare, C. E., Cary S. C., and Hutchins, D. A. (2005) Evaluating vertical migration behavior of harmful raphidophytes in the Delaware Inland Bays utilizing quantitative real-time PCR. *Aquatic Microbial Ecology* 40:121-132.
43. Phleger, C. F., M. M. Nelson, A. K. Groce, S. C. Cary, K. J. Coyne, and P. D. Nichols. (2005) Lipid composition of deep sea hydrothermal vent tubeworm *Riftia pachyptila*, crabs *Munidopsis subsquamosa* and *Bythograea thermydron*, mussels and limpets. *Comp. Biochem. Physiol.*, 141:196-210
44. Coyne, K. J. and S. C. Cary (2005) Molecular approaches to the investigation of viable dinoflagellate cysts in natural sediments from estuarine environments. *Journal of Eukaryotic Microbiology* 52:90-94.
45. Burkholder, J. M., A. S. Gordon, P. D. R. Moeller, J. M. Law, K. J. Coyne, A. J. Lewitus, J. S. Ramsdell, H. G. Marshall, N. J. Deamer, S. C. Cary, J. W. Kempton, S. L. Morton, and P. A. Rublee (2005) Demonstration of toxicity to fish and to mammalian cells by *Pfiesteria* species: Comparison of assay methods and strains. *PNAS* 102: 3471–3476.
46. Hare, C.E., Demir, E., Coyne, K.J., Cary, S.C. and Hutchins, D.A. (2005) A bacterium from the Delaware Inland Bays that inhibited the growth of *Pfiesteria piscicida* and other dinoflagellates. *Harmful Algae* 4:221-234.
47. Doblin, M. E., L. A. Drake, K. J. Coyne, P. A. Rublee and F. C. Dobbs. (2004) *Pfiesteria* species identified in ships' ballast water and residuals: a possible vector for introductions to coastal areas, pp. 317-319. In K. A. Steidinger, J. H. Landsberg, C. R. Tomas and G. A. Vargo (eds) *Harmful Algae 2002*. Florida Fish and Wildlife Conservation Commission, Florida Institute of Oceanography, and Intergovernmental Oceanographic Commission of UNESCO.
48. Doblin, M.E., Popels, L.C., Coyne, K.J., Hutchins, D.A., Cary, S.C. and Dobbs, F.C. (2004) Long-distance and local-scale transport of *Aureococcus* species by ships and boats in fresh and marine waters. *Appl Environ Microbiol* 70:6495-6500.
49. Coyne, K. J., J.A. Burkholder, R. A. Feldman, D. A. Hutchins and S. C. Cary. (2004) Modified Serial Analysis of Gene Expression (SAGE) method for construction of gene expression profiles of microbial eukaryotic species. *Appl Environ Microbiol* 70:5298–5304
50. Popels, L. C., S. C. Cary, D. A. Hutchins, R. Forbes, F. Pustizzi, C. J. Gobler, and K. J. Coyne (2003) The use of quantitative polymerase chain reaction for the detection and enumeration of the harmful alga *Aureococcus anophagefferens* in environmental samples along the United States East Coast. *Limnology and Oceanography Methods* 1:92-102.
51. Coyne, K. J., D. A. Hutchins, C. E. Hare and S. C. Cary (2001) Assessing temporal and spatial variability in *Pfiesteria piscicida* distributions using molecular probing techniques. *Aquatic Microbiol Ecol* 24:275-285.
52. Coyne, K. J. and Waite, J. H. (2000) In search of molecular dovetails in mussel byssus: from the threads to the stem. *J Exp Biol* 203:1425-1431.

53. Waite, J. H., Qin, X. X. and Coyne, K. J. (1998) The peculiar collagens of mussel byssus. *Matrix Biol* 17:93-106.
54. Warren, K. C., Coyne, K. J., Waite, J. H. and Cary, S. C. (1998) Use of methacrylate de-embedding protocols for in situ hybridization on semithin plastic sections with multiple detection strategies. *J Histochem Cytochem* 46:149-155.
55. Qin, X. X., Coyne, K. J. and Waite, J. H. (1997) Tough tendons. *J Biol Chem* 272:32623-32627.
56. Coyne, K. J., Qin, X. X. and Waite, J. H. (1997) Extensible collagen in mussel byssus: a natural block copolymer. *Science* 277:1830-1832.

Manuscripts submitted for publication

Coyne, K.J., Lee, C.K., Parker, A.E., Sohm, J.A., Kalmbach, A., Gunderson, T., Zayas, R.L., Capone, D.G., Carpenter, E.J., and Cary, S.C. The distribution and relative ecological roles of autotrophic and heterotrophic diazotrophs in the McMurdo Dry Valleys, Antarctica. Submitted to *FEMS Microbiology Ecology*. (In revision)

Faktorova, D. et al. "Genetic tool development in marine protists: Emerging model organisms for experimental cell biology". Submitted to *Nature Methods*. (In revisions)

Presentations – National and International Meetings (2009-present)

Coyne, K.J., Grasso, C.R., Wang, Y.F. Effects of dinoflagellate-specific algicide (IRI-160AA) on microbial communities: A next-generation sequencing approach. Tenth Symposium on Harmful Algae in the US, Orange Beach, AL, Nov. 3-8, 2019.

Wang, Y. and Coyne, K.J. Immobilization of algicidal bacterium *Shewanella* sp. IRI-160 and its application to control harmful dinoflagellates. Tenth Symposium on Harmful Algae in the US, Orange Beach, AL, Nov. 3-8, 2019.

Healey, E.M. and Coyne, K.J. Effect of preventative dosing of algicide IRI-160AA on non-target microbial communities. Tenth Symposium on Harmful Algae in the US, Orange Beach, AL, Nov. 3-8, 2019.

Wang, Y. and Coyne, K.J. Transcriptomic response of harmful dinoflagellate *Karlodinium veneficum* to algicide IRI-160AA. Tenth Symposium on Harmful Algae in the US, Orange Beach, AL, Nov. 3-8, 2019.

Williams, A.K., Pettay, D.T and Coyne, K.J. Does *Dinophysis acuminata* prey on the raphidophyte, *Heterosigma akashiwo*? Tenth Symposium on Harmful Algae in the US, Orange Beach, AL, Nov. 3-8, 2019.

Grasso, C.R., Nanjappa, D., Wang, Y. and Coyne, K.J. Effects of repeated dosing with bacterial algicide IRI-160AA on microbial community composition of the Delaware Inland Bays. International Conference on Harmful Algae, Nantes, France, Oct. 21-26, 2018.

Vidyarathna, N., Smith, L., Cohen, J., Coyne, K., and Warner, M. How does climate change affect the physiological ecology of *Karlodinium veneficum* and its consequences on trophic transfer? International Conference on Harmful Algae, Nantes, France, Oct. 21-26, 2018.

- Wang, Y., Ternon, E. and Coyne, K. Impacts and transcriptomic effects of algicidal compounds produced by *Shewanella* sp. IRI-160 on *Karlodinium veneficum*. International Conference on Harmful Algae, Nantes, France, Oct. 21-26, 2018.
- Simons, V. E., Targett, T., Coyne, K., Nanjappa, D. and Cohen, J. Effects of a bacteria-produced algicide on non-target marine animal species. International Conference on Harmful Algae, Nantes, France, Oct. 21-26, 2018.
- Wang, Y. and Coyne, K. Effects of immobilized algicidal bacteria on harmful dinoflagellates. International Conference on Harmful Algae, Nantes, France, Oct. 21-26, 2018.
- Coyne, K. J., Sohm, J., Parker, A., Kalmbach, A., Gunderson, T., Lee, C., Leon, R., Capone, D., Carpenter, E. and Cary, S. C. Distribution and diversity of heterotrophic diazotrophs in McMurdo Dry Valleys, Antarctica. POLAR2018, Davos, Switzerland, June 19-23, 2018.
- Coyne, K. J., Sohm, J., Kalmbach, A., Gunderson, T., Main, C. R., Capone, D., Carpenter, E. and Cary, S. C. Changing light regimes in polar deserts: A metatranscriptome analysis. POLAR2018, Davos, Switzerland, June 19-23, 2018.
- Simons, V.E., J.H. Cohen, T.E. Targett, and K.J. Coyne (2018) The effects of a bacteria-produced algicide on non-target animal species. Atlantic Estuarine Research Society Spring Meeting. Rehoboth Beach, Delaware. April 5-7, 2018.
- Grasso, C.R., Nanjappa, D., Wang, Y. and Coyne, K.J. Effects of the bacterial algicide IRI-160AA on microbial community composition of the Delaware Inland Bays. Ninth Symposium on Harmful Algae in the US, Baltimore, MD, Nov. 11-17, 2017.
- Coyne, K.J., Main, C.R., Doll, C., Wang, Y., Whereat, E., Pettay, D.T. and Greenfield, D.I. Comparison between quantitative real time PCR (QPCR) and sandwich Hybridization assay (SHA) for detection and quantification of *Heterosigma akashiwo* in field samples. Ninth Symposium on Harmful Algae in the US, Baltimore, MD, Nov. 11-17, 2017.
- Wang, Y., Ternon, E. and Coyne, K.J. Effects of potential algicidal compounds produced by *Shewanella* sp. IRI-160 on harmful dinoflagellates. Ninth Symposium on Harmful Algae in the US, Baltimore, MD, Nov. 11-17, 2017.
- Shi, Y., Hamman, C., Pettay, D.T., and Coyne, K.J. Genetic diversity within the harmful algal species, *Heterosigma akashiwo*: environmental drivers and strain toxicity. Ninth Symposium on Harmful Algae in the US, Baltimore, MD, Nov. 11-17, 2017.
- Vidyarathna, N.K., Smith, L., Cohen, J.H., Coyne, K.J., Warner, M.E. How does climate change affect the physiological ecology of *Karlodinium veneficum* and its consequences on trophic transfer? Ninth Symposium on Harmful Algae in the US, Baltimore, MD, Nov. 11-17, 2017.
- Ternon, E.T, Place, A.R., and Coyne, K.J. Isolation and characterization of an algicidal compound secreted by the bacteria *Shewanella* sp. IRI-160. The 17th International Conference on Harmful Algae, Florianopolis, Brazil, Oct. 9-16, 2016.

- Wang, Y. and Coyne, K.J. Immobilized algicidal bacteria and their effect on harmful dinoflagellates. The 17th International Conference on Harmful Algae, Florianopolis, Brazil, Oct. 9-16, 2016.
- Wang, Y. and Coyne, K.J. Transcriptional and post-translational regulation of novel nitrate reductase enzymes in *Chattonella subsalsa*. The 17th International Conference on Harmful Algae, Florianopolis, Brazil, Oct. 9-16, 2016.
- Coyne, K.J., Pokrzywinski, K.L., Tilney, C.L., and Warner, M.E The bacterial algicide IRI-160AA: Effects on harmful dinoflagellates and on microbial community structure. The 17th International Conference on Harmful Algae, Florianopolis, Brazil, Oct. 9-16, 2016.
- Mazzoleni, M., Antonelli, T., Coyne, K.J., and Rossi, L. Simulation and analysis of the predator-prey dynamics of dinoflagellates. Society for Industrial and Applied Mathematics (SIAM) Conference on Mathematics of Planet Earth, Philadelphia, PA, Sept. 30-Oct. 2, 2016.
- Countway, PD, Pasulka, AL, Mesrop, LY, Hu, SK, Heidelberg, KB, Coyne, KJ, Cary, SC and Caron, DA. Microbial eukaryotes from the deep: Revealing the diversity of protists and their trophic relationships at hydrothermal vents. Protist 2016, Moscow, Russia, June 6-10, 2016.
- Torre, D., York, J., Coyne, K.J., Kroeger, K. Phytoplankton community composition response to groundwater-borne nutrients in the Delaware Inland Bays. CERF 2015, Portland, OR, Nov. 8-12, 2015.
- Schutschkow, A. R., Stewart, J. J. and Coyne, K. J. Bioremediation of wastewater and industrial emissions using *Heterosigma akashiwo*. Algae Biomass Summit, Washington D. C., Sept. 29 – Oct. 2, 2015.
- Schutschkow, A. R., Stewart, J. J., Dempster, T. A., McGowen, J. A. and Coyne, K. J. Analysis of productivity and biochemical profiles of *Heterosigma akashiwo* under semi-continuous and batch growth in 1000 L outdoor ponds. The 6th International Conference on Algal Biomass, Biofuels and Bioproducts, San Diego, CA, June 26-29, 2015.
- Pokrzywinski, K. L., Tilney, C., Warner, M. E. and Coyne, K. J. Joint Aquatic Sciences Meeting, Portland, OR, May 19-23, 2014.
- Main, C.R. and Coyne, K.J. The Vibrio-HAB connection: Interactions between *Vibrio* and *Heterosigma akashiwo*. Joint Aquatic Sciences Meeting, Portland, OR, May 19-23, 2014.
- Coyne, K. J., Main, C. R., Doll, C. R., Bianco, C. and Greenfield, D. I. Effects of growth phase, diel cycle and macronutrient limitation on the quantification of *Heterosigma akashiwo* using qPCR and SHA. Seventh US Symposium on Harmful Algae, Sarasota, FL, Oct. 27-31, 2013.
- Pokrzywinski, K. L., Warner, M. E. and Coyne, K. J. Inhibition of the dinoflagellate cell cycle after inoculation with the algicidal compound iRI-160AA excreted by *Shewanella* sp. IRI-160. Seventh US Symposium on Harmful Algae, Sarasota, FL, Oct. 27-31, 2013.
- Warner, M. E., Tilney, C. L., Pokrzywinski, K. L. and Coyne, K. J. Examining the response of harmful dinoflagellates to the bacterial algicide IRI-160AA: differences in growth, physiology and mode of action across laboratory and field collected samples. Seventh US Symposium on Harmful Algae, Sarasota, FL, Oct. 27-31, 2013.

- Main, C. R. and Coyne, K. J. The *Vibrio*-HAB connection: Investigating the influence of iron on formation of *Vibrio* biofilms and ROS production by *Heterosigma akashiwo*. Seventh US Symposium on Harmful Algae, Sarasota, FL, Oct. 27-31, 2013.
- Coyne, K. J., Bouchard, J. N., Hennige, S. J. and Warner, M. E. Regulation of gene expression by light and nitrogen source in *Heterosigma akashiwo*. ASLO Aquatic Sciences Meeting, New Orleans, LA, Feb. 17-22, 2013.
- Greenfield, D. I., Coyne, K. J., Doll, C. R., Main, C., Bianco, C. Comparison of sandwich hybridization assay and quantitative PCR for HAB research and management using the raphidophyte *Heterosigma akashiwo*. ASLO Aquatic Sciences Meeting, New Orleans, LA, Feb. 17-22, 2013.
- Coyne, K. J., Bouchard, J. N., Polson, S. W. and Warner, M. E. Transcriptome profiling of *Heterosigma akashiwo*: Regulation of gene expression by light and nitrogen source. International Conference on Harmful Algae, Changwon, South Korea, Oct. 29- Nov. 2, 2012.
- Pokrzywinski, K., Warner, M. E. and Coyne, K. J. Induction of programmed cell death and cell cycle inhibition in dinoflagellates by bacterial algicide IRI-160AA. International Conference on Harmful Algae, Changwon, South Korea, Oct. 29- Nov. 2, 2012.
- Main, C. R., Salvitti, L.R. and Coyne, K. J. Investigating interactions between harmful algal bloom species and *Vibrio* in the Delaware Inland Bays. International Conference on Harmful Algae, Changwon, South Korea, Oct. 29- Nov. 2, 2012.
- Bianco, C., Stewart, J. J. and Coyne, K. J. Beneficial use of *Heterosigma akashiwo* for biodiesel production and bioremediation of carbon dioxide and nitric oxide in flue gas. International Conference on Harmful Algae, Changwon, South Korea, Oct. 29- Nov. 2, 2012.
- Greenfield, D. I., Coyne, K. J., Doll, C., Main, C. R., Bianco, C. Comparative analyses of sandwich hybridization assay and quantitative PCR for the raphidophyte *Heterosigma akashiwo*. International Conference on Harmful Algae, Changwon, South Korea, Oct. 29- Nov. 2, 2012.
- Stewart, J. J. and Coyne, K. J. Advantages of a novel chimeric enzyme, NR2-2/2HbN, in *Heterosigma akashiwo* for biofuel production coupled to bioremediation of CO₂ and NO_x in flue gas emissions. 2nd International Conference on Algal Biomass, Biofuels & Bioproducts, San Diego, CA, June 10-13, 2012
- Stewart, J. J. and Coyne, K. J. Sequence and expression analysis of unique nitrate reductases in harmful raphidophyte species. Ocean Sciences Meeting, Salt Lake City, UT, Feb. 20 -24, 2012.
- Tilney, C.L., Pokrzywinski, K. L., Coyne, K. J., and Warner, M. E. Impact of the bacterial algicide IRI-160AA on the photobiology of harmful dinoflagellates. Sixth Symposium on Harmful Algae in the US, Austin, TX, Nov. 6-13, 2011.
- Coyne, K. J., Salvitti, L., Tilney, C., Main, C. and Warner, M. Carbon acquisition strategies of the toxic dinoflagellate, *Karlodinium veneficum*, under climate change conditions. Sixth Symposium on Harmful Algae in the US, Austin, TX, Nov. 6-13, 2011.

- Pokrzywinski, K. L., Tilney, C., Warner, M. E., Coyne, K. J. Induction of programmed cell death in dinoflagellates by bacterial algicide IRI-160AA. Sixth Symposium on Harmful Algae in the US, Austin, TX, Nov. 6-13, 2011.
- Main, C. R. and Coyne, K. J. The *Vibrio* HABs connection: investigating interactions between harmful algal bloom species and pathogenic *Vibrio*. Sixth Symposium on Harmful Algae in the US, Austin, TX, Nov. 6-13, 2011.
- Bouchard, J. N., Hennige, S., Warner, M. E. and Coyne, K. J. Effect of light intensity and light shift on nitrate reductase expression and enzyme activity in *Heterosigma akashiwo*. Sixth Symposium on Harmful Algae in the US, Austin, TX, Nov. 6-13, 2011.
- Lee, K. and Coyne, K. J. Benthic diatoms as biological indicators of water quality in Delaware's inland bays. Aquatic Sciences Meeting, San Juan, PR, Feb. 14-18, 2011.
- Coyne, K. J., Countway, P., Pilditch, C., Caron, D., Lee, C. and Cary, S. C. Ciliates associated with microbial mats at Guaymas hydrothermal vent site. Aquatic Sciences Meeting, San Juan, PR, Feb. 14-18, 2011.
- Salvitti, L.R., Whereat, E.B., Titora, J., Coyne, K.J. Class-level quantitative real-time PCR (QPCR) assessment of changes in phytoplankton community composition in Delaware's inland bays. Aquatic Sciences Meeting, San Juan, PR, Feb. 14-18, 2011.
- Coyne, K. J. and Warner, M. E. Characterization of the algicidal activity of *Shewanella* IRI-160. Fourteenth International Conference on Harmful Algae, Crete, Greece, Nov. 1-5, 2011.
- Hennige, S., Coyne, K. J. and Warner, M. E. The Photobiology of *Heterosigma akashiwo*: Photoacclimation, diurnal periodicity, and the ability to exploit rapid exposure to high light. Fourteenth International Conference on Harmful Algae, Crete, Greece, Nov. 1-5, 2011.
- Stewart, J. J., Hanson, T. E. and Coyne, K. J. Novel globin-containing nitrate reductase chimeric sequences found in the raphidophytes, *Heterosigma akashiwo* and *Chattonella subsalsa*. Fifth Symposium on Harmful Algae in the U.S., Ocean Shores, WA, Nov. 15-19, 2009.
- Titora, J. M. R., Farestad, M., Whereat, E., Tomas, C. and Coyne, K. J. . Molecular detection and monitoring of *Karenia* spp. in coastal Delaware waters. Fifth Symposium on Harmful Algae in the U.S., Ocean Shores, WA, Nov. 15-19, 2009.
- Coyne, K. J. , Stewart, J. J., and Warner, M. E. Comparison of nitrate reductase sequence and expression patterns for the harmful raphidophytes, *Heterosigma akashiwo* and *Chattonella subsalsa*. Fifth Symposium on Harmful Algae in the U.S., Ocean Shores, WA, Nov. 15-19, 2009.
- Salvitti, L., Stewart, J. J., Coyne, K.J. and Warner, M. E. The impact of long-term shifts in CO₂ and temperature on the growth and physiology of different isolates of *Heterosigma akashiwo*. Fifth Symposium on Harmful Algae in the U.S., Ocean Shores, WA, Nov. 15-19, 2009.

Salvitti, L., Stewart, J. J., Coyne, K.J. and Warner, M. E. Evidence for the use of the nitrate reductase pathway as a source for the dissipation of excess excitation energy in *Heterosigma akashiwo*. ASLO 2009 Aquatic Sciences Meeting, Nice, France, Feb, 2009.

Coyne, K. J., Rose, J., Hook, W. F., Langley, J. A. Molecular assessment of diatom community composition in response to nitrogen pollution and increased atmospheric CO₂. ASLO 2009 Aquatic Sciences Meeting, Nice, France, Feb, 2009.

Jennifer J. Stewart, Lauren Salvitti, Mark E. Warner and Kathryn J. Coyne. Expression of nitrate reductase and RUBISCO in response to nitrogen source, temperature and carbon dioxide concentration in *Heterosigma akashiwo*. ASLO 2009 Aquatic Sciences Meeting, Nice, France, Feb, 2009.