**Emily A. Monroe, Ph.D.**

300 Pompton Road, Wayne, NJ 07470

Phone: 973-720-2792; Email: monroee@wpunj.edu

**Positions Held**

2016 – present **Associate Professor**, Department of Biology,

 William Paterson University, Wayne, NJ

2012 – 2016 **Assistant Professor**, Department of Biology,

 William Paterson University, Wayne, NJ

**Education**

2008 **Ph.D., Molecular and Cellular Biology and Pathobiology,**

 Marine Biomedicine and Environmental Sciences Program

Medical University of South Carolina, Charleston, SC

2002 **B. S., Marine Science,** University of South Carolina, Columbia, SC

**Postdoctoral Experience**

2009 - 2012 **NIH IRACDA Postdoctoral Fellow,**

Center for Marine Biotechnology and Biomedicine,

 Scripps Institution of Oceanography, University of California San Diego

**Publications**

Kinnel RB, Esquenazi E, Leao T, Moss N, Mevers E, Pereira AR, **Monroe EA**, Korobeynikov A, Murray TF, Sherman D, Gerwick L, Dorrestein PC, Gerwick WH. **2017**. A Maldiisotopic Approach to Discover Natural Products: Cryptomaldamide, a Hybrid Tripeptide from the Marine Cyanobacterium Moorea producens. *Journal of Natural Products*, 80(5):1514-1521.

Leao T, Castelão G, Korobeynikov A, **Monroe EA**, Podell S, Glukhov E, Allen EE, Gerwick WH and Gerwick L, **2017**. Comparative genomics uncovers the prolific and distinctive metabolic potential of the cyanobacterial genus Moorea. *Proceedings of the National Academy of Sciences*, *114*(12): 3198-3203.

Bertin MJ, Vulpanovici A, **Monroe EA**, Korobeynikov A, Sherman DH, Gerwick L, Gerwick WH. **2016**. The Phormidolide Biosynthetic Gene Cluster: a *trans*-AT PKS Pathway Encoding for a Toxic Polyketide Macrolide. *ChemBioChem.* 17:164-173.

Medema MH, Kottman R, Yilmaz P, Cummings M, Biggins J, de Bruijn I, Chooi YH, Claesen J, Coates RC, Curz-Morales P, Duddela S, Duesterhus S, Edwards D, Fewer DP, Garg N, Geiger C, Gomez-Escribano JP, Greule A, Hadjithomas M, Haines AS, Helfrich EJN, Ishida K, Jones AC, Jones CS, Jungmann K, Kegler C, Kim HU, Koetter P, Krug D, Masschelein J, Melnik AV, Mantovani SM, **Monroe EA**, Moore M, Moss N, Nutzmann H-W, Pan G, Pati A, Petras D, Reen J, Rosconi F, Rui A, Tian Z, Tobias NJ, Tsunematsu Y, Wiemann P, Wyckoff E, Yan X, Yim G, Yu F, Xie Y, Aigle B, Apel AK, Balibar CJ, Balskus E, Barona-Gomez F, Bechthold A, Bode HB, Borriss R, Brady S, Brakhage A, Caffrey P, Cheng Y-Q, Clardy J, Cox R, De Mot R, Donadio S, Donia MS, van der Donk W, Dorrestein PC, Doyle S, Driessen A, Ehling-Schulz M, Entian K-D, Fischbach MA, Gerwick L, Gerwick WH, Gross H, Gust B, Hertwick C, Hofte M, Jensen S, Ju J, Katz L, Kaysser L, Klassen J, Keller NP, Kormanec J, Kuipers O, Kuzuyama T, Kyrpides N, Kwon H-J, Lautru S, Lavigne R, Lee C, Linquan B, Liu X, Liu W, Luzhetskyy A, Mahmud T, Mast Y, Mendez C, Metsa-Ketela M, Mitchell D, Moore BS, Moreira LM, Muller R, Neilan B, Nett M, Neilsen J, O’Gara F, Oikawa H, Osbourn A, Osburne M, Ostash B, Payne S, Pernodet J-L, Petricek M, Piel J, Ploux O, Raaijmakers JM, Salas JA, Schmitt EK, Scott B, Seipke RF, Shen B, Sherman D, Sivonen K, Smanski M, Sosio M, Sussmuth R, Tahlan K, Thomas CM, Tang Y, Truman AW, Viaud M, Walton J, Walsh CT, Weber T, van Wezel G, Wilkinson B, Willey J, Wohlleben W, Wright G, Ziemert N, Zhang C, Zotchev S, Breitling R, Takano E, Glockner FO. **2015**. Minimum Information about a Biosynthetic Gene Cluster (MIBiG)**.** *Nature Chemical Biology.* 11: 625 – 631.

Boudreau PD, **Monroe EA**, Mehrotra S, Desfor S, Korobeynikov A, Pevzner P, Sherman DH, Murray TF, Gerwick L, Dorrestein PC, Gerwick WH. **2015**­. Expanding the Described Metabolome of the Marine Cyanobacterium *Moorea producens* JHB through Orthogonal Natural Products Workflows. *PLoS ONE*. 10(7): e0133297.

Kleigrewe K, Almaliti J, Tian I, Kinnel R, Korobeynikov A, **Monroe EA**, Duggan B, Di Marzo V, Sherman D, Dorrestein P, Gerwick L, Gerwick W. **2015**. Combining Mass Spectrometric Metabolic Profiling with Genomic Analysis: A Powerful Approach for Discovering Natural Products from Cyanobacteria. *J Natural Products*. 78: 1671-1682.

Morey JS, **Monroe EA**, Kinney AL, Beal M, Johnson JG, Hitchcock GL, Van Dolah FM. **2011**. Transcriptomic Response of the Red Tide Dinoflagellate, *Karenia brevis*, to Nitrogen and Phosphorus Depletion and Addition. *BMC Genomics*. 12(1): 346.

Jones AC\*, **Monroe EA\***, Podell S, Hess W, Klages S, Esquenazi E, Niessen S, Hoover H, Rothmann M, Lasken R, Yates III JR, Reinhardt R, Kube M, Burkart M, Allen EE, Dorrestein PC, Gerwick WH, Gerwick L. **2011**. Genomic Insights Into the Physiology and Ecology of the Marine Filamentous Cyanobacterium *Lyngbya majuscula*.*Proc Nat Acad of Sci*. 108: 8815-8820.

 \* Authors contributed equally

Featured in the May 9, 2011 Issue of Scripps News: “Genome of Marine Organism Reveals Hidden Secrets” by Mario Aguilera.

Jones AC, **Monroe EA**, Gerwick WH. **2011**. Elegant Metabolite Biosynthesis. *Chemistry & Biology*. 18: 281-283.

Jones AC, **Monroe EA**, Eisman E, Gerwick L, Sherman DH, Gerwick WH. **2010**. The Unique Mechanistic Transformations Involved in the Biosynthesis of Modular Natural Products from Marine Cyanobacteria. *Nat Prod Rep.* 27: 1048-1065.

**Monroe EA**, Johnson JG, Wang Z, Pierce RK, Van Dolah FM. **2010**. Characterization and Expression of Nuclear-encoded Polyketide Synthases in the Brevetoxin-producing Dinoflagellate, *Karenia brevis*. *J. Phycology*. 46: 541-552.

Sotka EE, McCarty A, **Monroe EA**, Oakman N, Van Dolah FM. **2009**. Benthic Herbivores are not Deterred by Brevetoxins Produced by the Red Tide Dinoflagellate *Karenia brevis*. *J Chem Ecol.* 35: 851-859.

Van Dolah FM, Lidie KB, **Monroe EA**, Bhattacharya D, Campbell L, Doucette GJ, Kamykowski D. **2009**.The Florida red tide dinoflagellate *Karenia brevis*: New insights into cellular and molecular processes underlying bloom dynamics.*Harmful Algae*. 8: 562-572.

**Monroe EA**, Van Dolah FM. **2008**. The toxic dinoflagellate *Karenia brevis* encodes novel type I – like polyketide synthases containing discrete catalytic domains. *Protist* 159(3): 471-482.

Van Dolah FM, Lidie KB, Morey JM, Brunelle SA, Ryan JC, **Monroe EA**, Haynes, BL. **2007**. Microarray Analysis of Diurnal and Circadian Regulated Genes in the Florida Red Tide Dinoflagellate, *Karenia brevis*. *J. Phycology* 43:741-752.

Brodie RJ, Behum ME, **Monroe E**, Glenn N, Staton JL. **2005**. Recruitment to adult habitats following marine planktonic development in the in the fiddler crabs, *Uca pugilator*, *Uca pugnax* and *Uca minax*. *Marine Biology* 147(1): 105-111.

**Grants**

**Current**

National Institutes of Health Brewer and Soto (co-PI) 9/1/2022 – 8/31/2023

Biomedical Research and Education Training Program

Institutional Research and Career Development Award (IRACDA)

Rutgers Robert Wood Johnson Medical School – lead institution

Subaward Bridge Funds Monroe (WPUNJ PI) $40,784

**Pending**

National Institutes of Health Brewer and Soto (co-PI) 9/1/2023 – 8/31/2028

IRACDA at Rutgers:

Institutional Research and Career Development Award (IRACDA)

Rutgers Robert Wood Johnson Medical School – lead institution

Subaward Monroe (WPUNJ PI) $304,472

**Not Funded**

National Institutes of Health Brewer and Soto (co-PI) 8/1/2016 – 7/31/2021

Biomedical Research and Education Training Program

Institutional Research and Career Development Award (IRACDA)

Rutgers Robert Wood Johnson Medical School – lead institution

Subaward Monroe (WPUNJ PI) $217,762

National Science Foundation Monroe (PI), Spagna (co-PI) 9/1/2015 – 8/30/2018

MRI: Acquisition of a Next Generation Sequencing System $452,208

**Completed**

National Institutes of Health Brewer and Soto (co-PI) 8/1/2017 – 7/31/2022

Biomedical Research and Education Training Program

Institutional Research and Career Development Award (IRACDA)

Rutgers Robert Wood Johnson Medical School – lead institution

Subaward Monroe (WPUNJ PI) $213,918

National Institutes of Health Brewer and Soto (co-PI) 8/1/2016 – 7/31/2017

Biomedical Research and Education Training Program

Institutional Research and Career Development Award (IRACDA)

Rutgers Robert Wood Johnson Medical School – lead institution

Subaward Bridge Funds Monroe (WPUNJ PI) $22,884

William Paterson University 6/2015 – 7/2015

College of Science and Health Center for Research Summer 2015 Research Award $4960

The Effect of Light Intensity on Toxicity and Gene Expression in the Florida Red Tide Dinoflagellate,

*Karenia brevis* [renewal].

American Society for Biochemistry and Molecular Biology 6/2014 – 8/2014

American Society for Biochemistry and Molecular Biology Undergraduate Research Award. $1000

Awarded to Unnati Chauhan for mentored research in my laboratory

The Effect of Light Intensity on Toxicity and Gene Expression in the Florida Red Tide Dinoflagellate,

*Karenia brevis*.

William Paterson University 6/2014 – 7/2014

College of Science and Health Center for Research Summer 2014 Research Award $4960

The Effect of Light Intensity on Toxicity and Gene Expression in the Florida Red Tide Dinoflagellate,

*Karenia brevis* [renewal].

 6/2013 – 7/2013

College of Science and Health Center for Research Summer 2013 Research Award $4960

The Effect of Light Intensity on Toxicity and Gene Expression in the Florida Red Tide Dinoflagellate,

*Karenia brevis.*

**Courses Taught (William Paterson University)**

Undergraduate

BIO1630: General Biology: Cell, Molecular, and Genetics (lecture and lab)

BIO2060: General Genetics (lecture and lab)

BIO3950: Honors Literature Seminar (3 cr)

BIO3990: Selected Topics: Genomics (3 cr)

BIO4340: Genomics and Bioinformatics (4 cr)\*

Graduate

BIO5990: Advanced Topics in Ecology

BIO5990: Selected Topics: Genomics (3 cr)

BIO5340: Genomics and Bioinformatics (4 cr)\*

BIO6310: Biotechnology: Gene Expression (4 cr)

\*New course developed

Undergraduate Independent Study (BIO4990)

2023 Anahi Itzep

 Identification and Characterization of Caspase Candidates in *Karenia brevis*

2023 Kate LaVallee

 Evaluation Effects of Climate Change Predicted Temperatures on *Karenia brevis*

2022 Anthony Navarrete

Bioinformatic Characterization of Hybrid Non-ribosomal Peptide Synthetase/Polyketide Synthase Pathways in *Karenia brevis*

2022 Cameron Litterini

Bioinformatic Investigations of Newly Identified cis-AT Polyketide Synthases in the Florida Red Tide Dinoflagellate, *Karenia brevis*

2021 Jannat Begum

Characterization of trans-AT PKS Sequences in *Karenia brevis*

2020 Alan Abboud

Characterization of New Blue-Light Photoreceptors in the Dinoflagellate, *Karenia brevis*

2018 Yuliana Cruz Herrera

Characterization of Diadinoxanthin De-epoxidase Enzyme in *Karenia brevis*

2018 Rita DeAlmeida

The Effects of Nitrogen Limitation on the Dinoflagellate *Karenia brevis*

2016 Stephanie Costa

Effects of Phosphate Limitation on Growth Rate, Brevetoxin Production, and Gene Expression in *Karenia brevis*

2016 Unnati Chauhan

Long-term Effects of High Light Intensity on Growth, Toxicity and Gene Expression of the Florida Red Tide Dinoflagellate, *Karenia brevis*

2015 Daniel Lupo

Mechanisms involved in bloom demise in the Florida red tide dinoflagellate, *Karenia brevis*

Graduate Independent Reading/Independent Study (BIO7020/7000)

2023 Aaron Yaqoob

Cloning and Overexpression of a Putative Caspase Gene in the Florida Red Tide Dinoflagellate, *Karenia brevis*

2015 Daniel Lupo

Programmed Cell Death in Protists: Occurrence, Evolution, and Potential Role in Harmful Algal Bloom Termination

2014 Steven Meier

Polyketide Biosynthesis in Marine Dinoflagellates (Steven Meier)

2013 Michael Mule

Curiosities From the Sea:A Voyage into Natural Products Biosynthesis of Marine Actinobacteria & Cyanobacteria (Michael Mule)

**Undergraduate Research Students**

Amaal Kalds (2013) Alan Abboud (Summer 2017 – Spring 2020)

Denisse Velez (Spring 2013 – Spring 2015) Rosemary Arrieta (Summer 2018 – Spring 2020)

Unnati Chauhan (Summer 2013 – Spring 2016) Jannat Begum (Summer 2018 – Spring 2021)

Daniel Lupo (Fall 2013 – Spring 2015) Cameron Litterini (Summer 2020 – Spring 2022)

Patrick Fardella (Spring 2014 – Spring 2016) Anthony Navarette (Summer 2020 – Spring 2022)

Adrian Plummer (Spring 2014 – Spring 2015) Kate LaVallee (Summer 2022 – Spring 2023)

Stephanie Costa (Summer 2014 – Spring 2016) Anahi Itzep (Summer 2022 – Spring 2023)

Amanda Stanley (Summer 2015) Grace Bustamante (Summer 2022 – present)

Puneet Kaur (Spring 2016 – Fall 2016) Rafi Espinoza Vernier (Fall 2022 – present)

Rita De-Almeida (Spring 2016 – Spring 2018) Bryan Menendez (Fall 2022 – present)

Yuliana Cruz-Herrera (Fall 2016 – Spring 2018) Adon Roy (Fall 2022 – present)

Belal Almouallem (Summer 2017 – Fall 2019) Francisco Perez (Fall 2022 – present)

**Graduate Students (M.S.)**

Aaron Yaqoob (Fall 2022 – Spring 2023): Graduate Assistant (Supervisor)

Luisa Gallego (Fall 2021 – Spring 2022): Graduate Assistant (Supervisor)

Daniel Lupo (Fall 2015 – Fall 2019): M.S. Biotechnology Thesis Student (Chair, Thesis Committee)

Casey Peterson (Fall 2015 – Spring 2017): MS Biotechnology Thesis Student (Thesis Committee Member)

**Invited Presentations**

**Monroe EA.** Molecular Mechanisms Involved in Bloom Dynamics of the Florida Red Tide Dinoflagellate, *Karenia brevis*. Fairleigh Dickinson University, Metropolitan Campus. March 23, 2017. Hackensack, NJ [Invited Seminar].

**Monroe EA.** Polyketide Synthase Gene Expression in the Florida Red Tide Dinoflagellate, *Karenia brevis*. Florida International University. May 1, 2015. Miami, FL [Invited Seminar for Marine Science Graduate Program Seminar Series].

**Monroe EA.** Genomic insights into secondary metabolism of marine microbes. Fairleigh Dickinson University, Metropolitan Campus. October 24, 2013. Hackensack, NJ [Invited Seminar].

**Monroe EA.** Genomic insights into the physiology and ecology of the marine filamentous cyanobacterium *Lyngbya majuscula*. Invited Seminar, Arizona State University and Northern Arizona University, Yuma campus. December 1, 2011. Yuma, AZ [Oral].

**Monroe EA**, Seaborn GT, Van Dolah FM. Nuclear-encoded, Chloroplast-localized Polyketide Synthases in the Brevetoxin-producing Dinoflagellate *Karenia brevis*. Presented at the 2009 Gordon Research Conference on Mycotoxins and Phycotoxins. June 21-29, 2009. New London, NH. [Invited Poster].

**Monroe EA**, Wang Z, Pierce RK, Van Dolah FM. Polyketide Synthases in *Karenia brevis*: Characterization and Expression of Proteins Involved in Toxin Biosynthesis in the FloridaRed Tide Dinoflagellate. Presented at the 2008 Graduate Research Seminar on Oceans and Human Health. June 28-June 29, 2008. New London, NH. [Invited Oral].

**Abstracts/Presentations**

**Monroe EA**, Chauhan U\*, Lupo D\*, Costa S\*. The Effect of High Light Intensities on Toxin Biosynthesis in the Florida Red Tide Dinoflagellate, *Karenia brevis*. Presented at William Paterson Explorations Week. April 21, 2016. Wayne, NJ [Oral].

**Monroe EA**, Chauhan U\*, Lupo D\*, Costa S\*. Effects of High Light Intensity on Growth and Polyketide Synthase Gene Expression in Toxic and Nontoxic Substrains of *Karenia brevis*. Presented at the Gordon Research Conference on Mycotoxins and Phycotoxins. June 14 – 19, 2015. Easton, MA. [Poster].

**Monroe EA**. Understanding Toxin Biosynthesis in the Florida Red Tide Dinoflagellate, *Karenia brevis.* Presented at William Paterson University Research and Scholarship Day. April 2, 2015. Wayne, NJ [Oral].

**Monroe EA**. Uncovering the Mysteries of Toxin Production in the Florida Red Tide Dinoflagellate, *Karenia brevis*. Presented at William Paterson University Research and Scholarship Day. April 3, 2014. Wayne, NJ [Oral].

**Monroe EA**, Choi H, Lesin V, Sirotkin A, Dvorkin M, Pevzner P, Gerwick WH, Gerwick L. Genomic insights into secondary metabolism of the natural product-rich cyanobacterium *Moorea bouillonii*. Presented at the National IRACDA Conference. June 16 – 19, 2012. Philadelphia, PA [Poster].

**Monroe EA**, Jones AJ, Podell S, Hess W, Klages S, GrindbergRV, IshoeyT, BrinzaD, Esquenazi E, Niessen S, Hoover H, Rothmann M, Lasken R, Yates III JR, Reinhardt R, Kube M, Burkart M, Allen EE, Pavel Pevzner, Dorrestein PC, Gerwick WH, Gerwick L. Insights into secondary metabolism of natural product rich marine cyanobacteria through genome sequencing.Presented at the 52nd meeting of the American Society of Pharmacognosy. July 30 – August 3, 2011. San Diego, CA [Poster].

Resendes KK, **Monroe EA**, Villa FV, Pozos RS. 2011. Clash of the Titans: A case study between a large public university and a small liberal arts college. Presented at the 2011 National IRACDA conference. June 19 – 21, 2011. Houston, TX [Oral].

**Monroe EA**, Jones AJ, Podell S, Hess W, Klages S, GrindbergRV, IshoeyT, BrinzaD, Esquenazi E, Niessen S, Hoover H, Rothmann M, Lasken R, Yates III JR, Reinhardt R, Kube M, Burkart M, Allen EE, Pavel Pevzner, Dorrestein PC, Gerwick WH, Gerwick L. Insights into secondary metabolism of marine *Lyngbya* species through single-cell genomics. Presented at the Graduate Research Seminar and Gordon Research Conference on Mycotoxins and Phycotoxins. June 11 – 17, 2011. Waterville, ME. [Poster].

**Monroe EA.** Genomic insights into the physiology and ecology of the marine filamentous cyanobacterium *Lyngbya majuscula*. Presented at the Natural Products Affinity Group Seminar in San Diego. June 10, 2011. San Diego, CA. [Oral].

Resendes KK, Villa FV, **Monroe EA**, Pozos RS. Clash of the Titans! Analysis of Biological Concept Retention in Blended Web vs Traditional Instruction. Presented at the 50th American Society for Cell Biology Annual Meeting. December 11 – 15, 2010. Philadelphia, PA.[Oral].

Pezzolese L, Zippay ML, **Monroe EA**, and Van DolahFM. Polyketide synthases (PKS) in dinoflagellates: New Insights into Their Cellular Localization and Functionality. Presented at the 14th International Conference on Harmful Algae. November 1 – 5, 2010. Hersonissos, Crete. [Poster].

Resendes KK, Villa FV, **Monroe EA**, Pozos RS. David vs. Goliath? Analysis of Biological Concept Retention in  Blended Web  vs Traditional Instruction. Presented at the The Council on Undergraduate Research National Conference. June 19 – 22, 2010. Ogden, UT. [Poster].

Villa FV, Resendes KK, **Monroe EA**, and RS Pozos. “CLASH OF THE TITANS”: Blended/Web-Based vs Traditional Instruction. Presented at the National IRACDA conference. June 6 – 8, 2010. Boston, MA. [Oral].

**Monroe EA**, Jones AC, Podell S, Allen E, Klages S, Kube M, Reinhardt R, Hess W, Lasken R, Gerwick WH, Gerwick L. Insight into secondary metabolism of the natural product rich marine cyanobacterium *Lyngbya majuscula* through genome sequencing. Presented at the Gordon Research Conference on Marine Natural Products. February 28-March 5, 2010. Ventura, CA. [Poster].

Van Dolah FM, Morey JS, **Monroe EA**, Hitchcock GL. Genomic response of nutrient limited *Karenia brevis* to nitrogen and phosphorous addition. Presented at Ocean Sciences Meeting. February 22 – 26. Portland, OR. [Poster].

Sotka EE, McCarty A, **Monroe E**, Oakman, N, Van Dolah F. Can benthic herbivores transmit brevetoxins through estuarine food webs? A test of an unrecognized pathway in the Gulf of Mexico. Presented at Ocean Sciences Meeting. February 22 – 26. Portland, OR. [Poster].

**Monroe EA**, Jones AC, Podell S, Allen E, Klages S, Kube M, Reinhardt R, Hess W, Lasken R, Gerwick WH, Gerwick L. Identifying potential new pharmaceuticals through genome sequencing: understanding the biosynthetic potential of the cyanobacterium *Lyngbya majuscula*. Presented at the Western Pharmacology Society Annual Meeting. February 7-10, 2010. San Diego, CA. [Poster].

Morey, JS, **Monroe EA**, Hitchcock GL, Van Dolah FM. Genomic Response of Nutrient Limited *Karenia brevis* to Nitrogen and Phosphorus Addition. Presented at the 5th Symposium of Harmful Algae in the U.S. November 15 – 19, 2009. Ocean Shores, WA. [Poster].

**Monroe EA**, Wang Z, Pierce RK, Van Dolah FM. Polyketide Synthases in *Karenia brevis*: Characterization and Expression of Proteins Involved in Toxin Biosynthesis in the FloridaRed Tide Dinoflagellate. Presented at the 2008 Gordon Research Conference on Oceans and Human Health. June 29-July 4, 2008. Tilton, NH. [Poster].

**Monroe EA**, Van Dolah FM. Novel Structure of Polyketide Synthase Gene Transcripts

in the Florida Red Tide Dinoflagellate, *Karenia brevis*. 4th Symposium on Harmful Algae in the U.S. October 29-November 1, 2007. Woods Hole, MA. [Oral].

**Monroe EA**, Van Dolah FM. Novel Structure of Polyketide Synthase Gene Transcripts in the Florida Red Tide Dinoflagellate, *Karenia brevis*. Presented at the 2007 Gordon Research Conference on Mycotoxins and Phycotoxins. June17-22, 2007. Waterville, ME. [Poster].

**Monroe EA**, Mikulski CM, Roth TB, Wang Z, Doucette GJ, VanDolah FM. Origin of Polyketide Synthase Genes in the Toxic Dinoflagellate, *Karenia brevis*. Presented at the J. Craig Venter Institute Genomes, Medicine, and the Environment Conference. October 16-18, 2006. Hilton Head, SC. [Poster].

**Monroe EA**, Wang Z, Van Dolah FM. Brevetoxin and Polyketide Synthase Gene Expression Under Low-Nutrient Conditions in the dinoflagellate, *Karenia brevi*s. Presented at the 3rd Symposium on Harmful Algae in the U.S. October 2-9, 2005. Monterey, CA. [Oral].

**Monroe EA**, Wang Z, Van Dolah FM. Brevetoxin and Polyketide Synthase Gene Expression Under Low-Nutrient Conditions in the dinoflagellate, *Karenia brevi*s. Presented at the 2005 Gordon Research Conference on Mycotoxins and Phycotoxins. Waterville, ME. [Poster].

Behum ME, **Monroe EA**, Jones S. RFLP analysis studying pre-adult fiddler crab (*Uca* spp.) settlement patterns. Presented at the 32nd Annual Benthic Ecology Meeting. March 28-30, 2003. Groton, CT. [Poster].

**Student Abstracts/Presentations**

Itzep A\* and **Monroe EA.** Identification and Characterization of Caspase Candidates in *Karenia brevis*. Presented at the 16th Annual Undergraduate Research Symposium. April 22, 2023. [Poster].

LaVallee K\* and **Monroe EA**. Evaluating Effects of Climate Change Projected Temperatures on *Karenia brevis*. Presented at the 16th Annual Undergraduate Research Symposium. April 22, 2023. [Poster].

LaVallee K\*, Bustamante G\*, Itzep A\*, and **Monroe EA**. Evaluating Effects of Climate Change Projected Temperatures on *Karenia brevis*. Presented at the 14th Annual GS-LSAMP/NNJ-B2B STEM Research Conference. November 18, 2022. [Poster].

Litterini C\* and **Monroe EA**. Bioinformatic Investigations of Newly Identified Cis-AT Polyketide Synthases In The Florida Red Tide Dinoflagellate *Karenia brevis*. Presented at the 15th Annual Undergraduate Research Symposium. April 2, 2022. [Poster].

Navarrete A\* and **Monroe EA**. Bioinformatic Characterization of Hybrid Non-Ribosomal Peptide Synthetase/Polyketide Synthase (NRPS/PKS) Pathways in *Karenia brevis*. Presented at the 15th Annual Undergraduate Research Symposium. April 2, 2022. [Poster].

Litterini C\* and **Monroe EA**. Bioinformatic Characterization of the KR[ER]KR Organization in a Polyketide Synthase of the Florida Red Tide Dinoflagellate, *Karenia brevis*. Presented at the 13th Annual GS-LSAMP/NNJ-B2B STEM Research Conference. February 25, 2022. Virtual. [Poster].

Navarrete A\* and **Monroe EA**. Analysis of Adenylation Domains in Karenia brevis Nonribosomal Peptide Synthetase/Polyketide Synthase Hybrid Sequences. Presented at the 13th Annual GS-LSAMP/NNJ-B2B STEM Research Conference. February 25, 2022. Virtual. [Poster].

Navarrete A\* and **Monroe EA**. Characterization of nonribosomal peptide synthetase/polyketide synthase hybrid sequences in *karenia brevis*. Presented at the 14th Annual Undergraduate Research Symposium. April 17, 2021. Virtual. [Poster].

Begum J\* and **Monroe EA**. Characterization of Trans-AT PKS Sequences in *Karenia brevis.* Presented at the 14th Annual Undergraduate Research Symposium. April 17, 2021. Virtual. [Poster].

***Won 2nd place poster presentation in category***

DeMan C\*, **Monroe EA**, and Wadlburger C. A Bioinformatic Analysis of *Marinobacter adhaerens*, and *Alteromonas medditerranea.* Presented at the 12th Annual GS-LSAMP/NNJ-B2B STEM Research Conference. March 5, 2021. Virtual. [Poster].

LaVallee K\*, **Monroe EA**, and Waldburger C. An Analysis of Nitrogen Cycling in

*Mameliella atlantica* and *Maliponia aquimaris.* Presented at the 12th Annual GS-LSAMP/NNJ-B2B STEM Research Conference. March 5, 2021. Virtual. [Poster].

Litterini C\* and **Monroe EA**. Bioinformatic Investigations of Newly Identified cis-AT Polyketide Synthases in the Florida Red Tide Dinoflagellate, *Karenia brevis*. Presented at the 12th Annual GS-LSAMP/NNJ-B2B STEM Research Conference. March 5, 2021. Virtual. [Poster].

Begum J\* and **Monroe EA**. Characterization of Trans-AT PKS Sequences in *Karenia brevis.* Presented at the 12th Annual GS-LSAMP/NNJ-B2B STEM Research Conference. March 5, 2021. Virtual. [Poster].

Arrieta R\* and **Monroe EA**. Identification of Multi-Domain PKS sequences in a Non-Toxic Strain of *Karenia brevis*. Presented at the 11th Annual GS-LSAMP/NNJ-B2B STEM Research Conference. October 11, 2019. New Brunswick, NJ. [Poster].

 ***Won Outstanding Poster Presentation Award***

Abboud A\* and **Monroe EA**. Characterization of New Cryptochromes in the Dinoflagellate *Karenia brevis*. Presented at the 13th Annual Undergraduate Research Symposium. April 6, 2019. Wayne, NJ. [Poster].

***Won 1st place poster presentation in category***

Arrieta R\*, Begum J\*, Almouallem B\*, and **Monroe EA.** Identification of Multi-Domain PKS sequences in a Non-Toxic Strain of *Karenia brevis*. Presented at the 13th Annual Undergraduate Research Symposium. April 6, 2019. Wayne, NJ. [Poster].

Abboud A\* and **Monroe EA**. Characterization of New Cryptochromes in the Dinoflagellate *Karenia brevis*. Presented at the 10th Annual GS-LSAMP/NNJ-B2B STEM Research Conference. October 12, 2018. New Brunswick, NJ. [Poster].

Almouallem B\*, Arrieta R\*, Begum J\*, and **Monroe EA.** Identification of Multi-Domain PKS sequences in a Non-Toxic Strain of *Karenia brevis*. Presented at the 10th Annual GS-LSAMP/NNJ-B2B STEM Research Conference. October 12, 2018. New Brunswick, NJ. [Poster].

Abboud A\*, Almouallem B\*, and **Monroe EA**. The Effect of High Light Intensity on the Toxic and Nontoxic Strains of *Karenia brevis*. Presented at the 12th Annual Undergraduate Research Symposium. April 14, 2018. Wayne, NJ. [Poster].

Cruz Y\* and **Monroe EA**. Characterization of a Diadinoxanthin De-epoxidase Enzyme in *Karenia brevis*. Presented at the 12th Annual Undergraduate Research Symposium. April 14, 2018. Wayne, NJ. [Poster].

De Almeida R\* and **Monroe EA.** The Effects of Nitrogen Limited Environments on the Dinoflagellate *Karenia brevis*. Presented at the 12th Annual Undergraduate Research Symposium. April 14, 2018. Wayne, NJ. [Poster].

Abboud A\*, Almouallem B\*, and **Monroe EA**. The Effect of High Light Intensity on the Toxic and Nontoxic Strains of *Karenia brevis*. Presented at the 9th Annual GS-LSAMP/NNJ-B2B STEM Research Conference. October 13, 2017. Union, NJ [Poster].

Cruz Y\* and **Monroe EA**. Characterization of a Diadinoxanthin De-epoxidase Enzyme in *Karenia brevis*. Presented at the 9th Annual GS-LSAMP/NNJ-B2B STEM Research Conference. October 13, 2017. Union, NJ [Poster].

De Almeida R\* and **Monroe EA.** The Effects of Nitrogen Limited Environments on the Dinoflagellate *Karenia brevis*. Presented at the 9th Annual GS-LSAMP/NNJ-B2B STEM Research Conference. October 13, 2017. Union, NJ [Poster].

Lupo D+ and **Monroe EA**. Molecular Mechanisms Regulating *Karenia brevis* Programmed Cell Death. Presented at William Paterson Explorations Week. April 4, 2017. Wayne, NJ [Poster].

Kaur P\*, De Almeida R\*, and **Monroe EA**. Characterizing Multi-modular Polyketide Synthase Genes in *Karenia brevis*. Presented at the 8th Annual GS-LSAMP STEM Research Conference. October 7, 2016. New Brunswick, NJ [Poster].

Chauhan U\* and **Monroe EA**. Long-term Effects of High Light Intensity on Growth, Toxicity, and Gene Expression in the Florida Red Tide Dinoflagellate, *Karenia brevis*. Presented at William Paterson Explorations Week. April 20, 2016. Wayne, NJ [Oral].

Costa S\* and **Monroe EA**. Effects of Phosphate Limitation on Growth Rate, Brevetoxin Production, and Gene Expression in *Karenia brevis*, the Florida Red Tide Dinoflagellate. Presented at William Paterson Explorations Week. April 19, 2016. Wayne, NJ [Oral].

Chauhan U\* and **Monroe EA**. Long-term Effects of High Light Intensities on the Florida Red Tide Dinoflagellate, *Karenia brevis*. Presented at 10th Annual Undergraduate Research Symposium. April 9, 2016. Wayne, NJ [Poster].

***Won 1st place poster presentation in category***

Costa S\* and **Monroe EA**. Effects of Phosphate Limitation on Growth Rate, Brevetoxin Production, and Gene Expression in *Karenia brevis*, the Florida Red Tide Dinoflagellate. Presented at 10th Annual Undergraduate Research Symposium. April 9, 2016. Wayne, NJ [Poster].

***Won 1st place poster presentation in category***

Waldburger AA, Waldburger CD and **Monroe EA**. A Phylogenetic Analysis of a Butyrate Biosynthetic Pathway in Mammalian Gut Bacteria. Presented at 10th Annual Undergraduate Research Symposium. April 9, 2016. Wayne, NJ [Poster].

Lupo D+ and **Monroe EA**. Mechanisms Regulating Bloom Termination in the Florida Red Tide Dinoflagellate, *Karenia brevis*. Presented at 10th Annual Undergraduate Research Symposium Friday Graduate Student Session. April 8, 2016. Wayne, NJ [Oral].

Costa S\* and **Monroe EA**. Effects of Phosphate Limitation on Growth Rate and Brevetoxin Production in *Karenia brevis*. Presented at the 7th Annual GS-LSAMP STEM Research Conference. October 9, 2015. New Brunswick, NJ [Poster].

 ***Won Outstanding Poster Presentation Award***

Chauhan U\*, Lupo D\*, Costa S\*, and **Monroe EA**. Effect of High Light Intensities on Polyketide Synthase Expression in the Florida Red Tide Dinoflagellate, *Karenia brevis*. Presented at the 7th Annual GS-LSAMP STEM Research Conference. October 9, 2015. New Brunswick, NJ [Poster].

Stanley A\*, **Monroe EA**. Confirmation of Multi-modular Polyketide Synthase Genes in the Florida Red Tide Dinoflagellate, *Karenia brevis*. Presented at the 7th Annual GS-LSAMP STEM Research Conference. October 9, 2015. New Brunswick, NJ [Poster].

Chauhan U\*, Lupo D\*, **Monroe EA**. Effect of High Light Intensity on Polyketide Synthase Gene Expression in the Toxic Dinoflagellate, *Karenia brevis*. Presented at 9th Annual Undergraduate Research Symposium. April 11, 2015. Wayne, NJ [Poster].

 ***Won 1st place poster presentation in category***

Chauhan U\*, Lupo D\*, **Monroe EA**. Effect of High Light Intensity on Polyketide Synthase Gene Expression in the Toxic Dinoflagellate, *Karenia brevis*. Presented at the **National American Society of Biochemistry and Molecular Biology Conference**. March 28-April 1, 2015. Boston, MA [Poster].

Chauhan U\*, Costa S\*, Lupo D\*, **Monroe EA**. Effect of High Light on a Non-toxic Sub-strain of the

 Florida Red Tide Algae, *Karenia brevis.* Presented at the 6th Annual GS-LSAMP STEM Research Conference. October 3, 2014. New Brunswick, NJ [Poster].

Fardella P\*, **Monroe EA**. Genomic Investigations of Natural Product Rich Marine Cyanobacteria. Presented at the 6th Annual GS-LSAMP STEM Research Conference. October 3, 2014. New Brunswick, NJ [Poster].

Chauhan U\*, **Monroe EA.** Effect of High Light Intensity on the Growth of the Florida Red Tide Dinoflagellate, *Karenia brevis*. Presented at 8th Annual Undergraduate Research Symposium. April 12, 2014. Wayne, NJ [Poster].

Velez D\*, **Monroe EA.** Growth Differences between Toxic (GB Wilson) and Non-toxic (NTB Wilson) Sub-strains of *Karenia brevis*, the Florida Red Tide Dinoflagellate. Presented at 8th Annual Undergraduate Research Symposium. April 12, 2014. Wayne, NJ [Poster].

Chauhan U\*, **Monroe EA.** Effect of High Light Intensity on the Growth of the Florida Red Tide Dinoflagellate, *Karenia brevis*. Presented at William Paterson University Research and Scholarship Day. April 3, 2014. Wayne, NJ [Poster].

Velez D\*, **Monroe EA.** Growth Differences between Toxic (GB Wilson) and Non-toxic (NTB Wilson) Sub-strains of *Karenia brevis*, the Florida Red Tide Dinoflagellate. Presented at William Paterson University Research and Scholarship Day. April 3, 2014. Wayne, NJ [Poster].

Chauhan U\*, **Monroe EA**. Effects of high light intensity on the growth of the Florida red tide dinoflagellate, *Karenia brevis*. Presented at the 5th Annual GS-LSAMP STEM Research Conference. October 11, 2013. New Brunswick, NJ [Poster].

\* WPU undergraduate students

 +WPU graduate students

**Professional Activities**

**Internal (at WPU)**

2020- **Co-organizer**,

**WPU Undergraduate Research Symposium** **for Biological and Chemical Sciences**

Work with Chemistry Chairperson, Dean of College of Science and Health, Staff in the Dean’s office, Faculty in the Chemistry and Biology Departments, and IT staff to organize all aspects of the symposium (create schedule for the day, invite outside speaker and coordinate travel, talk, etc., organize Biology abstracts for poster sessions, organize Biology abstracts for poster sessions, communicate with participating student presenters and faculty)

2019 - **Member, Biology Graduate Committee**

2015 – 2018

Advise Graduate Coordinator on curricular changes, admissions requirements, and admissions decisions

2018 - **Member, Biology Undergraduate Curriculum Committee**

 **Chairperson**, 2021 – 2022

2013 – 2017 **Chairperson**, 2014 - 2016

Review and approve new course and course update applications, evaluate biology and biotechnology curricula, evaluate course rotations to optimize course offerings for students and department, curated all curriculum related materials needed for the last Program Review

2016 - **Campus Coordinator and Teaching Mentor, NIH Rutgers IRACDA program**

Manage subaward from Rutgers, coordinate activities and communications between Rutgers PIs and other WPU teaching mentors, organize annual site visits for new postdoctoral fellows, attend annual NIH IRACDA conference for continued professional development and represent WPU and the Rutgers INSPIRE program at coordinator meetings, initiated mentoring programs at the partner schools for Fellows to discuss summer research and graduate school to partner school students; the format of these workshops were presented at a National IRACDA meeting.

Served as a teaching mentor to six past Fellows and three current Fellows: Fellows have helped update one of our majors General Biology labs (BIO 1630) to include more interactive and relevant labs, mentored Fellows in General Biology Lecture and Genomics and Bioinformatics, Fellows developed a new Structural Biology course with the other teaching mentors that was taught by faculty and the Fellows Spring 2021. This course was recommended by our Biotechnology PSM advisory board, will work with current Fellows to update our Cell Biology lab and add more coding to my Bioinformatics course

2015 - **Member, Ad-hoc Biotechnology Committee**

Committee formed to update Biotechnology M.S. program when it faced closure by the University, worked with committee members to make the M.S. program a Professional Science Masters (PSM) that incorporates business and communication courses with technical science courses (reviewed and revised existing hands-on lab-intensive biotechnology courses to ensure they were teaching current techniques, reviewed course suggestions for the business/communication courses, created new 30-credit M.S. program that now includes business and communication courses, a required course in project management, and an option for internships, recommended individuals and reviewed make-up of the external advisory board required for a PSM), continue to evaluate courses and curriculum

2013 - **Academic Advisor**

Serve as academic advisor for ~30 students per year to assist in course scheduling, progress to degree completion, and discuss career options;became primary advisor for Biotechnology B.S. students in 2014

2020 - 2022 **Department Representative, Faculty Senate**

2021 – 2022 **Member, Center for Teaching Excellence (CTE) Advisory Board**

Served as liaison for CTE and the College of Science and Health, met with CTE directors and board members regularly to plan CTE events, proposed CTE events and helped organize events

2017 - 2023 **Member, Biology Department Executive Council**

Review Retention, Tenure, and Promotion materials and make recommendations, assist Department Chairperson in guiding initiatives for the department, review and make decisions on academic integrity issues and student concerns

2016 - 2022 **Co-facilitator**, **WPU Writing Across the Curriculum (WAC) Workshops**

Co-facilitate 3-day WAC workshop with WAC coordinator from English for WPU faculty across disciplines twice per year

My specific areas include writing to learn activities, incorporating writing to learn in your classroom without sacrificing content using scientific teaching approaches, using writing to learn to engage diverse learners, assessment of writing in non-English classrooms

Converted workshop to an online workshop since 2020

2016 – 2020 **Member, College of Science and Health Center for Research (CfR) Advisory Committee**

Obtained external reviews for CfR faculty summer research grants, advised on CfR summer research awards, advocated for changes in the summer research awards to support junior faculty that were ultimately adopted

2015 – 2019 **Member, Biology Independent Study (IS) Committee**

Review Undergraduate Independent Study written proposals and provide feedback to students, attend and participate in project proposal presentations and final presentations, assisted in updating the proposal process from a hardcopy to electronic copy based (via blackboard), assisted in establishing justification for the IS in the department to the Dean.

**External**

2020-2021 **Organizer** 2021 National IRACDA Conference hosted by NJ and NY

IRACDA programs. Also chaired/facilitated sessions during the conference.

2013 **Chair,** Gordon Research Seminar on Mycotoxins and

 Phycotoxins associated with the Gordon Research Conference on

Mycotoxins and Phycotoxins

2011 **Discussion Leader,** 52nd Annual Meeting of the American Society

of Pharmacognosy

2008 **Discussion Leader,** Gordon Research Seminar on Oceans and

Human Health associated with the Gordon Research Conference on

Oceans and Human Health

**Ad-hoc peer reviewer**

*Harmful Algae and PeerJ journals*

NY SeaGrant Grant Proposals

**Additional Research Training**

2011 **Mutagenisation workshop on the toxigenic cyanobacterium**

***Planktothrix***

Institute for Limnology, Austrian Academy of Sciences, Technology Center, Mondsee, Austria

Instructors: Drs. Guntram Christiansen & Rainer Kurmayer

2003 **Summer Research Intern,** South Carolina Department of Natural

Resources, Charleston, SC

Advisor: Dr. Alan Lewitus

2002 – 2003 **Research Assistant,** University of South Carolina, Columbia, SC

 Advisors: Dr. Renae Brodie and Dr. Joseph Staton

2002 **Howard Hughes Undergraduate Research Fellow,** University of South Carolina, Columbia, SC

 Advisor: Dr. Thomas Chandler

2000 – 2002 **Undergraduate Research Assistant,** University of South Carolina, Columbia, SC

 Advisor: Dr. Thomas Chandler

**Previous Teaching Experience**

2012 **Lecturer,** San Diego State University

 Selected Lectures in General Microbiology (BIO 350)

2009 - 2011 **Lecturer,** San Diego State University

 Co-taught General Biology (non-majors, BIO100)

 Three lectures/semester in two sections (250 and 500 students)

 And one semester in smaller BIO100 section (68 students)

 Topics: DNA, Gene Expression, Mutation and Disease

2011 **Guest Lecturer,** Arizona Western College, Yuma, Arizona

 Genomics lecture in Genetics and Evolution Course (BIO340)

2005 **Teaching Intern,** Citadel, Charleston, South Carolina

 Introductory Biology Laboratory

2002 **Undergraduate Teaching Assistant,** University of South Carolina, Columbia, SC

Introductory Biology Laboratory

**Awards**

2009 - 2012 National Institutes of Health Institutional Research and Academic Career

 Development Award (IRACDA) Fellow

Scripps Institution of Oceanography

2003 Graduate Assistance in Areas of National Need (GAANN) fellow in teaching,

Medical University of South Carolina

**Teaching Credentials/Training**

2023 ACUE Microcredential in Inspiring Inquiry and Preparing Lifelong Learners

Association of College and University Educators

This microcredential signifies my completion of an ACUE course requiring the implementation of evidence-based instructional approaches. The credential is co-issued by the American Council on Education and distinguishes faculty for their commitment to educational excellence and student success.