

Cary Burns Lopez

Florida Fish and Wildlife Conservation Commission
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Scientific Expertise and Interest

I am a phytoplankton ecologist with a focused interest in harmful algal bloom ecology and dinoflagellate life cycles. I have extensive experience in marine science and water quality field and laboratory methods as well as more specialized expertise in phytoplankton identification, enumeration, isolation, and culture techniques.

Professional Experience

Assistant Research Scientist/Biological Scientist, Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute, HAB Subsection (2013 – Present)
Oceans and Human Health Science Coordinator, University Cooperation for Atmospheric Research, on site at the National Oceanographic and Atmospheric Administration, Silver Spring, MD (2010 – 2013)
Marine Science Policy Analyst, IMIS for National Oceanographic and Atmospheric Administration, Silver Spring, MD (2005 – 2009)
Biological Oceanographer, U.S. Geological Survey, Menlo Park, CA (2000 – 2005)
EPA Science Training in Ecology Program Student Researcher, US Environmental Protection Agency, Gulf Breeze, FL (1999 – 2000)
Graduate Research Assistant, Dauphin Island Sea Lab, Dauphin Island, AL (1997 – 1998)

Education

M.S. (Marine Sciences), University of South Alabama, Mobile, AL (2000)
B.S. (Biology and Marine Science), University of Alabama, Tuscaloosa, AL (1997)

Publications (*peer-reviewed)

- *Brosnahan ML, Fischer AD, **Lopez CB**, Moore SK, Anderson DM. 2019. Cyst-forming dinoflagellates in a warming climate. *Harmful Algae*. <https://doi.org/10.1016/j.hal.2019.101728>
- ***Lopez CB**, Karim A, Murasko S, Marot M, Smith CG, Corcoran AA. 2019. Temperature mediates secondary dormancy in resting cysts of *Pyrodinium bahamense* (Dinophyceae). *Journal of Phycology*: 55: 924-935.
- *Houle HM, **Lopez CB**, Leblond JD. 2018. Sterols of the toxic marine dinoflagellate, *Pyrodinium bahamense*. *Journal of Eukaryotic Microbiology*: 66 (3): 528-532.
- Lopez CB**, Smith CG, Marot ME, Corcoran AA. 2016. The role of seedbeds in *Pyrodinium bahamense* bloom dynamics in Tampa Bay. In: Burke, M [Ed.] 6th Bay Area Scientific Information Symposium (BASIS 6). St. Petersburg, Florida. Pp. 78-83.
- Howard J. et al. 2013. Oceans and Marine Resources in a Changing Climate. *Oceanography and Marine Biology: An Annual Review*, 2013, 51, 71-192. http://www.aoml.noaa.gov/phod/docs/Howard_etal.pdf
- Himes-Cornell A, Orbach M, Allen S, Auad G, Boatman M, Clay P, Herrick S, Kotowica D, Little P, **Lopez C**, Loring P, Niemeier P, Norman K, Pfeiffer L, Plummer M, Rust M, Singer M, Speirs C. 2013. Section 4: Impacts of climate change on human uses of the ocean. In: *Griffis, R, Howard, J. Oceans and Marine Resources in a Changing Climate, A technical Input to the 2013 National Climate Assessment*.

- CENR 2010. Scientific Assessment of Hypoxia in U.S. Coastal Waters. 2010. Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health of the Joint Subcommittee on Ocean Science and Technology. Washington, DC.
<https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/hypoxia-report.pdf>
- Lopez CB**, Jewett EB, Dortch Q, Walton BT, Hudnell HK. 2008. Scientific Assessment of Freshwater Harmful Algal Blooms. Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health of the Joint Subcommittee on Ocean Science and Technology. Washington, DC.
<https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/frshh2o0708.pdf>
- Lopez CB**, Dortch Q, Jewett EB, Garrison D. 2008. Scientific Assessment of Marine Harmful Algal Blooms. Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health of the Joint Subcommittee on Ocean Science and Technology. Washington, D.C. http://aquaticcommons.org/14920/1/assess_12-08.pdf
- Jewett EB, **Lopez CB**, Dortch Q, Etheridge SM, Backer LC. 2008. Harmful Algal Bloom Management and Response: Assessment and Plan. Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health of the Joint Subcommittee on Ocean Science and Technology. Washington, DC.
<https://www.whoi.edu/fileserver.do?id=233764&pt=10&p=19132>
- Anderson D, Sengco M, Doucette G, Bauer MB, Cox F, Gulland F, Etheridge S, He R, Hudnell K, Larkin S, **Lopez C**, Lubert G, Perovich G, Poli M, Van Dolah F, Wilhelm S. 2008. Prevention, Control, and Mitigation Workgroup Report. In: HAB RDDTT: Harmful Algal Bloom Research, Development, Demonstration, and Technology Transfer National Workshop Report. Dortch Q, Anderson DM, Ayres DL, Glibert PM (eds.), Woods Hole, Massachusetts
- Dortch Q, Glibert P, Jewett E, **Lopez C**. 2008. Introduction. In: HAB RDDTT: Harmful Algal Bloom Research, Development, Demonstration, and Technology Transfer National Workshop Report. Dortch Q, Anderson DM, Ayres DL, Glibert PM (eds.), Woods Hole, Massachusetts
- ***Lopez CB**, Cloern JE, Schraga TS, Little AJ, Lucas LV, Thompson JK, Burau JR. 2006. Ecological values of shallow-water habitats: Implications for the restoration of disturbed ecosystems, *Ecosystems*. 9:422-440.
- *Lucas LV, Sereno DM, Burau JR, Schraga TS, **Lopez CB**, Stacey MT, Parchevsky KV, Parchevsky VP. 2006. Intratidal variability of water quality in a shallow tidal lagoon: Mechanisms and implications: *Estuaries and Coasts*. 29: 711-730. (CERF Pritchard Award, 2007)
- *Cloern JE, Schraga TS, **Burns Lopez C**. 2005. Heat wave brings an unprecedented red tide to San Francisco Bay. *Eos*, Transactions American Geophysical Union, 86: 66.
- *Cloern JE, Schraga TS, **Lopez CB**, Knowles N, Labiosa RG, Dugdale R. 2005. Climate anomalies generate an exceptional dinoflagellate bloom in San Francisco Bay. *Geophysical Research Letters*. 32(14), L14608, doi:10.1029/2005GL023321.
- *Croteau MN, Luoma SN, **Lopez CB**, Topping BR. 2004. Stable metal isotopes reveal copper accumulation and loss dynamics in the freshwater bivalve *Corbicula*. *Environ. Sci. Technol.* 38: 5002-5009.
- Topping BR, Kuwabara JS, Marvin-DiPasquale MC, Agee JL, Kieu LH, Flanders JR, Parchaso F, Hager SW, **Lopez CB**, Krabbenhoft DP. 2004. Sediment Remobilization of Mercury in South San Francisco Bay, California. U.S. GEOLOGICAL SURVEY, Scientific Investigations Report 2004-5196
- Cloern JE, Schraga TS, **Lopez CB**, and Labiosa R. 2003. Lessons from monitoring water quality in San Francisco Bay: 2003 Pulse of the Estuary, San Francisco Institute, p. 15-20.
- Lucas LV, Schraga TS, **Lopez CB**, Burau JR, and Jassby AD. 2002. Pulsey, patchy water quality in the delta: implications for meaningful management. Interagency Ecological Program Newsletter, 15(3):21-27.
- Burns CL**. 2000. The effect of nitrogen source on the growth and toxicity of three potentially harmful dinoflagellates. Masters Thesis. University of South Alabama, Department of Marine Sciences, Mobile, AL. Advisor: Jonathan Pennock

Synergistic Activities

Staffed Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health, 2006-2009

Steering Committee for Fourth Symposium on Harmful Algae in the U.S., 2007

Steering Committee for HAB Research, Development, Demonstration, and Technology Transfer Workshop, 2007

Presentations

Lopez CB, Shankar S. *Pyrodinium bahamense* and shellfish grazing. TBEP Technical Advisory Committee meeting. October 23, 2019.

Lopez CB. *Pyrodinium bahamense* bloom monitoring in Old Tampa Bay. Tampa Bay Nitrogen Management Consortium meeting. August 29, 2019

Lopez CB, Shankar S. *Pyrodinium bahamense*: coming this summer to a water body near you...Tampa Bay? Taste of Science, April 28, 2019.

Lopez CB, Shankar S. *Pyrodinium bahamense* and bivalve grazers. Tampa Bay Estuary Program Technical Advisory Committee Meeting. August 16, 2018.

Lopez C, Karim A, Murasko S, Marot M, Smith C, Karlen D, Shankar S, Hubbard K, Corcoran A. Seasonal temperature conditioning mediates dormancy in Tampa Bay populations of *Pyrodinium bahamense*. 9th US Symposium on Harmful Algae, November 11-17, 2017. Baltimore, MD.

Lopez CB. *Pyrodinium bahamense* blooms in Old Tampa Bay. Tampa Bay Estuary Program Technical Advisory Committee Meeting. August 10, 2017

Lopez CB, Trtanj J. Strengthening Application of NOAA Science and Services in the Public Health Sector. 10th Annual Climate Prediction Applications Science Workshop, Miami, FL, March 13-15, 2012.

Lopez CB, Cloern JE, Schraga TS, Little AJ, Lucas LV. Ecological values of shallow water habitat in the Delta. CALFED Bay-Delta Authority Science Conference, Sacramento, CA, October 4-6, 2004.

Lopez CB. Ecological values of shallow water habitat in the Sacramento San-Joaquin River Delta. USGS Water Resources Division Seminar Series, September 30, 2004.

Lopez CB, Lucas LV, Cloern JE, Schraga TS. Spatial variability of phytoplankton dynamics in a tidal flooded island. Estuarine Research Federation (ERF) 17th Biennial International Conference, Seattle, WA September 14-18, 2003

Lopez CB, Lucas LV, Cloern JE, Schraga TS. Spatial variability of phytoplankton dynamics in a tidal flooded island. CALFED Bay-Delta Authority Science Conference, Sacramento, CA, January 14-16, 2003.

Lopez CB and Schraga TS. Revealing Patterns of Phytoplankton Dynamics in a Delta Habitat: a Billion Diatoms Can't Be Wrong. USGS Water Resources Division Seminar Series, December 12, 2002.

Lopez CB. The effect of nitrogen source on the growth of four species of *Prorocentrum* (Dinophyceae) Estuarine Research Federation (ERF) 16th Biennial International Conference, St. Pete Beach, FL, November 4-8, 2001.

Burns CL, Pennock JR, Lores EM, Greene RM. The effect of nitrogen source on the growth and toxicity of three potentially harmful dinoflagellates. Phycological Society of America Annual Meeting, San Diego, CA, July 15-19, 2000.

Burns CL and Pennock JR. HAB distributions in Mobile Bay and the Northeastern Gulf of Mexico. Estuarine Research Federation (ERF) 15th Biennial International Conference, New Orleans, LA, September 25-30, 1999

Awards and Fellowships

FWC FWRI Excellence in Science Award, Runner-up, March 2019

FWRI Team Awards: Crisis Response Award and Outstanding Team Award, 2019

FWC FWRI Extra Effort Awards 2015, 2016, 2017, 2018

I.M. Systems Group Superior Performance Award for role in production of the reports mandated by the Harmful Algal Bloom and Hypoxia Research Control Act, 2009

Department of Interior STAR Awards: August 2001, October 2001, May 2002, and August 2004

Annual Nelson Award, Marine Sciences Department, University of South Alabama, 2000
Science Training in Ecology Program Award, USEPA Gulf Ecology Division, 1999-2000
Dauphin Island Sea Lab-University Programs Fellowship, 1997-1998