

SARAH A TOMINACK, PhD

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EDUCATION

Ph.D., 2021 <i>Phytoplankton Dynamics in an Urbanizing South Texas Estuary, Corpus Christi Bay, Texas</i> Advisor: Dr. Michael S Wetz	Marine Biology	Texas A&M University - Corpus Christi
M.S., 2014 <i>Spatial and Temporal Variation in the Community Structure of Marine Archaea in the Northeastern Gulf of Mexico</i> Advisor: Dr. Richard A Snyder	Biology	University of West Florida
B.A., 2011 Minors: Chemistry, Spanish Language	Environmental Biology Honors: Cum Laude, Academic Excellence Award	University of North Alabama

EXPERIENCE

Instructor & Laboratory Coordinator <i>Department of Biology; Hal Marcus College of Science and Engineering</i>	University of West Florida <i>August 2023 – Present</i>
Adjunct Faculty – Laboratory Coordinator <i>Department of Biology; Hal Marcus College of Science and Engineering</i>	University of West Florida <i>May 2022 – Present</i>
Ecology & Statistics Consultant <i>Everglades</i>	Avian Research & Conservation Institute <i>May 2022 – Present</i>
Research Program Associate II <i>Coastal Ecosystem Dynamics</i>	Texas A&M Univ - Corpus Christi <i>Nov 2021 - Jan 2022</i>
Graduate Research Assistant <i>Coastal Ecosystem Dynamics</i>	Texas A&M Univ - Corpus Christi <i>Jan 2016 - Dec 2020</i>
Graduate Teaching Assistant <i>Biology I Lecture (BIOL1406)</i>	Texas A&M Univ - Corpus Christi <i>Aug 2019 - Dec 2019</i>
Student Services Contractor <i>Ecotoxicology: Fish and Amphibians</i>	US Environmental Protection Agency <i>Jun 2015 - Jan 2016</i>
Adjunct Faculty <i>Department of Biology; Hal Marcus College of Science and Engineering</i>	University of West Florida <i>Jan 2015 - May 2015</i>
Graduate Teaching Assistant <i>Aq. Botany Lab (BOT4404L)</i>	University of West Florida <i>Jan 2014 - May 2014</i>
Graduate Research Assistant <i>Center for Environmental Diagnostics & Bioremediation</i>	University of West Florida <i>May 2012 - Dec 2014</i>
Youth Conservation Corps Coordinator <i>Gulf Islands National Seashore</i>	US Dept. Interior Natl. Park Service <i>May 2011 - Aug 2011</i>

RESEARCH INTERESTS

Marine Microbial Ecology • Estuarine Ecology • Community Ecology • Historical Ecology • Regional and Local Teleconnections of Large-scale Climate Oscillations • Spatial-Temporal Modeling • Genomics • Biogeochemistry • Eco-Informatics • Data Mining

TECHNICAL SKILLS

FIELD AND LABORATORY

- **Design and implementation** of long-term water quality monitoring programs and supplementary experimental manipulations
- **Water quality monitoring** including sample collection and in situ measurements using shipboard CTDs, handheld YSIs, moored HydroLab data sondes, and autonomous underwater vehicles.
- **Technical writing** including peer-reviewed journal articles, reports, and Standard Operating Procedures
- **Chemical analyses** including solid phase extractions, spectrophotometric quantification of nutrients, and spectrophotometric and fluorometric quantification of chlorophyll *a*
- **Construction and maintenance** of mesocosms including positive pressure dosing systems and machine shop tools (wet saw, wet drill, propane and oxygen flames) for glass work
- **Identification and quantification** of aquatic photosynthetic organisms including phytoplankton, macroalgae, and submerged aquatic vegetation
- **Culture independent** microbiological methods including DNA & RNA extraction, T-RPLFs (ABI Prism Sequencer), gel electrophore-

- sis, PCR, qPCR, vector cloning, and *E. coli* transformations with heat and electric shock
- **Flow cytometry** for the quantification (Accuri C6 Plus) and sorting (FACSJazz) of picophytoplankton and bacteria in environmental and experimental matrices
 - **Seagrass** bed assessments of *Halodule wrightii* and *Thalassia testudinum* with sediment coring, porewater collection, and sulfide sampling in Pensacola Bay, Florida
 - **Sandy beach** invertebrate sampling using systematic and randomized sampling designs
 - **Animal care and husbandry** including zebrafish (*Danio rerio*), African clawed frogs (*Xenopus laevis*), American toads (*Anaxyrus americanus*), rotifers (*Brachionus plicatilis*), and brine shrimp (*Artemia* spp.)

COMPUTATIONAL

- **Data management** focused on atomicity, version control, and ease of access for large working groups
- **Geospatial analysis** and representation of data collected from terrestrial, aquatic, and marine environments
- **Modeling** techniques including but not limited to linear, non-linear, and mixed-effects models, logistic regression for presence-absence data sets, and non-parametric permutation-based multivariate statistics
- **Genomic**, metagenomic, and 16S data analysis and visualization using current bioinformatics techniques
- **Automation** of data download from APIs and other web-based sources, QA/QC, summary statistics, and visualization
- **Software & Language proficiency:** R, LaTeX, PRIMER, ArcMap, Surfer, mothur, SPADES, IQ-Tree, RAST, Geneious, RDP, Adobe Acrobat, HOBOWare (Onset data loggers), SeaSave and SeaSoft (Seabird CTD data processing), and MS Office (incl. Access)

TEACHING AND MENTORING EXPERIENCE

UNDERGRADUATE COURSES

- Biology II Lab** - University of West Florida
Ecology Lecture - University of West Florida
Ecology Lab - University of West Florida
Biology I Lecture - Texas A&M University - Corpus Christi
Biology I Lab - University of West Florida
Aquatic Botany Lab - University of West Florida
Aquatic Botany Lecture - University of West Florida * Teaching Assistant

GUEST LECTURER

- Marine Microbial Ecology Lab** - Texas A&M University - Corpus Christi
Marine Organisms and Processes - Texas A&M University - Corpus Christi

MENTORSHIP

- Training** of undergraduate (2) and graduate students (3) in the Coastal Ecosystem Dynamics Lab
Implementation of weekly, student-led paper discussions to facilitate open dialogue and collaboration
Coordination and instruction of graduate student teaching assistants and laboratory instructors

AWARDS

2020	Marine Biology Research Assistantship	\$11,000	Texas A&M University - Corpus Christi
2018	Grants in Aid of Graduate Research	\$1,600	Texas Sea Grant
2014	Outstanding Research Assistant	\$100	University of West Florida
2014	Student Government Travel Grant	\$1,050	University of West Florida
2014	Graduate Student Research Grant	\$500	University of West Florida
2012	Academic Excellence Award		University of North Alabama

PUBLICATIONS

Tominack SA, Wetz MS. 2022. Variability in phytoplankton biomass and community composition in Corpus Christi Bay, Texas. *Estuaries and Coasts*. <https://doi.org/10.1007/s12237-022-01137-y>

Wetz M, **Tominack SA**. 2022. Understanding the Cause of a Long-term Increase in Red Tide Frequency in Nueces-Corpus Christi Bay. Technical report prepared for the Texas Coastal Management Program, 59 pp.

Tominack SA. 2021. Phytoplankton Dynamics in an Urbanizing South Texas Estuary, Corpus Christi Bay, Texas. Dissertation, Texas A&M University - Corpus Christi.

Tominack SA, Coffey KZ, Yoskowitz D, Sutton G, Wetz MS. 2020. An assessment of trends in the frequency and duration of *Karenia brevis* red tide blooms on the South Texas coast (Western Gulf of Mexico). *PLoS ONE* 15(9): e0239309. <https://doi.org/10.1371/journal.pone.0239309>.

Moss JA, McCurry C, **Tominack SA**, Romero IC, Hollander D, Jeffrey WH, Snyder RA. 2015. Ciliated protists from the nepheloid layer and water column of sites affected by the Deepwater Horizon oil spill in the Northeastern Gulf of Mexico. Deep Sea Research Part I: Oceanographic Research Papers. 106:85-96.

Tominack SA. 2015. Spatial and temporal variations in the community structure of marine Archaea in the Northeastern Gulf of Mexico. Thesis, The University of West Florida.

Snyder RA, Ederington-Hagy M, Hileman F, Moss JA, Amick L, Carruth R, Head M, Marks J, **Tominack SA**, Jeffrey WH. 2014. Polycyclic aromatic hydrocarbon concentrations across the Florida Panhandle continental shelf and slope after the BP MC 252 well failure. Marine Pollution Bulletin 89:201-208.

PRESENTATIONS

ORAL * indicates presenter, + indicates invited

Tominack SA. 2022. Historical ecology & Texas red tides. Biology Seminar, University of West Florida. Pensacola, FL.

Tominack SA**, Wetz MS. 2020. Trends in the Frequency and Duration of Texas Red Tides. Ingleside on the Bay Coastal Watch Association annual meeting, Ingleside, TX.

Tominack SA*, Wetz MS. 2019. Phytoplankton community dynamics in an urbanized South Texas Estuary (Corpus Christi Bay). CERF Biennial Conference, Mobile, AL.

Tominack SA*, Coffey KZ, Wetz MS. 2019. Trends in the frequency and duration of Texas red tides. ASLO Aquatic Sciences Meeting, San Juan, Puerto Rico.

Tominack SA, Marbach S*, Wallgren H, Pinnell L, Turner J. 2018. Genomic analyses reveal mechanisms of extreme osmoregulation in hypersaline Vibrionaceae. Texas ASM Fall Meeting, Corpus Christi, TX.

Tominack SA**. 2018. Red tides in your backyard: What you should know. Watershore and Beach Advisory Committee. Corpus Christi, TX.

Tominack SA**. 2018. Red tides in your backyard: What you should know. Riviera High School Aquatic Sciences Class. Riviera, TX.

Tominack SA*, Moss JA, Riesenfeld C, Jeffrey WH, Snyder RA. 2014. Spatial and temporal variations in the community structure of marine Archaea in the northeastern Gulf of Mexico. ASLO Ocean Sciences Meeting, Honolulu, HI.

Tominack SA**, Moss JA, Riesenfeld C, Jeffrey WH, Snyder RA. 2014. Spatial and temporal variations in the community structure of marine Archaea in the northeastern Gulf of Mexico. Biology Seminar, University of West Florida. Pensacola, FL.

Tominack SA**. 2014. Microbes in the ocean...Who cares? Rotary Club of Athens, AL, District 6860. Athens, AL.

Tominack SA*. 2013. Progress report on thesis research (community dynamics of marine Archaea) to Gulf of Mexico Research Initiative Board. Tallahassee, FL.

POSTER * indicates presenter

Tominack SA*, Hayes K, Wetz MS. 2017. Spatial and temporal variability in phytoplankton biomass and composition in a subtropical estuary (Corpus Christi Bay, TX). CERF Biennial Conference, Providence, RI.

Moss JA*, McCurry C, **Tominack SA**, Jeffrey WH, Snyder RA. 2014. Ciliated microbial diversity in the Northeastern Gulf of Mexico. ASLO Ocean Sciences Meeting, Honolulu, HI.

McCurry C*, Moss JA, **Tominack SA**, Jeffrey WH, Snyder RA. 2014. Benthic foraminifera community diversity and distribution in the Northern Gulf of Mexico. ASLO Ocean Sciences Meeting, Honolulu, HI.

Tominack SA*, Moss JA, Riesenfeld C, Jeffrey WH, Snyder RA. 2014. Spatial and temporal variations in the community structure of marine Archaea in the Northeastern Gulf of Mexico. Gulf of Mexico Oil Spill and Ecosystem Science Conference, Mobile, AL.

Tominack SA*, Gaona M, Rosenbalm J, Hester C, Moss JA, Jeffrey WH, Snyder RA. 2014. A time series hydrographic dataset for the Northeastern Gulf of Mexico. Gulf of Mexico Oil Spill and Ecosystem Science Conference, Mobile, AL.

Tominack SA*, Gaona M, Rosenbalm J, Hester C, Moss JA, Jeffrey WH, Snyder RA. 2013. A time series hydrographic dataset for the Northeastern Gulf of Mexico. Gulf of Mexico Oil Spill and Ecosystem Science Conference, New Orleans, LA.

Riesenfeld C*, Moss JA, **Tominack SA**, Houghton KA, Davis B, Hutcherson J, Lepo JE, Jeffrey WH, Snyder RA. 2013. Microbial reactivity to water masses in the Northeastern Gulf of Mexico. Gulf of Mexico Oil Spill and Ecosystem Science Conference, New Orleans, LA.

OUTREACH AND OTHER ACTIVITIES

OUTREACH

Oso Bay Wetlands Preserve Outreach Program. Harte Research Institute for Gulf of Mexico Studies student research group. Summer 2019.

Guest lecturer at Riviera High School Aquatic Sciences Class. Coastal Ecosystem Dynamics Lab, Harte Research Institute. 2019
Earth Day Bay Day. Corpus Christi, Texas. 2019

MEDIA

KEDT-Public Radio. Red tides and salinity in Corpus Christi Bay. 2020.

MARB Current. Something old- historical data collection. 2019.

KRISTV-Corpus Christi. TAMUCC researchers look for links between Saharan dust, red tide. July 2018.

KRISTV-Corpus Christi. Red tide research, red tide. Sept 2016.

REFEREED JOURNALS

Gulf and Caribbean Research

Marine Pollution Bulletin

PLoS ONE

Frontiers in Marine Science

SERVICE

University of West Florida. Master's Thesis Committee Member; Dixie Lauderdale. *Graduation Exp. 2025*

University of West Florida. Office of Undergraduate Research – Explorer Mentor. *Spring 2023 - present*

University of West Florida. Office of Undergraduate Research proposal reviewer. *Fall 2022 - present*

University of West Florida. Master's Thesis Committee Member; Morgan A Armstrong. *Graduation Exp. 2024*