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WEB: [HTTPS://XAVIERFE.GITHUB.IO/SCIENCE/](https://xavierfe.github.io/science/)

RESEARCH INTERESTS

Microbial systems interactions

Networks that regulate transfer of carbon by heterotrophic bacterioplankton

Phytoplankton and bacteria adaptations to stressors and changing environments

Use of microbes as biological tools

ACADEMIC HISTORY

Post-doctoral Researcher

University of Washington (UW), Seattle, Washington

Education

University of Georgia (UGA), Athens, Georgia

PhD Marine Sciences, August 2022

University of Puerto Rico, Mayagüez Campus (UPRM), Mayagüez, Puerto Rico

MS Biology, May 2015

BS Industrial Microbiology, May 2011

TRAINING AND TEACHING EXPERIENCE

Scientific Training

Postdoctoral Research

Betaine-microbe networks from the equatorial Pacific Ocean, UW, (present), PI: Anitra E. Ingalls

PhD

Heterotrophic bacteria as biological sensors of phytoplankton exometabolic resources in the surface ocean, UGA, (2022), Advisor: Dr. Mary Ann Moran

MS

- Antibiotic Resistance Screening in Metagenomics Libraries Generated from Puerto Rico Cave Soil, UPRM (2015), Advisor: Dr. Carlos Rodríguez Mingüela
- Mastering Metagenomics at Dr. Jo Handelsman laboratory, Yale University, New Hampshire CT, USA (2012), Advisor: Dr. Ashley Shade

BS

- Construction of Functional Metagenomic Libraries from Guanica's Dry Forest, UPRM (2010-11), Advisor: Dr. Carlos Ríos Velázquez
- Identifying and classifying rare and endangered flora of Puerto Rico and Vieques Island, UPRM (2008-09), Advisor: Dr. Gary Breckon

Teaching Experience

UGA: Graduate Learning Assistant for Principles of Biology (Fall 2021),

UPRM: Laboratory Instructor of Genetics (Spring, Summer, and Fall 2014), and Bacterial Genetics (Fall 2013)

Professor: Ethics, Integrity and RCR (Fall 2014)

Lab Assistant: Metagenomics Laboratory (Spring 2014)

PEER-REVIEWED PUBLICATIONS

1. **Ferrer-González, F. X.**, Hamilton, M., Smith, C. B., Schreier, J. E., Olofsson, M., & Moran, M. A. (2023). Bacterial transcriptional response to labile exometabolites from photosynthetic picoeukaryote *Micromonas commoda*. *ISME communications*, 3(1), 5.
2. Moran, M.A., **Ferrer-González, F.X.**, Fu, H., Nowinski, B., Olofsson, M., Powers, M.A., Schreier, J.E., Schroer, W.F., Smith, C.B., and Uchimiya, M. (2022). The Ocean's labile DOC supply chain. *Limnology and Oceanography*.
3. Olofsson, M., **Ferrer-González, F.X.**, Uchimiya, M., Schreier, J.E., Holderman, N.R., Smith, C.B., Edison, A.S., Moran, M.A. (2022). Growth-stage-related shifts in diatom endometabolome composition set the stage for bacterial heterotrophy. *ISME Communications*, 2(1), 1-9.
4. Holderman, N.R., **Ferrer-González, F.X.**, Glushka, J., Moran, M.A., Edison, A.S. (Accepted). Dissolved organic metabolite extraction from high salt media. *NMR in Biomedicine*.
5. Widner, B., Kido Soule, M. C., **Ferrer-González, F. X.**, Moran, M. A., & Kujawinski, E. B. (2021). Quantification of Amine-and Alcohol-Containing Metabolites in Saline Samples Using Pre-extraction Benzoyl Chloride Derivatization and Ultrahigh Performance Liquid Chromatography Tandem Mass Spectrometry (UHPLC MS/MS). *Analytical Chemistry*, 93(11), 4809-4817.
6. **Ferrer-González, F. X.**, Widner, B., Holderman, N. R., Glushka, J., Edison, A. S., Kujawinski, E. B., & Moran, M. A. (2021). Resource partitioning of phytoplankton metabolites that support bacterial heterotrophy. *The ISME journal*, 15(3), 762-773.

SELECTED PRESENTATIONS

1. **Frank X. Ferrer González**, Zinka Bartolek, Joshua Sacks, Shiri Graff van Creveld, E. Virginia Armbrust, Anitra Ingalls, Bacterioplankton response to Low Molecular Weight Dissolved Primary Production from the Equatorial Pacific, ASLO, Mallorca, Spain, May 2023, Poster
2. **Frank X. Ferrer-González**, Brent Nowinski, Mary Ann Moran, Dynamic Heterotrophic Bacterial Strategies for Carbon Acquisition in a Coastal Phytoplankton Bloom, Gordon Research Conference, Les Diablerets, Switzerland, Spring 2022, Poster
3. **Frank X. Ferrer-González**, Flujo de carbono en la superficie del océano, Puerto Rican Virtual Research Talks, Zoom, Fall 2020, Oral
4. **Frank X. Ferrer-González**, Mary Ann Moran, Resource Partitioning of Diatom Metabolites by Marine Bacterial Heterotrophy in the Surface Ocean, Marine Science Student Symposium, University of Georgia, Athens, GA, Fall 2020, Oral
5. **Frank X. Ferrer-González**, Mary Ann Moran, Resource-Based Niche Partitioning in Surface Ocean Heterotrophic Bacteria Growing on Diatom Derived Metabolites, Southeastern Biogeochemical Symposium (SBS), University of South Carolina, Columbia South Carolina, March 2019, Poster
6. **Frank X. Ferrer-González**, Mary Ann Moran, Asking the Bacteria What Diatom Metabolites Support Heterotrophic Growth in the Surface Ocean, Association for the Science of Limnology and Oceanography (ASLO), Puerto Rico Convention Center, San Juan Puerto Rico, February 2019, Oral
7. **Frank X. Ferrer-González**, Mary Ann Moran, Asking the Bacteria What Diatom Metabolites Support Heterotrophic Growth in the Surface Ocean, Association for the Science of Limnology and Oceanography (ASLO), Puerto Rico Convention Center, San Juan Puerto Rico, February 2019, Oral

8. **Frank X. Ferrer-González**, Mary Ann Moran, Diatom Metabolites Support Heterotrophic Growth in the Surface Ocean, Annual Southeastern Branch American Society for Microbiology Meeting Microbial Dynamics and Infection, Georgia Tech, Atlanta GA, November 2018, Oral
9. **Frank X. Ferrer-González**, Mary Ann Moran, Phytoplankton Metabolites that Support Heterotrophic Growth in the Surface Ocean, Southeastern Biogeochemical Symposium (SBS) Florida State University, Tallahassee, FL April 2018, Poster
10. **Frank X. Ferrer-González**, Mary Ann Moran, Diatom derived metabolites that Support Heterotrophic Growth in the Surface Ocean, Suddath Symposium, The Chemical Ecology of Microbiome Interactions, Georgia Tech, Atlanta GA, January 2018, Poster

GRADUATE AND UNDERGRADUATE STUDENT MENTORSHIP

1. Susan Garcia, PhD Candidate, Axenic diatom biosynthesis and release rates of low molecular weight metabolites from phytoplankton. Fall, 2022 - present
2. Sam Cryan, PhD Candidate, University of Washington, Fate of Homarine degradation by heterotrophic bacterioplankton. Fall, 2022 - present
3. Nelly Wood, Graduate student, Integrative Life Science Rotation Program, University of Georgia, Determining bacterial kinetics from diatom substrates. Fall, 2019
4. Stephanie L. Stromp, Undergraduate student, Biology Department, University of Georgia, 2016-2017: Bacteria-Phytoplankton Interactions in Understanding the Marine Carbon Cycle.
5. Lidimarie Trujillo, Undergraduate student, Biology Department, 2012-2014: Cultivable Approaches and Generation of Metagenomic Libraries from Soil for Functional Screening of Estrogen Metabolizing Candidates
6. Luis Morales, Undergraduate student, Premedical Program, Industrial Microbiology Program, 2012-2013: Functional Screening of Thermal Tolerant Clones in Metagenomic Libraries
7. Nader Rebhat, Undergraduate student, Industrial Microbiology Program, 2011-2012: Isolation of Cultivable Antibiotic Resistant Candidates from Soil of Cueva Ventana
8. Cristian Acevedo, Undergraduate student, Industrial Microbiology Program 2012: Isolation and characterization of different color spectra antibiotic resistant bacteria
9. Hiram Morales, Undergraduate student, Industrial Microbiology Program, 2011: Screening for sulfur producing bacteria in soils of Puerto Rico
10. Albin Cardona, Graduate student, Professional Development Program, 2012: Generation of Antibiotic Minimum Inhibiting Concentrations, Bacterial Growth Curves and Functional Antibiotic Resistance Screening
11. Ricky Padilla, Undergraduate student, Mayagüez Residential Center for Educational Opportunities CROEM, 2011: Isolation of Antibiotic like Substances from Plant Sources
12. Giovanni González and Juliana Rodriguez Varella, Professional development students, Science and Technology of Food Program and Teachers Development Program, 2011: Generation of a metagenomic library using the indirect method from cave Ventana.

SELECTED AWARDS

1. NSF C-CoMP Postdoctoral Research Fellow October 2023 – October 2025.
2. Graduate School Student Travel Award, 2022
3. Graduate School Student Travel Award, 2017
4. University of Georgia's Graduate Recruitment Opportunity Assistantship. University of Georgia, Athens, Georgia. August 2015 to May 2017.

5. Annual Conference of the AAAS-Caribbean Division: Infectious Diseases in the Tropics-Second Place Robert I. Larus Award. AAAS and Science Caribbean Division, University of Puerto Rico, Medical Center, September 2013.
6. National Institute of Health, Rise2Best UPR-M Fellow University of Puerto Rico at Mayagüez. Grant No. NIH-R25GM088023 June 2011 to May 2013.
7. United States Agricultural Department, Cooperative State Research, Education, and Extension Service (CSREES) Undergraduate Research Fellowship. GRANT NO. USDA-HSI-CSREES 2007-02386, January to May 2011.

PUBLIC AND PROFESSIONAL SERVICES

1. Member of the Student Life Sub-Committee of the Marine Science DEI Initiative, University of Georgia, Athens, GA, 2020 to 2022.
2. Member of the DEI Training Sub-Committee of the Marine Science DEI Initiative, University of Georgia, Athens, GA, 2020 to 2022.
3. Member of the Marine Science, DEI committee, University of Georgia 2020 to 2022.
4. Certificate in Diversity & Inclusion (CDI) through the Office of Institutional Diversity at the University of Georgia, Athens, GA, Fall 2021.
5. Co-Chair of the Student Life Sub-Committee of the Marine Science DEI Initiative, University of Georgia, Athens, GA, 2020 to Fall 2021.
6. Co-lead, First Graduate Student Marine Science Department Symposium, University of Georgia, Athens, GA, Fall 2020.
7. Outreach to underrepresented students at Cedar Shoals High School: Latin American Ocean Scientists and what we do, Athens, GA, February 2020.
8. STEM Zone: What is marine sciences? Missouri Home Game, UGA, Athens, GA, November 2019
9. Co-lead, One filter one family, supplying 1000 water filters to families in Puerto Rico
10. Lead, Hurricane Maria UGA Response Team, Athens, GA, Fall 2017
11. Graduate Steering Committee, Southeastern Biogeochemical Symposium (SBS), University of Georgia, Athens, GA, Spring, 2017.
12. Mentor for Denzell Cross, Gateway to Graduate School (Summer Bridge) Program, University of Georgia, Athens, GA, 2016-2017
13. Mentor for Walter Johnson, Gateway to Graduate School (Summer Bridge) Program, University of Georgia, Athens, GA, 2016-2017
14. Mentor for Martin Douglass, Gateway to Graduate School (Summer Bridge) Program, University of Georgia, Athens, GA, Summer 2016
15. Photograph Exhibition on Climate Change United Nations COP21, in cooperation with the Fondation Alliance Francaise Paris. United Nations Climate Change Conference, COP21, Paris, France, 2015
16. Photojournalist for Sea Grant Puerto Rico, Research: How climate change impacts the West Coast of Puerto Rico. Summer to Fall 2014
17. Photographer for the Graduate Program at the Department of Chemical Engineering at University of Puerto Rico at Mayagüez. September to October 2014
18. Photojournalist of Esta Vida Boricua, A Life Narrative Project, University of Puerto Rico at Mayagüez. January 2014 to 2015.
19. Photography Exhibition: Climate Change and the City: State of Emergency? Urban Culture Fair and the Fondation Alliance Francaise Paris, Mona Lisa at Rio Piedras, PR, 2014.
20. Photographer Fellow: The Fondation Alliance Francaise Paris French Fellowship. The Fondation Alliance Francaise Paris, San Juan Puerto Rico, 2014.

RESEARCH CRUISES OR COASTAL SAMPLING EXPERIENCE

1. DiNiMiTe Puget Sound Expedition (RC104), August to September 2023
2. GRADIENTS 5 Equatorial Pacific Expedition (TN412), January to February 2023
3. Coastal Sampling at Sapelo Island GA, for the In Situ Chemotaxis Assay (ISCA), February 2019
4. NSF DMSP Initiative, Northeast Pacific Ocean, RV Oceanus, August 2017

SKILLS

Culture and isolation of organisms; bacteria (>10 yrs), phytoplankton (>6 yrs), fungi (1 yr), and phages (1 yr). Molecular techniques in laboratory; DNA/RNA manipulations, and bacterial genetic modifications. Bioinformatics; transcriptomics, environmental metagenomics, gene orthologs, gene functional characterization. Environmental sampling; field and research vessels. Computer; R, Unix, Linux, Windows. Other scientific; Flow cytometry, Scientific photography, others. Bilingual; Proficient in English and Spanish

WORK STYLE

Strong independent researcher with excellent teamwork skills and cultural competence
Able to learn new knowledge and adapt to new and changing environments with ease
Willing to perform basic tasks and move on to solve complex problems
Well-organized and driven towards new discoveries