Mauricio G. Silva-Aguilera, *Ph.D.*

Environmental Modeling | Geospatial Analyst | GIS and Remote Sensing Specialist | Oceanography | Oil and Gas

Tallahassee, FL | +1 (850) 766-6319 | msilvaaguilera@fsu.edu | msilvaaguilera@eng.famu.fsu.edu | LinkedIn: mgsilvaa | https://orcid.org/0000-0002-2439-6252

Professional Summary

Dynamic oceanographer and geospatial expert with 10+ years of experience in environmental modeling, remote sensing, and methane emission quantification. Proven track record in leading multidisciplinary projects funded by NSF, DOE, NOAA, and industry partners like Exxon. Skilled in developing innovative sensors, predictive models, and data analysis techniques to address climate challenges, including deep-sea ecosystems and landfill methane management. Excelled in academia through teaching, mentoring, and high-impact publications, while delivering actionable insights for private sector applications in energy and environmental consulting. Seeking opportunities to bridge research and real-world solutions.

Professional Experience

Researcher *FAMU-FSU College of Engineering, Resilient Infrastructure and Disaster Response Center (RIDER), Tallahassee, FL 2024 – Present*

- Collaborated in a multidisciplinary team to reduce global methane emissions from solid waste facilities by developing sensors, data loggers, and atmospheric measurement methodologies.
- Created and calibrated methane leak detection models that outperformed drone-based and satellite methods, enabling landfills to optimize methane capture for energy production.
- Contributed to innovative tools for emission quantification under diverse environmental conditions, supporting public and private landfill management.

Teaching Faculty *Department of Earth, Ocean, and Atmospheric Science (EOAS), Florida State University, Tallahassee, FL Fall 2023*

- Instructed Biological Oceanography (OCB5050) for undergraduates and Studies in Oceanography (OCE4930) for graduate students, achieving 98.7% and 80% satisfaction ratings, respectively.
- Mentored four undergraduates who secured graduate admissions in Law, Public Policy, Environmental Science, and Marine Biology; supported three others in landing roles at environmental agencies in Georgia and Florida.
- Fostered ongoing collaborations with graduate students on research topics.

Researcher *Baco Lab, EOAS, Florida State University, Tallahassee, FL 2021 – 2023*

- Extended postdoctoral research while mentoring one PhD student, two master's students, and five undergraduates.
- Supervised lab operations and contributed to deep-sea coral reef studies.

Postdoctoral Fellow *Baco Lab, EOAS, Florida State University, Tallahassee, FL 2019 – 2021*

- Led framework development for NSF-funded project "Unraveling the Enigma of North Pacific Deep-Sea Scleractinian Reefs in Undersaturated Waters" (Award #1851365).
- Discovered deep-sea reefs in undersaturated waters using historical environmental data, in-situ/remote sensing, and predictive modeling to identify new exploration sites.

Postdoctoral Fellow *MacDonald Lab, EOAS, Florida State University, Tallahassee, FL 2018 – 2019*

- Analyzed oil slicks in U.S. waters for the Academy of Science, investigated the Taylor Co. Chronic Oil Spill, and conducted historical remote sensing analysis for Exxon-FSU collaboration to identify behavioral patterns in natural oil slicks.

Key Projects

- **Developing New Tools for Reducing Landfill Methane Gas Emissions** (Three Rivers Landfill, SC) – Funded by DOE MSIPP and Savannah River Nuclear Solutions. Led sensor integration and modeling for emission reduction.
- **NSF Collaborative Research: Defying Dissolution** (North Pacific Deep-Sea Reefs) – Co-PI; integrated data mining and modeling to unravel reef enigmas in undersaturated waters.
- **FSU-Exxon Collaboration** – Historical analysis (1991–2020) of Gulf of Mexico oil slicks using data mining, spatial-temporal analysis, and numerical modeling.
- **Integrated Assessment of Oil and Gas Release** (Taylor Energy MC20 Site) – NOAA-BOEM-FSU-FIU; assessed marine environmental impacts.
- **ECOGIG-2 & Deep-C Consortia** (GoMRI) – Contributed as PhD-level graduate student to oil spill ecosystem impacts.
- **Coast Watch: Remote Sensing of Oil Spill Impacts** (Florida Institute of Oceanography) – PhD-level role in verification sampling.

Education

Ph.D. in Oceanography *Florida State University, Tallahassee, FL 2011 – 2016* (GPA: 3.89/4.0)

B.A. in Ocean Sciences and Biology (Summa Cum Laude; Major: Marine Biology) *Arturo Prat University (UNAP), Chile 2003 – 2007*

Honors and Awards

- Latin American-Caribbean Scholarship, Florida State University (2011–2016; tuition support).
- Fulbright Scholarship for Ph.D. in the U.S. (2011–2015; full 5-year support).
- Academic Excellence Award, Highest Honor for 2007 Graduate, Arturo Prat University (2007).
- Undergraduate Research Grant, Benthos Laboratory (2004).

Skills

Technical: GIS (ArcGIS, QGIS), Remote Sensing (ENVI, SAR), Python/R/MATLAB for modeling, Data Analysis (Machine Learning basics via PyTorch/NetworkX), Sensor Calibration, Predictive Modeling. **Soft:** Project Management, Mentoring/Teaching, Multidisciplinary Collaboration, Grant Writing. **Languages:** English (Fluent), Spanish (Native).

Publications (Selected; Full list available upon request)

- Silva, M., et al. (Ready to Submit). Habitat Suitability Modeling of Deep-Sea Scleractinian Coral Reefs in the North Pacific.
- Silva, M., et al. (In Prep). Submarine Channels and Oil Industry: A Potential Hazard in Eastern Gulf of Mexico.
- O'Reilly, C., Silva, M., et al. (2024). Forensic Tools to Identify Responsible Parties of Bilge Dumping. SSRN. DOI: 10.2139/ssrn.4786427.
- Meurer, W.P., Silva, M., et al. (2023). Quantitative Estimates of Oil-Seepage Rates from Satellite Imagery. Remote Sensing Applications. DOI: 10.1016/j.rsase.2023.100932.
- O'Reilly, C., Silva, M., et al. (2022). Distribution, Magnitude, and Variability of Natural Oil Seeps in the Gulf of Mexico. Remote Sensing. DOI: 10.3390/rs14133150.
- Silva, M., et al. (2022). Fate of Methane Released From a Destroyed Oil Platform. Frontiers in Earth Science. DOI: 10.3389/feart.2022.833661. (Additional 10+ publications in high-impact journals like Nature Scientific Reports, Deep Sea Research, and Coral Reefs.)

Conference Presentations (Selected)

- Silva, M., et al. (2023). Assessing Recent Trawling Footprint Overlap with Deep-Sea Scleractinian Reef Habitat. 8th International Symposium on Deep-Sea Corals, Edinburgh, Scotland.
- Silva, M., et al. (2022). Habitat Suitability Modeling of Deep-Sea Scleractinian Coral Reefs. Ocean Science Meeting (Online).

- Silva, M., et al. (2019). Elevated Atmospheric Methane at MC20. Gulf of Mexico Oil Spill Conference, New Orleans, LA. (15+ presentations at international conferences like AGU, Ocean Science Meeting, and Gulf of Mexico Oil Spill & Ecosystem Science.)

Research Cruises (Selected)

- Mesophotic Reef Cruise (2014; R/V Walton Smith) – Evaluated DWH oil spill impacts on coral communities.
- AT26-13 Cruise (2014; R/V Atlantis, HOV Alvin) – Monitored chemosynthetic communities post-DWH.
- Long-Term Effects of DWH (2012; R/V Falkor) – Mapped seafloor and water column at seep sites.
- Geomorphology and Benthic Ecology (2011–2013; R/V Weatherbird II) – Characterized Desoto Canyon. (10+ cruises, including international expeditions.)

Additional Research Experience

- Postdoctoral Researcher, NSF Defying Dissolution Project (2021–2023).
- Postdoctoral Researcher, FSU-Exxon Oil Slicks Analysis (2019–2021).
- Research Assistant, ECOGIG and Deep-C Consortia (2012–2017).
- Environmental and Oceanographic Manager, Aquatecma Labs, Chile (2008–2010).
- Multiple assistant roles in environmental monitoring projects, Arturo Prat University (2003–2008).