

Matthew D. Grossi, Ph.D. | Data Scientist | Oceanographer

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Education

- 2021 Doctor of Philosophy**, Meteorology and Physical Oceanography, University of Miami, Coral Gables, FL
award of academic merit
- 2010 Master of Science**, Oceanography, University of Delaware, Newark, DE
- 2008 Bachelor of Science**, Physical Oceanography, Florida Institute of Technology, Melbourne, FL
Minor in Meteorology | *cum laude*

Professional Appointments

- Jan 2023–present Data Scientist** | Southeast Fisheries Science Center (SEFSC)
National Oceanic and Atmospheric Administration
- Aug 2021–Jan 2023 Uncrewed Systems Data Coordinator** | National Centers for Environmental Information (NCEI)
National Oceanic and Atmospheric Administration
- Aug 2016–Jul 2021 Research Assistant**
University of Miami, Coral Gables, FL
- Aug 2018–Dec 2019 Graduate Teaching Assistant** | two graduate courses
University of Miami, Coral Gables, FL
- Sep 2014–Jul 2016 Research Assistant** | Ocean Observation Laboratory
University of Massachusetts Dartmouth, New Bedford, MA
- Jul 2008–Aug 2010 Graduate Research Assistant** | Ocean Exploration, Remote Sensing, and Biogeography Lab
University of Delaware, Lewes, DE

Research

- 2018** Measuring surface currents from drones, Biscayne Bay, FL
- 2017** Performance comparison of Lagrangian drifter designs under wind stress, Gulf Stream (1 cruise, chartered small boat)
- 2017** Submesoscale Processes and Lagrangian Analysis on the Shelf (SPLASH) experiment: 3-week multi-platform field campaign investigating the movement of material across the shelf, into coastal waters, and onto the shore in the Louisiana Bight (several cruises, R/V *Argus*, UM)
- 2016** Miami Bay Drift experiment: deployment of GPS-tracked surface Lagrangian drifters, floating bamboo plates, and wooden drift cards in Biscayne Bay (1 cruise, chartered small boat)
- 2014-16** Maintenance and repair of high-frequency coastal ocean dynamics applications radar (CODAR) sites in Cape Cod, MA; Martha's Vineyard, MA; Nantucket, MA; Block Island, RI
- 2014-16** Deployment and recovery of Slocum glider (several cruises, R/V *Lucky Lady*, UMD)
- 2015** Offshore deployment of Satlantic hyperspectral and multispectral radiometers at the Martha's Vineyard Coastal Observatory Air-Sea Interaction Tower (1 cruise, R/V *Tioga*, Woods Hole Oceanographic Institution)
- 2014** Citizens Science Baywatcher, Buzzards Bay Coalition: regular testing and monitoring water temperature, salinity, and dissolved oxygen in Eel Pond estuary, Mattapoisett, MA
- 2011** Satellite-tagging sand tiger sharks with acoustic and Pop-off Archival Satellite Tag (PSAT) transmitters in Delaware Bay (1 cruise, R/V *Stanley*, Delaware State University)

- 2009-10** Deployment and recovery of Slocum glider (several cruises, R/V *Hugh R. Sharp*, UNOLS/UD; R/V *Donna M.*, UD; and R/V *Caleta*, Rutgers University)
- 2008-09** Mapping photosynthetic quantum yield in the mid-Atlantic coastal ocean and Delaware Bay (13 cruises, R/V *Hugh R. Sharp*, UNOLS/UD)
- 2008** Field data acquisition, database management, and lab work, Marine Benthos Lab, Florida Tech
- 2007** Florida Tech Marine Field Projects interdisciplinary research cruise in Florida Atlantic coastal waters (1 cruise, R/V *Gulf Stream Eagle*)

Funding Procurement

- 2025** NOAA Fisheries Information System Program (\$80,000) “Advancing innovative deep learning models for red snapper otolith ageing towards operational use”
- 2024-27** NOAA Fisheries Information System Program Inflation Reduction Act (\$768,237) “Building a Better Data Ecosystem: Database integration and data warehousing”

Publications

Peer Reviewed Publications

- Grossi, M.D.**, S. Jegelka, P.F.J. Lermusiaux, T.M. Özgökmen (2025) Surface drifter trajectory prediction in the Gulf of Mexico using neural networks, *Ocean Modelling*, in press.
- Grossi, M.D.**, T.M. Özgökmen, M. Kubat (2020) Predicting particle trajectories in oceanic flows using artificial neural networks, *Ocean Modelling*, 156, 101707.
- Geiger, E.F., **M.D. Grossi**, A.C. Trembanis, J.T. Kohut, M.J. Oliver (2011) Satellite-Derived Coastal Ocean and Estuarine Salinity in the Mid-Atlantic, *Continental Shelf Research*, doi:10.1016/j.csr.2011.12.001.

Conference Proceedings

- Shah, C, M.M. Nabi, S.Y. Alaba, M.D. Campbell, R. Caillouet, **M.D. Grossi**, J.E. Ball, and R. Moorhead (2025) YOLOv8-TF: Transformer-Enhanced YOLOv8 for Underwater Fish Species Recognition with Class Imbalance Handling, *Sensors*, 25, 1846, doi:10.3390/s25061846.
- Shah, C., M.M. Nabi, S.Y. Alaba, R. Caillouet, J. Prior, M. Campbell, **M.D. Grossi**, F. Wallace, J.E. Ball, and R. Moorhead (2024) Active detection for fish species recognition in underwater environments, Proc. SPIE 13061, Ocean Sensing and Monitoring XVI, 130610D, 6 June 2024, <https://doi.org/10.1117/12.3013344>.
- Alaba, S.Y., J.H. Prior, C. Shah, M.M. Nabi, J.E. Ball, R. Moorhead, M.D. Campbell, F. Wallace, and **M.D. Grossi** (2024) Multifish tracking for marine biodiversity monitoring, Proc. SPIE 13061, Ocean Sensing and Monitoring XVI, 130610E, 6 June 2024, <https://doi.org/10.1117/12.3013503>.

Technical Reports (not peer reviewed)

- Grossi, M.D.**, M. Monim, A. Gangopadhyay (2017) Global Climate Patterns: An Overview of Arctic Oscillation, Pacific Decadal Oscillation, Pacific/North American Pattern, and El Niño Southern Oscillation, University of Massachusetts Dartmouth School for Marine Science and Technology Technical Report SMAST-17-0401, doi:10.13140/RG.2.2.34586.44480.
- W.S. Brown and **M. Grossi** (2016) Pre- and Post-Mission-6 Glider CTD Comparison Measurements: 11 June and 22 July 2015, University of Massachusetts Dartmouth School for Marine Science and Technology Technical Report SMAST-16-0501.
- W.S. Brown and **M. Grossi** (2015) Pre- and Post-Mission Glider CTD Comparison Measurements: 19 June 2014 and 6 February 2015, University of Massachusetts Dartmouth School for Marine Science and Technology Technical Report SMAST-15-06-01.

Posters, Presentations, and Contributed Abstracts

- Grossi, M.D.** (2024) Machine learning success and the next generation of data governance at the Southeast Fisheries Science Center, 2024 NOAA Enterprise Data Management Workshop (EDMW), virtual.
- Grossi, M.D.** (2022) From Good to Great: Strengthening the FAIRness of underwater glider data through community metadata implementation, Underwater Glider User Group Workshop, Seattle, WA.
- Grossi, M.D.**, K. Weathers, J. Bowers (2022) Beyond the Archive: Connectivity between community DACs and NCEI products, NOAA Integrated Ocean Observing System Data Management and Cyber-infrastructure Meeting (virtual/online).

- Grossi, M.D.** (2022) Migrating the Surface Underway Marine Database to the Cloud: Challenges and Lessons Learned, NOAA Environmental Data Management Workshop (virtual/online).
- Grossi, M.D.,** M. Kubat, T.M. Özgökmen (2020) Can Neural Networks Learn Realistic Ocean Trajectories?, Gulf of Mexico Oil Spill and Ecosystem Science Conference, Tampa, FL.
- Grossi, M.D.,** M. Kubat, T.M. Özgökmen (2019) Predicting Oil Transport in Oceanic Flows: Are Neural Networks Up to the Task?, Gulf of Mexico Oil Spill and Ecosystem Science Conference, New Orleans, LA.
- Grossi, M.D.,** T.M. Özgökmen (2018) Can artificial intelligence predict the dispersion of spilled oil?, Gulf of Mexico Oil Spill and Ecosystem Science Conference, New Orleans, LA.
- Grossi, M.D.,** E.F. Geiger, A.J. Irwin, F. Veron, M.J. Oliver (2010) Predicting Open Ocean Density Profiles from Satellite Observations, Ocean Sciences Meeting, Portland, OR.
- Splitt, M.E., **M.D. Grossi** (2008) Evaluation of the Real-Time Ocean Forecast System in Florida Atlantic Coastal Waters, Ocean Sciences Meeting, Orlando, FL.
- Grossi, M.D.** (2007) Evaluation of the Real-Time Ocean Forecast System in Florida Atlantic Coastal Waters, Florida Institute of Technology Department of Marine and Environmental Systems Summer Symposium, Melbourne, FL. (both oral and poster presentation)