Matthew D. Grossi

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Education

2021 **Ph.D.**, Meteorology & Physical Oceanography, University of Miami (UM), Coral Gables, FL

2010 **M.S.**, Oceanography, University of Delaware (UD), Newark, DE

2008 **B.S.**, Physical Oceanography, Florida Institute of Technology, Melbourne, FL
Minor: Meteorology · *cum laude*

Professional Appointments

2023-*pres.* **Physical Scientist** | Data Scientist
NOAA Fisheries, Southeast Fisheries Science Center (SEFSC), Beaufort, NC

2021-2023 **Physical Scientist** | Uncrewed Systems Data Coordinator
NOAA National Centers for Environmental Information (NCEI), Stennis Space Center, MS

2014-2016 **Research Associate**
Ocean Observing Laboratory, School for Marine Science and Technology (SMAST),
University of Massachusetts Dartmouth (UMD), New Bedford, MA

Research, Cruises, and Field Work (selected)

2018 Measuring surface currents from drones, Biscayne Bay, FL

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*, WHOI)

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)

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"

Select Publications and Presentations

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*, 196, 102543.

Grossi, M.D., M. Kubat, T.M. Özgökmen (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, I.A. Ebu, J. Prior, **M.D. Grossi**, F. Wallace, T. Rowell, J.E. Ball, R. Moorhead, R. Caillouet, M. Campbell (2025) Improved fish tracking in underwater images for marine biodiversity monitoring, Proc. SPIE 13460, Machine Learning from Challenging Data 2025, 134600F (29 May 2025), https://doi.org/10.1117/12.3053499.

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.

Presentations, Posters, 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)