

FRANK EDGAR MULLER-KARGER
CURRICULUM VITAE

Work Address

University of South Florida
College of Marine Science
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I. Personal Information:

Ancestry: Hispanic
Employer: University of South Florida, College of Marine Science
140 7th Ave. South, St. Petersburg, FL 33701

II. Education:

Primary and High School:

1974 *Colegio "Humboldt", Caracas, Venezuela.*

Undergraduate:

1974 Universidad Simón Bolívar, Caracas, Venezuela. Chemical Engineering. (1976, transferred to Florida Institute of Technology).

1979 Bachelor in Biological Oceanography. Florida Institute of Technology. Melbourne, FL.

Graduate:

1984 Master of Science in Oceanography. Institute of Marine Science. University of Alaska, Fairbanks, AK. Thesis: Lower trophic level studies in the marginal sea-ice zone. Advisor: Dr. Vera Alexander.

1988 Ph.D. in Marine and Estuarine Sciences. University of Maryland, Center for Environmental and Estuarine Studies (UMCEES). College Park, MD and Horn Point Environmental Laboratories, Cambridge, MD. Dissertation: Variation in the seasonal distribution of phytoplankton in the Caribbean Sea as observed in a series of Coastal Zone Color Scanner images (1978-1986). Advisors: Thomas R. Fisher (U. Maryland), and Charles R. McClain (NASA, Goddard Space Flight Center).

2001 Master of Science in Management. University of South Florida. College of Business Administration. Tampa, FL. Organizational design, leadership, human resources and modern management principles and techniques.

III. Employment:

2000/- Full Professor. Tenured. University of South Florida

Employer: University of South Florida
140 7th Ave. S., St. Petersburg, FL 33701

2007/2009 Dean, School for Marine Science and Technology, Univ. Massachusetts Dartmouth
Full Professor. Tenured. Univ. Massachusetts Dartmouth

Employer: University of Massachusetts Dartmouth
706 South Rodney French Boulevard
New Bedford, MA 02744-1221
Supervisor: Dr. Anthony Garro, Provost
agarro@umassd.edu; (508) 999-8024

2003/05 College of Marine Science Dean's Advisory Council/Biological Oceanography

2001/04 Commissioner, U.S. Commission on Ocean Policy

Voluntary, serving as nominee of and by appointment of the President of the United States. USCOP Chair: Adm. (USN/Retired) James D. Watkins

1994/00 Associate Professor. Tenured 1994. University of South Florida

- 1992/94 Program Scientist, Ocean Biogeochemistry Program: National Aeronautics and Space Administration / NASA Headquarters / NASA Jet Propulsion Lab-California Institute of Technology.
 Program Scientist, NASA Sea-viewing Wide-Field-of-view Sensor (SeaWiFS) Program.
 Program Scientist, NASA Moderate Resolution Imaging Spectrometer Sensor (MODIS) Program.
Employer: CA Institute of Technology, NASA JPL and NASA HQ
Supervisors:
Dr. Diane Wickland
Diane.Wickland@hq.nasa.gov; (202) 358-0245
Dr. Robert Murphy
- 1989/94 Assistant Professor, Department of Marine Science, USF
- 1988/89 Research Associate, Department of Marine Science, USF
Supervisor: Dr. John J. Walsh
jwalsh@marine.usf.edu; (727) 553-1164
- 1985/87 Consultant to Skidaway Institute of Oceanography.
- 1985/87 Consultant to NASA Goddard Space Flight Center.
- 1984/88 Research Assistant, CEES Program, University of Maryland.
- 1984/87 Teaching Assistant, Dept. of Botany, University of Maryland.
- 1979/84 Research Assistant, Institute of Marine Science, U. of Alaska.

IV. Professional Interests and Expertise:

Interdisciplinary Earth science and Earth observation,
 Oceanography, coastal and estuarine science,
 Satellite oceanography and remote sensing,
 Science education and strategic planning for formal/informal public education,
 Integration of science, management and education,
 Ocean Policy

V. Professional Awards, Honors, and Scholarships:

- 2016 National Oceanographic Partnership Program 2016 Excellence in Partnering Award for leading the *National Marine Sanctuaries as Sentinel Sites for a Demonstration Marine Biodiversity Observation Network (MBON)*
- 2015 University of South Florida: Faculty Outstanding Research Achievement Award
- 2013 Group Achievement Honor Award, NASA Ames Research Center
- 2013 Secondary Business Partner of the Year, Hillsborough County Public Schools
- 2013 Feature article USF Magazine/Spring 2013: Turning the Tide; A. Carney and K. Henning
- 2011 Gulf Guardian Award, EPA Gulf of Mexico Program.
- 2011/12 NASA Pre-Aerosol/Clouds/Ecosystem (PACE) Science Definition Team
- 2011 Feature article in *The Scientist* ("Mapping Coral Reefs"; February 2012; p. 51)
- 2010/ Silhouettes, *La Gaceta* (Tampa, FL; September 13, 2010); featured community figure.
- 2009/- Director, International Ocean Institute – USA (IOI-USA)
- 2008/- Chair (2011), Science Advisory Council, InterAmerican Institute for Climate Change Research (IAI)
- 2008/2009 Member, Science Advisory Council to the Massachusetts Ocean Planning Commission
- 2008/2010 Board Trustee, The Ocean Explorium, New Bedford, Massachusetts
- 2008/- Board Trustee, The Northstar Learning Center, New Bedford, Massachusetts
- 2008/2010 Member, NRC committee "Committee on the Review of NOAA's Education Programs"
- 2008 "Most cited paper" mention, *Continental Shelf Research*, for 2005 Astor et al. paper
- 2006 USF Million Dollar Researcher President's award
- 2006/2007 Member, University of South Florida, President's Strategic Planning Committee
- 2006/2007 Member, NRC committee "Extending Observations and Research Results to Practical Applications: A Review of NASA's Approach"
- 2006 Member, NRC committee "An Assessment of Balance in NASA's Science Programs"

2005	Julius A. Stratton Award for Leadership, awarded to members of the U.S. Commission on Ocean Policy (Coastal Zone 2005 meeting)
2005/-	Editorial Board, Caribbean Marine Science, Journal of the Institute for Marine Affairs (IMA), Trinidad and Tobago
2005/2008	Member, National Research Council Ocean Studies Board, National Academies
2005/2008	U.S. Representative to the ICSU SCOR, appointed by the NRC
2005/2008	Member and elected vice-chair, University of South Florida Research Council
2004/-	Editorial Board, Memoria, Journal, Fundación La Salle de Ciencias Naturales de Venezuela
2004	Acknowledgement for service on the U.S. Commission on Ocean Policy by Senator E. Hollings. Congressional Record. Proceedings and Debates of the 108 th Congress, Second Session. Vol 150. No. 89.
2004	Admiral James D. Watkins Award for Contributions to Ocean Research and Education, Consortium for Oceanographic Research and Education (CORE)
2004	Gulf Guardian Award (EPA Gulf of Mexico Program)
2003	University of South Florida President's Award for Faculty Excellence
2003/2005	USF College of Marine Science Dean's Advisory Council / faculty elected representative
2001/2004	Commissioner, U.S. Commission on Ocean Policy, nominated and appointed by President George W. Bush

VI. Member:

American Geophysical Union (AGU)
 American Society of Limnology and Oceanography (ASLO)
 Fundación La Salle de Ciencias Naturales de Venezuela (FLASA; Founding Member)

VII. Grants and Contracts:

Grants/contracts received from NSF, NASA, NOAA, EPA, ONR, USGS, MMS, The State of Florida, The Ocean Conservancy, others.

2004-2019 Funded Projects: (Prior projects and funding level available on request)

NSF	(2014 - 2017) The Cariaco basin oceanographic time series program. FMK PI, Co-Is: Y Astor, M. Scranton, G. Taylor, R. Thunell, and K. Fanning.
NSF	(2013-2017) Belmont Forum Grant: METROPOLE: An Integrated Framework to Analyze Local Decision Making and Adaptive Capacity to Live With Large-Scale Environmental Change: Community Case Studies in Brazil, UK and the US. FMK PI, Co-I's: Mark Pelling (UK), Jose Marengo (Brazil), Sam Merrill (USA).
NSF	(2012-2017) Partnerships in International Research and Education (PIRE): Context Sensitive Implementation of Synergistic Water-Energy Systems. PI. James Mihelcic (USF), FMK co-I.
NSF	(1995 - 2013) The Cariaco basin oceanographic time series program. FMK PI, present Co-Is: R. Varela, Y Astor, M. Scranton, G. Taylor, R. Thunell, and K. Fanning.
NSF	(2010-2012) EAR-1043323 CCEP: Coastal Areas Climate Change Education (CACCE) Partnership. PI: Jeff Ryan (USF Geology). FMK co-I.
NASA/NOAA	(2014-2019) National Marine Sanctuaries as Sentinel Sites for a Demonstration MarineBiodiversity Observation Network (MBON). FMK PI, co-I: Francisco Chavez (MBARI), Enrique Montes (USF), Steve Gittings (National Marine Sanctuaries Office), Scott Doney (WHOI), Maria Kavanaugh (Oregon State University).
NASA	(2015-2017) Evaluating water quality and tropical vector-borne disease risk by satellite remote sensing (NESSF Fellowship to Doctoral student, Abdiel Laureano-Rosario).
NASA	(Via ROFFS, Inc./PI; 2011-2015) Management and conservation of Atlantic bluefin tuna (<i>Thunnus thynnus</i>) and other highly migratory fish in the Gulf of Mexico under IPCC climate change scenarios: A study using regional climate and habitat models.

NASA (11/1/2009-10/31/2016). Decision Support System for Ecosystem-Based Management of Tropical Coral Reef Environments.

NASA (2014-2016). Florida Space Grant Consortium: Unlocking Earth's Secrets from Space; Education collaboration with Stewart Middle School, Tampa.

NASA An assessment of global organic carbon flux along continental margins. Co-I with C. Hu

NASA The mapping and monitoring of change in the Florida Keys reef tract from space using L7 and MODIS. Co-I with D. Palandro.

NASA A millennium global scale coral reef ecosystem assessment using high resolution remote sensing data. Co-I with S. Andrefouet and C. Hu

NASA Impact of large and small rivers on adjacent oceanic environments. Co-I with C. Hu

NASA EAGLE-EYE: Ecological Assessments of Generalized Littoral Environments – an Integrated EOS DB/Real-time MODIS Science Applications Project. Co-I with C. Hu

NASA: Collaborative Research with the NASA Marshall Space Flight Center.

NASA Collaborative effort with ROFFS, Inc. Study of Bluefin Tuna larvae distribution in the Gulf of Mexico. (Through 2011)

NASA Collaborative effort with Roff's, Inc. Study of ocean environmental parameters to forecast the effects of climate variability on pelagic fish.

NASA Phytoplankton hyperspectral signatures from aerial and undersea high temporal and spectral resolution measurements: GeoCape Science Program Requirements.

NASA Environmental Assessments of Coral Reef Ecosystems: Interdisciplinary Research; Co-I with S. Andrefouet (IRD, New Caledonia, France)

NOAA (2013-2016) Clean Community-Clean Coast Proposal. Marine Debris Program.

NOPP (2014-2018) National Marine Sanctuaries as Sentinel Sites for a Demonstration Marine Biodiversity Observation Network (MBON). NOAA/NASA/BOEM.

EPA US-Mexico Binational Red Tide Program. Gulf of Mexico Program Office.

EPA (2012-2016) Ecological Assessment of Generalized Littoral Environments Decision-Support System (EAGLE/DS). Extreme Event Impacts on Air Quality and Water Quality with a Changing Global Climate; EPA-G2011-STAR-D1.

Exxon Gulf of Mexico Environmental Change Assessment

I-4 Corridor Tech Support for Improving the NOAA NMFS and ICCAT Atlantic Bluefin Tuna Fisheries Management Decision Support System.

BP/FIO Gulf Oil Spill Prevention, Response, and Recovery Grant. Early Warning 4-D Remote Sensing System to Assess Synoptic Threats to Coastal Ecosystems of Florida and of Adjacent States and Nations.

FSRI Florida Space Research Institute; Coastal remote sensing with the Space Station; Co-I with C. Hu

NOPP Influence of Oceanographic and Biological Processes on the Distribution of Cetaceans (D. Mann, PI; FMK co-I)

ONR University of North Carolina; SEA-COOS remote sensing component. Co-I with C. Hu and R. Weisberg.

ONR Construction and Deployment of an Underwater Optical Micrometer

State of FL Geospatial Assessment of Marine Environments (GAME); Defining coastal bioregions of Florida. Co-I with J. Ogden and H. Norris.

Texas A&M GCOOS RA.

USGS Use of remote sensing satellites to monitor sediment plumes in the Mississippi bight; Co-I with C. Hu

USGS Use of remote sensing to monitor water clarity and sediment dynamics in the Chesapeake Bay. Co-I with C. Hu

VIII. Professional Activity: (last ten years; not exhaustive list)

University of South Florida

- Strategic Planning Committee
- Research Council (2005-2007, elected vice-chair)
- Internet-2 Committee
- Search Committee: Director, School for Global Sustainability
- Search Committee: Vice President for Research
- President's Task Force: Values, Vision, Mission and Goals

College of Marine Science:

- Computer Committee
- Library Committee
- Marine Biology faculty recruitment committee
- Biological Oceanography curriculum review
- Student recruiting Committee
- Tenure and Promotion
- Seminar Committee
- Annual Faculty Review (2011, 2012)

Interamerican Institute for Global Change Research – Chair, Sci. Advisory Committee (2010-2016)

University of Massachusetts Dartmouth

- School for Marine Science and Technology: Strategic Planning Lead
- UMass Dartmouth NEASC Planning Committee

Editorial Board, Institute of Marine Affairs Journal: Caribbean Marine Science, Trinidad and Tobago

Editorial Board, Memoria, Fundacion La Salle de Ciencias Naturales, Venezuela

Ocean Studies Board, NRC

U.S. Commission on Ocean Policy

Organizer: Ocean Biogeochemistry Scoping Workshop, Hawaii (September 2010)

Organizer, NASA Small Satellite Technology Initiative, NASA Remotely-Piloted Vehicle workshop.

Member, SeaWiFS Science Team and SeaWiFS Science Team

Reviewer of scientific manuscripts for the AGU Global Biogeochemical Cycles.

Reviewer of scientific manuscripts for the AGU Journal of Geophysical Research.

Reviewer of scientific manuscripts for the AGU Geophysical Research Letters.

Reviewer of scientific manuscripts for the Journal of Remote Sensing of the Environment.

Reviewer of scientific manuscripts for the Journal of Continental Shelf Research.

Reviewer of scientific manuscripts for the Boletin Oceanografico de la Universidad de Oriente.

Reviewer of scientific manuscripts for the Journal of the Institute of Marine Affairs, Trinidad& Tobago.

Reviewer of scientific manuscripts for the magazine Oceanography (Oceanography Society).

Reviewer of scientific manuscripts for the Marine Technology Society.

Reviewer of scientific proposals for NASA.

Reviewer of scientific proposals for NOAA.

Reviewer of scientific proposals for NSF (Biological Oceanography, Chemical Oceanography, OSTI).

Reviewer of scientific proposals for the Interamerican Institute for Global Change.

Reviewer of scientific proposals for the Florida Space Grant Consortium.

Reviewer of scientific proposals for the Environmental Protection Agency.

Reviewer of proposals for NASA, NSF, NOAA, EPA, ONR, NOPP, IAI

IX. Research and sea-going experience:

Extensive experience using a wide variety of remote sensing, as well as field biological, geological, chemical, and physical oceanographic equipment. Familiar with stable (nitrogen) and radioactive (carbon) isotope techniques in phytoplankton work. Participated in upwards of 40 cruises in tropical to high latitude environments.

X. Special skills:

Team leadership

Languages: Spanish, German, English

SCUBA (Advanced Open Water, Rescue training, DAN O2)

Methods for wet nutrient chemistry

Methods for autoanalyzer nutrient chemistry

Productivity assays (¹⁴C and ¹⁵N isotopes)
Computer systems and basic network management
Satellite and ground-based remote sensing (VIS, IR)

XI. Students and trainees while at USF:

Doctoral – Major Professor: Savannah Hartman, Cara Estes, Justin Saarinen, Matthew McCarthy, Abdiel Laureano-Rosario, Maria Vega-Rodríguez, Sennai Habtes, Karen Langbehn (USF English), Laura Lorenzoni, Inia Soto, Digna Rueda, Enrique Montes, David Palandro, Bisman Nababan, Fernando Gilbes, Lisa Vanderbloemen, Zhiqiang Chen. Non-USF/ Doctoral/Co-Major Professor: Joe Salisbury (University of New Hampshire), Sergio Cerdeira (Universidad de la Habana).

Masters: Megan Hepner, Kaitlyn Colna, Brendan O'Connor, Claudia Baron Aguilar, Juan Carlos Millan, Herschel T. Hochman, Josh Henson, Inia Soto, Laura Lorenzoni, Carrie Wall, Enrique Montes, Ana Lucia Odriozola. Masters/ Co-Major Professor: MingRui Zhang, Wensheng Yao, Jingwei Ke, Haiying Zhang.

Undergraduate: Ana Lucia Odriozola, John Akl (undergr., Eckerd College), Paola Castellanos (undergr., Universidad Simon Bolivar).

Post-doctoral Associates: Laura Lorenzoni, Daniel Otis, Enrique Montes, Gerardo Toro-Farmer, Zhiqiang Chen, Richard Bohrer, Gilberto Gaxiola, Eduardo Santamaría, Guillermo E. Quiros, Serge Andrefouet, Cesar Fuentes-Yaco, Chuanmin Hu, Eurico D'Sa, Christian Schiller.

Trainees (not exhaustive): Raoni Bosquilia, Samira Bosquilia, Mahmoud Elmezayen, Mostafa Awad, Mostafa Al-Maghraby, Ezequiel Cozzolino, Paul W. Bissett, Lingzis D. Tang, Roberto Perez, Sergio Cerdeira, Nelson Melo, Jose Rafael Diaz, Paola Filippi, Denis Nadeau, David Lindo-Atichati.

Technicians: Catherine J. Reynolds, Qiao Qiao, Robert Chen, C. J. Reynolds, Gabriel Quiles, Brock Murch, Judd Taylor, Michelle McIntyre, Richard Bohrer, Remy Luerssen, Christine Kranenburg, Haiying Zhang, Laura Lorenzoni, Christian Schiller, Damaris Torres, Zhiqiang Chen, MingRui Zhang, Wensheng Yao.

XII. Publications: (* indicates peer-reviewed publication)

2018

- *McCarthy, M.J., F.E. Muller-Karger, D. Otis, and P. Mendez-Lazaro. 2018. Impacts of 40 years of land cover change on water quality in Tampa Bay, Florida. *Cogent Geoscience*, Vol. 4, Iss. 1, 2018. doi:/10.1080/23312041.2017.1422956.
- *McCarthy, M.J., D. Otis, and P. Mendez-Lazaro, and F.E. Muller-Karger. 2018 (In press). Water quality drivers in 11 Gulf of Mexico estuaries. *Remote Sensing. Special Issue "Remote Sensing of Water Quality"*.
- *Muller-Karger, Frank E., Erin Hestir, Christiana Ade, Kevin Turpie, Dar Roberts, David Siegel, Robert J. Miller, David Humm, Noam Izenberg, Mary Keller, Frank Morgan, Robert Frouin, Arnold G. Dekker, Royal Gardner, James Goodman, Blake Schaeffer, Bryan Franz, Nima Pahlevan, Antonio G. Mannino, Javier A. Concha, Steven G. Ackleson, Kyle Cavanaugh, Anastasia Romanou, Maria Tzortziou, Emmanuel Boss, Ryan Pavlick, Anthony Freeman, Cecile S. Rousseaux, John Dunne, Matthew C. Long, Eduardo Klein, Galen A. McKinley, Joachim Goes, Ricardo Letelier, Maria Kavanaugh, Mitchell Roffer, Astrid Bracher, Kevin R. Arrigo, Heidi Dierssen, Xiaodong Zhang, Frank W. Davis, Ben Best, Robert Guralnick, John Moisan, Heidi M. Sosik, Raphael Kudela, Colleen B. Mouw, Andrew Barnard, Sherry Palacios, Collin Roesler, Evangelia G. Drakou, Ward Appeltans, Walter Jetz. 2018 (In press). *Satellite Sensor Requirements for Monitoring Essential Biodiversity Variables of Coastal Ecosystems. Ecological Applications. Ecological Society of America.*

2017

- *Astor, Y., L. Guzmán, L. Troccoli, L. Lorenzoni, F. Muller-Karger. 2017. Síntesis de las tendencias de los parámetros oceanográficos y ópticos en la estación serie de tiempo CARIACO (enero

- 1996–diciembre 2013). Memoria de la Fundación La Salle de Ciencias Naturales 74 (181-182).
- *Astor, Y.M., L. Lorenzoni, L. Guzman, G. Fuentes, F. Muller-Karger, R. Varela, M. Scranton, G. Taylor, R. Thunell. 2017 (In press). Distribution and Variability of the Dissolved Inorganic Carbon System in the Cariaco Basin, Venezuela. *Marine Chemistry*
- *Bode, A., Bange, H. W., Boersma, M., Bresnan, E., Cook, K., Goffart, A., Isensee, K., et al. 2017. North Atlantic Ocean. In *What are Marine Ecological Time Series telling us about the ocean? A status report*, pp. 55–82. Ed. by T. D. O'Brien, L. Lorenzoni, K. Isensee, and L. Valdés. IOC-UNESCO, IOC Technical Series, No. 129. 297 pp.
- *Djurhuus, Anni, Kathleen Pitz, Natalie A. Sawaya, Jaimie Rojas-Márquez, Brianna Michaud, Enrique Montes, Frank Muller-Karger, and Mya Breitbart. 2017 (in press). Evaluation of marine zooplankton community structure through environmental DNA metabarcoding. *Limnology and Oceanography: Methods*.
- Goodwin, K.D., F.E. Muller-Karger, G. Canonico. Integrating marine omics into the marine biodiversity observation network (MBON) in support of the U.N. sustainable development goals (SDG) and agenda 2030. *Proceedings of TDWG 1: e2052*, doi: 10.3897/tdwgproceedings.1.20521 (2017).
- *Lorenzoni, L., O'Brien, T. D., Isensee, K., Benway, H., Muller-Karger, F. E., Thompson, P. A., Lomas, M., et al. 2017. Global Overview. In *What are Marine Ecological Time Series telling us about the ocean? A status report*, pp. 171–190. Ed. by T. D. O'Brien, L. Lorenzoni, K. Isensee, and L. Valdés. IOC-UNESCO, IOC Technical Series, No. 129. 297 pp.
- *Lorenzoni, L., D. Rueda, E. Montes, R. Varela, J. Rojas, L. Guzman, Y. Astor, and F Muller-Karger. 2017. Spatial variability in factors that control the sinking flux of organic and inorganic particles in the Cariaco Basin: a vision from space. *International Journal of Remote Sensing*. Volume 38, 2017 - Issue 22. <http://dx.doi.org/10.1080/01431161.2017.1350305>
- *Lorenzoni, L., R. Varela, D. Rueda, F. Muller-Karger, J. Rojas, L. Guzmán, Y. Astor y E. Montes. 2017. Cambios espaciales y estacionales en la hidrografía y biogeoquímica de la región de la Fosa de Cariaco. *Memoria de la Fundación La Salle de Ciencias Naturales Vol. 74 (2014) N° 181-182: 103-124*.
- *Laureano-Rosario, Abdiel, Julián E. García-Rejón, Salvador Gómez-Carro, José A. Farfan-Ale, and Frank E. Muller-Karger. 2017. Modelling dengue fever risk in the State of Yucatan, Mexico using regional-scale satellite-derived Sea Surface Temperature. *Acta Tropica*. 172. 50–57. <http://dx.doi.org/10.1016/j.actatropica.2017.04.017>.
- *Marengo, Jose , Luci H Nunes, Celia Souza, Joseph Harari, Frank Muller-Karger, Roberto Greco, Eduardo Hosokawa, Ernesto Tabuchi, Sam Merrill, Catherine Reynolds, Mark Pelling, Lincoln Alves, Luiz Aragao, Sin Chan Chou, Fabiano Moreira, Shona Paterson, Jonathan Lockman, and Alenxander Gray. 2017 (In press). *A Globally-Deployable Strategy for Co-Development of Adaptation Preferences to Sea-Level Rise: The Public Participation Case of Santos, Brazil. Natural Hazards*.
- *Marquez, Arístides, Andrew Dale, Luis Troccoli Ghinaglia, Fabiola López Monroy, William Senior, Aida Ríos, Frank Muller Karger, Yrene Astor, Ramón Varela. 2017. Carbon regeneration in the Cariaco Basin, Venezuela. *Brazilian Journal of Oceanography*. 65(1). <http://dx.doi.org/10.1590/S1679-87592017121406501>
- *McCarthy, Matthew J., Kaitlyn E. Colna, Mahmoud M. El-Mezayen, Abdiel E. Laureano-Rosario, Pablo Méndez-Lázaro, Frank E. Muller-Karger, Daniel B. Otis, Gerardo Toro-Farmer, Maria Vega-Rodriguez. 2017. *Satellite Remote Sensing for Coastal Management: A Review of Successful Applications*. *Environmental Management*. DOI 10.1007/s00267-017-0880-x.
- *Méndez-Lázaro, P., Muller-Karger, F.E., Otis, D., McCarthy, Matthew J., and Rodríguez, Ernesto. 2017. A heat vulnerability index to improve urban public health management in San Juan, Puerto Rico. *International Journal of Biometeorology*. doi:10.1007/s00484-017-1319-z.
- *Muller-Karger, F., Digna Rueda-Roa, Francisco Chavez, Maria Kavanaugh, and Mitchell A. Roffer. 2017. Megaregions Among the Large Marine Ecosystems of the Americas. *Environmental Development*. <http://dx.doi.org/10.1016/j.envdev.2017.01.005>.
- *Muller-Karger, F. E., Piola, A., Verheye, H.M., O'Brien, T. D., and Lorenzoni, L. 2017. South Atlantic Ocean. In *What are Marine Ecological Time Series telling us about the ocean? A status report*,

- pp. 83–96. Ed. by T. D. O'Brien, L. Lorenzoni, K. Isensee, and L. Valdés. IOC-UNESCO, IOC Technical Series, No. 129. 297 pp.
- Naidu, Roselyn, Frank Muller-Karger, and Mathew McCarthy. 2017. Mapping of Benthic Habitats in Komave, Coral Coast Using WorldView-2 Satellite Imagery. *In: Climate Change Impacts and Adaptation Strategies for Coastal Communities*. Climate Change Management. Springer, Cham. p. 337-355. https://doi.org/10.1007/978-3-319-70703-7_18
- *Neuer, Susanne, Heather Benway, Nicholas Bates, Craig Carlson, Matthew Church, Michael DeGrandpre, John P. Dunne, Ricardo Letelier, Michael Lomas, Laura Lorenzoni, Frank Muller-Karger, Mary Jane Perry, and Paul D. Quay. 2017. Monitoring ocean change in the 21st Century. *Eos*. 98. AGU. <https://doi.org/10.1029/2017EO080045>.
- *Romero, Isabel C., Gerardo Toro-Farmer, Arne-R Diercks, Patrick Schwing, Frank Muller-Karger, Steven Murawski, and David J. Hollander. 2017 (In press). Large-scale deposition of weathered oil in the Gulf of Mexico following a deep-water oil spill. *Environmental Pollution*.
- *Ross, A. R. S., Perry, R. I., Christian, J. R., O'Brien, T. D., Lorenzoni, L., Muller-Karger, F. E., Crawford, W. R., et al. 2017. North Pacific. In *What are Marine Ecological Time Series telling us about the ocean? A status report*, pp. 153–169. Ed. by T. D. O'Brien, L. Lorenzoni, K. Isensee, and L. Valdés. IOC-UNESCO, IOC Technical Series, No. 129. 297 pp.
- *Rueda-Roa, Digna, J. Mendoza, F. E. Muller-Karger, J. J. Cardenas, A. Achuri, Y. Astor. (In press, 2017). Spatial variability of Spanish sardine (*Sardinella aurita*) abundance as related to the upwelling cycle off the southeastern Caribbean Sea. *PLOS One*. PONE-D-17-05570R1.
- *SOCCR-2. 2017. The 2nd State of the Carbon Cycle Report. U.S. Global Change Research Program, Washington, DC, USA, 849 pp. [F. Mueller-Karger is a Contributing Author].
- *USGCRP, 2017: Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 470 pp. [F. Mueller-Karger is a Contributing Author].
- *Wowk, Kateryna, Larry McKinney, Frank Muller-Karger, Russell Moll, Susan Avery, Elva Escobar-Briones, David Yoskowitz, and Richard McLaughlin. 2017. *Evolving Academic Culture to Meet Societal Needs*. Palgrave Communications. 3:35, 7pp. <https://www.nature.com/articles/s41599-017-0040-1>

2016

- *Astor, Y., L. Guzmán, L. Troccoli, L. Lorenzoni, F. Muller-Karger. 2016 (In press). Síntesis de las tendencias de los parámetros oceanográficos y ópticos en la estación serie de tiempo CARIACO (enero 1996–diciembre 2013). *Memoria de la Fundación La Salle de Ciencias Naturales* 74 (181-182).
- *Guzmán L, Varela R, Muller-Karger F, Lorenzoni L. 2016. Bio-optical characteristics of a red tide induced by *Mesodinium rubrum* in the Cariaco Basin, Venezuela. *Journal of Marine Systems*. 160
- *Kavanaugh, M.T., Oliver, M J., Chavez, F. P., Letelier, R.M., Muller-Karger, F.E., Doney, S.C. 2016. Seascapes as a new vernacular for ocean monitoring, management and conservation. *ICES Journal of Marine Science*. doi:10.1093/icesjms/fsw086.
- Liu, Y., S.-K. Lee, D. B. Enfield, B. A. Muhling, J. T. Lamkin, F. E. Muller-Karger, and M. A. Roffer, 2016: Past and future climate variability in the Intra-Americas Sea and its impact on the marine ecosystem and fisheries, *US CLIVAR Variations*, Vol. 14, No. 1, 27-32.
- *Montes, Enrique, Frank Muller-Karger, Michael W. Lomas, Andrés Cianca, Laura Lorenzoni, Sennai Habtes. Decadal variability in the oxygen inventory of North Atlantic Subtropical Underwater captured by sustained, long-term oceanographic time-series observations. *Global Biogeochemical Cycles*. DOI 10.1002/2015GB005183.
- *Muhling, Barbara A., Richard Brill, John T. Lamkin, Mitchell A. Roffer, Sang-Ki Lee, Yanyun Liu, Frank Muller-Karger. 2016. Projections of future habitat use by Atlantic bluefin tuna: mechanistic vs. correlative distribution models. *ICES Journal of Marine Science*. doi:10.1093/icesjms/fsw215.
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