

Michael R. Stukel
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Employment and Contact Information:

Assistant Professor
Earth, Ocean, and Atmospheric Science Dept.
Center for Ocean-Atmospheric Prediction Studies (COAPS)
Florida State University
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Interests: Biologically mediated carbon export and new production
²³⁴Th and carbon cycling in the coastal ocean
Plankton trophic dynamics
Biogeochemical and ecological modeling

Education SCRIPPS INSTITUTION OF OCEANOGRAPHY – U. OF CALIFORNIA, SAN DIEGO
Ph.D. - Biological Oceanography - 2011 - Adviser: Michael R. Landry
M.Sc. - Marine Biology - 2010 - Adviser: Michael R. Landry

NORTHWESTERN UNIVERSITY, Evanston, IL
B.A. - Integrated Sci. & Biology - 2004

Post-docs 2011-2014 Horn Point Laboratory, UMCES Advisers: R. Hood & V. Coles
Model Diatom-Diazotroph Assemblages – Amazone Plum
2011-2014 Lamont-Doherty Earth Observatory, Columbia Adviser: H. Ducklow
Seasonal Cycle of Export in the Western Antarctic Peninsula

Appointments 2014- Assistant Professor, Earth, Ocean, and Atmospheric Science Dept., Florida State Uni.

Peer-Reviewed Publications

Stukel, M. R., M. Kahru, C. R. Benitez-Nelson, M. Décima, R. Goericke, M. R. Landry, M. D. Ohman (submitted). Using Lagrangian-based process studies to test satellite algorithms of carbon flux in the eastern North Pacific Ocean. *Journal of Geophysical Research: Oceans*

Asher, E. C., J. W. H. Dacey, **M. R. Stukel**, M. C. Long, P. D. Tortell (submitted). Processes driving seasonal and short-term temporal variability in DMS, DMSP, and dMSO concentrations and turnover in coastal Antarctic Waters. *Limnology and Oceanography*

Conroy, B. J., D. K. Steinberg, **M. R. Stukel**, J. Goes, V. Coles (submitted). Meso- and microzooplankton grazing in the Amazon River plume and western tropical North Atlantic.

Stukel, M. R., C. R. Benitez-Nelson, M. Décima, A. G. Taylor, C. Buchwald, M. R. Landry (submitted). The biological pump in the Costa Rica Dome: An open ocean upwelling system with high new production and low export. *Journal of Plankton Research*

Décima, M., M. R. Landry, **M. R. Stukel**, J. W. Krause, L. Lopez-Lopez (submitted). Costa Rica Dome mesozooplankton biomass and grazing: Amplifying variability through the plankton food web. *Journal of Plankton Research*

Landry, M. R., K. E. Selph, M. Décima, A. Gutierrez-Rodriguez, **M. R. Stukel**, A. G. Taylor, A. L. Pasulka (in press). Phytoplankton production and grazing balances in the Costa Rica Dome. *Journal of Plankton Research*

- Krause, J. W., **M. R. Stukel**, A. G. Taylor, D. A. Taniguchi, A. De Verneil, M. R. Landry (2015). Net biogenic silica production and the contribution of diatoms to new production and organic matter export in the Costa Rica Dome ecosystem. *Journal of Plankton Research*. doi: 10.1093/plankt/fbv077
- Selph, K. E., M. R. Landry, A. G. Taylor, A. Gutierrez-Rodriguez, **M. R. Stukel**, J. Wokuluk, A. Pasulka (2015). Phytoplankton production and taxon-specific growth rates in the Costa Rica Dome. *Journal of Plankton Research*. doi: 10.1093/plankt/fbv063
- Stukel, M. R.**, E. Asher, N. Couto, O. Schofield, S. Strebel, P. Tortell, H. W. Ducklow. (2015). The imbalance of new and export production in the Western Antarctic Peninsula, a potentially “leaky” ecosystem. *Global Biogeochemical Cycles*. doi: 10.1002/2015GB005211
- Brzezinski, M. A., J. W. Krause, R. M. Bundy, K. A. Barbeau, P. Franks, R. Goericke, M. R. Landry, **M. R. Stukel**. (2015). Enhanced silica ballasting from iron stress sustains carbon export in a frontal zone within the California Current. *Journal of Geophysical Research: Oceans*. 120(7): 4654-4669 doi: 10.1002/2015JC010829
- Krause, J. W., M. A. Brzezinski, R. Goericke, M. R. Landry, M. D. Ohman, **M. R. Stukel**, A. G. Taylor. (2015). Variability in diatom contributions to biomass, organic matter production and export across a frontal gradient in the California Current Ecosystem. *Journal of Geophysical Research: Oceans*. 120: 1032-1047. doi: 10.1002/2014jc010472
- Stukel, M. R.**, V. J. Coles, M. T. Brooks, R. R. Hood. (2014). Top-down, bottom-up, and physical controls on diatom-diazotroph assemblage growth in the Amazon River Plume. *Biogeosciences*. 11: 3259-3278. doi:10.5194/bgd-10-13931-2013
- Stukel, M. R.**, K. A. S. Mislán, M. Décima, L. Hmelo. (2014). Detritus in the pelagic ocean. *Eco-DAS IX Symposium Proceedings, ASLO*. doi: 10.4319/ecodas.2014.978-0-9845591-3-8.49
- Brum, J. R., J. Morris, M. Décima, **M. R. Stukel**. (2014). Mortality in the oceans: Causes and consequences. *Eco-DAS IX Symposium Proceedings, ASLO*. doi: 10.4319/ecodas.2014.978-0-9845591-3-8.16
- Coles, V. J., M. T. Brooks, J. H. Hopkins, **M. R. Stukel**, P. L. Yager, R. R. Hood. (2013). The pathways and properties of the Amazon River Plume in the tropical North Atlantic Ocean. *Journal of Geophysical Research: Oceans*. 118, 1–20, doi:10.1002/2013JC008981
- Stukel, M. R.**, M. D. Ohman, C. R. Benitez-Nelson, M. R. Landry. 2013. Contributions of mesozooplankton to vertical carbon export in a coastal upwelling system. *Mar. Ecol. Prog. Ser.* 491: 47-65 doi: 10.3354/meps10453
- Stukel, M. R.**, M. Décima, K. E. Selph, D. A. Taniguchi, M. R. Landry. 2013. The role of *Synechococcus* in vertical flux in the Costa Rica upwelling dome. *Prog. Oceanogr.* 112-113: 49-59 <http://dx.doi.org/10.1016/j.pocean.2013.04.003>
- Stukel, M. R.**, M. R. Landry, M. D. Ohman, R. Goericke, T. Samo, C. R. Benitez-Nelson. 2012. Do inverse ecosystem models accurately reconstruct plankton trophic flows? Comparing two solution methods using field data from the California Current. *Journal of Marine Systems* 91:20-33 doi:10.1016/j.jmarsys.2011.09.004
- Landry, M. R., M. D. Ohman, R. Goericke, **M. R. Stukel**, K. A. Barbeau, R. Bundy, M. Kahru. 2012. Pelagic Community responses to a deep-water front in the California Current Ecosystem: Overview of the A-front study. *Journal of Plankton Research*. doi: 10.1093/plankt/fbs006
- Stukel, M. R.**, M. R. Landry, C. Benitez-Nelson, R. Goericke. 2011. Trophic cycling and carbon export relationships in the California Current Ecosystem. *Limnol. Oceanogr.* 56:1866-1878
- Stukel, M. R.**, M. R. Landry, and K. E. Selph. 2011. Nanoplankton mixotrophy in the eastern equatorial Pacific. *Deep-Sea Res. II* 58:378-386
- Selph, K. E., M. R. Landry, A. G. Taylor, E. J. Yang, C. I. Measures, J. J. Yang, **M. R. Stukel**, S. Christenson, and R. R. Bidigare. 2011. Spatially-resolved taxon-specific phytoplankton production and grazing dynamics in relation to iron distributions in the equatorial Pacific between 110 and 140°W. *Deep-Sea Res. II* 58: 358-377
- Stukel, M. R.**, M. R. Landry. 2010. Contribution of picophytoplankton to carbon export in the equatorial Pacific: A reassessment of food web flux inferences from inverse models. *Limnol. Oceanogr.* 55:2669-2685
- Landry, M. R., M. D. Ohman, Goericke, R. **M. R. Stukel**, and K. Tsyrklevich. 2009. Lagrangian studies of phytoplankton growth and grazing relationships in a coastal upwelling ecosystem off Southern California.

Teaching and Outreach Experience

- 2015 Helped develop EVR1001L online laboratory course for non-science major students
2015 Taught EVR1001 – Intro to Env. Sci. for ~150 undergraduate non-science major students
2015 Participated in a panel about climate change for FSU undergraduates at Strozier Library
2012 Mentored undergraduate REU student (Michael Macon) at Horn Point Laboratory
2012 Led session on reading scientific manuscripts for undergraduate students
2012 Guest lecture in graduate-level zooplankton course taught by J. Pierson & M. Roman
2009 Reality Changers (<http://realitychangers.org/>) – Tutored under-privileged high school students
2006-2008 Academic Connections (UCSD, <http://academicconnections.ucsd.edu/>) – Co-designed and co-taught a three-week biological oceanography course for advanced high school students each summer
Summer 2005 Aquatic Adventures (<http://oceandiscoveryinstitute.org/>) – Helped teach 2-week marine biology course for underprivileged youth in San Diego

Advising: Graduate Students

- Tom Kelley (FSU Ph.D. student)
Taylor Shropshire (FSU Ph.D. student, coadvised with E. Chassignet)

Advising: Undergraduate Students

- Brittany Winkler (4th year FSU undergraduate)

Fellowships

- 2009-2010 NASA NESSF Graduate Fellowship
2008 Wyers Fellowship
2005-2008 NSF Graduate Fellowship
2004-2005 Henry L. & Grace Doherty Fellowship

Cruise Experience (ship-time: 353 days)

- CCE-P1408 – Measured carbon export and new production during “El Niño-like” conditions in the CCE
PAL2013 – Measured carbon export and new production off the Western Antarctica Peninsula
CCE-P1208 – Measured carbon export and new production in a frontal region in the CCE
PAL2012 – Measured carbon export and new production off the Western Antarctica Peninsula
ANACONDAS – Measured phytoplankton growth and protozoan grazing in the Amazon River Plume
CCE-P1106 – Measured carbon export and new production in a frontal region in the CCE
CRD-2010 – Measured carbon export, new production, and mesozooplankton gut phycoerythrin
CCE-P0904 – Chief Scientist on a cruise addressing the ecological and biogeochemical role of fronts in the CCE
CCE-P0810 – Continued ²³⁴Th & sediment trap measurements and added new production measurements
CCE-P0704 – Continued ²³⁴Th measurements and added sediment trap deployments as independent confirmation
CCE-P0605 – Measured carbon export in the CCE using ²³⁴Th disequilibrium measurements
EB-05 – Investigated mixotrophic nano- and microflagellates in the eastern equatorial Pacific

Abstracts and non-peer reviewed publications

- Landry, M. R.; Stukel, M. R.; Décima, M. Indirect fluxes through the microbial food web support high respiration and growth rates of mesozooplankton in the Equatorial Pacific. Association for the Sciences of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting, Grenada, Spain, 2015
Stukel, M. R., V. J. Coles, M. T. Brooks, R. R. Hood. Top-down, bottom-up and physical controls on diatom-diazotroph assemblage growth in the Amazon River plume. Ocean Carbon and Biogeochemistry Meeting. Woods Hole, MA. 2014
Stukel, M. R.; Ducklow, H. W.; Schofield, O.; Erickson, M. E.; Strebel, S.; The balance of new and export production in the Bismarck Strait, Western Antarctic Peninsula. Association for the Sciences of Limnology and Oceanography (ASLO) Ocean Sciences Meeting. Honolulu, HI. 2014
Pedulli, M.; Ducklow, H. W.; Bisagni, J. J.; **Stukel, M. R.**; Pilskaln, C. H.; Export production for the waters off the Western Antarctic Peninsula (WAP) Region. Association for the Sciences of Limnology and Oceanography (ASLO) Ocean Sciences Meeting. Honolulu, HI. 2014

- Landry, M. R.; **Stukel, M. R.**; Décima, M.; Selph, K. E.; Taylor, A. G.; Grazer regulation of carbon export in the Costa Rica Dome. Association for the Sciences of Limnology and Oceanography (ASLO) Ocean Sciences Meeting. Honolulu, HI. 2014
- Coles, V. J.; Hood, R. H.; **Stukel, M. R.**; Yager, P. L.; Modeling metagenomes and metatranscriptomes along the Amazon River Plume gradient. Association for the Sciences of Limnology and Oceanography (ASLO) Ocean Sciences Meeting, Honolulu, HI. 2014
- Stukel, M. R.**, M. R. Landry. ²³⁴Thorium and Carbon Export associated with a Frontal Region in the California Current System. Ocean Carbon and Biogeochemistry Meeting. Woods Hole, MA. 2013
- Krause, J.W., M. A. Brzezinski, **M. R. Stukel**, M.R., Landry, M.D. Ohman. Biogenic silica cycling across frontal gradients in the California Current Ecosystem. Association for the Sciences of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting. New Orleans, LA, USA. 2013.
- Brzezinski, M. A., J. W. Krause, K. A. Barbeau, R. Bundy, **M. R. Stukel**, M. R. Landry, M. D. Ohman. Variable influence of iron on siliceous biomass and production in a frontal zone within the California Current. Association for the Sciences of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting. New Orleans, LA. 2013
- Alin, S. S. Siedlecki, B. Hales, J. Mathis, W. Evans, **M. Stukel**, G. Gaxiola-Castro, J. M. Hernandez-Ayon, L. Juranek, M. Goni, G. Turi, J. Needoba, E. Mayorga, Z. Lachkar, N. Gruber, J. Hartmann, N. Moosdorf, R. Feely, F. Chavez. Coastal carbon synthesis for the continental shelf of the North American Pacific Coast (NAPC): Preliminary results. Ocean Carbon and Biogeochemistry News. 5(1).
- Stukel, M. R.**, M. R. Landry, K. E. Selph, M. Décima, D. A. Taniguchi. The role of *Synechococcus* in carbon export in the Costa Rica Dome: Vertical transport within mesozooplankton fecal pellets. Association for the Sciences of Limnology and Oceanography (ASLO) Ocean Sciences Meeting. Salt Lake City, UT. 2012
- Coles, V. J., M. T. Brooks, R. R. Hood, J. P. Montoya, **M. R. Stukel**, P. L. Yager. The role of the Amazon River Plume in structuring upper ocean stratification, biochemistry, and biological communities in the Western Tropical North Atlantic. Association for the Sciences of Limnology and Oceanography (ASLO) Ocean Sciences Meeting. Salt Lake City, UT. 2012
- Brooks, M. T., V. J. Coles, **M. R. Stukel**, R. R. Hood. Modeling the Amazon River Plume. Association for the Sciences of Limnology and Oceanography (ASLO) Ocean Sciences Meeting. Salt Lake City, UT. 2012
- Hood, R. R., V. J. Coles, M. T. Brooks, **M. R. Stukel**. Modeling emergent microbial community structure and biochemical cycling in the Amazon River and Plume. Association for the Sciences of Limnology and Oceanography (ASLO) Ocean Sciences Meeting. Salt Lake City, UT. 2012
- Stukel, M. R.** 2011. Biological control of vertical carbon flux in the California Current and equatorial Pacific. Ph.D. Dissertation. University of California, San Diego
- Stukel, M. R.**, M. R. Landry. Carbon cycling in the equatorial Pacific: Export driven by large phytoplankton. Association for the Sciences of Limnology and Oceanography (ASLO) Ocean Sciences Meeting. Portland, OR. 2010
- Selph, K. E., M. R. Landry, C. I. Measures, A. G. Taylor, E. Yang, **M. R. Stukel**, J. Yang, S. Christensen, R. Bidigare. Eastern Equatorial Pacific phytoplankton: the relative importance of Fe, light, and grazing in community structure. Association for the Sciences of Limnology and Oceanography (ASLO) Ocean Sciences Meeting. Portland, OR. 2010
- Stukel, M. R.** Cruise Report. CCE-P0904 Cruise. R/V New Horizon: Apr. 22 – May 3. CCE-LTER Datazoo.
- Stukel, M. R.**, M. R. Landry, C. R. Benitez-Nelson, R. Goericke. Trophic cycling and vertical carbon flux in the CCE. Long-Term Ecological Research, All Scientists Meeting. Estes Park, CO. 2009.
- Stukel, M. R.**, M. R. Landry, C. R. Benitez-Nelson, R. Goericke. Carbon export and the fate of primary productivity in the California Current Ecosystem. Association for the Sciences of Limnology and Oceanography (ASLO) Ocean Sciences Meeting. Orlando, FL. 2008
- Stukel, M. R.**, M. R. Landry, C. R. Benitez-Nelson. Thorium export in the California Current Ecosystem. Long-Term Ecological Research, All Scientists Meeting. Estes Park, CO. 2006.
- Stukel, M. R.**, M. R. Landry, K. E. Selph. Mixotrophs are major grazers in the equatorial Pacific. Association for the Sciences of Limnology and Oceanography (ASLO) Ocean Sciences Meeting. Honolulu, HI. 2006.

Scientific Service (Peer-Reviewer):

Journals: Limnology and Oceanography, Deep-Sea Research I, Biogeosciences, Progress in Oceanography, Aquatic Microbial Ecology, PLOS One, Journal of Oceanography, Biogeochemistry

Proposals: NSF Biological Oceanography, NSF Chemical Oceanography