Kevin T. Du Clos
Curriculum Vitae
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Assistant Professor
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Research interests

Biological fluid mechanics, phytoplankton biology and ecology, suspension feeding, imaging, scientific programming.

Education

2016	Ph.D. in Biological Oceanography, University of Maine Dissertation: Fluid dynamics of active suspension feeding Advisors: Pete Jumars and Damian Brady
2012	M.S. in Biological Oceanography, University of Maine Thesis: Polychaete burrowing behavior in sand and mud Advisors: Pete Jumars and Sara Lindsay
2007	B.S. in Microbiology with a Photography minor, University of California at San Diego

Professional appointments

Jan. 2023–	Assistant professor of Marine Science Louisiana Universities Marine Consortium
2020–2022	Postdoctoral associate, University of Oregon Advisor: Kelly Sutherland
2019–2020	Adjunct instructor, University of South Florida
2017–2020	Postdoctoral researcher, University of South Florida Advisor: Brad Gemmell

Publications

[22] Kelly R Sutherland, Alejandro Damian-Serrano, Kevin T Du Clos, Brad J Gemmell, Sean P Colin, and John H Costello. Spinning and corkscrewing of oceanic macroplankton revealed through in situ imaging. *Science Advances*, 10(20):eadm9511, 2024

[21] Kevin T Du Clos and Brad J Gemmell. Does the settling column method underestimate phytoplankton sinking speeds? *Royal Society Open Science*, 11(2):231455, 2024

[20] Nils B. Tack, Kevin T. Du Clos, and Brad J. Gemmell. Fish can use coordinated fin motions to recapture their own vortex wake energy. *Royal Society Open Science*, 11(1):231265, 2024

[19] Sanjib Gurung, Kevin T Du Clos, Abdullah Aldaddi, and David W Murphy. Aggregation of zooplankton in a Stommel Retention Zone in a laboratory model of Langmuir circulation. *Limnology and Oceanography*, 2023

[18] Janet R Voight, Philipp R Heck, and Kevin T Du Clos. Competition in the deep sea: phylogeny determines destructive impact of wood-boring xylophagaids (mollusca: Bivalvia). *Marine Biodiversity*, 53(1):1–9, 2023

[17] Kevin T Du Clos, Brad J. Gemmell, Sean P. Colin, John H. Costello, John O. Dabiri, and Kelly R. Sutherland. Distributed propulsion enables fast and efficient swimming modes in physonect siphonophores. *Proceedings of the National Academy of Sciences*, 119(49):e2202494119, 2022
- Featured on *New Scientist* (BBC), *Nine to Noon* (Radio New Zealand), and *Think Out Loud* (Oregon Public Broadcasting).

[16] David M Durieux, Kevin T Du Clos, David B Lewis, and Brad J Gemmell. Benthic jellyfish dominate water mixing in mangrove ecosystems. *Proceedings of the National Academy of Sciences*, 118(30), 2021

[15] Nimish Pujara, Kevin T Du Clos, Stephanie Ayres, Evan A Variano, and Lee Karp-Boss. Measurements of trajectories and spatial distributions of diatoms (*Coscinodiscus* spp.) at dissipation scales of turbulence. *Experiments in Fluids*, 62(7):1–15, 2021

[14] Nils B Tack, Kevin T Du Clos, and Brad J Gemmell. Anguilliform locomotion across a natural range of swimming speeds. *Fluids*, 6(127), 2021

[13] Kevin T Du Clos, Lee Karp-Boss, and Brad J Gemmell. Diatoms rapidly alter sinking behavior in response to changing nutrient concentrations. *Limnology and Oceanography*, 66:892–900, 2021

[12] Brad J Gemmell, Kevin T Du Clos, Sean P Colin, Kelly R Sutherland, and John H Costello. The most efficient metazoan swimmer creates a 'virtual wall' to enhance performance. *Proceedings of the Royal Society B*, 288(1942):20202494, 2021
- Featured in *The New York Times* and on the *Quirks and Quarks* radio show (CBC).

[11] Sean P Colin, John H Costello, Kelly R Sutherland, Brad J Gemmell, John O Dabiri, and Kevin T Du Clos. The role of suction thrust in the metachronal paddles of swimming invertebrates. *Scientific Reports*, 10:17790, 2020

[10] Sara M Garcia, Olivia H Hawkins, Kevin T Du Clos, and Brad J Gemmell. Sublethal effects of crude oil and chemical dispersants on the eastern oyster: Are later life history stages more vulnerable? *Journal of Marine Science and Engineering*, 8(10):808, 2020

[9] Kevin T Du Clos, Lee Karp-Boss, Tracy A Villareal, and Brad J Gemmell. *Coscinodiscus wailesii* mutes unsteady sinking in dark conditions. *Biology Letters*, 15(3):20180816, 2019

[8] Kevin T Du Clos, John O Dabiri, John H Costello, Sean P Colin, Jennifer R Morgan, Stephanie M Fogerson, and Brad J Gemmell. Thrust generation during steady swimming and acceleration from rest in anguilliform swimmers. *Journal of Experimental Biology*, 222(22), 2019

[7] Kevin T Du Clos, Amy Lang, Sean Devey, Philip J Motta, Maria Laura Habegger, and Brad J Gemmell. Passive bristling of mako shark scales in reversing flows. *Journal of The Royal Society Interface*, 15(147), 2018
- Featured in *The Independent*, *Ars Technica*, *New Scientist News*, and *Fox News* articles.

[6] Kevin T Du Clos and Houshuo Jiang. Overcoming hydrodynamic challenges in suspension feeding by juvenile *Mya arenaria* clams. *Journal of The Royal Society Interface*, 15(138):20170755, 2018

[5] Kevin T Du Clos, Ian T Jones, Tyler J Carrier, Damian C Brady, and Peter A Jumars. Model-assisted measurements of suspension-feeding flow velocities. *Journal of Experimental Biology*, 220:2096–2107, 2017
- Featured in the 2018 *Journal of Experimental Biology* calendar.

[4] Kevin T Du Clos. Visualizing subsurface burrowing by the polychaete *Alitta virens* with particle image velocimetry. *Limnology and Oceanography: Methods*, 12:703–712, 2014

[3] T L Ogden and Kevin T Du Clos. 'SWeRF–A Method for Estimating the Relevant Fine Particle Fraction in Bulk Materials for Classification and Labelling Purposes' by Pensis, Luetzenkirchen, and Friede. *Annals of Occupational Hygiene*, 58(6):784–787, 2014

[2] Kevin T Du Clos, Sara M Lindsay, and Peter A Jumars. Spatial distribution of *Alitta virens* and *Clymenella torquata* with respect to rigid boundaries in mud and sand. *Journal of Marine Research*, 71(3):211–226, 2013

[1] Ranhy Bang, Lorraine Marnell, Carolyn Mold, Mary-Pat Stein, Kevin T Du Clos, Corinn Chivington-Buck, and Terry W Du Clos. Analysis of binding sites in human C-reactive protein for FcγRI, FcγRIIA, and C1q by site-directed mutagenesis. *Journal of Biological Chemistry*, 280(26):25095–25102, 2005

Preprints

Alejandro Damian-Serrano, Kaiden A Walton, Anneliese Bishop-Perdue, Sophie Bagoye, Kevin T Du Clos, Bradford J Gemmell, Sean P Colin, John H Costello, and Kelly R Sutherland. Colonial architecture modulates the speed and efficiency of multi-jet swimming in salp colonies. *bioRxiv*, pages 2024–04, 2024

Funding

2024	PI, LA Sea Grant Undergraduate Research Opportunities Program - Tracking oyster larval abundance and settlement to enhance oyster restoration in coastal Louisiana. $3,500.
2021-2024	Co-PI, NSF GEO-NERC Collaborative Research: Novel imaging, physiology and numerical approaches for understanding biologically mediated, unsteady sinking in marine diatoms. PIs: Brad Gemmell, Lee Karp-Boss, and Glen Wheeler. Du Clos portion: $102,756.

Invited seminars

April 2024	Louisiana State University – Department of Oceanography and Coastal Sciences
March 2023	Dauphin Island Sea Lab
March 2023	University of New Orleans – Department of Biological Sciences
Sep. 2022	University of Maine – School of Marine Sciences
April 2022	Microscale Ocean Biophysics Seminar Series – Virtual
Feb. 2022	National Museum of Natural History, Department of Invertebrate Zoology – Virtual
May 2021	University of Oregon, Oregon Institute of Marine Biology – Virtual
March 2020	University of South Florida, Department of Integrative Biology – Tampa, FL
Jan. 2018	University of South Florida, College of Marine Sciences – St. Petersburg, FL

Honors, awards, and fellowships

Jan. 2018	Postdoc Travel Award Office of Graduate Studies, University of South Florida
Aug. 2016	Chase Distinguished Research Assistantship Graduate School, University of Maine
May 2016	Faculty Choice oral presentation School of Marine Sciences Graduate Student Symposium, University of Maine
April 2016	Graduate Research Excellence Award College of Natural Sciences, Forestry, and Agriculture, University of Maine

Teaching and mentorship

Courses taught

Spring 2023 – Present	Changing Coastal Oceans – LUMCON
Spring 2019 – Fall 2019	Biology Skills – University of South Florida Primary instructor for three semesters
Spring 2018	Independent study: Research skills – University of South Florida

Undergraduate students mentored

2023	Kendall Cosper - REU: Effects of turbulence on diatom sinking.
	Marco Milton - STEM Prep: Phytoplankton culturing and image processing.
2022	Ascensy Perez: Estimating reproductive status of marine zooplankton from photographs.

2021	Kayla Nease: Siphonophore morphometrics.
2019	Hailley Nieves: Effects of crude oil on marine snow communities.
2018	Hailley Nieves: Thrust and drag forces associated with accelerating lamprey swimming.
	Edward Goode: Effects of oil exposure on copepod escape responses. *Received 'Excellence in Research' award from USF for project.*
2017	Marcos Martinez: Effects of oil droplet exposure on oyster suspension feeding.
2013–2015	Ian Jones, Tyler Carrier, and Carolyn Garrity: Quantification of suspension feeding flow using particle image velocimetry (PIV)
2011	Alexander Borsky: Tracer study of bioturbation activity.

Guest lectures

March 2023	University of South Florida, Mechanical Engineering Department Biofluids and Bioinspired Design Class Biomechanics of swimming in sharks and siphonophores
Feb. 2021	University of South Florida, Mechanical Engineering Department Biofluids and Bioinspired Design Class Biomechanics of swimming in sharks and siphonophores
Feb. 2021	University of Oregon, Institute of Ecology and Evolution Marine Biology Course Benthic Communities
Jan. 2019	University of South Florida, Integrative Biology Department Marine Biology Course Adaptations for the chemical and physical environment
Oct. 2018	University of South Florida, Mechanical Engineering Department Biological Fluid Mechanics Course Biomechanics of swimming and suspension feeding
Oct. 2018	University of South Florida, Integrative Biology Department Marine Ecosystem Dynamics Course Coastal processes
June 2014	Darling Marine Center, University of Maine MATLAB for Marine Scientists Image processing

Conference presentations

Feb. 2024	Ocean Sciences Meeting – New Orleans, LA Oral presentation: Modeling diatom density changes associated with unsteady sinking
Jan. 2022	Society for Integrative and Comparative Biology Meeting – Phoenix, AZ Oral presentation: Mapping siphonophore capture surfaces
Jan. 2021	Society for Integrative and Comparative Biology Meeting – Virtual Poster presentation: Synchronous swimming in siphonophores yields higher maximum speeds but lower efficiency and higher cost of transport
Jan. 2020	Ocean Sciences Meeting – San Diego, CA Oral presentation: Dynamic Unsteady Sinking Behavior in Marine Diatoms: Rapid Responses to Changing Nutrient Conditions.

Jan. 2020	Gulf of Mexico Oil Spill & Ecosystem Science Conference – Tampa, FL Poster presentation: Microzooplankton Communities Associate with Oiled Marine Snow.
Jan. 2019	Microscale Ocean Biophysics Meeting – Whistler, Canada Poster presentation: Effects of light and nutrients on unsteady diatom sinking.
Jan. 2019	Society for Integrative and Comparative Biology Meeting – Tampa, FL Oral presentation: Flexible scales of the mako shark respond to drag inducing small-scale flow features.
Feb. 2018	Ocean Sciences Meeting – Portland, OR Oral presentation: The Pressure's On, Then Off: Sea Lampreys Rapidly Switch from Push to Pull Thrust When Accelerating from Rest.
Nov. 2016	Microscale Ocean Biophysics Meeting – Eilat, Israel Oral presentation: Suspension-feeding rates of juvenile clams
Feb. 2016	Ocean Sciences Meeting – New Orleans, LA Oral presentation: Particle image velocimetry (PIV) measurements of suspension-feeding velocities
Jan. 2015	Microscale Ocean Biophysics Meeting – Aspen, CO Poster presentation: Modeling pipette capture regions.
Feb. 2014	Ocean Sciences Meeting – Honolulu, HI Poster presentation: Factors affecting refiltration by model filter feeders.
Mar. 2013	Benthic Ecology Meeting – Savannah, GA Oral presentation: Particle image velocimetry for surface visualization of *Alitta virens* burrowing.
Mar. 2012	Benthic Ecology Meeting – Norfolk, VA Poster presentation: Preferential burrowing of *Alitta virens* at rigid boundaries in mud but not sand.

Professional service and outreach

April 2024	LUMCON Open House: Lab tours and demonstrations.
2021-2022	Postdoctoral representative, Diversity, Equity, and Inclusion Committee, Biology Department, University of Oregon
Oct. 2021	Organized and taught MATLAB workshop for graduate students, Oregon Institute of Marine Biology, University of Oregon
Nov. 2020	Postdoc Panel, University of South Florida, Department of Integrative Biology
Jan. 2019	Session co-chair, "Swimming: It's a Drag", Society for Integrative and Comparative Biology Meeting, Tampa, FL
Aug. 2019	Grant proposal reviewer *USC Sea Grant Program*
May 2016	Darling Marine Center Open House, University of Maine
April 2016	Elementary school presentation on the scientific method, Great Salt Bay Community School, Damariscotta, ME

Journal reviewer

Limnology and Oceanography; *Journal of Experimental Biology*, *Journal of the Royal Society Interface*; *Integrative and Comparative Biology*; *Physics of Fluids*; *Estuarine, Coastal, and Shelf Science*; *Frontiers in Marine Science*; *Bioinspiration and Biomimetics*; *Annals of Occupational Hygiene*; *Frontiers in Bioengineering and Biotechnology*; *Invertebrate Biology*

Research cruises and field experience

July 2022	Research cruise – Oregon and Washington coast, R/V Marcus G. Langseth Collection and analysis of gelatinous zooplankton for size spectrum analysis.
Apr. 2022	Field research – Kona coast of Hawaii Salp and siphonphore swimming and morphology.
Mar. 2022	Research cruise – Oregon and Washington coast, R/V Sikuliaq Collection and analysis of gelatinous zooplankton for size spectrum analysis.
Sep. 2021	Field research – Kona coast of Hawaii Salp and siphonphore swimming and morphology.
May 2021	Field research – Friday Harbor Laboratories Siphonophore swimming and morphology.
June 2017	Field research – Keys Marine Laboratory Distribution of the upside-down jellyfish *Cassiopea*.
Sep. 2012	Research cruise – Gulf of Maine, R/V Cape Hatteras Assisted with zooplankton sampling (e.g., rosette casts and net tows) on deck and with the processing of chlorophyll samples.
Jul. 2010	Field research – Friday Harbor Laboratories, University of Washington Assisted in setting up and maintaining a field experiment on *Abarenicola* polychaete bioturbation with Sara Lindsay while performing additional independent research.