

**Darcy Taniguchi, Ph.D.**

Postdoctoral Fellow  
 Birch Aquarium at Scripps Institution of Oceanography  
 University of California, San Diego

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**CURRENT APPOINTMENT**

2016 **Price Postdoctoral Fellow, Birch Aquarium at Scripps Institution of Oceanography (SIO), University of California, San Diego (UCSD)**  
 Developing, implementing, and evaluating K-12 science education programming in formal and informal settings; teaching and supervising graduate and undergraduate students in pedagogical practices

**EDUCATION**

2012 **UCSD, *PhD*, Biological Oceanography**  
 2009 **UCSD, *MS*, Biological Oceanography**  
 2006 **UCSD, *BA*, Mathematics, Summa Cum Laude; *BS*, Biology, Summa Cum Laude**

**RESEARCH EXPERIENCE**

2014-2016 **Postdoctoral fellow, Massachusetts Institute of Technology (MIT), Michael Follows and Susanne Menden-Deuer (University of Rhode Island)**  
 Modeling dynamics of plankton food webs, emergent community structure and diversity, and coupled biological-physical interactions in a global biogeochemical model

2013 **Postdoctoral researcher, SIO, UCSD, Jules Jaffe**  
 Applied computational image analysis techniques to address the classification of cuttlefish camouflage response to visual stimuli

2006-2012 **Graduate student researcher, SIO, UCSD, Peter Franks and Michael Landry**  
 Estimated size-dependent phytoplankton growth and grazing rates and phytoplankton size distributions; performed flow cytometric light scattering analyses; analyzed epifluorescence microscopy images; estimated zooplankton feeding rates

2005-2006 **Intern/Contractor, National Oceanic and Atmospheric Administration (NOAA), Southwest Fisheries Science Center, Tim Gerrodette**  
 Identified stocks of spotted dolphins, *Stenella attenuata*, using photogrammetry and machine learning techniques

2003-2006 **Research assistant, SIO, UCSD, Tonya Huff and Paul Dayton**  
 Identified microscopic intertidal invertebrates in San Diego; collected intertidal algal turf and sandy beach samples

**TEACHING EXPERIENCE**

2016 **Communicating Science to the Public seminar co-instructor, UCSD**  
 Co-instructing graduate seminar to teach students how to communicate and interpret science to broad audiences

2016 **Earth History and Evolution course guest lecturer, UCSD**  
 Assisting with and guest lecturing in introductory course about evolution of the Earth and life on it

- 2016 **Beach Science program science advisor, Birch Aquarium, SIO, UCSD**  
Overseeing the science content, teaching sixth graders, and mentoring graduate students to participate in multi-day marine science experience
- 2016 **Math-Science Partnership scientist, San Diego County Office of Education**  
Partnering with middle and high school science and math teachers to integrate the two subjects in interactive, inquiry-based learning experiences that model the new K-12 Next Generation Science Standards
- 2016 **Teacher professional development workshop leader, UCSD**  
Helped design and teach engaging activities and lessons on oceanographic concepts related to work being done in the California Current Ecosystem
- 2014 **Oceanography course instructor, Boston College**  
Developed and taught core course on the fundamentals of oceanography
- 2014 **Ecology course co-organizer and guest lecturer, MIT**  
Assisted in the design and execution of the course curriculum, assignments, and lectures
- 2014 **Teaching Certificate Program participant, MIT**  
Completed a series of sessions to learn and develop effective teaching and communication skills
- 2013 **Ecology lab instructor, University of San Diego**  
Sole instructor for a section of an ecology laboratory, which included computer work, lab and fieldwork, and scientific writing covering basic and advanced biostatistical and ecological concepts
- 2012 **High school summer course co-instructor, UCSD Academic Connections**  
Co-developed and taught “Exploring Local Ecosystems,” which included field trips to ecosystems around San Diego, California, and interactive assignments, laboratory exercises, and lectures about fundamental ecological concepts
- 2011-2012 **NSF GK12 fellow and high school guest instructor, Mission Bay High School**  
Developed and taught interactive lessons based on my research and catered to a high school biology class of low-income students
- 2010 **Teaching assistant for California Coast Oceanography, UCSD**  
Designed and led laboratory exercises covering biological, physical, and chemical oceanography to complement class lectures
- 2010 **Teaching assistant for Earth History and Evolution, UCSD**  
Led discussions, laboratories, and review sessions on topics ranging from the geology of the planet to the evolution of life to complement lectures
- 2009, 2006 **Teaching assistant for Introduction to Biological Oceanography, UCSD**  
Developed discussion sections and homework assignments to supplement biological oceanography concepts covered in lecture
- 2005 **Teaching assistant for Fundamental Concepts of Modern Biology, UCSD**  
Designed and led discussion and review sessions tailored to non-science majors

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## PUBLICATIONS

- 2015 **Taniguchi, D.A.A.**, Y. Gagnon, B.J. Wheeler, S. Johnsen, J. Jaffe. Cuttlefish *Sepia officinalis* preferentially respond to bottom rather than side stimuli when not allowed adjacent to tank walls. *PLoS ONE*. 10:e0138690.  
doi:10.1371/journal.pone.0138690
- 2015 Krause, J.W., Stukel, M.R., Taylor, A.G., Baines, S.B., **Taniguchi, D.A.A.**, de Verneil, A., Landry, M.R. 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.

- 2014b **Taniguchi, D.A.A.**, P.J.S. Franks, F.J. Poulin. Planktonic biomass size spectra: an emergent property of size-dependent physiological rates, food web dynamics, and nutrient regimes. *Marine Ecology Progress Series*. 514:13-33.
- 2014a **Taniguchi, D.A.A.**, M.R. Landry, P.J.S. Franks, K.E. Selph. Size-specific growth and grazing rates for picophytoplankton in coastal and oceanic regions of the eastern Pacific. *Marine Ecology Progress Series*. 509:87-101.
- 2013 Pasulka, A.L., M.R. Landry, **D.A.A. Taniguchi**, A.G. Taylor, and M.J. Church. Temporal dynamics of phytoplankton and heterotrophic protists at Station ALOHA. *Deep Sea Research, Part II*. 93:44-57.
- 2013 Stukel, M.R., M. Decima, K.E. Selph, **D.A.A. Taniguchi**, and M.R. Landry. The role of *Synechococcus* in vertical flux in the Costa Rica upwelling dome: Pigment flux analyses. *Progress in Oceanography*. 112:49-59.
- 2013 **Taniguchi, D.A.A.** Size structuring of plankton communities: Biological rates and ecosystem dynamics. Thesis for Doctorate of Philosophy. University of California. ProQuest LLC.
- 2012 **Taniguchi, D.A.A.**, P.J.S. Franks, M.R. Landry. Estimating size-dependent growth and grazing rates and their associated errors using the dilution method. *Limnology and Oceanography: Methods*. 10:868-881.
- In prep. **Taniguchi, D.A.A.**, M.J. Follows, S. Menden-Deuer. A mechanistic approach to determine optimal prey size choice and its influence on plankton community structure. *Limnology and Oceanography*.
- In prep. **Taniguchi, D.A.A.**, M.J. Follows, S. Dutkiewicz, S. Menden-Deuer, O. Jahn. Resolving microzooplankton functional groups and their influence on planktonic distributions in a global, size-structured planktonic model. *Limnology and Oceanography*.

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## AWARDS AND HONORS

- 2015 Nomination for the Boston College Earth and Environmental Sciences Department Teaching Award
- 2014-2016 NOAA Climate and Global Change Postdoctoral Fellowship
- 2011-2012 National Science Foundation GK-12 Fellowship
- 2010 Scripps Institution of Oceanography Teaching Assistant Award

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## OUTREACH EXPERIENCE

- 2016, 2010 **Keynote speaker and science workshop presenter, Better Education for Women in Science and Engineering**  
Led keynote address and designed and led workshops on local marine organisms for middle school girls
- 2016 **Exhibit science advisor, Birch Aquarium, SIO, UCSD**  
Assisting with the science content, educational programming, and exhibit design for bathymetry and plankton interactive displays
- 2016 **Ship-to-shore communication coordinator and moderator, Birch Aquarium, SIO, UCSD**  
Coordinated and lead the live discussion among SIO researchers out at sea and middle school girls visiting the Aquarium, featured in local magazine *The Reader*
- 2015 **Science exhibit presenter, John H. Carlson Lecture, New England Aquarium**  
Displayed and shared information about plankton samples collected in the Boston Harbor as a precursor to the formal lecture on water

- 2015 **Science exhibit presenter, Volvo Ocean Races**  
Displayed and described real-life examples of local zooplankton and biofouling communities
- 2015, 2014 **Science exhibit presenter, Cambridge Science Festival, MIT**  
Designed and presented exhibit involving live, local and tropical planktonic organisms
- 2014 **Science exhibit presenter, Nautical Night, MIT**  
Developed and presented exhibit on planktonic ecosystems
- 2014 **Children's book character, *Plastic, Ahoy!: Investigating the Great Pacific Garbage Patch* (Minneapolis: Millbrook Press), finalist in American Association for Advancement of Science Children's Book Award**  
Featured as a character in the children's book written by Patricia Newman with photographs by Annie Crawley describing my experiences looking for plastic and its effects in the North Pacific Gyre
- 2009-2012 **High school tutor and mentor, Reality Changers**  
Tutored and mentored first-generation college-bound students in a variety of subjects, particularly in math and science
- 2008-2013 **Science workshop presenter, Expanding Your Horizons Conference**  
Developed and taught workshops on geology and local marine invertebrates
- 2008 **Volunteer teaching assistant, UCSD Academic Connections**  
Assisted in running laboratories, collecting organisms, and leading field trips to study marine invertebrates in their environments
- 2006 **High school tutor, San Diego Superb Tutors**  
Tutored students to prepare them for the SAT and ACT
- 2006 **Undergraduate mentor, Revelle College One-On-One Mentoring Program**  
Mentored a freshman college student as she adjusted to life at UCSD

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## PRESENTATIONS

- 2016 Taniguchi, D.A.A., M.J. Follows, S. Menden-Deuer, C. Peach, K. Aguilar, R. Poland. A multidisciplinary approach to study planktonic community structure and teach K-12 students. Monterey Bay Aquarium Research Institute seminar series. Monterey, California. (Talk.)
- 2016 Taniguchi, D.A.A., M.J. Follows, S. Menden-Deuer, P.J. Franks, M.R. Landry. The invisible force: Understanding the microscopic organisms that support life in the ocean. Brown Bag Seminar at Birch Aquarium. La Jolla, California. (Talk.)
- 2015 Taniguchi, D.A.A., M.J. Follows, S. Menden-Deuer. How top-down effects influence predator:prey ratios and planktonic community diversity in a size-structured model of phyto- and microzooplankton. Trait-Based Approaches to Ocean Life Workshop. Waterville, New Hampshire. (Poster.)
- 2015 Taniguchi, D.A.A., M.J. Follows, S. Menden-Deuer. Traits and tradeoffs influencing microzooplankton feeding preferences and plankton community structure. University of Rhode Island, Graduate School of Oceanography. Narragansett, Rhode Island. (Talk.)
- 2015 Taniguchi, D.A.A., M.J. Follows, S. Menden-Deuer. Simulated tradeoffs in predator-prey dynamics of phyto- and microzooplankton. Association for the Sciences of Limnology and Oceanography (ASLO) Aquatic Sciences Conference. Granada, Spain. (Talk.)
- 2014 Taniguchi, D.A.A., M.J. Follows, S. Menden-Deuer. Traits and tradeoffs in plankton food web dynamics. NOAA Climate and Global Change Summer Institute. Steamboat Springs, Colorado. (Talk.)

- 2014 Taniguchi, D.A.A., P.J.S. Franks, F. Poulin. Planktonic biomass size spectra: an emergent property of size-dependent physiological rates, food web dynamics, and nutrient regimes. Sack Lunch Seminar for Earth, Atmospheric, and Planetary Sciences. MIT. Cambridge, Massachusetts. (Talk.)
- 2014 Taniguchi, D.A.A., P.J.S. Franks, F. Poulin. Planktonic size spectra: an emergent property of physiological rates, food web dynamics, and nutrient regimes. ASLO Ocean Sciences Conference. Honolulu, Hawaii. (Poster.)
- 2013 Taniguchi, D.A.A., Y. Gagnon, B.J. Wheeler, J. Jaffe. Cuttlefish camouflage response to vertical and horizontal stimuli. Applied Ocean Sciences Seminar. Scripps Institution of Oceanography, UCSD. La Jolla, California. (Talk.)
- 2012 Taniguchi, D.A.A., P.J.S. Franks, F. Poulin, and M.R. Landry. Parameterizing size-structured ecosystem models using a modification of the traditional dilution method. ASLO Ocean Sciences Conference. Salt Lake City, Utah. (Poster.)
- 2011 Taniguchi, D.A.A. Environmental Impacts of the BP Deepwater Horizon Oil Spill. Japanese American Citizens League, Environmental Justice Summit. New Orleans, Louisiana. (Invited talk.)
- 2011 Taniguchi, D.A.A., M.R. Landry, and P.J.S. Franks. Phytoplankton size in the California Current Ecosystem: Distributions and rates. Long Term Ecological Research (LTER) Graduate Student Symposium. Santa Barbara, California. (Poster.)
- 2010 Taniguchi, D.A.A. Scripps Environmental Accumulation of Plastics Expedition (SEAPLEX). California State University Stanislaus. Turlock, California. (Guest lecture.)
- 2010 Taniguchi, D.A.A., M.R. Landry, and P.J.S. Franks. Size-specific growth and grazing rates of the microbial community: Adding a new dimension to the dilution method. ASLO Ocean Sciences Conference. Portland, Oregon. (Poster.)
- 2009 Decima, M. and D.A.A. Taniguchi. Comparisons of top-down controls on autotrophic biomass in aquatic and terrestrial ecosystems. LTER All Scientists Meeting. Estes Park, Colorado. (Workshop.)
- 2009 Taniguchi, D.A.A., M.R. Landry, and M. Shartau. Size spectral analysis of the micro-plankton community. LTER All Scientists Meeting. Estes Park, Colorado. (Poster.)
- 2008 Taniguchi, D.A.A., M.R. Landry, and A.G. Taylor. Size spectra of nano- and microplankton of the California Current Ecosystem. ASLO Ocean Sciences Conference. Orlando, Florida. (Poster.)
- 2007 Taniguchi, D.A.A. and M.R. Landry. Size spectra of eukaryotic autotrophic and heterotrophic nano- and microplankton in the California Current Ecosystem. National Science Foundation Midterm Site Review. La Jolla, California. (Poster.)

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#### **OCEANOGRAPHIC EXPERIENCE**

- 2015 **R/V Endeavor, Georges Bank, Chief Scientist: Susanne Menden-Deuer**  
Designed and executed temporal dilution experiments to examine diurnal growth and predation rates of plankton
- 2011 **R/V New Horizon, California Current Ecosystem, Chief Scientist: Jules Jaffe**  
Conducted dilution experiments, water sample collection, chlorophyll sample processing, epifluorescence microscopy slide making

- 2010 **R/V Melville, Costa Rica Dome, Chief Scientist: Michael Landry**  
Ran temporal dilution experiments, on-board flow cytometry sample collection and processing, collection and processing of biogenic silica rate samples
- 2009 **R/V New Horizon, California Current Ecosystem, Chief Scientist: Michael Stukel**  
Collected and processed microbial community and ecosystem data, supervision of volunteers
- 2009 **R/V New Horizon, Subtropical North Pacific Gyre, Chief Scientist: Miriam Goldstein**  
Collected and processed microbial community and ecosystem data as part of the Scripps Environmental Accumulation of Plastics Expedition (SEAPLEX)
- 2008 **R/V Melville, California Current Ecosystem, Chief Scientist: Michael Landry**  
Collected water samples, processed of biogenic silica samples

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### **PROFESSIONAL AND COMMUNITY SERVICE**

- 2000-present Japanese American Citizens League member
- 2004-2013 UCSD Wind Ensemble flautist
- 2010-2011 Long Term Ecological Research California Current Ecosystem graduate student co-chair
- 2008 Scripps Annual Teacher Evaluation Committee member
- 2007-2008 Scripps Community Outreach Program for Education member
- 2002-2006 Regents Scholar Society member

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### **PROFESSIONAL SOCIETIES**

- 2011-present American Association for the Advancement of Science
- 2014-2015 Association for Women in Science
- 2006-present Phi Beta Kappa Society