

Erika S. Woolsey, PhD

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CURRENT POSITIONS

- 2016- present **CEO & Co-Founder** The Hydrous (www.thehydro.us)
2018-present **Lecturer** Stanford University Hasso Plattner Institute of Design (the d.school)
2019-present **Designer** People Rocket (www.peoplerocket.com)
2020-present **Teaching Faculty** Harvard University Extension School, Design Thinking MGMT E-5425

EDUCATION

- Ph.D. **James Cook University** Australian Research Council Centre of Excellence for Coral Reef Studies, 2014
M.App.Sci **University of Sydney** Coastal Management, 2007
B.A. **Duke University** Biology (minor in Art History), 2006

SELECTED EXPERIENCE

- 2019-present **National Science Foundation Grant**
Co- Principle Investigator of a \$300,000 Pilot and Feasibility Study “Advancing Ocean Literacy through Immersive Virtual Reality” in collaboration with the Virtual Human Interaction Lab at Stanford University.
- 2017- present **Coral Digitization** The Smithsonian, Washington DC
Collaborating with the Smithsonian Digitization Program Office and the National Museum of Natural History to digitize coral reef specimens and distribute the resulting 3D models to researchers, educators, and artists.
- 2017-present **National Geographic Explorer**
National Geographic Society (NGS) Education Grant recipient to develop Ocean Education Kits for middle-school classrooms. Participate in NGS Events (see ‘speaking engagements’) and featured in NGS media.
- 2018- 2019 **Ocean Design Fellow** Stanford University d.school & Stanford Center for Ocean Solutions
Applying human-centered design thinking and emerging technologies to major ocean issues. Developed and delivered an experimental, experiential course ‘Oceans by Design’ at the d.school and taught a workshop ‘Possible Future Livelihoods’ at the World Economic Forum Center for the Fourth Industrial Revolution.
- 2017-2019 **Executive Producer & Director** IMMERSE VR
Led the creation of a VR/360 stereoscopic dive on coral reefs. Recipient of an Epic Games Development Grant. Premiered at the International Ocean Film Festival in San Francisco. Official Selection of the Oxford International Film Festival (UK). Available for free on digital platforms (Oculus Store and Vive Video).
- 2015-2016 **California Academy of Sciences** San Francisco, CA
Research Assistant to the Chief of Science. Organized the 2016 Women in Science Summit
- 2014 **Thinc Design** New York City, NY
Interpretive Planner. Assisted designers to develop new exhibits for the Seattle Aquarium.
- 2008-2010 **Byrne Lab** University of Sydney, Australia
Research Assistant to Professor Maria Byrne. Planned and conducted extensive fieldwork at One Tree Island Research Station and on board the RV Southern Surveyor (CSIRO). Taught undergraduate and Masters students.
- 2008-2009 **Plunge Diving** Sydney Harbor, Australia
Divemaster. Handled equipment, led dives, and educated divers about marine environments.
- 2006 **EHDD Architecture** San Francisco, CA
Research Assistant. Calculated embodied carbon for EHDD-designed buildings under the supervision of LEED accredited architects. Developed strategies for teaching global climate change as part of a proposed museum.
- 2005 **Monterey Bay Aquarium** Monterey, CA
Intern for the Conservation and Education. Trained guides in ocean science, promoted sustainable seafood. Assisted research and husbandry staff.

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DISTINCTIONS, CONTINUING EDUCATION & VOLUNTEER WORK

2018- present	National Geographic Explorer
2018- present	Visiting Scientist, IGNITE (Inspiring Girls Now In Technology Evolution)
2017- present	Mentor and project advisor to graduate, undergraduate, and high school students around the Bay Area
2017- present	Science Advisor, Heirs to Our Oceans
2018	Workshop Series: Facilitating Conversations & Enhancing Informal Science Learning, California Academy of Sciences
2016-2018	Kayak guide for people with disabilities and underserved youth, Environmental Traveling Companions
2015-2018	Reviewer for the journals Coral Reefs, Journal of Experimental Marine Biology & Ecology & Invertebrate Biology
2015-2018	Volunteer Diver, California Academy of Sciences
2017	'40 Under 40' List of Remarkable Geospatial Professionals 2017 by xyHt
2012-2013	Chair of the nation-wide Graduate Student Committee, ARC Centre of Excellence for Coral Reef Studies, Australia
2013	Student Award, Australian Coral Reef Society
2013	Organized science communication workshops for graduate students
2012-2013	Volunteer for Scientists in Schools, a CSIRO program that brings researchers into Australian classrooms
2010-2013	James Cook University International Research Scholar
2012	James Cook University Great Barrier Reef Research Grant

ADDITIONAL SKILLS & INTERESTS

Grant writing, Fundraising, Public Speaking, Event Planning, Design Thinking, Underwater photography and photogrammetry, Aerial photogrammetry, PADI Divemaster, Nitrox certified, Surface Supply trained, SSI Freediver.

RECENT SPEAKING ENGAGEMENTS

United Nations (May 15, 2020) Led a virtual dive during a Design Thinking and Innovation Seminar via Zoom

National Geographic Headquarters, Washington, D.C. (April and September 2019) Presented 360° footage of manta rays and coral reefs to audiences in the new VR theater at National Geographic. Narrated live on stage while hundreds of users experienced a virtual dive simultaneously. Two student matinees and an evening event.

Trojan Horse was a Unicorn, Valleta, Malta (September 2018 and 2019) “Using Virtual Reality to Share Science, Love, and Magic in the Ocean.”

Planet Home, San Francisco CA (September 2019) Solutionist Speaker at the Palace of Fine Arts. Showcased VR film, Immerse.

Marin Art and Garden Center, Ross, CA (June-July 2019) Opened an exhibit “Exotic Aquatic” that combines art and science in the ocean, with artist Erick Dunn, MAGC curators, and the Hydrous.

EarthX, Dallas, TX (April 26-28 2019) Served on panels to discuss VR for environmental impact. Screened IMMERSE at EarthxFilm.

The Battery, San Francisco, CA (March 28, 2019) Organized and moderated a panel on VR for Impact.

Skywalker Ranch, Lucas Valley, CA (March 21, 2019) “Using VR to Share Science, Love, and Magic in the Ocean”

Moss Landing Marine Laboratory, Moss Landing, CA (April 18, 2019) “Using Virtual Reality to Share the Ocean.”

NASA Ames Research Center, Mountain View, CA (Feb 13, 2019) “Using VR to Share Science, Love, and Magic in the Ocean”

XR Marin, Novato, CA (Feb 9, 2019) Presented at a special workshop for VR and education. Attended by teachers, administrators, counselors, students, parents, curriculum developers, and VR content developers.

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Monterey Bay Aquarium Research Institute, Moss Landing, CA (Jan 16, 2019): “Using Virtual Reality to Share the Ocean.”

Computer History Museum, Mountain View, CA (December 12, 2018) Panel: Solving Today’s Greatest Problems. Part of the celebration of the 50th anniversary of Doug Engelbart’s “Mother of All Demos.”

Youth Climate Action Summit, San Jose, CA (November 10, 2018) Served on a panel with other National Geographic Explorers at the Tech Museum of Innovation. Shared the Hydrous’s in-progress VR film IMMERSE.

Exploring by the Seat of Your Pants (October 2018) Streamed into classrooms across the U.S. & Canada to talk to students about marine biology and coral reefs.

National Geographic Explorers Festival, Washington, D.C. (June 2018) Presented on the use of technologies like photogrammetry and virtual reality for ocean science education. Served on a panel ‘Immersive VR Storytelling’ during a VR workshop led by Google.

Palau High School, Koror, Palau (February 2018) Led an inquiry-based activity to encourage scientific thinking and promote understanding for coral reefs. Students conducted experiments using 3D printed corals painted with thermo-chromic paint, that turned white in warm water, and experienced 360° video of underwater environments.

Autodesk University, Las Vegas, NV (November 2017) “Digitizing Coral Reefs.”

The Smithsonian Digitization Fair, Washington D.C. (October 2017) Keynote: “Digitizing Coral Reefs.”

INTERVIEWS & MEDIA

HP Garage (April 11, 2019) ‘Can virtual reality make climate change ‘real?’’ by Sunshine Flint.

Parley for the Oceans (December 2018) ‘Mapping Coral to Save Reefs.’

Forbes (October 2018) ‘Meet the Real Life Lara Croft of Ocean Science’ by Jennifer Kite-Powell.

Marin Independent Journal (August 2018) Front page feature: ‘Saving the Oceans’ (web title: ‘Sausalito scientist uses technology to tell the ocean’s story’) by Mark Prado.

KPIX CBS Evening News, Bay Area (August 2018) ‘Marin County Biologist Develops 3D VR Ocean Exploration Curriculum’ by Don Ford.

The Hydrous Virtual Reality Experience (November 2017). Horizon Productions & Lenovo.

BBC Radio (April 2017) Interviewed at Skoll World Forum at Oxford University (along with President Mohamed Nasheed and Bono).

The Times UK (March 2017) ‘Underwater reef maps show damage in 3D’ by Tom Whipple

xyHt Magazine (June 2017) ‘The Hydrous: Mapping Vanishing Reefs.’ Cover story by James M. Shaw, Jr.

International Business Times (April 2017) ‘Don't believe in climate change? These 3D models of the Great Barrier Reef tell a damning story’ by Mary-Ann Russon

CNET (October 2017) ‘Can a man-made Great Barrier Reef save the real one?’ by Claire Reilly

CNET (October 2017) ‘Losing my phone - and myself - to the Great Barrier Reef’ by Andrew Morse

The Hydrous blog (2017) The Big Bleach: Quantifying a Coral Catastrophe in the Maldives.

Success Strategies for Women in STEM (2015). Elsevier. Editors: PA Pritchard, CS Grant

PEER-REVIEWED PUBLICATIONS

15. Keith SA, Baird AH, Hobbs JP, **Woolsey ES**, Naruse T, Trono R, Fudley, and Sanders NJ (2018) Synchronous behavioural shifts in reef fishes linked to mass coral bleaching. *Nature Climate Change* 8: 986-991
14. Baird AH, Keith SA, **Woolsey E**, Yoshida R, and Naruse T (2017). Rapid coral mortality following unusually calm and hot conditions on Iriomote, Japan. *F1000Research*, 6:1728
13. Ainsworth T, Bridge T, Torda G, Raina JB, Gates R, Padilla-Gamiño J, Spalding HL, Smith C, **Woolsey ES**, Krause L, Bourne DG, Bongaerts P, Hoegh-Guldberg O, and Leggat W (2015). The coral core microbiome identifies rare bacterial taxa as ubiquitous endosymbionts. *International Society for Microbial Ecology (ISME) Journal* doi: 10.1038/ismej.2015.39
12. Baird AH, Gudge S, Keith SA, Tan C, and **Woolsey ES** (2015). Coral reproduction on a high latitude reef: Lord Howe Island, Australia. *Aquatic Biology* 23: 275-284
11. Keith SA, **Woolsey ES** and Baird AH (2015). Differential establishment potential of species drives a shift in coral assemblage structure across a biogeographic barrier. *Ecography* doi: 10.1111/ecog.01437
10. **Woolsey ES**, Keith SA, Byrne M, Schmidt-Roach S and Baird AH (2015). Latitudinal variation in thermal tolerance thresholds of early life stages of corals. *Coral Reefs* 34: 471-478.
9. de Bérigny Wall C, Gough P, Faleh M, and **Woolsey E** (2014). Tangible user interface design for climate change education in interactive installation art. *Leonardo* (MIT Press).
8. **Woolsey ES**, Byrne M and Baird A (2013). The effects of temperature on embryonic development and larval survival in two scleractinian corals. *Marine Ecology Progress Series* 493: 179-184
7. **Woolsey ES**, Byrne M, Beaman R, Williams S, Pizarro O, Bridge T, Thornborough K, Davies P and Webster J. (2013). *Ophiopsila pantherina* beds on subaqueous dunes off the Great Barrier Reef. In *Echinoderms in a Changing World*. C. Johnson et al (eds). See: <http://www.deepreef.org/publications/book/138-brittlestar.html>
6. Schmidt-Roach S, Miller K, **Woolsey ES**, Gerlach G and Baird A (2012). Spawning by *Pocillopora* species on the Great Barrier Reef. *PlosOne* 7(12): e50847. doi:10.1371/journal.pone.0050847
5. **Woolsey E** (2012). Self-fertilization suppresses thermal tolerance in embryos of reef-building coral. *Proceedings of the 12th International Coral Reef Symposium*, Cairns, Australia, 9-13 July 2012.
4. **Woolsey E**, Bainbridge S, Kingsford M and Byrne M (2012). Impacts of Cyclone Hamish at One Tree Reef: integrating environmental and benthic habitat data. *Marine Biology* 159: 793-803.
3. Schneider K, Silverman J, **Woolsey E**, Eriksson H, Byrne M and Caldeira K (2011). Potential influence of sea cucumbers on coral reef CaCO₃ budget: a case study at One Tree Reef. *Journal of Geophysical Research – Biogeosciences*. Vol. 116, Issue G4
2. Byrne M, Selvakumaraswamy P, Ho MA, **Woolsey E** and Nguyen HD (2011). Sea urchin development in a global change hotspot, potential for southerly migration of warm adapted propagules. *Deep Sea Research II* 58: 712-719.
1. Webster J, Beaman R, Bridge T, Davies PJ, Byrne M, Williams S, Manning P, Pizarro O, Thornborough K, **Woolsey E**, Thomas A and Tudhope A (2008). From corals to canyons: the Great Barrier Reef margin. *Eos* 89: 217-218.