

Amy L. Kukulya

Senior Oceanographic Engineering Assistant II - Applied Ocean Physics and Engineering Department
Woods Hole Oceanographic Institution, Woods Hole, MA 02543-1549
Tel 508.289.3689 amy@whoi.edu

Education:

B.S.: Rutgers University, 1999, Environmental Policy.
University of Seville, Spanish Immersion, Summer Semester, 1998
UCLA Technical Management Program, 2016

Research Interests:

Underwater vehicle system architecture for docking, navigation, communications, underwater archaeology, three-dimensional tracking of animals and under-ice capabilities; Development of science applications for underwater vehicles; Professional outreach communicator/speaker.

Professional Experience:

Woods Hole Oceanographic Institution, Woods Hole, MA (June 2001-present)
Research Assistant II, Biology Department (2001 June, transferred to AOP&E in 2003 June)
Research Assistant III, AOP&E (November 2004-February 2006)
Engineering Assistant III, AOP&E (February 2006-July 2008)
Senior Engineering Assistant I, AOP&E (August 2008-April 2015)
Senior Engineering Assistant II (Principal Investigator and Expedition Leader), AOP&E (April 2015-)

Professional Activities and Awards:

- Linda Morse-Porteous Award for dedication to discovery, excellence and for serving as a role model to other women, 2015
- Woman's Committee elected member, Webmaster, September 2007 (two year)
- Retirement Task Force- Member, May 2009-June 2010
- Wowster Mentor and Outreach Professional, Appointed by MA Governor's Office, 2012- ongoing

Professional Affiliations:

ASLO, American Society for Limnology and Oceanography, 2004-2006
IEEE Ocean Engineering Society, 2006 –current
Society of Women Engineers, 2017-

Supervision at WHOI:

Summer Student Fellow, Jennifer Batryn, 2012
Thomas Rough, Summer Intern, 2015
Peter Abdu, 2015, 2016
Sean Whelan, Senior Technician, 2017-

Cruise/Field Work Participation:

Over 80 expeditions to date

Publications:

J. D. Holmes, W. M. Carey, J. F. Lynch, A. E. Newhall and **A. Kukulya**, "An Autonomous Underwater Vehicle Towed Array for Ocean Acoustic Measurements and Inversions", ASA Vancouver, 2005.

R. Stokey, A. Roup, C. von Alt, B. Allen, N. Forrester, T. Austin, R. Goldsborough, M. Purcell, F. Jaffre, G. Packard, **A. Kukulya**, "Development of the REMUS 600 Autonomous Underwater Vehicle", Oceans 2005.

***Kukulya, A.**, et. al, "Recent Science Applications for the REMUS AUV", Presented ASLO 2004, Hawaii.

B. Allen, T. Austin, N. Forrester, R. Goldsborough, **A. Kukulya**, G. Packard, M. Purcell and R. Stokey, "Autonomous Docking Demonstrations with Enhanced REMUS Technology", September 2006. Presented at Oceans 2006, Boston.

J. D. Holmes, **A. Kukulya**, "Characteristics of an autonomous underwater vehicle with a towed hydrophone array", September 2006. Presented at Oceans 2006, Boston.

***A. Kukulya**, A. Plueddemann, et. al, "Under-ice Operations with a REMUS-100 AUV in the Arctic," *Proceedings: IEEE Autonomous Underwater Vehicle Conference 2010*, Mapping the World's Oceans, Naval Postgraduate School, Monterey, California 1–3 September 2010. *Presented

S. L Walker, C. E J de Ronde, D. J Fornari, M. I Leybourne, V. Ferrini, **A. Kukulya**, et. al. "Hydrothermal Venting at Lake Rotomahana, New Zealand, 125 Years After the Tarawera Eruption of 1886," AGU SESSION: EP19. Post-Eruptive Processes Operating on Volcanic Landscapes.

C. E. J. de Ronde, D. Fornari, V. L Ferrini, **A. L. Kukulya**, et. al. "Rediscovery of the 8th Natural Wonder of the World: The Pink and White Terraces' survival of the 1886 Tarawera Rift eruption," AGU 2011 SESSION: EP19: Post-Eruptive Processes Operating on Volcanic Landscapes.

G.E. Packard, **A. L. Kukulya**, et. al. "Continuous Autonomous Tracking and Imaging of White Sharks and Basking Sharks Using a REMUS-100 AUV". Presented IEEE MTS Oceans, San Diego October 2013.

A. Kukulya, et. al *3D Real-time Tracking, Following and Imaging of White Sharks with an Autonomous Underwater Vehicle*– IEEE Proceedings (2015)

Kukulya, A.L., et al., 'Development of a Propeller Driven Long Range Autonomous Underwater Vehicle (LRAUV) for Under-Ice Mapping of Oil Spills and Environmental Hazards, IEEE Proceedings (Nov. 2016), Presented AUV 2016, Tokyo, Japan.

Kukulya, Amy L., et al., *Multi-Vehicle Autonomous Tracking and Filming of White Sharks Carcharodon carcharias*, IEEE Proceedings (Nov. 2016), Presented AUV 2016, Tokyo, Japan.

Papers In Referred Journals:

Plueddemann, **A. Kukulya**, R. Stokey, L. Freitag, "Autonomous Underwater Vehicle Operations Beneath Coastal Sea Ice," TMECH-04-2011-1580, (Peer-Reviewed 2011).

L. A. Stevens¹, F. Straneo², S. B. Das³, A. J. Plueddemann², **A. L. Kukulya**⁴, and M. Morlighem⁵ "Linking catchment-scale subglacial discharge to subsurface glacially modified waters near the front of a marine terminating outlet glacier using an autonomous underwater vehicle " Journal The Cryosphere (TC) 2015

G. Skomal, M. Hoyos-Paudilla, **A. Kukulya**, R. Stokey -*Subsurface observations of white shark predatory behavior using an underwater vehicle*, Journal of Fish Biology 2015

C.E.J. de Ronde, **A. L. Kukulya**, et. al, "The Pink and White Terraces of Lake Rotomahana: What was their fate after the 1886 Tarawera Rift eruption?" Journal of Volcanology and Geothermal Research, VOLGEO-05753; No of Pages 16 (2016)

Participation in Documentaries/Science Programming/Publications and Media coverage:

- 2002, *Plankton* radio interview, NPR
- 2009 October, National Geographic Adventure Magazine, The Big, Record-Breaking, Green, Disease-Busting, Deep-Sea, Crime-Fighting IDEAS for 2009
- 2010, Design Squad, PBS- Featured
- 2010, WHOI Oceanus Video, *The Icebot: flying blind under the Arctic Ice*
- 2012, WHOI Oceanus Feature Article: *In Search of the Pink and White Terraces*
- 2013, WHOI Oceanus Video, *The Ocean's Hidden Predators: Revealed*
- 2013, WHOI Oceanus Feature Article: *Swimming with Sharks*
- 2013 Documentary, *Return of Jaws*, Discovery Channel
- 2014 Documentary, *Jaws Strikes Back*, Discovery Channel
- 2015 Documentary, *Shark Trek*, Discovery Channel
- 2015, Featured Oceanus Video: TurtleCam
- 2016, NPR interview *Living Lab* on the Point, Conservation of Turtles with TurtleCam
- 2016 Documentary, *Jaws of the Deep*, Discovery Channel
- Featured on Discovery.com: <http://www.discovery.com/tv-shows/shark-week/videos/women-at-the-forefront-of-shark-science-amy-kukulya/>
- 2016 WHOI Oceanus Video and Article: *To Track a Sea Turtle*
- Engineer Girl Featured engineer: <http://www.engineergirl.org/Engineers/Directory/2984.aspx>
- My research has also been featured in the Boston Globe, Wall Street Journal, PBS, Cape Cod Times, Science Daily, Phys.org, Forbes.com, IFLS.com

Licenses and Certifications:

- United States Coast Guard Captains License- 50 Ton, Current
- Advanced First Aid
- CPR
- PADI Open Water SCUBA certification

Patents Pending:

- Title: Autonomous Tracking and Filming of a Target, 2016

Managed Facility:

- OSL R/V Hurricane Cost Center

Other Accomplishments and Mentoring:

- Developed Project TurtleCam by crowd sourcing funds from over 130 private donors.
- Developed an AUV suction cup tag.
- Mentored all girls STEM Robotics Team at Creighton University for Vex World Competition (2016-ongoing)
- Developed and taught Robotics Class at Falmouth Academy (2008)
- Started the Ocean Robotics Club at Morse Pond Elementary School and taught 10-week class, 2013

- Center for Marine Robotics, Network of Talent Member, 2016-ongoing

Professional Talks (Sub sample):

2017 26 June WHOI Research Talk, Highfield Hall, Falmouth
 2017 May Participated in Fleet Week, NYC
 2017 29 Apr Ocean Tech YPO Event, BIOS, Bermuda
 2017 06 Apr Hydroid, Lunch time talk, Robots Making Science
 2017 01 Feb South Shore Natural Science Center, Lecture
 2016 30 Sept Society for Women in Marine Science, Talk
 2016 13 Oct Oceans 2016 IEEE, Presented two papers, Tokyo, Japan
 2016 30 Sept Center for Marine Robotics, Talk, LRAUV under-ice oil detection
 2016 06 June Chandler Elementary School Visit, Talk, Redfield Auditorium
 2015 03 Nov Oceans 2015 IEEE, Genoa Italy, two talks and papers, see publication listing.
 2015 15 Mar Presenter, AUV Technology and Science, Duxbury Beach Reservation Event (DBR)
 2015 29 Jan Presenter: MTS Speaker, CMR Event, AUV Technology, Smith Conference Room
 2015 27 Jan Presenter, ONR Review Meeting, SharkCam Technology, Fort Walton, FL
 2015 08 Jan Presenter: Falmouth Newcombers Club, AUV Technology & SharkCam, Falmouth, MA
 2014 09 Oct Presenter: Trustees' Access to the Sea meeting, SharkCam Technology, Carriage House
 2014 21 Aug Presented to Senator Elizabeth Warren, AUV Technology and REMUS Lab Tour
 2013 10 Sept Presenter to WHOI science writers fellows, Smith Conference Room
 2013 20 Aug Presenter: Science Made Public talk, *SharkCam: Robots chase sharks where no else can go*. Redfield Auditorium

 2013 16 Aug Lead 1930 society Tioga cruise with REMUS
 2013 07 Aug Presenter: Public Event: *White Sharks, Gray Seals: Chasing the Cape's Most Charismatic Predators*, Redfield Auditorium

 2013 March Presenter: Sandwich elementary school presentation and hands-on AUV lesson
 2012 08 Sept Keynote Speaker: First Robotics Competition. Newton North High School
 2012 12 Aug *Finding New Zealand's Lost Pink and White Terraces*. Science Made Public Lecture, WHOI

 2012 April Guest Speaker @ Massachusetts's Marine Educator's Conference, *Adventure's of Icebot*, Redfield Auditorium

 2008 02 April Woman's History Month Panel Discussion Participant, *Woman of WHOI, Yesterday, Today and Tomorrow*

 2006 28 July *Robots Untethered*, WHOI Exhibit Center
 2006 05 Oct *REMUS, The Ultimate Science Tool*, MBL Club Talk to Newton Middle School