# ROXANNE J CARINI

Seattle, WA 98118
206.941.5545 ⋄ rjcarini@uw.edu

## EDUCATION

**Ph.D., Civil and Environmental Engineering** Jun 2014 - Jan 2019
University of Washington *Seattle, WA*
*Geometry, Kinematics, and Energetics of Surf Zone Waves Near the Onset of Breaking Using Remote Sensing*

**M.S., Civil and Environmental Engineering** Jul 2011 - Jun 2014
University of Washington *Seattle, WA*
*Estimating Energy Dissipation Due to Wave Breaking in the Surf Zone Using Thermal Infrared Imagery*

**B.S., Applied Mathematics** Sep 2007 - May 2011
Yale University *New Haven, CT*

## PROFESSIONAL & RESEARCH EXPERIENCE

**Research Associate** Sep 2020 - Present
*Northwest Association of Networked Ocean Observing Systems (NANOOS)* *Seattle, WA*

· Contribute to the NANOOS mission to provide Pacific Northwest stakeholders with high quality ocean and coastal data, tools, and information they need to make responsive and responsible decisions about safety, livelihoods, and stewardship.

**Science Policy Analyst - Contractor** Mar 2020 - Sep 2020
*U.S. Marine Mammal Commission (MMC)* *Bethesda, MD*

· Coordinated interagency working groups to revise the Survey of Federally Funded Marine Mammal Research.
· Designed a data visualization and analysis module for the survey to meet the needs of MMC and its federal agency partners.
· Performed quality control/assurance on the survey data, analyzed the results, and wrote a summary report for the MMC website.

**Sea Grant Knauss Marine Policy Fellow** Mar 2019 - Mar 2020
*U.S. Marine Mammal Commission* *Bethesda, MD*

· Developed Congressional outreach materials, briefed legislative staffers, and attended subcommittee policy hearings.
· Wrote the science-based public comment letter regarding the National Marine Fisheries Service's revised critical habitat designation for the endangered Southern Resident killer whales.
· Assisted the Scientific Program Director on national and international advisory groups working to integrate marine mammal observations with established data networks to support research, conservation, and management needs.
· Conducted and analyzed a survey and literature review to assess attitudes and levels of involvement of marine mammal researchers on conservation, policy, and management issues.

**Graduate Research Assistant** Jul 2011 - Jan 2019
*Applied Physics Laboratory, University of Washington* *Seattle, WA*

· Designed and executed a field campaign to study wave forcing on the coast of North Carolina, deployed a suite of in-water and remote sensing instruments, and coordinated bathymetry surveys with the US Army Corps of Engineers' Field Research Facility.
· Developed an automated algorithm in Matlab to measure energy in breaking waves using images from a thermal infrared camera.
· Leveraged the high spatial and temporal resolution of a scanning laser to capture the key physics of waves at the onset of breaking.
· Assisted with studies of wave-current interactions at New River Inlet, NC, collected airborne data on estuarine fluid dynamics at the mouth of the Columbia River, and validated satellite products in the equatorial Pacific Ocean.
· Prepared curriculum for and taught a weekly graduate-level seminar that utilized the US Army Corps of Engineers' HEC-RAS modeling software to investigate river hydrodynamics and sediment transport.
· Led a weekly review of Open Channel Hydraulics and Sediment Transport lectures, graded assignments, and proctored exams.

**Naval Research Enterprise Internship Program, Graduate Research Intern** Jun 2016 - Aug 2016
*US Naval Research Laboratory* *Stennis, MS*

· Adapted recently published computer vision methods to improve reconstruction of the 3-D sea surface from stereo image pairs.
· Collaborated with a senior scientist to test the limitations of a commonly-used coastal bathymetry mapping tool.

**Coastal and Estuarine Fluid Dynamics Summer Researcher** Summer 2012
*Friday Harbor Laboratories* *San Juan Island, WA*

· Conducted a field experiment to measure tidally-driven flow between two islands and compared results with predictions from a regional model of coastal circulation to determine the time scale for nutrient replenishment.
· Co-authored a poster presentation of these results for the 2013 Gordon Research Conference on Coastal Ocean Circulation.

## PUBLICATIONS

In review: **Carini, R. J.**, C. C. Chickadel, and A. T. Jessup (2020), *Surfzone breaking waves: LIDAR and IR data fusion methods.*

In review: **Carini, R. J.**, C. C. Chickadel, and A. T. Jessup (2020), *Surfzone breaking waves: Predicting breaking and breaker type.*

Buscombe, D., **R.J. Carini**, S.R. Harrison, C.C. Chickadel, J.A. Warrick (2020), *Optical wave gauging using deep neural networks*, Coastal Engineering, 155, 103593, https://doi.org/10.1016/j.coastaleng.2019.103593.

Buscombe, D., and **R.J. Carini** (2019), *A Data-Driven Approach to Classifying Wave Breaking in Infrared Imagery*, Remote Sensing, 11, 859, https://doi.org/10.3390/rs11070859.

**Carini, R. J.**, C. C. Chickadel, A. T. Jessup, and J. Thomson (2015), *Estimating wave energy dissipation in the surf zone using thermal infrared imagery*, Journal of Geophysical Research: Oceans, 120, 3937-3957, doi:10.1002/2014JC010561.

## GRANTS & AWARDS

**NSF Grant: Division of Ocean Sciences**, Awarded $293,734 on grant number 1736389, 2017 - 2019

**Best Oral Presentation**, Young Coastal Scientists and Engineers Conference- Americas, 2015

**National Defense Industrial Association: Undersea Warfare Division's Academic Fellow**, 2011 - 2012

**Hammer Prize**, Yale University Department of Geology & Geophysics award for excellence of the senior thesis, 2011

## OUTREACH & VOLUNTEER SERVICE

**Scientific Journal Peer Reviewer**

- Geoscience and Remote Sensing Letters, Mar 2020
- European Geophysical Union: Ocean Sciences, Feb 2017
- Coastal Management, Jan 2015

**National Ocean Science Bowl** 2020 & 2019
*Consortium for Ocean Leadership* *Washington, DC*

- Served as a "Moderator" (2020) and "Science Judge"(2019) for the National Ocean Science Bowl competition finals.

**Guest lecturer** Nov 2019
*Marine Ecology* *George Washington University*

- Designed and presented an interactive lecture about critical habitat for killer whales, including a facilitated discussion on how ecological criteria relate to the policy definition of critical habitat.

**Trout Unlimited** Oct 2019
*Savage Watershed* *Garrett County, MD*

- Planted trees on private land along streams within the Savage Watershed to help restore habitat and improve water quality.
- Spoke with property owners about why they participate in the program and how it may impact their land management.

**Public Speaking for Scientists: Workshop Presenter & Facilitator** Jun 2016 - Jan 2019
*Engage Science, University of Washington* *Seattle, WA*

- Taught science communication skills and strategies for reaching a broad audience to 70 participants through a 90-minute lecture and workshop for the Institute of Translational Health Sciences.
- Facilitated small group exercises to practice communicating science to the general public for School of Social Work PhD students.

**Engineering Discovery Days** 2011 - 2018
*University of Washington* *Seattle, WA*

- Participated annually as organizer and facilitator to engage visiting K-12 students in food-dye-infused water density investigations, testing hypotheses about how salt and fresh water mix at a local landmark, the Ballard Locks.

**Town Hall Seattle: UW Science Now Speaker Series** May 2016
*Town Hall Seattle* *Seattle, WA*

- As a featured speaker at the cultural center in downtown Seattle, presented research about how breaking waves shape our coastlines to the general public.

## TRAININGS

**Facilitation Basics for Coastal Managers**, NOAA Office for Coastal Management, Instructed by Brooke Carney, Oct 2019

**COMPASS Science Communication Workshop**, Hosted by Consortium for Ocean Leadership, Apr 2019

## CONFERENCES & EVENTS

**World Marine Mammal Conference**, Poster presentation, Barcelona, Spain, 2019

**Alaska Beluga Whale Committee Meeting**, Observer, Anchorage, AK, 2019

**Arctic Futures 2050**, Washington, DC, 2019

**OceanObs'19**, Honolulu, HI, 2019

**Capitol Hill Oceans Week**, Washington, DC, 2019

**Marine Mammal Commission's Annual Meeting**, Kona, HI, 2019

**Puget Sound Day on the Hill with Salmon Days**, Washington, DC, 2019

**American Geophysical Union (AGU) Fall Meeting**, e-Lightning presentation, Washington, DC, 2018

**AGU Ocean Sciences Meeting**, Oral presentation, Portland, OR, 2018

**ComSciCon-PNW**, Seattle, WA, 2017

**SciTalk NW**, Oral group presentation, Portland, OR, 2017

**AGU Ocean Sciences Meeting**, Poster presentation, New Orleans, LA, 2016

**Young Coastal Scientists and Engineers Conference- North America**, Oral presentation, Newark, DE, 2015

**AGU Ocean Sciences Meeting**, Oral presentation, Honolulu, HI, 2014

**AGU Fall Meeting**, Poster presentation, San Francisco, CA, 2012

## AFFILIATIONS

**The Coastal Society**, Member, Jul 2019 - Present

**Women's Aquatic Network**, Member, Mar 2019 - Feb 2020

**Society for Women in Marine Sciences**, Seattle Chapter member, Oct 2017 - Present

**American Association for the Advancement of Science**, Member, Nov 2016 - Present

**American Geophysical Union**, Member, Jan 2011 - Present

**Engage Science Board of Directors, UW**, Member, Jun 2016 - Jan 2019

## EXTRACURRICULAR ACTIVITY

**Running**, 2019 DC Rock N Roll Marathon, 2018 and 2017 Deception Pass 25K Trail Run, 2017 Salt Lake City Marathon, 2015 Seattle Half Marathon, 2012 Victoria Half Marathon

**Rowing**, Trained and competed for 12 years at the high school, Division I collegiate, and Masters levels, and served as captain of my Masters team for two years.