

Kristin B. Raub, Ph.D.

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SUMMARY

Resilience Research Scientist at CUAHSI and the Global Resilience Institute at Northeastern University. Interdisciplinary background; connects multiple fields to create unique solutions to complex coastal problems. Aspires to be a leader in community resilience by working at the nexus of science and policy. Special interest: community-engaged methodologies.

EDUCATION

University of Vermont

Ph.D., Natural Resources: Coastal Resilience

Aug. 2015 - Mar. 2021

Rubenstein School of Environment & Natural Resources

- NSF IGERT Smart Grid Trainee
- Gund Institute for Environment Graduate Fellow
- Advisors: A. Zia and K. Stepenuck, Committee: J. Stephens, B. Panikkar, B. Gibson
- Dissertation: Coastal Resilience at the Nexus of Food, Energy, and Water: An Interdisciplinary Perspective for Resilience Planning

Certificate of Graduate Study in Complex Systems

Aug. 2015 - May 2018

University of Connecticut

MSc, Applied & Resource Economics: Environmental Economics

Aug. 2013 - Aug. 2019

Department of Agricultural and Resource Economics

- Advisor: S. Swallow
- Thesis: Coastal Adaptation to Sea Level Rise: Effects of Residential Proximity to the Coast, Climate Change Perceptions, and Attitudes Toward Government for Valuing Ecosystem Outcomes

MSc, Oceanography: Chemical Oceanography

Aug. 2011 - Dec. 2013

Department of Marine Science

- Advisor: P. Vlahos
- Thesis: Comparison of Marine Sampling Methods for Organic Contaminants: Passive Samplers, Water Extractions, and Live Oyster Deployment

Boston University

Aug. 2008 - May 2011

BA, Marine Science

- Sea Education Association, Degree of Completion
- Independent Research: Hydraulics and Morphodynamics of Morse River Inlet, Maine

TECHNICAL SKILLS

GRANT WRITING; Led the development and writing of several large research proposals, most notably a \$40 million NOAA Climate Smart Communities Initiative proposal that required the coordination of six co-PI's, eight sub-contracts, and over 20 letters of support from partner communities. I have also led proposals for DOE, NASA, USAID, and CIROH.

PROJECT MANAGEMENT; Organized survey of 2,000 coastal residents for funded project, Managed team responsible for producing comments on the Proposed USACE Nationwide Permits, Initiated and conducted a social network analysis of the Systems Approach to Geomorphic Engineering (SAGE) program.

INTERDISCIPLINARY RESEARCH; Training in oceanography, environmental economics, complex systems, coastal resilience, and the food-energy-water nexus. Expertise in both qualitative and quantitative methodologies.

SURVEY DESIGN; Developed ecosystem service valuation, stated preference mail survey, developed an online survey to collect data for a social network analysis, developed interview guides for multiple research projects.

MATLAB; Data handling, scripting, used extensively throughout UVM Certificate of Graduate Study in Complex Systems.

STATA; Data handling, regression analysis, scripting.

NVIVO; Developed codebooks to facilitate qualitative analysis of coastal resilience academic and grey literature.

NETLOGO; Developed food, energy, water system agent-based model.

IMPLAN; Regional economic impact model generated for the New England turfgrass industry, value added calculations, multiplier compilation.

PROFESSIONAL EXPERIENCE

Resilience Research Scientist

July 2022 - Present

Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) | Arlington, MA

- Position held jointly with the Global Resilience Institute at Northeastern University
- Brings a socio-hydrology perspective to CUAHSI through the development of research proposals, leading research studies, and fostering interdisciplinary collaborations with outside organizations
- Awarded grant from the Cooperative Institute for Research to Operations in Hydrology (CIROH) as the PI for a project entitled “An Analysis and Demonstration of the National Water Model’s Applicability to Community Resilience Planning” (\$1.6 million).

Postdoctoral Research Associate

Sept. 2021 - July 2022

Northeastern University’s Global Resilience Institute | Boston, MA

- Position held jointly during time at CUAHSI.
- Led the development of several grant proposals on resilience planning: NOAA, USAID, DOE, and NASA.
- Awarded grant from NASA’s ROSES program (\$100,000) for a project entitled “Leveraging Earth observation data to support environmental justice: A Puerto Rico coastal community case study.”

Department of Homeland Security Flood Apex Post-Doc

Feb. 2021 - July 2022

Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) | Cambridge, MA

- Mentored by Dr. Jennie Stephens (Northeastern University) and Dr. Kris Stepenuck (University of Vermont).
- Conducts research and documents options for flood resilience; focuses on resilience as transformation using a food-energy-water nexus approach.
- Awarded grant from UCAR’s COMET Outreach Program as the PI for a project entitled “Assessment of the National Water Model’s current and potential role in community resilience planning: A case study analysis” (\$15,000).
- Developed and hosted a Cyber Seminar Series entitled “Interdisciplinary Perspectives on Urban Flood Resilience, How Diverse Fields Tackle One of the World’s Most Prevalent Disasters.” 87 - 140 attendees for each of the six sessions.

Graduate Writing Consultant

Aug. 2019 - Dec. 2020

University of Vermont Graduate Writing Center | Burlington, VT

- Guided graduate writers to overcome challenges faced in diverse writing endeavors.
- Areas of expertise included science writing, academic posters, and long-form writing projects, however, successfully consulted on writing from any field.
- CRLA’s International Tutor Training Program Certification as a Master Tutor, Level III.

Resilience Research Specialist

Feb. 2017 - Oct. 2017

Coastal States Organization | Washington, D.C.

- Remote contract position. Expertise required to complete resilience projects begun during Knauss Fellowship.
- Led conclusion of the study of coastal tool overabundance. Draft revision, led final review with coastal program members, and published the document in the Journal of Coastal Management.
- Oversaw final writing and review of the [Green Guide](#) for FEMA’s Community Rating System. Editing draft, liaison to communities, creating and conducting 4 webinars on the Green Guide. Publicly launched in May 2017.

CSO Coastal Policy Fellow

Feb. 2016 - Jan. 2017

Coastal States Organization | Washington, D.C.

- Position held during Knauss Fellowship, as part of joint assignment with USACE Institute for Water Resources.
- Coordinated team of experts to compose comments on the Proposed USACE Nationwide Permits (specifically, NWP 13 and NWP B) on behalf of CSO. Comments adopted in [final Nationwide Permits](#).
- Initiated and facilitated a series of 5 webinars between EPA and CSO members.
- Initiated a study of the overabundance of coastal tools. Interviewed members of coastal programs and toolkit developers to understand their relationship with tools/toolkits and how coastal adaptation occurs. Project expanded to dissertation

chapter post-fellowship.

- Facilitated CSO's Adaptation Working Group. Worked with group chairs to coordinate meetings, set agenda and group priorities.
- Created a Green Guide for FEMA's Community Rating System in coordination with the Association of State Floodplain Managers. Interviewed 14 of 36 communities on their success with a subset of program elements, drafted success stories from each interview, helped plan and present project during in-person workshop in Rhode Island.

IWR Coastal Policy Fellow

Feb. 2016 - Jan. 2017

U.S. Army Corps of Engineers Institute for Water Resources | Alexandria, VA

- Position held during Knauss Fellowship, as part of joint assignment with the Coastal States Organization.
- Revised several draft National Shoreline Management Study (NSMS) Reports
- Coordinated a one month detail at Army Corps' New England District. Assisted planners with a feasibility study in Connecticut; met with five of CT's Regional Council of Governments.
- Initiated a social network analysis of the Systems Approach to Geomorphic Engineering (SAGE) program to better understand information flows between individuals. Developed survey to collect data, poster presented at the Restore America's Estuaries Conference in December 2016, held meetings to share findings with high level SAGE members, and hosted a webinar to share results and recommendations of the study with all of SAGE and IWR employees.

Environmental Economic Research Assistant

Aug. 2013 - May 2015

University of Connecticut | Storrs, CT

- Developed a survey to estimate environmental benefits using a choice experiment approach, lead focus groups, analyzed data using STATA.
- Conducted economic impact analysis of turfgrass industry in New England under Dr. Benjamin Campbell: IMPLAN model generation; data collection, analysis, and summary.

Oceanographic Research Assistant

May 2012 - Dec. 2012

Vlahos Organic Carbon Lab, University of Connecticut Avery Point | Groton, CT

- Quantified organic contaminant partitioning via GC/MS of water samples, passive samplers, and live oysters.
- COSEE-TEK Outreach Coordinator: Developed tutorial of analytical methods for biological settlement plates.
- EVA-BOB (Ethylene vinyl acetate passive sampler plates attached to Basic Ocean Buoys) lab technician: Passive sampler preparation and processing, sample analysis on GC/MS, data collection/summary, and deployment site liaison.

Teaching Assistant, Marine Sciences

Fall 2011, Spring 2012, Spring 2013

University of Connecticut | Storrs, CT & Groton, CT

- Independently taught lab sections for Introduction to Oceanography (2x) and Marine Biology (1x).

Laboratory Assistant

May 2010 - Aug. 2010

Fulweiler Laboratory, Boston University | Boston, MA

- Coastal ecology and biogeochemistry field prep, sample processing and analysis.

HONORS & AWARDS

2019/20 Thomas J. Votta Scholar

- Scholarship awarded to one UVM graduate student who demonstrates an aptitude for solving environmental problems through a combination of environmental best practices, environmental engineering, and environmental business; competitively awarded.

2016 Knauss Marine Policy Fellow

- Host Offices in Washington, D.C.: Coastal Policy Fellow jointly with the Coastal States Organization and the U.S. Army Corps of Engineers' Institute for Water Resources

2018 IGERT CII Grant Recipient

- Funding for professional development and conference attendance Sep. 2018 through July 2019; competitively awarded.
- 2018 Precourt Fellow** at the Behavior, Energy, and Climate Change Conference
- Professional network access, exclusive professional development opportunities; competitively awarded.
- 2018 Portsmouth Conference Scholarship**
- Funding for conference attendance; competitively awarded.
- 2014 UConn Bishop-Carder Scholarship Recipient**
- Competitively awarded.

PUBLICATIONS

Raub, K.B., Laufer, J., Flynn, S.E., Daniels, S., and Sivalingam, T. 2024. Harnessing Climate Services to Support Community Resilience Planning: Lessons learned from a community-engaged approach to assessing NOAA's National Water Model. *Frontiers in Climate - Climate Services*, Vol. 6, <https://doi.org/10.3389/fclim.2024.1291165>.

Raub, K.B., Flynn, S.E., Stepenuck, K.F., and Hedderman, C. 2024. Integrating Resilience and Nexus Approaches in Managing Flood Risk. *Frontiers in Water*, Vol. 6, 1 - 6, <https://doi.org/10.3389/frwa.2024.1306044>.

Raub, K.B., Platter, H., O'Mara, E., and Panikkar, B.. 2023. Incorporation of Justice Concerns within Coastal Resilience Plans Across Eleven U.S. Coastal Cities. *Journal of Climate Resilience and Climate Justice*, Vol. 1, 33 - 54, https://doi.org/10.1162/crcj_a_00007.

Sykora-Bodie, S., Jones, L., Hastings, Z., Lombardi, E., Barnett, M., Davis, O.N., Ferrari, O.M., Garcia Polanco, V., Hofner, A.N., Hunter, B., Ippolito, T., Krantz, W., Neyra, O., Perez-Figueroa, O., **Raub, K.B.**, Sou, J., Viguez, E., Waters, T., and Whitten, J.. 2021. Graduate Student Perspectives on Transforming Academia. *Conservation Science and Practice*, <https://doi.org/10.1111/csp2.556>.

Raub, K.B., Stepenuck, K.F., and Panikkar, B. 2021. Exploring the Food-Energy-Water Nexus Approach to Enhance Coastal Community Resilience Research and Planning. *Global Sustainability*, Vol. 4, 1 - 13, <https://doi.org/10.1017/Sus.2021.20>.

Raub, K.B., Stepenuck, K.F., Panikkar, B., and Stephens, J.C. 2021. An Analysis of Resilience Planning at the Nexus of Food, Energy, Water, and Transportation in Coastal US Cities. *Sustainability*, Vol. 13, 1 - 21, <https://doi.org/10.3390/su13116316>.

Gourevitch, J., Singh, N., Minot, J. , **Raub, K.B.**, Rizzo, D., Wemple, B., Ricketts, T. 2020. Spatial Targeting of Floodplain Restoration to Equitably Mitigate Flood Risk. *Global Environmental Change*, Vol. 61, <https://doi.org/10.1016/j.gloenvcha.2020.102050>.

Raub, K.B., Cotti-Rausch, B.E. 2019. Helping Communities Adapt and Plan for Coastal Hazards: Coastal Zone Management Program Recommendations for National Tool Developers. *Coastal Management*, Vol. 47, No. 3, 253-268, <https://doi.org/10.1080/08920753.2019.1596674>.

Raub, K.B., Vlahos, P., and Whitney, M. 2015. Comparison of Marine Sampling Methods for Organic Contaminants: Passive Samplers, Water Extractions, and Live Oyster Deployment. *Marine Environmental Research*, Vol. 109, pp. 148-158, <https://doi.org/10.1016/j.marenvres.2015.07.004>.

JOURNALS REVIEWED FOR

Coastal Management (2021), Water (2021)

REPORTS

Raub, K., Bose, P., 2021. Community Development. In Galford, G.L., Faulkner, J. et al. (Eds), The Vermont Climate Assessment 2021. Burlington, Vermont: Gund Institute for Environment at the University of Vermont. On the web: <https://vtclimate.org>

Raub, K., B.L. Campbell, V. Wallace, J. Henderson, J. Inuagiato, and S. Rackliffe. 2015. Economic Impact of the Turfgrass Industry in New England. Research report for the New England Regional Turfgrass Foundation.

PRESENTATIONS

- Raub, K.**, Laufer, J., and Flynn, S. 2023. Proposed uses and enhancements of NOAA's National Water Model (NWM) to advance equity, climate adaptation, and emergency management: Lessons learned from a community-engaged assessment of the NWM's value for resilience-related planning. AGU Fall Meeting, San Francisco, CA, Dec. 14, poster.
- Mendez Guijarro, M., **Raub, K.**, Flynn, S. 2023. Empowering environmental justice, climate adaptation, and lasting resilience in Salinas, Puerto Rico: Lessons learned from a community-engaged exploration of Earth observation data applications. AGU Fall meeting, San Francisco, CA, Dec. 14, poster.
- Forbes, C.T., McCay, D., Mostacedo-Marasovic, S-J., and **Raub, K.** 2023. Understanding the needs of faculty for teaching undergraduate students in the water sciences. Geological Society of America Connects 2023, Pittsburgh, PA, Oct. 15 - 18, poster.
- Raub, K.** 2023. The Power of Talking to People: Catalyzing the Role of Hydrology in Resilience Planning Through Community Engagement. CIROH 1st Annual Training & Developers Conference, Salt Lake City, UT, May 18, invited keynote speaker.
- Raub, K.** 2022. A Collaborative Approach to Assessing the National Water Model's Current and Potential Role in Community Resilience Planning: Preliminary Outcomes from Geographically Diverse Communities. AGU Fall Meeting, Chicago, IL, Dec. 13, presentation.
- Raub, K.** 2022. Demonstration of the National Water Model and Other NOAA Tools to Crowdsource Ways that NOAA Could Facilitate Their Usage in Coastal Resilience Planning. Restore America's Estuaries 2022 Coastal & Estuarine Summit, New Orleans, LA, Dec. 5, panel creator and moderator.
- Raub, K.**, O'Mara, E., Platter, H., and Panikkar, B. 2022. Evaluating the incorporation of climate justice and community well-being concerns within resilience plans across eleven US coastal cities. ISQOLS 2022: Quality-of-Life for Resilient Futures: Sustainability, Equity, & Wellbeing, Burlington, VT, Aug. 3 - 6, poster.
- Raub, K.** 2022. Assessment of the National Water Model's Current and Potential Role in Community Resilience Planning: A Case Study Analysis. Frontiers in Hydrology, San Juan, Puerto Rico, June 20, presentation.
- Raub, K.** 2022. Connecting Silos: A Food-Energy-Water Nexus Approach for Coastal Resilience Planning. Tulane Engineering Forum, New Orleans, LA, Apr. 22, invited presentation.
- Raub, K.** 2021. Applying a Food-Energy-Water Nexus Approach to Coastal Resilience Research and Planning. CUAHSI Cyberseminar Series: Perspectives on Urban Flood Resilience, Sept. 22, presentation.
- Raub, K.** 2020. An Analysis of Resilience Planning at the Nexus of Food, Energy, Water, and Transportation Systems in Coastal US Cities. Behavior, Energy, and Climate Change Conference, Virtual Conference, Dec. 7 - 10, presentation.
- Raub, K.** 2020. A Comparison of Riverine and Coastal Resilience at the Nexus of Food, Energy, and Water Systems. American Geophysical Union's (AGU) Fall Meeting, Virtual Conference, Dec. 1 - 17, poster.
- Raub, K.** 2020. Exploring the Food-Energy-Water Nexus Approach to Enhance Coastal Community Resilience Planning. Restore America's Estuaries: The National Coastal & Estuarine Virtual Summit, Sept. 29 - Oct. 1, presentation.
- Raub, K.** 2019. Helping Communities Adapt and Plan for Coastal Hazards: Coastal Zone Management Program Recommendations for National Tool Developers. UVM Student Research Conference, Burlington, VT, Apr. 17, presentation.
- Raub, K.** 2019. Operationalizing Resilience. Gund Research Slam hosted by the Gund Institute for Environment, Burlington, VT, Mar. 27, presentation.
- Raub, K.** 2019. Coastal Resilience at the Nexus of Food, Energy, and Water. Energy, Resilience: Equity & Inclusive Action in an Increasingly Turbulent World Workshop hosted by the Global Resilience Institute at Northeastern University, Boston, MA, Mar. 26, invited presentation.

Raub, K. 2018. Challenges with Coastal Tools: Community End-User Needs and Recommendations. Restore America's Estuaries 9th National Summit on Coastal and Estuarine Restoration and Management: Investing in Our Coasts: Environment, Economy, Culture, Long Beach, CA, Dec. 8-13, poster.

Raub, K. 2018. Coastal Resilience Policy at the Nexus of Food, Energy, and Water. Behavior, Energy, and Climate Change Conference, Washington, DC, Oct. 10, presentation.

Raub, K., Minot, J., and Gourevitch, J. 2017. Optimizing Investments in Flood Mitigation Using a Multi-Objective Evolutionary Algorithm. University of Vermont Computer Science Fair, Burlington, VT, Dec. 8, poster.

Raub, K., Collins, P., and Rosenberg, A. 2016. Social Network Analysis of Actors Involved in Systems Approach to Geomorphic Engineering (SAGE). Restore America's Estuaries 8th National Summit on Coastal and Estuarine Research and 25th Biennial Meeting of the Coastal Society, New Orleans, LA, Dec. 11-15, poster.

Raub, K., B.L. Campbell, V. Wallace, J. Henderson, J. Inguagiato, and S. Rackliffe. 2015. "Economic Impact and Contribution of the Turfgrass Industry in New England." New England Regional Turfgrass Foundation, Providence, RI, Jan. 26-29, poster.

Raub, K., B.L. Campbell, V. Wallace, J. Henderson, J. Inguagiato, and S. Rackliffe. 2015. "Economic Impact and Contribution of Sod Production in New England." New England Regional Turfgrass Foundation – Sod Producer Section, Providence, RI, Jan. 28.

Raub, K., B.L. Campbell, V. Wallace, J. Henderson, J. Inguagiato, and S. Rackliffe. 2015. "Economic Impact and Contribution of the Turfgrass Industry in New England." New England Regional Turfgrass Foundation – Golf Section, Providence, RI, Jan. 28.

Raub, K. 2014. Environmental and Economics Choices of Residents of the Eastern Shore of Virginia in Response to Increased Coastal Flooding. Climate Adaptation Working Group (CAWG); Northampton, VA, Aug., presentation.

Raub, K., Vlahos, P., and Whitney, M. 2013. Laboratory and field evaluation of three organic pollutant methods: passive samplers, water extractions, and live oyster deployment. Society of Environmental Toxicology and Chemistry (SETAC); Nashville, TN. Nov., poster.

Raub, K. and Vlahos, P. 2013. Comparison of pesticide sampling methods in the Housatonic River and Long Island Sound: passive samplers, water extraction and live oyster deployment. Long Island Sound Research Conference; Long Island, NY. Apr., poster.

Keegan, K.M., **Raub, K.B.,** Tuck, C.E., Hughes, Z.J., Fitzgerald, D.M. and Hein, C.J. 2010. Hydraulics and Morphodynamics of Morse River Inlet, Maine. Geological Society of America (GSA) Northeastern Section (45th Annual) and Southeastern Section (59th Annual) Joint Meeting, Baltimore, MD. Mar., poster.

PROFESSIONAL TRAINING

Innovations in Collaborative Modeling Virtual Field School August 2021
Michigan State University (virtual course)

- Course: Four-day intensive course on participatory modeling techniques. Completed units on fuzzy cognitive mapping and systems dynamic modeling.

Spatial Agent-Based Modeling Short Course June 2019
Socio-Environmental Synthesis Center (SESYNC); Annapolis, MD

- Course: One week intensive course by Dr. Nick Magliocca
- One of 18 participants, competitively selected.

Summer School of Agriculture and Food Economics May 2014
Università Cattolica del Sacro Cuore Graduate School in Agro-Food Economics; Cremona, Italy

- Course: Strategy and Leadership by Dr. Christian Stadler
- Funding awarded by the University of Connecticut, 3 students from the department selected.

Sea Education Association Nov. 2010 - Dec. 2010

- Degree of Completion; One month on-shore study in Woods Hole, MA; Investigated nutrient cycling within planktonic Sargassum mats in the Caribbean Sea throughout 28-day tallship research cruise between St. Croix, US Virgin Islands and Key West, FL.

LEADERSHIP & VOLUNTEER ACTIVITIES

- Sail Beyond Cancer Vermont** July 2021 - **Present**
- Volunteer. Crew for sailing excursions that provide respite and the “healing power of wind” for those impacted by cancer.
- UVM Women in STEM Network** Jan. 2018 - Sept. 2020
- Leadership. Co-founder and co-leader of the Network. The group's mission is to advance professional development of STEM undergraduate and graduate students and to learn from the experiences of other women in a variety of science-related careers.
- Building Bridges Symposium** Nov. 2018
- Leadership. Co-created and co-led a day-long Symposium. Successfully furthered the work undertaken by RSENR on diversity, inclusion, and equity. 50 - 75 attendees throughout 7 sessions. 4 weeks from inception to successful execution.
- Rubenstein Graduate Student Association (GSA) Vice President** Aug. 2017 - May 2018
- Leadership, elected position. Graduate/faculty liaison, advocate for GSA membership interests.
- UConn ARE Seminar Committee** Aug. 2013 - May 2015
- Leadership, elected position. Seminar coordination and speaker liaison.
- UConn Avery Point Graduate Student Association (GSA) Secretary** Aug. 2012 - May. 2013
- Leadership, elected position. Coordinated weekly seminar series, department-wide information distribution.
- Taste Touch and Smell Marine Science** May 2010 - June 2010
- Volunteer. Science day camp for underprivileged youth, led the chemical oceanography unit.

OTHER INTERESTS

Competitive & recreational sailing, podcast listening, gardening, travel, cooking, winter beach combing