

R. Heath Kelsey

University of Maryland Center for Environmental Science

Phone: 443 496 0188

E: hkelsey@umces.edu

W: <https://ian.umces.edu/about/who-we-are/heath-kelsey/>

eRA Commons: RHKELSEY

ORCID: 0000-0003-0724-393X

Researchgate: H Kelsey

Education

University of South Carolina, Arnold School of Public Health	Ph.D.	2006
University of South Carolina, Arnold School of Public Health	MSPH	2000
St. Mary's College of Maryland	B.A.	1988

Appointments

2019-Present	Director, Integration and Application Network. Associate Research Scientist, University of Maryland Center for Environmental Science
2015-2020	Adjunct Faculty, Charles Darwin University Research Institute for Environment and Livelihoods (RIEL)
2015-2015	RIEL Visiting Research Fellow, Charles Darwin University, Darwin Australia
2013-2019	Program Director and Science Integrator, Integration and Application Network. Associate Research Scientist, University of Maryland Center for Environmental Science
2011-2103	Program Manager and Science Integrator, Integration and Application Network. Associate Research Scientist, University of Maryland Center for Environmental Science
2009-2011	Science Integrator, Integration and Application Network. Assistant Research Scientist, University of Maryland Center for Environmental Science
2008-Present	Adjunct Faculty, University of South Carolina Arnold School of Public Health
2006-2009	Ecosystems Modeler, NOAA's Cooperative Oxford Laboratory, JHT Incorporated
2002-2006	GIS Manager and GIS Laboratory Manager, University of South Carolina Belle W Baruch Institute for Marine and Coastal Sciences
2000-2002	Research Associate, University of South Carolina Center for Environmental Policy

Peer reviewed publications

1. Kilpatrick, D., Long, K., Muhammad, O., Porter, D., Sandifer, P., Sprayberry, K., Altman, K., Briggs, S., Brittain, B., Button, N., Cooper, J., Cothran, J., Dewitt, B., DiSalvo, T., Fraser-Rahim, H., Greene, C., Harris, G., Hossfeld, L., Washok-Jones, K., Kimble, S., Koester, M., Kulkarni, N., Maybank, H., McGirr, M., Owoh, J., Reese, R., Schaafsma, M., Day (Taylor), J., Reece, M., Kelsey, H., Koppa, N., Wilson, D. 2026. All Hazards Great and Small: Applying Disaster Risk Reduction to Environmental Justice Communities in South Carolina. *GeoHealth* 10: e2025GH001370. <https://doi.org/10.1029/2025GH001370>
2. James Pierson , Genevieve Nesslage, Alexandra Fries, Heath Kelsey, Feng Chen, Cathlyn Davis, and Kenneth Rose. 2024. Recognizing JEDI Efforts in the Hiring, Tenure, and Promotion Process. *Oceanography* 37(4): 95-96. <https://doi.org/10.5670/oceanog.2024.307>
3. Riechers, M., Baumann, L., Braun, M., Carew, A., Chinappa, M., Dehm, J., Ganachaud, A., Holland, E., Kelsey, H., Lal, S., Landemard, M., Rocle, N., Stockwell, B. 2024. Contributing to sustainable

development pathways in the South Pacific through transdisciplinary research: Conference report. Marine Policy 2024: 106124. <https://doi.org/10.1016/j.marpol.2024.106124>

4. Ollivier, M., Newton, A., Kelsey, H. 2024. Assessment of the Chesapeake Bay Watershed socio-ecological system through the Circles of Coastal Sustainability framework. *Frontiers in Water* 6: 1269717. <https://doi.org/10.3389/frwa.2024.1269717>
5. Ollivier, M., Newton, A., Kelsey, H. 2023. Socio-ecological analysis of the eutrophication in Chesapeake Bay, USA. *Frontiers in Marine Science* 10: 1237493. <https://doi.org/10.3389/fmars.2023.1237493>
6. Altman, K., Yelton, B., Porter, D., Kelsey, H., Friedman, D. 2023. The Role of Understanding, Trust, and Access in Public Engagement with Environmental Activities and Decision Making: A Qualitative Study with Water Quality Practitioners. *Environmental Management*. <https://doi.org/10.1007/s00267-023-01803-2>
7. Friedman, D., Altman, K., Yelton, B., Viado Jr, H., Carson, M., Schandera, L., Kelsey, R., Porter, D. 2023. Qualitative communication research with environmental health scientists and stakeholders. *European Journal of Public Health* 33 (Supplement 2): ii336-ii337. <https://doi.org/10.1093/eurpub/ckad160.845>
8. Ganachaud, A., von Schuckmann, K., Whiteside, A., Dupouy, C., Le Meur, P., Monier, M., Van Wynsberge, S., de Ramon N'Yeurt, A., Costa, M., Aucan, J., Breckwoldt, A., Celliers, L., Douillet, P., Ferse, S., Holland, E., Kelsey, H., Kumar, V., Nicol, S., Riechers, M., Singh, A., Varillon, D. 2022. Copernicus Marine Sea Surface Temperature and chlorophyll-a indicators for two Pacific Islands: a co-construction monitoring framework for an integrated, transdisciplinary, multi-scale approach In: Copernicus Ocean State Report, Issue 6, *Journal of Operational Oceanography*, 15:sup1, s100-s110; <https://10.1080/1755876X.2022.2095169>
9. Carson, M., Doberneck, D., Hart, Z., Kelsey, H., Pierce, Y., Porter, D., Richlen, M., Schandera, L., Triezenberg, H. 2022. A Strategic Framework for Community Engagement in Oceans and Human Health. *Community Science*. <https://doi.org/10.1029/2022CSJ000001>
10. Towle, E., Donovan, C., Kelsey, H., Allen, M., Barkley, H., Blondeau, J., Brainard, R., Carew, A., Couch, C., Dillard, M., Eakin, M., Edwards, K., Edwards, P., Enochs, I., Fleming, C., Fries, A., Geiger, E., Grove, L., Groves, S., Gorstein, M., Heenan, A., Johnson, M., Kimball, J., Koss, J., Kindinger, T., Levine, A., Manzello, D., Miller, N., Oliver, T., Samson, J., Swanson, D., Vargas-Ángel, B., Viehman, S., Williams, I. 2022. A National Status Report on U.S. coral reefs based on 2012-2018 data from NOAA's National Coral Reef Monitoring Program. *Frontiers in Marine Science*. <https://doi.org/10.3389/fmars.2021.812216>
11. Altman, K., Yelton, B., Hart, Z., Carson, M., Schandera L., Kelsey, H., Porter, D., & Friedman, D. 2020. "You gotta choose your words carefully": Environmental health scientists' perceptions and information needs about research translation. *Journal of Health Communication* 25(3):1-9. <https://doi.org/10.1080/10810730.2020.1785060>
12. Newton, A., Icely, J., Cristina, S., Perillo, G., Turner, E., Ahsan, D., Cragg, S., Luo, Y., Lu, C., Li, Y., Zhang, H., Ramesh, R., Forbes, D., Solidoro, C., Béjaoui, B., Gao, S., Pastres, R., Kelsey, H., Taillie, D., Nhan, N., Brito, A., de Lima, R., Kuenzer, C. 2020. Anthropogenic, Direct Pressures on Coastal Wetlands. *Frontiers in Ecology and Evolution* July 2020, Volume 8, Article 144. <https://www.frontiersin.org/articles/10.3389/fevo.2020.00144/full>
13. Vargas-Nguyen, V., Kelsey, H., Dennison, W., Jordahl, H., Somerville, S. 2020. Ecosystem health report cards as tools for transdisciplinary collaboration. *Integrated Environmental Assessment and Management*, 16(4): 494-507. <https://doi.org/10.1002/ieam.4243>
14. Neet, M., Ellis, J., Hart, Z., Scott, G., Kelsey, H., Porter, D. The Role of Community Engagement in Addressing Environmental and Public Health Issues within Environmental Justice Populations. 2020.

Encyclopedia of Water: Science, Technology, and Society, Part V, Article 225, Page 2653. Wiley. ISBN: 978-1-119-30075-5

15. Laumann, K., Nastase, E., Vargas-Nguyen, V., Kelsey, H., Carew, A., Donovan, C., Fries, A., Spitzer S., Dennison, W. 2019. Moving beyond the ecosystem in ecosystem health report cards, *Environmental Practice*, 21(4): 216-229. <https://doi.org/10.1080/14660466.2019.1689087>
16. Harwell, M. Gentile, J., McKinney, L., Tunnel, J., Dennison, W., Kelsey, H., Stanzel, K., Stunz, G., Withers, K., Tunnel, J. 2019. Conceptual Framework for Assessing Ecosystem Health. *Integrated Environmental Assessment and Management* 15: 544-564. <https://doi.org/10.1002/ieam.4152>
17. Glaser, M., Breckwoldt, A., Carruthers, T., Costanzo, T., Forbes, D., Kelsey, H., Ramachandran, R., Stead, S. 2018. Towards a framework to support coastal change governance in small islands. *Environmental Conservation*, 45(3): 227-237. <https://doi.org/10.1017/S0376892918000164>
18. Porter, D., Dorton, J., Leonard, L., Kelsey, H., Ramage, D., Cothran, J., Jones, A., Galvarino, C., Subramanian V., Hernandez, D. 2015. Chapter 22 - Integrating Environmental Monitoring and Observing Systems in Support of Science to Inform Decision-Making: Case Studies for the Southeast, In *Coastal Ocean Observing Systems*, edited by Yonggang Liu, Heather Kerkering and Robert H. Weisberg, Academic Press, Boston, 2015, Pages 416-429, ISBN 9780128020227, <https://doi.org/10.1016/B978-0-12-802022-7.00022-5>.
19. Neet, M., Kelsey, H., Porter, D., Ramage, D., Jones, A. 2015. Model Results and Software Comparisons in Myrtle Beach, SC Using Virtual Beach and R Regression Toolboxes. *Journal of South Carolina Water Resources* 2(1): 80-85. <https://doi.org/10.34068/JSCWR.02.09>
20. Ragsdale, R., Vowinkel, E., Porter, D., Hamilton, P., Morrison, R., Kohut, J., Connel, B., Kelsey, H., Trowbridge, P. 2011. Successful integration efforts in water quality from the integrated ocean observing system regional associations and the national water quality monitoring network. *Marine Technology Society Journal* 45(1): 19-28. <https://doi.org/10.4031/MTSJ.45.1.3>
21. Kelsey, H., Scott, G., Porter, D., Edwards, D., Siewicki, T. Improvements to shellfish harvest area closure decision-making using GIS, remote sensing, and predictive models. On-line. *Estuaries and Coasts* (2010) 33:712-722. doi: <https://doi.org/10.1007/s12237-010-9264-7>
22. Kelsey, H., Webster, L., Kenny, D., Stewart, J., Scott, G. 2008. Spatial and temporal variability of ribotyping results at a small watershed in South Carolina. *Water Research* 42 (2008): 2220-2228. doi: <http://10.1016/j.watres.2007.11.038>
23. Kelsey, H., Porter, D., Scott, G., White, D., Neet, M. 2004. Measuring land use effects on fecal Pollution using GIS and regression modeling. *Journal of Experimental Marine Biology and Ecology*. 298 (2004) 197-209. [https://doi.org/10.1016/S0022-0981\(03\)00359-9](https://doi.org/10.1016/S0022-0981(03)00359-9)
24. Vo, M., Porter, D., Chandler, T., Kelsey, H., Walker, S., Jones, B. 2004. Integrating techniques to assess photo-induced toxicity of PAH within an urbanized estuary. *Ecology and Society*. 9(5):3. [online] URL: <http://www.ecologyandsociety.org/vol9/iss5/art3>
25. Kelsey, H., Scott, G., Porter, D., Thompson, B., Webster, L. 2003. Using multiple antibiotic resistance and land use characteristics to determine sources of fecal coliform bacterial pollution. *Journal of Environmental Monitoring and Assessment* 81:337-348. <https://doi.org/10.1023/A:1021305930858>

Books/Chapters

1. Sandifer, P., Brooks, B., Canonico, G., Chassignet, E., Kirkpatrick, B., Porter, D., Schwacke, L., Scott, G., Kelsey, H. 2023. Observing and Monitoring the Ocean. In Lora E. Fleming, Lota B. Alcantara Creenci, Hong Ching Goh, Matthew O. Gribble, Bruce Maycock, Helena Solo-Gabriele (Eds.). *Oceans and Human Health, 2nd Edition, Opportunities and Impacts* (pp. 549-546). Elsevier/Academic Press, London. ISBN: 978-0-323-95227-9. <https://doi.org/10.1016/B978-0-323-95227-9.00026-9>

2. Canny, A., Shahbol, N., Thieme, M., Fries, A., Kelsey, H., Costanzo, S. 2022. *Selecting Indicators for Basin Health Report Cards*. WWF-US and IAN Press. Washington, DC and Cambridge, MD.
3. Bertule, M., Bjørnsen, P., Costanzo, S., Escurra, J., Freeman, S., Gallagher, L., Kelsey, H., Vollmer, D. 2017. Using indicators for improved water resources management - guide for basin managers and practitioners. 82 pp. ISBN 978-87-90634-05-6.
4. Costanzo, S., Blancard, C., Davidson, S., Dennison, W., Escurra, J., Freeman, S., Fries, A., Kelsey, H., Krchnak, K., Sherman, J., Thieme, M. Vargas-Nguyen, V. 2017. *Practitioner's Guide to Developing River Basin Report Cards*. IAN Press. Cambridge MD USA.
5. Kelsey, H., Longstaff, B. Spatial Analysis. 2010. Book Chapter In: *Handbook of Coastal Assessment*. Longstaff, Carruthers, and Dennison (Eds) IAN Press, Cambridge, MD.

Reports and Science Communication

Total 165: <https://ian.umces.edu/about/who-we-are/heath-kelsey/#publications>

Key publication series:

Chesapeake Bay and Watershed Report Card. An annual assessment of socio-environmental conditions in the Chesapeake Bay and its watershed. The report card has been produced annually since 2007, and has scores that use data going back to the mid-1980s. <https://ian.umces.edu/publications/32674>, and <https://ecoreportcard.org/report-cards/chesapeake-bay/>

Understanding linkages between Coastal Environment and Community Health. An issue study group class within the University of Maryland Marine Estuarine Environmental Science program (<https://www.mees.umd.edu/>) co-produced a summary report detailing the linkages between coastal environmental conditions, climate change, and human health. <https://ian.umces.edu/publications/32239>

Human sustainability assessments for New Caledonia and Fiji. With local colleagues in both locations, I facilitated a two-year process supported by a Belmont Forum project (funding for US portion was by the National Science Foundation (NSF)) to identify local stakeholder priority issues related to sustaining life and livelihoods in coastal communities on these islands. The resulting publications summarize a qualitative assessment of livability related to changing environmental conditions and social factors, as determined by diverse stakeholders. The reports are found here: <https://ian.umces.edu/publications/30064-30534>

US Coral Reef Status Reports. Status reports for ecosystem and human connections for each of the 10 jurisdictions where NOAA has coral reef management responsibilities, and one status report that synthesizes the results into an overall assessment of US coral reef ecosystem condition in the Pacific and Atlantic (including the Gulf of Mexico and the Caribbean Sea) Oceans. I detailed these reports at a virtual press event to launch the reports in late 2020, with NOAA Admiral Tim Gallaudet and Hawaii Senator Brian Schatz. The event garnered over 520 million media impressions. The reports are found here: https://www.coris.noaa.gov/monitoring/status_report/

Belmont Forum Collaborative Research Action (CRA) and Transdisciplinary Science Valorization reports. I worked with the Belmont Forum, NSF, and funded CRA investigators on several occasions to evaluate and summarize the added value that employing transdisciplinary research approaches provides to engaging stakeholders, and increasing the relevance and uptake of research results for societal benefits. <https://ian.umces.edu/site/assets/files/11256/evaluating-transdisciplinary-approaches.pdf>

Gulf of Mexico Coral Reef Preliminary Ecosystem Health Report Card. This report card is the result of tri-national a workshop that I facilitated in Merida Mexico, with participants with coral reef expertise and interests in Mexico, Cuba, and the US. The report card presents preliminary results from an expert opinion based assessment of the health of coral reef ecosystems located in the Gulf of Mexico region. The report identifies important processes and impacts to coral reef ecosystems in the region, and

highlights data gaps and research needs. The report card is located here:

<https://ian.umces.edu/site/assets/files/22121/2019-gulf-of-mexico-coral-reef-preliminary-report-card.pdf>. The workshop to generate this product was a key step to initiating the next phase of tri-

national collaboration on Gulf of Mexico ecosystem health. The workshop was recorded and summarized in a video, found here:

https://vimeo.com/manage/videos/403328250?embedded=true&source=vimeo_logo&owner=70839396

2015 and 2020 Mississippi River Watershed Report Cards. Working in partnership with The Nature Conservancy, America's Watershed Initiative, and other stakeholders, I led a multi-year project to develop indicators, data sources, and analysis methods to assess progress toward targets for ecosystem health, flood control, transportation infrastructure, water supply, economy, and recreation management concerns. More than 600 stakeholders from the 5 sub-basins and northern Gulf of Mexico were involved in identifying indicators that are explicitly relevant to regional and sector concerns. The release of the 2015 report card generated over 120 Million media impressions, and generated public debate on infrastructure condition, nutrient pollution, and the health of the northern Gulf of Mexico. The 2020 report card updated the results from the 2015 product and was used in meetings with the incoming Biden administration transition team to advocate for coordinated management of the watershed as a system of systems. The 2015 and 2020 report cards and associated materials are found here: <https://ian.umces.edu/search/?q=Mississippi+River&t=publication>

Teaching

MEES 718M. Coastal Environment and Community Health. University of Maryland Center for Environmental Science. University of Maryland Center for Environmental Health. Co-Instructor with Vanessa Vargas-Nguyen. Fall 2024.

ENHS 793. Skills for Community Engaged Science. University of South Carolina Arnold School of Public Health. Co-Instructor with Katya Altman. Fall 2022.

ENHS 765. Applied Research in Environmental Health Science: Stakeholder Engagement, Synthesis, and Communication. University of South Carolina Arnold School of Public Health. May 2021.

MEES 618A. Transdisciplinary science for environmental decision making. University of Maryland Center for Environmental Science. Co-Instructor with Bill Dennison. Fall 2017.

Healthy Rivers for All. Practical training for practitioners of Ecosystem Health Report Cards. 10-week on-line, flipped classroom with students on 3 continents and 5 countries. Co-Instructor with Dennison and Costanzo. Fall-Winter 2017, Spring 2019.

MEES 698Y. Science For Environmental Management. University of Maryland Center for Environmental Science. Guest Lecturer. Spring 2017, Spring 2015, Spring 2013.

ENHS 775. Resource Management and Environmental Impact Assessment. University of South Carolina Arnold School of Public Health. Guest Lecturer. Spring 2017, Spring 2015, Spring 2013.

IAN Science Communication Course. Short courses on science communication principles and application for environmental science and management. Instructor. Various. 2009-2017.