

NATHAN P. KETTLE

nkettle@alaska.edu

EDUCATION

- 2012 Ph.D. (Geography) University of South Carolina
2003 M.A. (Geography) Kansas State University
2001 B.S. (Geography) Kansas State University

PROFESSIONAL EXPERIENCE

- 2016 - Present Research Assistant Professor, University of Alaska Fairbanks
2016 - Present Co-Investigator, Alaska Center for Climate Assessment and Policy (ACCAP)
2020 - Present Science Lead, Experimental Arctic Prediction Initiative
2015 - 2016 Research Associate, University of Alaska Fairbanks
2012 - 2015 Post-Doctoral Research Fellow, University of Alaska Fairbanks
2006 - 2012 Graduate Teaching/Research Assistant, University of South Carolina
2006 Assistant Specialist, GIS Spatial Analysis Laboratory, Kansas State University
2003 - 2005 United States Peace Corps Volunteer (Agroforestry), The Gambia
2001 - 2003 Graduate Teaching/Research Assistant, Kansas State University

RESEARCH AWARDS

- 2020 Alaska Sea Grant. Supporting coastal community resilience in Alaska: an evaluation of the Sea Ice for Walrus Outlook. **PI: N. Kettle.** Co-I: V. Metcalf, O. Lee, G. Sheffield, L. Guy. 2 years. \$76,930.
2020 Nasen Environmental and Remote Sensing Center (Norway). Capacity building in Arctic Technology and Data Utilization: US case study collaboration PI: O. Lee. **Co-I: Kettle.** \$68,333. 2 years.
2019 National Science Foundation, Navigating the New Arctic. Sustainably Navigating Arctic Pollution Through Engaging Communities (SNAP-TEC). 4 years. PI: Simpson. CO-I: L. Conner, P. Decarlo, **N. Kettle**, J. Mao, K. Pratt, J. Stutz, R. Weber, B. Williams. 4 years. \$2,987,385.
2019 Aleutian Pribilof Islands Association. Looking forward, looking backwards: building resilience today. **PI: N. Kettle.** 1 year \$12,000.
2018 National Oceanic and Atmospheric Administration. Developing distance learning modules on climate decision support in the Arctic. **PI: N. Kettle.** 1 year. \$45,455.
2017 National Oceanic and Atmospheric Administration. Enhanced tools and training for sub-seasonal to seasonal outlooks to support decision makers for potential high impact events at higher latitudes. PI: J. Walsh. **Co-I: N. Kettle** and P. Bieniek. 1 year. \$147,465.
2017 Arctic Domain Awareness Center. Developing sea ice and weather forecasting tools to improve situational awareness and crisis response in the Arctic. **PI: N. Kettle.** CO-I: A. Mahoney, H. Eicken, L. Brigham. 2 years. \$243,867.
2017 North Slope Borough. Knowledge co-production in contested spaces: an evaluation of the North Slope Borough-Shell Baseline Studies Program. **PI: N. Kettle.** 1 year. \$20,000.
2016 Bureau of Indian Affairs. A tribal climate science liaison for Alaska. **PI: N. Kettle.** 2 years. \$47,259.
2016 Alaska EPSCoR. Evaluating the North Slope Borough-Shell Baseline Studies Program. **PI: N. Kettle.** 1 year. \$44,803.
2016 National Oceanic and Atmospheric Administration. Alaska Center for Climate Assessment and Policy (ACCAP): science, decision support, and capacity building for climate resilience in Alaska. PIs: S. Trainor and J. Walsh. **Co-I: N. Kettle.** 5 years. \$3,500,000.
2015 Bureau of Indian Affairs. Development of tribal government climate adaptation plans for Nome, Alaska. **PI: N. Kettle.** Co-I: J. Walsh, S. Trainor. 2 years. \$151,786.
2010 National Science Foundation, Doctoral Dissertation Research Improvement Grant. Decision, Risk, and Management Sciences. Influence of risk, uncertainty, and scale on coastal adaptation priorities. PI: K. Dow. **Co-I: N. Kettle.** 1 year. \$11,830.

PUBLICATIONS (student authors underlined)

Refereed Journal Articles

- In Review Brown, C., S. Trainor, K. Knapp, N. Kettle. Review of wildlife/subsistence impacts in Alaska. *Ecology and Society*.
- In Review Kettle, N., J. Walsh, L. Heaney, R. Thoman, K. Redilla, L. Carroll. Integrating archival analysis, observational data, and climate projections to assess extreme event impacts in Alaska. *Climatic Change*.
- 2020 Kettle, N., D. Abdel-Fatteh, A. Mahoney, H. Eicken, L. Brigham, J. Jones. Linking Arctic system science research to decision maker needs: co-producing sea ice decision support tools in Utqiagvik, Alaska. *Polar Geography* 43(2-3): 206-222.
- 2019 Colavito, M., S. Trainor, N. Kettle, A. York. Making the transition from science delivery to knowledge co-production in boundary spanning: a case study of the Alaska Fire Science Consortium. *Weather, Climate, & Society* 11: 917-934.
- 2019 Kettle, N. Knowledge co-production in contested spaces: an evaluation of the North Slope Borough-Shell Baseline Studies Program. *Arctic* 72(1): 43-57.
- 2017 Kettle, N., S. Trainor, P. Loring. Conceptualizing the science-practice interface: lessons learned from a collaborative network on the front-line of climate change. *Frontiers in Environmental Science* 5:33. doi: 10.3389/fenvs.2017.00033.
- 2016 Kettle, N., and K. Dow. The role of perceived risk, uncertainty, and trust on coastal climate change adaptation planning. *Environment & Behavior* 48(4): 579-606.
- 2016 Webler, T., S. Tuler, K. Dow., J. Whitehead, N. Kettle. Design and evaluation of a local analytic-deliberative process for climate adaptation planning. *Local Environment* 21(2): 166-188.
- 2015 Kettle, N., and S. Trainor. The role of remote engagement in supporting boundary chain networks across Alaska. *Climate Risk Management* 9:6-19.
- 2015 Frisch, L., J. Mathis, N. Kettle, S. Trainor. Gauging perceptions of ocean acidification in Alaska. *Marine Policy* 53:101-110.
- 2015 Kettle, N., and K. Dow. Comparing coastal planner expectations of climate change to climate science projections. *Journal of Environmental Policy & Planning* 17(4): 475-494.
- 2014 Kettle, N., K. Dow, S. Tuler, T. Webler, J. Whitehead, K. Miller. Integrating scientific and local knowledge to inform risk-based management approaches for climate adaptation. *Climate Risk Management* 4:17-31.
- 2014 Kettle, N., and K. Dow. Cross-level differences and similarities in coastal climate change adaptation planning. *Journal of Environmental Science & Policy* 44: 279-290.
- 2014 Lackstrom, K. N. Kettle, B. Haywood, K. Dow. Climate-sensitive decisions and time frames: a cross-sectoral analysis of information pathways in the Carolinas. *Weather, Climate & Society* 6(2): 238-252.
- 2014 Haywood, B., A. Brennan, K. Dow, N. Kettle, K. Lackstrom, Negotiating a mainstreaming spectrum: climate change response & communication in the Carolinas. *Journal of Environmental Policy & Planning* 16(1): 75-94.
- 2013 Dow, K., B. Haywood, N. Kettle, K. Lackstrom. The role of ad hoc networks in supporting climate change adaptation: a case study from the Southeastern United States. *Regional Environmental Change* 13(6): 1235-1244.
- 2012 Kettle, N. Exposing compounding uncertainties in sea level rise assessments. *Journal of Coastal Research* 28(1): 161-173.
- 2009 Carr, E., and N. Kettle. Commentary: the challenge of quantifying susceptibility to drought related crisis. *Regional Environmental Change* 9(2): 131-136.
- 2009 Carr, E., N. Kettle, A. Hoskins. Evaluating poverty-environment dynamics. *International Journal of Sustainable Development & World Ecology* 16(2): 87-93.
- 2007 Kettle, N., L. Harrington, and J. Harrington, Jr. Groundwater depletion and agricultural land use change: a case study from Wichita County, Kansas. *The Professional Geographer* 59(2): 221-235.

Book Chapters (peer-reviewed)

- In review **Abdel-Fatteh, D.** S. Trainor, **N. Kettle**, A. Mahoney. Sea ice hazard data needs for Search and Rescue in Utqiagvik, Alaska. Decision making for Sustainability Volume II: Building Common Interests in the Arctic Ocean with Global Inclusion. *Springer*.
- 2019 **Kettle, N., J. Sam**, S. Trainor, G. Gray. Supporting tribal climate adaptation planning in northwest Alaska. In: Addressing climate change at the community level in the United States. Eds: P. Lachapelle and D. Albrecht. New York: Routledge. p. 215-231.
- 2016 Trainor, S., **N. Kettle**, B. Gamble. Not another webinar! Regional webinars as a platform for climate knowledge to action networking in Alaska. In: Climate in Context. Eds: A. Parris, G. Garfin, K. Dow, R. Meyer, S. Close. Chester, West Sussex: John Wiley & Sons Ltd. pp. 117-142.

Proceedings, White Papers, Technical Reports, and Other Publications

- 2020 **Kettle, N.** 2020. Looking forward, looking back, building resilience today: Project evaluation. Alaska Center for Climate Assessment and Policy. Fairbanks, Alaska 16 pages.
- 2019 **Kettle, N., M. Chase**, O. O'Domin, D. Roehl, and K. Cozzetto. Building capacity for tribal climate adaptation planning in Alaska: a post-training needs assessment. Alaska Center for Climate Assessment and Policy. Fairbanks, Alaska.
- 2018 **Kettle, N.** Climate Service Needs for the Alaska Region National Weather Service. Alaska Center for Climate Assessment and Policy. Fairbanks, AK.
- 2018 **Kettle, N., T. Buxbaum**, S. Trainor, G. Gray, **J. Sam**. Climate adaptation planning in Northwest Alaska: suggestions for partnering with rural indigenous communities on the front-line of climate change. *Rural Connections*. SPR/SUM: 5-8.
- 2017 Trainor, S.F., L. Abruтина, F.S. Chapin III, V. Chashin, D. Driscoll, L. Hartig, **N. Kettle**, et al. Adaptation Actions. In: *Adaptation Actions for a Changing Arctic, Bering, Chukchi, and Beaufort Region*. Eds. Hinzman, L., et al. The Arctic Council. p. 177-216.
- 2017 **Kettle, N., J. Martin**, M. Sloan. Nome Tribal Climate Adaptation Plan. Nome Eskimo Community and Alaska Center for Climate Assessment and Policy, Fairbanks, AK.
- 2017 **Meeker, D., and N. Kettle**. A synthesis of climate adaptation planning needs in Alaska Native Communities. Alaska Center for Climate Assessment and Policy; Fairbanks, AK
- 2012 Lackstrom, K., K. Dow, B. Haywood, A. Brennan, **N. Kettle**, A. Brosious. Engaging climate sensitive sectors in the Carolinas. Carolinas Integrated Sciences and Assessments; Columbia, SC.
- 2010 **Kettle, N.** Improving reporting of uncertainties in sea level rise assessments. In: Proceedings of the 22nd International Conference; Shifting Shorelines: Adapting to the Future. The Coastal Society. Wilmington, NC; 13-16 June 2010.

PRESENTATIONS

Paper Presentations

- 2019 Chase, M., and **N. Kettle**. Building capacity for tribal climate adaptation planning in Alaska: a post training needs assessment. Alaska Tribal Conference on Environmental Management. Anchorage, AK; 18-22 November 2019.
- 2019 **Kettle, N.** Knowledge co-production in contested spaces: an evaluation of the North Slope Borough-Shell Baseline Studies Program. Association of American Geographers Annual Conference. Washington DC; 3-7 April 2019.
- 2017 **K. Timm, N. Kettle**, T. Buxbaum, S. Trainor, J. Walsh, A. York. Building capacity for actionable science and decision making in Alaska. American Geophysical Union. New Orleans, LA; 11-15 December 2017.
- 2017 Martin, J. and **N. Kettle**. Tribal climate adaptation planning in Nome, Alaska: healthy people and healthy ecosystems in a changing climate. Alaska Tribal Conference on Environmental Management. Anchorage, AK; 14-17 November 2017.
- 2017 **Kettle, N.** and J. Martin. Collaboratively building resiliency & adaptation in response to Alaska's changing climate. Alaska Forum on the Environment. Anchorage, AK; 6-10 February 2017.
- 2016 **Kettle, N.** Tribal climate adaptation planning in Alaska. Island Sustainability Conference: Islanded Communities. Tumon, Guam; 11-15 April 2016.

- 2016 **Kettle, N.** A social network analysis of the climate-science practice interface in Alaska. Association of American Geographers Annual Conference. San Francisco, CA; March 31 - April 2 2016.
- 2016 **Kettle, N.** Tribal climate adaptation planning in Nome, Alaska. Alaska Forum on the Environment. Anchorage, AK; 8-12 February 2016.
- 2014 **Kettle, N., S. Trainor, P. Loring.** A social network analysis of climate research, services, and decision making in Alaska. Climate, Conservation, and Community in Alaska and Northwest Canada Conference. Anchorage, AK; 3-6 November 2014.
- 2014 **Kettle, N.** Climate webinars: a platform for knowledge to action networks in Alaska. Association of American Geographers Annual Conference. Tampa, FL; 8-12 April 2014.
- 2013 **Kettle, N.** Comparing coastal planner expectations of climate change to climate science projections. Association of American Geographers Annual Conference. Los Angeles, CA; 8-13 April 2013.
- 2012 **Kettle, N.** The influence of perceived risk, uncertainty, and trust on coastal climate change planning. Association of American Geographers Annual Conference. New York, NY; 24-28 February 2012.
- 2012 **Kettle, N.** Climate change adaptation planning in coastal South Carolina. NOAA Social Coast Forum 2012. Charleston, SC; 15-16 February 2012.
- 2011 **Kettle, N.** Climate change adaptation planning in coastal South Carolina. Southeastern Division of the Association of American Geographers Annual Conference. Savannah, GA; 20-22 November 2011.
- 2011 **Kettle, N.** Coastal climate change adaptation: the influence of risk, knowledge, uncertainty, and trust. 19th Conference on Applied Climatology, Practical Solutions for a Warming World: American Meteorological Society Conference on Climate Adaptation. Asheville, NC; 18-20 July 2011.
- 2011 **Kettle, N.** Trust in state-level climate change adaptation planning. Association of American Geographers Annual Conference; Seattle, WA; 12-16 April 2011.
- 2011 Tuler, S., K. Dow, J. Whitehead, T. Webler, **N. Kettle.** Integration of local planners' & scientists' knowledge of consequences, vulnerabilities, and adaptation strategies to climate change related hazards. 91st Annual Meeting of the American Meteorological Society. Seattle, WA; 23-27 Jan. 2011.
- 2010 **Kettle, N.** Improving reporting of uncertainties in sea level rise assessments. The Coastal Society's 22nd Biennial Conference. Wilmington, NC; 13-16 June 2010.
- 2010 **Kettle, N.** Cross-scalar barriers to coastal adaptation to climate change. Association of American Geographers Annual Conference; Washington DC; 14-18 April 2010.
- 2009 **Kettle, N.** Evaluating the historical development of sea level rise vulnerability models. Association of American Geographers Annual Conference; Las Vegas, NV; 22-29 March 2009.
- 2008 **Kettle, N.** Sea level rise in the Carolinas: a review of methodologies, rates, and impacts. Southeastern Division of the Association of American Geographers Annual Conference; Greensboro, NC; 18-20 November 2008.
- 2008 **Kettle, N.** Considerations of error and uncertainty in mapping sea level rise. Association of American Geographers Annual Conference; Boston, MA; 15-19 April 2008.
- 2007 **Kettle, N., E. R. Carr, and A. Hoskins.** Evaluating poverty-environment dynamics: from indicators to assessments. Southeastern Division of the American Association of American Geographers Annual Conference; Charleston, SC; 18-20 November 2007.
- 2006 Harrington Jr., J., S. Hutchinson, **N. Kettle.** Rapidly changing demographics and water uses in the Arkansas River Basin. Presented at the 23rd Annual Water and the Future of Kansas Conference; Topeka, KS; 16 March 2006.

Poster Presentations

- 2019 Trainor, S., J. Walsh, **N. Kettle**, T. Buxbaum, D. Holen, R. Thoman, K. Timm. Supporting actionable science in Alaska. Arctic Futures 2050. Washington DC; 4-6 September 2019.
- 2018 **Kettle, N., L. Brigham, H. Eicken, A. Mahoney, J. Jones, D. Abdel-Fattah.** Co-producing sea ice tools to improve situational awareness and crisis response in the Arctic. American Geophysical Union. Washington DC; 10-14 December 2018.
- 2016 **Kettle, N., S. Trainor, P. Loring.** Collaboration and co-production of climate knowledge: lessons from a network on the front-line. American Geophysical Union. San Francisco, CA; 12-16 December 2016.

- 2015 **Kettle, N.**, and S. Trainor. The role of climate webinars in supporting boundary organization networks in Alaska. National Adaptation Forum. St. Louis, MO; 12-14 May 2015.
- 2015 **Kettle, N.**, and S. Trainor. Climate webinars as a platform for supporting extended networks in Alaska. American Meteorological Society 10th Symposium on Societal Applications: Policy, Research and Practice. Phoenix, AZ; 4-8 January 2015.
- 2012 **Kettle, N.** Theoretical perspectives on support coastal climate change adaptation. Adaptation Futures. Second International Climate Change Adaptation Conference 2012. Tucson, AZ; 29-31 June 2012.
- 2011 Tuler, S., T. Webler, K. Dow, **N. Kettle**, K. Miller, J. Whitehead. 2011. Integration of local planners' and scientists' knowledge of consequences, vulnerabilities, and adaptation strategies to climate change related hazards. Land Grant and Sea Grant National Water Conference. Washington DC; 31 January - 1 February 2011.
- 2010 Carbone, G., et al. Supporting drought adaptation through stakeholder engagement. NOAA in the Carolinas 2010 Meeting, Asheville, NC; 21-22 April 2010.
- 2010 **Kettle, N.**, S. Chhotray, K. Dow, J. Whitehead. Interpreting sea level rise maps. North Carolina Sea Level Rise Forum. North Raleigh, NC; 14-15 January 2010.
- 2004 **Kettle, N.**, L. Harrington, J. Harrington, Jr. Groundwater depletion and agricultural land use change in Wichita County, Kansas. Presented at the Water and the Future of Kansas 21st Annual Conference; Lawrence, KS; 11 March 2004.

Panel Discussant

- 2017 From Research to action: lessons learned from developing and implementing climate services in underserved communities. National Adaptation Forum. St. Paul, Minnesota; May 9-11, 2017.

PROFESSIONAL SERVICE

- 2017 U.S. National Climate Assessment, Alaska Chapter. (Contributing Author)
- 2007 – 2010 Graduate Representative, Human Dimensions of Global Environmental Change Specialty Group, Association of American Geographers

Session Organizer

- 2017 Collaboratively building resiliency & adaptation in response to Alaska's changing climate. Alaska Forum on the Environment. Anchorage, AK; 6-10 February 2017.
- 2014 Networks and the climate science-practice interface. Association of American Geographers. Tampa, FL; 8-12 April 2014.

Proposal Reviewer

Great Lakes Integrated Sciences and Assessments (2014); National Estuarine Research Reserve System Science Collaborative (2015, 2017-2018, 2020); North Pacific Research Board (2018); Virginia Sea Grant (2015).

Proposal Review Panelist

Bureau of Indian Affairs Tribal Resilience Program Panel (2019-2020)

Invited Presentations

- 2019 Co-producing sea ice tools to improve situational awareness and crisis response in the Arctic. *Interagency Arctic Research Policy Committee, Sea Ice Collaboration Team* [webinar]. June 24, 2019.
- 2017 A synthesis of climate adaptation planning needs in Alaska Native communities. *Interagency Arctic Research Policy Committee, Coastal Resilience Collaboration Team*. [webinar] August 22, 2017.
- 2016 Climate change in the Bering Strait region. *Bering Strait Voices Vision for Action Summit*. Nome, AK; October 13, 2016.
- 2016 Boundary organizations and the science-policy interface. *International Arctic Research Center Summer School*. Univ. of Alaska Fairbanks. Fairbanks, AK; 11-23 March, 2016.
- 2016 Climate change adaptation, policy, and practice. *International Comparative Rural Policy Studies Program*. Fairbanks, AK; 14-26 July, 2016

- 2016 Tribal climate adaptation planning: Nome, Alaska. *Signs of Life Academy Camp: Reaching Arctic Communities Facing Climate Change*. Fairbanks, AK; 14-17 June, 2016.
- 2015 Coastal erosion in Alaska: causes, impacts, and barriers to adaptation. *Environmental Protection Agency Climate Change Speaker Series* [webinar]. 16 September 2015.
- 2014 Alaska's changing climate. *Alaska Center for the Environment*. Fairbanks, AK; 6 December 2014.
- 2014 Supporting local climate adaptation planning. *Alaska Rural Water and Sanitation Working Group* (US Arctic Research Commission-coordinated Working Group) Fairbanks, AK; 18 March 2014.
- 2011 Global and regional climate change. *Geofest 42: South Carolina Geographic Alliance Center of Excellence for Geographic Education*. Columbia, SC; 10 September 2011.

Manuscript Reviewer (refereed journals)

Bulletin of the American Meteorological Society (1); Climate (2); Climate Risk Management (2); Climatic Change (2); Global Environmental Change (2); Journal of Coastal Research (2); Journal of Environmental Policy & Planning (1); Journal of Environmental Science & Policy (2); Journal of Geography (5); Land Use Policy (1); Nature Sustainability (1); Papers of the Applied Geography Conferences (1); Regional Environmental Change (1); Risk Analysis (2); Risks (1); Weather Climate & Society (3).

UNIVERSITY SERVICE

- 2019 Search Committee. Director of Planning, Analysis and Institutional Research. Univ. Alaska Fairbanks
- 2007 Search Committee. Coastal Scientist Faculty, Dept. of Geog. University of South Carolina

Undergraduate Student Mentoring

Name	Institution/Department	Program	N. Kettle Role	Status
Lynneva Carroll	UAF Honors Program (Climate Scholar)	B.A.	Research assistant advisor	Completed (fall 2019)

Graduate Mentoring

Name	Institution/Department	Program	N. Kettle Role	Status
Amy Hendricks	UAF Atmospheric Sciences	Ph.D	Alaska Sea Grant Fellow advisor	In Progress (fall 2020)
Lindsey Heaney	UAF Communication and Journalism	M.A.	Research assistant advisor	Completed (fall 2019)
Dina Abdel-Fattah	UAF Natural Resource Management	Ph.D.	Arctic Domain Awareness Center Fellow, advisor	Completed (fall 2017)
Stefan Tangen	UAF Natural Resource Management	M.S.	Committee member	Completed (fall 2017)
Danielle Meeker	Scripps Institute of Oceanography	M.A.	Intern advisor	Completed (summer 2017)

TEACHING EXPERIENCE

University of South Carolina

Introduction to Geography; Weather and Climate Lab; Geographic Information Systems Lab

Kansas State University

Introduction to Geographic Information Systems Lab; Remote Sensing of the Environment Lab

AFFILIATIONS

Association of American Geographers

American Geophysical Union