

Benjamin K. Sullender

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EDUCATION

University of Washington

Ph.D Student, Environmental and Forest Sciences

Seattle, WA
2021 - present

- School of Environmental and Forest Sciences Fellowship
- Program on Climate change Graubard Fellowship
- College of the Environment Top-Off Award
- Program on Climate Change Graduate Fellow
- Graduate Steering Committee, Program on Climate Change
- School of Environmental and Forest Sciences Graduate Council Officer

Madison, WI

University of Wisconsin-Madison

Master of Science, Conservation Biology and Sustainable Development

2013 - 2016

- University Fellowship (awarded to top 70 of ~16,000 graduate school applicants)
- Cumulative GPA 4.00
- Certificate in Business, Environment, and Social Responsibility
- Thesis: Anthropogenic and hydrological drivers of waterbird habitat selection in Poyang Lake, China

Carleton College

Bachelor of Arts, Environmental Studies

Northfield, MN
2007 - 2011

- *Magna cum laude* (cumulative GPA 3.56; math/science GPA: 3.64)
- Focus in Conservation and Development
- Thesis: Biological, social, and administrative effectiveness of Tarangire National Park, Tanzania

PUBLICATIONS

- Kapsar, K., **B. K. Sullender**, J. Liu, and A. Poe. 2022. North Pacific and Arctic marine traffic dataset (2015-2020). *Data in Brief* 44: 108531. <https://doi.org/10.1016/j.dib.2022.108531>
- Cunningham, C.X., T.A. Nuñez, Y. Hentati, **B. K. Sullender**, C. Breen, T.R. Ganz, S.E. Kreling, K. Shively, E. Reese, J. Miles, and L.R. Prugh. 2022. Permanent daylight saving time would reduce deer-vehicle collisions. *Current Biology* 32(22): 4982-4988e4. <https://doi.org/10.1016/j.cub.2022.10.007>
- Fullman, T. J., **B. K. Sullender**, M. Cameron, and K. Joly. 2021. Simulation modeling accounts for uncertainty while quantifying ecological effects of development alternatives. *Ecosphere* 12: e03530. <https://doi.org/10.1002/ecs2.3530>
- **Sullender, B. K.**, K. Kapsar, A. Poe, and M. Robards. Spatial management measures alter vessel behavior in the Aleutian Archipelago. 2021. *Frontiers in Marine Science* 7:579905. doi.org/10.3389/fmars.2020.579905

PUBLICATIONS (continued)

- **Sullender, B. K.**, J. Barzen, and J. Silbernagel. 2020. Effects of seasonal hydrological connectivity on Eurasian Spoonbill (*Platalea leucorodia*) foraging ecology. *SIS Conservation* 2: 10-18. <https://storkibisspoonbill.org/publications/sis-conservation-issue-2/>
- Huntington, H. P., S. Bobbe, A. Hartsig, E. J. Knight, A. Knizhnikov, A. Moiseev, O. Romanenko, M. A. Smith, and **B. K. Sullender**. 2019. The role of areas to be avoided in the governance of shipping in the greater Bering Strait region. *Marine Policy* 110:103564. doi.org/10.1016/j.marpol.2019.103564
- Smith, M. A., **B. K. Sullender**, W. C. Koeppen, K. J. Kuletz, H. M. Renner, and A. J. Poe. 2019. An assessment of climate change vulnerability for Important Bird Areas in the Bering Sea and Aleutian Arc. *PLoS One* 14(4): e0214573. doi.org/10.1371/journal.pone.0214573
- Hartsig, A., **B. K. Sullender**, and S. Bobbe. 2019. Managing vessel traffic in the Bering Strait region: collaborating on a precautionary approach. *Arctic Herald* 2(27): 18-29 (in Russian and English). <http://arctic-herald.ru/?p=707>
- **Sullender, B. K.**, J. Barzen, and J. Silbernagel. 2016. Foraging success and habitat selection of the Eurasian Spoonbill (*Platalea leucorodia*) at Poyang Lake, China. *Waterbirds* 39:356-364. doi.org/10.1675/063.039.0405

PROFESSIONAL EXPERIENCE

Kickstep Approaches

Founder and Senior Analyst

Anchorage, AK

Nov 2019 – Dec 2021

- Provided consulting and spatial ecology services for conservation organizations.
- Contracted by World Wildlife Fund to develop research program on Arctic shipping, climate change, and Alaska Native communities.
- Contracted by National Resources Defense Council to evaluate, review, and improve stochastic, Bayesian model of oil exploration impacts on denning polar bears in Arctic National Wildlife Refuge.
- Led research effort analyzing >150 GB of satellite-based vessel tracking data to assess effectiveness of spatial conservation measures in Bering Sea.
- Created, designed, marketed, and distributed over 500 copies of Indigenous placenames and backcountry geography map, raising over \$14,000 in revenue for nonprofit Hatcher Pass Avalanche Center and local outdoors gear stores.

Audubon Alaska
Spatial Ecologist

Anchorage, AK
Jul 2018 - Nov 2019

- Used spatial analysis to drive, inform, and prioritize conservation efforts in ecosystems across Alaska.
- Managed two GIS Interns and led small teams to complete multi-year projects.
- Conducted in-depth review of Bering Sea marine ecology and synthesized findings into written and map-based support for spatial protections; these efforts culminated in establishment of three protected areas totaling 5.8 million acres.
- Coordinated science efforts of multiple conservation nonprofit coalitions.
- Developed written comment letters integrating spatial data and best available science for various Environmental Impact Statements and policy decisions.
- Aggregated, aligned, and rectified conflicting geodatabases on timber harvests and remaining old growth across Tongass National Forest and adjacent lands.

Audubon Alaska
GIS Biologist

Anchorage, AK
May 2015 - Jul 2018

- Synthesized scientific literature, white papers, unpublished datasets, and conducted original analyses to support decision-making processes across Alaska.
- Researched, reviewed, and illustrated key conservation issues with award-winning atlases, reports, and maps.
- Contributed technical written comments on topics ranging from ecological impacts of timber harvest to implications of Arctic permafrost degradation.
- Quantified projected changes in biophysical marine variables across three climate models relative to a spatially explicit baseline.
- Developed species distribution models for 180 bird species to inform land trust portfolio prioritization across multiple spatial scales.
- Maintained, updated, and distributed public database of Important Bird Areas.

University of Wisconsin-Madison
Teaching Assistant

Madison, WI
Sep 2014 - May 2015

- Teaching assistant for Envir St 260: Introduction to Ecology and Envir St 695: Applications of GIS in Natural Resources.
- Led discussion and developed original classroom activities to teach central concepts of ecology, such as gene flow, island biogeography, trophic cascades, ecosystem services, and human-wildlife conflict.
- Created, developed, and led laboratory exercises demonstrating advanced GIS concepts such as iterative models, habitat suitability analysis, and efficient cartography.

The Nature Conservancy

Madison, WI

GIS Assistant

May 2014 - Aug 2014

- Developed maps and spatial data to guide conservation efforts on TNC-owned lands.
- Assisted in evaluating information gaps, feedback from partners, scope of current projects, and broader strategic vision into comprehensive regional plan.
- Worked with team of nonprofit, state agency, and land trust scientists to develop geographic ecological assessment tool.
- Created series of geospatial tools to quantify ecological value of land parcels and model landscape suitability based on biotic and abiotic conservation targets.

IRISMaps, Inc.

Beverly, MA and Manchester, NH

GIS Analyst / Consultant

Sep 2012 - Dec 2013

- Created geospatial datasets in ArcMap and Google Earth Engine to demonstrate utility coordination use cases across servers and application instances.
- Tested code for new functionality within IRIS GIS platform, documented bugs, and collaborated with engineering team to implement fixes.
- Collaborated with clients worldwide to streamline project planning and construction processes, including consultation with urban planners and engineers to improve data quality.

AWARDS

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- Program on Climate Change Graubard Fellowship 2023
 - James and Marinelle Bethel Endowed Scholarship 2022
 - School of Environmental and Forest Sciences Fellowship 2021 - 2022
 - Program on Climate Change Recruitment Award 2021
 - College of the Environment Top-Off Award 2021
 - Best Cartography, Map Gallery Award, Esri User Conference 2018
 - First Place, Map Series or Atlas, Esri User Conference 2018
 - Recognition of Excellence in Cartography, Esri / International Cartography Association / International Map Industry Association 2018
 - Presentation of the Month, The Wildlife Society 2018
 - Regional Director Excellence Award, Partners in Cons., USFWS 2017
 - Phi Kappa Phi Honor Society 2014 - 2016
 - NASA-MSU Professional Enhancement Award 2015
 - International Congress for Conservation Biology Chapter Travel Award 2015
 - Nelson Institute for Environment Studies Travel Grant 2015
 - Finalist, DACOR Bacon House Fellowship 2014
 - North American Congress for Conservation Biology Student Travel Award 2014
 - Nelson Institute for Environmental Studies Travel Grant 2014
 - University Fellowship, University of Wisconsin-Madison 2013 - 2014
 - C.V. Starr Scholarship 2009 - 2010
 - Laurena Choo Memorial Foundation Scholarship 2009 - 2010
 - National Merit Scholarship 2007 - 2011
 - Philips Electronics Scholarship 2007 - 2011

RELATED TRAINING AND TECHNICAL SKILLS

- ESRI's ArcGIS suite of programs: ArcGIS Pro, ArcMap 10.x, ArcCatalog, ArcGIS Online, and Collector
- ArcGIS extensions and plug-ins: Geospatial Modeling Environment, Model Builder, XToolsPro, and Hawth's Tools
- R statistical software: RStudio, R Markdown, and various libraries including tidyverse, sf, sp, stars, terra, doParallel, spatstat, and ggplot2
- Proficient in data visualization, stochastic simulations, batch processing, and parallelization
- Design and management of large geodatabases and metadata curation
- Remote sensing and time-series satellite imagery analysis
- 3-D modeling and cartography
- Ecological analyses: species distribution modeling, habitat suitability, survey effort-weighted observations, utilization distribution, and core area delineation
- Adobe Illustrator, Photoshop, and InDesign (advanced cartography)
- Microsoft Access, Excel, and macro programming
- QGIS and GRASS
- Scripting in R (proficient); Python (proficient); CSS and HTML (basic familiarity)

MEMBERSHIPS, ACTIVITIES, AND ADDITIONAL

- Member of Society for Conservation Biology, Society for Conservation GIS, and International Association for Landscape Ecology
- SEFS Graduate Council Officer 2022 - present
- Steering Committee Member, Program on Climate Change 2021 - present
- Certified Wilderness First Responder 2019 - present
- Board Member, Anchorage Ultimate Frisbee Club 2016 - 2021
- Summer League Captain, Anchorage Ultimate Frisbee 2015 - 2021
- AIARE Avalanche Level II certification 2019
- Swiftwater Safety Institute, Packraft Swiftwater Rescue Training I 2018
- AIARE Avalanche Level I certification 2015
- Vice President, Society for Conservation Biology, WI Chapter 2015
- Co-Founder and Board Member, Society for Cons. Biology, WI Chapter 2014
- Student Rep. and Treasurer, Nelson Institute for Envir. Studies 2014 - 2015
- Student Rep., Environmental Conservation Program Committee 2014 - 2015
- Officer, EcoTalks Planning Committee 2014 - 2015
- Bilingual Tutor, Juventud Program, Sherman Middle School, WI 2013 - 2014
- Two-time conference champion, Carleton College varsity soccer 2007, 2008
- Two-time National Champion, Ultimate Frisbee Collegiate Division I 2009, 2011

REPORTS, CONTRIBUTED CHAPTERS, AND OTHER WRITING

- Lancaster, M., and **B. Sullender**. 2021. Safeguarding marine mammals who spend time in the Arctic. WWF Arctic, Solna, Sweden. (*Cover story*). [https://arcticwwf.org/site/assets/files/3880/thecircle0421_low_res.pdf].
- **Sullender, B.** 2019. Life in the Heart of the Arctic: A Journey through the Arctic National Wildlife Refuge. Audubon Alaska, Anchorage, AK. [<https://ak.audubon.org/life-heart-arctic>]
- **Sullender, B.** 2018. Alaska's Beaufort Coastal Corridor: Persistence of Ecological Values in a Changing Landscape. Audubon Alaska, Anchorage, AK. 66 pp. [http://ak.audubon.org/sites/g/files/amh551/f/beaufort_coastal_corridor_final_o.pdf]
- Smith, M. A., M. S. Goldman, E. J. Knight, and J. J. Warrenchuk. 2017. Ecological Atlas of the Bering, Chukchi, and Beaufort Seas. 2nd edition. Audubon Alaska, Anchorage, AK. 333 pp. [http://ak.audubon.org/sites/g/files/amh551/f/arctic_atlas_composite_144ppi-final.pdf]
 - **Sullender, B.**, and E. Knight. Ice Seals: Bearded, Ribbon, Ringed, and Spotted Seal. 6:224-231.
 - **Sullender, B.** Transportation and Energy Infrastructure. 7:270-275.
 - Cooley, S., E. Knight, **B. Sullender**, and M. Goldman. Petroleum Exploration and Development. 7:276-283.
 - **Sullender, B.** A Closer Look: Artificial Islands. 7:284.
 - **Sullender, B.** Vessel Traffic. 7: 285-293.
 - **Sullender, B.** A Closer Look: Unimak Pass and Bering Strait Vessel Traffic. 7:294-295.
 - Smith, M., E. Knight, **B. Sullender**, M. Goldman, S. Culliney, N. Warnock, and S. Senner. Conservation Summary. 8:326-333.
- **Sullender, B.** 2017. Ecological Impacts of Road- and Aircraft-based Access to Oil Infrastructure. Audubon Alaska, Anchorage, AK. 52 pp. [http://ak.audubon.org/sites/g/files/amh551/f/road_aircraft_access_report_final_o.pdf]
- **Sullender, B. K.** 2016. Kenai Bird Habitat Assessment Protocol. Audubon Alaska and Kachemak Heritage Land Trust, Anchorage and Homer, AK.
- **Sullender, B. K.** and M. A. Smith. 2015. Ecological Atlas of Alaska's Western Arctic. Audubon Alaska, Anchorage, AK. 71 pp. [https://ak.audubon.org/sites/g/files/amh551/f/w_arctic_atlas_lr.pdf]
- **Sullender, B. K.**, E. Knight, and M. Goldman. 2016. Building an Arctic Atlas. EdgeEffects. [<http://edgeeffects.net/arctic-atlas/>]
- Smith, M. A. 2016. Ecological Atlas of Southeast Alaska. Audubon Alaska, Anchorage, AK. 228 pp. [http://ak.audubon.org/sites/g/files/amh551/f/seak_atlas_144dpi.pdf]
 - **Sullender, B.** Mammal Species Richness. 6:144-146.
 - Smith, M. A., J. Schoen, D. Person, and **B. Sullender**. Alexander Archipelago Wolf. 6:155-159.
 - **Sullender, B.**, and M. A. Smith. Timber. 7:191-194.

- **Sullender, B.** 2015. Disrepair and the draw of Gunung Rinjani. Souvenirs Magazine. [<http://souvenirsmadison.com/2015/04/disrepair-and-the-draw-of-gunung-rinjani/>]
- **Sullender, B.** 2014. Hunting is a greater threat than logging for most wildlife in Borneo. MongaBay December 16, 2014. [<http://news.mongabay.com/2014/1215-sullender-gibbs-hunting.html>]

PRESENTATIONS

- Critical snow support thresholds for predator-prey interactions. **The Wildlife Society Annual Conference:** Spokane, WA, November 7-10, 2022.
- Snow and mammal movement in Denali. **Denali National Park & Preserve Summer Speaker Series:** Denali Park, AK, August 12, 2022. (*invited lecture*).
- A new, publicly available marine vessel traffic dataset for the North Pacific and southern Arctic Oceans, 2015-2020. **Alaska Marine Science Symposium:** online, Jan 24-28, 2022 (*presented by co-author Kelly Kapsar*).
- Predicting surface density using snow models and assimilation for wildlife applications. **American Geophysical Union:** New Orleans, LA, December 13-17, 2021 (*poster; presented by co-author Michael Durand*).
- Simulation models account for uncertainty and reveal impacts of future development on Alaskan wildlife. **Ecological Society of America:** online, August 3-6, 2020 (*presented by co-author Timothy Fullman*).
- Persistence in a Changing Landscape: Recurring Bird Concentration Areas on Alaska's Arctic Coastal Plain. **American Ornithology Conference:** Anchorage, AK, June 24-28, 2019 (*session chair*).
- Persistence of Bird Concentration Areas on Alaska's Arctic Coastal Plain. **Alaska Bird Conference:** Fairbanks, AK, March 4-8, 2019.
- Building an Ecological Atlas: From Spatial Data to Conservation across Dynamic Arctic Seas. **Arctic Biodiversity Congress:** Rovaniemi, Finland, October 9-12, 2018.
- Seasonal Inundation, Foraging Ecology, and Eurasian Spoonbill Habitat Selection at Poyang Lake, China. **International Association for Landscape Ecology:** Chicago, IL, April 9-12, 2018 (*invited symposium talk*).
- Estimating Biological Risk in Alaska's Arctic: Ecological Synthesis of the Western Beaufort Corridor. **International Association for Landscape Ecology.** Chicago, IL, April 9-12, 2018.
- Seasonal Shifts in Marine Mammal Core Use Areas and Vessel Traffic in the Alaskan Arctic Ocean. **The Wildlife Society Annual Conference:** Albuquerque, NM, September 24-27, 2017.
- Reconciling Spatial Scales in Bird Conservation: The Kenai Bird Habitat Assessment Protocol. **Alaska Bird Conference:** Cordova, AK, December 6-7, 2016.
- Alaska's Marine Soundscape in a Warming Arctic: Spatially Quantifying the Impacts of Vessel Traffic Noise on Marine Mammal Core Areas. **North American Congress for Conservation Biology:** Madison, WI, July 17-20, 2016.

- Modeling the Impact of Hydrological Alterations: Shifts in Eurasian Spoonbill Habitat in Poyang Lake, China. **International Congress for Conservation Biology**: Montpellier, France, August 2-6, 2015.
- Modeling the Impact of Hydrological Alterations: Shifts in Eurasian Spoonbill Habitat in Poyang Lake, China. **International Association for Landscape Ecology World Congress**: Portland, OR, July 5-10, 2015.
- Identifying Eurasian Spoonbill Habitat in Poyang Lake. **Poyang Lake Research and Monitoring Summit**: Nanchang, China, May 2015 (*presented by advisor J. Barzen*).
- Wetland Ecology: Flood Pulses, Productivity, and Poyang Lake. **Guest Lecture, Environmental Studies 260: Introductory Ecology**: University of Wisconsin-Madison, October 28, 2014.
- Using interdisciplinary collaboration to understand Eurasian spoonbill and zooplankton distribution within Poyang Lake. **Poyang Lake Research and Monitoring Summit**: Nanchang, China, July 6-7, 2014.
- Effects of anthropogenic, ecological, and hydrological variables on Eurasian spoonbill (*Platalea leucorodia*) wintering habitat within Poyang Lake, China. **Society for Conservation GIS International Conference**: Pacific Grove, CA, July 10-13, 2014.
- Maintaining habitat in a changing landscape: The relative importance of direct and indirect drivers of waterbird habitat in Poyang Lake, China. **North American Congress for Conservation Biology**: Missoula, MT, July 13-16, 2014 (*poster*).