



Brian F. Naess, M.S.

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PROFESSIONAL SUMMARY

Environmental educator, spatial analyst, and program director with over 25 years of experience bridging academic research and experiential learning at the University of North Carolina. Currently directing The EcoStudio, connecting undergraduate students with sustainability internships and clean tech career pathways. Proven track record of building collaborative experiential programs, leading high impact environmental research, and supporting the next generation of environmental leaders.

PROFESSIONAL EXPERIENCE

Director, The EcoStudio (Spring 2018 – Present), UNC Institute for the Environment

- Lead career-focused program pairing undergraduate students with sustainability internships and research projects that generated 430 internship opportunities for more than 650 students
- Engage with industry, community, and governmental partners
- Guide weekly, small-group mentorship meeting with an emphasis on reflection and career development via ENEC 393/493 Internship courses
- Design and manage the EcoStudio web platform

Lecturer and Research Associate (2001 – Present), UNC Institute for the Environment

Adjunct Lecturer appointments with Environment, Ecology, and Energy Program (2014-Present) and School of Information and Library Science (2014-2020) at UNC

- Faculty Program Director, UNC Coral Reef Ecology program in the US Virgin Islands (2022–Present, and co-instructor 2002-2021)
 - Lead annual, high-impact study abroad experience for interdisciplinary students to study the reefs, history, and culture of the US Virgin Islands
 - Teach introductory Coral Reef Ecology & Management course and encourage interested students to pursue additional coursework in fisheries and marine sciences
 - Manage and curate a comprehensive, student-written online resource about coral reefs (www.coraldigest.org)
- Coordinate and instruct interdisciplinary environmental capstone courses focusing on regional smart cities, energy efficiency, and air quality with partners like the Research Triangle Cleantech Cluster (RTCC) (2014–2019)
- Inform departmental faculty and staff with the latest security updates/requirements



from UNC ITS while serving as Information Security Liaison (ISL) (2013 – Present)

- Serve as faculty advisor for several undergraduate students on independent research/honors projects (2014 – 2016)
- Managed logistics for a new interdisciplinary field site focused on environmental law and policy while serving as Assistant to the Director of the Outer Banks Field Site (2001-2003)

GIS Analyst & Lead Web Programmer (2001 – Present), UNC Institute for the Environment

- Serve as technical lead or key personnel on sponsor-funded air quality-related research projects
 - Technical lead on Environmental Protection Agency (EPA)-funded contract to develop aircraft emissions inventory for 2023 and 2026 National Emissions Inventory (EPA funded contract, 2024 – 2026)
 - Principle Investigator of exploratory study to use dispersion modeling to assess the air quality impacts associated with Sargassum decomposition in Martinique (2025-2026)
 - Developed datasets and methodology for fine-scale pollution-modeling for various government and non-profit clients including Environmental Defense Fund, North Central Texas Council of Governments, New York State Energy Research and Development Authority, Massachusetts Department of Environmental Protection, Federal Highway Administration, and EPA (2014-2026)
- Manage full-stack web applications and IT infrastructure for research centers and regional events, including the NC Clean Tech Summit (2014–2016) and Community Modeling and Analysis System Conference (2004-2026).

EDUCATION

M.S. (2001), Environmental Management and Policy, University of North Carolina at Chapel Hill, NC, USA

B.A. (1998), Geology, University of Colorado at Boulder, Boulder, CO, USA

PUBLICATIONS

Naess, Brian, Isakov, Vlad, Teyssier, Mathilde. Dispersion Modeling to Characterize Air Pollution Exposure from Sargassum in Martinique, *Air* 4 (1), 4 (2026).

<https://doi.org/10.3390/air4010004>

Arunachalam, Saravanan, Seppanen, Catherine, **Naess, Brian**, et al. A Census Tract-Level Modeling Framework for Estimation of Health Co-Benefits of Decarbonization in New York State. (in review). <https://doi.org/10.26434/chemrxiv-2025-8sbv8>



Naess, Brian, Jonathan Buonocore, Veronica Southerland, Muskaan Khemani, Catherine Seppanen, Ananya Roy, Frederica Perera, Kaitlyn E. Coomes, Rick Rykowski, and Saravanan Arunachalam. Distribution of air quality health benefits of medium and heavy-duty electrification policies in New York City. *Environmental Research: Health* 3, no. 1 (2025): 011001. DOI 10.1088/2752-5309/ad9f95

Shukla, Komal; Seppanen, Catherine; **Naess, Brian**; Chang, Charles; Cooley, David; Maier, Andreas; Divita, Frank; Pitiranggon, Masha; Johnson, Sarah; Ito, Kazuhiko; Arunachalam, Saravanan. ZIP code-level estimation of air quality and health risk due to particulate matter pollution in New York City, *Environmental Science & Technology*, 2022, 56, 11, 7119-7130. <https://doi.org/10.1021/acs.est.1c07325>

Valencia, Alejandro; Arunachalam, Saravanan; Isakov, Vlad; **Naess, Brian**; Serre, Marc. Improving emissions inputs via mobile measurements to estimate fine-scale Black Carbon monthly concentrations through geostatistical space-time data fusion, *Science of The Total Environment*, Volume 793, 2021, ISSN 0048-9697. <https://doi.org/10.1016/j.scitotenv.2021.148378>.

Naess, Brian; Seppanen, Catherine; Arunachalam, Saravanan; Dowling, Richard G.; Wu, Zifeng; Fordham, Damon; Rouphail, Nagui M.; Zamurs, John. October 2020. *Evaluation of Methods for Modeling Vehicle Activity at Signalized Intersections for Air Quality Hot-Spot Analyses, Final Report*. FHWA-HEP-21-008. Contract or Grant No. DTFH6117D00007L, order no. 693JJ318F000339. https://www.fhwa.dot.gov/environment/air_quality/conformity/research/eval_methods/

Sorte, Sandra; Arunachalam, Saravanan; **Naess, Brian**; Seppanen, Catherine; Rodrigues, Vera; Valencia, Alejandro; Borrego, Carlos; Monteiro, Alexandra. Assessment of source contribution to air quality in an urban area close to a harbor: Case-study in Porto, Portugal, *Science of The Total Environment*, Volume 662, 2019, Pages 347-360. ISSN 0048-9697. <https://doi.org/10.1016/j.scitotenv.2019.01.185>.

Isakov, V.; Arunachalam, S.; Baldauf, R.; Breen, M.; Deshmukh, P.; Hawkins, A.; Kimbrough, S.; Krabbe, S.; **Naess, B.**; Serre, M.; Valencia, A. Combining Dispersion Modeling and Monitoring Data for Community-Scale Air Quality Characterization. *Atmosphere* 2019, 10, 610.

Arunachalam, Saravanan; **Naess, Brian**; Seppanen, Catherine; Valencia, Alejandro; Brandmeyer, JoEllen; Venkatram, Akula; Weil, Jeff; Isakov, Vlad; Barzyk, Timothy. 2019. A new bottom-up emissions estimation approach in support of air quality modeling for community-scale assessments around airports. *International Journal of Environment and Pollution*, Vol. 65, No. 1/2/3, 2019. DOI: [10.1504/IJEP.2019.101832](https://doi.org/10.1504/IJEP.2019.101832)



Naess, Brian. *A Deeper Appreciation of Coral Reefs Through Snorkeling: How to Become a Pro Snorkeler.* Kindle ed., Snorkel Pro Books, 2018. ASIN: B07B9N7LFQ. ISBN: 978-0-692-08703-9.

Isakov, Blad; Barzyk, Timothy; Smith, Elizabeth; Arunachalam, Saravanan; **Naess, Brian;** Venkatram, Akula. A web-based screening tool for near-port air quality assessments, In *Environmental Modelling & Software*, Volume 98, 2017, Pages 21-34, ISSN 1364-8152, <https://doi.org/10.1016/j.envsoft.2017.09.004>

Arunachalam, S., Brantley, H., Barzyk, T.M., Hagler, G., Isakov, V., Kimbrough, E.S., **Naess, B.**, Rice, N., Snyder, M.G., Talgo, K. and Venkatram, A., 2015. Assessment of port-related air quality impacts: geographic analysis of population. *International Journal of Environment and Pollution*, 58(4), pp.231-250.

TEACHING EXPERIENCE

ENEC 259. Coral Reef Ecology and Management (Spring semesters, 2002 – Present) Co-teach (2002-2021) and then lead (2022 – Present) an introductory coral reef ecology and management course).

ENEC 393/493. Environmental Internship (Spring 2018 – Present) – Teach and mentor undergraduate students who are either working at internships or working on independent research projects for a variety of different clients on- and off-campus. Weekly meetings focus on assisting the students with their projects and building their professional skills.

ENEC 698. Environmental Capstone (Fall 2019) – Led a semester-long group project for UNC Energy Services investigating how much money UNC can save if every building on campus met its target energy use intensity (EUI).

ENEC 698. Environmental Capstone (Spring 2019) – Led a semester-long group project using the EnviroAtlas to identify underserved communities in the Triangle for the EPA. The team put together a series of Story Maps to explain their methodology and demonstrate how the analysis was used in Carrboro.

ENEC 698. Environmental Capstone (Fall 2018) – Led a semester-long group project collecting and analyzing air quality data around campus to prioritize potential mitigation strategies for UNC professor Will Vizueté.

ENEC 698. Environmental Capstone (Spring 2018) – Led a semester-long group project building on the previous semester's work on smart cities in the Triangle region to develop an interactive Smart Cities Asset Map for the Research Triangle Cleantech Cluster (RTCC).



ENEC 698. Environmental Capstone (Fall 2017) – Led a semester-long group project collecting and analyzing metrics related to smart cities in the Triangle region for the Research Triangle Cleantech Cluster (RTCC).

ENEC 698. Environmental Capstone (Fall 2016) – Led a semester-long group project assessing ways the Town of Chapel Hill can reduce air quality impacts in the Franklin Street business district from transportation-related sources.

ENEC 395. Independent Research in Ecuador (Spring 2016) – Served as faculty of record for nine undergraduate students conducting independent research projects in various locations in Ecuador, including the Galapagos, the Paramo, and a biological station in the Ecuadorian Amazon rainforest.

ENEC 698. Environmental Capstone (Fall 2015) – Led a semester-long group project looking at ways to address and mitigate the food desert in the Southeast Community of Newport News, Virginia. Client: Greater Southeast Development Corporation.

ENEC 395. Independent Study (Spring 2015) – Mentored a senior SILS student while she worked on a semester-long project to improve a set of scripts used to combine disparate air quality model outputs

ENEC 395. Independent Study (Spring 2015) – Mentored a senior environmental science student while she completed a semester-long research project on incorporating edible/medicinal plants into the landscaping on campus at UNC

ENEC 698. Environmental Capstone (Spring 2015) – Led a semester-long group project looking at the health impacts related to the movement of freight and several community-identified stressors in the Southeast Community of Newport News, Virginia. Client: EPA.

ENEC 698. Environmental Capstone (Fall 2014) – Led a semester-long group project focused on building a web-based decision support tool to increase the availability and consumption of local fruit and vegetables. Client: Ecoland Institute.

ENEC 490H. The Future of Energy (Spring 2015, Spring 2014) – Assisted with the development and instruction for a new course about clean technology and the future of energy. (Unlisted co-instructor)