

Caitlin Swalec

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EDUCATION

Master of Environmental Science and Management (June 2019)

Bren School of Environmental Science & Management – University of California, Santa Barbara (UCSB)

Highlighted Coursework: Strategic Environmental Communication, Introduction to Environmental Media Production, Advanced Data Analysis, Advanced GIS, Data Visualization

Bachelor of Science in Chemical Engineering (May 2016)

Worcester Polytechnic Institute, Worcester, MA (WPI)

Highlighted Coursework: Air quality engineering, water and wastewater engineering, environmental engineering and design, industrial and chemical plant design, unit operations

EXPERIENCE

Program Director of Heavy Industry (2/2023 – present), **Project Manager, Iron and Steel Trackers** (10/2021 – 2/2023), **Climate and Energy Research Analyst** (2/2020 – 10/2021)

Global Energy Monitor (GEM), Santa Barbara, CA

- Supervises a team of ten project managers and researchers collecting data on heavy industry infrastructure.
- Pitched and secured over \$1.75 million USD annually in funding for GEM's Heavy Industry Program.
- Developed and launched the [Global Steel Plant Tracker \(GSPT\)](#) and [Global Blast Furnace Tracker \(GBFT\)](#), two open-source databases of the world's largest and most emissions-intensive iron and steel plants.
- Coordinates with grant managers, executive leadership, communications team, and other program directors to form GEM's strategy for advancing the global movement towards clean energy and industrial decarbonization.
- Organizes and leads the Steel Data Network, a collaborative, globally focused working group of industrial decarbonization experts from industry, policy, and academia from over 17 countries.
- Publishes reports and briefings on heavy industry decarbonization topics related to research using GEM data.

Lecturer for ESM271 – Carbon Footprints and Carbon Accounting (Fall 2022 – present)

UCSB Bren School of Environmental Science & Management, Santa Barbara, CA

- Instructor for a graduate-level course on corporate, government, and organizational carbon management tools and strategies including the GHG Protocol, ISO standards, and CDP reporting with up to 39 graduate students.
- Redesigned carbon footprints and carbon accounting course to reflect recent developments in the field, and to include Environmental and Social Justice context as well as more practical and case study-based learning.
- Managed one Teaching Assistant and designed team projects, homework assignments, and a midterm exam with corresponding grading rubrics to assess student learning and foster collaborative learning and class discussions.

Environmental Science Communications Fellow (9/2018 – 10/2019)

National Center for Ecological Analysis and Synthesis, Santa Barbara, CA

- Created [story maps](#) and web content, and wrote press releases, [character portraits](#), and [newsletter articles](#) to communicate science projects at NCEAS to audiences of scientists, donors, and general public.
- Used graphic design software such as Adobe InDesign and Illustrator to create decadal review documents of scientific progress at 27 Long Term Ecological Research (LTER) sites managed by US LTER.

Community Wildfire Response Graduate Researcher (5/2019–10/2019)

Bren School of Environmental Science & Management, Santa Barbara, CA

- Collected and organized geospatial wildfire response data from state and federal agencies and wrote R Studio scripts to analyze relationship between community demographics and government assistance provided for wildfire.
- Reviewed wildfire and natural disaster response policies to identify gaps in assistance and vulnerable communities.

Project Manager for Master's Thesis on Timber Harvest and Wildfire Risk (3/2018 – 6/2019)
Bren School of Environmental Science & Management, Santa Barbara, CA

- Guided a multidisciplinary team in developing a scientifically rigorous procedure for CAL FIRE to use in evaluating the cumulative impacts of proposed timber harvests on wildfire risk and hazard in California.
- Processed geospatial data from Landfire database to assess fire behavior analysis in R Studio and FlamMap.
- Organized meetings, wrote agendas, oversaw team operations, and assigned tasks to promote team progress.
- Presented research at the Ecology Society of America's Annual Meeting in August 2019.

Teaching Assistant for ES15BL – Environmental Chemistry Lab (Spring 2019)
UCSB Environmental Studies Department, Santa Barbara, CA

- Led nine labs including aluminum can recycling, soil and water field testing, and radiation monitoring.
- Explained and enforced standard wet lab safety protocols undergraduate students with little to no lab experience.
- Administered weekly quizzes to assess students' preparedness and understanding of each week's lab.

Carbon Pricing and Social Justice Graduate Researcher (1/2019–3/2019)
Bren School of Environmental Science & Management, Santa Barbara, CA

- Created a database to compare metrics of carbon pricing schemes around the globe.
- Conducted case study analysis of select carbon pricing schemes to determine how implementation of carbon pricing creates positive or negative social impacts.
- Co-wrote and published a [LinkedIn](#) article with Professor Sangwon Suh.

Teaching Assistant for ES2 – Introduction to Environmental Science (Winter 2018 and 2019)
UCSB Environmental Studies Department, Santa Barbara, CA

- Explained broad selection of environmental science concepts from ecology, biogeochemistry, climatology, geology, conservation studies, and more to undergraduate students with little to no prior experience in the field.
- Assigned and graded essays, science blog posts, debates, and social media campaigns for 80+ students each year.

Off-Shore Wind Farm Planning and Operations RISE Professional Intern (6/2018 – 9/2018)
Fraunhofer Institute for Wind Energy and Energy Systems, Bremerhaven, Germany

- Designed a methodology for assessing uncertainty in wind speed and direction measurements gathered by floating LiDAR buoys using standardized metrological masts for baseline measurements.
- Collaborated with Fraunhofer's marketing team to create content on success of floating LiDAR buoy measurement trial for internationally-distributed fall quarter newsletter.

Air Quality Engineer II, Air Quality Engineer I (6/2016 – 6/2017)
DSG Solutions, LLC, Gardner, MA

- Provided consulting support to 25+ clients in the energy industry, especially for environmental technology, monitoring, and compliance needs related to USEPA regulations 40 CFR 60, 40 CFR 63, and 40 CFR 75.
- Facilitated communication between a diverse team of EPA officers, environmental planners, plant operators, mechanics, environmental health and safety officers, and technology sales representatives.
- Conducted site visits to audit emissions control systems, assist in preparing emissions reports, and train plant operators in using emission control systems and responding to elevated emissions events.

Analytical Chemistry Water Quality Researcher (1/2016 – 3/2016)
Ecole Nationale Supérieure des Industries Chimiques, Université de Lorraine - Nancy, France

- Investigated how water quality is impacted by runoff containing elevated concentrations of chemical constituents from lumberyards or other areas of wood storage.
- Planned and executed experiments using UV/Visible Spectroscopy and Fluorescence Spectroscopy to identify toxins which leach from 25 different tree species and identify potential mitigation techniques.

GIS Forest Management Researcher (10/2014 – 3/2015)

Raks Thai Foundation, Bangkok, Thailand

- Conducted interviews, field observations, and data analysis to investigate the use of Geographic Information System (GIS) technology in resolving forest use disputes between native hill tribes and the Thai Government.
- Compiled report for Raks Thai Foundation to use in future court cases involving hill tribes' right to forest land.
- Coordinated efforts to expand the use of GIS technology in forest management to other hill tribes.

CONFERENCES AND PRESENTATIONS

Presenter and organizer. "Carbon Accounting Workshop." Croft Center for Undergraduate Environmental Leadership. University of California – Santa Barbara. November 14, 2024.

Keynote speaker. "State of the Global Steel Industry." 2024 Global Steel CSO Conference. Istanbul, Türkiye. May 13, 2024.

Presenter and panelist. "An analysis of the Global Coal-Based Steelmaking Fleet Using the New Global Blast Furnace Tracker." 2023 ASEAN Sustainability & Construction Forum. Singapore. November 21, 2023.

Presenter. "Decarbonizing the Global Iron and Steel Industry." BlackRock's Sustainability Speaker Series. Virtual. October 26, 2023.

Presenter and panelist. "Workshop: Unlocking Downstream Emissions with Next Gen Tech." GreenBiz NetZero Conference. Virtual. September 7, 2023.

Presenter and panelist. "Tracking the Global Iron and Steel Industry." Institute for Energy Economics and Financial Analysis Conference. San Francisco, California. June 21, 2023.

Presenter and panelist. "The Iron & Steel Technology Conference and Exposition." Association for Iron & Steel Technology. Detroit, Michigan. May 9, 2023.

Presenter. "Methane Monday Sessions." United Nations Environmental Programme. Virtual. January 23, 2023.

Presenter. "Clean Energy Ministerial Industrial Deep Decarbonisation Initiative." United Nations Industrial Development Organization. Virtual. September 20, 2022.

Organizer. "RENEW-Industry: Climate Neutrality in Industry and COP26." Tiffany Vass, International Energy Agency. Virtual. December 7, 2021.

Presenter and panelist. "Launch of First Annual Spatial Finance State and Trends Report." UK Centre for Greening Finance & Investments. Virtual. July 15, 2021.

Presenter and panelist. "[Low Carbon Steel Production Transition through the Lens of the Oil and Gas Industry.](#)" ACEEE Summer Study on Energy Efficiency in Industry, Panel 4: "Decarbonizing Industry". Virtual. July 14, 2021.

Panelist. "Industrial Decarbonization under China's 14th Five Year Plan." UC Berkeley's California-China Climate Initiative. Virtual. July 13, 2021.

Presenter. Incorporating wildfire risk and hazard into cumulative impacts assessment for timber harvest. Latebreaking Posters. Ecological Society of America's Annual Meeting. Louisville, Kentucky. August 10-16, 2019.

Presenter. Breaking Bear-iers: A Communication Plan for the California Grizzly Research Network. Communication Capstone Presentations. Bren School, UCSB. Santa Barbara, California. June 7, 2019.

Organizer. Forest Sustainability for Changing Times: An Emerging Transdisciplinary Research Program by Sandra De Urioste-Stone, University of Maine. Bren School Seminar Series. Santa Barbara, California. March 4, 2019.

Presenter. Cumulative Impacts Assessment for Timber Harvest: How to Best Incorporate Wildfire Risk and Hazard. Faculty Reviews. Bren School, UCSB. Santa Barbara, California. February 8, 2019.

Presenter. Artificial Light and Ozone Pollution. Companywide Round Table Talks. DSG Solutions. Gardner, Massachusetts. April 12, 2017.

Presenter. Characterizing Lumber Leachate by Tree Species. Major Qualifying Project Presentations. Worcester Polytechnic Institute. Worcester, Massachusetts. April 21, 2016.

Presenter. Self-Reliance: Selfish or Successful in the Face of Global Environmental Issues? National Academy of Engineering Presentation of 2016 Bernard M. Gordon Prize to Worcester Polytechnic Institute. Higgins House, Worcester Polytechnic Institute. April 15, 2016.

Presenter. Glory of the 54th: Contributions and Sacrifices of Colored Soldiers During the American Civil War. Fall 2015 American Studies Seminar. American Antiquarian Society, Worcester, Massachusetts.

Presenter. Evaluating Hill Tribe Forest Management: A Case Study of Amphoe Galyani Vadhana. Chulalongkorn University. Bangkok, Thailand. February 27, 2015.

Conferences Attended: Ecological Society of America's Annual Meeting, Louisville, Kentucky (2019); California Society for Ecological Restoration, Santa Barbara, California (2019); 7th Annual Santa Barbara Botanic Garden Conservation Symposium, "Trailblazing Women in Conservation," Santa Barbara, California (2019); 33rd Annual Land Use Law & Planning Conference, Los Angeles, California (2019); The German Academic Exchange Service (DAAD) Alumni Conference, Atlanta, Georgia (2018); DAAD-Research Internship in Science and Engineering Scholars Meeting, Heidelberg, Germany (2018 and 2015).

PUBLICATIONS

Khadeeja, Henna and Caitlin Swalec. [Why India's 'build now, decarbonize later' approach to achieving a net-zero steel industry will fail](#). Global Energy Monitor. December 11, 2024.

Swalec, Caitlin and Eileen Torres. [A matter of transparency: 2024 insights on the steel industry's evolving commitments to reach Net Zero by 2050](#). Global Energy Monitor and Leadership Group for Industry Transition. October 30, 2024.

Clark, Gregor and Caitlin Swalec. [Forging a sustainable future: Brazil's opportunity to lead in steel decarbonization](#). Global Energy Monitor. August 2024.

Armbruster, Marie, Astrid Grigsby-Schulte, and Caitlin Swalec. [Pedal to the Metal 2024: Building momentum for iron and steel decarbonization](#). Global Energy Monitor. July 2024.

Swalec, Caitlin, Hanna Fralikhina, and Zhanaiym Kozybay. [Pressure on Russia to be greener](#). Steel Times International. June 2024.

Swalec, Caitlin, Jessie Zhi, and Ziwei Zhang. [In China, a small boost to low-emissions steelmaking can mean big cuts to its carbon footprint](#). Global Energy Monitor. March 2024.

Swalec, Caitlin, Hanna Fralikhina, and Zhanaiym Kozybay. [Russia doubles down on coal-based steelmaking, even as opportunity grows for greener technology](#). Global Energy Monitor. February 2024.

Swalec, Caitlin and Eileen Torres. [A Matter of Ambition: Examining the Steel Industry's Commitment to Net Zero by 2050](#). Global Energy Monitor and Leadership Group for Industry Transition. October 25, 2023.

Swalec, Caitlin and Astrid Grigsby-Schulte. [Pedal to the Metal 2023: Time to Shift Steel Decarbonization into High Gear](#). Global Energy Monitor. July 2023.

Swalec, Caitlin. [Good jobs and green jobs should not be mutually exclusive in the US steel industry](#). GreenBiz. February 21, 2023.

Swalec, Caitlin and Xinyi Shen. [China's power and steel industries continue to invest in coal-based capacity, complicating carbon goals](#). Centre for Research on Energy and Clean Air and Global Energy Monitor. September 2022.

Swalec, Caitlin. [Opinion: How CEM could shape India's green steel future](#). Economic Times Energy World. September 22, 2022.

Swalec, Caitlin. [Hitting the Targets](#). Steel Times International. August 2022.

Swalec, Caitlin. [Time to get real on green steel](#). RENEW-Industry blog. July 11, 2022.

Swalec, Caitlin. [Slow to decarbonize, global steelmakers face USD 518 billion stranded asset risk](#). Global Energy Monitor. June 2022.

Swalec, Caitlin and Ryan Driskell Tate. [North American Coal Producers Plan \\$4.8 Billion USD On 15 New Mines For Steel Export Markets](#). Global Energy Monitor. October 2021.

Swalec, Caitlin, Christine Shearer, and Lauri Myllyvirta. [China's Power & Steel Firms Continue to Invest in Coal even as Emissions Surge Cools Down](#). Global Energy Monitor and CREA. August 2021.

Swalec, Caitlin. [Guest post: These 553 steel plants are responsible for 9% of global CO2 emissions](#). CarbonBrief. June 29, 2021.

Swalec, Caitlin, Timo Gerres, Johanna Lehne, Gocke Mete, Suzanne Schenk. [Green steel production: How G7 countries can help change the global landscape](#). Industry Transition (LeadIT). June 10, 2021.

Swalec, Caitlin and Christine Shearer. [Pedal To The Metal: No Time To Delay Decarbonizing The Global Steel Sector](#). Global Energy Monitor. June 2021.

Swalec, Caitlin. [Jessica Gephart is Tracking Your Food from Sea to Table to Help Identify Sustainable Diets](#). NCEAS Portrait Series. Oct 16, 2019.

Swalec, Caitlin. [Seasonal Change in Alaska May Hold Silver Lining for Restoration Efforts](#). LTER Science Update. Jul 20, 2019.

Swalec, Caitlin. [Keeping an Eye out for Drought](#). LTER Science Update. May 29, 2019.

Swalec, Caitlin. [Eric Seabloom Digs Up Nature's Common Threads from Ecology's Grassroots](#). NCEAS Portrait Series. Apr 24, 2019.

Swalec, Caitlin. [Loner Lizards Stress in Shared Shade](#). LTER Science Update. Mar 22, 2019.

Swalec, Caitlin and Sangwon Suh. Carbon pricing: trust and inclusiveness are keys to success. LinkedIn. Mar 21, 2019.

Swalec, Caitlin. [Jane Carter Ingram Builds Social Capital for Natural Capital](#). NCEAS Portrait Series. Feb 27, 2019.

Swalec, Caitlin. [Scientists Propose Integrated Nutrient Transport Monitoring](#). LTER Science Update. Jan 16, 2019.

Swalec, Caitlin. [Seagrass and Salt Marshes Team Up to Fight Coastal Erosion](#). LTER Science Update. Nov 15, 2018.

CERTIFICATIONS

Managing to Change the World (April 2024)

The Management Center

Certificate in Essentials of Life Cycle Assessment (January 2023)

American Institute of Chemical Engineers (AIChE)

Certificate in Hydrogen and the Energy Transition (November 2020)

Terra.do Online Climate Change School

SKILLS

Content Editing: HTML, Microsoft Office Suite, WordPress

Data Analysis and Management: ArcGIS, GitHub, MathCAD, R Studio

Grant and Proposal Writing: Pitched, secured, and now manages grants ranging from \$30,000 to \$2,200,000 for Global Energy Monitor's Heavy Industry Program. Co-wrote successful proposals from seven different funders, all of which have been carried out successfully and renewed for one to three years (2021-present); Co-wrote and received approval for multiple grants to initiate and lead a compost project in UCSB's graduate student housing complex with funding from UCSB's The Green Initiative Fund and Sambazon (2017-2019); Co-wrote proposal for Bren School Group Project on Timber Harvest and Wildfire Risk (2018).

Graphic Design and Visual Communication: Adobe Create Suite (Acrobat, Illustrator, InDesign, Photoshop, Premiere Pro), ArcGIS StoryMaps, Canva, R Shiny, Social Media (Facebook, Instagram, Twitter), Tableau

Journalism: Published science and cultural storytelling articles in *Unpacked: WPI's International & Intercultural Magazine* based on my international research experiences ([2012](#) and [2013](#)); Reported regularly for WPI's official student-run newspaper, *The Towers* (2013-2016); Published political opinion piece in the *Worcester Telegram & Gazette* (2016).

Survey Administration and Analysis: Dedoose, Google Surveys, MaxQDA, Qualtrics, SurveyMonkey, Temi Transcription

GRANTS AND AWARDS

Asset Impact Grant Manager (2024-present)

Bennett Foundation Grant Manager (2023-present)

Herlin Foundation Grant Manager (2023-present)

ClimateTRACE Initiative Grant Manager (2023-present)

UCSB's Non-Senate Faculty Award (Fall 2022)

European Climate Foundation Grant Manager (2022-present)

Climate Works Foundation Grant Manager (2020-present)

Sambazon and The Ecology Center's Social Impact Grant Awardee (2018 – 2019)

UCSB's The Green Initiative Fund Grant Awardee (2017 – 2019)

Professional Environmental Management Association Research Grant Awardee (2018 – 2019)

Bren School Sustainable Forestry Fellowship Recipient (2018 – 2019)

Brown and Caldwell Eckenfelder Fellowship Recipient (June 2017 and 2018)

Garden Club Federation of Massachusetts Scholarship Recipient (April 2017 and 2018)
National Garden Club Barbara D. May Scholarship Recipient (May 2017 and 2018)

LEADERSHIP AND PROFESSIONAL AFFILIATIONS

Member: Women in the Water SB, Marathon Swimmers Federation, Association of Iron and Steel Technology, Terra.do Climate School Alumni Community, Tau Beta Pi Engineering Honor Society, Women in Green Hydrogen

Leadership: Steel Data Network (Founder and Leader, 2/2020 – present), Research Network on Industrial Decarbonization (Co-Coordinator 7/2021 – present), Bren School Sustainability Club (Co-President and Grant Writing Committee 10/2017 – 6/2019), Bren School Story Hour Committee (Team Leader 9/2018 – 6/2019)

Personal Achievements: Ran 50 miles back and forth across the Grand Canyon in a “rim-to-rim-to-rim” trail run (October 9, 2024). Placed 2nd Female in the 2024 Montana de Oro 50k trail race. Successfully completed a 12.4 statute mile solo swim from Anacapa Island to Oxnard, California according to the marathon swimming rules of the Santa Barbara Channel Swimming Association (October 3, 2023). Awarded Athlete of the Year by the Semana Nautica Summer Sports Festival for “outstanding athletic performance and sportsmanship” (August 2023). Qualified for and ran the Boston Marathon (April 17, 2023).