

JACOB “COB” W. STAINES

Environmental Researcher // Educator // Data Scientist

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CAREER OBJECTIVES

- Improve access to environmental data, solutions, & experiences
- Nurture reciprocal relationships within our socio-ecosystems through relationship-building and collaborative problem-solving
- Support local leadership in environmental justice & equity

FORMAL EDUCATION

Geography, M.Sc. 2021

University of Saskatchewan — Centre for Hydrology

Thesis: [Spatial Relationships between Trees and Snow in a Cold Regions Montane Forest](#)

Physics, B.S. 2014

University of California, Santa Barbara — College of Creative Studies

Coursework in media signal processing & education

GENERAL EXPERIENCE

Environmental Research 6+ years

- Diverse research experience spanning marine, coastal, wetland, forest, mountain & urban ecosystems
- Work with environmental, remote sensing, population, disease, acoustic, genetic & molecular data
- Study design, field data collection, modeling, analysis, technical writing, community integration

Facilitation 10+ years

- Dynamic instructional experience communicating technical information in creative and accessible ways
- Problem-based learning, critical pedagogy, nonviolent communication & community-building

Data Science 9+ years

- Quantitative physics background with statistical modeling, signal processing & data management
- Experience empowering high-context data sharing and collaboration in cross-functional teams
- Data management planning, collection, quality assurance, integration, analysis, interpretation & reporting

PROFESSIONAL APPOINTMENTS

Instructor Summers, 2022 - Present

Wild Rockies Field Institute (WRFI), Missoula, Montana, United States

- Design and instruct upper-division field courses and semesters around socio-ecological systems, restoration ecology, community-based conservation, climate change & energy issues
- Empower critical thinking of land-water relations through personal experience and connection

- Instructor** 2024
World Learning: The Experiment, Costa Rica
- Connected high-school students with climate change issues, leaders and projects in Costa Rica
- Instructor** 2024
Ecology Project International, Missoula, Montana, United States
- Led field courses centering collaborative ecological research observations & sample collection
- Snow Ecohydrology Researcher** 2018 - 2021
Coldwater Lab, University of Saskatchewan, Canmore, Alberta, Canada
- Led research project to investigate feedbacks between forest canopy structure and local snowfall
 - Developed novel tools including bayesian voxel resampling for analysis & visualization of lidar data
 - Conducted manual & instrumented field surveys, publishing findings, data, methods & scripts
- Wetland Research Assistant** Summer 2020
Rocky Mountain Ecohydrology Lab, University of Saskatchewan, Canmore, Alberta, Canada
- Conducted mountain peatland gas-flux and hydrological monitoring, and processed results
- Expedition Leader & Education Programmer** May - October, 2014 - 2018
Cottonwood Gulch Expeitions, Albuquerque, New Mexico, United States
- Led experiential environmental and cultural trips and programs for youth throughout the Colorado Plateau
- Ski Patrol** November - April, 2016 - 2018
Palisades Tahoe, Olympic Valley, California, United States
- Medical first response, evacuation, mountain safety, avalanche mitigation, search & rescue services
 - Practiced dynamic leadership, communication and problem solving in complex and dynamic environments
- Stunt Rigger** Occasional, 2015 - 2018
The ATS Team, Pacoima, California, United States
- Rigging and execution of high-exposure & simulated freefall stunts for TV (e.g. The Amazing Race)
- Data Manager** 2015 - 2016
SCB Marine Biodiversity Observation Network, Marine Science Institute, UCSB, California, United States
- Developed workflows for integration, analysis and publishing of marine biogeographical datasets
 - Self-guided project management, scientific reporting & training in cross-functional team
- Instructor & Trip Leader** 2011 - 2016
UCSB Adventure Programs, University of California, Santa Barbara, United States
- Guided backpacking, mountaineering & canoe trips centering leadership training and skill-building
 - Instructed canyoning, rock climbing, & kayak-rolling courses for students and public
- Resident Director & Resident Assistant** 2011 - 2012 & 2013 - 2014
Tropicana Student Living, University of California, Santa Barbara, United States
- Community-building, team management, collaborative problem-solving, public relations, budgeting

CONSULTING WORK

Data Manager 2024 - Present
Resilience Institute Bridging Biological Training and Research - UCSB, United States

- Coordinate data collection, quality control, description, preservation, analysis, communication and training within a cross-functional team to integrate biological, environmental, genetic, molecular, and acoustic amphibian research efforts
- Visual, acoustic & CMR monitoring of amphibian populations, Bd & surrounding environments

Educational Program Impact Assessment 2024 - Present
Siguiendo los Semilleros - Nahual, Palugo, Ecuador

- Designed and implemented a McKnight Foundation grant-funded study to assess the educational outcomes of the Andean permaculture program "Semilleros de Cambio"

Adventure Race Logistics & First Responding 2015 - Present
Various clients

- Provide course setup, operation, and sweeping logistics as well as medical first responding for various adventure races including: Grizzly Ultra Marathon 2019 (Canada), UTMB Quito Trail 2024 (Ecuador)

Instructor Fellow 2024
Balance Works, Quito, Ecuador

- Facilitated in-class discussions, activities and field-based experiences for the "School for International Training: IHP Food Systems: Agriculture, Sustainability & Justice" undergraduate semester abroad (Ecuador component)

Data Structures & Database Design tutor 2024
Quito, Ecuador

- Provided graduate-level tutoring for Masters in GIS courses.

Ecohydrology Field Lecturer 2023
Nahual, Palugo, Ecuador

- Facilitated field-based discussions and activities concerning forest ecohydrology and hydrologic feedbacks

Data Coordinator 2012
CAL FIRE, Sacramento, United States

- Coordinated between CAL FIRE, Sagent Marketing, and Desert Research Institute to provide public access to real-time regional fire danger ratings

VOLUNTEER WORK

- **Community Conservation Specialist** - *Alianza Jambato* - 2025-present
- **Project Coordinator** - Cumbres Blancas Ecuador - 2023-2024
- **Mentor** - Virtual Mentoring Program for Indigenous Scholars, Navajo Technical University - 2022
- **Math & Science Tutor** - Îyârhe Nakoda Youth Program, Stoney Nakoda First Nation - 2021-2022
- **Treasurer** - Canmore Community Garden Society - 2021-2022
- **Environmental Education Assistant** - Kananaskis Country, Alberta Parks - 2019

- **Snow Science Field Educator** - Biogeosciences Institute, University of Calgary - 2019

PROFESSIONAL ACTIVITIES

Teaching & Facilitation

- **Wild Rockies: Conservation Across Boundaries** - *WRFI (2022, 2023, 2025)*: Undergraduate field semester meeting with local knowledge holders and conservation professionals to explore conservation issues across Montana, Alberta and British Colombia.
- **The Leadership Institute: Climate Change in Costa Rica** - *World Learning: The Experiment (2024)*: International high-school experience connecting students with climate change issues, leaders, and projects in Costa Rica.
- **Cycle the Rockies: Energy and Climate Change in Montana** - *WRFI (2024)*: Undergraduate bike-packing course meeting with local professionals and knowledge holders to engage with climate and energy projects, conflicts and potential solutions across Montana.
- **Colorado Plateau: Desert Canyons and Cultures** - *WRFI (2024)*: Undergraduate field semester exploring themes of resilience and revolution in the socioecological systems of the Colorado Plateau.
- **Restoration Ecology in the Greater Yellowstone Ecosystem** - *WRFI (2023)*: Undergraduate field course working with community members and collaborating on restoration and land management projects within the Greater Yellowstone Ecosystem
- **Mountain Desert Trek** - *Cottonwood Gulch Expeditions (2018)*: A 6-week, backcountry and community leadership development experience in the Colorado Plateau region for youth ages 16-18
- **Avalanche Beacon Clinics** - *Palisades Tahoe (2016 - 2018)*: Public avalanche fundamentals and backcountry safety workshops
- **Wild Country Trek** - *Cottonwood Gulch Expeditions (2014 x2, 2016 x2, 2017 x2)*: A 3-week, backcountry and community leadership development experience in the Colorado Plateau region for youth ages 13-15

Certifications

- **Wilderness First Responder** - *NOLS (2025, 2023), WMA (2021, 2018, 2015, 2012)*
- **Safeguarding Essentials** - *Humanitarian Leadership Academy (2025)*
- **Mental Health First Aid** - *Mental Health First Aid Canada (2021)*

Awards

- **Ski Patroller of the Year** - *Palisades Tahoe - 2018*
- **Residence Life Team of the Year** - *Tropicana Student Living - 2014*
- **Resident Assistant of the Year** - *Tropicana Student Living - 2012*

Symposia

- **Mapping the Intangible Value of Urban Rivers for Regeneration** - *ICSD - 2023* - Poster
- **Toward a physically based canopy metric for estimating snow accumulation in forests** - *AGU Fall Meeting - 2020* - Presentation
- **UAV LiDAR for measuring snow interception in forests** - *76th Eastern Snow Conference - 2019* - Poster

LEARNED SKILLS

- **English** native. **Spanish** advanced (spoken, written & conversational)

- **Professional & Scientific Writing** including scientific articles, reports, proposals, grant writing
- **Hydrologic data collection** including water table, streamflow, temperature, pH, dO₂, TDS, conductivity, coliform bacteria, snowpack, soil frost depth
- **Ecological data collection** including acoustic, visual, capture-mark-recapture, eDNA
- **Environmental data collection** including gas fluxes, heat flux, soil properties, ground-penetrating radar
- **Remote data collection** with ARUs, camera traps, UAV imagery & lidar, weather stations
- **Scientific programming, analysis & visualization** with Python, R, C++, MATLAB
- **GIS analysis and visualization** with Python, R, QGIS, ArcGIS, GEE
- **Bioinformatics** including qPCR & amplicon sequence processing in QIIME2, Nextflow, R & Bash
- **Bayesian modeling** with R (brms, rstan, cmdstanr)
- **Coding version control, collaboration & sharing** with Git & GitHub
- **Relational database design & management** in PostgreSQL, interfaced with R or Python

PEER-REVIEWED PUBLICATIONS ([Google Scholar profile](#))

- [1] Alvarado-Arias, N., J. Soria-Delgado, J. Staines, and V. Moya-Almeida. 2025. [Towards participatory river governance through citizen science](#). *Water* 17:1358.
- [2] Staines, J., and J. W. Pomeroy. 2023. [Influence of forest canopy structure and wind flow on patterns of sub-canopy snow accumulation in montane needleleaf forests](#). *Hydrological Processes* 37:e15005.