

JACOB “COB” W. STAINES

Environmental Researcher // Educator // Data Scientist

[Email](#) // [Website](#) // [LinkedIn](#) // [ORCID](#)

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 Expeditions, 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 permiculture 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 Columbia.
- **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.