Dominica Harrison | *Curriculum Vitae*

Email: dharrison@uvic.ca, deharri9@asu.edu

ORIC: 0000-0003-0375-7490

Google Scholar: https://scholar.google.com/citations?user=Bn6xCnEAAAAJ&hl=en

Website: https://dominicaharrison.github.io/

LinkedIn: https://www.linkedin.com/in/dominica-harrison-5a73b3148/

EDUCATION

2021-26 **Ph.D Candidate | University of Victoria | Department of Biology**
Supervisor: Prof. Julia K. Baum and Prof. Gregory P. Asner
-Title: *Remote sensing of coral reef with a focus on benthic community changes associated with resilience, recovery, and restoration.*

2014-16 **MSc | University of Alberta | Department of Earth and Atmospheric Science**
Supervisors: Prof. Benoit Rivard and Prof. Arturo Sanchez-Azofeifa
Title: *Tropical vegetation classification: Tree species classification using hyperspectral longwave infrared spectral signatures and vegetation functional grouping using ecophysiological-based traits.*

2009-13 **BSc | University of Alberta | Department of Biological Science**s
Supervisor: Prof. Jens Roland
Title: *Urban pest distributions influenced by parasitoid population dynamics.*

PUBLICATIONS

9 Asner, G.P., Rachel R. Carson, Caled Labo, **Harrison, D.E**., Roberta E. Martin. (2025). Persistent Geographic Patterns of Coral Recruitment in Hawai‘i. Oceans 2025, 6(4), 80; https://doi.org/10.3390/oceans6040080.

8 **Harrison, D.E**., Asner, G.P., Vaughn, N.R., Guimond, C. and Baum, J.K. (2025). Automated classification of coral reef using convolutional neural networks: A long-term monitoring case study in Kiritimati, Kiribati. Remote Sensing 17(21), 3529: https://doi.org/10.3390/rs17213529.

7 Vaughn, N.R., König, M., Hondula, K.L., **Harrison, D.E**., Asner, G.P. (2024). Rapid Water Quality Mapping from Imaging Spectroscopy with a Superpixel Approach to Bio-Optical Inversion. Remote Sensing; 16(23):4344. https://doi.org/10.3390/rs16234344.

6 **Harrison, D.,** Asner, G.P. (2024). Sensitivity of spectral communities to shifts in benthic composition in Hawaii. Remote Sensing of the Environment. DOI: 10.3390/w13182512.

5 **Harrison, D**., Diluvio, M.S., Matveev, E., Corrêa, P.V.F., De Leo, F.C., Leys, S.P. (2024). Long-term observations of a sponge in situ reveal a rich repertoire of contractile behaviors including winter dormancy. Marine Ecological Press Series. 748:33-52. DOI: https://doi.org/10.3354/meps14694.

4 **Harrison, D.,** De Leo Cabreara, F., Marini, S., Gallin, W., Mir, F., Leys, S. (2021) Machine Learning Applications of Convolutional Neural Networks and Unet Architecture to Predict and Classify Demosponge Behavior, Water: Special issue: Pattern Analysis, Recognition, and Classification of Marine Data. DOI: 10.3390/w13182512.

3 **Harrison, D.,** Guzman, A., and Sanchez-Azofeifa, A., (2021) Leaf anatomical traits of lianas and trees at the canopy of two contrasting lowland tropical forest in a context of leaf economic spectrum. Front. For. Glob. Change-Tropical Forests. DOI: 10.3389/ffgc.2021.720813.

2 Long, Y., Rivard, B., Sanchez-Azofeifa, A., Greiner, R., **Harrison, D**., and Jia, S. (2020) Identification of spectral features in the Longwave Infrared (LWIR) spectra of leaves for the discrimination of tropical dry forest tree species. International Journal of Applied Earth Observations and Geoinformation 97, 102286. DOI: 10.1016/j.jag.2020.102286.

1 **Harrison, D.,** Rivard, B., and Sanchez-Azofeifa, A. (2018) Classification of tree species based on longwave hyperspectral data from leaves, a case study for a tropical dry forest. International Journal of Applied Earth

Observation and Geoinformation 66: 93-105. DOI: 10.1016/j.jag.2017.11.009.

Publications in review

2 **Harrison , D.E**., Martin, R.E., Vaughn, N.R., and Asner, G.P. (2026). High-resolution benthic community mapping of Hawaiian coral reefs using imaging spectroscopy. R*evsions at International Journal of Photogrammetry and Remote Sensing.*

1 **Harrison, D.E,** Maypa, A., White, A., Labrado, G., Lozada, A. J., Molina, D., Tan, N. (2026). Philippine coral reefs in and around MPAs (1981–2025): How well are they faring? *In review Coral Reefs*

PROFESSIONAL EXPERIENCE

2022-24 **Data Analyst and Research Scientist - Center for Global Discovery and Conservation Science, Arizona State University**
Data science and analysis support to the ʻĀkoʻakoʻa Diagnostic Science team. Programming in Python and other languages, data processing, and provisioning of results and products to the team for coral restoration management. Pre- and post- data processing of imaging spectroscopy data from Global Airborne Observatory.

2021 **Engagement Biologist - BC Provincial Government**
First Nation and community engagement in the Ministry of Forests, Natural Resources Operations, and Rural Development. Leadership in wildlife committees, moose management co-decision-making pilot project, and citizen science implementation.

2022 **Wildlife and Ecosystems Biologist - BC Provincial Government**
Managed hunting and trapping regulations in the North Eastern, BC. Responsible for the sustainable population dynamics of ungulates. Reviewed environment reports and assessments for industry projects such as Site C and oil and gas commission.

2016 **GIS Technician - Archaeological Society of Alberta**
Mapped culturally significant Aboriginal archaeological sites for artifact cataloging. Maps used by the Alberta Government to assess drilling sites for the oil and gas industry.

2016-17 **Dive Master - Aquaddiction**
Led and organized recreational dives. Educated clients on biodiversity taxonomy and taught introductory diving courses.

2019-21 **Affiliate Scientist - Ocean Networks Canada**
Analyzed the behavior of a demosponge using machine learning at the Folger Pinnacle observatory, mapping hourly, diurnal, and seasonal patterns in various environmental parameters Supervisors: Dr. Sally Ley, UofA; Dr. Fabio De Leo Cabrera, Ocean Networks Canada.

2015 **Plant Physiology Field Technician - Smithsonian Tropical Research Institute**
Conducted research on collecting, mounting, and examining leaf cross-sections to obtain physiological traits for tree and liana species in the Panamanian tropical forest. Supervisor: Dr. J. Wright, Senior STRI Staff Scientist

2012-13 **Entomology Lab technician - University of Alberta**
Investigated crop pest taxonomic identification, aimed to use population dynamics for integrated pest management strategies. Supervisors: Dr. J. Roland, and Dr. M. Evenden.

TEACHING EXPERIENCE

2021, 25 **Teaching Assistant - University of Victoria**
Teaching laboratory component of Introduction to Ecology (BIOL 221).

2018-21 **Director of Educational Design - Swiss Alpine Academy (Sept 2018-present):**

Board member and responsible for curriculum design. Developed and instructed an outdoor introductory environmental and sustainability summer program. Focus on interdisciplinary skills between scientific inquiry, sustainability, and economic project-based learning.

2017-20 **Subject Expert Teacher - BASIS International School Shenzhen**
Taught Advanced Placement Biology and Advanced Placement Environmental Science. College-level content, including an intense laboratory component.

2014-16 **Teaching Assistant - University of Alberta (Jan 2014-May 2016):**
Teaching Introduction to GIS and Remote Sensing. Oversaw students' field experiments in Santa Rosa National Park, Costa Rica.

PRESENTATIONS

2025 Department of Geography, University of Victoria **-** *Invited talk*
2025 Victoria Oceans Day (Ocean Networks Canada) **-** *Oral*
2025 Ecological Dissertations in the Aquatic Sciences (Eco-DAS) Symposium, Honolulu **-** *Oral*
2021 Association for the Sciences of Limnology and Oceanography (ASLO), Virtual - *Oral*
2021 Canadian Society of Zoologists (CSZ) Conference, Virtual - *Oral*
2021 Pacific Ecology and Evolution Conference (PEEC), Victoria, BC - *Oral* (Best Presentation)
2017 EARSeL IS Imaging Spectroscopy Workshop, Zurich **-** *Oral*
2014 Association for Tropical Biology and Conservation Conference, Australia - *Oral*
2013 Association for Tropical Biology and Conservation Conference, Costa Rica - *Oral*
2012 Alberta–Brazil Research Initiative Poster Session, Montes Claros, Brazil **-** *Poster*
2012 Tropi-Dry International Members Conference - *Oral*

AWARDS AND HONOURS

2025-26 Bob Wright Graduate Scholarship – Fellowship for outstanding graduate students in marine sciences (Institution · University of Victoria · $4,105)

2024-25 Dr. Arne H. Lane Graduate Fellowship in Marine Sciences – Fellowship for outstanding graduate students in marine sciences (Institution · University of Victoria · $8,894)

2024-25 Maureen De Burgh Memorial Scholarship – Scholarship for high-achieving graduate students in marine biology (Institution · University of Victoria · $1,040)

2024-25 Charles S. Humphrey Graduate Student Award – Award for excellence in science and engineering (Institution · University of Victoria · $2,500)

2024-25 University of Victoria Doctoral Fellowship – Fellowship recognizing research productivity and academic excellence (Institution · University of Victoria · $2,700)

2023-24 International Coral Reef Society (ICRS) Graduate Fellowship – Support for coral reef research fieldwork or lab visits (International · ICRS · $4,320)

2022–25 Rob and Tammy Lipson Scholarship – Scholarship for academically outstanding students with international research (Institution · University of Victoria · $6,000)

2022-23 NSERC–Fisheries and Oceans Canada Aquatic Science Supplement – Supplement supporting doctoral research in aquatic and ocean sciences (National · NSERC / DFO · $10,000)

2021-22 Donor Teaching Award – Award for outstanding graduate teaching (Institution · University of Victoria · $500)

2021–23 NSERC Postgraduate Scholarship – Doctoral (PGS D) – Prestigious doctoral scholarship for top-ranked applicants (National · NSERC · $63,000)

2018-19	Advanced Placement Teaching Award – Award for excellence in AP-level teaching (Institution · BASIS · $27,000)

MENTORSHIP

2024/25	Teagan Roome — Graduate mentor for a Ph.D. student (Arizona State University)
2024/25	Calder E. Guimond — Undergraduate directed studies advisor (University of Victoria)
2023/24	Jeremy Pustilnik — Graduate mentor to Yale University intern
2023/24	Tori Sempter — Graduate mentor to Three Seas Program intern (Northeastern University)
2022–24	Kelly Van Woseik — Graduate mentor to Master's student (Arizona State University)
2020–24	Miranda Zhong; Lingkun Guo; Yawen Zhang — International academic and personal mentor to undergraduate students (BASIS International Schools)

CERTIFICATIONS AND SKILLS

***Professional certifications**:* Register Professional Biologist
***Languages**:* French (Fluent), Spanish (conversational)
***Software and programming**:* Python, R, Matlab, IDL, ENVI, Agisoft, ArcGIS, QGIS, ArcGIS pro, GIT, Adobe creative cloud, AI, ML, computer vision processing, cluster computing (SLURM/high performance computing)
***Diving Certifications**:* CAUS Scientific Diver II, Dive Master, O_2, Emergency First Response Primary and Secondary Care (CPR and First Aid), Dive Action Management Training.
***Instrumentation**:* LiDAR, Field Spectrometers, meteorological station installation, Eddy flux towers, airborne spectrometers, RTK GPS, HPLC