

Mark Louie D. Lopez, M.Sc., Ph.D.

Helbing Laboratory, Department of Biochemistry and Microbiology

University of Victoria, Victoria, British Columbia, V8W 2Y2, Canada

mldlopez@uvic.ca | marklouiedlopez@gmail.com | marklouielopez.weebly.com

Research Experience

Liber Ero Postdoctoral Fellow | University of Victoria, Canada | May 2023 - Present

- Reconstructing the history of long-term human-mediated ecosystem changes in the Oil Sands Region: Integrating environmental DNA (eDNA) tools in Indigenous-led ecosystem monitoring (<https://liberero.ca/meet-the-fellows/>)
 - Managed projects and logistics involving internal and external stakeholders, including provincial and federal government scientists, First Nation members, consultants, and academic collaborators.
 - Coordinated Indigenous-led biodiversity monitoring in selected lakes in the Oil sands region
 - Collected lake sediment cores for organic compound and heavy metal analysis
 - Analyzed data and finalized reports for the provincial government and First Nation partners
 - Pioneered the development of qPCR-based environmental DNA tools for precise fish detection, improving accuracy and efficiency in ecological monitoring efforts.
 - Integrated sedimentary DNA and Indigenous ecological knowledge to reconstruct fish fauna in lakes within the Oil Sands region of Alberta, enriching our understanding of aquatic ecosystems.
 - Collaborated with Chipewyan Prairie First Nation and Cold Lake First Nation collaborators to develop and validate species-targeted qPCR-based environmental DNA/RNA assays, fostering collaborative research initiatives and promoting environmental stewardship.

iTrackDNA Postdoctoral Fellow | University of Victoria, Canada | March 2022 - Present

- iTrackDNA project (<https://itrackdna.ca>)
 - Successfully developed and validated species-targeted qPCR-based environmental DNA/RNA assays in collaboration with Gitanyow First Nation and Blueberry River First Nation partners, enhancing environmental monitoring capabilities.
 - Applied and validated eDNA/RNA tools in field settings to monitor Indigenous lands, contributing to the sustainable management of natural resources.
 - Managed projects and logistics involving internal and external stakeholders, including provincial and federal government scientists, First Nation members, consultants, and academic collaborators.
 - Applied technical expertise in experimental design and conducted experiments to evaluate and improve environmental DNA-based monitoring
 - Applied technical expertise in experimental design and conducted experiments to evaluate and improve environmental DNA-based monitoring

Teaching Experience

Special Science Teacher

Philippine Science High School, Philippines | July 2016 - August 2018 | Handled courses: Scientific research for 10th – 12th grade high school students

- Developed and implemented engaging lesson plans tailored to subject-specific classrooms, incorporating lectures, technology, and hands-on learning experiences
- Evaluated student performances to track progress and identify areas for improvement, utilizing analytical skills to assess individual needs and adapt lesson plans accordingly
- Maintained effective verbal and written communication skills, fostering positive interpersonal relationships with students, parents, staff, and administrators
- Demonstrated technical proficiency in utilizing various educational technologies and resources to enhance teaching methodologies and student engagement

University Instructor

Polytechnic University of the Philippines, Philippines | November 2013 - August 2016 | Handled courses: Introduction to Biological Sciences, Principles of Ecology, Freshwater Biology, Invertebrates Biology, and Field Biology

- Collaborated with senior lecturers to establish program goals and course objectives, ensuring alignment with educational standards and student needs.
- Developed and delivered a dynamic curriculum tailored to course objectives, fostering student engagement and achievement.
- Implemented innovative classroom techniques and methodologies to create challenging learning opportunities, promoting active participation and critical thinking.
- Provided constructive feedback to students to facilitate their academic growth and development.
- Submitted comprehensive curriculum evaluations aimed at continuously improving program services and enhancing student learning outcomes.

Education

Ph.D. in Biodiversity | Academia Sinica and National Taiwan Normal University | Taipei, Taiwan

Dissertation: Use of metatranscriptomics in metazoan community studies: from genes to communities

Advisor: Dr. Ryuji Machida

M.Sc. in Biological Sciences | University of Santo Tomas | Manila, Philippines

Thesis: Microcrustacean zooplankton fauna of selected groundwater ecosystems in greater Luzon and Mindoro faunal regions (Philippines)

Advisor: Dr. Rey Donne S. Papa

B.Sc. in Biology | Polytechnic University of the Philippines | Manila, Philippines

Research Grants (USD 506, 916)

- Alberta Environment and Protected Areas: Oil Sands Monitoring Program Work Plan (W-LTM-S-5-2122) - Alberta, Canada, 2023-2025
 - Co-applicant, Indigenous Community-based Monitoring Projects Integrated with Core Aquatic Ecosystem Health Monitoring - USD 189,311
- Fisheries and Oceans Canada (DFO): 2022-23 Ecosystems and Ocean Science Contribution Framework - British Columbia, Canada, 2023-2025

- Co-applicant, Evaluation of environmental DNA (eDNA) use as a stock assessment tool for Pacific salmonids in the Skeena Watershed - USD 183,895
- Liber Ero Postdoctoral Fellowship - Canada, 2023-2025
 - Reconstructing the history of long-term human-mediated ecosystem changes in the Oil Sands Region: Integrating environmental DNA (eDNA) tools in Indigenous-led ecosystem monitoring - USD 127,510
- Tonolli Fund Post-Graduate Fellowship Research Grant - International Society of Limnology, North Carolina, USA, 2015-2016 - USD 1,500
 - Microcrustacean zooplankton fauna of selected groundwater ecosystems in greater Luzon and Mindoro faunal regions (Philippines) - USD 1,000
- Research Center for Natural and Applied Sciences Postgraduate Studies Research Grant - Philippines, 2016
 - Collection of groundwater zooplankton species for the UST Zooplankton Reference Collection - USD 1,200
- Department of Science and Technology-SEI ASTHRDP Postgraduate Studies Research Grant - Philippines, 2015-2016 - USD 2,000
- Department of Science and Technology-SEI Undergraduate Studies Research Grant - Philippines, 2011-2012 - USD 2,000

Scholarships and Conference Travel Grants (USD 84, 500)

- Society for Freshwater Science Conference Travel Grant - USA, 2022 - USD 1,500
- Taiwan International Graduate Program – Biodiversity Research Center Travel Grant - Taiwan, 2021 - USD 1,500
- Taiwan International Graduate Program – Biodiversity Research Center Travel Grant - Taiwan, 2020 - USD 1,500
- Taiwan International Graduate Program Ph.D. Scholarship - Taiwan, 2018-2021 - USD 55,000
- Taiwan International Graduate Program – International Internship Program - Taiwan, 2017 - USD 2,500
- Department of Science and Technology-SEI ASTHRDP Postgraduate Studies Scholarship - Philippines, 2014-2015 - USD 12,500
- Department of Science and Technology-SEI Undergraduate Studies Scholarship - Philippines, 2008-2012 - USD 10,000

Academic and Research Awards

- **Liber Ero Fellow - Liber Ero Fellowship Program, Canada, 2023-2025**
 - This prestigious post-doctoral fellowship supports early-career scientists in conducting and communicating world-class research to address conservation and management issues in Canada. Scholars are encouraged to tackle emerging management challenges and 'wicked' conservation problems with innovative analyses, perspectives, and collaborations across natural, social, and interdisciplinary research domains (<https://liberero.ca/about-liberero-program/>).
- **Finalist, Tony Whitten Conservation Prize - Cambridge Conservation Initiative, University of Cambridge, UK, 2019**

- Recognized as a finalist in the Tony Whitten Conservation Prize, a three-year program honoring early career researchers from East and Southeast Asia engaged in conservation or field biology. The University of Cambridge's Cambridge Conservation Initiative receives approximately 500 applicants annually.
- Best oral presentation, Taiwan International Graduate Program—Biodiversity Research Center Annual Retreat - Taipei, Taiwan, November 12, 2021
- Best oral presentation, Congress on Animal Behavior, Ecology, and Environmental Education (CABE) - Tainan, Taiwan, January 25-26, 2021
- Best poster presentation, Taiwan International Graduate Program—Biodiversity Research Center Annual Retreat - Taipei, Taiwan, September 27, 2020
- Best oral presentation, Philippine Symposium on Freshwater Biodiversity and Ecosystems - Quezon City, Philippines, December 11-14, 2018

Research Publications (h-index 6; i10-index 3; 97 citations)

Books (2 published books)

1. Sabit, M. B., & **Lopez, M. L.** (2023). Exploring Life Through Science Series: Capstone Research Project Senior High School Learning Guide (2nd ed.). Quezon City, Philippines: Phoenix Publishing. ISBN 978-971-06-5877-0.
2. Sabit, M. B., & **Lopez, M. L.** (2017). Exploring Life Through Science Series: Capstone Research Project Senior High School Learning Guide (1st ed.). Quezon City, Philippines: Phoenix Publishing. ISBN 978-971-06-4772-9.

Book chapters (1 book chapter)

1. Picard, M., Von Eggers, J., Brasell, K. A., Yan, D., Klaminder, J., Alsos, I. G., Barouillet, C., Cheng, Y., Dommain, R., Dulias, K., Duxbury, L., Edwards, M. E., Pastor, S. G., Harning, D., Hudson, S. M., Huston, G., Kaynar, S., Kurte, L., Leunda, M., **Lopez, M.L.**,... Capo, E. (2024). Using DNA archived in lake sediments to reconstruct past ecosystems. Reference Module in Earth Systems and Environmental Sciences. <https://doi.org/10.1016/B978-0-323-99931-1.00171-9>

Peer-reviewed paper (13 published peer-reviewed papers; *co-first author)

1. Jameson, BD, **Lopez, MLD**, Bonderud, M, Stevens, CJ, Juniper, K, Helbing, C, Grundle, DS. (2024). High abundances and expression levels of atypical, non-denitrifier N₂O reductases drive strong microbial N₂O consumption rates in a minimally impacted mangrove stand. Journal of Geophysical Research - Biogeosciences
2. **Lopez, MLD**, Bonderud, M, Allison, MJ, MacDermid, F, Ussery, EJ, McMaster, ME, Dersch, A, Staniszewska, KJ, Cooke, CA, Drevnick, P, & Helbing, CC (2023). QPCR-based eDNA workflow for humic-rich lake sediments: Combined use of sedimentary DNA (sedDNA) and Indigenous Knowledge in reconstructing historical fish records. Ecological Indicators, 155, 111014. <https://doi.org/10.1016/j.ecolind.2023.111014>
3. **Lopez, MLD***, Huston, G. P., D. *, Cheng, Y., King, L., Duxbury, L. C., Picard, M., Thomson-Laing, G., Myler, E., Helbing, C. C., Kinnison, M. T., Saros, J. E., Gregory-Eaves, I., Monchamp, E., Wood, S. A., Armbrecht, L., Ficetola, G. F., Kurte, L., Eggers, J. V., Brahney, J., . . . Capo, E. Detection of fish sedimentary DNA in aquatic systems: A review of methodological challenges and future opportunities. Environmental DNA. <https://doi.org/10.1002/edn3.467>

4. Allison, MJ, Warren, RL, **Lopez, ML**, Acharya-Patel, N, Imbery, JJ, Coombe, L, Yang, CL, Birol, I, & Helbing, CC (2023). Enabling robust environmental DNA assay design with “unikseq” for the identification of taxon-specific regions within whole mitochondrial genomes. *Environmental DNA*, 5(5), 1032-1047. <https://doi.org/10.1002/edn3.438>
5. **Lopez MLD**, Lin, Y., Schneider, S., Machida R. (2022). Allometric scaling of interspecific RNA transcript abundance to extend the use of metatranscriptomics in characterizing complex communities. *Molecular Ecology Resources*, 00: 1–12. <https://doi.org/10.1111/1755-0998.13711>
6. **Lopez MLD**, Lin, Y., Sato M, Shiah FK, Hsieh CH, Machida R. (2021). Using metatranscriptomics to estimate the diversity and composition of zooplankton communities. *Molecular Ecology Resources*, 22: 638 – 652. <https://doi.org/10.1111/1755-0998.13506>
7. **Lopez MLD** and Papa RDS. 2020. Diversity and distribution of copepods (Class: Maxillopoda, Subclass: Copepoda) in groundwater habitats across Southeast Asia. *Marine and Freshwater Research*, 71, 374–383. <https://doi.org/10.1071/MF19044>
8. Dela Paz, ES, **Lopez MLD**, David CIH, Dela Cruz, DR, Viernes GA, Wong, JF, Papa RDS. 2018. Freshwater microcrustaceans (Cladocera: Anomopoda and Ctenopoda, Copepoda: Cyclopoida and Calanoida) in the highly urbanized Metropolitan Manila area (Luzon, Philippines). *Check List* 14(5):751-762. <https://doi.org/10.15560/14.5.751>
9. Velasco, RU, **Lopez MLD**, Devanadera MK. 2018. Gastropod diversity in the riparian zone of Balingasay River, Bolinao, Pangasinan, Philippines. *Acta Manilana*, 66, 45–5. <https://actamanilana.ust.edu.ph/wp-content/uploads/2021/06/6-DevanaderaMK-45-53.pdf>
10. **Lopez, MLD**, JAF Pascual, ESP Dela Paz, EZC Rizo, DT Tordesillas, SK Guinto, B Han, HJ Dumont, AC Mamaril Sr., RDS Papa (2017) Annotated checklist and insular distribution of freshwater Microcrustaceans (Copepoda: Calanoida & Cyclopoida; Cladocera: Anomopoda & Ctenopoda) in the Philippines. *Raffles Bulletin of Zoology*, 65:623–654. <http://zoobank.org/References/D99EE23D-6EBA-4F22-A010-9DE79E64A77E>
11. **Lopez, MLD**, and Papa, RS (2017) Variations in microcrustacean (Crustacea: Cladocera, Copepoda) assemblages from selected groundwater-dependent ecosystems in greater Luzon and Mindoro Island faunal regions (Philippines): insight to tropical groundwater ecology. *Inland Waters*, 7(4): 428 – 439; <https://doi.org/10.1080/20442041.2017.1368597>
12. Cavite, BI, J Juan, M Kho, **MLD Lopez**, and RDS Papa. 2017. Species composition of freshwater zooplankton fauna from selected groundwater-dependent ecosystems in Bulacan Province (Philippines) with taxonomic notes on a new locality record of harpacticoid species in the Philippines. *Philippine Journal of Systematic Biology*, 1(2017): 1-15. https://asbp.org.ph/wp-content/uploads/2017/05/PJSB_2017_PSFBE-005.pdf
13. Devanadera, MK, RU Velasco, and **MLD Lopez** (2015) Diversity, exploitation, and conservation status of commercially important sea cucumber species in Southeast Asia. *Philippine Journal of Systematic Biology*, 9: 1-13. https://asbp.org.ph/wp-content/uploads/2016/09/3PJSB2015v9_Devanaderaetal.pdf

Under review (5 papers under review for publication)

1. **Lopez, MLD**, Bonderud, M, Allison, MJ, MacDermid, F, Ussery, EJ, McMaster, ME, Dersch, A, Drevnick, P, & Helbing, CC (*under review*). Reconstructing historical fish occurrences and documenting human-mediated introductions in lakes using sedimentary DNA. *Biological Conservation*

2. **Lopez, MLD**, Crichton, E, Allison, MJ, Dema, A, Bonderud, A, Helbing, C (*in prep*). Effects of storage conditions on the stability of qPCR reagents: Implications for environmental DNA detection. BMC Research Notes
3. Larson, ER, Abbott, CL, Helbing, CC, **Lopez, MLD**, Williams, BW. (*under review*). Genome Skimming Supports Two New Crayfish Species from the Genus *Pacifastacus* (Bott, 1950). Zootaxa
4. Hirsch, S, Acharya-Patel, N, Amamoo, PA, Borrero-Pérez, GH, Cahyani, NKD, Ginigini, JGM, Hurley, KKC, Lopes-Lima, M, **Lopez, MLD**, Mapholi, N, Ouattara, KN, Pazmiño, DA, Rii, Y, Thompson, F, von der Heyden, S, Watsa, M, Yepes-Narvaez, V, Allan, E, Kelly, R. (*under review*). Centering accessibility, increasing capacity, and fostering innovation in the development of international eDNA standards. Metabarcoding and Metagenomics
5. **Lopez, MLD**, Del Rosario KIP, and Papa RDS. (*under review*). Updated taxonomic checklist and distribution of freshwater harpacticoid copepod (Copepoda: Harpacticoida) fauna in the Philippines. *Philippine Journal of Systematic Biology*

In preparation (3 papers in preparation for submission)

1. **Lopez, MLD**, Yang, CL, Coombe, L, Warren, RL, Allison, MJ, Imbery, JJ, Birol, I, Helbing, CC. (*in prep*). mtGrasp: streamlined mitochondrial genome assembly and standardization to improve the development of targeted environmental DNA assays. *Methods in Ecology and Evolution*
2. **Lopez, MLD**, Bonderud, M, Ma, I, Thompson, V, Helbing, CC. (*in prep*). GoEnrich: Creating high quality genomic DNA resources from limited voucher specimen tissues or museum specimens of at-risk species for use in the validation of environmental DNA assays. BMC Research Notes
3. Bicaldo, IE, Padilla, KSA, Tu, TH, Chen, WT, Mendoza-Pascual, MU, Vicera, CV, de Leon, J, Poblete, K, Austria, ES, **Lopez, MLD**, Kobayashi, Y, Shiah, FW, Papa, RDS, Okuda, N, Wang, PL, Lin, LH. (*in prep*). The methane-oxidizing microbial communities of three maar lakes in tropical monsoon Asia. *Frontiers in Microbiology*

Guest Lectures (2 lecture, 2023 - 2024):

1. **Lopez, MLD**, “Environmental DNA: Towards a large scale biodiversity monitoring, BIOL 470: Applied Molecular Biology, Dr. Barbara Ething, University of Victoria, Victoria, British Columbia, Canada, November 20, 2023.
2. **Lopez, MLD**, “Use of environmental DNA in monitoring Canada’s biodiversity, BIOL 3601: Ecosystems and Environmental Change, Dr. Christina Davy, Carleton University, Ottawa, Ontario, Canada, February 5, 2024.

Plenary Talks and Invited Seminars (13 keynote talks, 2016 – 2024):

1. **Lopez, MLD**, “Integrative approach in studying freshwater communities in Canada.” Department of Biology, Mount Royal University, Calgary, Canada. April 22, 2024
2. **Lopez, MLD**, “From genes to ecosystems: Integrative insights to freshwater ecology and biodiversity conservation.” Kansas Biological Survey, University of Kansas, Lawrence, Kansas, USA. April 15, 2024

3. **Lopez, MLD**, “*Outreach and connection with indigenous peoples and local knowledge.*” Graduate student, Postdoctoral fellow, and early career research seminar, Sedimentary Ancient DNA (SedaDNA) Society, Zoom meeting, January 4, 2024.
4. **Lopez, MLD**, “*Learning from DNA in the dirt: Use of sedimentary DNA (sedDNA) in reconstructing the history of freshwater fish settlement in lakes in the Alberta Oil Sands Region.*” Pathways to Increase Standards and Competency of Environmental DNA Surveys (PISCeS). University of Guelph, Guelph, Ontario, Canada, June 18-21, 2023.
5. **Lopez, MLD**, “*UN SGD 14 Life underwater: use of molecular tools for freshwater environmental monitoring in the Philippines.*” 1st International research, instruction, production, and extension conference, University of Nueva Caceres, Naga City, Philippines, February 17, 2023.
6. **Lopez, MLD**, “*Development of national standards for environmental DNA (eDNA) tools used in biodiversity monitoring.*” Biodiversity Research Center, Academia Sinica, Taipei, Taiwan. February 10, 2023.
7. **Lopez, MLD**, “*Environmental DNA (eDNA) technologies: addressing ecological problems with molecular approaches.*” University of Santo Tomas, Manila, Philippines. February 2, 2023.
8. **Lopez, MLD**, “*Combined use of sedimentary DNA and Indigenous Knowledge in reconstructing past and current diversity.*” Sedimentary DNA Scientific Society Pacific Seminar Series. Adelaide, Australia. December 13, 2022.
9. **Lopez, MLD**, “*Use molecular genetic tools for freshwater environmental monitoring in the Philippines.*” Philippine Society for Freshwater Science: 3rd Philippine Symposium on Freshwater Biodiversity and Ecosystems. Manila, Philippines. November 9 – 11, 2022.
10. **Lopez, MLD**, “*Preparing presentation slide and poster for a scientific conference.*” Biodiversity Research Center, Academia Sinica Seminar Series: Science Communication in Biodiversity Research. Taipei, Taiwan. October 12, 2022.
11. **Lopez, MLD**, “*Advantages of using metatranscriptomics in characterizing complex metazoan communities.*” Berlin Center for Genomics in Biodiversity Research (BeGenDiv) Seminar Series: Evolutionary Bioinformatics and Next-Generation Sequencing Applications. Berlin, Germany. December 17, 2021.
12. **Lopez, MLD**, “*Leveraging Science Communication through Social Media Platforms.*” Biodiversity Research Center, Academia Sinica Seminar Series: Science Communication in Biodiversity Research. Taipei, Taiwan. August 16, 2021.
13. **Lopez, MLD**, Seminar-workshop on zooplankton sampling, processing, and analysis. University of Santo Tomas, Espana, Manila. October 13-15, 2016.

Recent Scientific Presentations (11 oral, 5 posters, 2016 – 2024):

1. **Oral presentation**, “*Reconstructing historical fish records in lakes using sedimentary DNA.*” World Biodiversity Forum, Davos, Switzerland, June 15-21, 2024.
2. **Poster presentation**, “*iTrackDNA: Standardization of targeted environmental tools in Canada.*” GEO BON Global Conference: Monitoring Biodiversity for Action. Centre Mont-Royal, Montreal, Quebec, Canada, October 10-13, 2023.
3. **Oral presentation**, “*Targeted qPCR-based workflow for detecting fish sedimentary DNA in aquatic systems.*” Canadian Ecotoxicology Workshop (CEW), Ottawa, Ontario, Canada. October 2-5, 2023.

4. **Poster presentation**, “Choosing RNA over DNA: Use of metatranscriptomics in characterizing complex metazoan communities.” Pathways to Increase Standards and Competency of Environmental DNA Surveys (PISCeS). University of Guelph, Guelph, Ontario, Canada, June 18-21, 2023.
5. **Oral presentation**, “Use of fish sedimentary DNA (sedDNA) in reconstructing past and current diversity: what has been done and what to do next?.” iTrackDNA speaker series, Victoria, British Columbia, Canada. October 18, 2022.
6. **Oral presentation**, “Reconstructing a history of environmental damage and recovery: use of sedimentary DNA (sedDNA) and indigenous ecological knowledge in ecosystem health monitoring.” University of Victoria – Department of Biochemistry and Microbiology Lecture Series, Victoria, British Columbia, Canada. October 14, 2022.
7. **Oral presentation**, “qPCR-based eDNA workflow for humic-rich lake sediments: Combining Indigenous knowledge and sedimentary DNA to reconstruct historical fish records.” Canadian Ecotoxicology Workshop (CEW), Winnipeg, Manitoba, Canada. October 2-5, 2022.
8. **Oral presentation**, “Use of allometric scaling to operationalize metatranscriptomics in characterizing zooplankton communities.” Joint Aquatic Science Meeting. Grand Rapids, Michigan, USA. May 14-20, 2022.
9. **Oral presentation**, “Use of allometric scaling to operationalize the use of metatranscriptomics in characterizing complex metazoan communities.” Congress on Animal Behavior, Ecology and Environmental Education (CABE). Taitung, Taiwan. January 17-18, 2022.
10. **Oral presentation**, “RNA-based workflow for long-term diversity monitoring of freshwater zooplankton community.” 35th Congress of the International Society of Limnology (SIL). Gwangju, South Korea. August 22-27, 2021.
11. **Oral presentation**, “Comparing metatranscriptomics, PCR-based methods, and morphology in estimating diversity and composition of zooplankton mock communities.” 1st DNAQUA International Conference on DNA-based monitoring. Paris, France. March 9-11, 2021.
12. **Oral presentation**, “Revisiting the metabolic theory of ecology: metabolic scaling in interspecific transcriptomic abundance within mock communities.” Congress on Animal Behavior, Ecology and Environmental Education (CABE). Tainan, Taiwan. January 25-26, 2021.
13. **Poster presentation**, “Predicting the potential distribution of zooplankton species in Philippine freshwater ecosystems utilizing species distribution modeling” National Academy of Science and Technology, 41st Annual Scientific Meeting, Manila, Philippines, July 10-11, 2019.
14. **Poster presentation**, “Diversity and distribution of copepods (Class: Maxillopoda, Subclass: Copepoda) in groundwater habitats across Southeast Asia” Philippine Symposium on Freshwater Biodiversity and Ecosystems, Quezon City, Philippines, December 11-14, 2018.
15. **Oral presentation**, “Microcrustacean assemblages in groundwater-dependent ecosystems in Luzon and Mindoro islands (Philippines): insight to tropical groundwater ecology.” European Conference on Tropical Ecology and Annual Meetings of the Society of Tropical Ecology, Brussels, Belgium, February 6-10, 2017.
16. **Poster presentation**, “Microcrustacean zooplankton fauna of Philippine lakes: updated taxonomy and distribution records.” 16th World Lake Conference, Kuta, Bali, Indonesia. November 7-11, 2016.

Media Coverage (7 media coverages, 2019 – 2024):

1. **Spider webs catch more than prey. They're also jam-packed with animal DNA** by Sheena Goodyear on CBC News on February 7, 2024. [Link](#).

2. ***How an ecology fellowship leverages philanthropy to allow early-career change-makers to flourish*** by Amy Romer in *The Philanthropist Journal*. November 13, 2023. [Link](#).
3. ***Untouchable methods, unparalleled data*** by Dana Kobilinsky in the Wildlife Society's Wildlife Professional Magazine. August 2023. [Link](#).
4. ***Supporting Indigenous-led biodiversity monitoring*** by Alf Wilson and Rachel Goldsworthy on The Ring (University of Victoria's community newspaper). March 8, 2023. [Link](#).
5. ***Tonolli Research Grant awardee***. International Society of Limnology (SIL) Newsletter 77. 2021. [Link](#).
6. ***Tony Whitten Conservation Award feature***. Cambridge Conservation Initiatives. 2019. [Link](#).
7. ***Insights into tropical groundwater ecology: Microcrustaceans from groundwater ecosystems in the Philippines***. International Society of Limnology (SIL) Newsletter 74. 2019. [Link](#).

Journals Refereed

Reviewer for the following journals:

- Environmental DNA (<https://onlinelibrary.wiley.com/journal/26374943>)
- Molecular Ecology Resources (www.onlinelibrary.wiley.com/journal/17550998)
- Molecular Ecology (<https://onlinelibrary.wiley.com/journal/1365294x>)
- Hydrobiologia (<https://link.springer.com/journal/10750>)
- Environmental Science & Technology (<https://pubs.acs.org/journal/esthag>)
- Biological Reviews (<https://onlinelibrary.wiley.com/journal/1469185>)
- Zoological Studies (<https://zoolstud.sinica.edu.tw>)
- Limnologica (www.journals.elsevier.com/limnologica)
- Aquatic Sciences (www.springer.com/journal/27)
- Biodiversity Data Journal (https://bdj.pensoft.net/journals.php?journal_name=bdj)
- Scientific Reports (<https://www.nature.com/srep/>)

Students Mentored (15 student mentees)

Graduate Student:

- Darlyn Denise Pruebas, M.Sc in Fisheries, University of the Philippines - 2022 to Present

Undergraduate Students:

- Christian Romanowski, Directed Studies Student, University of Victoria - Fall 2023
- Isabel Ma, Co-op Student, University of Victoria - 2023 to 2024
- Haejong Lee, Co-op Student, University of Victoria - 2023 to 2024
- Matthew Bonderud, Co-op Student, University of Victoria - 2022 to 2023

BSc Thesis Students (Polytechnic University of the Philippines):

- Jomabel Pascua - 2017 to 2018
- Jeanne Odoño - 2017 to 2018
- John Russel Monzales - 2017 to 2018

BSc Thesis Students (University of Santo Tomas):

- Christian Irvin Harvey A. David - 2016 to 2017

- Dave Ryan A. Dela Cruz - 2016 to 2017
- Gian Alfonso A. Viernes - 2016 to 2017
- Jac Fritgerald Wong - 2016 to 2017
- Ysabel Grace C. Cavite - 2015 to 2016
- Jannah Juan - 2015 to 2016
- Moses Isaiah L. Koh - 2015 to 2016

List of collaborators and partner communities (2022 - Present)

- Government and regulatory entities
 - Amalis Riera Vuibert - BC Ministry of Water, Land and Resource Stewardship, Canada
 - Keegan Hicks - Alberta Ministry of Environment and Protected Areas, Canada
 - Robert Bajno - Fisheries and Ocean Canada, Canada
 - Erin Ussery - Environment and Climate Change Canada, Canada
 - Mark McMaster - Environment and Climate Change Canada, Canada
 - Martina Beck - BC Ministry of Water, Land and Resource Stewardship, Canada
- First Nation communities and NGO partners
 - Ave Dersch - Chipewyan Prairie First Nation, Canada
 - Bradley Peter - Alberta Lake Management Society, Canada
 - Findlayson McDermid - Cold Lake First Nation, Canada
 - Gwen Janz - Living Lakes Canada, Canada
 - Kevin Koch - Gitanyow Fisheries Authority, Canada
 - Kurstyn Perrin - Alberta Lake Management Society, Canada
 - Mae Whyte - Blueberry River First Nation, Canada
 - Mark Cleveland - Gitanyow Fisheries Authority, Canada
 - Michael Price - Skeena Wild Conservation Trust, Simon Fraser University, Canada
- Conservation practitioners
 - Chris Hebda - Hakai Institute, Canada
 - Cori Lausen - Wildlife Society of Canada, Canada
 - Matt Lemay - Hakai Institute, Canada
- Academic collaborators
 - Cristy C. Acabado - University of the Philippines Visayas, Philippines
 - Eric Capo - Umea University, Sweden
 - Eric R. Larson - University of Illinois Urbana-Champaign, USA
 - Paul Drevnick - University of Calgary, Canada
 - Rey Donne Papa - University of Santo Tomas, Philippines
 - Ryuji Machida - Academia Sinica, Taiwan
 - Samantha Gidora - Thompson River University, Canada
 - Valerie Langlois - Institut national de la recherche scientifique (INRS), Canada
 - Vicki Marlatt - Simon Fraser University, Canada

Recent Professional Development and Training

- Research to Real World Application Workshop - University of Victoria, Victoria, British Columbia, Canada - February to March 2024
- Water Sustainability Collective: Indigenous Water Relations - University of Victoria, Victoria, British Columbia, Canada - October 21, 2022
- Mastering the Elevator Pitch (online) - Mitacs, British Columbia, Canada - October 14, 2022
- Indigenous Cultural Acumen Training (ICAT) - University of Victoria, Victoria, British Columbia, Canada - April 15, 2022
- Persuasive Grant Writing Course (online) - Nature Masterclass, California, USA - October 7–13, 2021
- Fundamentals of Writing a Scientific Paper - EMBO (European Molecular Biology Organization) Press and Academia Sinica, Taipei, Taiwan - June 8–17, 2021
- Effective Collaboration in Research (online) - Nature Masterclass, California, USA - May 5–7, 2021

Professional outreach activities (2018 – 2024)

Founder, Philippine Planktology - 2018 – Present

- Established and oversees an influential online platform catering to students, research experts, and enthusiasts interested in plankton studies, fostering a community of over 3,500 followers.

Mentor, GradMap Philippines - 2023 – Present

- Offers valuable resources, mentorship, and a supportive community for aspiring Filipino students pursuing graduate studies abroad.

Chair, Philippine Planktology Lecture Series - 2021 – Present

- Organize a series of impactful lecture events, including the 3rd Lecture Series discussing ongoing efforts and future directions in plankton research, the 2nd Lecture Series on Current Trends in Plankton Research, and the inaugural 1st Lecture Series addressing the status of plankton research in the Philippines.

Activity lead, Science Rendezvous Victoria, May 13, 2024

- Led the iTrackDNA project booth at Science Rendezvous, a national festival celebrating science, technology, engineering, and math (STEM). Spearheaded outreach efforts to educate the general public on using environmental DNA (eDNA) technology for monitoring and conservation management of species at risk. Designed and delivered engaging programming to increase awareness about the innovative applications of eDNA tools in biodiversity research and the protection of threatened species.

Facilitator, Chipewyan Prairie First Nation: Winefred Lake Fish Camp, March 18-21, 2024

- Facilitated activities to demonstrate the use of environmental DNA in fish monitoring in lakes within Indigenous territory.

Social Media Manager - International Society of Limnology (SIL) - 2018 – 2021

- Directed the strategic management of the official social media accounts for the International Society of Limnology (SIL), facilitating member engagement and promoting active participation within the society.

Organizational Affiliations

- Society for Freshwater Science (SFS) - 2021–Present
- Association for the Sciences of Limnology and Oceanography (ASLO) - 2018 to Present
- International Society of Limnology (SIL) - 2016 to Present
- Philippine Society for Freshwater Science - 2018–Present
- National Research Council of the Philippines - 2020–Present
- Biology Teacher’s Association of the Philippines - 2016–Present

References

Caren C. Helbing, Ph.D.

Professor

Department of Biochemistry and Microbiology

University of Victoria

Victoria, British Columbia, Canada

Email: chelbing@uvic.ca

Ryuji Machida, Ph.D.

Associate Research Fellow

Biodiversity Research Center

Academia Sinica

Taipei, Taiwan

Email: ryujimachida@gate.sinica.edu.tw / ryujimachida@gmail.com

Ave Dersch, Ph.D.

Principal Archaeologist and Social Scientist

Moccasin Flower Consulting, Inc.

Calgary, Alberta, Canada

Email: ave.dersch@moccasinflower.ca

Rey Donne S. Papa, Ph.D.

Professor/Dean

College of Science

University of Santo Tomas

Espana, Manila, Philippines

Email: rspapa@ust.edu.ph