

ALDO A. ARELLANO, PhD

Postdoctoral Fellow
Institute for Global Change Biology (IGCB)
Cooperative Institute for Great Lakes Research (CIGLR)
University of Michigan
aldoaa@umich.edu

EDUCATION

- 2019-2025 Ph.D. in Microbiology, Microbiology Doctoral Training Program, University of Wisconsin-Madison; Dissertation: *Host-microbe feedbacks in a tripartite symbiosis*
Advisor: Dr. Kerri Coon
- 2017 B.A. in Biology and Russian Language and Literature, Dartmouth College
Graduated *with High Honors*
Honors Thesis: *Spatiotemporal variation in cyanobacterial density and colony morphology during a bloom in a naturally eutrophic lake*
Advisor: Dr. Kathryn Cottingham

ACADEMIC APPOINTMENTS

- Oct 2025 Postdoctoral Fellow, Cooperative Institute of Great Lakes Research (CIGLR) and Institute for Global Change Biology (IGCB); University of Michigan
Advisors: Dr. Gregory Dick, Dr. Meghan Duffy
- Aug 2025-
Sep 2025 Postdoctoral Fellow, Department of Bacteriology; University of Wisconsin-Madison
Advisor: Dr. Kerri Coon

GRANTS AND HONORS

- 2026 Institute for Global Change Biology Postdoctoral Fellowship; University of Michigan
- 2025 Sigrid Leirimo Memorial Scholarship; University of Wisconsin-Madison
- 2024 O.N. Allen Soil and Environmental Microbiology Grant; University of Wisconsin-Madison
- 2023 Gordon Research Conference: Animal-Microbe Symbioses Poster Prize
- 2021 HHMI Gilliam Fellowship
- 2021 NSF Graduate Research Fellowship
- 2020-2021 SciMed Graduate Research Scholars Fellowship; University of Wisconsin-Madison
- 2019-2020 NIH Biotechnology Training Grant; University of Wisconsin-Madison
- 2019 NSF Graduate Research Fellowship Honorable Mention
- 2017 Research Experience for Undergraduates; University of Wisconsin-Madison
- 2017 Thomas B. Roos Memorial Fund Scholarship; Dartmouth College
- 2016-2017 James O. Friedman Presidential Scholarship; Dartmouth College
- 2015 Porter Family Fund for Sustainability Science Research Grant; Dartmouth College
- 2013-2017 Gates Millennium Scholarship

RESEARCH AND WORK EXPERIENCE

- Ecological perspectives on microbiota function in mosquitoes Aug 2025-Sep 2025
**Postdoctoral researcher in the Coon Laboratory, Department of Bacteriology,
University of Wisconsin-Madison**
- Host-microbe feedbacks in a tripartite symbiosis 2019-2025
**PhD trainee in the Coon Laboratory, Microbiology Doctoral Training Program,
Department of Bacteriology, University of Wisconsin-Madison**

DermBiont internship
Molecular Diagnostics Research Associate,
DermBiont Inc. Boston, MA

May 2022- Aug 2022

Integrative study of *Prochlorococcus* 2017-2019
Research Technician in the Chisholm Laboratory,
Department of Civil and Environmental Engineering, Massachusetts Institute of Technology

Spatiotemporal dynamics of diverse taxa in Lake Mývatn, Iceland 2016- 2017
REU Fellow with the Ives Laboratory,
Department of Zoology, University of Wisconsin-Madison; Lake Mývatn Research Station

Effects of the temporal structuring of thermal regimes on range expansion 2016
Field Technician,
Department of Biological Sciences, Dartmouth College

Thermal acclimation effects upon population dynamics in variable thermal environments 2015-2017
Undergraduate Researcher,
Department of Biological Sciences, Dartmouth College

Long-term monitoring of bloom-forming cyanobacteria in Lake Sunapee, New Hampshire 2015-2017
Field Technician and Laboratory Technician in the Cottingham Laboratory,
Department of Biological Sciences, Dartmouth College

PUBLICATIONS

Peer-reviewed:

Coe, A., Mullet, J.I., Vo, N.N., Berube, P.M., Anjur-Dietrich, M.I., and Salcedo, E., Parker, S.M., VonEmster, K., Bliem, C., **Arellano, A.A.**, Castro, K.G., Becker, J.W., & Chisholm, S.W. (2025). ProSynTaxDB: A curated protein database and workflow for taxonomic classification of *Prochlorococcus* and *Synechococcus* in metagenomes. *Scientific Data*.

Arellano, A.A.*, Prack, J.L.*[†], & Coon, K.L. (2025). Host-mediated niche construction of bacterial communities in an aquatic microecosystem. *The ISME Journal*.

Braakman, R., Satinsky, B., O'Keefe, T. J., Longnecker, K., Hogle, S.L., Becker, J. W., Dooley, K., **Arellano A.A.**, Kido Soule, M.C., Kujawinski, E.B., & Chisholm, S. W. (2025). Global niche partitioning of purine and pyrimidine cross-feeding among ocean microbes. *Science Advances*.

Press: <https://news.mit.edu/2025/abundant-phytoplankton-feeds-marine-microbe-global-network-0103>

Coe, A., Braakman, R., Biller, S.J., **Arellano, A.A.**, Bliem, C., Vo, N.N., von Emster, K., Thomas, E., DeMers, M., Steglich, C., Huisman, J., & Chisholm, S.W. (2024). Emergence of metabolic coupling to the heterotroph *Alteromonas* promotes dark survival in *Prochlorococcus*. *ISME Communications*

Becker, J. W., Pollak, S., Berta-Thompson, J. W., Becker, K. W., Braakman, R., Dooley, K. D., Hackl, T., Coe, A., **Arellano, A.A.**, LeGault, K.N., Berube, P.M., Biller, S.J., Cubilloz-Ruiz, A., Van Mooy, B.A.S., & Chisholm, S. W. (2024). Novel isolates expand the physiological diversity of *Prochlorococcus* and illuminate its macroevolution. *mBio*.

Arellano, A. A., Young, E. B., & Coon, K. L. (2024). An inquiline mosquito modulates microbial diversity and function in an aquatic microecosystem. *Molecular Ecology*.

Biller, S.J., Coe, A., **Arellano, A.A.**, Dooley, K., Gong, J., Yeager, E.A., Becker, J.W., & Chisholm, S.W. (2023). Environmental and taxonomic drivers of microbial vesicle production in marine ecosystems. *Applied and Environmental Microbiology*.

Hackl, T, Laurenceau, R, Ankenbrand, M.J., Bliem, C, Cariani, Z, Thomas, E, Dooley, K.D., **Arellano, A.A.**, Hogle, S.L., Berube, P.M., Leventhal, G.E., Luo, E, Eppley, J, Zayed, A.A., Beaulaurier, J, Stephanuskas, R, Sullivan, M.B., DeLong, E.F., Biller, S.J., & Chisholm, S.W. (2023). Novel integrative elements and genomic plasticity in ocean ecosystems. *Cell*.

Press: <https://news.mit.edu/2023/genetic-information-transfer-ocean-microbe-0105>

Arellano, A.A.*, Sommer, A.J.*, & Coon, K.L. (2022). Beyond canonical models: Why a broader understanding of Diptera-microbiota interactions is essential for vector-borne disease control. *Evolutionary ecology*.

Arellano, A.A. & Coon K.L. (2022). Bacterial communities in carnivorous pitcher plants colonize and persist in inquiline mosquitoes. *Animal microbiome*.

Biller, S.J., Lundeen, R.A., Hmelo, L.R., Becker, K.W., **Arellano, A.A.**, Dooley, K., Heal, K.R., Carlson, L.T., Van Mooy, B.A.S., Ingalls, A.E., & Chisholm, S.W. (2021). *Prochlorococcus* extracellular vesicles: molecular composition and adsorption to diverse microbes. *Environmental microbiology*.

Coe, A., Biller, S.J., Thomas, E., Boulias, K., Bliem, C., **Arellano, A.A.**, Dooley, K., Rasmussen, A.N., LeGault, K., O'Keefe, T.J., Stover, S., Greer, E.L., & Chisholm, S.W. (2021). Coping with darkness: The adaptive response of marine picocyanobacteria to repeated light energy deprivation. *Limnology and oceanography*.

Laurenceau, R., Raho, N., Forget, M., **Arellano, A. A.**, & Chisholm, S. W. (2021). Frequency of mispackaging of *Prochlorococcus* DNA by cyanophage. *The ISME journal*.

Kremer, C. T., Fey, S. B., **Arellano, A. A.**, & Vasseur, D. A. (2018). Gradual plasticity alters population dynamics in variable environments: thermal acclimation in the green alga *Chlamydomonas reinhardtii*. *Proceedings of the Royal Society B: Biological Sciences*.

* authors contributed equally

† undergraduate mentee

In press/ revision:

McKee, H., **Arellano, A.A.**, Young, E.B., Coon, K.L. Cross-talk in the cold: host-microbe interactions in insect diapause. *In revision at Annals of the Entomological Society of America*

TEACHING EXPERIENCE

Diversity, Ecology and Evolution of Microorganisms (MICRO 450, 3 cr.), Graduate Teaching Assistant. University of Wisconsin-Madison. Fall 2020.

Introduction to Microbiology (BIOL 46, 4.5 cr.), Undergraduate Teaching Assistant. Dartmouth College. Fall 2017.

Physiological Ecology (BIOL 31, 4.5 cr.), Undergraduate Teaching Assistant, Dartmouth College. Fall 2017.

Principles of Ecology (BIOL 16, 4.5 cr.) Undergraduate Teaching Assistant, Dartmouth College.
Fall 2015, Spring 2016.

PRESENTATIONS

International Society for Microbial Ecology (planned 2026)

Contributed Works:

Talk - *Environmental and species-specific determinants of host-associated bacterial community composition in wild daphnids*

Poster - *Integrating bacterial and eukaryotic food webs under oligotrophic and eutrophic regimes in the Laurentian Great Lakes (USA)*

University of Michigan Institute for Global Change Biology Postdoc Symposium (2026)

Contributed Works: **Talk** - *From microbes to macrobes: multi-scale dynamics under environmental stress*

University of Michigan Department of Ecology and Evolutionary Biology Tuesday Seminar Series (2025)

Contributed Works: **Talk** - *Functional and phenological consequences of host-microbe feedbacks in the pitcher plant mosquito*

Gordon Research Seminar & Gordon Research Conference (2025)

Contributed Works:

Invited Talk – (GRS) *Community dynamics and seasonality of environmentally-acquired mosquito microbiota*

Poster – (GRC) *Context-dependent impacts of cross-kingdom microbial interactions on mosquito development*

Center for Ecology and the Environment Spring Symposium (2025)

Contributed Works: **Poster** - *The pitcher plant mosquito curates the composition and function of its environmentally acquired microbiota*

UW-Madison Department of Bacteriology Raper Symposium (2024)

Contributed Works: **Poster** - *The pitcher plant mosquito curates the composition and function of its environmentally acquired microbiota*

International Society for Microbial Ecology (2024)

Contributed Works: **Poster** - *The pitcher plant mosquito curates the composition and function of its environmentally acquired microbiota*

Ecological Society of America Annual Meeting (2024)

Contributed Works: **Invited Talk** - *Mosquito-mediated structuring of microbial diversity and function in an aquatic microecosystem*

Gordon Research Seminar & Gordon Research Conference (2023)

Contributed Works: **Poster** - *An inquiline mosquito modulates microbial diversity and function in the *Sarracenia purpurea* microsystem*

*Awarded poster prize at Gordon Research Conference

Center for Ecology and the Environment Spring Symposium (2023)

Contributed Works: **Poster** - *Mosquito-mediated shifts in composition and function of pitcher plant microbial communities*

Microbiology Doctoral Training Program Seminar Series (2023)

Contributed Works: **Talk** - *Mosquito-microbiota interactions shape the structure and stability of carnivorous pitcher plant communities*

Howard Hughes Medical Institute Gilliam Fellows Annual Meeting (2023)

Contributed Works: **Poster** - *Implicating microbes in the life history of the pitcher plant mosquito*

Biotechnology Training Program Annual Banquet (2023)

Contributed Works: **Poster** - *Mosquito-mediated shifts in composition and function of pitcher plant microbial communities*

Howard Hughes Medical Institute Investigator Meeting (2022)

Contributed Works: **Poster** - *Mosquito-mediated shifts in function and composition of pitcher plant microbial communities*

Entomological Society of America Annual Meeting (2022)

Contributed Works: **Invited Talk**- *Mosquito-microbiota interactions shape the structure and stability of carnivorous pitcher plant communities*

Microbiology Doctoral Training Program Seminar Series (2021)

Contributed Works: **Talk** - *Diversity and function of microbes in the pitcher plant mosquito (*Wyeomyia smithii*)*

Howard Hughes Medical Institute Gilliam Fellows Annual Meeting (2021)

Contributed Works: **Poster** - *Microbiota function in a keystone mosquito species*

UW-Madison Department of Bacteriology Raper Symposium (2021)

Contributed Works: **Poster** - *Microbiota function in a keystone mosquito species*

Boston Bacterial Meeting (2018)

Contributed Works: **Poster**- *Environmental controls on extracellular vesicle production by marine microbes*

Ecological Society of America Annual Meeting (2017)

Attended as SEEDS program participant (Strategies for Ecology Education, Diversity and Sustainability)

Contributed Works: **Poster**- *Spatiotemporal variation in cyanobacterial density and colony morphology during a bloom in a naturally eutrophic lake*

Annual Dartmouth Undergraduate Wetterhahn Symposium (2017)

Contributed Works: **Poster**- *Spatiotemporal variation in cyanobacterial density and colony morphology during a bloom in a naturally eutrophic lake*

MENTORSHIP

Heidi McKee, PhD student, UW-Madison, 2025-present

Jelena Lee, Undergraduate researcher, UW-Madison 2024-present

Joseph Muñoz, ESA-SEEDS mentee, 2024-2025

Julia Kashuk, Undergraduate researcher, UW-Madison, 2023-2024

Journey Prack, Undergraduate researcher, UW-Madison. 2021-2024

Daisy Chew, Undergraduate researcher, UW-Madison. 2021

OUTREACH AND VOLUNTEER EXPERIENCE

2024	UW-Madison WILD-SEEDS guest speaker
2024	Ecological Society of America ESA-SEEDS national meeting peer mentor
2023	Microbiology Doctoral Training Program Representative at SACNAS meeting
2022-2024	Center for Ecology and the Environment Executive Committee member
2021	LGBTQ+ Peer Mentor at UW-Madison
2021	SciMed Graduate Research Scholars peer mentor at UW-Madison
2020	Microbiology Doctoral Training Program representative at ABRCMS meeting
2020	Wisconsin Science Festival: “Did ya know? Not all mosquitoes want your blood” video exhibit
2020	Darwin Days “Tree of Life” Exploration Station: “Friends and Foes: Mosquitoes”
2019	Wisconsin Science Festival: “The Microbe Place” interactive exhibit
2016-2017	America Reads volunteer at Dartmouth College
2015-2017	Latinx Peer Mentor at Dartmouth College
2014-2017	First-Year Peer Mentor at Dartmouth College

PROFESSIONAL SERVICE

Reviewer for *PNAS*, *Parasites & Vectors*, *Scientific Reports*, *Archives of Microbiology*, *The ISME Journal*, *BMC Biology*, *Ecology*, *npj Biofilms and Microbiomes*, *Microbial Ecology*

FIELD AND TRAINING EXPERIENCE

Summer 2026 (planned)

Cooperative Institute for Great Lakes Research

Genomics cruise for Harmful Algal Blooms (HABs) monitoring and zooplankton survey (Lake Erie)

Monthly cruise to several long-term monitoring stations in Western Lake Erie to track seasonal cyanobacterial bloom progression. Collection of samples for various genomics approaches, including DNA isolation and sequencing. Collection of zooplankton samples at each deployment to track incidence of parasite infection throughout bloom progression.

Spring-Summer 2026

Department of Ecology and Evolutionary Biology, University of Michigan

Zooplankton survey of ephemeral habitats and ponds (Ann Arbor, Michigan)

Weekly collections of *Daphnia* to survey species composition and infection status across freshwater habitats. Taxonomic assignment to species level of live samples and establishment of laboratory lines of several zooplankton species, dipterans in the genus *Chaoborus*, and hemipterans in the genus *Notonecta*. Live diagnosis of infection in zooplankton samples.

Summer 2025

Marine Biological Laboratory, University of Chicago

Molecular and Cell Biology of Symbiosis (Woods Hole, MA)

Immersive research-based course spanning microbial symbioses across diverse eukaryotic host species. Particular emphasis on molecular mechanisms of microbe selection, live-cell imaging of host-microbe interactions, biochemistry and metabolic maintenance of microbiome communities, effects of stress on symbiotic relationships, development and application of genetic tools, gene regulatory and signaling networks associated with symbiosis, establishing novel laboratory models, and evolution of symbiosis across taxa.

Summer 2023

Microbiology Doctoral Training Program, University of Wisconsin-Madison

Cell density and fungal diversity survey of *Sarracenia* inquiline communities in Cedarburg Bog (Saukville, WI)

Identification of early successional plant-associated communities in the field followed by collection of water samples for cell density determination and selective isolation of fungal taxa.

Summer 2020

Microbiology Doctoral Training Program, University of Wisconsin-Madison

Microbiota assembly in *Sarracenia* inquiline communities in Cedarburg Bog (Saukville, WI)

Ecologically-conscious manipulation of insect density in natural communities of a bog. Collection and preservation of arthropods for downstream characterization and water sample collection for chemical analysis.

Summer 2016

National Science Foundation: University of Wisconsin-Madison Research Experience for Undergraduates

Aquatic and Terrestrial Ecology of Lake Mývatn, Iceland

Extensive limnology experience (including motor boat operation), terrestrial sampling regimes, arthropod sampling, dipteran sampling, phytoplankton sampling, zooplankton sampling, key identification experience across diverse taxa

Winter 2016

Dartmouth College Department of Biological Sciences Foreign Study Program

Tropical Ecology in Costa Rica

Familiarity with diverse tropical systems: lowland rain forest (La Selva and Corcovado), cloud forest (Monteverde), dry forest (Palo Verde and Santa Rosa), pre-montane wet forest (Las Cruces), montane forest (Cuerici), alpine paramo, streams, and wetlands

Marine Biology and Ecology in the Cayman Islands

Experience in studies of algae, aquatic plants, invertebrates, and fish, with emphasis on populations, species interactions, community structure and energetics, and reef conservation and management

SKILLS AND PROFICIENCIES

Languages: English, Spanish (fluent), Russian (highly proficient)

Highly proficient in R programming environment and command-line tools for bioinformatics (*e.g.*, amplicon sequencing analysis, metagenomics, and bacterial genome assembly)

Experienced in confocal and epifluorescence microscopy. Extensive experience in microbial culturing, standard microbiological techniques, molecular techniques, insect husbandry.