

ANDREW LONG

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Relevant Skills

Full proficiency in shell scripting and using computer clusters.

Working proficiency in perl, python, and R.

2 years of experience working with large metagenomic and metatranscriptomic datasets.

Experience in developing and troubleshooting bioinformatics pipelines in analyzing metagenomic and metatranscriptomic data.

Extensive experience in molecular biology techniques including: DNA and RNA extraction from water, soil, and sediment samples, PCR, quantitative PCR, molecular cloning, library preparation for multiple high throughput sequencing platforms, agarose gels, cDNA synthesis, DNA and RNA quantification.

Education

University of Toronto, Ecology and Evolutionary Biology, Ph.D. Jan 2017

Thesis title: The persistence of algal viruses and cyanophages in freshwater environments

Advisor: Dr. Steven Short

University of North Carolina - Wilmington, Biology, M.S. June 2011

Thesis title: The importance of anammox and codenitrification in agricultural soil

Advisor: Dr. Bongkeun Song

Texas A&M University, Biology, B.S. Dec 2008

Experience

University of Southern California, Los Angeles, CA

Postdoctoral Scholar, Fuhrman Lab

2017 - present

University of North Carolina – Wilmington, Wilmington, NC

454 sequencing and general lab technician, Center for Marine Science

2011 - 2012

USDA-ARS Cotton Pathology Unit, College Station, TX

Biological Science Aide

2007 - 2009

Fellowships and Grants

ASLO Early Career Travel Award Grant	2019
Association for the Sciences of Limnology and Oceanography	
Doctoral Completion Award	2016
University of Toronto	
University of Toronto Fellowship	2012 - 2016
University of Toronto	
Harold H. Harvey Scholarship in Zoology	2015 - 2016
University of Toronto	
SGS Conference Travel Grant	2016
University of Toronto	
UTM Biology Travel Grant	2014, 2016
University of Toronto - Mississauga	
UTM Vice-Dean Student Travel Grant	2014, 2016
University of Toronto - Mississauga	
IAGLR Conference Student Travel Grant	2014
International Association for Great Lakes Research	
GSA Student Travel Award	2010
University of North Carolina - Wilmington	
UNCW Biology and Marine Biology Student Travel Award	2010
University of North Carolina - Wilmington	

Publications

Long AM & Fuhrman JA (in prep). Virus production from attached particles matches production from free-bacteria. Targeted journals: Aquatic Microbial Ecology, ISME Journal, Environmental Microbiology.

Long AM, Ignacio-Espinoza JC & Fuhrman JA (in prep). Codon-usage bias better predicts growth rates in mixed marine communities than peak-to-trough ratio-based predictors. Targeted journals: ISME Journal, Applied and Environmental Microbiology, Nature Methods.

Long AM, Staniewski MA, Wilhelm SW & Short SM (2018). Algal viruses and cyanophages have distinct distributions in Lake Erie sediments. *Aquatic Microbial Ecology* 82(2): 161-175.

Short SM, SA Staniewski, Chaban YV, **Long AM** & Wang D (2018). Diversity of viruses infecting eukaryotic algae. From: *Viruses of Microorganisms* (Edited by: Hyman P & Abedon ST). Caister Academic Press, UK. Pages: 211-244.

Long AM & Short SM (2016). Seasonal determinations of algal virus decay rates reveal over-wintering in a temperate freshwater pond. *ISME Journal* 10: 1602-1612.

Mirza SF, Staniewski MA, Short CM, **Long AM**, Chaban YV & Short SM (2015). Isolation and characterization of a virus infecting the freshwater algae *Chrysochromulina parva*. *Virology* 486: 105- 115.

Long AM, Song B, Fridey K & Silva A (2015). Detection and diversity of copper containing nitrite reductase genes (*nirK*) in prokaryotic and fungal communities of agricultural soils. *FEMS Microbiology Ecology* 91(2): 1-9.

Song B, Mallin MA, **Long AM** & McIver MR (2014). Factors controlling microbial nitrogen removal efficacy in constructed stormwater wetlands. Water Resources Institute of the University of North Carolina. Report No. 443.

Long AM, Heitman J, Tobias C, Phillips R & Song B (2013). Co-occurring anammox, denitrification and fungal codenitrification in agricultural soils. *Applied and Environmental Microbiology* 79(1): 168–176.

Presentations

Long AM, Ignacio-Espinoza JC & Fuhrman JA (2019) Estimating marine bacterial growth rates using metagenomics and metatranscriptomics. (oral presentation) ASLO 2019 Aquatic Sciences Meeting

Long AM & Fuhrman JA (2018). Metagenomic and metatranscriptomic indicators of bacterial growth (oral presentation) Tuesday Seminar, Marine and Environmental Biology, University of Southern California, Los Angeles, CA

Long AM & Short SM (2016). Determinations of algal virus and cyanophage decay rates reveal over-wintering in a seasonally frozen freshwater pond. (poster presentation) 13th International Symposium on Microbial Ecology, Montreal, QC, Canada

Long AM & Short SM (2016). Over-wintering of freshwater algal viruses and cyanophages demonstrated via coupling culture-based and molecular methods for estimating decay rates. (oral presentation) 66th Annual Meeting of the Canadian Society of Microbiologists, Toronto, CA, Canada

Short SM, Mirza SF, Short CM, Staniewski SA & **Long AM** (2016). A newly isolated algal virus cultivated from the Bay of Quinte infects the haptophyte *Chrysochromulina Parva*. (oral presentation) 59th Annual Conference on Great Lakes Research (International Association for Great Lakes Research), Guelph, ON, Canada.

Short SM, Mirza SF, Short CM, Staniewski SA & **Long AM** (2015). A newly isolated virus infecting freshwater prymnesiophyte (haptophyte) phytoplankton shares features with both phycodnaviruses and mimiviruses. (oral presentation) 65th Annual Meeting of the Canadian Society of Microbiologists, Regina, SK, Canada

Short SM, Mirza SF, Short CM, Staniewski SA & **Long AM** (2015). A newly isolated virus infecting freshwater prymnesiophyte (haptophyte) phytoplankton shares features with both phycodnaviruses and mimiviruses. (oral presentation) ASLO Aquatic Sciences Meeting: Global and Regional Perspectives - North Meets South, Granada, Spain

Long AM & Short SM (2014). Experimental determinations of algal virus decay in a freshwater pond. (poster presentation) 57th Annual Conference on Great Lakes Research (International Association for Great Lakes Research), Hamilton, ON, Canada.

Mallin MA, Song B, **Long AM** & McIver MR (2013). High pollutant removal in a large constructed wetland improves a tidal creek. Tidal Creeks Summit, Wilmington, NC

Mallin MA, Song B, **Long AM** & McIver MR (2013). Biotic, physical and meteorological factors maximizing N loss in a constructed wetland. Meeting of the Southeastern Estuarine Research Society, Charleston, SC

Song, B, **Long AM**, Mallin MA & McIver MR (2012). Anaerobic ammonium oxidation and denitrification in a constructed stormwater wetland. NCSU-SRP Biennial Stream Restoration Conference, Wilmington, NC

Long AM, Phillips R, Heitman J, Tobias C & Song B (2012). Resolving the activity of codenitrification from denitrification and anammox in agricultural soils through antibiotic inhibition. (poster presentation) American Society for Microbiology 112th General Meeting, San Francisco, CA

Long AM, Mallin MA & Song B (2012). Anaerobic ammonium oxidation and denitrification in a constructed stormwater wetland. (oral presentation) Water Resources Research Institute Annual Conference, Raleigh, NC

Long AM, Heitman J, Tobias C & Song B (2011). Variation of anammox, codenitrification, and denitrification across two agricultural fields in North Carolina. (poster presentation) National Cooperative Soil Survey National Conference, Asheville, NC

Song B, **Long AM**, Heitman J & Tobias C (2011). Molecular and stable isotope investigation of anammox and denitrification in agricultural soils. (oral presentation) National Cooperative Soil Survey National Conference, Asheville, NC.

Song B, **Long AM**, Heitman J & Tobias C (2010). The importance of anaerobic ammonium oxidation (anammox) in agricultural soil. (poster presentation) American Society of Agronomy, Crop Science Society of America and Soil Science Society of American Annual Meetings, Long Beach, CA.

Long AM, Heitman J, Tobias C & Song B (2010). The importance of anaerobic ammonium oxidation (anammox) in agricultural soil. (poster presentation) 13th International Symposium on Microbial Ecology, Seattle, WA

Teaching experience, mentoring, and community involvement

Referee for Journals:

Estuarine, Coastal and Shelf Science, Environmental Science and Technology, and PeerJ.

Professional Society Memberships:

International Society for Microbial Ecology

American Society for Microbiology

Association for the Sciences of Limnology and Oceanography

Canadian Society of Microbiologists

University of Southern California

Mentor to graduate students Melody Aleman and Collette Fletcher-Hoppe 2017 - present

University of Toronto

UTM Biology Seminar Committee Member 2015 - 2016

Mentor to undergraduate, Nikhil George 2015 - 2016

Guest Lecturer, Virology Fall 2015

Guest Lecturer, Microbial Ecology Spring 2015, 2016

Mentor to undergraduate, Yuri Chaban 2014 - 2016

Mentor to undergraduate, Amna Alam 2014 - 2015

Laboratory Section TA, Microbiology 2014 - 2016

Laboratory Section TA, Laboratory in Molecular Biology & Genetics Spring 2013 & 2014

Laboratory Section TA, Introduction to Evolution and Evolutionary Genetics Fall 2012

University of North Carolina - Wilmington

Mentor to undergraduate, Amy Silva 2011 - 2012

Mentor to undergraduate, Kelly Fridey-Sides 2010 - 2011

Laboratory Section TA, Microbiology of Human Diseases 2009 - 2010

Mentor to undergraduate, James Taylor 2009 - 2010

Referees

Jed Fuhrman

Professor of Biology, McCulloch-Crosby Chair of Marine Biology
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Steven Short

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Bongkeun Song

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