

# Heather L. Hawk

PhD Candidate in Oceanography | Université Laval  
heatherhawk@gmail.com | heatherhawk.weebly.com

## CAREER SUMMARY

---

I am pursuing a career in marine ecology research that applies interdisciplinary methods to discover local to global patterns and drivers of biodiversity. My broad international experience in field, lab, and classroom settings gives me a unique approach to marine invertebrate ecology and an enthusiasm for public outreach.

**Distinctions:** 613 citations and h-index of 4 (Google Scholar)  
5 peer-reviewed publications and 1 scientific report  
Collaborations in 5 countries with academic and government scientists

**Key Interests:** biodiversity, biogeography, and spatial heterogeneity; community ecology; DNA barcoding, eDNA; multivariate statistics; cryptic, endangered, invasive species; temperate and tropical ecology

## EDUCATION

---

<b>Ph.D. Oceanography</b> (3.85 GPA), <i>Université Laval</i> Thesis Supervision: Ladd Johnson	2022 (expected)
<b>M.Sc. Marine Science</b> , (3.97 GPA) <i>Moss Landing Marine Laboratories (MLML)</i> Thesis Supervision: Jonathan Geller	2010
<b>B.Sc. Ecology</b> (3.70 GPA), <i>The University of Georgia (UGA)</i> Honors Supervision: Ronald Carroll, Diana Lieberman	2005

## RESEARCH

---

<b>PhD Researcher</b> , <i>Université Laval</i> (Québec) “Ecological drivers of marine biodiversity and their value for designing monitoring strategies for aquatic non-indigenous species (NIS) across Canada.” Related publications: Ma et al. 2020; Ma et al. 2019; Archambault et al. 2015; several in prep	Present
<b>Research Associate</b> , <i>California Dept. of Fish and Wildlife</i> (California) Sample preparation and isolation for trace metals analyses of fish, shellfish, sediment	2011 – 2012
<b>Research Associate</b> , <i>MLML</i> (California) Marine invertebrate genetics, DNA barcoding, invasive species detection. PI: Jonathan Geller Related publication: Geller et al. 2013	2009 – 2012
<b>MSc Researcher</b> , <i>MLML</i> (California) “The historical genetic diversity of the endangered white abalone.” Related publication: Hawk and Geller 2018	2009 – 2010
<b>NOAA California Sea Grant Trainee</b> , <i>MLML</i> (California) Radiocarbon aging of fish and invertebrates. PI’s: Gregor Cailliet, Allen Andrews Related publication: Andrews et al. 2013	2006 – 2009
<b>Resident Biologist</b> , <i>Cabo Blanco Absolute Preserve</i> (Costa Rica) Independent project: Habitat niches and ecological redundancy among intertidal gastropods. Maintain library, laboratory, and long-term databases of weather, flora, and fauna observations Taxonomic aid for visiting researchers. Supervisors: Diana Lieberman, Milton Lieberman	2005 – 2007
<b>BSc Honors Researcher</b> , <i>UGA Ecolodge San Luis</i> (Costa Rica) “Relating distributions of epiphytic bromeliad tank invertebrate assemblages with human health.” Supervisor: Lindsay Stallcup (Bosque Eterno de los Niños)	2004

TEACHING

<b>Marine Biology</b> – adjunct instructor (college), <i>Daytona State College</i> (Florida)	2020
<b>Bio-invasions in High Latitudes</b> – course developer (graduate), <i>Universidad Austral de Chile</i> (Chile)	2019
<b>Marine Science &amp; Oceanography</b> – instructor (K-12), <i>Tabor Academy</i> (Massachusetts)	2018
<b>Biostatistics &amp; R</b> – recurring presenter (graduate), <i>U. Laval Benthic Ecology Lab</i> (Québec)	2015 – 2018
<b>Invertebrate Zoology</b> – teaching assistant (graduate), <i>MLML</i> (California)	2009
<b>Natural History</b> – naturalist (public), <i>Point Lobos State Natural Reserve</i> (California)	2008 – 2009
<b>Marine Biology</b> – science camp instructor (K-12), <i>Camp SEA Lab</i> , (California)	2006 – 2008
<b>Coastal Ecology</b> – resident lecturer (college/graduate), <i>San Miguel Biological Station</i> (Costa Rica)	2005 – 2006
<b>Tropical Field Ecology</b> – teaching assistant (college), <i>UGA Ecolodge San Luis</i> (Costa Rica)	2005 – 2006

PUBLICATIONS

(C = citations, IF = impact factor as of Apr. 2019)

<b>Hawk HL</b> , LE Johnson. <i>In review</i> . Mesopredator access determines biofouling assemblages on anthropogenic structures in a temperate Canadian marina.	
<b>Hawk HL</b> , F Ferrario, LE Johnson. <i>In prep</i> . A framework for reducing bias in biodiversity measurements by harnessing the effects of seasonality and succession into multi-method sampling strategies.	
Garrido I, <b>HL Hawk</b> , L Pardo, LE Johnson. <i>In prep</i> . The formation and maintenance of diversity and productivity in ice scour pits in the South Shetland Islands, Antarctica.	
Ma KCK, HE Glon, <b>HL Hawk</b> , CN Chapman. 2020. Reconstructing the distribution of the non-native sea anemone, <i>Diadumene lineata</i> (Actiniaria), in the Canadian Maritimes: Local extinction in New Brunswick and no regional range expansion in Nova Scotia since its initial detection. <i>Regional Studies in Marine Science</i> <b>34</b> : 101046. doi.org/10.1016/j.rsma.2020.101049	3 C 1.2 IF
Ma KCK, <b>HL Hawk</b> , C Goodwin, N Simard. 2019. Morphological identification of two invading ascidians: new records of <i>Ascidella aspersa</i> (Müller, 1776) from Nova Scotia and <i>Diplosoma listerianum</i> (Milne-Edwards, 1841) from New Brunswick and Quebec. <i>BioInvasions Records</i> <b>8</b> (1): 50 – 64. doi.org/10.3391/bir.2019.8.1.06	2 C 1.2 IF
<b>Hawk HL</b> , JB Geller. 2018. DNA entombed in seashells reveals the historical genetic diversity of the endangered white abalone, <i>Haliotis sorenseni</i> . <i>Marine and Freshwater Research</i> <b>70</b> (3): 359 – 370. doi.org/10.1071/MF17342	5 C 1.7 IF
Geller JB, CP Meyer, M Parker, <b>HL Hawk</b> . 2013. Redesign of PCR primers for mitochondrial Cytochrome c oxidase subunit I for marine invertebrates and application in all-taxa biotic surveys. <i>Molecular Ecology Resources</i> <b>13</b> (5): 851-861. doi.org/10.1111/1755-0998.12138	582 C 7.1 IF
Andrews AH, R Leaf, L Rogers-Bennett, M Neuman, <b>HL Hawk</b> , G Cailliet. 2013. Bomb radiocarbon dating of the endangered white abalone ( <i>Haliotis sorenseni</i> ): investigations of age, growth and lifespan. <i>Marine and Freshwater Research</i> <b>64</b> (11): 1029-1039. doi.org/10.1071/MF13007	14 C 1.7 IF
<b>Hawk HL</b> . Historical genetic diversity of the endangered white abalone ( <i>Haliotis sorenseni</i> ). 2010. Master's Thesis. California State University Monterey Bay, Paper 67. Open Access through Sea Grant California <a href="http://escholarship.org/uc/item/0d93d9nz">http://escholarship.org/uc/item/0d93d9nz</a>	7 C

OTHER MEDIA

- Archambault P, S Bailey, J Goldsmit, **HL Hawk**, K Howland, A Lacoursiere-Roussel. Guide to the Identification of Non-Indigenous Marine Species with Potential for Introduction to the Canadian Arctic. October 2015. Publication of Canada Department of Fisheries and Oceans. doi.org/10.13140/RG.2.2.30047.15529
- Hawk HL**. "Protect Pipis, Biologist Pleas." *The Leongatha Star* [Leongatha, Vic, AU] March 2011.
- Blogs**: heatherhawk.weebly.com (professional updates); thehawkinoz.blogspot.com (conservation, travel)

RESEARCH FUNDING

---

Québec-Océan Training Grant (\$ 1,500 CAD)	2017
Canadian Aquatic Invasive Species Network (CAISN II) PhD Fellowship (\$ 57,000 CAD)	2012 – 2016
Myers Oceanographic and Marine Biology Trust Grant (\$ 1,500 USD)	2010
David and Lucile Packard Foundation Research Award (\$ 1,000 USD)	2010

SCHOLARSHIPS

---

Canadian Associates of the Bermuda Institute of Ocean Sciences Scholarship (\$ 2,000 CAD)	2017
Université Laval international recruitment scholarship (\$1,000 CAD)	2013
International Women’s Fishing Association Scholarship (\$ 1,000 USD)	2010
Martha Johnston Memorial Scholarship (\$ 1,000 USD)	2009
H.O.P.E. Scholar (State of Georgia) (\$ 11,000 USD)	2002 – 2005

AWARDS AND DISTINCTIONS

---

Top Paper Award, 9ème colloque de biologie, Université Laval (\$ 300 CAD)	2018
Top Paper Award, 8ème colloque de biologie, Université Laval (\$ 200 CAD)	2017
Second Runner-Up for best poster, Canadian Aquatic Invasive Species Annual Meeting	2014
Dean’s List, University of Georgia	2003 – 2005
Presidential Scholar, University of Georgia	2002 – 2005

PROFESSIONAL SERVICE

---

Journal Referee	2014 – Present
<i>BioInvasions Records</i> (1.2 IF)	
<i>Marine and Freshwater Research</i> (1.7 IF)	
<i>Marine Biology</i> (2.4 IF)	
<i>PLOS ONE</i> (2.8 IF)	
Board Member, Immigrant & International Women in Science (IWS), Quebec City branch	2018 – 2019
Organizing Committee, 44 <sup>th</sup> Annual Benthic Ecology Meeting	2015
Organizing Committee, Invasive Species Workshops for Arctic Canada, Kuujuaq (QC)	2015
Organizing Committee, MLML Open House	2007 – 2009
Vice President, Graduate Student Body, MLML	2007 – 2008

OUTREACH

---

Guest Scientist, <i>Skype A Scientist</i>	2019 – Present
Identification & Data Contributor, <i>iNaturalist</i> , <a href="https://www.inaturalist.org/people/705586">iNaturalist.org/people/705586</a>	2017 – Present
Graphic Design & Illustration, <i>Portfolio</i> : <a href="https://heatherhawk.weebly.com/gallery">HeatherHawk.weebly.com/gallery</a>	2008 – Present
Website Manager, <i>Benthic Ecology Lab (U. Laval)</i> <a href="http://www.Benthos.ca">www.Benthos.ca</a>	2018 – Present
Website Editor, <i>Benthic Ecology Meeting Society</i> , <a href="http://www.BEMSociety.org">www.BEMSociety.org</a>	2015
Conservation Volunteer, <i>Australia World-Wide Opportunities on Organic Farms (WWOOF)</i>	2011
GBRMPPA (QLD); BYO Guides Coral Finder (QLD); Torres Pearls (QLD); Parks Victoria (VIC)	
(Related news article, <i>Leongatha Star</i> )	

CERTIFICATIONS AND TRAINING

---

<b>SCUBA:</b> 130+ research/training dives (78 cold/dry-suit, 52 cold/wet-suit, 30 warm water)	
Scientific Diver, <i>American &amp; Canadian Associations for Underwater Science (AAUS &amp; CAUS)</i>	2009 – 2015
Volunteer Diver, <i>Reef Check California</i>	2009 – 2011
Master and Rescue Diver, <i>NAUI</i>	2009
Open Water Diver, <i>PADI</i>	2004
<b>Ship Time:</b> 4 day-cruises (R/V Point Sur) in the Monterey Bay National Marine Sanctuary to identify and prepare DNA extractions of animals from mid-water and benthic trawls	2008 – 2011
<b>Driver's License</b> <i>Florida, USA</i>	2020
<b>Small Vessel Operator Proficiency (SVOP)</b> , <i>Transport Canada</i>	2014
<b>Restricted Radiotelephone Operator's Certificate (ROC-M)</b> , <i>Transport Canada</i>	2014
<b>Workplace Hazardous Materials Information System (WHMIS)</b>	2013
<b>First Aid/CPR/AED</b> , <i>CNESST Formation Prévention Secours, Inc.</i>	2017
<b>Emergency Oxygen Provider for SCUBA Diving Injuries</b> , <i>Divers Alert Network (DAN)</i>	2016
<b>Coral Biology and Coral Reef Ecology</b> [training], <i>Bermuda Institute for Ocean Sciences</i>	2017
<b>Freshwater Zooplankton Identification</b> [training], <i>Fisheries and Oceans Canada (Ontario)</i>	2015
<b>Special Software:</b> R, QGIS, SQL, SYSTAT, SPSS, Geneious, Inkscape, GIMP	
<b>Languages:</b> intermediate Spanish and French	

CONFERENCES & SYMPOSIA

(\* supported by travel award)

- Hawk HL**, F Ferrario, LE Johnson. 2021. How to optimize biodiversity census sampling using multiple methods: a framework and new R package. 102<sup>nd</sup> Meeting of the Western Society of Naturalists, Monterey, CA, USA.
- Hawk HL**. 2018. (*top paper award*) Utilisation de la diversité bêta pour révéler plus d'effets d'espèces non indigènes sur la biodiversité marine. 9<sup>e</sup> Colloque du dépt de biologie de U. Laval. Québec, QC, CA.
- Hawk HL**, 2018. Beta-Diversity and the spread of invasive species: determining appropriate metrics and spatial scales. 4<sup>th</sup> World Conference on Marine Biodiversity. Montréal, QC, CA.
- Hawk HL**, LE Johnson. 2017. (*top paper award*) Les effets de l'accès des prédateurs benthiques sur la structure des communautés d'encrassement biologique. 8<sup>e</sup> Colloque du dépt de biologie, U. Laval. Québec, QC, CA.
- Hawk HL**, G Chimienti, M Venezia, G Goodbody-Gringley. 2017. Inside the Reef: baselines for healthy coral reefs depend on habitat and history. BIOS Summer Research Symposium, Hamilton, Bermuda.
- \* **Hawk HL**, LE Johnson, S Bailey. 2016. Power and Prejudice: effort and collection method determine the detection of non-indigenous species. 45<sup>th</sup> annual Benthic Ecology Meeting, Portland, ME, USA.
- \* **Hawk HL**, LE Johnson. 2016. Sea Stars Can't Jump: floating structures as prey refuges with consequences for biodiversity. 100<sup>th</sup> Meeting of the Western Society of Naturalists, Monterey, CA, USA.
- \* **Hawk HL**, LE Johnson. 2016. Detecting aquatic non-indigenous species (NIS): the importance of dispersal traits and collection method. 9<sup>th</sup> International Conference on Marine Bioinvasions. Sydney, AUS.
- \* **Hawk HL**, LE Johnson, S Bailey, D Schneider. 2016. Regional differences in optimal resource allocation for maximizing detection of multiple aquatic invasive species (AIS). CAISN II meeting. Windsor, ON, CA.
- Hawk HL**, LE Johnson. 2015. Can life history traits explain the efficiency of field methods for early detection of invasive species? 44<sup>th</sup> annual Benthic Ecology Meeting, Quebec City, QC, CA. [Poster]
- \* **Hawk HL**, KCK Ma, J Goldsmit, A Lacoursiere-Roussel, P Archambault. 2015. Exchanging knowledge about risks and monitoring strategies for aquatic invasive species in Arctic Canada. Québec-Océan 14<sup>th</sup> annual general meeting. Quebec City, QC, CA. [Poster]

CONFERENCES & SYMPOSIA (CONTINUED)

(\* supported by travel award)

- \* **Hawk HL**, LE Johnson. 2015. The effect of dispersal potential on fine scale spatial structure in a fouling community. Atlantic Canada Coastal and Estuarine Science Society (ACCESS). St. Andrews, NB, CA.
- \* **Hawk HL**, LE Johnson. 2014. Dominance and succession on artificial structures. Québec-Océan 13<sup>th</sup> annual meeting. Rivière-du-Loup, QC, CA.
- \* **Hawk HL**. 2014. Life history traits explain the efficiency of sampling methods for early detection of alien species. Canadian Aquatic Invasive Species Network II annual general meeting. Gatineau, QC, CA. [Poster]
- \* **Hawk HL**. 2013. Designing a multi-species detection framework for invasions in Canada. Québec-Océan 12<sup>th</sup> annual general meeting. Rivière-du-Loup, QC, CA. [Poster]
- Hawk HL**, M Marraffini, JB Geller. 2012. DNA barcoding invasive invertebrates from fouling communities in San Francisco Bay. Monterey Bay Nat. Marine Sanctuary Currents Symposium. Seaside, CA, USA. [Poster]
- Hawk HL**, N Welschmeyer, J Broughton. 2008. Rapid validation of ballast water sterilization techniques using adenosine-5'-triphosphate (ATP). MLML Student Symposium. Moss Landing, CA, USA.
- Hawk HL**, JB Geller. 2008. Phylogenetic diversity of calcium carbonate micro-endoliths in abalone shell. MLML Marine Science Student Symposium. Moss Landing, CA, USA.
- Hawk HL**, MH Graham, JB Geller. 2007. Habitat modification and home-fidelity of *Nuttallina* chitons on the central California intertidal zone. MLML Marine Science Symposium. Moss Landing, CA, USA.
- Hawk HL**, D Lieberman. 2004. Distance from stream effects the contribution of mosquito larvae to invertebrate communities in bromeliad tanks. Institute of Ecology Student Symposium. Athens, GA, USA. [Poster]

SEMINARS AND OTHER TALKS

(\* supported by travel award)

- Hawk HL**. 2020. Art Hearts Science: developing and applying visual tools to the study of marine biology. Guest lecture for Vanderbilt University School for Science and Math, Nashville, TN, USA.
- Hawk HL**. 2020. Slow, gentle, and tasty: Biology and conservation of exploited marine snails. Guest Lecture, Moss Landing Marine Laboratories Advanced Population Biology course. Moss Landing, CA, USA.
- \* **Hawk HL**, J Goldsmit. 2015. Recruitment plates as tools to monitor for non-indigenous aquatic biofouling species. Canadian Aquatic Invasive Species Knowledge Transfer Workshop. Kuujuaq, QC, CA.
- Geller JB, **HL Hawk**, A Kahn, S Boyer. 2010. Why are there so few phyla? Hypothetical bauplans for unfilled eco-spaces. Moss Landing Marine Laboratories Open House Seminar Series, Moss Landing, CA, USA.
- Hawk HL**, JB Geller, D Haydar. 2008. Secrets in a Seashell: Solving Marine Science Mysteries with DNA. Moss Landing Marine Laboratories Open House Seminar Series, Moss Landing, CA, USA.
- Hawk HL**. 2007. A Lady and the Jungle: Tropical Wilderness Ecology. Guest lecture at Camp SEA Lab “Girls Love Science” program (high school students). Seaside, CA, USA.
- Hawk HL**. 2006. Redundancy of habitat niches among intertidal gastropods in a high diversity region. Guest talk for Organization for Tropical Studies (OTS) graduate program. Puntarenas, Costa Rica.

MENTORING

MLML & Salinas High School partner program (K-12)	2008 – 2010
K. High, recently completed BSc, San Jose State University	
Université Laval (undergraduate)	2013 – 2019
C. Carrier-Belleau, now pursuing PhD at Université Laval	
E. Carroll, recently completed MSc at University of Alberta	
A. Langwieder, now pursuing MSc at Université Laval	
A. Pilon, now pursuing MSc at Université Quebec Rimouski	
S. Roy, now pursuing PhD at Université Laval	