

# Dr. Nia S. Walker

*Pronouns: she/her/hers*

Postdoctoral Scholar

University of Hawai'i – Hawai'i Institute of Marine Biology

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**Interests:** Stress resilience, conservation genetics and genomics applications in coral reef ecosystems, coral thermal resilience, coral life cycle, acclimation and adaptation in keystone organisms sensitive to environmental shifts, molecular ecology, bioinformatics, conservation education and environmental justice advocacy, and URM (underrepresented minorities) mentorship and advocacy.

**Highlighted Skills and General Experience:** Coding languages (R and python), genetics and genomics (RNA and DNA extractions, library preparation, and sequencing analysis), cell biology (flow cytometry, histology, light/confocal microscopy), physiology (lipid, protein, carbohydrate extractions, isotopic analysis), and field/lab experimental design.

## Current Work Experience

University of Hawai'i, Kaneohe, HI  
Hawai'i Institute of Marine Biology

08/08/2022 – present

## Education

Stanford University, Palo Alto, CA

Ph.D. degree conferred 09/29/2022

Biology (Ecology & Evolution, Hopkins Marine Station)

*Ph.D. Advisor:* Stephen R. Palumbi

09/2017 – 08/07/2022

Harvard University, Cambridge, MA

A.B. *cum laude* with high honors

Concentration (i.e. Major) in Organismic and Evolutionary Biology, Secondary Field (i.e. Minor) in English

2012 – 2016

New Rochelle High School, New Rochelle, NY

Regents Diploma with Advanced Designation

National Merit Scholar (Commended), National Achievement Scholar, AP Scholar with Honor

2008 – 2012

## Publications

Palumbi, SR, **Walker, NS**, Hanson, E, Armstrong, K, Lippert, M, Cornwell, B, Nestor, V, and Golbuu, Y (2023) Small scale genetic structure of coral populations in Palau based on whole mitochondrial genomes: implications for assisted gene flow. *Evolutionary Applications*

<https://doi.org/10.1111/eva.13509>

**Walker NS**, Nestor, V, Golbuu, Y, and Palumbi, SR. (2022) Coral bleaching resistance variation is linked to differential mortality and skeletal growth during recovery. *Evolutionary Applications*

<https://doi.org/10.1111/eva.13500>

**Walker NS**, Cornwell BH, Nestor V, Armstrong KC, Golbuu Y, and Palumbi SR. (2022) Persistence of phenotypic responses to short-term heat stress in the tabletop coral *Acropora hyacinthus*. *PLoS ONE* 17(9): e0269206. <https://doi.org/10.1371/journal.pone.0269206>

Boyd A, **Walker NS**, Valdez SR, Zhang, YS, Altieri AH, Crain, C, and Silliman B (2022) Invertebrate grazing on live turtlegrass (*Thalassia testudinum*): a common but overlooked interaction that can facilitate fungal infection. *Frontiers in Marine Science* 8:1949. <https://doi.org/10.3389/fmars.2021.789380>

Cornwell BH, Armstrong KC, **Walker NS**, Lampert M, Golbuu Y, Nestor V, and Palumbi SR (2021) Heat tolerance and symbiont load are associated with growth tradeoffs in the coral *Acropora hyacinthus* across Palau. *eLife* 10:e64790. <https://doi.org/10.7554/eLife.64790>

**Walker NS**, Fernandez RM, Paul V, Sneed J, Giribet G, and Combsch D (2019) Differential Gene Expression during Substrate Probing in Larvae of the Caribbean Coral *Porites astreoides*. *Molecular Ecology* 28(22):4899-4913. <https://doi.org/10.1111/mec.15265>

**Walker NS** (2016) *Undergraduate Thesis: Characterizing Differential Gene Expression in Probing Larvae of the Caribbean Coral Species Porites astreoides* Lamarck, 1816. *Harvard University*

### Papers in Preparation

Armstrong, KC, Lippert, M, Hanson, E, Nestor, V, Cornwell, BH, **Walker, NS**, Golbuu, Y, and Palumbi, SR. (in review). Fine scale geographic variation and symbiont switching of *Cladophium* in *Acropora hyacinthus* across the Palauan archipelago.

**Walker NS**, Hanson E, Palumbi SR (in review) Differential gene expression pre and post heat stress of corals within the *Acropora hyacinthus* cryptic species complex.

Gordon D, Steiner, E, and **Walker NS** (in review) Relative intraspecific ant colony foraging rates show predictability across a long-term dataset (2016-2021) and are highly dependent on seasonal humidity patterns.

**Walker NS**, Hanson E, Palumbi SR (in prep) Corals with differing heat resistance capacity exhibit strong patterns of differential gene expression during four months of heat stress recovery.

### Other Publications

What's a Strong Coral Anyway?, published in High Tidings Blog 04/01/2020  
○ <https://hightidings.stanford.edu/2020/04/01/whats-a-strong-coral-anyway/>

### Original Writings

The Funhouse Mirror, published in Friday Flash Fiction 11/22/2019  
○ <https://www.fridayflashfiction.com/longer-stories/the-funhouse-mirror-by-nia-walker>

The Elevator, published in Friday Flash Fiction 08/07/2019  
○ <https://www.fridayflashfiction.com/100-word-stories/the-elevator-by-nia-walker>

## Research Experience

Postdoctoral Scholar, [Coral Resilience Lab](#), University of Hawai'i 08/08/2022 – present  
Graduate Student, [Palumbi Lab](#), Department of Biology, Stanford University 06/2017 – present  
○ Conservation genetics and genomics applications in coral reef ecosystems  
Graduate Student, [Hadly Lab](#), Department of Biology, Stanford University 09/2017 – 06/2018

- Genetics and genomics in big game animals (tigers, lions, and rhinos)  
Undergraduate Student, [Giribet Lab](#), 01/2015 – 08/2016  
Department of Organismic and Evolutionary Biology, Harvard University
- Senior thesis research on differential gene expression mechanisms in probing and non-probing larvae of the coral species, *Porites astreoides*, in order to illuminate mechanisms for ocean substrate settlement at the molecular level.  
Research Intern, Harvard Program for Research in Science and Engineering Summer 2015  
Undergraduate Student, [Extavour Lab](#), 08/2013 – 09/2014  
Department of Organismic and Evolutionary Biology, Harvard University
- Examined gene expression during neurogenesis in the cricket species *Gryllus bimaculatus* for comparison to genetic elements essential for germ cell specification in the fruit fly *Drosophila melanogaster*.  
Research Intern, Woods Hole (MA) Partnership Education Program (PEP) Summer 2013
- Ten-week program including course on Global Climate Change in marine management and policy and biological, chemical, physical, and geological oceanography.  
Research Intern, Joel Smith Lab, Marine Biological Laboratory Summer 2013
- Studied regenerative capabilities in comparative sea anemone species (*Stomphia coccinea* and *Nematostella vectensis*) and ways to introduce new cnidarian and echinoderm organisms into the laboratory environment for spawning and embryology studies.

## Other Experience

- Girl Move Academy – Climate Action Circle 07/2022 – 11/2022
  - Accepted into a climate action working group focused on increasing access to and incorporation of global indigenous wisdom for climate change research and management.
- Black Women in Ecology, Evolution, and Marine Science (BWEEMS) (member) 05/2021 – present  
BWEEMS Mentor Match Program 09/2021 – present
  - Mentoring early career scientists who identify as black women in ecology, evolution, and/or marine science
- Stanford Biology Departmental Committee for diversity, equity, and inclusion 09/2020 – 09/2021
  - Served as a grad student representative on Stanford University Biology Department’s inaugural committee to address issues of diversity, equity, and inclusion.
- Stanford Hopkins Marine Station Graduate Admissions Committee Winter 2020-present
  - Currently serving as a reader and evaluator for prospective Ph.D. student applications to the Hopkins Marine Station track within the Biology PhD program (20’-21’ and 21’-22’ admittance cycles).
- Editor of High Tidings Blog 11/2019 – 09/2021
  - Blog to highlight Stanford University’s Hopkins Marine Station community
  - Editor responsibilities included: maintaining the blog, recruiting guest authors and editing submitted works, and publicizing new blog posts
  - <https://www.hightidings.stanford.edu>
- Palo Alto Philharmonic 10/2019 – 05/2022
  - 2<sup>nd</sup> violin section
  - <https://www.paphil.org/>
  - <https://www.youtube.com/channel/UCgNv8vYb639B0aWoe-2MJVA>
- Future Leaders in Marine Science (Co-founder) 05/2019 – 12/2021
  - A mentorship program aimed at inspiring high school students in North Monterey County to become future ocean leaders, through hands-on lesson taught by graduate students and working on a citizen science project.
- EEB Mentor Match Program 10/2017 – 10/2020
  - Mentored primarily URM undergraduates and early graduate students

Stanford Biomedical Association for the Interests of Minority Students (member)	09/2017 – present
Stanford Black Biosciences Organization (member)	09/2017 – present
Association for Women in Science, Palo Alto Chapter (member)	09/2017 – present
Harvard Chapter of the Scientista Foundation	2012 – 2016
<ul style="list-style-type: none"> <li>○ Co-Director (2013 – 2015), Advisor (2015 – 2016)</li> <li>○ Achieved official recognition for Harvard College Scientista through the Harvard Office of Student Life and Harvard College Undergraduate Council.</li> </ul>	
Harvard College Conservation Society	2015 – 2016
<ul style="list-style-type: none"> <li>○ Co-founded a Women for Wildlife Chapter at Harvard</li> </ul>	
Harvard Relay for Life	2012 – 2016
<ul style="list-style-type: none"> <li>○ Fundraising Committee (2012 – 2016), Fundraising Co-Chair (2013 – 2014)</li> </ul>	
Harvard College Alzheimer’s Buddies	2012 – 2016
<ul style="list-style-type: none"> <li>○ Paired with a nursing home resident with Alzheimer’s and visited on Sundays</li> <li>○ Logistics Chair for the Harvard Alzheimer’s Symposium (2013)</li> </ul>	
Harvard Society of Black Scientists and Engineers (member)	2012 – 2016
ART+Bio Collaborative <i>Puerto Rico and Cambridge, MA</i>	1/2014 and 4/2014
<ul style="list-style-type: none"> <li>○ Through the non-profit organization, traveled to Puerto Rico to accurately and beautifully capture the natural landscape.</li> <li>○ Created a 3-piece pastel abstract series focused on identifying human features in reef-building corals’ shapes; these pieces were exhibited at “Voltage Coffee &amp; Art” in Cambridge, MA for the Cambridge Science Fair.</li> </ul>	

## Awards & Fellowships

Professional Development Award - Society for Integrative & Comparative Biology (SICB)	2023
<ul style="list-style-type: none"> <li>○ Presented by SICB’s Broadening Participation Committee, which provided travel funding to attend and present at the SICB 2023 Conference.</li> </ul>	
Diversifying Academia, Recruiting Excellence (DARE) Fellowship	09/2021 – 09/2022
<ul style="list-style-type: none"> <li>○ The DARE Doctoral Fellowship Program awards two-year fellowships to advanced Stanford doctoral students who want to investigate and prepare for academic careers and whose presence will help diversify the professoriate.</li> </ul>	
OCEAN series	Spring 2021
<ul style="list-style-type: none"> <li>○ Nominated and selected as a speaker for the Online Conversations for Equity, Action, and Networking (OCEAN) series. This Woods Hole Sea Grant pilot initiative is aimed at amplifying Black, Indigenous, and People of Color working in marine environments.</li> <li>○ An OCEAN series speaker presents across three virtual platforms: a 45 min invited seminar on research and work at UMass Boston’s School for the Environment Seminar Series, a 45 min interview on a podcast produced by UMass Boston undergraduates, and a 45 min informal conversation with UMass Boston undergraduates to share advice for pursuing a career in marine environments. <ul style="list-style-type: none"> <li>○ <a href="https://www.youtube.com/watch?v=m3crvcejZSg">youtube.com/watch?v=m3crvcejZSg</a></li> </ul> </li> </ul>	
Hopkins Marine Station Lederberg Graduate Research Grant	2019
National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP)	2018
Stanford Graduate Fellowship (SGF), Morgridge Family Fellow	2017
<ul style="list-style-type: none"> <li>○ Supports outstanding graduate students in science and engineering; selected based on achievements and potential for success.</li> </ul>	
Thomas Temple Hoopes Prize	2016
<ul style="list-style-type: none"> <li>○ Awarded for one of the best undergraduate theses at Harvard. Thesis entitled “Characterizing Differential Gene Expression in Probing Larvae of the Caribbean Coral Species <i>Porites astreoides</i> Lamarck, 1816”.</li> </ul>	
Harvard Program for Research in Science and Engineering (PRISE)	2015

- The PRISE Fellowship supports undergraduate research in the sciences. Received a Fellowship to conduct undergraduate senior thesis research.

Harvard College Research Program (HCRP)

2014 and 2015

- The HCRP Fellowship supports undergraduate research during the academic school year and summer. Received two separate Fellowship awards, sophomore and junior spring semesters.

## Teaching

*Junior Lecturer*, Columbia University Pre-College Program

07/21/2020 – 08/07/2020

- Course Title: Conservation Biology and Sustainability: Preserving the Planet (Online)
- Curriculum investigated recent developments in conservation biology through lectures, activities/simulations, and class discussions. Topics included: what is and threats to biodiversity, habitat alteration and species loss, captive breeding, conservation genetics, climate change impacts, and government and policymaker roles.
- <http://precollege.sps.columbia.edu/highschool/online/courses/3-week/issues-in-conservation-biology>

*Teaching Assistant*, Stanford University

01/06/20 – 03/21/20

- Bio 46: Introduction to Research in Ecology
- Multiple lectures to students on experimental design, wet lab research, and next generation sequencing. Graded assignments, including science article style final papers.

*Teaching Assistant*, Stanford University

01/08/18 – 03/23/18

- Bio 21: Science of the Extreme Life of the Sea
- Designed material for and taught two weekly discussion sections

Stanford Splash

- Taught in Fall 2017, Spring 2018, Fall 2018, and Spring 2019.
- Two-day program for students in grades 7-12; classes taught by Stanford students and associates.
- Class included clips from the documentary “Chasing Coral”, an introduction to basic coral biology and conservation, viewing live corals under a light microscope, an “ocean acidification in a cup” experiment, and a mock-coral heat stress demonstration.

Young Women in Science Program, Monterey Bay Aquarium

08/04/2017

- Co-taught three classes on coral bleaching when young women (grades 7-8) visited Hopkins Marine Station.

*Part-Time Employee*, Maritime Aquarium at Norwalk

09/2016 – 09/2017

- Science Educator for the Maritime Aquarium’s classrooms, exhibits, and off-site education programs.
- Conducted research to construct lesson plans and exhibits regarding increasing environmental hazards education and resilience in Connecticut’s communities along Long Island Sound. Research is supported by the National Oceanic and Atmospheric Association’s (NOAA) 2016 Environmental Literacy Grants Program. Currently a consultant for the initiative.

## Talks

Black Women in Ecology, Evolution, and Marine Science BWEEMS Conference

01/13/2023

- Titled “Between a coral and a hard place: genetics of recovery in corals with differing heat resistance capacity”

Society for Integrative & Comparative Biology (SICB) 2023 Conference

01/04/2023

- Titled “Between a coral and a hard place: genetics of recovery in corals with differing heat resistance capacity”

Oral Dissertation Defense for Ph.D. degree conferral

06/01/2022

- Titled “Between a Coral and a Hard Place: Linking heat stress resistance and recovery in reef-building corals”

- Columbia University Pre-College Program Guest Lecture 08/02/2021
- Course Title: Conservation Biology and Sustainability: Preserving the Planet (Online)
  - Titled “Redefining Strong Corals: Identifying trade-offs between coral bleaching resistance and recovery capacity.”
- Hopkins Marine Station Spring Seminar Series 05/17/2021
- Titled “Between a Coral and a Hard Place: Harnessing Coral Resilience for Coral Reef Preservation.”
- OCEAN Seminar Series 05/05/2021
- Future Leaders in Marine Science Guest Lecture 04/30/2021
- Titled: “Chasing Coral: the important facts about corals, their symbionts, and climate change”
  - Online lecture given to high school students at North Monterey County High School in Castroville, CA
- Molly Schumer Lab Meeting 03/22/2021
- Titled “Redefining Strong Corals: Identifying links between bleaching resistance and recovery capacity.”
- Nueva School Intersession Guest Lecture 01/08/2021
- Titled “Chasing Coral: the important facts about corals, dinoflagellates, and climate change”
  - Lecture given to high school students at Nueva School in South Bay, CA  
<https://www.nuevaschool.org/student-life/intersession>
- Society for Integrative & Comparative Biology (SICB) 2021 Conference 01/01/2021
- Titled “Redefining Strong Corals: identifying trade-offs between bleaching resistance and recovery capacity.”
- Columbia University Pre-College Program Guest Lecture 08/04/2020
- Course Title: Conservation Biology and Sustainability: Preserving the Planet (Online)
  - Titled “Redefining Strong Corals: Identifying trade-offs between coral bleaching resistance and recovery capacity.”
- Future Leaders in Marine Science Guest Lecture 03/09/2020
- Titled: “Chasing Coral: the important facts about corals, their symbionts, and climate change”
  - Lecture given to high school students at North Monterey County High School in Castroville, CA
- Elizabeth Hadly Lab Meeting 12/19/2019
- Titled “Redefining Strong Corals: Identifying trade-offs between coral bleaching resistance and recovery capacity.”
- Andrea Grottoli Lab Meeting 09/17/2019
- Titled “Intraspecific variation in coral bleaching recovery, and trade-offs between individual resistance and recovery capacity.”
- Hopkins Marine Station 2<sup>nd</sup> and 4<sup>th</sup> Year Symposium 02/13/2019
- A symposium at Hopkins Marine Station, Stanford University for 2<sup>nd</sup> and 4<sup>th</sup> year PhD Hopkins students to share dissertation progress
  - Titled “Interdisciplinary approaches for studying the stress response and defining resilience in corals”
- Surf ‘n’ Turf Symposium 10/20/2018
- A symposium at Stanford University that brings together researchers from fields in biomedical, terrestrial and marine science fields
  - Titled “Population genetics of heat stress across Indo-Pacific corals”
- Society for Advancement of Chicanos/Hispanics and Native Americans in Science 10/13/2018
- Presented at SACNAS conference in the session “Marine Genomics: Exploring the Evolution of Non-Model Organisms”
  - Titled “Gene Expression during Substrate Probing in Larvae of the Caribbean Coral *Porites astreoides*.”
- Hopkins Marine Station 1<sup>st</sup> Year PhD Students Symposium 06/14/2018

- Titled “Characterizing Differential Gene Expression in Probing Larvae of the Caribbean Coral Species *Porites astreoides*.”
- Dunster House Senior Theses Presentations Series 04/20/2016
- Titled “From Blob to Beauty: *Differential Gene Expression in Coral Larvae*”
- Harvard Program for Research in Science and Engineering 08/10/2015
- Titled “Characterizing Differential Gene Expression in the Larval Stages of *Porites astreoides*”
- Woods Hole Partnership Education Program Symposium 08/09/2013
- Titled “The Search for Cnidarian and Echinoderm Model Organisms in Regenerative Biology”

## Poster Presentations

- CEHG19 Symposium 02/25/2019
- Center for Computational, Evolutionary and Human Genomics (CEHG)
  - Titled “Massive Amino Acid Polymorphism in a Transcription Factor Linked to Coral Bleaching Resistance”.
- Harvard Organismic and Evolutionary Biology Thesis Poster Session 04/08/2016
- Titled “Characterizing Differential Gene Expression in Probing Larvae of the Caribbean Coral Species *Porites astreoides* Lamarck, 1816.”
- Women for Wildlife Symposium 03/05/2016
- Titled “Characterizing Differential Gene Expression in Probing Larvae of the Caribbean Coral Species *Porites astreoides* Lamarck, 1816.”
- Scientista Intercollegiate Research Symposium 04/05/2014
- Titled “Gene expression during neurogenesis in the cricket species *Gryllus bimaculatus*”

## Attended Conferences & Workshops

- Black Women in Ecology, Evolution and Marine Science (BWEEMS) Conference 01/12 – 01/14 2023
- Society for Integrative & Comparative Biology (SICB) Conference 01/03 – 01/07 2023
- Society for Integrative & Comparative Biology (SICB) Conference 01/01/2021
- Center for Computational, Evolutionary and Human Genomics Symposium 02/24/2020
- Center for Computational, Evolutionary and Human Genomics Symposium 02/25/2019
- Society for Advancement of Chicanos/Hispanics and Native Americans in Science 10/10-10/13/2018
- Beyond the Cell Atlas: Frontiers in Cell Biology Driven by New Technology 09/24-09/25/2018
- Chan-Zuckerberg Biohub Conference
- Northern California Computational Biology Student Symposium, *Santa Cruz, CA* 10/07/2017
- Women for Wildlife Symposium, *Cambridge, MA* 03/05/2016
- Marine Resources Population Dynamics Workshop, *Long Key, FL* 03/01 – 03/07/2015
- All expenses paid, lecture and case study format focused on harvesting marine species and loggerhead sea turtle management. Led by faculty from the University of Florida and scientists from the National Marine Fisheries Service.
- Scientista Intercollegiate Research Symposium, *Cambridge, MA* 04/05/2014
- Woods Hole Partnership Education Program Symposium, *Woods Hole, MA* 08/09/2013

## Other Speaking/Invited Engagements

- Marine Science Graduate School Panel (panelist) 02/11/2022
- Hosted by Chaminade University of Honolulu’s School of Natural Sciences & Mathematics
- Roots to STEM Podcast 03/12/2021
- Invited as an interviewed guest, available on Apple iTunes and Spotify
  - Description: “A podcast where we talk to scientists about the paths they’ve taken to get where they are today and the lessons they’ve learned along the way.”
- Featured in “When Scientists Become Allergic to Their Research” 02/08/2021
- Written by Hannah Thomasy for UNDARK magazine

- <https://undark.org/2021/02/08/scientists-allergic-research-organisms/>
- Guest on San Francisco KPOO-FM 89.5 Let Me Touch Your Mind 02/01/2021
- Invited as a Science Ambassador
- [http://www.vicesbyproxy.com/kpoo\\_play/lmtym.html](http://www.vicesbyproxy.com/kpoo_play/lmtym.html) (ask for download if interested)
- Ecology and Evolutionary Biology Graduate School Panel (panelist) 08/19/2020
- Hosted by the Harvard Organismic and Evolutionary Biology (OEB) department