Nicolas Locatelli

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Education

Aug. 2020 - Present	Ph.D. Candidate in Biology, Baums Lab **Pennsylvania State University**, Eberly College of Science
Sept. 2017 - May 2019	M.A. in Ecology, Evolution and Conservation Biology **Columbia University**, Graduate School of Arts and Sciences
Aug. 2012 - May 2015	B.S. in Molecular Environmental Biology **University of California, Berkeley**, College of Natural Resources

Research Experience

Aug. 2020 - Present *University Park, PA*	**Baums Lab at Penn State University** *PhD Candidate* ◇ Thesis entitled "Novel computational tools and genomic analyses to support coral conservation and restoration". ◇ Focus on improving mapping methods and genomic analyses to disentangle the complex relationship of the coral host, its symbiont, and their changing environment.
June 2019 - Sept. 2020 *Ithaca, NY*	**Cornell University, Department of Natural Resources** *Technician* ◇ Worked collaboratively with Diana Baetscher and performed metabarcoding analyses and sample acquisition with the goal of understanding which marine stocks are exploited to grow aquacultured species around the world.
Aug. 2018 - May 2019 *New York, NY*	**Melnick Research Group at Columbia University** *Graduate Student Researcher* ◇ Under guidance from Drs. Don Melnick and Deren Eaton, analyzed whole genome sequence data to understand patterns of introgression amongst wild macaque species.
Aug. 2017 - May 2019 *New York, NY*	**The Drew Lab at Columbia University** *Graduate Student* ◇ Thesis project - Exploring population genetic structure, symbiont composition, and clonal prevalence in *Montipora* and *Porites* corals in Kaneohe Bay, Oahu using double digest RADseq data.
Aug. 2015 - Dec. 2015 *Branscomb, CA*	**Carlson Lab at the University of California, Berkeley** *Field Assistant* ◇ Assisted graduate researcher Suzanne Kelson in macroinvertebrate surveys and capturing/recapturing rainbow trout for PIT tagging and growth monitoring
Aug. 2014 - Dec. 2014 *Moorea, PF*	**Richard B. Gump South Pacific Research Station** *Undergraduate Researcher* ◇ Research course project surveying two cleaner wrasse species, their fish clients, and surrounding scleractinia in shallow, fringing coral reefs
Jan. 2013 - Jun. 2013 *Berkeley, CA*	**Looy Lab at the University of California, Berkeley** *Undergraduate Research Apprentice* ◇ Computer analysis of Cretaceous angiosperm fossils and their damage by arthropods

Publications

In Proof Jun. 2022

Baums IB, Chamberland VF, **Locatelli NS**, and TL Conn (2022). Maximizing Genetic Diversity in Coral Restoration Projects. In MJH van Oppen and MA Lastra (Eds): Coral Reef Conservation and Restoration in the Omics Age, 978-3-031-07054-9, 515251_1_En, (Chapter 3). *Springer Nature*. ISBN 978-3-031-07054-9.

Preprint Available Dec. 2021

Baetscher DS, **Locatelli NS**, Won ET, Fitzgerald T, McIntyre PB, and NO Therkildsen (2021) Optimizing a metabarcoding primer portfolio for taxon detection and identification in complex mixtures of diverse fishes. *Authorea*. https://doi.org/10.22541/au.163861686.62434613/v1

Published Sept. 2021

Drew JA, Kahn BM, **Locatelli NS**, Airey ME, and AT Humphries (2021) Examining stakeholder perceptions of oyster ecosystem services using fuzzy cognitive mapping. *Conservation Science and Practice* 3(11), e531. https://doi.org/10.1111/csp2.531

Published Nov. 2020

Locatelli NS, McIntyre PB, Therkildsen NO, and DS Baetscher (2020) GenBank's reliability is uncertain for biodiversity researchers seeking species-level assignment for eDNA. *Proceedings of the National Academy of Sciences* 117(51) 32211-32212. https://doi.org/10.1073/pnas.2007421117

Preprint Available Dec. 2019

Locatelli NS and JA Drew (2019) Population structure and clonal prevalence of scleractinian corals (*Montipora capitata* and *Porites compressa*) in Kaneohe Bay, Oahu. *bioRxiv*. https://doi.org/10.1101/2019.12.11.860585

Invited Talks

June 29, 2022

"Tracing biogeography of fishes used in global aquaculture feed with DNA metabarcoding". DS Baetscher, **Locatelli NS**, Fitzgerald T, Lepak RF, Won ET, Therkildsen NO, and PB McIntyre. ***EPA Great Lakes Toxicology and Ecology Division Laboratory***

Note: Co-presented with Diana Baetscher of NOAA Alaska Fisheries Science Center. Presented supervised machine learning methods used to probabilistically classify aquatic taxa as true feed constituents or contaminants.

Presentations & Posters

May 9, 2019

"Patterns of Genetic Relatedness in Corals Across Small-Scale Seascapes"
GSAS Master's SynThesis Competition, *Columbia University*
Speedtalk - Finalist in competition.

May 7, 2019

"Phylogeography of two Hawaiian corals, *Montipora capitata* and *Porites compressa*"
E3B Master's Thesis Poster Symposium 2019, *Columbia University*
Poster session - presented results of thesis research.

April 5, 2019

"Genetic structuring of two Hawaiian corals, *Montipora capitata* and *Porites compressa*"
The Earth Institute Student Research Showcase 2019, *Columbia University*
Poster session - presented results of thesis research.

October 24, 2018

"Genetic structuring of two Hawaiian corals, *Montipora capitata* and *Porites compressa*"
Student Conference on Conservation Science, *American Museum of Natural History*
Poster session - presented preliminary results of thesis research.

Awards, Fellowships, & Grants

Fall 2021 - Summer 2023 | **Computation, Bioinformatics, and Statistics NIH Training Grant**
Penn State University
◇ NIH T32-funded grant that supports and trains PhD candidates involved in computational, bioinformatics, and statistical research.

Spring 2021 | **University Graduate Fellowship**
Eberly College of Science, Penn State University
◇ Prestigious fellowship program awarded to outstanding incoming graduate students.

Fall 2020 | **Stephen B. Brumbach Distinguished Graduate Fellowship II**
Eberly College of Science, Penn State University
◇ Prestigious fellowship program awarded to outstanding incoming graduate students.

Fall 2020 | **Braddock Award**
Eberly College of Science, Penn State University
◇ Award for exemplary incoming students to the Eberly College of Science.

Fall 2018 | **Graduate Student Research Award**
Society of Systematic Biologists
◇ Received funding from the Graduate Student Research Award program, a competitive research award for graduate students conducting research in systematics.

Spring 2018 | **The Earth Institute Travel Grant**
The Earth Institute, Columbia University
◇ Received funding from the Earth Institute Travel Grant Program, a competitive research award. Funding received for master's thesis on coral population genetics.

Spring 2018 | **GSAS Thesis Research Matching Award**
Graduate School of Arts and Sciences, Columbia University
◇ A competitive research award that provides MA students in the Graduate School of Arts and Sciences with matching funds.

Spring 2018 | **Ecology, Evolution & Environmental Biology (E3B)** Departmental Grant
Columbia University
◇ A competitive research grant providing funding for graduate students in the E3B department. Funding received for master's thesis work on coral population genetics.

Fall 2017 | **Swiss Benevolent Society General Scholarship**
Swiss Benevolent Society of San Francisco
◇ A merit and need-based scholarship aimed at helping Northern Californians of Swiss descent obtain a higher education in any field of study.

Fall 2014 | **CNR Dean's List**
University of California, Berkeley
◇ Awarded to the top 4% of undergraduates in terms of GPA each semester.

Teaching Experience and Other Employment

Spring 2018 and 2019 *New York, NY* | **Columbia University**
Teaching Assistant
◇ Course: *First Year Seminar in Ecology, Evolution and Environmental Biology*
◇ Graded undergraduate student assignments and organized weekly faculty speakers

Feb. 2016 - Mar. 2017 | **National Geographic Magazine**
Various | *Photography Assistant*
◇ Assisted photographer in equipment setup and camera trapping
◇ Assisted researchers in mist-netting and bat GPS tagging

Aug. 2012 - Jun. 2015 | **University of California Botanical Garden**
Berkeley, CA | *Horticulture and Propagation Assistant*
◇ Assisted in the propagation and growth of plants for fundraising sales
◇ Educated visitors about collections and assisted clients with plant care inquiries

Skills

Field Skills
◇ Underwater Science
  ▷ AAUS Scientific Diver
  ▷ Coring and fragmentation of branching and massive/mounding coral colonies
◇ Stony and soft coral husbandry
◇ Short-term acute temperature stress experiments (Coral Bleaching Automated Stress System, CBASS)

Molecular Biology Skills
◇ Preparation of shotgun, metabarcoding, Pool-seq, and Hi-C Illumina libraries
◇ Crosslinking of DNA for the purpose of chromatin conformation capture sequencing
◇ Standard and high molecular weight DNA extractions
◇ RNA extraction
◇ Microsatellite amplification

Computation Skills
◇ Experience with analysis of the following data types:
  ▷ Illumina DNA: shotgun WGS, mate-pair, Hi-C, metabarcoding, and ddRAD
  ▷ Illumina RNA: poly-A selected and total RNAseq
  ▷ Oxford Nanopore (PromethION)
  ▷ PacBio HiFi and CLR
  ▷ Affymetrix Microarray Data
  ▷ Applied Biosystems 3730XL Microsatellite
◇ Experience with the following tools and pipelines:
  ▷ DNA Mapping: bwa, bowtie2, and minimap2
  ▷ RNA Mapping: STAR and bowtie2
  ▷ SAM/BAM Processing: samtools, sambamba, and samblaster
  ▷ Variant Calling: Freebayes, bcftools, and GATK4
  ▷ Gene Expression Analyses: htseq, DESeq2, and limma-voom
  ▷ Metagenome Assembly: Metaplatanus, metaFlye, and MEGAHIT
◇ Familiarity with bash, python, and R
  ▷ Experience with supervised machine learning in scikit-learn