Benjamin Douglas Young

Postdoctoral Associate

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EDUCATION

Ph.D., Marine Biology and Ecology — University of Miami — Aug 2017 – Dec 2021

GPA: 3.752

Graduated Fall 2021

Dissertation Title: The transcriptomic and bacterial dynamics of disease in the critically endangered coral *Acropora palmata*

B.S, Zoology — Monash University — Jan 2015 – Dec 2017

Australian GPA: 3.083
Converted to USA GPA: ~3.8

RESEARCH AND ACADEMIC HISTORY

Postdoctoral Associate, NOAA, AOML — Feb 2022 – Present

- Supervisor: Ian Enochs
- Research Focus:

Ph.D. Graduate Researcher, University of Miami, RSMAS — 2017 - 2021

- Advisor: Nikki Traylor-Knowles
- Research Focus: Transcriptomic and microbial disease dynamics of *Acropora palmata*
- Techniques: transcriptomics, bioinformatics, field work, microbiome analysis, experimental design

Undergraduate Student, Monash University — 2014 - 2016

- Degree: Bachelor of Science
- Majors: Zoology and Geoscience
- Techniques: data management, statistical analysis, literature reviews, scientific writing

PUBLICATIONS

Published

Traylor-Knowles N, Connelly MT, **Young BD**, Eaton K, Muller E, Paul V, Ushijima B, DeMerlis A, Drown MK, Goncalves A, Kron N, Snyder GA, Martin C and Rodriguez K (2021) Gene Expression Response to Stony Coral Tissue Loss Disease Transmission in M. cavernosa and O. faveolata From Florida. Front. Mar. Sci. 8:681563. doi: 10.3389/fmars.2021.681563

Young BD, Serrano XM, Rosales SM, Miller MW, Williams D, et al. (2020). Innate immune gene expression in *Acropora palmata* is consistent despite variance in yearly disease events. PLOS ONE 15(10): e0228514. https://doi.org/10.1371/journal.pone.0228514

Walters, B. M., Connelly, M. T., **Young, B**., & Traylor-Knowles, N. (2020). The Complicated Evolutionary Diversification of the Mpeg-1/Perforin-2 Family in Cnidarians. *Frontiers in immunology*, *11*, 1690.

Rosales, S. M., Miller, M. W., Williams, D. E., Traylor-Knowles, N., **Young, B**., & Serrano, X. M. (2019). Microbiome differences in disease resistant vs. susceptible Acropora corals subjected to disease challenge assays. *Scientific reports*, *9*(1), 1-11.

In Prep

Young, B. D., Rosales, S. M, D'Alonso, G., Formel, N., Kolodziej, G., Moura, M., Enochs, I., Traylor-Knowles, N. T. (estimated 2022) The transcriptomic and bacterial dynamics of *Acropora palmata* inoculated with a known coral pathogen, *Serratia marcescens*, and a white band type I disease slurry.

Young, B. D., Rosales, S. M., ALAN, ANNIE, DANA (OTHERS) (estimated 2022). Transcriptomic and microbial dynamics of outplanted *Acropora palmata* over a year period at three reef sits in the Northern Florida Keys.

PRESENTATIONS AND CONFERENCES

CONFERENCES

International Coral Reef Symposium, online Aug 2021

- Presentation Type: Talk
- Title: The microbial and transcriptomic response of *Acropora palmata* to a known pathogen (*Serratia marcescens*) and an unknown disease slurry.

Reef Conservation UK 2020, online Dec 2020

- Presentation Type: Talk
- Title: Can we use gene expression to identify disease resistance in Acropora palmata? Current knowledge and future directions.

Reef Futures, Key Largo, Fl Dec 2018

- Presentation Type: Talk
- Title: Signatures of disease resistance for the threatened Caribbean branching coral, *Acropora palmata.*
- Won 'Reef Futures Scholarship' for talk title.
- Won best talk at the conference

Southeastern Ecology and Evolution Conference Miami, FL, USA Oct 2018

- Presentation Type: Talk
- Title: Signatures of disease resistance for the threatened Caribbean branching coral, *Acropora palmata*
- Honourable mention for 'Best Talk'

Cnidofest, St Augustine, Fl, USA Sept 2018

- Presentation Type: Poster
- Title: Signatures of disease resistance for the threatened Caribbean branching coral, *Acropora palmata.*

SEMINARS

MBE Student Seminar Series, RSMAS, FL
2018-2020

- 15-20 minute talk on current research to MBE department
  - Once every academic year (2018, 2019, 2020)

PUBLIC OUTREACH

Tonbridge School Talk, zoom to UK Aug 2020

- 1 hour talk to my old school science department
- 17 – 18-year-old students and faculty
- Spoke on my career path and what I am doing now

Marine Biology and Ecology Student Representative, RSMAS Fall 2018- Summer 2020

- One of two representatives of the students to the MBE faculty committee
- Taking surveys and bringing up issues and areas of concern to MBE faculty

Sips and Science, Key Largo, Fl Feb 2019

- Invited to give talk on research for PhD dissertation to public
- Focused on genetic tools and how they can be incorporated into restoration projects

TEACHING AND MENTORING EXPERIENCE

Cnidarian Immunity Lab, University of Miami 2017 - present

- Statistical mentorship with undergraduate senior thesis
- Gabrielle D'Alonso – 16s senior thesis project

Teaching Assistant, University of Miami

MSC112 Teaching Assistant, University of Miami Fall 2020

- 12 freshman/sophomore students
- Assisting teaching one 3-hour lab per week
- Leading class twice in the semester
- Generation of prelab quiz every week
- Responsible for all marking of lab reports

MSC232 Teaching Assistant, University of Miami Fall 2019

- 24 freshman students
- Assisting and teaching two 2-hour labs per week
- Responsible for all marking of lab reports
- Leading class once in the semester

IC2R3, Mote Marine Jan 2017 – Apr 2017

- Educating the public on coral restoration techniques

First Year Tutoring, Monash University 2016

- Tutoring of first year undergraduates, biological content and report writing

GUEST LECTURES

Practical Computing Class, University of Miami Fall 2018 – Fall 2020

Instructor: Professor Margorie Oleksiak

- Given lecture Fall 2018, 2019, 2020
- Teaching r and RStudio packages to graduate students
- Introduction to tidyverse and ggplot
- 3-hour class

Innate Immunity on Corals, Reef Coral Biology, University of Miami

Instructor: Professor Andrew Baker

- Given lecture in Spring 2019, 2020, 2021, and 2022
- Teaching introduction to the innate immune system in corals to graduate students
- Providing questions for final exam
- 1 hour 30-minute lecture

AWARDS, SCHOLARSHIPS AND GRANTS

AWARDS

Reef Futures 2018, best talk

- Senior panel identified talk and research that merited publication to benefit scientific community
- One pre-paid publication in the journal PeerJ

GRANTS

Mote Reef Plate Grant - $14,376.96 Jan 2020

- For work benefiting coral restoration work
- Used to cover costs of sample preparation kits for next generation sequencing in laboratory disease experiment

Explorers Club Grant - $3,000.00 Jan 2019

- For graduate students performing field work
- Fund used to buy supplies for Persistence to Resistance field project

SCHOLARSHIPS

Reef Futures 2018 attendance scholarship – Conference Admission and Lodging

- For students who could not cover costs, but research was deemed beneficial to the conference

RESEARCH EXPERIENCE

LABORATORY

- DNA extraction (phenol-chloroform, spin columns, bead based)
- RNA extractions (phenol-chloroform, spin column, bead based)
- Automation of DNA/RNA extractions (Kingfisher)
- PCR
- Bead based sample clean up
- Gel electrophoresis
- RNA-seq cDNA prep (Illumina, Lexogen)
- 16s rRNA amplicon prep
- Buoyant weight measurements
- IPAM fluorometry
- Respiration measurements
- 3D scanner
- Laser printing
- Coral disease inoculations
- Coral husbandry
- Bacteria culturing
- Microscope

FIELD WORK

- Collecting coral tissue samples using SCUBA – AAUS authorised
- Deploying abiotic measurement instrumentation
- Field coral surveys
- Field fish surveys
- Sample processing on a boat
- Small boat piloting for field work

COMPUTER AND BIOINFORMATIC

- Intermediate proficiency r and RStudio
- Intermediate proficiency unix
- Basic proficiency python
- 16s rRNA, raw reads to alpha and beta analysis – cutadapt, DADA2, phyloseq
- RNA-seq, raw reads to gene expression analysis – bbduk, STAR, salmon, DESeq2, WGCNA, bINgo, KEGGprofiler
- De-novo reference transcriptome assembly - trinity
- Viral analysis from RNA-seq reads
- Metagenomic analysis
- ImageJ photo analysis
- CPCE
- Kingfisher BindIt software

OTHER WORK EXPERIENCE AND SKILLS

Ski instructor, Switzerland, Australia

- British association of Ski Instructing Level 3 alpine
- Generating lessons from beginner to advanced
- Organisation and management in difficult terrains
- Teamwork with other instructors

Chef and Barista, Ottos Cafe, Sevenoaks, United Kingdom

- Making and generating menu and food for small bistro café
- Organisation and prep work to maintain smooth running of kitchen
- Making wide range of coffees

Wildlife Photographer

- Predominantly bird and insect
- Been featured on BBC social media Instagram accounts (followers 12 million)
- Photographs included for Wild Miami tour book