



Welcome to the 2021 virtual
Symbiodiniaceae Diversity
Workshop



Introductions: Your (somewhat) Fearless Workshop Organizers



Sarah W. Davies



Adrienne M.S. Correa



John E. Parkinson



Matt Homann
(Facilitator)



Nicola G. Kriefall



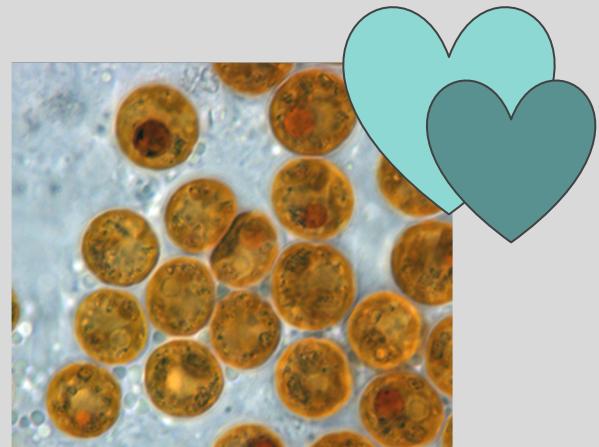
Lauren Howe-Kerr



Matt Gamache



The first workshop goal is accomplished!



“Zoox Folks”

Warm welcome to our
asynchronous Zoox Folks!



You are being recorded in the main zoom room
for the benefit of asynchronous participants.

Breakout rooms are not recorded



Zoom recordings, worksheets, participant list,
code of conduct, manuscript draft will be posted
for public viewing



We hope you engage with each other!
Ping us if you get lost or have comments

Workshop Background and Goals

How it started?

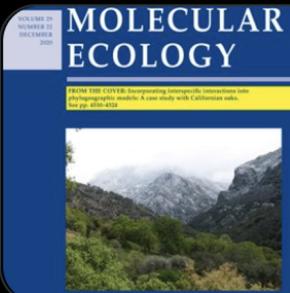


Dr. Sarah W. Davies @DaviesswPhD · Nov 2, 2020

...

13 submissions/rejections/revisions and many years of frustration later, I am so excited to share this paper! Thank you to all of our many reviewers throughout this process, the work benefited from your thoughts!

Details of findings in thread



Cladocopium community divergence in two Acrop...

Many broadly-dispersing corals acquire their algal symbionts (Symbiodiniaceae) "horizontally" from ...

🔗 onlinelibrary.wiley.com

It would be great if there were a set of consensus guidelines on how to characterize Symbiodiniaceae diversity so science could move forward faster



Special thanks to NSF!

Collaborative Research: Building consensus around the quantification and interpretation of Symbiodiniaceae diversity



Dan Thornhill



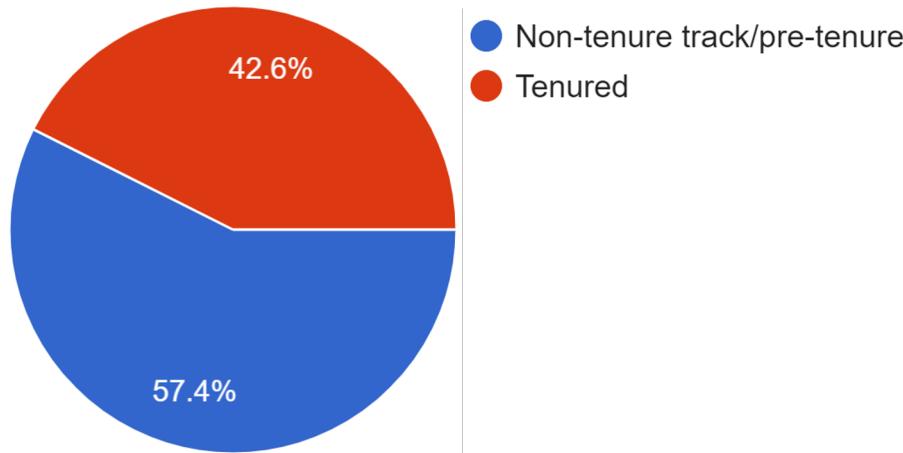
Joanna Shisler



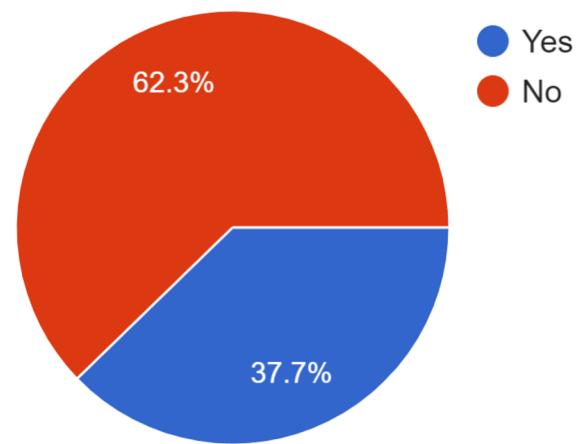
Who is here?

Participants: N= 76 from all continents except Antarctica!

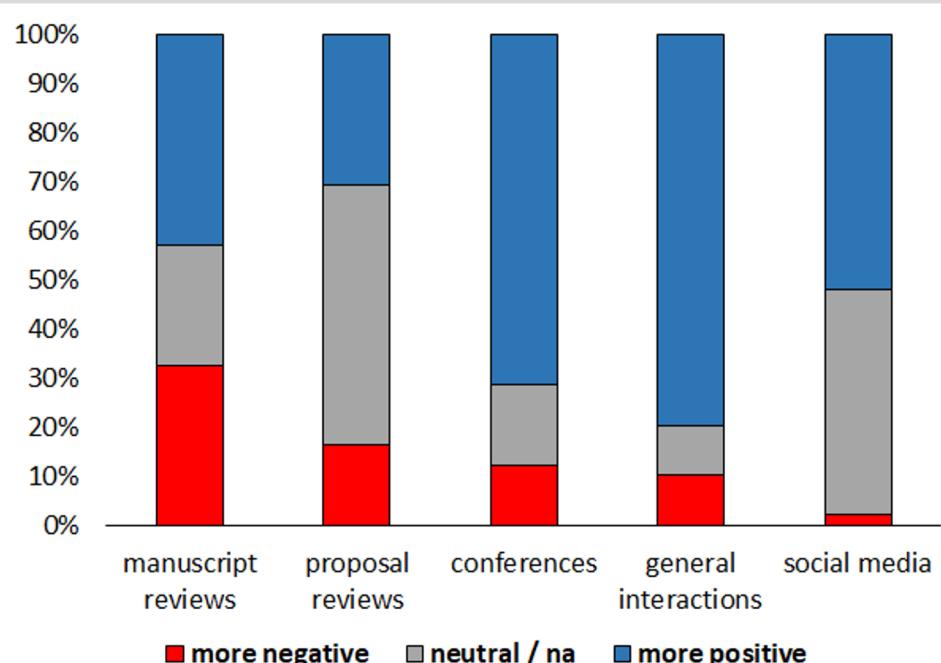
Career Stage



Identify as a minoritized group



Themes in personal experiences in the Symbiodiniaceae research community



Mostly positive experiences on social media, at conferences and overall

Increased negative experiences with manuscript, proposal reviews



Personal experiences survey results: Cultural challenges in our research community

Viewing each other as competitors

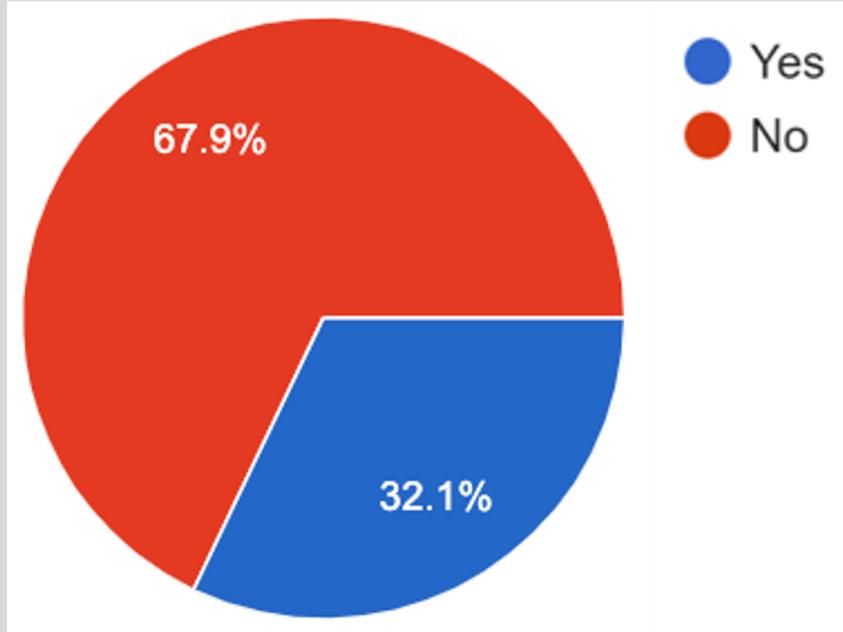
Citation biases

Locking into positions

Challenges in writing and reviewing

Perception of a ‘toxic’ Symbiodiniaceae research culture

Approx. $\frac{1}{3}$ of respondents are concerned about being “cancelled” or excluded from scientific discourse



Some negative interactions have been deeply impactful for members of our community

What causes these issues?

Where the scientific challenges lie

Based on survey results, the main issues tend to be associated with how we generate, analyze, and interpret certain types of data (particularly ITS2)



Goals of the Workshop

- Bring everyone together to:
 - Recognize and **generate consensus** amongst experts (you!) on some of the best practices for assessing Symbiodiniaceae diversity (Sessions 1-3)
 - **Discuss the future** of Symbiodiniaceae diversity research and set some achievable goals for the next five years (Session 4)
 - Build confidence and inclusivity to **foster a more inviting community** (All sessions)



Eyes on the prize: Scientific Paper(s)

- The final products of this workshop include a **white paper** for NSF and a **scientific publication** that can serve as “road maps” for designing experiments that incorporate Symbiodiniaceae diversity.
- The ultimate goal is to encourage more Symbiodiniaceae funding, research, and participation.

Excellent Open Access Journal

ORIGINAL RESEARCH

Building Consensus Around the Quantification and Interpretation of Symbiodiniaceae Diversity

[OUR NAMES HERE]



Workshop Mechanics



Code of Conduct

Resolving *Symbiodiniaceae* Species



Question 1 (John): Where is there consensus with respect to Symbiodiniaceae taxonomy?

- John's Introduction (5 min): Emphasize that species definitions are established by community use; provide overview of current taxonomic practice; provide my unofficial definitions for species/populations/strains.

Sub-questions for break-out groups (40 min):

For which types of questions/interpretations is species-level taxonomy required/preferred/unnecessary?

How can we improve the current methods used to define species entities, assign taxonomic names, and incorporate them into research?

Can we generate consensus on definitions for the terms “species,” “populations,” and “strains” for the Symbiodiniaceae community to follow (at least for now)?

Population-Level Research



Question 2 (Sarah): Where is there consensus in population-level research on Symbiodiniaceae?

- Sarah's Introduction (5 min): Introduce how few scientists are working on population-level questions and most suggest ITS2 as the number one locus (SSRs just behind)

Sub-questions for break-out groups (40 min):

What are the advantages/disadvantages of the molecular approaches currently being used to ask population-level questions? (ITS2, microsatellites, RADseq, others)?

What are the major limitations of these types of population-level analyses?

What are the outstanding questions that should be prioritized with respect to populations of Symbiodiniaceae, and how can we encourage research in this area?

ITS2 Community-Level Work



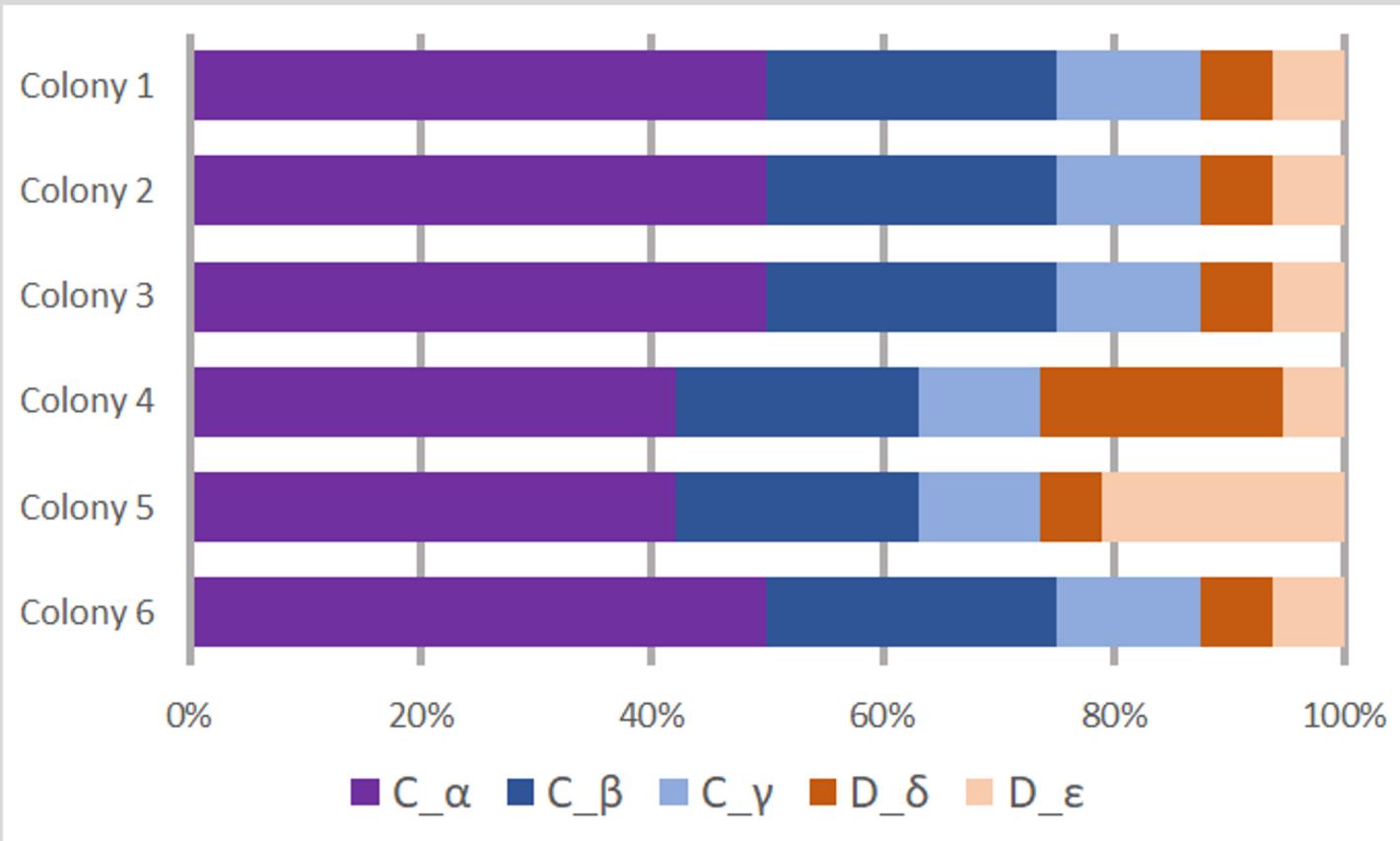
Question 3 (Adrienne): Where is there consensus in Symbiodiniaceae ITS2 community-level work?

- Adrienne's introduction (5 min): Acknowledge the disagreements from the past decade on how to characterize Symbiodiniaceae communities within coral colonies via ITS2; disregard feelings, and objectively analyze what you can agree on from the following figures

Sub-questions for break-out groups (40 min):

Figure Question: Provide the possible ways people might generate and interpret these data. For each interpretation, indicate whether most/some/few of the group members reached consensus.

What are the strengths and weaknesses of using ITS2 data for analyzing Symbiodiniaceae communities?

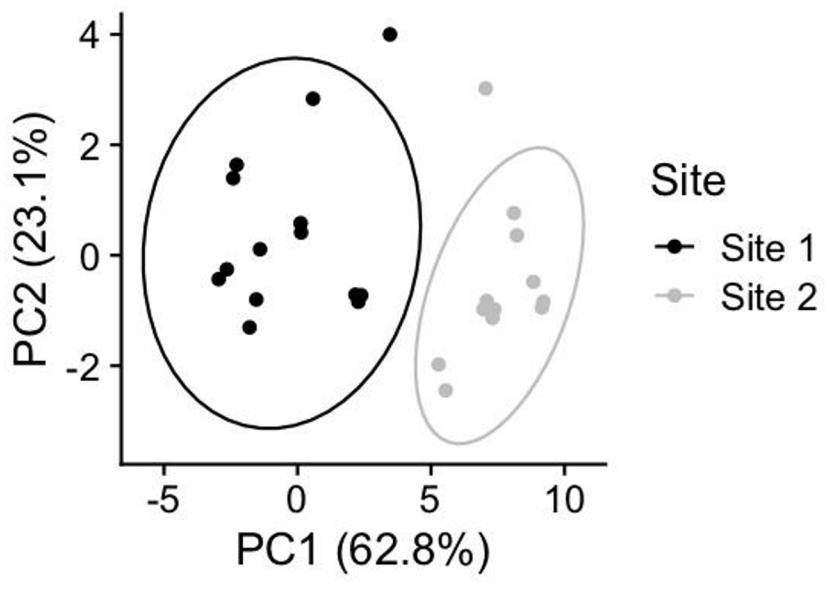


Hypothetical data. Provide the possible ways people might generate and interpret these data. For each interpretation, indicate whether most/some/few of the group members reached consensus.

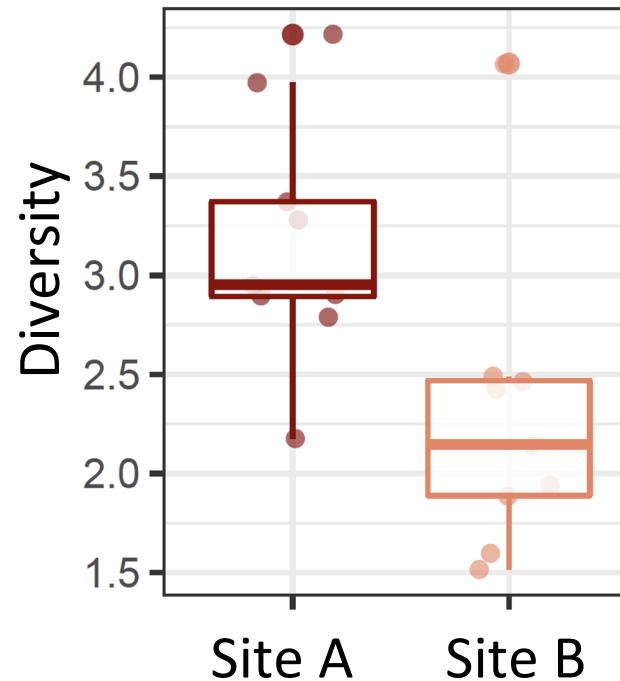
Wrapping Up

Homework:

Think about how these sorts of visualizations are generated and how you might interpret these data.



Hypothetical DNA metabarcoding data showing algal community structuring between two sites.



Hypothetical DNA metabarcoding data showing algal community diversity estimates between two sites.