

Jacob Welter

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EDUCATION

Arizona State University | Ph.D. in Environmental Life Sciences Aug 2024 - present

- Advisor: Dr. Yvonne Sawall

Ohio State University | B.S. in Chemical Engineering January 2020 – May 2024

- Advisor: Dr. Andréa Grottoli

RESEARCH EXPERIENCE

Graduate Research Assistant August 2024 – present

Marine Benthic Ecology and Ecophysiology Lab | Dr. Yvonne Sawall

- Research Focus: artificial upwelling and marine CO₂ removal in coral reef ecosystems

Undergraduate Researcher August 2022 – May 2024

Stable Isotope Biogeochemistry Lab | Dr. Andréa Grottoli

- Evaluated the impact of climate change-driven ocean temperature and acidification on corals
- Participated in fieldwork at the Hawaii Institute of Marine Biology

Undergraduate Researcher May 2022 - August 2022

Ecophysiology and Forest Meteorology Lab | Dr. Gil Bohrer

- Examined effects of agricultural runoff, climate change, and methane flux in wetland system
- Collected and analyzed water samples, maintained flux tower, and generated maps of water lily and lotus growth using GIS software

FIELDWORK EXPERIENCE

Research Assistant

Stable Isotope Biogeochemistry Lab | Dr. Andréa Grottoli June, December 2023

- Examined coral recruitment, calcification, and bleaching recovery in enhanced feeding experiments at the Hawaii Institute of Marine Biology
- Participated in design and set-up of experiments

PUBLICATIONS

2025 Shannon L. Dixon, Hendrikje Jorissen, Ann Marie Hulver, **Jacob Welter**, Robert J. Toonen, R3D Consortium, Josh S. Madin, Andréa G. Grottoli. A solution for overcoming the coral recruitment bottleneck. *Submitted to Environmental Science & Technology in May 2025.*

UNDERGRADUATE THESIS

Stable Isotope Biogeochemistry Lab | Dr. Andréa Grottoli

- Title: Physiological responses of the resilient coral *Stylophora pistillata* to chronic heat stress
- Analyzed coral physiology using laboratory measurements, image analysis, and statistical tests

PRESENTATIONS

Denman Undergraduate Research Forum March 2024

Ohio State University

- **Welter J**, Hulver AM, Ferrier-Pages C, Beraud E, Grottoli A (2024) “Physiological responses of the resilient coral *Stylophora pistillata* to chronic heat stress”
- Award winning presenter and scholarship recipient

WORK EXPERIENCE

Intern

May 2021 – July 2024

Ohio Department of Transportation Office of Materials Management Test Lab | Columbus, OH

- Performed tests and analyzed data on aggregate, asphalt, and chemical materials according to ASTM standards in an accredited laboratory
- Inspected federal highway field projects to ensure compliance with environmental protocols

LEADERSHIP & SERVICE

President: Solar Education & Outreach

August 2022 – May 2024

Ohio State University

- Designed, planned, and optimized student-led solar installation on Ohio State's campus
- Sought out funding opportunities and drafted grant proposals
- Coordinated and led outreach events to teach elementary students about sustainability and solar energy

Team Captain: Solar District Cup Team

August 2021 - May 2022

Ohio State University

- Led ten-person team to national finalist placement in 2021-2022 competition and contributed to 3rd place team in 2020-2021
- Designed and optimized solar-plus-storage system in Aurora Solar software and used OpenDSS to simulate electric power distribution

Alpha Phi Omega Service Fraternity

August 2022 – May 2024

Ohio State University

- Devoted 15+ hours each semester to service activities including volunteering at food pantries, street cleanups, and invasive plant removals

Judge: State Science Day

April 2024

The Ohio Academy of Science

- Judged and gave constructive feedback on middle school STEM students' research projects

TEACHING EXPERIENCE

Teaching Assistant and Guest Lecturer

August 2024 – December 2024

Fundamentals of Ecology | Arizona State University

- Gained lecture experience, held weekly office hours, and assisted with grading for undergraduate ecology course

Instructor

August 2022 - December 2022

Translating Engineering Research to K-8 | Ohio State University

- Developed and led engineering design challenges for middle school students

TECHNICAL SKILLS

- **Lab Techniques:** coral tissue protocols (proteins, lipids, carbohydrates), surface area measurements (foil and photogrammetry methods), greyscale bleaching quantification
- **Programming:** R, C++, MATLAB, Java
- **Applications:** Metashape, JMP, QGIS, ImageJ, SigmaPlot, Solidworks, Microsoft Office

CERTIFICATIONS

- PADI Advanced Open Water Diver