

Work History

Post-Doctoral Researcher

School of Molecular Biology (SMS), School of Ocean Futures (SOF)

Arizona State University (USA)

Principal Investigator: Liza Roger, PhD

April 2024 to Nov. 2024

Project: Integrating nanobiotechnologies to understand the role of nitro-oxidative stress in the coral-dinoflagellate mutualistic symbiosis dynamics

Japanese to English Realtime Translator

5th Annual Japanese Association for Marine Biology (JAMBIO) International Symposium

March 2023

Teachers Assistant for Intensive Courses

Life and Environmental Sciences – Biological Sciences

Shimoda Marine Research Center, University of Tsukuba (Japan)

April 2019 to March 2024

Academic History

Doctor of Science, Biological Sciences

Life and Environmental Sciences – Biological Sciences

Shimoda Marine Research Center, University of Tsukuba (Japan)

April 2021 to March 2024

Thesis Title: "Coral-algae interactions in the Anthropocene"

Thesis Defense Date: January 2023

Principal Investigator: Sylvain Agostini, Dr. Sc.

Master's in science, Biological Sciences

Life and Environmental Sciences – Biological Sciences

Shimoda Marine Research Center, University of Tsukuba (Japan)

April 2019 to March 2021

Thesis Title: "Recurrent disease outbreak in a high latitude marginal coral community"

Thesis Defense Date: February 2021

Principal Investigator: Sylvain Agostini, Dr. Sc.

Bachelor's in science

Life and Environmental Sciences – Biological Sciences

Shimoda Marine Research Center, University of Tsukuba (Japan)

Sept. 2014 to March 2019

Dissertation Title: "Recurrent disease outbreak in a high latitude marginal coral community"

Dissertation Defense Date: February 2019

Principal Investigator: Sylvain Agostini, Dr. Sc.

High School

Galileo Academy of Science and Technology

San Francisco, California, United States of America

Sept. 2010 to June 2014

Scholarships, Grants and Awards

University of Tsukuba Scholarship (720,000 yen)

Sept. 2014 to March 2015

Japan Student Services Organization (2,880,000 yen)

Exemption from student loan repayment due to outstanding achievements

Type 1, Scholarship Number: 621-06-500387

April 2021 to March 2024

JST SPRING Scientific Grant (6,650,000 yen)

Project Name: "Coral-algae interactions under ocean acidification"

Grant Number: JPMJSP21242021

Oct. 2021 to March 2024

Japanese Coral Reef Society Travel grant (100,000 yen)

for the 5th Asia-Pacific Coral Reef Symposium

June 2023

Best Oral Presentation Award for the 26th Japanese Coral Reef Symposium

Nov. 2023

Publications

- Heitzman, J.M.**, Iijima, L., Mitushasi, G., Spatafora, D., Wada, S., Harvey, B., Kurihara, H., Agostini, S., 2024. *Turf algae drives coral bioerosion under high CO₂*, Preprint. In Review, <https://doi.org/10.21203/rs.3.rs-3779657/v1>.
- Heitzman, J.M.**, Mitushasi, G., Spatafora, D., Agostini, S., 2023. *Seasonal coral-algae interactions drive White Mat Syndrome coral disease outbreaks*. Science of The Total Environment 900, 166379. <https://doi.org/10.1016/j.scitotenv.2023.166379>
- Heitzman, J.M.**, Caputo, N., Yang, S.-Y., Harvey, B.P., Agostini, S., 2022. *Recurrent disease outbreak in a warm temperate marginal coral community*. Marine Pollution Bulletin 182, 113954. <https://doi.org/10.1016/j.marpolbul.2022.113954>

Agostini, S., Houlbrèque, F., Biscéré, T., Harvey, B.P., **Heitzman, J.M.**, Takimoto, R., Yamazaki, W., Milazzo, M., Rodolfo-Metalpa, R., 2021. *Greater Mitochondrial Energy Production Provides Resistance to Ocean Acidification in "Winning" Hermatypic Corals*. Frontiers In Marine Science 7. <https://doi.org/10.3389/fmars.2020.600836>

International Presentations

- Heitzman, Joshua**, Caputo, N., Yang, SY., Harvey, BP., Agostini, S. *Recurrent disease outbreaks in a warm temperate marginal coral community*. in: 14th International Coral Reef Symposium, Online, Germany (2021, Oral)
- Heitzman, Joshua**, Caputo, N., Yang, SY., Harvey, BP., Agostini, S. *Recurrent disease outbreaks in a warm temperate marginal coral community*. in: International Taiwan Coral Reef Symposium, Taiwan (2022, Oral)
- Heitzman, Joshua**, Caputo, N., Yang, SY., Harvey, BP., Agostini, S. *Recurrent disease outbreaks in a warm temperate marginal coral community*. in: 15th International Coral Reef Symposium, Online, Germany (2022, Oral)
- Heitzman, Joshua**, Hirata, A., Mitushasi, G., Agostini, S. *Coral-algae interactions under ocean acidification*. in: 5th Symposium on the Ocean in a High-CO₂ World, Online, Peru, (2022, Oral)
- Heitzman, Joshua**, Iijima, L., Mitushasi, G., Wada, S., Harvey, BP., Kurihara, H., Agostini, S. *Turf algae drives coral dissolution in a high CO₂ world* in: 5th Asia-Pacific Coral Reef Symposium, Singapore (2023, Oral)

Domestic Presentations

- Heitzman, Joshua**, Agostini, S. *Recurrent disease outbreaks in a high latitude marginal coral community*. in: 21st Japanese Coral Reef Symposium, University of the Ryukyus, Okinawa, Japan (2018, Poster)
- Heitzman, Joshua**, Caputo, N., Yang, SY., Harvey, BP., Agostini, S. *Recurrent disease outbreaks in a warm temperate marginal coral community*. in: 22nd Japanese Coral Reef Symposium, University of Hokkaido, Hokkaido, Japan (2019, Oral)
- Heitzman, Joshua**, Caputo, N., Yang, SY., Harvey, BP., Agostini, S. *Recurrent disease outbreaks in a warm temperate marginal coral community*. in: 23rd Japanese Corals Reef Symposium, Online, Japan (2020, Oral)
- Heitzman, Joshua**, Caputo, N., Yang, SY., Harvey, BP., Agostini, S. *Epizootiology of a temperate coral disease driven by thermal stress and macroalgal interactions*. in: Japanese Geoscience Union Meeting 2021, Online, Japan (2021, Oral)
- Heitzman, Joshua**, Hirata, A., Mitushasi, G., Agostini, S. *Coral-algae interactions under ocean acidification*. in: Japanese Geoscience Union Meeting 2022, Online, Japan (2022, Oral)
- Heitzman, Joshua**, Hirata, A., Mitushasi, G., Agostini, S. *Coral-algae interactions under ocean acidification*. in: 25th Japanese Coral Reef Symposium, Ishigaki, Japan (2022, Oral)
- Heitzman, Joshua**, Hirata, A., Mitushasi, G., Agostini, S. *Coral-algae interactions under ocean acidification*. in: JST-SPRING Fellowship Poster Session, University of Tsukuba, Online, Japan (2022 & 2023, Poster)
- Heitzman, Joshua**, Iijima, L., Mitushasi, G., Spatafora, D., Wada, S., Harvey, B., Kurihara, H., Agostini, S., *Coral skeleton dissolution is accelerated by turf algal settlement under ocean acidification*. in: 26th Japanese Coral Reef Symposium, Sendai, Japan (2023, Oral)

Certifications

- California (US) Driving License
- PADI Open Water (Diving No. PJ18163053; Certified May 23rd, 2018)
- AAUS scientific diving license (Enrolled in course for January 4th to 10th, 2025)
- DAN Diving First Aid for Professional Divers (Certified November 2nd, 2024)

Research Techniques and Abilities

- Mass spectrometry (EA IsoLink CN IRMS System)
- SEM and confocal microscopy (Zeiss 880, ANDOR BC43)
- Microsensor experience and proficiency (Unisense)
- Microbial community assessment (16S, QIIME2)
- Environmental assessment techniques (TSS, POC, FDOM, TA, pH, etc.)
- Coral ecophysiology and ecology techniques
- Cnidarian cell techniques (dissociation, culturing, assays)
- Field survey and monitoring experience (at least 30 scientific dives per year since 2018)
- Incubation system construction, usage and troubleshooting (Neptune Systems APEX, GHL)
- Mapping software (QGIS)
- Image analysis and macro making experience (FijiJ)
- Statistical analysis (R software)
- Leadership and supervision experience (TA & RA)

Outreach and Volunteer Work

<i>TARA Pacific, Public Outreach, Kobe city, Japan</i>	<i>July 2018</i>
<i>IOP (Izu Oceanic Park), Public Outreach, Ito city, Japan</i>	<i>July 2019</i>
<i>TARA JAMBIO, Microplastic Collection Outreach, Shimoda city, Japan</i>	<i>Sept. 2020</i>
<i>Tsukuba Global Science Week, ICONA-JSPS Kick-off Symposium (Moderator), Online</i>	<i>Sept. 2021</i>
<i>Tsukuba Latin America Online Exchange (Moderator), Online</i>	<i>March to April 2022</i>
<i>Sophia University (Dr. Anne McDonald), Invasive Species Outreach, Shimoda city, Japan</i>	<i>August 2023</i>

Memberships

<i>Japanese Coral Reef Society (JCRS)</i>	<i>2018 to Present</i>
<i>Japanese Geological Union (JpGU)</i>	<i>2019 to 2023</i>
<i>International Coral Reef Society (ICRS)</i>	<i>2020 to Present</i>

Refereed Journals

- *Royal Society Open Sciences*
- *Coral Reefs*