

Impact of Marine Heatwaves on Hamelin Pool Microbialites

In 2011, a marine heat wave significantly impacted the function and health of marine ecosystems in Shark Bay, the internationally renowned UNESCO World Heritage Site located in Western Australia. Such marine heatwaves are expected to increase in frequency and intensity in the coming decades, prompting an urgent need to assess the resiliency of marine ecosystems. In some areas of Shark Bay, the 2011 heatwave resulted in over 90% mortality of seagrass meadows, and led to bottom-up impacts on megafauna grazers and ecosystem services, like carbon sequestration. However, the impact of such heatwaves on the most extensive living community of marine microbialites in Hamelin Pool, Shark Bay, remains unknown. In this project, field campaigns incorporating drone imagery, *in situ* experiments, and geochemical measurements will be used to generate a biogeochemical baseline for microbial communities prior to the next heatwave, and continue monitoring through the heatwave to quantify its impacts. Results will contribute to improved site management.

