

Experimental results: Pocillopora damicornis coral settlement counts in presence of different concentrations of crustose coralline algae powder in Maui, Hawaii (June 2024)

Website: <https://www.bco-dmo.org/dataset/995760>

Data Type: experimental

Version: 1

Version Date: 2026-03-31

Project

» [A Field-Ready Playback System for Eco-Acoustic and Settlement Studies](#) (Coral RAPS)

Contributors	Affiliation	Role
Mooney, T. Aran	Woods Hole Oceanographic Institution (WHOI)	Principal Investigator
Apprill, Amy	Woods Hole Oceanographic Institution (WHOI)	Co-Principal Investigator
Aoki, Nadege	Woods Hole Oceanographic Institution (WHOI)	Student
Goyal, Isha	Woods Hole Oceanographic Institution (WHOI)	Student, Contact
Soenen, Karen	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Abstract

These data include larval settlement counts recorded from experiments conducted at the Maui Ocean Center in Maui, Hawaii from June 23-26, 2024. The purpose of these experiments was to evaluate the feasibility of using crushed crustose coralline algae (CCA), in powder form, to induce greater coral settlement rates in an aquaria setting. Larvae of the brooding coral *Pocillopora damicornis* were collected from spawning colonies and placed in experimental cups filled with approximately 120 ml of FSW and a designated weight of dried crushed CCA. Settlement counts were recorded after 24-48 hours. These data were collected by Isha Goyal under the supervision of Dr. Aran Mooney of Woods Hole Oceanographic Institution.

Table of Contents

- [Dataset Description](#)
- [Parameters](#)
- [Project Information](#)
- [Funding](#)

[[table of contents](#) | [back to top](#)]

Parameters

Parameters for this dataset have not yet been identified

[[table of contents](#) | [back to top](#)]

Project Information

A Field-Ready Playback System for Eco-Acoustic and Settlement Studies (Coral RAPS)

Coverage: Hawaii

NSF Award Abstract:

Given human's expanding use of the ocean, there is increasing need to understand natural and anthropogenic noise impacts to sound-sensitive taxa. Understanding acoustic ecology is vital as given rates of ocean changes

and the fact that science is still unraveling how marine animals use sound to communicate, detect predators, seek prey and find suitable habitat. To gain this knowledge there is a need for a cost-effective, extended-duration tool that allows researchers to easily and experimentally replay sound cues, manipulate soundscapes and introduce 'noise' in field-based experiments to address new questions in ocean ecology and conservation. This effort will support the build and testing of a scalable, cost-effective, ocean-ready and long-duration sound playback tool. This tool will enable scientists to gather new insight into how sound is used by and impacts diverse marine fauna. The research will focus pilot tests on coral reefs, imperiled hubs of biodiversity that support billions of USD in ecosystem services, and seek to enhance the attraction and settlement of young corals as a method to support and potentially rebuild reefs. The project will incorporate and train undergraduate and graduate students, young technicians, and engineers, including underrepresented minorities, in all aspects of this development and testing. This effort is designed to be self-sustaining so that once it is completed, other scientists and stakeholders will be able to use acoustic enrichment and new questions to support the redevelopment of reefs and conduct previously unobtainable ecosystem studies.

The science will be piloted and optimized through beta-experiments replaying soundscapes to attract coral larvae and induce settlement onto reefs. The team involved will leverage the emerging understanding of reef soundscapes, their own key data, and a beta-system, to enable this acoustically-mediated playback and larval settlement investigation tool. The technical components of the system will be durable and optimized for the playback of reef sounds, enhancing its dynamic range, sound propagation, and variety of sound patterns. The pilot tool will be tested and optimized at an established US Virgin Islands field station with years of measurements on soundscapes and community dynamics. Additional testing and user-feedback integrated will occur a new site in Year 2. From these calibrations, iterations and tests, the project will provide an important new natural-based instrument for the toolboxes of scientists and stakeholders to conduct novel acoustics studies surrounding the fields of marine ecology, changing oceans, physical oceanography, and broader basic ocean research.

This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

[[table of contents](#) | [back to top](#)]

Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-2318921

[[table of contents](#) | [back to top](#)]