



CORAL REEF ALLIANCE

Call for Proposals: Coral Adaptation Challenge

Around the world, reef-building corals are experiencing increasing levels of environmental disturbance. At the recent International Coral Reef Symposium in Honolulu, Hawai'i many speakers raised concerns about whether the rates of evolution by natural selection will be fast enough to keep up with the rate of current and future environmental change. The answer to the question of whether corals can adapt quickly enough is critically important for evaluating the merit of alternative conservation strategies; however, the research that would enable answering such a question is only just becoming available and is spread across a diverse set of fields.

The Coral Reef Alliance is seeking expert involvement in a project designed to synthesize this rapidly advancing area of research. Specifically, we propose to work with individuals or groups to answer the following question:

What is the probability that reef-building corals can adapt to rising temperatures by the year 2100?

The project has four phases:

- I. Individuals and/or groups submit proposals for how they would answer this question (instructions below)
- II. Three successful applicants will be selected to receive a total of \$18,000 each to conduct the proposed work
- III. All three applicants (or representatives from groups) plus additional experts in the field will convene in April 2017 to share and evaluate results, and develop a plan for disseminating findings through at least one peer-reviewed publication
- IV. A manuscript is submitted for publication by August 2017

The process for this project is as follows:

- Proposals are due by 5pm PDT October 6, 2016, and are limited to 2 pages (see below)
- Any individual or group of collaborators may apply
- Proposals will be evaluated by an external panel of experts on evolution, coral adaptation, and coral reef conservation. Decisions will be made by November 18, 2016
- Three proposals will be selected to receive \$18,000 in unrestricted funding. \$8,000 will be made available immediately to cover any costs associated with the project, and the remaining \$10,000 will be released upon submission of a paper following the workshop (see below)
- Final answers will be due on February 28, 2017
- Award recipients (or representatives from award groups) will be asked to attend a workshop in April 2017 where they will present their results to each other and a small group of experts in the field.

During the workshop:

- Each group will present their answers, justify their approach, and identify data and information gaps that could yield better answers in the future
- We will aspire to reach consensus on methods that effectively answer the guiding question while identifying fruitful areas for continued research
- We will outline a peer-reviewed publication to share our findings

We are launching Phase I with this request for proposals. The proposal should provide an overview of the methodology you would use to answer the above question and should include discussion of the following:

- Proposed metric(s) for quantitatively evaluating whether coral adaptation is successful (e.g., species persistence rates, coral cover, provisioning of ecosystem services)
- Plans for incorporating temperature change using at least two RCP scenarios
- Methodology for identifying potential threshold responses to temperature change (e.g., corals can adapt to x degrees warming over y period of time)
- Natural selection and a plan for assessing whether inclusion of assisted evolution (e.g., replanting reefs with heat-tolerant corals) would impact results
- A description of who will be involved in the working group

Successful proposals will:

- Outline a mathematical framework that uses empirical parameter estimates whenever possible and justifies when and why parameters estimates are based on expert judgment
- Provide answers that can be generalized for corals around the world, rather than focusing on a single species or location
- Draw on existing data and information, rather than new data collection
- Articulate the data and/or information that, if available in the future, would reduce uncertainties in estimates (e.g., knowledge of the heritability of thermal tolerance)

To apply:

Please send a pdf version of your 2-page proposal to adaptation@coral.org by 5:00pm PDT on October 6, 2016. In your cover email, you may include the names of up to two reviewers if you so choose.

Please adhere to the following formatting guidelines when generating your proposal:

- Identify one lead author and provide his/her contact details including phone and email
- List names and associations of all collaborators
- Please use 12 point Times New Roman font, 1.5 line spacing, and page margins of at least 0.8 inches
- Proposal narrative should be no more than two pages
- References and figures may be included on additional pages
- Total page count including figures, references, and narrative should not exceed six

Questions may be addressed to adaptation@coral.org.