

Recovery Action Priorities for ESA Corals

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There are seven species of Caribbean coral listed as threatened under the Endangered Species Act: elkhorn coral (*Acropora palmata*), staghorn coral (*A. cervicornis*), pillar coral (*Dendrogyra cylindrus*), lobed star coral (*Orbicella annularis*), mountainous star coral (*O. faveolata*), boulder star coral (*O. franksi*), and rough cactus coral (*Mycetophyllia ferox*). We have identified several high priority recovery actions for these species based on input from the Acropora Recovery Implementation Team and on priorities identified in the Recovery Outline for Pillar Coral, Rough Cactus Coral, Lobed Star Coral, Mountainous Star Coral, and Boulder Star Coral.

The priority actions identified in the table below address monitoring and science needs. Monitoring will inform assessment of population abundance, distribution, and trends needed to track species status and progress towards recovery. The science needs will inform management actions to reduce impacts from threats and recover the species. This document is intended as a resource for our partners to clarify our current priorities for listed corals. We hope identifying these needs will assist our partners in developing future research proposals.

Further information on listed coral species can be found on our website:
http://sero.nmfs.noaa.gov/protected_resources/coral.

Species	Activity	Need
<i>Acropora cervicornis</i> , <i>Acropora palmata</i>	Demographic Monitoring Identify abundance and trends of <i>Acropora</i> as well as prevalence and impacts of threats and their changes over time throughout the species' range.	This information is important for tracking recovery and threat status, and this targeted information is usually not sufficiently captured through traditional benthic monitoring programs.
All	Synoptic Surveys Conduct stratified random surveys throughout the species range.	These data are important for status assessment and recovery tracking and ideally should be included in a comprehensive geodatabase.

<p><i>Acropora cervicornis</i>, <i>Acropora palmata</i></p>	<p>Monitoring of Robust Reference Populations Identify and monitor robust thickets of <i>Acropora</i> to characterize environmental and biological conditions that enable them to continue to thrive.</p>	<p>This information is important for informing threat reduction targets and restoration efforts.</p>
<p>All</p>	<p>Applied Population Enhancement Research Optimize methods associated with sexual and asexual propagation and outplanting.</p>	<p>Information is needed for scaling up population enhancement efforts.</p>
<p>All</p>	<p>Adaptation/Acclimation to Increases in Climate Stress Identify biological or physiological enhancements that might improve resistance to climate change (both the cnidarian host and symbionts).</p>	<p>Information is needed for proactive management approaches to help corals effectively deal with increasing temperatures associated with climate change.</p>
<p>All</p>	<p>Reproductive and Recruitment Success Identify determinants of spawning synchrony, fertilization dynamics, parental compatibility, and larval fitness.</p>	<p>These are key features of understanding and enhancing reproductive success and informing effective population enhancement efforts.</p>
<p>All</p>	<p>Organismal Response to Nutrients and Contaminants Conduct controlled exposure experiments to determine thresholds and sublethal and long-term effects.</p>	<p>These results are needed to inform water quality standards that are protective of coral reef health.</p>
<p>All</p>	<p>Effective Disease Mitigation Approaches Develop approaches to mitigate coral disease.</p>	<p>Effective management options are needed to address the impacts of disease.</p>