



Final Rule Listing 20 New Corals as Threatened Under the ESA

**NOAA
FISHERIES**

Southeast Region
Pacific Islands Region

corals

September 3, 2014

Final Rule Results



- 20 reef-building coral species listed as threatened, none endangered.
 - 15 species in the Indo-Pacific.
 - 5 in the Caribbean.
 - None in the Hawaiian Islands
- Caribbean elkhorn and staghorn corals previously listed in 2006 remain listed as threatened.

Threatened Corals

* Listed as threatened in 2006

Currently Known in These U.S. Geographic Areas

Caribbean Waters	Florida - Atlantic	Puerto Rico	U.S. Virgin Islands	Gulf of Mexico
<i>Acropora cervicornis</i> (Staghorn)*	X	X	X	
<i>Acropora palmata</i> (Elkhorn)*	X	X	X	X
<i>Mycetophyllia ferox</i>	X	X	X	X
<i>Dendrogyra cylindrus</i>	X	X	X	
<i>Orbicella annularis</i>	X	X	X	X
<i>Orbicella faveolata</i>	X	X	X	X
<i>Orbicella franksi</i>	X	X	X	X
Pacific Waters	Guam	Commonwealth of Northern Mariana Islands	Pacific Remote Island Areas	American Samoa
<i>Acropora globiceps</i>	X	X	X	X
<i>Acropora jacquelineae</i>				X
<i>Acropora lokani</i>				
<i>Acropora pharaonis</i>				
<i>Acropora retusa</i>	X		X	X
<i>Acropora rudis</i>				X
<i>Acropora speciosa</i>			X	X
<i>Acropora tenella</i>				
<i>Anacropora spinosa</i>				
<i>Euphyllia paradivisa</i>				X
<i>Isopora crateriformis</i>				X
<i>Montipora australiensis</i>				
<i>Pavona diffluens</i>	X	X		X
<i>Porites napopora</i>				
<i>Seriatopora aculeata</i>	X			



Most Extensive Rulemaking Ever by NOAA



- **Oct 2009** - Petitioned to list 83 corals under ESA.
- **Jan 2010** - Published 90-day finding that 82 of 83 required reviews.
- **Sep 2011** - Published Status Review Report.
- **Jul 2012** - Completed public information gathering meetings.
- **Dec 2012** - Published proposed rule to list 66 corals.
- **Apr 2013** - Completed public comment period on proposed rule, including 19 public hearings.
- **Nov 2013** - Completed 6-month extension to gather additional scientific info.
- **Aug 2014** - Published final rule to list 20 coral species as threatened under the ESA for the first time as well as staghorn and elkhorn previously listed as threatened in 2006.

Proposed vs. Final Listings



	Indo-Pacific Species			Caribbean Species		
	LISTING STATUS					
	E	T	NW	E	T	NW
Proposed	7	52	16	7	2	0
Final	0	15	44	0	7	2

15 THREATENED CORALS IN THE INDO-PACIFIC
7 THREATENED CORALS IN THE WIDER-CARIBBEAN

Major Sources of New Information

- Immense amount of information from public comments, scientific literature, and coral experts.
- Many new scientific papers released since process started.
- Led to improved understanding of habitat diversity, abundance, distribution, species-specific exposure to threats, and species' vulnerability and resilience.



Supplemental Reports

- **Veron 2014:** Report by Charlie Veron on the distributions and abundances of 66 of the 68 proposed corals, including much more detailed geographic distribution and semi-quantitative abundance data than previously available for the Indo-Pacific species.
- **Jackson et al. 2014:** Report sponsored by IUCN and edited by Jeremy Jackson providing meta-analyses of the status and trends of many Caribbean corals and coral reefs from 1970 to 2012.
- **IPCC WGI 2013:** The latest synthesis of the physical science of climate change by the International Panel on Climate Change's Working Group One (IPCC WGI), including new "pathways" that project climate change impacts to 2100 and beyond.

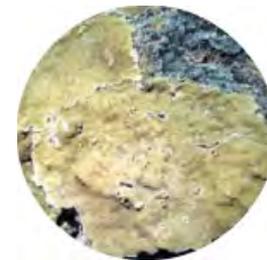


Determination Framework

- Within the context of the general information on coral biology, habitat, and threats, we conducted a **species-by-species analysis** to make final determinations.
- Based on a set of *Guiding Principles* based on general information and **species-specific information**:
 1. Biology and ecology vastly **different** than vertebrates, which are typically the focus of ESA.
 2. For **all** species, responses to threats will be **variable**.
 3. Absolute **abundance** & absolute **distribution** inform species' **current** status and its **capacity** to respond to changing conditions over the foreseeable future.
 4. Wide variety of conditions throughout each species' range allows for **variable responses** to global and local threats.
 5. Impacts of climate change will likely **increase**; but, there are **limitations** to using this global, coarse-scale information for determining vulnerability to extinction for individual species.
 6. Impacts to coral reef ecosystems **do not equate** to impacts to individual coral species.
 7. Due to variability and uncertainty in climate change, **heterogeneous habitat** and **absolute demographic** and **spatial** characteristics are emphasized in evaluating extinction risk.



Application of Species-Specific Information



Within the context of the Guiding Principles (*i.e.*, general information)

1. Detailed description of **available information**:
 - **Spatial**: geographic distribution, depth distribution, habitat
 - **Demographic**: occurrence, absolute abundance
 - **Threat response**: susceptibilities to the 9 major threats
 - **Other characteristics**: reproductive biology, taxonomic uncertainty, ID uncertainty...
2. Description of the species **vulnerability to extinction**:
 - Species' characteristics **moderate** or **exacerbate** its extinction risk
 - Most **influential characteristics** are geographic distribution, depth distribution, habitat heterogeneity, occurrence, absolute abundance, and threat susceptibilities.
3. Equate the species' status to either **endangered**, **threatened**, or **not warranted**
 - Extent to which the species' characteristics moderate or exacerbate extinction risk over the **foreseeable future** across the **range** of the species in a qualitative, non-formulaic manner



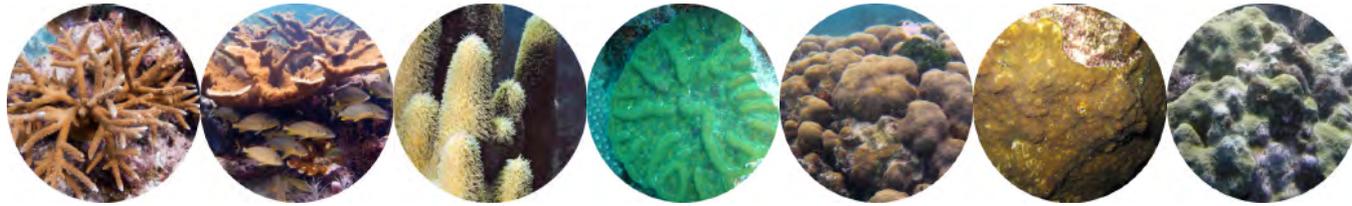
What's Next?



- No prohibitions relating to individual conduct, except for those related to the previously listed elkhorn and staghorn corals in the Caribbean.
- Consult with federal agencies on actions that they execute, fund, or authorize that “may affect” listed corals.
- May identify specific regulations for the conservation of these *threatened* species.
- Continue working with communities to help them understand how the agency's decision may or may not affect them. ESA tools available are flexible so that they can be used in a manner that will allow activity to move forward in a way that does not jeopardize listed coral.
- We will now work with partners on mitigation measures and recovery strategies for the newly listed corals, building from approaches that have shown success elsewhere.
 - No ESA Section 10 research and enhancement permits
 - May designate critical habitat if determinable and prudent.
 - May develop recovery plan to identify the criteria that must be met so that the species no longer need the protection of ESA.



NOAA's Commitment to Coral Conservation



- Protecting and conserving biologically diverse coral reefs is essential.
- The ESA give us important tools to conserve and recover those corals most in need of protection.
- We are committed to working with partners not just on listed species, but on overall coral health and conservation using all tools available within NOAA.



Contact Information and Supporting Documents

www.fisheries.noaa.gov/stories/2014/08/corals_listing.html

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www.fpir.noaa.gov/PRD/PRD_coral.html

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www.nmfs.noaa.gov/pr/species/invertebrates/corals.htm