THE **HEAT** IS **ON**

Species feeling the effects of climate change

Corals

Multiple species

Region:
Southeast

Area affected:
Florida coast and Caribbean

Climatic change:
Warming, acidification

Impact:
Disease, bleaching

ABOUT THIS SPECIES

Coral reefs cover a tiny fraction of the ocean floor, but their value to fisheries, tourism and coastal protection can be measured in billions of dollars. The key to their success is the symbiotic relationship between photosynthetic algae known as zooanthellae and coral polyps, the tiny invertebrates related to sea anemones and jellyfish that colonize and form coral reefs. The coral polyps provide the algae with carbon dioxide—the building block of photosynthesis—important nutrients like nitrogen and phosphorus and a protected place to live. In turn, the photosynthetic action of the zooanthellae provides the coral with oxygen and up to 90 percent of its energetic requirements. The reefs formed by hundreds of years of this symbiosis provide habitat for countless other marine invertebrates and young fish. Corals are found exclusively in clear, shallow waters and are highly sensitive to sedimentation and pollution.

DESCRIPTION OF IMPACT

Climate change is causing three major impacts to corals: bleaching, disease and acidification. Bleaching occurs when the colorful photosynthetic algae are expelled from the coral and is strongly associated with high water temperatures. Corals are also susceptible to a number of diseases caused by bacteria, fungi and protozoans. Many of these pathogens develop more quickly in warmer waters and take advantage of corals already stressed by high temperatures. Lastly, a substantial amount of the atmosphere's excess carbon dioxide has been dissolving in our oceans, making them more acidic than they have been through most of history. More acidic waters make it more difficult for corals to build their calcium carbonate external skeletons, which form the structure of the coral reefs. **While many factors have contributed to the nearly 50 percent loss in Florida's coral reefs over recent decades, our changing oceans are one of the primary drivers of decline.**

References

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National Climate Assessment. 2014. "Oceans and Marine Resources." http://nca2014.globalchange.gov/report/regions/oceans

NOAA Coral Reef Conservation Program. http://coralreef.noaa.gov

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For more information on other wildlife affected by climate change, visit our website at **www.defenders.org/climatechange**