



NOAA CORAL REEF CONSERVATION PROGRAM



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Coral Reefs – Essential to Human Well-being

Healthy coral reefs are some of the most valuable ecosystems on the planet, annually providing an estimated \$375 billion in economic and environmental services¹ such as food, protection for coasts, and tourism. Reef-supported tourism alone generates an estimated \$30 billion². They are home to enormous riches in biological diversity, which is part of what makes them so beautiful and awe-inspiring. Medical advances on the horizon—bone grafts, promising virus-treating chemicals from corals, and possible cancer treatments from reef-dwelling species—may be realized if healthy coral reefs can be sustained. Reefs are among the oldest communities of life on Earth and take thousands of years to grow into the immense and complex habitats we see today.



D. Paul Brown

Corals Reefs are in Crisis

The news about coral reefs is alarming. Rapid warming, accelerating pollution, and destructive fishing are decimating corals faster than they can adapt for survival. Individually, each of these three top threats is devastating corals. Collectively, they are a “perfect storm.” The damages inflicted by climate change make corals more susceptible to further degradation from pollution and fishing threats, and vice-versa.

Effective, science-based management can preserve, sustain, and restore valuable coral reef ecosystems for future generations. Making the most of limited resources and effecting maximum improvements to coral reef health requires us to prioritize on-the-ground and in-the-water actions that address the **top three threats to coral reef ecosystems**.

Climate change – Warmer and more acidic oceans—a result of elevated greenhouse gases—cause mass bleaching in corals³ and slow the growth of coral skeletons⁴. Action to reduce greenhouse gases is essential to corals’ long-term survival. In the meantime, boosting the resilience of coral reef ecosystems and reducing local stresses are short-term bridges, necessary for keeping coral reef ecosystems intact until the overarching climate threat is alleviated.

Pollution from land – Coral reefs suffer major impairments from sediment runoff and from surges in algal cover caused by nutrient pollution. Identifying and controlling land-based sources of pollution are a win for coral reefs and the water quality of watersheds draining to them.

Fishing impacts – Bottom trawl nets, blast fishing, cyanide fishing, and overexploitation of species essential for ecosystem balance are severely damaging coral reefs. Minimizing destructive impacts from fishing and achieving responsible, ecosystem-based stewardship of reef fisheries pays lasting dividends to healthy coral reefs and to fishing livelihoods.

NOAA's Coral Reef Conservation Program (CRCP) is a cross-cutting program that brings together expertise from a wide array of NOAA programs and offices. In strong partnership with coral reef managers, CRCP works to reduce harm to, and restore the health of, coral reefs, including deep-water corals, by addressing priority national threats and local management priorities through the conservation activities.

- *The CRCP funds and equips reef conservation activities by NOAA and its partners in the seven U.S. states and jurisdictions containing coral reefs (American Samoa, the Commonwealth of the Northern Mariana Islands, Florida, Guam, Hawai'i, Puerto Rico, and the U.S. Virgin Islands), uninhabited islands including the Northwestern Hawaiian Islands and Pacific Remote Island Areas, and internationally, including the Pacific Freely Associated States.*



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- *Provides coral reef managers, scientists, and other users worldwide with information and forecasts of coral bleaching events using sea surface temperature data from satellites.*



- *Public outreach & education – Citizens and government officials acting locally are our partners in improving coral reef health globally. CRCP provides information that empowers our public partners to act; for example, informative signs in coastal areas and distributing educational information to coastal businesses and the public.*



- *Coral Reef Conservation Grants Programs – Matching grants for coral conservation projects provided over \$50 million between 2002-2009.*

- *Coral Reef Conservation Fund – Administered by the National Fish and Wildlife Foundation, this public-private partnership awarded approximately \$7M to over 180 projects in the U.S. and over 30 countries and has leveraged over \$12M in matching funds between 2001-2008.*

- *The CRCP serves as the Secretariat for the U.S. Coral Reef Task Force (coralreef.gov), which includes leaders of 12 Federal agencies, seven U.S. states and territories, and the Pacific Freely Associated States.*



For more information | www.coralreef.noaa.gov

www.coris.noaa.gov is the Web site of NOAA's Coral Reef Information System, and home to all data, products, and publications generated by CRCP-funded projects.

1. Robert Costanza et al., "The Value of the World's Ecosystem Services and Natural Capital," *Nature* 387 (May 15, 1997), 256.
2. Millennium Ecosystem Assessment.
3. Ove Hoegh-Guldberg et al., "Coral Reefs Under Rapid Climate Change and Ocean Acidification," *Science* 318 (December 14, 2007), 1737-1742.
4. Glenn De'ath et al., "Declining Coral Calcification on the Great Barrier Reef," *Science* 323 (January 2, 2009), 116-119.

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