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Coral Reef News



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The Coral Reef Conservation Program (CRCP) is a partnership between the NOAA Line Offices working on coral reef issues, including the National Ocean Service (NOS), the National Marine Fisheries Service (NMFS), the Office of Oceanic and Atmospheric Research (OAR) and the National Environmental Satellites, Data and Information Service (NESDIS). From mapping and monitoring to managing reef resources and removing harmful debris, the CRCP addresses the priorities laid out in both the [National Action Plan to Conserve Coral Reefs](#) and the [National Coral Reef Action Strategy](#).

Volume 6, No. 5

February 2009

From the Desk of the Program Manager

Hello, everyone. This is a busy time for the Coral Program. Earlier this month, CRCP staff headed out to the Pacific territories for site visits to meet with partners in American Samoa, Guam and the Commonwealth of the Northern Mariana Islands. We learned about the ongoing efforts to conserve coral reefs in each of the three territories. As the CRCP looks to strengthen our partnership with coral reef managers, these visits are critical so we know what are partners are trying to achieve in coral reef conservation so we can help them get there.

The four [working groups](#) continue to make good progress on recommendations on what the CRCP goals and objectives should be for land-based sources of pollution, fishing impacts, climate change, and our international work. The working groups are holding in-person meetings this month and next to finalize their drafts. The drafts will be posted for public review and com-

ment on our webpage at the end of March. Please check back then and provide your input on the CRCP's goals and objectives.

The last week of February is the time for the Winter meeting of the [U.S. Coral Reef Task Force](#). The Task Force is made up of 12 federal agencies and the 7 states and territories that have coral reefs in their jurisdiction. The Task Force is charged with coordinating government effort to protect these valuable resources.

And last, but far from least, the House Natural Resources Subcommittee on Insular Affairs, Oceans and Wildlife will be holding a hearing this week on the Coral Reef Conservation Reauthorization Act (H.R. 860). I will be testifying at the hearing on the importance of coral reefs, the threats they face, and how the CRCP works to address the highest priority threats.

-Kacky



While traveling in the Pacific, CRCP staff met with many partners. Above are a few of the partners we met with in American Samoa (AS). L to R: Jeremy Goldberg (AS Coral Reef Initiative Coordinator, AS Department of Commerce (DOC)), Doug Juergens (Acting Manager, AS Coastal Management Program, AS DOC), Steven Thur (Deputy Division Chief, CRCP), Veronika Mortensen (Coordinator, Project Notification and Review System, AS DOC), Faleseu Paopao (Director, AS DOC), Kacky Andrews (Program Manager, CRCP), Tufele Liamatua (Secretary of Samoan Affairs), Jennifer Koss (Coordinator, CRCP), Tracy Parsons (Program Specialist, CRCP), Gene Brighthouse (Superintendent, Fagatele Bay National Marine Sanctuary), and Lelei Peau (Deputy Director, AS DOC).

UPCOMING EVENTS

February

23-27: [21st U.S. Coral Reef Task Force Meeting](#), Washington, D.C.
26: CRCP International Working Group Workshop, Washington, D.C.
26: SeaWeb Too Precious to Wear 'Coral Reinterpreted' Launch, New York City, NY.

March

2-3: CRCP Climate Change Working Group Workshop, Silver Spring, MD.
9-11: CRCP Land-based Sources of Pollution Workshop, Silver Spring, MD.
12-22: [National Science Teachers Association \(NSTA\) National Conference](#), New Orleans, LA.

April

2: NSTA Web Seminar: [The Heat is On!: Climate Change and Coral Reef Ecosystems](#)
30: NSTA Web Seminar: [The Heat is On!: Climate Change and Coral Reef Ecosystems](#)

May

11-15: [World Ocean Conference](#), North Sulawesi, Indonesia.

(continued on page 3)

Announcements

WebCast of CRCA Reauthorization Hearing on February 25. The 111th Congress has re-started the process of reauthorization of the Coral Reef Conservation Act of 2000 (CRCA). The House of Representatives recently introduced [H.R. 860](#) which has now been referred to the [House Natural Resources Committee's Subcommittee on Insular Affairs, Oceans, and Wildlife](#). That body will be holding a hearing on February 25th from 2-3:30 pm EST. Testimony will be given by CRCP Program Manager, Kacky Andrews, and others, including governors of U.S. States and Territories that contain coral reefs. To view or listen to the hearing, click [here](#) and then click on the brown 'View Live WebCasts' button at the bottom left of your screen. The link for this particular hearing will appear shortly before 2 pm EST on the 25th.

21st U.S. Coral Reef Task Force Meeting.

During the week of February 23, the 21st meeting of the [U.S. Coral Reef Task Force \(USCRTF\)](#) will be held in Washington, D.C. The [U.S. Department of the Interior](#), as co-chair of the USCRTF with NOAA, is serving as the official host of this meeting. As the first meeting in the new administration, this meeting will emphasize the importance of coral reef conservation, highlight conservation strategies and successes in member jurisdictions, and promote an enhanced vision for how the USCRTF and its members can work to meet the challenges facing coral reefs and local communities. The business meeting is open to the public and will be held Wednesday afternoon. Opening remarks will

be provided by U.S. Department of the Interior Secretary Ken Salazar and Council on Environmental Quality Chairwoman Nancy Sutley; governors from four member jurisdictions will also provide remarks. Dr. Richard Aronson of the Florida Institute of Technology and President of the International Society for Reef Studies will provide a keynote address. A reception will be held on Wednesday evening at the Department of Commerce and associated USCRTF side meetings are scheduled Monday through Thursday; a schedule is available on the USCRTF Web site.

CRCP Working Group Updates.

On February 6, working drafts of the 20-year goals and five-year objectives for the three threat-based working groups and the International Working Group were posted on the CRCP Threat-based Working Groups [Web page](#). Over the next month, each group will host a workshop to refine their drafts for the March 27th deadline. The Impacts of Fishing working group met February 18-20; the dates of the other groups' workshops can be found in the 'Upcoming Events' section of this issue. Once the official drafts of each group's goals and objectives have been submitted at the end of March, they will be posted online and circulated in the coral reef community for comment. Comments will be incorporated and the final goals and objectives for each group will be delivered by May 29th, 2009. You can follow the progress of these groups on the Web page linked above.

Updates from the Atlantic/Caribbean Region

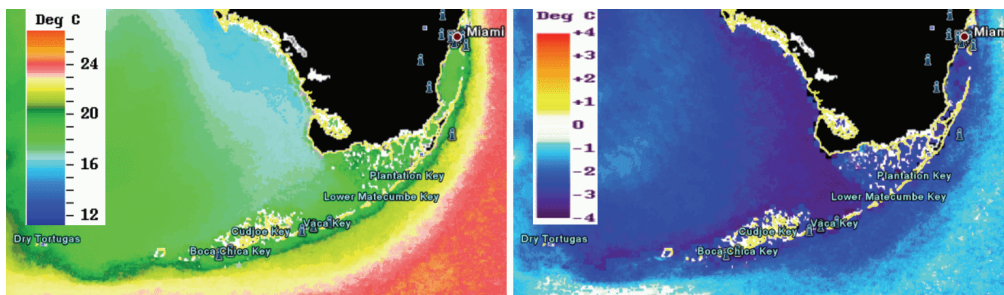
NOAA Establishes Eight MPAs to Provide Safe Havens for Deep-Water Fish.

NOAA has established eight separate marine protected areas (MPAs) encompassing a total of 529 square nautical miles in south Atlantic federal waters to shield deep-water fish species and their habitats from fishing. All fishing for snappers, groupers, tilefishes, grunts, porgies, and sea basses is prohibited throughout the protected areas, which are located off the coast from North Carolina south to Florida. The new protected areas range in size from 21 to 150 square nautical miles. There is one area each off the coasts of North Carolina and Georgia, and three each off the coasts of South Carolina and Florida. The [South Atlantic Fishery Management Council](#) proposed the action to NOAA's [National Marine Fisheries Service](#) (cont. on page 3)



***Lophelia pertusa* from The Olympic Coast National Marine Sanctuary.** Courtesy: Ed Bowlby, NOAA/Olympic Coast NMS; NOAA/OAR/Office of Ocean Exploration

Announcements continued...



High-resolution (1-km) satellite images showing mean sea surface temperature (SST) and SST anomaly (SSTA) in °C for the week of 5-11 February 2009, displayed in Google Earth. Large gradients around the FKNMS are clearly visible, where water is 2-4°C colder than normal. These Google-Earth compatible images are updated weekly and made available to the public [online](#). Courtesy: NOAA Coral Health and Monitoring Program and partners.

as part of a larger management plan to protect these South Atlantic fish populations. The MPAs are critical to the survival of over 70 species of deep-water fish susceptible to fishing pressure. These fish are not good candidates for catch-and-release fishing because they suffer trauma when captured and reeled up from great depths. In addition, some species, such as snowy grouper, can live longer than 50 years and are the most productive spawners. The new MPAs went into effect on February 12th.

Importance of Long-term Research and Ecosystem-based Management Practices in Caribbean Shown by Coral Studies.

Scientists from the [National Centers for Coastal Ocean Science \(NCCOS\)](#) met February 11-13 to share the results of five years of research on coral reefs in the Caribbean to assist resource managers and scientists in protecting these diverse and productive ecosystems. The research project, funded through the NCCOS [Coral Reef Ecosystem Studies Program](#), integrates ecological, oceanographic, and social sciences. Researchers studied the relationships between watersheds and coral reef ecosystems, anthropological studies, evaluation of marine protected areas, ecological and socioeconomic coupling, and management applications. Long-term research such as this helps scientists define and understand the causes and effects of reef degradation, and provides managers and stakeholders with information and tools to help protect coral reef ecosystems. Approximately 75 resource managers and scientists from U.S. Caribbean and Federal agencies and nongovernmental organizations attended the meeting in La Parguera, Puerto Rico.

New Satellite-derived SST Data Available for Florida Reef Monitoring. NOAA's [Coral Health and Monitoring Program \(CHAMP\)](#) at the [Atlantic Oceanographic and Meteorological Laboratory](#), and researchers at the [University of South Florida \(USF\) Institute for Marine Remote Sensing \(IMaRS\)](#) and the [University of Massachusetts Dartmouth's School for Marine Science and Technology](#) have developed new methods for making research-quality estimates of Sea Surface Temperature (SST) from space. The products include high accuracy, 1 km-resolution SST images going back nearly 20 years, and SST climatological means and anomaly products covering shallow coral reef and seagrass bed sites throughout the [Florida Keys National Marine Sanctuary \(FKNMS\)](#) and other coastal waters of Florida. Details of the methods and products will be published in an upcoming issue of the [IEEE Transactions on Geoscience and Remote Sensing](#), together with ground-truth collected with *in situ* sensors at the [Sustained Ecological Research Related to the Management of the Florida Keys Seascape \(SEAKEYS\)](#) network of reef-crest monitoring stations in the FKNMS. The ground-truth shows that the weekly satellite-derived anomalies have a near-zero (< 0.05°C) bias. The data are provided in near real-time to CHAMP, and full-resolution images are available to the public [online](#). The imagery also includes an experimental high-resolution Degree-Heating-Weeks product. A subset of these data are already being integrated by CHAMP with *in situ* data for wind, light and other environmental variables, for purposes of implementing ecological forecasts ([ecoforecasts](#)) within the FKNMS and other, more remote coral reef sites. Plans for future collaboration between CHAMP, USF, and UMass Dartmouth include improving scientific data integration with operations, as well as incorporating other satellite data products.

(continued on page 4)

EVENTS CONTINUED

May continued...

13-15: Caribbean Mapping & Monitoring Workshop, San Juan, PR. By invitation only; contact [Jenny Waddell](#) for details.

June

29-30: [National Marine Educators Association National Conference](#), Pacific Grove, CA.

July

1-3: [National Marine Educators Association National Conference](#), Pacific Grove, CA.



Be a Reef-Hugger

Long-lasting light bulbs are a bright idea.



As part of SeaWeb's Too Precious to Wear Campaign, top New York and Los Angeles designers created an ocean-inspired jewelry collection that celebrates the ocean without harming it. This collection launches in NYC this month.



Coral Reefs support more species per unit area than any other marine environment. Courtesy: Dave Burdick

Even if you don't live near a reef, you can help protect coral reefs in the U.S.A. and around the world

Atlantic/Caribbean Continued...

Benthic Habitat Maps Support Community-based Management in the U.S. Virgin Islands. NOAA's [National Centers for Coastal Ocean Science](#) (NCCOS) and the [Virgin Islands Marine Advisory Service](#) have partnered to provide maps of coral reef ecosystems to local community-based management groups in the U.S. Virgin Islands (USVI). The St. Thomas East End Reserve Community-based Management Planning group and its partners used NOAA benthic habitat and watershed maps during stakeholder meetings to show the location of marine resources and identify hurricane mooring sites as well as sewage and nutrient loading sites. NOAA's benthic habitat maps have also been used to design a management plan for the proposed Smith Bay Marine Park on St. Thomas, a pristine beach with significant colonies of elkhorn coral. The maps are also being used in a new book entitled *Waves of Change: A Resource for Environmental Professionals* to inform USVI legislators about local environmental issues.

New Benthic Habitat Maps to Support Management of St. John's Marine Resources. NOAA's [National Centers for Coastal Ocean Science](#), in cooperation with the [U.S. National Park Service](#) (NPS), conducted a field mission January 5-16 to ground validate a shallow water (<30 m) benthic habitat map of St. John, U.S. Virgin Islands. The new fine-scale habitat map, created by interpretation of 2008 aerial photography, represents a significant improvement from NOAA's 1999 digital maps of the U.S. Caribbean due to an expanded habitat classification scheme, smaller minimum mapping units and more recent imagery. The maps will be used by NPS and other local partners for planning research and monitoring activities. Preliminary mapping and field observations have de-



The crown of a Christmas Tree Worm (*Spirobranchus giganteus*) protrudes from a colony of *Porites astreoides* on the north shore of St. John, USVI. Courtesy: Adam Zitello, National Centers for Coastal Ocean

TECTED expansion and increased densities of sea-grass beds throughout the near-shore coral reef ecosystem since mapping efforts in 1999.

EFH Consultation Deepwater Survey off Florida. As part of the NOAA [National Marine Fisheries Service](#) (NMFS) [Essential Fish Habitat](#) (EFH) consultation with the [U.S. Army Corps of Engineers](#) (COE) for the installation of a telecommunication cable from Boca Raton, Florida to Colombia, South America, NMFS required a survey of the cable deployment location from shore to the exclusive economic zone (EEZ). The survey documented a *Lophelia pertusa* colony in 450 meters water depth; however, the survey was only partially (57%) complete and ended before the *Lophelia* habitat zone near the EEZ. NMFS is working with the COE to develop actions needed to determine compliance with the issued Department of the Army permit.

International Updates

CRW Participates in World Bank /GEF CRTR Annual Meeting. From February 6-12, Coral Reef Watch (CRW) scientists participated in the annual meeting of the Remote Sensing Working Group (RSWG) of the World Bank/Global Environment Facility's (GEF) [Coral Reef Targeted Research \(CRTR\) Program](#) held in Manado, Sulawesi, Indonesia. Thirteen scientists representing the United Kingdom, Canada, Australia, the Philippines, and the USA attended. The RSWG's 5th annual meeting brought the first phase of this WB/GEF effort to conclusion in an extensive writing (continued on page 5)



CRTR-Remote Sensing Working Group photo, Manado, Sulawesi, Indonesia. Courtesy: Coral Reef Watch

International continued...

session. The CRTR Program is designed to develop new applied scientific tools and build capacity with reef managers for the utilization of remote sensing tools. NOAA has benefitted through improving and expanding the use of CRW's satellite remote sensing tools that warn of regions at risk for coral bleaching and disease. CRW and the Coral Reef Ecosystem Integrated Observing System (CREIOS) within the CRCP are at the forefront of truly integrated research observations, spanning domestic and international arenas. Our new partnerships with international colleagues in coral reef research have leveraged World Bank/GEF funds to help promote these collaborations that will ultimately help make our domestic activities more efficient.

NOAA Staff Participate in International Coral Disease Workshop. International coral disease experts met for a 4-day Pan-Pacific Coral Health and Disease Workshop from February 3-6 in Kona, Hawaii. The workshop was sponsored by the Coral Disease Working Group of the World Bank/Global Environment Facility's [Coral Reef Targeted Research \(CRTR\) Program](#), and aimed to share knowledge and coordinate research on disease syndromes across the Pacific basin. Specifically, the goals of the meeting included: address coral disease in the Indo-Pacific and collection of comparable data across regions; contribute to the development of an outbreak Response Plan for Coral Disease for the GBRMPA; discuss methods of

integrating microbiology and ecology; discuss methods for estimating coral health; develop a connection between Western science and indigenous knowledge; and discuss the creation of a Hawaii node for a Pan Pacific Program. Participants included scientists from the CRTR Program, the Hawaii Institute of Marine Biology, GBRMPA, NOAA, the University of Hawaii, Kipuka Native Hawaiian Student Center, the Wildlife Conservation Society, and other Pacific universities. CRCP staff from the Coral Reef Ecosystem Division (CRED) and Coral Reef Watch (CRW) were in attendance. CRED's participation in this workshop was pivotal given the program's involvement in the assessment and characterization of coral disease across the US-affiliated Pacific Islands. CRW staff presented an informal talk entitled "Linking Temperature with Coral Disease," which summarized recent efforts to predict disease outbreak risk from satellite-derived sea-surface temperatures. CRW plans to develop coral disease risk maps to give coral reef managers a tool to help in their management of this growing threat to reefs around the world. Tangible outcomes of the workshop include planning for three publications to cover the topics of: coral disease prevalence across the Pacific Basin; trends and the current state of knowledge pertaining to coral disease microbiology; and ten issues for managers and critical knowledge gaps in coral health and disease.

Every Act Counts

Long-lasting light bulbs are a bright idea.

If every household in the U.S. replaced a burned-out bulb with an energy-efficient, ENERGY STAR-qualified compact fluorescent bulb, it would prevent greenhouse gas emissions equivalent to that from at least 800,000 cars.

Climate change is one of the leading threats to coral reef survival, so let your conservation light shine.

Whether you live one mile or one thousand miles from a coral reef, your actions affect the reefs' future – and the reefs' future affects yours. As the natural guardians of our shores, reefs play a vital role in our global ecosystem. With climate change, pollution, and overfishing contributing to coral reef degradation, we can all play a role in protecting our land, sea and sky. And all it takes is a few simple changes to your daily routine.

New Data in CoRIS

Product Name	Description
NOAA Coral Reef Watch Program NOAA National Environmental Satellite Data and Information Service, AVHRR Sea Surface Temperature Anomaly Charts (Global) 2009 Link to sample metadata for this product	These archived satellite sea surface temperature (SST) anomaly charts are graphic displays of the satellite global nighttime SST anomalies at 50km resolution produced twice-weekly in near real-time fashion. The SST anomaly is the difference of SST compared to daily SST climatology.
NOAA Coral Reef Watch Program NOAA National Environmental Satellite Data and Information Service, AVHRR Sea Surface Temperature Charts (Global) 2009 Link to sample metadata for this product	These archived satellite sea surface temperature (SST) charts are graphic displays of the satellite global nighttime composite SSTs at 50km resolution produced twice-weekly in near real-time fashion. Satellite data from the Advanced Very High Resolution Radiometer (AVHRR) on NOAA's Polar Orbiting Environmental Satellite (POES) are used to generate AVHRR-SST.

(continued on page 6)

New Data in CoRIS Continued...

Threat-based Working Groups

The primary objective of the CRCP is now to address strategic coral reef management needs; as such, the CRCP is narrowing its focus by emphasizing efforts on understanding and addressing the top three global and national threats to coral reef ecosystems:

- fishing impacts,
- land-based sources of pollution, and
- climate change.

In order to implement the proposed changes, the CRCP has put into place working groups to provide recommendations on the strategic goals and objectives the Program should work towards.

Click [here](#) to track the progress of the working groups.

Product Name	Description
NOAA Coral Reef Watch Program NOAA National Environmental Satellite Data and Information Service, AVHRR Coral Bleaching Hotspot Charts 2009 Link to sample metadata for this product	These archived coral bleaching HotSpot charts are graphic displays of the satellite coral bleaching Hot-Spots at 50km resolution produced twice-weekly in near real-time fashion. The coral bleaching HotSpot is a special type of sea surface temperature (SST) anomaly and shows the difference of SST compared to a static coral bleaching threshold climatology.
NOAA Coral Reef Watch Program NOAA National Environmental Satellite Data and Information Service, AVHRR Coral Bleaching Degree Heating Week Charts 2009 Link to sample metadata for this product	These archived coral bleaching Degree Heating Week (DHW) charts are graphic displays of the satellite coral bleaching DHWs at 50km resolution produced twice-weekly in near real-time fashion. DHW is the accumulation of Coral Bleaching Hot-Spots over a period of 12 consecutive weeks. The coral bleaching HotSpot is a special type of sea surface temperature (SST) anomaly and shows the difference of SST compared to a static coral bleaching threshold SST climatology.
Use of LANDSAT for Managing Nonpoint Source Pollution in Coastal Ecosystems of the U. S. Virgin Islands Link to sample metadata for this product	Five Landsat satellite images of the USVI that spanned a total of 16 years (1985 - 2001) were atmospherically corrected, orthorectified and co-registered. Unsupervised classification, accuracy assessment, and change detection techniques were applied to the terrestrial and benthic habitats of each image. The data indicated a shift from live coral to dead, algae-covered coral in watersheds where development had occurred.
CRED Marine Debris Survey and Removal Efforts within the Northwestern Hawaiian Islands during 1999-2008 Link to sample metadata for this product	Supported by NOAA's Coral Reef Conservation Program (CRCP) and Marine Debris Program (MDP), the marine debris team of Coral Reef Ecosystem Division (CRED) at the Pacific Islands Fisheries Science Center (PIFSC) conducts cruises to the NWHI for the purpose of surveying and removing derelict fishing gear (DFG).

Publications

CRCP Launches Coral Reef Habitat Assessment for U.S. Marine Protected Areas. In the [National Action Plan to Conserve Coral Reefs](#) (2000) and the [National Coral Reef Action Strategy](#) (2002), the [United States Coral Reef Task Force](#) (USCRTF) established a key conservation objective of protecting at least 20% of U.S. coral reefs and associated habitat types in no-take marine reserves. The CRCP has been supporting efforts to assess current protection levels of coral reefs within Marine Protected Areas (MPAs) and to quantify the area of U.S. coral reef ecosystems protected in no-take reserves. A significant source of information for these assessments has been the [National MPA Center's Inventory of Marine Managed Areas](#) (MMAs) in U.S. ocean and coastal waters. All

seven of the U.S. States and Territories on the USCRTF are participating in this inventory and have provided differing levels of information on their MPAs. However, acquiring complete information has become a challenge due to existing data gaps as well as a lack of resources and capacity to fill those gaps.

In response, the CRCP compiled [Coral Reef Habitat Assessment for U.S. Marine Protected Areas](#). Launched at the 21st U.S. Coral Reef Task Force Meeting on February 24th, this analysis demonstrates that the percentage of coral reef ecosystem resources in MPAs and no-take MPAs varies dramatically by location. Within the five U.S. Coral Territories, the U.S. Virgin Islands have the largest percentage of *(continued on page 7)*

Publications continued...

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State of Hawaii. The entirety of the Northwestern Hawaiian Islands have been designated as a no-take MPA, but MPAs cover much less of the coral reef ecosystems in the Main Hawaiian Islands. For more information, please follow the report link above.

Newly-discovered Bleaching Mechanism Provides Information to Help Coral Conservation. Investigators from NOAA's National Centers for Coastal Ocean Science (NCCOS) and its partners are working to better understand the mechanisms involved in coral bleaching, a major contributor to global declines of coral reefs, in order to improve coral conservation. The scientists recently discovered that light and heat stress induce corals to consume their symbiotic algae, one characteristic of bleaching. During a stress event, the mechanism maintaining symbiosis is destabilized, and in a survival response, the symbiont, called zooxanthellae, is ingested through a mechanism that also controls the way cells ingest bacteria and maintain damaged cell parts. These results were published in the [February 2009 issue](#) of the journal *Autophagy*.

CRW Scientist Quoted in *The Christian Science Monitor*. An article entitled "[The tiny, slimy savior of global coral reefs?](#)" was featured in the February 6 edition of *The Christian Science Monitor*. Coral Reef Watch scientist Dr. C. Mark Eakin was quoted in the article about the need to address climate change threats to coral reef. In particular, the article focused on research being done at the University of Miami on heat-tolerant algae that live in coral tissue and their potential to adapt to the increasing temperatures due to climate change.

We value your feedback. Feel free to [email us](#) comments.

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Attn: Outreach and Education
NOAA Coral Reef Conservation
Program, N/OCRM
1305 East West Highway, 10th
Floor
Silver Spring, MD 20910-3281

Phone: (301) 713-3155
Fax: (301) 713-4389
E-mail: coralreef@noaa.gov

We're on the Web!
<http://coralreef.noaa.gov>

The CRCP supports effective management and sound science to preserve, sustain and restore valuable coral reef ecosystems.

