

CORAL REEF NEWS
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NOAA Coral Reef News is a monthly e-newsletter established to provide current information on the activities of the National Oceanic and Atmospheric Administration's (NOAA) Coral Reef Conservation Program (CRCP) and other relevant NOAA programs. The CRCP supports effective management and sound science to preserve, sustain and restore valuable coral reef ecosystems. Back issues are available at <http://coralreef.noaa.gov/news/welcome.html>.

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OF SPECIAL NOTE

18th U.S. Coral Reef Task Force Meeting: Bridging Culture and Science for Conservation.

The [U.S. Coral Reef Task Force](#) (Task Force), met in Pago Pago, American Samoa from August 20-23. The Task Force includes members of 12 Federal agencies, seven states and territories, and three Freely Associated States.

The Task Force announced the formation of a new climate change working group charged with developing best practices to help local resource managers minimize the impact of climate-induced stresses. Togiola Tulafono, Governor of American Samoa, announced the passage of a territorial Executive Order addressing climate change which takes a proactive approach by mandating the American Samoa government agencies and departments make short- and long-term commitments to curb greenhouse gas emissions.

In response to the declaration of 2008 as the [International Year of the Reef](#) (IYOR) by the [International Coral Reef Initiative](#), the Task Force also adopted an IYOR Action Plan. The Plan includes a renewed call to action for the Task Force itself, which will celebrate its ten year anniversary in 2008.

The Task Force passed two additional resolutions. The first defined and launched 'phase two' of a highly successful [Local Action Strategy](#) initiative, which created three-year plans for local action that implemented hundreds of targeted conservation projects worth millions of dollars. The second resolution recognized a new strategic plan and charter for the [U.S. All Islands Coral Reef Committee](#), which represents the Governors and Executive branches of the states, commonwealths, territories and Freely Associated States possessing coral reefs.

In keeping with the meeting's theme, Science and Culture Bridging Management, the Task Force meeting also featured in-depth sessions on enhancing management strategies through

incorporation of traditional knowledge and regional approaches to managing coral reefs across political boundaries at the ecosystem level. Public workshops focused on federal grant and technical assistance opportunities for the region, as well as on methods for determining the economic value of coral reef ecosystems to protect economic benefits and enhance political support for reef conservation.

More information on outcomes of the meeting is available on the meeting [Web page](#), as well as in the NOAA [press release](#).

NOAA and Partners Conduct Workshop on Climate Change for Coral Reef Managers.

Coral reef managers around the Pacific basin participated in the training workshop "Responding to Climate Change: A Workshop for Coral Reef Managers" held August 27-30 in Pago Pago, American Samoa. The workshop was timed to follow the [18th US Coral Reef Task Force meeting](#), and was hosted by the [Government of American Samoa](#), NOAA's [Coral Reef Conservation Program](#), [Fagatele Bay National Marine Sanctuary](#) and [International Program Office](#), as well as the World Bank/Global Environment Facility (WB/GEF) [Coral Reef Targeted Research Project](#) (CRTR), and [IM Systems Group, Inc](#) (IMSG). A portion of the IMSG funds paid for carbon offsets to make the workshop carbon neutral.

More than 40 international experts in coral reef management from American Samoa, Samoa, Guam, Hawaii, Fiji, and the mainland U.S.A. met to learn about climate change impacts on coral reefs and tools to prepare for, and respond to, coral bleaching events. The workshop consisted of presentations, interactive discussions and exercises, and in-water field activities, based on a joint GBRMPA and NOAA publication [A Reef Manager's Guide to Coral Bleaching](#). Workshop trainers included staff from NOAA's [National Ocean Service](#) (NOS) and the [National Environmental Satellite, Data, and Information](#)

[Service](#) (NESDIS), as well as Australia's [Great Barrier Reef Marine Park Authority](#), and [The Nature Conservancy](#).

ANNOUNCEMENTS

CRCP Participates in House Briefing on Ecothresholds. The [Environmental and Energy Study Institute](#) (EESI) hosted a House briefing on September 20 to address "Ecosystem Thresholds and Climate Tipping Points: Implications for Policy Makers." NOAA Coral Reef Watch coordinator, Dr. Mark Eakin, sat on the panel, which focused on the work of an important climate initiative and its draft report. This initiative was developed jointly by the H. John Heinz III Center for Science, Economics, and the Environment, the Joint Global Change Research Institute, and The Nature Conservancy, as a project entitled "Understanding the Consequences of Thresholds in Global Change and Their Implications for Decision-Making." The project promotes understanding of the physical, natural, and social dynamics that underlie ecological thresholds in order to better inform ongoing adaptation measures and response options across scales of decision-making. The speaker panel included [Ecothresholds Project](#) participants and other experts: Dr. Anthony Janetos (Moderator), Dr. Ed Miles, Dr. Neil Cobb, Dr. Mark Eakin, Dr. John Wiens, and Michael Bradley.

CRW Launches New Experimental Coral Bleaching Virtual Stations for Florida. A suite of regional near-real-time satellite coral bleaching monitoring products has been developed from [Coral Reef Watch](#) (CRW) operational global product suite to provide detailed local environmental information to the Florida coral reef areas. Sixteen experimental Virtual Stations are now available for Florida Bay, the Florida Keys, and the southeastern coast of Florida. Time series graphs, thermal stress data, bleaching alerts, and regional images of coral bleaching Degree

Heating Weeks, HotSpots, Doldrum winds, sea surface temperature (SST), and SST anomaly are bundled together in a suite and posted on the new Florida Virtual Station [Web site](#). This regional product was developed in a collaborative effort with [The Nature Conservancy](#) (TNC) and the Florida Reef Resilience Program (FRRP). This new product also provides a framework for developing more regional virtual stations for other parts of U.S. coral reef areas and for global coral reef areas.

LAS Product Release. NOAA Fisheries Caribbean Field Office announces the completion of a bilingual educational pamphlet as a product of a Puerto Rico [Local Action Strategies](#) (LAS) Project. The full-color "The Reef Environment and You!" pamphlet contains information regarding the importance of "helping keep the reef" by leaving organisms in their natural environment. The pamphlet also contains information regarding regulations related to the collection of reef organisms for the aquarium trade. Copies are available upon request.

UPDATES

Atlantic

FKNMS/NCCOS Cruise Characterizes Sanctuary Benthic Habitats. Scientists from NOAA's [National Centers for Coastal Ocean Science](#) (NCCOS) and [Flower Garden Banks National Marine Sanctuary](#) (FGBNMS) scientists have launched a second season of [research](#) aboard the NOAA ship *Nancy Foster* to address management issues at the Sanctuary by assessing the fish and coral communities. The data collected will be used to generate a benthic habitat map showing the distribution of these resources. The scientists are conducting inventory, assessment, and monitoring-related activities throughout the Sanctuary waters from September 8-15, and [daily cruise updates](#) are available.

FGBNMS 2007 Coral Spawning Season. The [Flower Garden Banks National Marine Sanctuary](#) (FGBNMS) conducted its annual coral spawning research cruise on September 3-7. In addition to observing the annual mass coral spawning in an effort to better understand species spawning times and proliferation, other research efforts included: 1) coral reproduction studies on how coral settlement is affected by the presence or absence of herbivores and trying to determine what chemical triggers instigate coral spawning; 2) long-term monitoring; 3) examination of coral and other sanctuary invertebrates for fluorescence; and 4) surveys for queen conch as part of a study on population ecology of invertebrates in the sanctuary. An online cruise report will be prepared for the sanctuary Web site.

CRCP Participates in Annual American Fisheries Society Meeting. Coral reef fish and habitat research was presented at the annual [American Fisheries Society](#) (AFS) Meeting in San Francisco, CA from September 2-6. The [Southeast Fisheries Science Center](#) (SEFSC) contributed four coral reef presentations in three symposia involving research supported by the CRCP. In a session on "Linking Estuarine-Marine Habitats to Fish and Fisheries using Remote Sensing, GIS, Mapping and Modeling," Dr. Steve Smith discussed the use of regression analyses of habitat use by different reef fish species and life stages in the Florida Keys. That presentation was followed by a paper on community-based analysis of reef habitat use in the Florida Keys by Dr. Jerald Ault. Dr. Jim Bohnsack showed how long-term, visual monitoring of coral reef fishes supports ecosystem-based management in a symposium on Long Term Monitoring in Fisheries. Finally, Dr. Todd Kellison presented results from cooperative work with Dr. Joe Serafy comparing the application of multi-beam sonar and stereo video for fish community data collection in mangroves in a session on Marine Fish Ecology. See abstract citations in the 'Publication' section of this issue.

FKNMS 2007 Coral Spawning Season. Each night from August 31 through September 7, researchers from the [Florida Keys National Marine Sanctuary](#) (FKNMS) and partner organizations collected coral egg and sperm samples and documented spawning behavior within the boundaries of the Sanctuary at the Looe Key reef. Partnering researchers came from [Mote Marine Laboratory](#) (MML), the [Smithsonian Marine Station in Fort Pierce](#), [State University of New York at Stony Brook](#), the [University of Florida](#) and the [University of Texas](#). This research contributes to scientific understanding of coral reproduction mechanisms, settlement for various species, and documents this critical aspect of the corals' life cycles. Uncharacteristically, the 2007 lunar cycle resulted in two separate coral spawns, one at the beginning and one at the end of August. Cruises were sent to document both events. As part of an education and outreach effort, Sanctuary staff members and volunteers, and representatives of partner agencies joined the researchers on the cruises. In addition, the research was filmed by WPBT Channel 2, a South Florida public broadcast station, for an episode of "Wild Florida," scheduled to air in 2008. Funding for this research came from generous grants from the [South Florida Water Management District](#), MML's "Protect Our Reefs" program, and donated services.

NCCOS Cruise Completes Annual Evaluation Survey Coral MPAs in the Tortugas. During a seven-day [research cruise](#) from August 25-31 aboard the NOAA ship *Nancy Foster*, scientists from NOAA's [National Centers for Coastal Ocean Science](#) (NCCOS) are continuing a seven-year long study to provide data to support ecosystem-based coral reef management in the Dry Tortugas, Florida. In order to assess the effectiveness of marine protected areas (MPAs), NCCOS and [National Park Service](#) (NPS) scientists surveyed 30 permanent research stations evenly allocated among the Tortugas Ecological Reserve of the [Florida Keys National Marine Sanctuary](#)

(FKNMS), the [Dry Tortugas National Park](#), and the adjacent unprotected areas. Station surveys included assessments of reef fish and benthic habitats, while ship-based acoustic habitat classifications were conducted at a subset of the permanent stations. The scientists also utilized benthic trawls to compare pink shrimp populations in soft bottom habitats in protected and unprotected areas.

SEFSC Returns From Conch Field Mission to USVI. From August 24 - September 2, [Southeast Fisheries Science Center](#) (SEFSC) staff participated in a field mission partly focused on conch populations in St. John, U.S. Virgin Islands (USVI). PIs sampled and tagged an additional 268 conch and recaptured 166 previously-tagged conch. Data will be used to update the population analysis, growth, and habitat selection studies. Size-specific benthic quadrats were sampled for habitat characterizations. PIs and research assistants also downloaded data from stationary hydrophones and installed two additional hydrophones in deeper water to detect east-west conch migrations out of the bay. Ten additional sonic tags were put on conch in the two bays. New sample sites were surveyed for outyear work when tagging and sampling efforts are moved inside waters of the Park and no-take Coral Reef Monument for comparisons with our results in the fished zones. Collaboration with shark researchers continued with additional tagging of blacktip shark pups in Fish Bay for sonic tracking.

SEFSC Returns From *Acropora* Field Mission to USVI. From August 24 - September 2, [Southeast Fisheries Science Center](#) (SEFSC) staff participated in a field mission partly focused on *Acropora cervicornis* populations in the U.S. Virgin Islands (USVI). Survey sites were established around St. Thomas and St. John to track *A. cervicornis* colonies and their habitat usage by reef fishes. Permanent transects were set up in three locations and random surveys were

conducted in four additional sites; sampling sites now exist in both PR and USVI. All transects were surveyed for reef fishes (species, size and abundance), benthic composition (point intercept every 0.5 m, and phototransects), colony size, shape and vitality (disease, predators, bleaching). Single separate colonies were mapped and monitored following the procedures of Williams, Miller and Kramer. Additional data are being provided by the [U.S. Geological Survey](#) (USGS) on *A. cervicornis* colonies that have been tracked at Haulover Bay, St. John. These colonies will be added to the database for continued monitoring.

SEFSC Conducts Research at Proposed MPA Sites. A 14-day, two leg research cruise was conducted by the [Southeast Fisheries Science Center](#) (SEFSC) from August 17 - 30 to five proposed marine protected areas (MPAs) in the U.S. South Atlantic and a habitat area of particular concern (HAPC) on Pulley Ridge in the southeast Gulf of Mexico. This cruise was conducted aboard the [National Aeronautics and Space Administration](#) (NASA) ship *M/V Freedom Star*. Data was collected at 95 stations during the cruise with 20 remotely operated vehicle (ROV) dives made in the South Atlantic and seven on Pulley Ridge. An additional five transects on Pulley Ridge were surveyed with repeated drops of a stationary video camera array. A NOAA Teacher-at-Sea accompanied the first leg and participants from [Harbor Branch Oceanographic Institution](#) (HBOI) and the [University of South Florida](#) (USF) were on the second. The HBOI researcher assisted with identification of invertebrates. SEFSC staff will compare data with habitat and fish assemblages from HBOI submersible dives in the 1980's. The USF scientist took benthic grab samples to assist with groundtruthing of multibeam maps produced under a related CRCP-sponsored mapping project. Analysis of videotapes will take several months and reports will be issued to the [South Atlantic](#) and [Gulf of Mexico](#) Fishery Management Councils.

Coral Bay Collaborative Watershed Pilot Project. As part of a CRCP-funded project designed to enhance the effectiveness of local land-based sources of pollution management and planning, an assessment was conducted during July 30-August 7 in Coral Bay, St. John, U.S. Virgin Islands. The assessment team met with stakeholders and toured the watershed to learn about conditions, concerns, threats and management issues. Preliminary findings and recommendations were discussed at a community meeting, including: completing a long-term community development plan; establishing a unified approach to road design, construction, and maintenance; repairing existing erosion and drainage problems that threaten property and deliver excessive sediments to Coral Bay; adopting Coral Bay-specific site design standards; and hiring a permanent Coral Bay watershed manager. Local residents were very receptive to the proposed recommendations and anxious to assist with the watershed plan. A draft watershed plan for Coral Bay will be submitted to territory officials and the community in September 2007 for review and selection of priority actions for implementation. While a variety of plans and studies have been devised over the years for this watershed, this effort is the first to pull all of those pieces together into one watershed plan which will be supported both locally and federally.

Pacific

CNMI Kicks off Vessel Debris Cleanup with ICC. With support from the NOAA [Marine Debris Program](#) and CRCP, the Commonwealth of Northern Mariana Islands' (CNMI) [Coastal Resources Management Office](#) (CRMO) is using the [International Coastal Cleanup](#) (ICC) to kick off a project to clean a reef flat of debris from the fishing vessel *Nam Sung #62* on the island Rota. CRMO is anticipating the full cooperation of the local government, private sector, high school, junior high school, and the college as well as some private contractors for the September 15 cleanup. ICC volunteers will focus on the small marine

debris of the *Nam Sung #62* on this one-day event. CRMO will continue the efforts until they remove the bulk part of the vessel.

National/Headquarters

CRW Debuts New Online Satellite Tools Tutorial for Coral Bleaching. [Coral Reef Watch](#) (CRW) scientists attended the 2007 [Satellites in Education Conference](#), in Los Angeles, CA from August 10-11. This conference was hosted by the Satellite Educators Association (SEA), with major sponsorship from NOAA and the [National Aeronautics and Space Administration](#) (NASA). It was attended by approximately 50 science teachers who use satellite data as a teaching tool in their classrooms. CRW presented a session entitled "NOAA's New Satellite Tools Tutorial for Studying Coral Reefs," getting feedback from the teachers on the utility of this tutorial for classroom use. Development of this tutorial was partially funded by the [National Environmental Satellite and Data Service](#) (NESDIS) Education Office. CRW also had the opportunity to collaborate with teachers and students from SEA's "Multinational Youth Studying Practical Applications of Climate Events" (MY SPACE) program, with groups from Florida, California, the United Kingdom, and China. Demonstrations of near-real-time data for their home regions got the students and teachers excited about coral bleaching and other biological consequences of elevated sea surface temperature.

CRW Attends Workshop On Ocean Acidification. A [Coral Reef Watch](#) (CRW) scientist attended the annual Ocean Carbon Biogeochemistry (OCB) [Workshop](#) held July 23-26 in Woods Hole, MA. A key topic area addressed in a series of breakout sessions was the rapidly emerging issue of ocean acidification. Dr. Gledhill presented a poster entitled "Ocean Acidification of the Greater Caribbean Region 1996 – 2006." The poster presented findings following a retrospective analysis of sea surface pCO₂ in the Greater Caribbean Region; it characterized the changes in surface ocean

carbonate chemistry that has transpired over the past decade in the region. The surface pCO₂ was modeled by coupling satellite remote sensing, modeled, and *in situ* datasets. The results suggest a striking decrease in sea surface aragonite saturation state. Such findings should be of considerable interest to the coral reef scientific and management community in the Greater Caribbean Region and are currently being prepared for publication together with the [Atlantic Oceanographic and Meteorological Laboratory](#) (AOML) and university collaborators. The workshop offered an ideal venue to seek out collaborative ventures with other ocean acidification researchers and foster linkages between CRW activities and other agency and academic partners.

Coral Reef Watch Attends Conference on Remote Sensing. A [Coral Reef Watch](#) (CRW) scientist attended the 2007 [International Geoscience and Remote Sensing Symposium](#) (IGARSS) from July 23-27 in Barcelona, Spain. The theme of this symposium was “Sensing and Understanding Our Planet.” It emphasized that information gathered by all sensors and techniques must be wisely used mainly to understand our Earth, especially to improve prediction of natural disasters or global climate change and to provide tools to prevent their consequences. Dr. Liu presented a paper, “NOAA Coral Reef Watch’s Near-Real-Time Satellite Monitoring of the 2005 Record Breaking Coral Bleaching Event in the Caribbean,” in the conference topic “Monitoring Extreme Ocean Events.”

What’s New in CoRIS? See page eight.

UPCOMING EVENTS

September 2007

- 18 – 20: [Second International Barcode Conference](#). Tapei, Republic of China.
25 – 27: [CRCP External Program Review](#). Silver Spring, MD.
25 – 28: [European Symposium on Marine Protected Areas](#). Murcia, Spain.
27 – 29: [3rd Biannual International Conservation Genetics Symposium](#). New York, NY.
29 – 30: [Oceans 2007 MTS/IEEE - "Edge of Tomorrow"](#). Vancouver, Canada.

October 2007

- 1 – 4: [Oceans 2007 MTS/IEEE - "Edge of Tomorrow"](#). Vancouver, Canada.
22 – 26: [8th Pacific Islands Conference on Nature Conservation and Protected Areas](#). Alotau, Papua New Guinea
25 – 26: [Seventh Caribbean Islands Water Resources Congress](#). Saint Croix, U.S. Virgin Islands

November 2007

- 5 – 9: [The 60th Annual Gulf and Caribbean Fisheries Institute Conference](#). Punta Cana, United Mexican States.

December 2007

- 3 – 7: [CLIOTOP \(CLimate Impacts on Oceanic Top Predators\)](#). La Paz, United Mexican States.

What's New in CoRIS?

Product Name	Description
NCCOS Fish Assessment and Monitoring Data, Puerto Rico, St Croix and St John	To spatially characterize and monitor the distribution, abundance, and size of both reef fishes and macro-invertebrates
<p><i>Sample Link:</i> http://www.coris.noaa.gov/metadata/records/html/nccos_fish_assessment_and_monitoring_st_croix_fish_2002-present.html</p>	
Laser Line Scan Test	Test of the Capability of Laser Line Scan Technology to Support Benthic Habitat Mapping in Coral Reef Ecosystems, Maui Island, November 2006
<p><i>Sample Link:</i> http://www.coris.noaa.gov/metadata/records/html/cred_laser_line_scan_test_maui_hi0614_2006.html</p>	
Coral Reef Ecosystem Division (CRED), NOAA Pacific Island Fisheries Service Center Subsurface Temperature Recorder Time Series PRIA 2004-2006	Data from CRED Subsurface Temperature Recorder (STR) provides a time series of water temperature at reef sites. Data is typically collected at 1200 second or 1800 second intervals using a SBE Model 39 from Seabird Electronics Inc. Data from prior to the deployment date/time and after the recovery date/time have been removed.
<p><i>Sample Link:</i> http://www.coris.noaa.gov/metadata/records/html/cred_str3933179-1193_060329_kingman_reef_200404-200603.html</p>	
Coral Reef Ecosystem Division (CRED), NOAA Pacific Island Fisheries Service Center Wave Tide Recorder Time Series PRIA 2004-2006	Data from CRED Wave and Tide Recorders (WTR) provide a time series of temperature, wave, and tide data at coral reef ecosystem sites. Data is typically collected using a SBE Model 26 or 26plus from Seabird Electronics, Inc (www.seabird.com). Sensors include: Real-time clock, thermistor, and Digiquartz temperature-compensated pressure sensor.
<p><i>Sample Link:</i> http://www.coris.noaa.gov/metadata/records/html/cred_wtr2633179-0384_060118_johnston_200401-200601.html</p>	
CREWS Coral Reef Early Warning System (CREWS) Enhanced Buoy Environmental Data Logger (EDL), Palmyra Atoll 2002-2003.	CREWS Enhanced buoys are equipped to measure water temperature and salinity at 1 m (nominal) below the water line (Seabird Model SBE37); air temperature (R.M Young Model 41342); barometric pressure (Heise DXD); wind vectors (Vaisala WAS425A); PAR, UV305 nm, UV330 nm, UV380 nm measured at 2 m (nominal) above the water line (Biosherical BIC2104R); PAR, UV305 nm, UV330 nm, UV380 nm measured at 1 m (nominal) below the water line Biosherical BIC2104U). A compass (KVH C100 SE-25) is used in the calculation of wind direction and a GPS system provides geolocation.
<p><i>Sample Link:</i> http://www.coris.noaa.gov/metadata/records/html/cred_crews_cre307001_edl_060325_palmyra_atoll_200403-200603.html</p>	

CRED Ocean Data Platform (ODP),
Temperature/Conductivity Sensor, Baker
Island 2003-2004

The ODP consist of an upward looking acoustic doppler current
profiler and a temperature/conductivity recorder (Seabird
Electronics, Inc., Model SBE37, www.seabird.com).

Sample Link: http://www.coris.noaa.gov/metadata/records/html/cred_odp267003_adp-c355_040123_baker_island_200202-200312.html

SEAKEYS - Meteorological and
Oceanographic Historical Observations
2006

The Florida Institute of Oceanography's (FIO) SEAKEYS
(Sustained Ecological Research Related to Management of the
Florida Keys Seascape) program began in 1989 and has continued
until the present. This program, now being supported through
NOAA's South Florida Ecosystem Restoration, Prediction and
Modeling Program (SFERPM), implements a framework for long-
term monitoring and research along the 220 mile Florida coral
reef tract and in Florida Bay at a geographical scale encompassing
the Florida Keys National Marine Sanctuary (FKNMS).

Sample Link: http://www.coris.noaa.gov/metadata/records/html/seakeys_fowey_rocks_2006.html

