

CORAL REEF NEWS
Coral Reef Conservation Program
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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

NOAA Fisheries Service Establishes Critical Marine Protected Area in Alaska. NOAA's National Marine Fisheries Service (NMFS) formally established the Aleutian Islands Habitat Conservation Area in Alaska on July 28. The area covers 279,114 square nautical miles, more than twice the size of the recently established Northwestern Hawaiian Islands Marine National Monument; this makes the new habitat conservation area the largest marine protected area in the world. These historic conservation measures follow close on the heels of last month's announcement by NMFS of similar habitat protection measures implemented off the coast of Washington, Oregon and California. Resulting from a February 2005 recommendation by the North Pacific Fishery Management Council, the Aleutian Islands Conservation Area establishes a network of fishing closures in the Aleutian Islands and Gulf of Alaska. The area protects habitat for cold water corals and other sensitive features that are slow to recover once disturbed by fishing gear or other activities; this includes the fragile coral gardens discovered by NMFS scientists in 2002. Six small areas in the Aleutian Islands that include sensitive "coral gardens" will be closed to all bottom-contact fishing gear, including trawls, pots and dredges. Research indicates that the Aleutian Islands may harbor one of the highest diversity of deep-water corals in the world, with at least 25 species or subspecies believed to be endemic to the archipelago. In the Gulf of Alaska, ten areas along the continental slope will be closed to bottom trawling to protect hard-bottom habitats that may be important to rockfish. In southeast Alaska, in the Fairweather Grounds and off Cape Ommaney, five small areas will be closed to all bottom contact fishing gear to protect dense thickets of red tree corals. Another fifteen areas offshore will also be closed to all bottom contact fishing gear to protect unique seamount habitats. View a map of the Aleutian Islands (<http://www.fakr.noaa.gov/habitat/efh/aichpa.pdf>) and

Gulf of Alaska

(<http://www.fakr.noaa.gov/habitat/efh/goachpa.pdf>) coral protection areas and read the full NOAA press release at <http://www.publicaffairs.noaa.gov/releases2006/jul06/noaa06-r116.html>.

NOAA Scientists Discover Expanded Range of Deepwater Corals off Coast of Washington State.

During a 12-day scientific research mission on board the NOAA ship *McArthur II* in June, NOAA scientists discovered areas of deep-sea corals off the coast of Washington state in the Olympic Coast National Marine Sanctuary. Results from the surveys were dramatic; at least six species of soft coral and one species of stony coral were observed. In some areas scientists encountered fields of erect soft corals known as "gorgonians" with individual colonies as high as three feet; in other areas they observed isolated patches of coral colonies associated with scattered boulders. Corals observed included giant cup corals, branching soft corals such as "bubblegum coral" and the stony reef-building coral *Lophelia*, discovered during the earlier pilot cruise in 2004. During the mission, scientists used a remotely operated vehicle (ROV) in depths from 300 to 2,000 feet to photograph and videotape the coral and sponge assemblages while also collecting specimens with the ROV's manipulator arms. The researchers surveyed more than 15 sites and coral communities were found on portions of all but one of the sites. Video and research results will be posted on the Olympic Coast National Marine Sanctuary

(http://www.olympiccoast.noaa.gov/research/research_feat/welcome.html) and NOAA Office of Ocean Exploration Web sites. The cruise will also be featured on the Ocean Exploration education website (<http://oceanexplorer.noaa.gov/>) with material including video, images, curriculum and lesson plan ideas. To learn more, read the full NOAA press release at <http://www.publicaffairs.noaa.gov/releases2006/jun06/noaa06-062.html>.

ANNOUNCEMENTS

Coral Report Wins APEX Award. The Coral Reef Conservation Program is pleased to announce that the NOAA publication, *Implementation of the National Coral Reef Action Strategy: Report on U.S. Coral Reef Task Force Agency Activities from 2002 to 2003*, won an Award of Excellence in the Annual Awards for Publication Excellence Competition (APEX). APEX 2006 was the eighteenth annual awards program recognizing excellence in publications work by professional communicators. APEX Awards are based on excellence in graphic design, editorial content and the ability to achieve overall communications excellence. The competition is open to communicators in corporate, nonprofit and independent settings. 'Annual reports' was one of 11 main categories of APEX awards in 2006; APEX received 265 entries for the annual report category, but only 30 Awards of Excellence were given. Congratulations to the contributors. For more information, visit <http://www.apexawards.com/apex2006faq.htm> and http://www.apexawards.com/announcingthewinners_2006.htm.

SEFSC and SAFMC Release New Oculina Banks Fishing Regulations Pamphlet. NOAA National Marine Fisheries Service's (NMFS) Southeast Fisheries Science Center (SEFSC) and the South Atlantic Fishery Management Council (SAFMC) released a new brochure entitled, "Fishing Regulations for the Oculina Bank". An electronic copy will be posted on the SAFMC's website (<http://www.safmc.net/Home/tabid/139/Default.aspx>) shortly. If you would like a hard copy, please contact Jennifer.Schull@noaa.gov or (305) 361-4204. A companion poster is currently in production.

Milestone Documents on Ecosystem-based Fisheries Management Released. The Western Pacific Regional Fisheries Management Council (WESPAC) held two workshops over the last year to address several components of ecosystem-based fisheries management. The first workshop, held in April 2005, recognized the science and data needs that are necessary for adapting ecosystem principles into fisheries management planning. The most recent workshop was held in January, 2006 and focused on the social science aspects of the ecosystem paradigm. The results of these workshops are summarized in two documents accessible as pdfs that were released this month. Download the documents at <http://www.wpcouncil.org/> and read the full WESPAC press release at <http://www.wpcouncil.org/press/Press%20release%20July%2021%20ecosystem%20workshops.pdf>.

World Bank Coral Report Released. A report titled, "Measuring Coral Reef Ecosystem Health: Integrating Societal Dimensions" was released by the World Bank on June 26, 2006. The report states that the root causes of the rapid deterioration of coral reefs being witnessed today lie in direct impacts from human activities, e.g., over fishing, destructive fishing practices, chronic pollution, sedimentation from degraded watersheds, and physical alteration associated with coastal development, tourism, oil and gas exploration. Download the report at <http://www.cep.unep.org/newsandevents/news/2006/measuring-coral-reef-ecosystem-health>.

Pre-ITMEMS 3 Caribbean Bleaching Workshop Announced. The workshop, "2005 Caribbean Bleaching Event: Response and Assessment," will be held prior to the Third International Tropical Marine Ecosystems Management Symposium (ITMEMS 3) in Cozumel, México, on the afternoon of October 15, 2006. This half-day workshop is being offered as a Pre-ITMEMS activity, and is designed for coral reef and MPA resource managers, environmental assessment specialists, marine field investigators, enforcement officers, advanced students and

litigators. Participants will report on the 2005 Caribbean Bleaching Event (CBE) and discuss needs for further response and assessment. The workshop will involve presentations from researchers and managers in the Caribbean region, and discussions on (1) the total extent of bleaching, mortality, recovery, and survival of affected corals, (2) next steps in the response and assessment effort, and (3) planning for future events in this region. Registration is available thru September 15 at <http://www.itmems.org/bleaching.html>.

MPA Managers Retreat Moved to Belize. The proposed Caribbean Marine Protected Area (MPA) Managers meeting, originally scheduled for August 7 – 11, 2006 in La Parguera, Puerto Rico, has been moved to the 59th annual Gulf and Caribbean Fisheries Institute (GCFI) conference, to be held Nov 6 – 11, 2006 in Belize City, Belize. The meeting events will be incorporated into the two-day Caribbean Connectivity Symposium which will occur Nov 10 – 11. Atlantic Oceanographic and Meteorological Laboratory (AOML) scientists will give a presentation, have a special booth to show all the new features of data integration and ecological forecasting, and will work closely with other presenters in the Caribbean Connectivity portion of the meeting to underscore the goal of providing near real-time integrated data for MPA decision support. The new online coral data integration software is a key feature in the Integrated Coral Observing Network (ICON) program. As a proof of concept for MPA Managers, several near real-time data input sources will be featured for Molasses Reef in Florida Keys National Marine Sanctuary. Learn more about the Caribbean Connectivity Symposium at <http://www.gcfi.org/Conferences/59th/CaribbeanConnectivity.html>.

Meso-scale Effects of Coral Bleaching Workshop Call for Proposals. The Wildlife Conservation Society, University of Queensland and the Coral Reef Targeted Research and Capacity Building Program (CRTR) will hold a workshop on meso-

scale effects of coral bleaching at the Institute of Marine Sciences, University of Dar es Salaam in Zanzibar, Tanzania from November 28-30, 2006. The workshop will review theories on coral bleaching, examine data and search for generalizations concerning the effects at five to 10 year time scales. The workshop hosts are inviting and covering costs for participants who have data at a meso-scale of study to present findings and contribute to subsequent meta-analyses and review publications. Regional, temporal and meta-analyses synthesis are especially sought after. The time scale of study must span at least five years. Interested investigators should send abstracts to the workshop leaders by August 31, 2006. For contact information, see the calendar entry for this event on page 17.

UPDATES

Atlantic

NCCOS Mapping Expertise Will Assist NMFS in Resource Planning and Management Actions to Conserve and Protect Threatened Corals.

To respond to the recent listing of *Acropora* corals under the Endangered Species Act, and at the request of the NOAA Fisheries Service (NMFS), the National Centers for Coastal Ocean Science (NCCOS), will be working in partnership with NMFS to map the distribution of *Acropora* corals in the Atlantic and U.S. Caribbean regions.

Known commonly as Elkhorn and Staghorn corals, *Acropora* corals were listed as Threatened under the Endangered Species Act (ESA) on May 9, 2006. Detailed understanding of their current spatial extent, along with related species and habitat information, will be important to scientists, planners, managers and decision makers as they work to conserve and protect these key resources. NCCOS will compile data from investigators into a single dataset for mapping and delineating known habitats of *Acropora* species; create and manage a centralized database on a password-protected website; provide limited quality assurance and quality control on the data; and

produce digital Geographic Information Systems maps of the current spatial distribution or range of live *Acropora* throughout the Atlantic and U.S. Caribbean. To learn more about the listing of *Acropora* under the ESA, visit <http://sero.nmfs.noaa.gov/pr/protres.htm>.

Cruise Evaluates Habitat and Fish Assemblages in Four Proposed No-fishing Zones. A cruise was conducted to the proposed South Atlantic Bight Marine Protected Areas (MPAs) in June 2006 using the NASA vessel, *M/V Freedom Star* as a platform. Activities were conducted from a remotely operated vehicle (ROV) equipped with digital video and still cameras, and a high resolution tracking system to obtain exact position data for all imagery. The cruise was cut short by two days due to the passage of Tropical Storm Alberto through the study area. However, most of the goals for the cruise were accomplished. Four of the five proposed sites were visited and numerous grouper, snapper, and lionfish were recorded and counted. Early results indicate increases in densities of lionfish, an invasive species, on the deep reefs in the proposed MPAs as well as continued presence of several of the targeted reef fish, including blueline tilefish and snowy and warsaw grouper. Some areas that were comprised of exposed rocky and reef habitat in 2004 were found to be covered with sand in 2006. Currents were high (up to 2.5 knots) but ephemeral on the inshore edge of the Gulf Stream. A staff-member from the NOAA Fisheries Service Headquarters Office of Habitat Conservation and two Teachers-at-Sea, from Homestead, FL, and St. Louis, MO, were on board in addition to the normal science party. The Teachers-at-Sea have written very positive reviews of the cruise. The cruise results, once analyzed, will be presented to the South Atlantic Fishery Management Council at its December meeting in Atlantic Beach, NC.

Salt River ICON Station Gets a Face-lift. The Integrated Coral Observing Network (ICON) station within the Salt River Bay National Historical Park and Ecological Preserve in St. Croix, U.S. Virgin Islands was taken down during the week of June 19 so that it could be upgraded to a stronger and more extensible design, essentially the same design utilized at the La Parguera, Puerto Rico station. When re-installed in July, the station will have sea temperature, salinity, ultraviolet radiation (UVR) (305, 330, 380nm), and photosynthetically available radiation (PAR) at shallow and near-bottom depths, rather than just shallow (nominal 1m), and will also provide dew point and relative humidity data. The ease with which the station was taken down highlights an important concept for coral reef managers; namely, that the structure can be considered temporary, yet still strong enough to withstand heavy storms. The station design allows easier extension for additional instrumentation as the need and funding arise. Possible future utilities include instrumentation to measure ocean acidification, pulse-amplitude-modulation (PAM) fluorometry, nutrient levels, ocean currents, acoustic telemetry from the nearby canyon, and an underwater Web cam. Learn more about this ICON station at <http://srvi1-log.blogspot.com>; the new station info will be found at <http://srvi2-log.blogspot.com>.

La Parguera ICON Station Provides Saharan Dust Index. During the week of June 19, an Atlantic Oceanographic and Meteorological Laboratory (AOML) scientist attended to the Integrated Coral Observing Network (ICON) station in La Parguera, Puerto Rico. The scientist provided photosynthetically available radiation (PAR) and ultraviolet radiation (UVR) data from above surface, shallow and near-bottom sensors for two University of Puerto Rico (UPR) research scientists. The UPR scientists are utilizing various sensors, including the ICON instruments, to

provide a Saharan Dust Index over the region's coral reefs. The work-up of the initial effort will not be available until Fall. Learn more about this ICON station at <http://lppr1-log.blogspot.com>.

Puerto Rico Watershed Protection Workshops Held. Two workshops were held during the week of June 27-29 in Puerto Rico as part of a project funded through NOAA's Coral Reef Conservation Program. The goal of the project is to provide specialized assistance to coastal managers and other stakeholders to enhance the effectiveness of their local planning and management capability for addressing land-based pollution sources. The first workshop was aimed at improving coordination among local agencies and developing common goals for ensuring implementation and compliance with existing erosion and sediment control rules and regulations. The second workshop brought together staff from nine municipalities in the Caguas-Loiza watershed as well as representatives from homebuilders associations, local design consultants, and contractors to initiate a pilot project to identify and plan for the implementation of select erosion and sediment control practices in the watershed.

Mooring Buoy Installation Completed in East End Marine Park, St. Croix. The Division of Coastal Zone Management of the Department of Planning and Natural Resources completed the installation of day-use mooring buoys in the East End Marine Park (EEMP), St. Croix, U.S. Virgin Islands. Work was done for NOAA Fisheries Service's Southeast Regional Office with funds from the Coral Reef Conservation Program. The completed project includes the installation of day-use moorings on the north shore in Teague Bay (6 buoys), Cramers Park at Cottongarden Point (8 buoys), Knight Bay (6 buoys), Chenay Bay (8 buoys), Coakley Bay (5 buoys), and Green Cay (1 buoy) and on the south shore in Great Pond Bay (12 buoys). These locations were selected based on surveys of human use and benthic habitat

throughout the EEMP and were installed to protect seagrass beds and coral reefs in areas with heavy recreational use. To learn more about EEMP, visit <http://www.stxeastendmarinepark.org/index.html>.

Pacific

***Hi`ialakai* Mapping Cruise Furthers Research and Education in the NWHI Marine National Monument.** NOAA Coral Reef Conservation Program scientists from the Coral Reef Ecosystem Division (CRED) of the Pacific Islands Fisheries Science Center (PIFSC) partnered with the National Marine Sanctuaries Program (NMSP) to complete a 27-day mapping, marine archeology, and education and outreach cruise to Kure and Pearl and Hermes Atolls in the newly designated Northwest Hawaiian Islands Marine National Monument. The NOAA Ship *Hi`ialakai* left Honolulu on June 23, 2006 with 21 scientists and educators aboard and arrived at Kure Atoll on June 28. Mapping and diving operations were conducted around Kure until July 4, when the ship moved to Pearl and Hermes Atoll. Marine archaeological investigations of shipwreck sites at Kure and Pearl and Hermes Atolls were conducted by the Pacific Islands Regional Office, Maritime Heritage Program. Education and outreach activities were also conducted on behalf of the NWHI Marine National Monument. Daily updates from the cruise can be viewed at <http://www.hawaiiatolls.org/research/June2006/index.php>. The cruise concluded on July 20th.

PIFSC Completes Pilot Debris Removal Effort in Hawai`i. The Pacific Islands Fisheries Science Center's (PIFSC) Marine Debris Team of the Coral Reef Ecosystem Division (CRED) completed a pilot marine debris removal effort on Oahu in June. The removal is part of a main Hawaiian Islands (MHI) survey and removal effort funded by NOAA's Marine Debris Program. In 16 days of operations, 216 net piles totaling over 15 MT of derelict fishing gear were removed from the shorelines of Oahu. The vast majority of the 176 debris sites were on Oahu's windward coast,

highlighting the influence of northeast tradewinds on debris accumulation patterns. This project compliments efforts in the Northwestern Hawaiian Islands (NWHI) to mitigate the impacts of derelict fishing gear on marine life, habitat, and safe navigation. As in the NWHI, the marine debris problem in the MHI has proven to be greater than expected, with 711 debris sites reported. NOAA's Marine Debris Program supports critical marine debris reduction and prevention efforts along the coasts. For more information, visit

<http://www.pifsc.noaa.gov/cred/mdr.php> and

http://marinedebris.noaa.gov/about/main_hawaiian.html.

CPD Participates in Hawai'i Coral Reef Funding Workshop. The NOAA's Coastal Programs Division (CPD), part of the Coral Reef Conservation Program matrix, took part in a workshop held in Honolulu, Hawai'i on Thursday June 29, 2006. The workshop served to help identify funding and other support for priority coral reef protection and conservation projects in Hawai'i. NOAA joined representatives from the U.S. Fish and Wildlife Service and other Department of Interior Bureaus, U.S. Environmental Protection Agency, the Natural Resource Conservation Service and other federal agencies in responding to priority projects from Hawai'i's Local Action Strategies (LAS) aimed at addressing threats to coral reefs. Presentations were given by LAS coordinators highlighting projects that are in need of funding, technical assistance or other similar support and a number of promising partnership prospects and potential financial assistance opportunities were identified during the workshop.

NOAA and CRMO Conduct Vessel Inspection Training in CNMI. Funding from the NOAA Coral Reef Conservation and NOAA Marine Debris Programs helped support vessel inspection training for the Coastal Resources Management Office (CRMO) in Saipan during the week of July 17, 2006. Abandoned and derelict vessels are a problem in the waters around the Commonwealth

of the Northern Mariana Islands (CNMI). Because of the regular typhoons that pass through the islands, such derelict vessels frequently break loose and ground on adjacent coral reefs and seagrass beds. The purpose of this project is to provide training in vessel inspection for CNMI boating safety officers to help identify potential problem vessels before they sink or break apart and become a source of marine debris. The USCG and other local agencies will also send representatives. By keeping unsafe vessels out of CNMI waters, the local agencies hope to reduce coral injury and avoid the much greater expense of later vessel and debris removal. This training, led by a professional marine surveyor, is part of a larger outreach campaign targeted at boaters to prevent the occurrence of derelict vessels and their resulting marine debris.

PLA Workshop Held in American Samoa. A Community Participatory, Learning, and Action (PLA) Workshop was held in American Samoa (AS) June 26-30 to enhance, build, and promote environmental stewardship among Samoan citizens. Organizers and facilitators included representatives from the NOAA's Pacific Islands Regional Office (PIRO) field office in AS and Department of Marine and Wildlife Resources staff. The two workshops, funded by the NOAA Coral Reef Conservation Program, provided four communities with the techniques to identify threats to coral reef resources. The primary product was a list of action items provided by the community to improve resource management and coral reef resources. The next phase of will involve developing projects that will help support the implementation of a Community Action Plan. It is hoped that this will encourage the communities to form a cooperative that can broaden their ability to pursue other funding options.

International

CRW Scientists Publish Circulation Modeling Work for Palau. Two NOAA Coral Reef Watch (CRW) scientists have published an article entitled “Seasonal Variations of the Ocean Surface Circulation in the Vicinity of Palau” in the forthcoming issue of the *Journal of Oceanography*, which is currently available online. This work was funded in part by the NOAA Coral Reef Conservation Program and a collaboration between CRW and The Nature Conservancy. The paper describes variability in currents of the western equatorial Pacific Ocean, and focuses on the intra-annual variations near the Republic of Palau. This provides the context for NOAA’s high-resolution modeling of circulation in Palau that is being prepared for publication and is now being used in the development of a protected area network for Palau. The abstract can be viewed online at <http://springerlink.metapress.com/cahqin55hbkh5045nmvii155/app/home/contribution.asp?referrer=parent&backto=issue,2,15;journal,1,195;linkingpublicationresults,1:104315,1>. Full text is available from that site to those with a subscription to the journal.

New ICON Station Established in Puerto Morelos, México. On June 12, 2006, two researchers from the Universidad Nacional Autónoma de México, together with two researchers from NOAA, established a site for a new Integrated Coral Observing Network (ICON) station near Puerto Morelos, México. The station is located at a water depth of 19' (~5.8m) and within the Marine Protected Area (MPA) called Arrecifes de Puerto Morelos. The site is a little over one mile northeast of the Instituto de Ciencias del Mar y Limnología at Puerto Morelos near the Bocana Chica channel. The ICON station will provide all the standard meteorological measurements, as well as sea temperature, ocean salinity, and light (above and below water). The weather measurements and ocean conditions of the coral reef environment around Bocana Chica will

be measured by the instruments in near real-time and broadcast via the Web, along with ecological forecasts, such as coral bleaching, of use to researchers and managers of the marine institute and the MPA. Access more station information at <http://pmmx1-log.blogspot.com>.

SEFSC Holds Coral Reef Conservation Workshop in México. NOAA’s Southeast Fisheries Science Center, as part of a project funded by the Coral Reef Conservation Program, recently sponsored a workshop, “Conservation and Sustainable Use of Coral Reefs and Associated Habitats in the Mayan Riviera, México,” at the Universidad del Caribe, Cancun, México. Participants from universities, Marine National Parks managers and officials, environmental authorities, tourism developers, dive operators, and community groups attended the workshop. Ecology of coral reefs and associated habitats, conservation, conflicts with coastal development, and economic value were the central issues of focus for the workshop. The status of local resources in the Mayan Riviera and conservation efforts were also part of the discussions during the workshop. Additionally, a field trip to Parque Nacional Arrecife de Puerto Morelos, an area that was impacted by Hurricane Wilma, was conducted as an onsite evaluation of reef condition. To learn more about the SEFSC, visit <http://www.sefsc.noaa.gov/>.

Data Analysis and Management Training for the Freely Associated States of Micronesia. NOAA’s Coral Reef Conservation Program, the Palau International Coral Reef Center, and the Japanese International Cooperation Agency hosted the second training workshop on coral reef ecosystem monitoring in Micronesia. The first workshop, held in 2005, focused on coral and fish taxonomy, coral reef monitoring methods, and data collection. This year the same participants from the Marine Resource Departments and non-governmental agencies of Kosrae, Palau, Pohnpei, Republic of Marshall Islands, and Yap attended.

This year representatives from the Global Coral Reef Monitoring Network and the Nature Conservancy's Micronesia Program also participated and attended the final class presentations. The 11-day course, which focused on experimental design, statistical analyses, database management and reporting, was designed by a coral researcher and professor from the Florida Institute of Technology. As follow-up to the training, Micronesia's Coral Reef Monitoring Coordinator will continue to work with each jurisdiction to further develop the regional monitoring program. Participants were grateful for this invaluable training and look forward to continued support and coordination with NOAA.

National/Headquarters

Mark Trail Features Plight of Coral Reefs and NOAA CRW Data. The July 9 issue of the Sunday comic, *Mark Trail*, focused on the threats to coral reef ecosystems. The last frame cited the findings of NOAA Coral Reef Conservation Program's Coral Reef Watch (CRW) in stating that "NOAA sea surface temperature figures show the sustained heating in the Caribbean last Summer and Fall was by far the worst in 20 years of satellite monitoring." The CRW Program Coordinator has previously discussed this finding in press releases and news articles. The *Mark Trail* comic provided an opportunity for these data to reach millions of readers across the country. *Mark Trail* cartoonist, Jack Elrod, has often highlighted NOAA and *Mark Trail* has been used in the past by NOAA to promote NOAA Weather Radio. For more information on CRW and the Caribbean bleaching event see <http://coralreefwatch.noaa.gov/caribbean2005>.

Satellite Bleaching Alerts Incorporated into the NOAAWatch Website. On June 1st, the first day of the 2006 hurricane season, NOAA launched an "all hazards monitor" at www.noaawatch.gov. This page brings together current information from across many NOAA websites, so users can get details on high-risk hazards that are happening

right now. The main focus is on weather and storm events, but several other environmental hazards are listed, including CRW's warnings of coral bleaching events around the world. By the end of this summer, the coral bleaching information on NOAAWatch will automatically update based on a CRW Real Simple Syndication (RSS) feed, so check back often for live updates. In the interim, to view current conditions, visit http://www.osdpd.noaa.gov/PSB/EPS/CB_indices/coral_bleaching_indices.html. For more information on Coral Reef Watch see <http://coralreefwatch.noaa.gov/>.

CRW Scientists Present at Ocean Carbon Biogeochemistry Workshop. Two NOAA Coral Reef Conservation Program scientists from Coral Reef Watch (CRW) attended the annual Ocean Carbon Biogeochemistry Workshop held July 10-13, at Woods Hole Oceanographic Institution. Major themes of the workshop addressed ocean acidification and air-sea CO₂ fluxes. CRW is keenly interested in these topics as ocean acidification is of growing concern as a potential threat to coral reef ecosystems. In addition, experimental products under development at CRW are dependent on advances in estimating air-sea CO₂ fluxes as presented at the meeting plenary talks. The new report on "Impacts of Ocean Acidification on Coral Reefs and Other Marine Calcifiers: A Guide for Future Research" was just released last week on which the CRW Program Coordinator was a contributing author. The report on ocean acidification is now available in pdf format at <http://www.isse.ucar.edu/florida/>.

New Products in CoRIS. See table on Page 16.

CORAL REEFS IN THE NEWS

Articles mentioning NOAA

“NOAA Scientists Discover Expanded Range of Deepwater Corals off Washington State Coast”

– June 26, 2006 (NOAA press release on www.noaa.gov). “NOAA scientists have discovered areas of deep-sea corals in the NOAA Olympic Coast National Marine Sanctuary off the Washington state's Olympic Peninsula during a recent 12-day scientific research mission on board the NOAA ship *McArthur II*.”

<http://www.noaaneews.noaa.gov/stories2006/s2652.htm>

“New National Monument Is Largest Protected Marine Ecosystem”

– June 29, 2006 (*Voice of America, United States*). “The Northwestern Hawaiian Islands are the country's newest national monument, covering a 362,000 square kilometer expanse of Pacific Ocean, extending 2250 kilometers north and west of the main Hawaiian Islands. It is the largest protected marine area in the world, more than seven times larger than all 13 national marine sanctuaries combined.”

<http://www.voanews.com/english/AmericanLife/2006-06-29-voa3.cfm>

“New Rule Protects Alaska’s Rare Coral Gardens”

– June 29, 2006 (*Associated Press in The Washington Post, DC and approx. 27 other sources*). “Alaska’s rare coral gardens will be protected under a new federal rule setting large areas of the sea floor off-limits to bottom trawling. The new rule protects 370,000 square miles of ocean floor from bottom trawling, making it the largest protected marine habitat in the United States. The rule takes effect July 28.”

<http://www.washingtonpost.com/wp-dyn/content/article/2006/06/29/AR2006062901801.html>

“Sea Camp Lures 15 Youths”

– July 3, 2006 (*Caymanian Compass, Cayman Islands*). “This year, the activities are based on a new education program developed by the National Oceanographic Atmospheric Administration called Coral Reef Conservation. Coral reefs are under enormous stress around the globe and the

NOAA program was developed to emphasize the importance of healthy coral reefs.”

<http://www.caycompass.com/cgi-bin/CFPnews.cgi?ID=1014482>

“Florida Coral Battered by Hurricanes and Disease”

– July 5, 2006 (*Reuters on www.alertnet.org, United Kingdom*). “...With another hurricane season under way and diseases such as white plague getting an early start this year, scientists surveying the reef expressed heightened concern for the fragile corals, which are important nurseries and habitats for marine life and harbingers of the health of the seas.”

<http://www.alertnet.org/thenews/newsdesk/N25373242.htm>

“Burning Fossil Fuels Acidifies Oceans, Erodes Coral Reefs”

– July 5, 2006 (*Environmental News Service, United States*). “The emission of carbon dioxide from burning fossil fuels worldwide is making the oceans more acidic, eroding the calcium in corals and other marine organisms, the way osteoporosis thins human skeletons. New research published today predicts that calcification rates will decrease as much as 60 percent within the 21st century.”

<http://www.ens-newswire.com/ens/jul2006/2006-07-05-01.asp>

“Study: Rising Carbon Dioxide in Oceans Threatens Coral Reefs”

– July 6, 2006 (www.foxnews.com, United States). “Global carbon dioxide emissions are dramatically altering ocean chemistry and threatening marine organisms, a group of researchers warned Wednesday.”

<http://www.foxnews.com/story/0,2933,202215,00.html>

“Effect of Climate Change on Oceans Gaining Attention: Seattle Scientists Pushing for Further Studies”

– July 6, 2006 (*The Seattle Post Intelligencer, WA*). “Two decades ago, when Dr. Richard Feely at the Seattle laboratories of the National Oceanic and Atmospheric Administration reported his concerns about atmospheric carbon dioxide significantly altering the chemistry of the oceans, his findings were

largely ignored. Wednesday, Feely might have felt vindicated as one of the authors of a major federal report compiled by a blue-ribbon panel of scientists that pretty much said the same thing.”
http://seattlepi.nwsourc.com/local/276613_coral06.html

“Scientists: Warm Seas Threaten Coral” – July 7, 2006 (*Associated Press* on www.usatoday.com, US and approx. 36 other sources). “Caribbean Sea temperatures have reached their annual high two months ahead of schedule — a sign coral reefs may suffer the same widespread damage as last year, scientists said Monday. Sea temperatures around Puerto Rico and the Florida Keys reached 83.5 degrees Saturday — a high not normally seen until September, said Al Strong, a scientist with the U.S. National Oceanic and Atmospheric Administration's Coral Reef Watch.”
http://www.usatoday.com/travel/destinations/2006-07-05-coral-problems_x.htm

“Oceans Turning Acidic” – July 9, 2006 (*The Patriot-News, PA*). “...Last week, the National Oceanic and Atmospheric Administration and other federal agencies weighed in with a report by 50 top experts in ocean chemistry to warn that coral reefs and shelled sea creatures, which underpin major ocean food chains, are at risk.”
<http://www.pennlive.com/editorials/patriotnews/index.ssf?/base/opinion/1152297621229830.xml&coll=1>

“Pollution Threatens Coral Health by Preventing Lesions from Healing” – July 18, 2006 (*University of Central Florida, FL*). “Coral tissue damage that normally heals on its own will not mend when the colonies are near pollution sources on land that release industrial chemicals, fuel oils and other contaminants, a University of Central Florida biologist and several colleagues have found.”
<http://news.ucf.edu/UCFnews/index?page=article&id=0024004105bd60439010c0c76ce2f00782a&mode=news>

“New Study to Assess Hurricane Impact” – July 25, 2006 (PBS&J press release on www.pbsj.com, FL). “Flower Garden Banks (FGB) National Marine Sanctuary is home to one

of the world’s most magnificent coral reefs....The U.S. Department of the Interior, Minerals Management Service (MMS) has recently contracted with PBS&J to conduct a post-hurricane assessment of the sensitive habitats in the FGB vicinity, which include roughly 50 miles of deep-water reefs and banks.”
<http://www.pbsj.com/Press/Releases/FGBSanctuary/index.asp>

“Coral Reefs are Hurting, Study Finds” – July 25, 2006 (*The Miami Herald, FL*). “Researchers are probing whether sewage and other pollution are damaging coral reefs that help protect coastal areas from storm surges. A two-year environmental study, released last week, concluded that coral reefs off the coast of Broward County are sick -- and the culprit could be the treated sewage that is released into that part of the ocean in Hollywood and Hillsboro Beach.”
<http://www.miami.com/mld/miamiherald/15114542.htm>

“Expert: Fossil Fuels Poison Oceans” – July 26, 2006 (*Florida Today, FL*). “A Florida Tech expert on coral reefs counts himself among a growing number of scientists worldwide sounding the alarm about increasing carbon dioxide in the ocean.... That could lead to the erosion of the coral and other sea creatures that are a key part of the base of the food chain. ‘They basically start dissolving,’ Florida Tech biologist Robert van Woesik said of the reefs.”
<http://www.floridatoday.com/apps/pbcs.dll/article?AID=/20060726/NEWS01/607260374>

Other articles

“Marine Zones Fail to Protect Coral, Fish: Study” – June 23, 2006 (*Canadian Press* on www.CTV.ca, Canada and approx. 1 other source). A highly touted network of special marine zones is failing to protect the very species of coral and fish it was intended to shield in waters

around the world, says a report to be published Friday.”

http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20060623/marine_zones_coral_060623/20060623?hub=SciTech

“Coral Reefs Suffer at Hands of Humans” – June 23, 2006 (Cape Argus, South Africa).

“Coral reefs have suffered more damage since the 1970s than at any time in the past 220 000 years, according to a study published this week that warns of the threats of overfishing and coastal development.”

<http://www.capeargus.co.za/index.php?fSectionId=342&fArticleId=3306598>

“Coral Reefs Need More Than ‘Paper’ Protection” – June 23, 2006 (CanWest News Service on www.canada.com, Canada).

“‘Paper parks’ are not doing nearly enough to protect the world's coral reefs, says a Canadian-led team fighting to save the endangered ecosystems that once teemed with sea life.”

<http://www.canada.com/topics/news/national/story.html?id=d5fc75c0-6e26-48e0-8247-7932ef22774e&k=74772>

“Marine Biologists Sound Alarm for Coral Reefs, Coastal Seas” – June 23, 2006

(www.cbc.ca, Canada). “...On paper, marine protected areas cover nearly 19 per cent of tropical reef habitat. ‘Less than two per cent are extended protection complete with regulations on extraction, poaching and other major threats,’ the study’s authors wrote in a policy paper in Friday’s issue of the journal Science.”

<http://www.cbc.ca/story/science/national/2006/06/23/reefs-seas.html>

“Campaign to Protect Coral Reefs Concludes” – June 25, 2006 (Times of Oman, Sultanate of Oman).

“A campaign to preserve the coral reefs in the wilayats of Khasab and Dibba concluded yesterday.”

<http://www.timesofoman.com/newsdetails.asp?newsid=32204&pn=local>

“U.S. Coral Eden Found; Others Saved From Destructive Fishing” – June 28, 2006 (National Geographic News, United States).

“Large and diverse coral communities have been discovered in the deep, cold waters of the Olympic Coast National Marine Sanctuary off Washington State (map of Washington), scientists announced this week.”

<http://news.nationalgeographic.com/news/2006/06/060628-cold-corals.html>

“Marine Parks Failing to Protect Coral Reefs” – June 29, 2006 (Associated Press on

Environmental News Network and approx. 9 other sources). “Marine parks are failing to protect the world's coral reefs, a prominent New Zealand researcher said Wednesday, with fewer than 2 percent receiving adequate protection from these sanctuaries. Many of the parks remain “vulnerable to risks that arise from beyond their boundaries, such as sedimentation, pollution, coastal development,” said University of Auckland's Mark Costello, who oversaw a study of the parks that appeared in Science magazine earlier this month.”

<http://www.enn.com/today.html?id=10775>

“Sri Lankan Reefs in a Struggle for Survival” – July 4, 2006 (Los Angeles Times, CA).

“Recovery from the 1998 El Niño and the 2004 tsunami is hampered by human activities.”

<http://www.latimes.com/news/nationworld/world/la-fg-reefs4jul04.1.5145523.story?coll=la-headlines-world&ctrack=1&cset=true>

“WWF and TNC Assess Climate Change Impacts on the Mesoamerican Reef” – July 4, 2006 (World Wildlife Fund press release on

www.panda.org). “WWF and The Nature Conservancy are undertaking a major regional assessment of Central America’s Mesoamerican Reef to determine the impacts of climate change on coral reefs.”

http://www.panda.org/news_facts/newsroom/news/index.cfm?uNewsID=74900

“Race On to Save Coral Reefs” – July 5, 2006 (Associated Press in St. Petersburg Times, FL).

“Carbon dioxide emitted by burning fossil fuels has altered the chemistry of the world’s oceans so much it threatens the health of coral and other marine life, a federal study released Wednesday found.”

http://www.sptimes.com/2006/07/05/State/Race_on_to_save_coral.shtml

“Sinking Fishing Boats to Create Coral Reefs” – July 7, 2006 (*Vietnam Net*, Vietnam).

“Associate Prof, Dr Nguyen Chu Hoi, Head of the Economy and Aquatic Projecting Institute under the Ministry of Fisheries talked about his proposal to sink fishing boats to create coral reefs.”

<http://english.vietnamnet.vn/tech/2006/07/588590/>

“An Israeli Effort to Save the Coral Reef” –

July 9, 2006 (www.israel21c.org, Israel). “Coral reefs are sick and dying. Global warming is mainly to blame, according to Tel Aviv University (TAU) Professors Yosi Loya and Eugene Rosenberg. This dynamic duo is strapping on their flippers and getting ready to hit the sea: they have been assigned a lofty mission by the World Bank to turn around the spiral of destruction.”

<http://www.israel21c.org/bin/en.jsp?enDispWho=Articles%5E11354&enPage=BlankPage&enDisplay=view&enDispWhat=object&enVersion=0&enZone=Democracy>

“Oceans’ Rising Acid Level Threaten Reefs, Sea Creatures” – July 9, 2006 (*The Indianapolis Star*, IN).

“The escalating level of carbon dioxide in the atmosphere is making the world’s oceans more acidic, government and independent scientists say. They warn that, by the end of the century, the trend could decimate coral reefs and eliminate creatures that underpin the sea’s food web. Although scientists and some politicians have just begun to focus on the question of ocean acidification, they describe it as one of the most pressing environmental threats.”

<http://www.indystar.com/apps/pbcs.dll/article?AID=/20060709/NEWS06/607090402/1012>

“Endangered Coral Reef Fish Seized in Indonesia” – July 12, 2006 (World Wildlife Fund press release on www.panda.org).

“Indonesian airport authorities seized 36 humphead wrasse, the third seizure of this endangered fish species in the country this year alone. The live fish, harvested in Indonesia, were destined for Hong Kong.”

http://www.panda.org/news_facts/newsroom/index.cfm?uNewsID=75760

“Student Studying Effects of Development on Reefs” – July 12, 2006 (*Palm Beach Post*, FL).

“Scientists believe that development in Florida is directly related to the decline of some of the once-pristine coral reefs off the state’s coasts. A local student studying a reef halfway around the world is hoping to find parallels as he watches what happens to a pristine reef off the Red Sea as development creeps in.”

http://www.palmbeachpost.com/royalpalmbeach/content/neighborhood/royalpalmbeach/epaper/2006/07/12/npr_angie_0712.html

“Sewage Plants Threaten Coral Reefs and Human Health” – July 14, 2006

(www.floridasportsman.com, FL). “A 241-page study released by the University of Florida, Department of Environmental Engineering Sciences found the six municipal sewage treatment plants discharging into the coastal waters of south Florida represent a threat to human health and local coral reefs.”

<http://www.floridasportsman.com/casts/060714/>

“Tsunami Devastated Coral Reefs” – July 16, 2006 (*The Indianapolis Star*, IN and approx. 3

other sources). “Experts say recovery from the destruction wrought by the tsunami could take as long as 20 years in the hardest-hit reefs -- or even longer if heedless human activities, such as harmful fishing practices, continue....“ When the tsunami came, all the dead coral, mostly rubble, was shifted. All this rubble has . . . piled up in certain areas,” said Arjan Rajasuriya, a

government scientist who is Sri Lanka's leading authority on coral reefs."

<http://www.indystar.com/apps/pbcs.dll/article?AID=/20060716/NEWS06/607160419/1012>

"Coral Facing New Threats" – July 18, 2006 (*The Border Mail, Australia*). "A sinister black band of infection attacking coral reefs around the world could signal an emerging global pandemic of coral diseases, scientists fear."

<http://www.bordermail.com.au/news/bm/national/329084.html>

"New York Man Grows Coral in His Basement" – July 19, 2006 (*Associated Press in The Bradenton Herald, FL and approx. 54 other sources*). "...The 41-year-old English-born Lowes is raising dozens of coral species for his Web-based coral business, Reef Encounters, and is one of a growing breed of coral farmer who have found a niche supporting the booming hobby of keeping aquariums, which in 2005 was a \$6.9 billion market. And in the process, they are also helping scientists learn more about coral and are raising public awareness about a threatened species."

<http://www.bradenton.com/mld/bradenton/business/15071625.htm>

"We've Put Erosion into Overdrive" – July 23, 2006 (*Pacific Daily News, Guam*).

"...Sedimentation and siltation of our coral reefs from land-based, man-caused erosion has had the greatest damaging effect on our valuable living coral reef resources. Silt particles have been seen to precipitate out as 'marine snow' in waters flowing onto Guam's coral reefs, causing harm to corals' health and even coral death."

<http://www.guampdn.com/apps/pbcs.dll/article?AID=/20060723/OPINION02/607230314/1014/OPINION>

"Off-roaders Must Practice Restraint" – July 23, 2006 (*Pacific Daily News, Guam*). "Despite all the benefits reefs provide to the people of Guam, our reefs are often taken for granted and are even directly or indirectly damaged by human activities.... If there is enough soil in the water,

corals and other non-mobile organisms on the bottom can actually be smothered to death. But smaller amounts still cause corals quite a bit of stress, and the corals must spend costly energy to clean themselves of sediment instead of using that energy to grow, reproduce or fight deadly diseases."

<http://www.guampdn.com/apps/pbcs.dll/article?AID=/20060723/OPINION02/607230318/1014/OPINION>

"Isles' Reef Fish Need Protection From Bad Harvesting Methods" – July 23, 2006 (*Honolulu Star Bulletin, HI*). "...our populations of fishes cannot be sustained if large-scale and damaging fishing methods, such as use of lay gill nets, are allowed to continue....Abandoned gill nets can 'ghost-fish' for years. In 1998, state officials gathered nearly five miles of net from coral reefs in Hawaii in a six-month period. An entangled and abandoned net can cover and kill an entire coral colony because algae grows where coral is abraded, as well as on the net itself."

<http://starbulletin.com/2006/07/23/editorial/special2.html>

"Australia Becoming Reef Training Hub" – Tuesday, 25 July 2006 (*ABC News on*

www.abc.net.au, Australia). "Leading marine scientists say Australia is becoming the training ground for the world's coral reef experts."

<http://www.abc.net.au/news/items/200607/1695719.htm?nor thqld>

"Turn In, Prosecute and Fine Grassland Arsonists" – July 25, 2006 (*The Pacific Daily News, Guam*).

"...Guam's reefs generate over \$100 million dollars in tourist revenue every year. They support culturally and recreationally important fisheries and protect the island's shores from storm damage. Yet Guam's reefs have among the highest rates of sedimentation and among the lowest rates of coral recruitment in the world. The reefs on southern Guam are literally being buried...."

<http://www.guampdn.com/apps/pbcs.dll/article?AID=/20060725/OPINION02/607250312/1014/OPINION>

“Artificial Reefs Planned Along Coast” – July 26, 2006 (*The Hindu*, India). “To protect reef biodiversity in the Gulf of Mannar and augment fish population, the Department of Fisheries plans to place artificial reefs along the coast at two places in the district at an outlay of Rs. 27.22 lakh before August 31. A total of 400 artificial reefs, made of concrete structures that ‘mimic’ coral reefs, will be placed 10 to 15 km off Vellapatti and Vembar.”

<http://www.hindu.com/2006/07/26/stories/2006072614060100.htm>

“NASA Coral Reef Images Key to New Global Survey” – July 26, 2006 (www.nasa.gov, United States and approx. 1 other source). “A first-of-its-kind survey of how well the world's coral reefs are being protected was made possible by a unique collection of NASA views from space.... The assessment found that less than two percent of coral reefs are within areas designated to limit human activities that can harm the reefs and the sea life living in and around them.”

http://www.nasa.gov/vision/earth/lookingatearth/coral_assessment.html

“Reefs Benefit From Indigenous People’s Dependence: Research” – July 27, 2006 (*ABC News* on www.abc.net.au, Australia). “A study has found traditional owners are taking better care of coral reefs than national parks and reserves. The study found the techniques employed by Indigenous communities in Papua New Guinea and Indonesia are far more effective at maintaining fish numbers.”

<http://www.abc.net.au/news/newsitems/200607/s1698065.htm>

New Products in CoRIS.

Product Name	Description
CRED, Rapid Ecological Assessment of Corals, American Samoa 2006 (metadata)	Belt transects along 1 or 2 consecutively-placed, 25m transect lines were surveyed Raw survey data included colony counts and size classes by genus, and visual estimation of percent cover. Half a meter (0.5m) on each side of the transect lines were included in the belt (for a total of 25m ² or 50m ² per site), depending on colony density.
Links: http://www.pifsc.noaa.gov/cred/coral.php http://www.coris.noaa.gov/metadata/records/html/cred_rea_corals_ofu_olosega_2006.html	
ICON Stations for Norman's North Path Reef, Bahamas and Salt River Bay National Historical Park and Ecological Preserve, St. Croix, 2004 and 2005, and new real time ICON Station at La Parguera, Puerto Rico (metadata)	Oceanographic and meteorological observations such as, salinity, wind speed, gusts and direction, barometric pressure, air and water temperatures, instrument depth, fluorescence photosynthetically active radiation, and ultraviolet radiation.
Links: http://www.coral.noaa.gov/crw/real_data.shtml http://www.coral.noaa.gov/imm/IMNQuery	
Environmental Sensitivity Index (ESI) for Guam and CNMI, 2006 (metadata and data)	ESI maps contain three types of information: shoreline habitats (classified according to their sensitivity to oiling), sensitive biological resources, and human-use resources.
Link: ftp://ftp.nodc.noaa.gov/pub/outgoing/CoRIS/data/nos/ESI/Guam_CNMI/PDFS (select INDEX.PDF)	

UPCOMING EVENTS

If you have events you would like listed in future newsletters, please contact coralreef@noaa.gov.

August 2006

29-31: **Third Coastal Zone Asia Pacific Conference.** Batam Island, Indonesia.

http://cdc.fish.ku.ac.th/czap_06/index.htm

September 2006

1-2: **Third Coastal Zone Asia Pacific Conference.** Batam Island, Indonesia.

http://cdc.fish.ku.ac.th/czap_06/index.htm

10 – 14: **American Fisheries Society 136th Annual Meeting.** Lake Placid, NY. <http://www.afslakeplacid.org/>

17 – 20: **California and World Oceans Conference.** Long Beach, CA. <http://resources.ca.gov/ocean/cwo06/>

18 – 22: **Marine Technology Society and IEEE Oceanic Engineering Society Oceans Conference 2006.** Boston, MA. <http://www.oceans2006americas.org/>

19 – 22: **European Coral Reef Conference 2006.** Bremen, Germany. Abstracts and early registration due by May 15th. <http://isrs2006.zmt-bremen.de>

22 – 24: **MACNA XVIII: Futures in Reefkeeping.** Houston, TX. <http://www.macnaxviii.com/>

October 2006

10 – 14: **35th Annual North American Association for Environmental Education (NAAEE)**. St. Paul, MN. <http://www.naaee.org/conference/naaee-2006-conference-start>

15: **Pre-ITMEMS 3 Workshop, “2005 Caribbean Bleaching Event: Response and Assessment.”** Cozumel, México. Registration deadline is September 15th, 2006. <http://www.itmems.org/bleaching.html>

15: **Pre-ITMEMS 3 Workshop, “Caribbean Coral Disease Workshop.”** Cozumel, México. <http://www.itmems.org/disease.htm>

15 – 20: **ITMEMS 3: Global Problems, Local Solutions.** Cozumel, México. <http://www.itmems.org>

21 – 25: **Post-ITMEMS 3 Workshop: “CSI for Coral Reefs: Investigative & Enforcement Forensics Field Training Workshop.”** Cozumel, México. <http://www.itmems.org/csi.htm>

22 – 23: **ICRI General Meeting.** Cozumel, México.

<http://www.icriforum.org/router.cfm?show=secretariat/gmcozumelhome.html>

24 – 28: **16th U.S. Coral Reef Task Force Meeting.** St. Thomas, U.S. Virgin Islands.

<http://www.coralreef.gov/taskforce/meetings.html>

30 – 31: **Coral Reef Ecosystems Biodiversity Forum.** Noumea, New Caledonia.

http://www.ird.nc/biodec/english/home_page.html

November 2006

1 – 4: **Coral Reef Ecosystems Biodiversity Forum.** Noumea, New Caledonia.

http://www.ird.nc/biodec/english/home_page.html

6 – 10: **59th Meeting of the Gulf and Caribbean Fisheries Institute (CGFI).** Belize City, Belize.

www.gcfi.org

8 – 9: **Second Annual Coral Reef Conservation and Management Conference.** Miami, FL.

<http://www.informalearning.com/CoralReefs>

10 – 11: **CGFI Caribbean Connectivity Symposium (featuring Caribbean MPA Managers’ Meeting events).** Belize City, Belize. <http://www.gcfi.org/Conferences/59th/CaribbeanConnectivity.html>

28 – 30: **Meso-scale Effects of Coral Bleaching Workshop.** Zanzibar, Tanzania. Abstracts due August 31. Contact the workshop leaders, Dr. Tim McClanahan (Wildlife Conservation Society) tmccclanahan@wcs.org and Dr. Mebrahtu Ateweberhan (Wildlife Conservation Society) mateweberhan@wcs.org, for registration details.

December 2006

9 – 13: **Restoring America’s Estuaries (RAE) – Forging the National Imperative.** New Orleans, LA.

<http://www.estuaries.org/?id=4>

Questions, comments?

Contact coralreef@noaa.gov, NOAA Coral Reef Conservation Program.

Access to NOAA’s coral reef data and information is provided through NOAA’s Coral Reef Information System at <http://www.coris.noaa.gov>. Current news on NOAA’s coral reef activities can be found on the NOAA Coral Reef Conservation Program Web site, <http://www.coralreef.noaa.gov>.

