

Subscribe to NOAA Coral Reef News, the monthly e-newsletter of NOAA's Coral Reef Conservation program.

# Coral Reef News



## INSIDE THIS ISSUE:

<b>Announcements:</b>	<b>1</b>
<b>Upcoming Events:</b>	<b>2</b>
<b>Updates:</b>	
<a href="#">Headquarters</a>	3
<a href="#">Atlantic/Caribbean</a>	4
<a href="#">Pacific</a>	7
<a href="#">International</a>	9
<b>Publications</b>	<b>9</b>

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 5, No. 9

June 2008

## Announcements

**NOAA to Participate in the 11th International Coral Reef Symposium.** Every four years the International Coral Reef Symposium (ICRS) convenes as a major scientific conference to provide the latest knowledge about coral reefs worldwide. Natural scientists, resource managers and users, conservationists, economists, and educators gather from around the world to advance coral reef science, management, and conservation. It has been over 30 years since the ICRS was held in the continental U.S. The United States and Florida will co-host the [11th ICRS](#) from July 7-11 in Ft. Lauderdale, FL. NOAA staff will chair mini-symposiums and side sessions, staff an exhibit booth, and give over 200 individual oral and poster presentations based upon NOAA activities and research.



**Public Comment Period on Draft Monument Management Plan Closes July 8** From June 9-24, [Papahānaumokuākea Marine National Monument](#) hosted public meetings on its [Draft Monument Management Plan \(DMMP\)](#) and associated Environmental Assessment. DMMP meetings were held in Wai'anae, Washington D.C., Maui, O'ahu, Lanai, Molokai, and the Big Island. All Hawai'i meetings were three hours in length and provided a short overview of the Monument and the DMMP, an informal discussion session for focused inquires on sections of the plan, and then a formal public comment period. Concerns and comments raised during the meetings focused primarily on Navy activities in the Monument, enforcement, cultural access and uses, research activities, public involvement in the management process, alien species, marine debris, and the permitting process. Interested parties can still submit public comments through July 8; click [here](#) to learn how.

**CoRIS to Release Two New Tools.** The NOAA [Coral Reef Information System \(CoRIS\)](#) announces the upcoming release of a new Regional Portal and an improved map search function. The Regional Portal provides regional ac-

cess to [Coral Reef Conservation Program \(CRCP\)](#) data and information, based on the regions defined in the *State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2005* report. Portal pages for each region will include links to the CoRIS metadata and data for that region, as well as library materials, the relevant "State of the Reef" report section and other key regional documents, Marine Protected Areas in the region, and other items of interest about the region. The new map search is based upon Google™ Maps and is a new way to search the data available on CoRIS. It allows users to zoom to a place on the globe, such as Florida, and then select from the various data and metadata products available for that region. The new map search was developed for CoRIS by the [National Coastal Data Development Center \(NCDDC\)](#). CoRIS is a CRCP-funded project managed by the [National Oceanographic Data Center \(NODC\)](#) and houses all data and products produced by CRCP-funded projects, as well as other related information. These two new tools will be available from the CoRIS home page on July 2.

**NOAA Delivers Report to Congress.** On June 27, NOAA delivered the report, *Implementation of the National Coral Reef Action Strategy: Report on U.S. Coral Reef Task Force Agency Activities from 2004 – 2006* to Congress. This report highlights the activities of the [U.S. Coral Reef Task Force \(USCRTF\)](#) from 2004 to 2006 to promote understanding of coral reefs and to reduce the threats to these valuable marine ecosystems. The report provides summaries and examples of the activities conducted by USCRTF members and their partners to fulfill the goals and objectives of the [National Action Plan to Conserve Coral Reefs](#) (2000) and the [National Coral Reef Action Strategy](#) (pdf 1.55 mb, 2002). As called for by the (continued on page 2)



## UPCOMING EVENTS

### July 2008

**7-11: 11th International Coral Reef Symposium: Reefs For the Future**, Ft. Lauderdale, FL.

**8:** Deadline to provide [public comments](#) on the Draft Monument Management Plan.

### August 2008

**25-29: 20th U.S. Coral Reef Task Force Meeting**, Kona, HI.

### September 2008

**2-5:** Responding to Climate Change Workshop, Kona, HI. Contact [Jessica Morgan](#) for further details.

Click [here](#) to find IYOR 2008 events in your area.

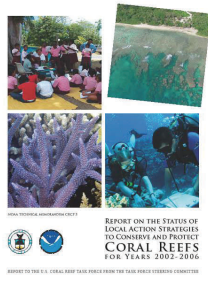
## Announcements continued...

[Coral Reef Conservation Act of 2000](#) (pdf 36 kb, Pub. L. No. 106-562; 16 U.S.C. § 6401 et seq.), the report addresses each of the 13 goals detailed in the *National Coral Reef Action Strategy* and charts annual funding by federal agencies for activities directly related to the *National Coral Reef Action Strategy*. It also presents a brief analysis of the future opportunities and challenges facing coral reef ecosystems and the communities that depend on them. Highlights of activities include designation of the co-managed [Papahānaumokuākea Marine National Monument](#), coordinated interagency response to the 2005 Caribbean coral bleaching event, listing of *Acropora* coral species as threatened under the Endangered Species Act, and a status assessment of coral reefs following the 2004 Indian Ocean Tsunami. This report will be available [here](#) in the future.

### Report Provides Status of LAS Initiative.

NOAA recently released the [Report on the Status of Local Action Strategies to Conserve and Protect Coral Reefs for Years 2002-2006](#) (pdf, 6.3 mb).

This report to the [U.S. Coral Reef Task Force](#) (USCRTF) from the USCRTF Steering Committee provides an overview of the progress that states, territories, federal agencies, and nongovernmental partners have made during years 2002-2006 in developing and implementing [Local Action Strategies](#)



(LAS) to reduce threats to the Nation's coral reef ecosystems. The USCRTF initiated development of LAS in partnership with the [U.S. All Islands Coral Reef Committee](#) (AIC) during the Fall of 2002 to increase resources, coordination, and effective-

ness of local coral reef conservation efforts in U.S. jurisdictions. The report was prepared by NOAA in cooperation with the AIC and representatives from the USCRTF to highlight activities and accomplishments at the end of the initial five years of the LAS initiative. The report describes the overall status of the LAS initiative including accomplishments, an overall project and funding summary, and an overview of the LAS process and funding for each jurisdiction. The final section presents a summary of lessons learned and recommendations for future phases of the LAS effort.

**Virtually "Dive" into Florida's Shipwrecks.** The state of Florida recently released a new

Internet feature, "[Museums in the Sea](#)," which provides a virtual Web tour of Florida's Underwater Archaeological Preserves, a system of underwater parks. Florida's Underwater Archaeological Preserves combine ecological and recreational tourism opportunities heritage at 11 shipwreck locations around the state. Virtual visitors can now enjoy these Museums of the Sea, which are already popular attractions for snorkelers and divers. Visitors can choose a shipwreck, take a guided underwater tour of the site, watch a narrated history of the vessel, and observe the marine life that lives in the wreckage. Each section of the site has photographs and text to accompany the videos. Visitors also have the opportunity to download and print the Underwater Preserve brochures and underwater guides. NOAA's [Office of Ocean and Coastal Resource Management](#) and the [Florida Coastal Management Program](#) have been partners in the development of this Internet feature which will allow access to these sites by a significantly greater population than that which physically has access to it.

**2008 Sunia Scholar: Leena Muller.** Since 2004, NOAA's [Coral Reef Conservation Program](#) (CRCP) and the Department of Interior's [Office of Insular Affairs](#) and [U.S. Fish and Wildlife Service](#) have hosted Scholars from the U.S. Virgin Islands, Guam, Hawaii, Puerto Rico, and American Samoa for the [Governor Tauese P.F. Sunia Memorial Coral Reef Conservation Summer Scholarship](#). This scholarship provides students with a unique opportunity to gain valuable, professionally formative experience in coral reef conservation policy and management while also contributing to the overall efforts of the hosting agency and the [U.S. Coral Reef Task Force](#) (USCRTF) while working in the Washington, D.C. area. Leena Muller, the first Scholar from the Republic of Palau, has joined the CRCP Headquarters team as the 2008 Sunia Scholar. In addition to meeting and networking with the USCRTF members, Leena will complete a number of projects at her host office. Upon completion of this Scholarship, Leena will receive her Associates Degree in Environmental/Marine Science from Palau Community College (PCC). This coming Fall, she will transfer to the University of HI, Manoa to complete her bachelors degree in Natural Resources and Environmental Management, with a focus on Conservation. At PCC, Leena was involved in Phi Theta Kappa Honor Society, the Environmental Club, and also worked as a science and math tutor. In addition, she was a student representative to the PCC Board of Trustees. She (continued on page 3)

## Announcements continued...

brings this dedication and work ethic to CRCP Headquarters and will undoubtedly continue to apply them to her Scholarship projects.

**Revealing the Deep Wins National Telly Award.** The Telly Awards was founded in 1978 to honor excellence in local, regional and cable TV commercials. Non-broadcast video and TV program categories were soon added. Today, the Telly is one of the most sought-after awards by industry leaders from larger international firms to local production companies and ad agencies. *Revealing the Deep*, the [South Atlantic Fishery Management Council's](#) (SAFMC) film on deep-sea coral, has won a coveted Silver Telly award for excellence in the Nature and Wildlife category. The video was produced by ARTWORK, Inc. and funded by NOAA's [Coral Reef Conservation Program](#) through a grant to the SAFMC, in conjunction with the North Carolina Museum of Natural Sciences in Raleigh, and the [University of North Carolina Wilmington's](#) Center for Marine Sciences. Highlighting the diverse and fragile deep-sea coral and sponge communities, the video includes exciting footage of the continental shelf and slope off the southeastern United States as filmmakers follow Dr. Steve Ross and his team of scientists exploring places never before seen by humans.

**Beneath the Blue Recognized by Science Daily.** *Science Daily* recognized NOAA and its partners for their groundbreaking work in the high-definition film, *Beneath the Blue*, which documents "previously unstudied and diverse habitats and their associated marine life" off the southeastern coast of the United States. NOAA, through the [NOAA Undersea Research Program's](#) Center at the [University of North Carolina Wilmington](#), the [Office of Ocean Exploration and Research](#), and the [National Marine Fisheries Service](#), in partnership with the [U.S. Geological Survey](#), [North Carolina Museum of Natural Sciences](#), the State of North Carolina, [South Atlantic Fishery Management Council](#), the [Environmental Defense Fund](#), and the [Minerals Management Service](#) "conducted a series of expeditions to deep-sea coral habitats on the continental slope off the east coast from North Carolina to central Florida, in an area known as the Blake Plateau." NOAA researchers "discovered that a number of animals thought to be rare are common around the corals, documented many animals outside of their previously known ranges, and discovered a number of new species

## Did You Know?

On June 2, President Bush issued a **Proclamation** designating June 2008 as National Oceans Month in recognition of the important role that oceans have played in our heritage, economy, and recreation. Follow the link above to read the full text of the proclamation.

## Updates from Headquarters

**Coral Highlighted During 8<sup>th</sup> Annual CHOW.** [Capital Hill Ocean's Week](#) (CHOW) is an annual event sponsored by the [National Marine Sanctuaries Foundation](#) to bring together policy makers, ocean scientists, resource managers and other stakeholders to discuss key issues affecting the health of our marine resources. [CHOW 2008](#) was a three-day event that focused on climate. The Coral Reef Conservation Program participated as an exhibitor during the event, and coral was a featured topic on June 4. As a part of NOAA's International Year of the Reef 2008 (IYOR 2008) efforts, the US Coral Reef Task Force (USCRTF) submitted a proposal to host a decisions maker forum in partnership with NOAA during this event. The forum, held on June 4, broadened Congressional interest on coral reef conservation policy and funding decisions. The panel was designed to educate congressional staff; illustrate innovative, collaborative approaches; and engage hill staff in a dialogue on potential congressional avenues that will impact decisions that affect coral reef ecosystems. The panel began with a focus on

global issues facing coral reefs, including climate change, and then narrowed to local issues and solutions including socio-economic aspects of coral reef conservation. NOAA Deputy Assistant Secretary Tim Keeney and Representative Brian Baird (D-WA) provided opening remarks. Dr. Sylvia Earle gave the keynote address



for a panel moderated by Dr. Mark Eakin, of NOAA Coral Reef Watch. Panel members included Dr. Nancy Knowlton from the Smithsonian Institution, who framed the global and local threats facing coral reefs; Dr. Lara Hansen, from EcoAdapt, who addressed global climate change impacts on reefs; Dr. Rod Salm, from The Nature Conservancy, who addressed managing for resilience; and Dr. Billy Causey, from NOAA's Office of National Marine Sanctuaries, who highlighted the economic and ecological value of reefs. The panelists recognized there (*continued on page 4*)



The **International Year of the Reef (IYOR) 2008** is a worldwide campaign to raise awareness about the value and importance of coral reefs and threats to their sustainability, and to motivate people to take action to protect them.

**Are you or your organization participating in events for IYOR 2008?**

**Want to learn more about what you can do to support the goals of IYOR 2008?**

**Download free educational ads [here](#).**

**Be an agent of change: Every act counts.**



**The 11th ICRS, with the theme of Reefs for the Future, will be held in Ft. Lauderdale, FL, July 7-11, 2008. The 11th ICRS is also a key-stone event within the [International Year of the Reef \(IYOR\) 2008](#).**

## Headquarters continued...

is little scientific debate regarding the major threats affecting coral reef ecosystems and called for meaningful action as the impacts of climate change are moving faster than our current legislation, policies, and management actions. Rep. Baird provided very powerful remarks calling all of us to action, recognizing that we need to make political, economic, and personal sacrifices and take the opportunity to influence the future health of coral reefs and our planet. The session was very close to reaching its capacity of 160 guests.

In addition, the USCRTF and nine NGO partners, led by the World Wildlife Fund, hosted a reception to celebrate IYOR 2008 and to recognize partners in coral reef conservation. Delegate Madeleine Bordallo (D-GU), chair of the House Natural Resources Committee's Fisheries, Wildlife and Ocean Subcommittee gave the keynote and closing remarks at the reception.

### Student Projects in the Limelight During NOAA Waterways Student Conference.

On June 2<sup>nd</sup>, scientists and educators from the [National Ocean Service's National Centers for Coastal Ocean Science](#), [Coral Reef Conservation Program](#), and [Special Projects Office](#) recently reviewed group projects presented by fifth, sixth, and seventh grade students from three schools in Maryland and Virginia. Thirty-five students presented their projects at the second annual NOAA Waterways Student Conference held in Silver Spring, Maryland. The NOAA WaterWays project promotes and supports the incorporation of NOAA mathematics, science, engineering and technology (STEM) content into classrooms through investigations and multimedia challenges. The project also supports teachers in the development of Problem Based Learning (PBL) modules around NOAA resources. This year, most teachers selected Adopt a Reef: Threatened Ecosystems as the PBL module their students would complete. In this PBL, students investigated why coral reefs are in danger. Selecting a coral reef

within a U.S. National Marine Sanctuary, students studied how the physical, geological, chemical and biological ocean parameters affect coral ecosystem and the affects humans have on coral reefs. Working in teams, students developed a multimedia product and/or an action plan to help save coral reefs. During the event, the students confidently and proudly presented the result of their work to each other and later to various teams from NOAA. Most students focused on various ways that they can contribute to help reefs. In turn, NOAA coral reef researchers gave presentations on their experiences doing field research and what is involved in becoming an ocean scientist. The participating staff was highly impressed with the quality of work presented and the level of understanding demonstrated by these young students

### Coral Highlighted on NOAA.gov Homepage.

Each month, NOAA highlights a different cross-agency theme on its [home page](#); June's theme was climate services. The goal was to provide information on services that NOAA is currently providing, as well as information on future services. As one of five feature articles, [Coral Reef Watch](#) was asked to submit content on the use of NOAA satellites to predict where conditions are conducive to coral bleaching and to highlight its expanded [Satellite Bleaching Alerts](#) that provide researchers and resource managers with advance warning that a bleaching event may occur. Many shallow water corals currently live in environments close to the maximum temperature they can withstand. Coral bleaching is associated with a variety of stresses, including increased sea surface temperatures, which cause corals to expel the pigmented symbiotic microalgae living in their tissues, and thus appear completely white. Bleaching can lead to the death of affected corals; warmer water temperatures are also believed to play a role in increased widespread incidences of coral diseases. The article is archived [here](#). July will feature a story in this same venue on the economic value of reefs.

## Updates from the Atlantic/Caribbean Region

**Dry Tortugas 2008 Research and Monitoring Cruises Completed.** In the past, multiple agencies have carried out independent reef fish monitoring efforts in the Florida Keys coral reef ecosystem, resulting in duplication of effort and limited data sharing between agencies. In October 2007, representatives from NOAA's [South-](#)

[east Fisheries Science Center \(SEFSC\)](#), the [University of Miami's Rosenstiel School of Marine and Atmospheric Science \(UM-RSMAS\)](#), and the [Florida Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute \(FWRI\)](#) agreed to initiate cooperative annual reef fish monitoring and (*continued on page 5*)

## Atlantic/Caribbean continued...

data-sharing efforts for the region. The cooperative monitoring approach has been initiated and will result in a considerable increase in the number of sites that are surveyed annually, and thus a considerable increase in system-wide monitoring effectiveness. The first collaborative effort was completed in the Dry Tortugas in May.

Extensive reef fish, marcoinvertebrate and coral reef habitat data were collected during a 20-day two-part biennial research survey cruise to the Dry Tortugas aboard the NOAA research vessel *MV Spree* in May and June 2008. The [Coral Reef Conservation Program](#)-supported research and monitoring efforts were a multi-agency collaboration, with participation from SEFSC, the UM-RSMAS, Florida FWC, the [National Park Service](#), and the [University of North Carolina Wilmington](#), and with support from the [Florida Keys National Marine Sanctuary](#) (FKNMS). Data were collected across multiple management zones, including within [Dry Tortugas National Park](#), the FKNMS North Ecological Reserve, and in an area of the Tortugas Bank that is open to fishing. Data collected during the surveys support assessment of spatial management efforts, temporal trends in reef fish populations, essential fish habitat studies, recovery from hurricane impacts, and other aspects of ecosystem-based approaches to management. The cruise also incorporated a Media Day. The University of Miami hosted the event during which a large group of TV and Print media reporters from national and international organizations were given the opportunity to talk with scientists and to experience the Tortugas first hand. For more information, read the [Miami Herald](#) and [CBS4](#) articles, or view the [France 24](#) broadcast.

**Field Work Characterizes Agrochemical Pollution in Jobos Bay, Puerto Rico.** The [Center for Coastal Monitoring and Assessment's Coastal Oceanographic Assessment, Status and Trends and Biogeography](#) Branches, in cooperation with the [Jobos Bay National Estuarine Research Reserve](#) (JBNERR) and the [U.S. Department of Agriculture](#) (USDA) completed a field mission in Jobos Bay, Puerto Rico. Data were collected during this field mission to assess the presence and spatial distribution of sediment contaminants within the JBNERR boundaries and in surrounding environments. The sediment contaminant assessment contributes to a multi-agency partnership to evaluate the effectiveness of agricultural best management practices on reducing the flux of agrochemicals, among many

### Tortugas Mission: Fun Statistics

In 20 days of operation in the Dry Tortugas region, the 38 science research divers on board the *M/V Spree* conducted 1,710 research dives or surveys, a new record for this recurring mission!

This means that on average, the divers collectively completed an average of 86 dives per day!

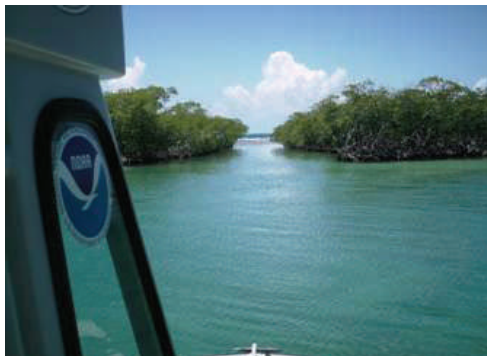
In total, they collectively accumulated 1,109.4 hours of bottom time. In other words, they spent the equivalent of 46.23 full days underwater!

To do this, the divers used 2,691,740 cubic feet of 36% Nitrox gas. That is the equivalent volume of 26.9 hot air balloons (capacity 3-5 passengers)!

The cumulative depth of all 1,710 dives was 18.91 miles (or 99,876 feet). Forget 20,000 leagues under the sea; that's equivalent to 1.53 times the distance from the bottom of the Mariana's Trench to the top of Mount Everest!

All told, the team surveyed 229,348 square meters (m<sup>2</sup>) of coral reef habitat in the Tortugas region; that is 4.23 times the total land area of the State of Florida! Of that total, the surveys included 221,788 m<sup>2</sup> of fish habitat, 6,120 m<sup>2</sup> of lobster habitat, and 1,440 m<sup>2</sup> of coral-benthic habitat.

additional organic and trace metal contaminants, into the bay. The [Conservation Effects Assessment Project](#) (CEAP) is led by USDA [Natural Resources Conservation Service](#) and includes contributions from USDA [Agricultural Research Service](#), [U.S. Geological Survey](#), [U.S. Environmental Protection Agency](#), Puerto Rico Department of Natural and Environmental Resources (DNER) and other local partners.



**Jobos Bay NERR vessel *Estuarino* during sediment sampling.** Courtesy: CEAP

**Long-Term Coral Transplant Experiment Initiated.** With a host of partners, including the [Florida Keys National Marine Sanctuary](#) (FKNMS) and the (*continued on page 6*)



**TAKE ACTION!**  
Sign the [International Declaration of Reef Rights](#) and the [pledge to Protect Ocean Life During International Year of the Reef](#).

While you're online, send your friends one of three free IYOR-themed [E-cards](#).

## Every Act Counts

The Ocean Floor is Not a Dance Floor.

Coral reefs are alive. Stirred-up sediment can smother corals, and each inch of reef can take decades to redevelop once broken. Divers and snorkelers can do their part by maintaining proper buoyancy control, never touching reefs and spreading the word about coral reef stewardship.

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.

## Atlantic/Caribbean continued...

[NOAA Undersea Research Program/University of North Carolina Wilmington](#), the [Southeast Fisheries Science Center](#) recently completed a three week effort, supported by the [Aquarius Reef Base](#), to establish a long term coral transplant experiment entitled Aquarius Coral Restoration/Resilience Experiments (ACRREs). The experiment is designed to increase our understanding of why and how some corals may perform much better as transplants than others by testing the performance/resilience of corals from different sources. Four Aquanauts participated in this saturation diving mission.; they transplanted 378 coral fragments of two reef-building species, *Acropora cervicornis* (listed as Threatened under the Endangered Species Act) and *Montastraea faveolata*, from seven source to a 'common garden' at Aquarius. Source populations include healthy wild colonies from nearby reefs, rescued corals from far-away reefs, and corals that have been cultured in aquaria or field nurseries. Each transplant will be evaluated in many different ways to understand how their genetic or physiological status may determine their resilience over long-term disturbance cycles. The results of this study will help scientists and reef managers to plan, permit, and execute coral rescue and transplantation/ restoration project more effectively. Related outreach and media products include a live aquanaut interview and feature story on Miami's [NBC6](#) news and the online [mission log](#). In addition, live Web camera video was available during the mission.

**Race to the Reef: Acoustic Tracking of Sub-adult Reef Fish Migrations from Estuary to Coral Reef.** As part of the "Race to the Reef" project's significant education outreach component, and in order to introduce the project to the greater community, researchers recently gave two informative and lively presentations. One was given at the public session of Loxahatchee River Watershed Symposium, and one during the monthly meeting of Friends of the Loxahatchee, a grass-roots conservation group. The presentation entitled, "Race to the Reef: Tracking Reef Fish from Open Ocean to Nursery Habitats to Coral Reefs and Back Again" was attended by over 200 people from the local community. The presentations detailed results to date that suggests juvenile mangrove snappers, which are associated with coral reef habitat as adults, tend to move towards marine waters in association with increased freshwater flows in the late spring. These same reef fish utilize sub-tidally inundated mangrove habitat as essential fish habitat in the estuary when compared with man-made habitats and inter-tidal



**Juvenile mangrove snappers await acoustic tagging for the 'Race to the Reef' project. Courtesy: NOAA Southeast Fisheries Science Center**

mangroves. The project's outreach efforts emphasize the message that coastal lagoons and mangrove habitats support healthy coral reefs.

At the end of May, field work associated with the core "Race to the Reef" project was begun with the acoustic tagging of 44 sub-adult mangrove snappers. The snappers were caught in sub-tidal mangrove habitat and released in the Loxahatchee Estuary, approximately one mile from the coastal inlet leading to the off-shore coral reef. Additionally, the main inlets and outlets to the central embayment where the fish were tagged have been acoustically gated so that when a tagged fish leaves the estuarine nursery areas and heads out to the offshore coral reef habitats, the movement will be recorded and logged for future analysis. Researchers predict that many of these tagged fish will move out of the mangrove habitat and out to the reef this summer during peak spawning season. This effort included participation by three graduate students and two undergraduate interns. The data and results of the mangrove snapper movements from "Race to the Reef" are mapped on the project's interactive [Web page](#) for the community to access and discover more about marine ecosystem connectivity. Local resource managers continue to support and participate in this project.

**Consequences of Map Resolution on Coral Reef Studies Quantified to Improve Science and Management.** Seafloor maps are important tools for research, ecological forecasting, integrated ecosystem assessments, and informed management of coral reef ecosystems. Newly-processed data are (*continued on page 7*)

## Atlantic/Caribbean continued...

enhancing coastal managers' evaluation of mapped bottom types within existing marine protected areas (MPAs), informing the design of new MPAs, and improving the use of benthic maps in change analysis and forecasting by scientists. Scientists from NOAA's [National Centers for Coastal Ocean Science](#) and the [University of Maryland](#) have quantified the influence of spatial

resolution, the size of smallest mapped features, and categorical resolution, the number of feature types, on maps of coral reef ecosystems. The results, which were published in the April 2008 issue of *Marine Geodesy*, will be used to guide creation of the next generation of reef ecosystem maps for use by coastal managers and scientists in all U.S. states and territories.

## Updates from the Pacific Region

**Monument Research Cruise to the Northwestern Hawaiian Islands Completed.** A 25-day [Papahānaumokuākea Marine National Monument](#) (Monument) cruise aboard the *Hi'ialakai* returned from the Northwestern Hawaiian Islands (NWHI) earlier this month. The cruise made stops at French Frigate Shoals, Pearl and Hermes Atoll, Kure Atoll, Midway Atoll, and Kaula Rock. A group of 19 scientists from the Monument, the [University of Hawaii](#), and a [National Geographic](#) high-definition video crew safely completed nearly 600 dives under sometimes challenging ocean conditions and at depths of up to 130 feet. Research activities included genetic studies of coral reef fish and invertebrate connectivity, tagging studies of Galapagos and tiger sharks, characterizations of crustose coral-line algae assemblages, and studies of the relationship between bacterial and dinoflagellate symbionts of corals and susceptibility of corals to disease and bleaching.

National Geographic videographers captured footage of rare Hawaiian endemic fishes, as well as sequences of scientific divers conducting their



**National Geographic HD videographer Adam Geiger filming a 14' tiger shark being implanted with an acoustic tag at French Frigate Shoals.**  
Courtesy: Randy Kosaki

studies underwater, for a full-length documentary on the NWHI. In addition, a Monument Research Specialist escorted the team around Sand Island, where they filmed Laysan Albatross adults and chicks, and documented the plastic ingestion problems that plague the species. Watch for the National Geographic Television special this fall.

**Super Sucker to Become Operational, Improve Coral Reef Health.** Kane'ohe Bay provides numerous marine resources, including coral reef communities, which have commercial, subsistence, and recreational uses. Government, scientists, non-governmental organizations, and citizens are working together to develop unique solutions for saving coral reefs being smothered by invasive algae. The Hawai'i State Legislature has budgeted roughly \$256,000 for the operation of an underwater vacuum, the "Super Sucker," that removes invasive algae from coral reefs. Researchers supported by NOAA's National Centers for Coastal Ocean Science helped develop this tool, and now increased funding from the state will allow for full-time application of the Super Sucker to manage coral reef threats. Currently, Kane'ohe Bay in Honolulu, Hawaii has one of the worst invasive algae problems in the Islands, with overgrowth of algae choking coral reefs. This innovative, yet disarmingly logical approach, works by having divers feed algae into a vacuum tube that then deposits the algae onto a barge where it can be sorted by workers to return any incidentally sucked up animals and water to the sea. The algae is then recycled and used as a fertilizer for taro crops. The Super Sucker is run by a partnership between the [Hawai'i Department of Land and Natural Resources](#), [The Nature Conservancy](#), and the [University of Hawai'i](#). For additional information, read the *Honolulu Advertiser* [article](#).

(continued on page 8)

### IYOR PSAs

A free [IYOR PSA](#) related to the U.S. Messaging Campaign's main message was added to the national broadcast rotation for all Discovery TV Networks on June 19; it will run through the end of 2008.

The English version is 15 seconds; the 30 second Spanish version is in national broadcast rotation on the Discovery Channel Latina.

PSAs for each of the five action messages are also available on the Web page listed above.



**Coral Reefs support more species per unit are 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



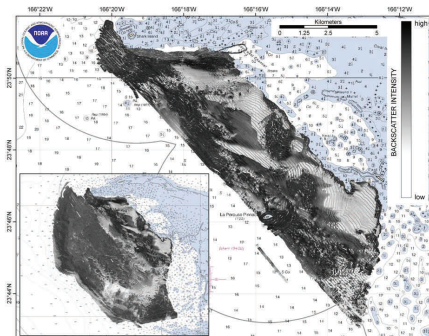
### Be a Reef-Hugger

As the Summer boating and diving season continues, please make a point to **ALWAYS** use a mooring buoy or anchor away from reefs and sea grass beds.

## Pacific continued...

**Marine Debris Removal in the Pacific.** In partnership with the [United States Coast Guard \(USCG\)](#), three scientists from the [Pacific Islands Fisheries Science Center's Coral Reef Ecosystem Division \(CRED\)](#) organized and directed operations for an 18-day marine debris recovery mission aboard the U.S. Coast Guard cutter *Walnut*. During this 2,900-mile cruise to the [Papahānaumokuākea Marine National Monument](#), CRED and USCG personnel removed 16.4 tons of debris from Maro Reef and 12.2 tons of land-based debris from Midway Atoll. The ship returned to port on June 6. With the addition of these 28.6 tons of material, more than 510 metric tons of debris has been removed from Monument waters and beaches since 1996.

**Collaborative cruise to French Frigate Shoals.** In May 2008, [Pacific Islands Fisheries Science Center's Coral Reef Ecosystem Division \(CRED\)](#) personnel led a 28-day benthic habitat mapping cruise aboard the NOAA Ship *Hi'iialakai* in the [Papahānaumokuākea Marine National Monument \(Monument\)](#). Three scientists from the [National Centers for Coastal Ocean Science's Biogeography Branch](#) and the Monument joined nine CRED staff in work that included multibeam mapping, towed camera deployments, and diving. The scientific foci of the cruise were completion of multibeam mapping at French Frigate Shoals (FFS), validation of bottom types, and identification of alien invasive species. Despite early problems with sonar and small boats, the cruise proved very successful in achieving all of these goals. Of particular note was the successful effort to determine what parameters, such as grain size and depth of sand, most affect the acoustic signature



**Multibeam backscatter data collected at French Frigate Shoals; in general the lighter areas correspond to softer bottom, while the darker areas indicate harder substrates. Courtesy: NOAA Coral Reef Ecosystem Division**

of the multibeam backscatter data. This clarification will advance habitat mapping; researchers can now document from direct diving observations what backscatter signatures correspond to specific bottom types such as sand, gravel, or coral at FFS.

**Community-based PLA Workshop Held in American Samoa.** Participatory, Learning and Action (PLA) is a community action program that engages all sectors of the community, especially women and youth. It guarantees the sustainability of development by ensuring wider participation and capacity building at the community level. The PLA program started in 2005 with workshop trainings for village mayors and selected resource agencies. PLA was then used for a Community-based Marine Protected Area (MPA) workshop in 2006 to assist the MPA villages with identification of issues and challenges in their community-based program, and discusses potential actions that will help support their management efforts. The PLA in the Territory is coordinated in collaboration with local resource agencies and the [Coral Reef Advisory](#)



**Participants at the Tula Wetland PLA Workshop. Courtesy: Fatima Sauafea-Leau**

[Group](#), a local conservation group. The American Samoa Community-based Wetland PLA Workshop was conducted from May 20<sup>th</sup>-21<sup>st</sup>, for the village of Tula. Tula is one of the many villages with a wetland area that is now co-managed and protected by both the village community and the Coastal Management Program under the American Samoa Department of Commerce. The main goals of the Wetland PLA workshop were to raise awareness, promote stewardship, and build village capacity in planning, facilitating, and coordinating projects and activities to improve their resources. In addition, the workshop helped the village community to design and implement a Community Action Plan that will guide them in developing management activities to support their co-management



## International Updates

**CRW Instructor Participates in Central America Climate Camp.** Central America [Climate Camp](#) was a three-day program to help conservation practitioners and resource managers learn more about the basics of climate change, interact with experts and peers, and work together to develop adaptation strategies. Unlike past Climate Camps, this program also included journalists and communication officers who were interested in gaining more knowledge about science behind climate change to better inform the public on the issues and potential solutions. The camp was hosted in Belize City, Belize, May 28-30, by the World Wildlife Fund (WWF). A [Coral Reef Watch](#) (CRW) staff member attended as an instructor to help the campers learn about remote sensing and coral bleaching. This Climate Camp attracted over 60 participants from across Central America, in-

cluding representatives of Belize, Guatemala, Costa Rica, Mexico, and Honduras as well as from the US, Australia, and England.



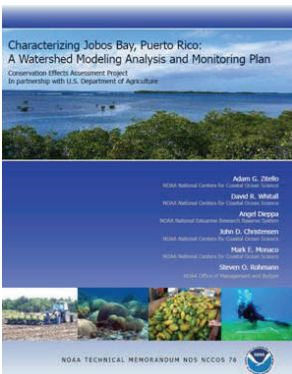
**Central America Climate Camp participants listen to presentations and work on their adaptation strategies for individual projects. Courtesy: Gilda Aburto, WWF**

## Publications

**Collaboration Results in Ecological Characterization to Improve Management of Land-based Sources of Pollution in Puerto Rico.** The [National Centers for Coastal Ocean Science](#), in cooperation with the [Coral Reef Conservation Program](#) and the [U.S. Department of Agriculture](#) (USDA), has published a report that characterizes potential land-based sources of pollution to the coral reef ecosystem of the [Jobos Bay National Estuarine Research Reserve](#) (NERRS) in Puerto Rico. *Characterizing Jobos Bay, Puerto Rico: A Watershed Modeling Analysis and Monitoring Plan* provides an initial screening of areas on the landscape that may exert the greatest stress on the coral reef ecosystem from sedimentation and pollution. In addition, the report includes a description of the monitoring efforts being conducted by NOAA and local NERRS staff in the estuary. The publication is a component of a larger cooperative project led by [USDA Natural Resources Conservation Service](#) and including contributions from [USDA's Agricultural Research Service](#), the [U.S. Geological Survey](#), the [U.S. Environmental Protection](#)

[Agency](#), Puerto Rico's Department of Natural and Environmental Resources (DNER) and other local partners. The [Conservation Effects Assessment Project](#) (CEAP) assesses the effectiveness of agricultural best management practices in the watershed. The report is available on the CEAP Web page in their 'Products' section.

**Buck Island Reef National Monument Report to Improve Future Management Efforts.** NOAA's [National Centers for Coastal Ocean Science](#) (NCCOS) recently released a 'seascape characterization' report which will help natural resource managers conserve and protect the coral reef ecosystem of [Buck Island Reef National Monument](#) and the surrounding seascapes of northeastern St. Croix in the U.S. Virgin Islands (USVI). In turn, these efforts will help protect the local economies which rely on the coastal ocean for tourism as well as fishing. The report, *Fish Assemblages and benthic habitats of Buck Island Reef National Monument (St. Croix, U.S. Virgin Islands) and the surrounding seascape: A characterization of spatial and temporal patterns* (pdf, 12.9 mb), is the result of a project integrating field data on coral condition, living marine resources, and benthic habitats. This is done through an ongoing collaboration between NCCOS, the [Coral Reef Conservation Program](#), the [U.S. National Park Service](#), and the USVI [Department of Planning and Natural Resources](#).



Subscribe to NOAA  
Coral Reef News, the  
monthly e-newsletter of  
NOAA's Coral Reef  
Conservation program .

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 sup-  
ports effective  
management and  
sound science to  
preserve, sustain  
and restore valu-  
able coral reef  
ecosystems.*



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