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monthly e-newsletter of  
NOAA's Coral Reef  
Conservation program.

# Coral Reef News



## INSIDE THIS ISSUE:

**From the Desk of the Program Manager**

**Announcements:** 1

**Upcoming Events:** 2

**Updates:**

**Headquarters** 3

**Atlantic/Caribbean** 3

**Pacific** 5

**International** 7

**New Data in CoRIS** 7

**Publications** 9

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

Volume 6, No. 8

May 2009

## From the Desk of the Program Manager



Hello, everyone. Earlier this month, the CRCP hosted the Caribbean Coral Reef Ecosystem Integrated Observing System (CREIOS) Workshop in San Juan, Puerto Rico. This workshop was part of the CRCP's strategic planning effort to strengthen the link between science and

management goals. More than 25 representatives from local agencies in Florida, Puerto Rico, and the U.S. Virgin Islands attended, as well as staff from the Florida Keys National Marine Sanctuary; the Flower Garden Banks National Marine Sanctuary; the Fisheries Management Councils of the South Atlantic, Caribbean, and the Gulf of Mexico; the U.S. Environmental Protection Agency; and the Department of the Interior. NOAA scientists participated alongside the managers in

order to discuss technical and scientific capabilities and understand location-specific needs. Like the Pacific CREIOS Workshop of last fall, the purpose of this workshop was to hear from the coral reef managers what their mapping and monitoring needs are and to promote improved communication between the management and scientific communities. The needs of coral reef managers in the Pacific and the Caribbean are similar: high resolution mapping, nearshore hydrography, improved watershed models for island topographies, and applied research, just to name a few. As in the Pacific, we also heard a big need to translate the data into informational products that are more immediately useable by the management community. I think this translation is an important role the CRCP can help fill.

I would also like to remind everyone that the CRCP's Goals and Objectives and International Strategy will be released in June, so stay on the lookout for those.

-Kacky

## Announcements

**Coral Reef Management Fellowship Application Call for 2010-2012.** The Coral Reef Management Fellowship program provides the U.S. state and territorial coral reef management agencies with highly qualified candidates whose education and work experience meet each jurisdiction's specific needs, while providing the individual fellows with professional experience in coastal and coral reef resource management. On June 1, the Fellowship program will open the two-month application period for the 2010-2012 Fellowships. Statements of Work for each jurisdiction will be posted online that day; instructions for applying, as well as other background information, are already available on the [Coral Fellowship Program Web page](#). Please note that the program has expanded to recruit a fellow for Florida for the first time in the 2010-2012 cycle.

## New Coral Bleaching Alert Area Product Available.

Climate change has been identified as one of the most severe threats currently facing the world's coral reefs. When exposed to sustained high sea-surface temperatures (SST), corals have been observed to expel their symbiotic algae en masse. The polyps of the coral are left bereft of pigmentation and appear nearly transparent on the animal's white skeleton. This phenomenon is normally referred to as coral bleaching, and it can kill the coral or make it more susceptible to other stressors, such as coral disease. Abnormal sea surface temperatures, in conjunction with other anthropogenic and natural stressors, are causing the delicate balance of these magnificent ecosystems to be disrupted, thus increasing the frequency of bleaching events. (continued on page 2)

## UPCOMING EVENTS

### May

**29:** Final Goals & Objectives documents due from CRCP Threat-based Working Groups

### June

**1:** Recruitment begins for 2010-2012 [Coral Reef Management Fellowship](#) positions

**8:** [World Oceans Day](#)

**9-11:** [Capitol Hill Oceans Week: 'The BLUE Economy: Understanding the Ocean's Role in Our Nation's Financial Future'](#), Washington, D.C.

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

### July

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

**19-23:** [Coastal Zone 2009 - Boston, MA.](#)

**31:** Application deadline for 2010-2012 [Coral Reef Management Fellowship](#) positions

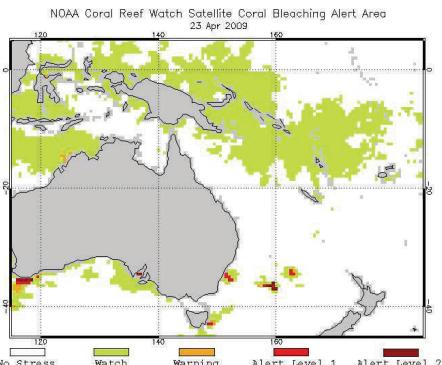
### September

**21-25:** [OceanObs'09 Conference: 'Ocean Information for Society: Sustaining the Benefits, Realizing the Potential'](#), Venice, Italy

### November

**2-5:** 22nd U.S. Coral Reef Task Force Meeting, San Juan, Puerto Rico

## Announcements continued...

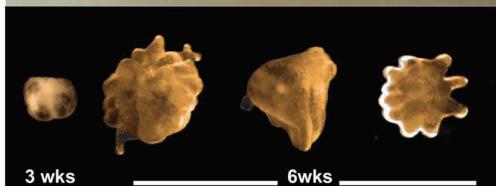


**BAAP showing extensive current bleaching watch area in the Coral Triangle and northwestern Australia. Courtesy: NOAA Coral Reef Watch**

The NOAA [Coral Reef Watch](#) (CRW) satellite twice-weekly 50 km global coral [Bleaching Alert Area Product](#) (BAAP) outlines areas where bleaching thermal stress has accumulated to sufficient levels to result in concern that coral reefs may potentially bleach. This product is the newest addition to CRW's satellite SST-based product suite. New color-coded bleaching alert area maps combine information on five bleaching thermal stress levels – No Stress, Bleaching Watch, Bleaching Warning, Bleaching Alert I, and Bleaching Alert 2 – from the existing [Hot-Spot](#) and thermal stress [Degree Heating Weeks](#) products. This provides resource managers and other users with a more rapid way to assess threats to coral reefs that previously were found on multiple maps. The BAAP is an additional global tool to provide resources managers with the easily accessible information to better understand current conditions on their reefs.

**Laboratory Coral Propagation Technique Provides New Technology for Coral Conservation.** In an effort to establish a source of genetically identical coral specimens for experimental research by the CRCP and its partners, scientists from the [National Centers for Coastal Ocean Science](#) (NCCOS) and the [Coral Disease and Health Consortium](#) (CDHC) are adapting microsurgery techniques for propagating corals from tissue explants. Training in these techniques was conducted at the Coral Culture and Collaborative Research Facility at the NCCOS Center in Charleston, S.C. The training was part of a collaboration with scientists from the [University of Tel Aviv](#) and [Haereticus Environmental Laboratory](#); scientists from the two institutions developed the microsurgery process. Introduction of this new technology should lead to a significant reduction in dependence on

corals harvested from the wild and improve experimental research by using genetically similar research animals. Propagating coral for research animals is a proactive conservation alternative to damaging reefs by collecting wild specimens.



**Top:** Fungia tissues were micro-surgically dissected as part of a new propagation technique. **Bottom:** Figure depicts the progress in the morphogenesis of tissue into the early polyp stage. Courtesy: Lisa May, NOAA Center for Coastal Environmental Health and Biomolecular Research/Coral Disease and Health Consortium

### Mariana Monitoring Report Maps Available for Review.

In partial fulfillment of the [Pacific Islands Fisheries Science Center Coral Reef Ecosystem Division's](#) (CRED) commitment to provide timely access to information products generated from the data collected during its biennial Mariana Archipelago Reef Assessment Monitoring Program (MARAMP) surveys, the office is hosting electronic copies of 666 maps and other figures of the coral reefs and coral reef resources around each of the islands in Guam and the Commonwealth of the Northern Mariana Islands. By offering these figures for review, CRED will provide key management partners with the opportunity to comment on drafts of the 'Coral Reef Ecosystem Monitoring Report for the Mariana Archipelago: 2003–2007' during the development of the document. To view or download these figures, please contact [Joyce Miller](#).

## Updates from Headquarters

**NOAA/NSTA Host Web Seminar on Coral Bleaching.** NOAA staff, in partnership with the [National Science Teachers Association](#) (NSTA), offered a free [Web seminar](#) on April 30 on the topics of coral bleaching and climate change. Presenting the topic was Dr. Mark Eakin, a scientist with NOAA's [Coral Reef Watch](#), along with support from the NOAA [National Ocean Service Education Office](#), NSTA staff, and other staff from the NOAA [Coral Reef Conservation Program](#). In this program, Dr. Eakin talked about coral bleaching and the death of large areas of corals reefs that have been associated with this phenomenon. He also presented data that showed global climate change as the cause of the problem and mentioned

specific behaviors that all individuals can engage in to help slow the destruction of this critical resource.

This Web seminar reached 51 teachers and other individuals from 17 states and three countries; the Web seminar format allowed Web participants to interact directly with the presenter in real time. Seminar participants received a one year subscription to one of NSTA's SciGuides. This was the second of two '[The Heat is On! Climate Change and Coral Reef Ecosystems](#)' Web Seminars scheduled as a follow-up to the symposium by the same name that took place at the [NSTA National Conference](#) in New Orleans in March.

## Updates from the Atlantic/Caribbean Region

**Conch Research Indicates Positive Effects of USVI Reserve.** Queen conch field research was conducted May 3-16 on St. John, U.S. Virgin Islands (USVI) by scientists from the [Southeast Fisheries Science Center](#)-Galveston. Using sonic tracking and tag-and-recapture methods, they are conducting a project to monitor population size, habitat use, size-dependent movements, growth, survival, and migration rates in bays within and adjacent to the [VI National Park](#) and the no-take [VI Coral Reef National Monument](#). Intensive tagging continued with 244 recaptures and 516 newly tagged conch during this mission, bringing the overall project total to 3579 tagged conch. Recapture rates of conch within the no-take areas were remarkable, ranging from an average of 33% in the three bays, compared to rates of 24% within and 16-22% outside park waters. High recruitment was evidenced by the number of 1-1 ½ year-old conch encountered. These are early indications of beneficial effects of the reserve. Continued work in the Monument will provide further, and more conclusive, comparisons of population status in fished and non-fished areas.

**Reef Assessment Cruise Advances Coral Reef Conservation at Navassa.** Researchers from NOAA's [Southeast Fisheries Science Center](#) and partners have completed the fourth CRCP-funded reef and fishery assessment cruise to [Navassa Island National Wildlife Refuge](#) aboard the [NOAA Ship Nancy Foster](#) from April 24-May 7. Partners included the [University of Miami](#), the [U.S. Fish and Wildlife Service](#), and the [Fondation pour la Protection de la Biodiversité Marine](#) (FoProBIM), a marine conservation non-governmental organization based in Haiti.

Researchers conducted reef fish visual census at 69 stratified random sites with photo-quadrats at 36 of these sites to characterize benthic cover. Among these random sites, invasive Pacific lionfish were observed at three, while only seven were observed to host colonies of Endangered Species Act (ESA) listed [staghorn coral](#). At those seven sites, the staghorn colonies were small and isolated. Of the almost 29,000 individual fish recorded in visual censuses, only 15 individuals were of large grouper species such as Nassau, yellowmouth, and hind. In addition, permanently tagged ESA (*continued on page 4*)



**Left:** Scientists measure and identify the catch of Haitian fishermen. **Top right:** Elk-horn coral recruit observed that is approximately 21 months old. **Bottom right:** Invasive lionfish captured during reef fish visual census. Courtesy: NOAA Southeast Fisheries Science Center



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



**Be a Reef-Hugger**

Corals are already a gift. Don't give them as presents.

## DID YOU KNOW...

**Recruitment for the 2010-2012 term of NOAA's Coral Reef Management Fellowship will begin in June 2009.**

Learn more by visiting the Fellowship's [Web page](#).

"There is truly no other job out there like the Coral Management Fellowship.... I have the luxury of working directly with both people and the natural resources themselves. To me the Coral Fellowship is a proverbial 'dream job.'"

## Atlantic/Caribbean continued...

listed [elkhorn coral](#) colonies were re-surveyed and all colonies along the southwest coast were mapped. This population of elkhorn remains in excellent condition. Reef temperature data was also retrieved from two logging sensors deployed in 2006.

For the first time, the project, in collaboration with FoProBIM, was able to obtain pilot catch data from the Haitian fishers who frequent Navassa waters. Two boat-days worth of catch were identified and measured, allowing researchers to gather information about catch per unit effort. As another project first, real-time documentation of the cruise was provided by a [Web log](#) which garnered over 700 unique visitors during the course of the cruise. Monitoring, assessment, and mapping products from this project are used by managers at the Navassa Island National Wildlife Refuge and the [Caribbean Fishery Management Council](#).

**Coral Reef Ecosystem Assessments to Improve with New Sonar Technologies.** A recent cruise by NOAA's [National Centers for Coastal Ocean Science](#) (NCCOS) to charac-

terize coral reef habitats near Vieques Island, Puerto Rico featured a demonstration of equipment and software to test new capabilities of a multi-beam sonar system. Application of these new tools will enhance researchers' ability to interpret habitat use by reef fishes and increase the accuracy of distribution and abundance estimates for fishes that form large schools, such as schooling prey species or spawning aggregations. Data were collected simultaneously using a scientific echo sounder (split-beam fisheries sonar) on the [NOAA Ship Nancy Foster](#) and a remotely-operated vehicle to groundtruth the observations. The split-beam system provided data on specific water column targets in two dimensions. The multi-beam sonar provided three-dimensional data on size, shape, and movement of fish schools, in addition to the high resolution bathymetric and habitat maps. Collection of water column data with multi-beam sonar increased insight into distribution, abundance, and movements of fishes in relation to coral reef habitats. Click [here](#) to view an example of the 3-D fish and bathymetry data. For more information about the cruise, visit the online [Cruise Updates](#).

## Updates from the Pacific Region

**Discovery of Mesophotic Coral Habitat Highlights Need for Additional Protections.** Researchers in the Pacific funded by NOAA's [National Centers for Coastal Ocean Science](#) (NCCOS) recently discovered that light dependent, intermediate-depth coral communities, known as mesophotic coral ecosystems (MCEs), are home to some of the same species of fish found on more shallow coral reefs in Hawai'i. This demonstrates the potential ability for these ecosystems to provide a habitat for



**Hawaiian mesophotic coral ecosystem.**  
Courtesy: NOAA National Centers for Coastal Ocean Science

shallow water coral species, which are increasingly facing threats from anthropogenic and natural sources. Preliminary results show that these MCEs, and associated sponge and algal communities, cover a much larger area of the seafloor in the 'Au'Au channel off Maui than previously realized. Therefore, understanding the biodiversity and connectivity of mesophotic coral ecosystems is critical to protecting these marine resources.

Other expedition highlights included new species of algae that are adapted to low-light conditions. This work is part of a partnership with NOAA's [Office of Ocean Exploration and Research's Hawaii Undersea Research Laboratory](#). For more information, click [here](#).

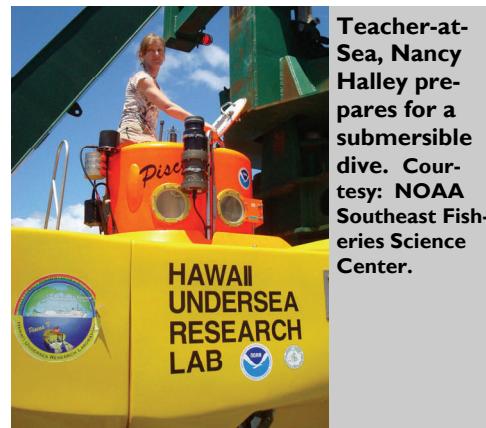
**2009 Marianas Archipelago Coral Reef Assessment and Monitoring.** Scientists from the [Pacific Islands Fisheries Science Center Coral Reef Ecosystem Division's](#) and partner agencies completed the 4<sup>th</sup> biennial [Mariana Archipelago Reef Assessment and Monitoring Program cruise](#) surveying the coral reef ecosystems of Guam, Rota, Aguijan, Tinian, Saipan, Sarigan, Pagan, Asuncion, (continued on page 5)

## Pacific continued...

Supply Reef, Farallon de Pajaros, Maug, Agrihan, Alamagan, Guguan, Zealandia Bank, and Anatahan. Preliminary analyses of towed-diver surveys of fish measuring over 50 cm in length revealed lower abundance than in previous years and smaller differences in abundance between the uninhabited northern islands and the populated southern islands. Sharks continued to exhibit a declining trend in abundance since surveys began in 2003. Fine-scale biological assessments of the marine benthos revealed values for coral diversity, percent cover, and disease comparable to previous assessments. Diversity of algae was lower in the northern islands, where turf algae replaced macroalgae as the dominant form. Surveys also revealed unusually high levels of cyanophytes like blue-green algae, particularly along the western-facing shores of Pagan Island. Although the causative factors of these conditions are not understood, it is speculated that iron-rich ash originating from recent volcanic activity may be related to these unusual findings. Alternatively, this increased cyanophyte cover may simply be part of a previously undocumented natural cycle.

**Collaborative Survey of Honolulu Harbor Completed.** In preparation for the 2009 benthic habitat mapping field season in the Main Hawaiian Islands, Guam and the Commonwealth of the Northern Mariana Islands, scientists from [Pacific Islands Fisheries Science Center Coral Reef Ecosystem Division's](#) (CRED) mapping team worked in collaboration with NOAA's [Office of Coast Survey](#) (OCS) and the [U.S. Army Corps of Engineers](#) to survey Honolulu Harbor and approaches utilized by large vessels. The data from this multi-purpose survey will be used to update nearshore benthic habitat maps and nautical charts. The three week survey period was used to thoroughly test and document all systems aboard CRED's 25' survey launch, [R/V Ahi](#) and to train new members of CRED's mapping team in all aspects of survey and launch operations, while at the same time fulfilling high priority nautical charting needs. The bathymetric data, which are being processed by OCS, are expected to be available in September 2009.

**Hands-on Research Experience Enhances Education about Mesophotic Coral Ecosystems.** In April, through the NOAA [Teacher-at-Sea Program](#), Nancy Halley and her students from the [Hui Malama Learning Center](#) in Maui gained insight into marine research, resource management, and marine science careers by taking part in an expedition to explore deeper, light-dependent mesophotic coral ecosystems in



Teacher-at-Sea, Nancy Halley prepares for a submersible dive. Courtesy: NOAA Southeast Fisheries Science Center.

Hawai'i. Prior to the trip, students conducted online research and posed questions for the scientists. Nancy joined the crew and participated in scientific studies, dived in a submersible, and interviewed the crew using the students' questions about their work and motivation to pursue careers in marine sciences. She then brought her experiences back to the classroom where she and her students are creating a multi-media presentation, and she is developing lesson plans on research methods and conservation of these ecosystems. The enthusiasm generated by such interactive experiences encourages careers in science and provides a greater understanding of important marine resources, such as mesophotic coral ecosystems. This program is a collaboration with the [National Science Foundation](#) through the [University of Hawai'i at Mānoa](#) and researchers funded by NOAA's [National Centers for Coastal Ocean Science](#).

**Ciguatera Distribution Project in Hawai'i.** Ciguatera poisoning is caused by consumption of tropical marine species whose flesh is contaminated with ciguatoxin, a toxin found in many tropical microorganisms. The toxin accumulates up the food chain and ciguatera poisoning currently has no antidote or effective treatment for the gastrointestinal and neurological symptoms it causes in humans.

Over the past two years, Hawai'i's Fisheries Extension Agent has been facilitating the exchange of fish and information about ciguatera and ciguatoxin between the Hawaiian spear fishing community and scientists from the [University of Hawai'i at Mānoa](#). Through this partnership, scientists have been supplied with fish samples and spear fishers have been supplied with online information about ciguatera, including whether their catch was contaminated. Using grid maps, fishers can (*continued on page 6*)

## Threat-based Working Groups

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

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

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

The working groups will deliver their final goals and objectives on May 29th; these will be published and available to the public in mid-June.

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

## Pacific continued...

### Every Act Counts

**Don't drag the reef into this.**

**Use reef mooring buoys when available. Or, anchor in sandy areas away from coral and sea grasses so that anchor and chain do not drag on nearby corals or tear-up sea grass beds. Once broken, corals can take decades or longer to re-develop, and a damaged reef is less able to provide food, habitat and shoreline protection.**

**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.**



**Spearfishers and researchers from the ciguatera study gather on O'ahu. Courtesy: Michael Lameier**

also determine which areas have a high rate of ciguatera.

Scientists are working to develop rapid diagnostic tests for ciguatera toxin, to determine if there is a unique ciguatoxin compound for the Hawaiian archipelago, and to determine if the toxin is modified as it moves up the food chain, among other project goals. On April 18<sup>th</sup>, a group of spear fishers from O'ahu and Maui gathered to collect more samples. The fish will be tested for ciguatera and the results posted on the [project Web site](#), where donors can check if their fish was positive or not. Over 500 fish have been donated since the project's inception.

### Population Policy Meetings in American Samoa: A Road Towards Coral Health.

Population growth has been identified as a major threat to American Samoa's environment, including its coral reefs. As such, this issue has been captured in the territory's [Local Action Strategies](#) (LAS) with an LAS focusing on [Population Pressure](#) that is currently coordinated by NOAA [Coral Reef Management Fellow](#), Alyssa Edwards. In 2008, American Samoa held a [Population Summit](#) to raise awareness of the environmental impacts of population growth in the territory.

Building upon these foundations, [American Samoa's Coral Reef Advisory Group](#) (CRAG) held a two-day [Population Policy workshop](#) from April 28-29, with the goal of developing a formal population policy for American Samoa. Organizers invited an expert population specialist from the [Secretariat of the Pacific Community](#) to assist with the workshop and conduct a training session. There were approximately 50 participants in attendance at the workshop, which included representatives from the Legislature of American Samoa (also called the American Samoa *Fono*), American Samoa Government Departments, Federal agencies, private sector, churches, and non-governmental organizations. Participants were introduced to the population policy process, learned about the impending

creation of a Population Commission, and collaborated on the development of a population policy vision statement and sector specific goals using the 2008 Summit Declaration as a starting point. Participants used a consensus building exercise to craft the following Population Policy Vision Statement: *To reduce the population growth rate by 2020 to improve the quality of life of American Samoa's residents through culturally appropriate proactive planning and implementation.* Governor Tulafono issued an [executive order](#) establishing the Population Commission in early May. Visit the CRAG Web site for more information on supporting documents and activities related to the Population Pressure LAS.

### Local News Coverage

Click the links below to read local news coverage of the workshop and associated meetings. [Story 1](#), [Story 2](#), [Story 3](#), [Story 4](#)

**Seven Deep-Sea Coral Species Discovered.** During ongoing sample analysis for a research mission that occurred in November 2007, scientists identified seven new species of bamboo coral discovered on a NOAA-funded mission in the deep waters of the [Papahānaumokuākea Marine National Monument](#). Six of these species may represent entirely new genera, a remarkable feat given the broad classification a genus represents. Scientists expect to identify more new species as analysis of samples continues. Among the other findings were a five-foot tall yellow bamboo coral tree that had never been described before, new beds of living deep-water coral and sponges, and a giant sponge scientists dubbed the "cauldron sponge," which was approximately three feet tall and three feet across. Scientists collected samples from two other sponges which have not yet been analyzed, but which may represent new species or genera as well. Learn more by reading the [NOAA news feature](#).



**A five-ft tall yellow bamboo coral and an orange bamboo coral that is between four and five ft tall, found at a depth of 4,787 ft and 5,745 ft, respectively, are two of the new species to be identified. Courtesy: Hawaii Deep-Sea Coral Expedition 2007/NOAA**

## International Updates

**NOAA Scientist Takes Part in Australian Research Cruise.** As a part of continuing collaborations between NOAA's [Coral Reef Watch](#) (CRW) and the [Australian Institute of Marine Science](#) (AIMS) in the southern Great Barrier Reef, a CRW scientist participated in an AIMS research expedition in April 2009. During the expedition, oceanographic instruments were recovered and deployed in the vicinity of Heron

Island to monitor currents, temperature, waves and salinity. This work is part of the ongoing joint efforts between NOAA, AIMS and various other Australian partners to study links between climate change and coral health, and is part of the [Great Barrier Reef Ocean Observing System](#) within the [Australian Integrated Marine Observing System](#).

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

## New Data in CoRIS

Product Name	Description
Assessemnt of nonindigenous marine species in harbors and nearby coral reefs on Kauai, Molokai, Maui, and Hawaii, 2002-2003  <a href="#">Sample link to metadata for this product</a>	Collections and observations in 2002-2003 at harbor and nearby reef sites at Nawiliwili and Port Allen, Kauai; Hale O Lono and Kaunakakai, Molokai; Kahului and Maalaea, Maui; and Kawaihae and Hilo, Hawaii recorded a total of 1039 taxa of marine algae, invertebrates, and fishes, 872 of which were identified to the species level. Of these 11 were new reports for Hawaii and 112 were identified as introduced or cryptogenic species (NIS), for an overall NIS component of 10.9% of the total taxa recorded.
Digital Still Images from a 2007 Survey of the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve (NODC Accession 0052882)  <a href="#">Sample link to metadata for this product</a>	Rapid Assessment Transects were conducted in 2007 in the Papahanaumokuakea Marine National Monument of the Northwest Hawaiian Islands Coral Reef Ecosystem Reserve. This dataset consists of digital still transect images (JPG files). In a separate NODC Accession (0000881), benthic data for substrate types and coverages are given, which were derived objectively from these photographic images using PhotoGrid.
Assessment of Species Composition, Diversity, and Biomass in Marine Habitats and Subhabitats around Offshore Islets in the Main Hawaiian Islands 2007 (NODC Accession 0042684)  <a href="#">Sample link to metadata for this product</a>	The marine algae, invertebrate and fish communities were surveyed at ten islet or offshore island sites in the Main Hawaiian Islands in the vicinity of Lanai, (Puu Pehe and Poo Poo Islets), Maui (Kaemi and Hulu Islets and the outer rim of Molokini), off Kaulapapa National Historic Park on Molokai (Mokapu, Okala and Namoku Islets) and Oahu (Kaohikaipu Islet and outside Kapapa Island) in 2007.
Lanai Nonindigenous Marine Species Surveys 2005 (NODC Accession 0002650)  <a href="#">Sample link to metadata for this product</a>	A baseline survey of the marine biota of the island of Lanai was conducted in May 2005. Samples and observations were taken at seven sites around the island, and all macroalgae, macroinvertebrates and fish species collected or observed were recorded. A total of 294 taxa were observed or identified from collected specimens, which included 16 introduced or cryptogenic species and three new reports for the Hawaiian Islands.

## DID YOU KNOW...

**The United Nations has officially designated June 8 as World Oceans Day!**

**What can you do to celebrate World Oceans Day?**

**Wear Blue and Tell Two:**

- **Wear blue in honor of the ocean.**
- **Tell people two things they likely don't know about the ocean.**

**For suggested facts to share, and more ideas, and events, visit [The Ocean Project](#).**

## CoRIS continued...

**Be a Reef-Hugger**

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



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

Product Name	Description
Introduced Marine Species in Pago Pago Harbor, Fagatele Bay and the National Park Coast, American Samoa: Survey of October 2002 (NODC Accession 0002177)  <a href="#">Sample link to metadata for this product</a>	The biological communities at ten sites around the Island of Tutuila, American Samoa were surveyed in October 2002 by a team of four investigators. Diving observations and collections of benthic observations using scuba and snorkel were made at six stations in Pago Pago Harbor, two stations in Fagatele Bay, and one station each in Vatia Bay and Faga-sa Bay.
2007 Palm Beach County Essential Fish Habitat Mapping of Seagrass, Mangroves, Oysters, and Spartina in estuarine waters  <a href="#">Sample link to metadata for this product</a>	In 2007, aerial photography of the LWL and PBC estuarine waters was acquired to map and classify essential fish habitats, specifically seagrasses, mangroves, oyster reefs, and spartina /cordgrass, to determine the current extent of the areas.
2007 Palm Beach County Orthorectified photos of the County's estuarine waters including the Lake Worth Lagoon.  <a href="#">Sample link to metadata for this product</a>	2007 Palm Beach County Mapping Digital Orthorectified photos and Mosaics of 1:10000 scale natural color aerial photography were created. Imagery was flown on June 20 & 22, July 21, and August 4 & 8, 2007. Additionally, there was 1:4800 scale natural color aerial photography flown on July 1, 2007.
CRED APEX Drifting Buoy Argos_ID 26070 Data in the NW Hawaiian Islands, the Pacific Ocean  <a href="#">Sample link to metadata for this product</a>	CRED APEX drifter Argos_ID 26070 was deployed in the region of NW Hawaiian Islands to assess ocean currents. APEX drifter data files contain drifter ids, year, month, day, hour, minute, second, GPS latitude and longitude.
CRED Integrated Benthic Habitat Map for Tutuila Island, American Samoa Year 2007  <a href="#">Sample link to metadata for this product</a>	The benthic habitat map systems are independent ArcGIS and ArcReader projects that include layers of a wide range of biologically important characteristics of the coral reef ecosystem around the island of Tutuila in American Samoa.
Guam Gridded Geomorphology data files  <a href="#">Sample link to metadata for this product</a>	The geomorphological data layers of substrate, slope, rugosity, and bathymetric position index (BPI) produced at the Pacific Islands Benthic Habitat Mapping Center (PIBHM) are derived from multi-beam bathymetry. These data sets are for the shelf and slope environments of Guam Island.
Coral Reef Ecosystem Division (CRED) - Backscatter data from the NWHI, CNMI, Guam and the PRIs  <a href="#">Sample link to metadata for this product</a>	Multibeam backscatter imagery extracted from gridded bathymetry of the lagoon and shelf environments.

**CoRIS Data Added to National Database Linking Program.** [Coral Reef Information System](#) (CoRIS) staff have completed entering all CoRIS metadata into the [National Biological Information Infrastructure](#) (NBII). NBII is a broad, collaborative program that provides increased access to data and information on the nation's biological resources by linking diverse, high-

quality biological databases, information products, and analytical tools maintained by NBII partners and other contributors in government agencies, academic institutions, non-government organizations, and private industry. The program will serve as an additional discovery tool for CRCP-funded metadata, which NBII will harvest from CoRIS each month.

## Publications

### Coral Reef Task Force: Federal Agency

#### Coral Profiles.

The Federal Agency Coral Profiles for the [U.S. Coral Reef Task Force](#) (USCRTF) have been completed and are posted on the USCRTF home page. These Coral Profiles provide a concise overview of the USCRTF Federal members' mission, role, authorities, programs, activities, and resources related to coral reefs and associated ecosystems. The intent of the Coral Profiles is to better capture each Federal member's role in coral reef conservation and to facilitate better planning and collaborative action among and between USCRTF members, including jurisdictions, and help the USCRTF better direct its collective activities. The Coral Profiles introduce individual Federal agencies to the general public, and highlight funding opportunities available to jurisdictions and non-governmental agencies. The Coral Profiles also contain many coral reef highlights from each agency.

#### International Network of Coral Reef Ecosystem Observing Systems.

In preparation for the upcoming [OceanObs'09](#) conference, an international team of scientists has submitted a community white paper entitled *An International Network of Coral Reef Ecosystem Observing Systems (I-CREOS)*. Using examples of a few key existing coral reef observation systems that collectively provide integrated biological, physical, and chemical observations of coral reef ecosystems, including NOAA's Coral Reef Ecosystem Integrated Observing System, [Moorea Coral Reef Long-term Ecological Research site](#), and the [Great Barrier Reef Ocean Observing System](#), the paper outlines an emerging international network of observing systems made up of: visual surveys, moored instrument arrays, spatial hydrographic and water quality surveys, satellite remote sensing, and hydrodynamic and ecosystem modeling. With common goals to maximize the versatility, accessibility, and robustness of each observation, these systems provide a foundation by which increased global cooperation and coordination could lead to a broader, more globally comprehensive I-CREOS capable of providing policy makers, resource managers, researchers, and other stakeholders with essen-

tial information products needed to sustainably manage and conserve coral reef ecosystems.

The Community White Papers for OceanObs'09 are the basis for community planning and building community consensus, describing plans for the coming decade. Along with the other community white papers, this document is available for [open review](#). A public comment system has been set up to provide input to the authors.

**A Marine Biogeographic Assessment of the Northwestern Hawaiian Islands.** Prepared by NOAA's [National Centers for Coastal Ocean Science](#), the report, [A Marine Biogeographic Assessment of the Northwestern Hawaiian Islands](#), examines the geographic distribution of the island chain's marine life and habitats, and the conditions that determine where they are found.

"This report provides an important summary of the monument's marine ecosystems," said Randy Kosaki, NOAA's monument deputy superintendent and research coordinator. "The report reveals patterns and details about species in the Northwestern Hawaiian Islands, helping us better understand this special place." Click [here](#) to read a NOAA news story and see significant findings highlighted in the report.

Kenyon JC and Aeby GS (2009) Localized outbreak and feeding preferences of the crown-of-thorns seastar Acanthaster planci (Echinodermata, Asteroidea) on reefs off Oahu, Hawaii. *Bulletin of Marine Science* **84**(2):199-209.

J. A. Maynard, J. E. Johnson, P. A. Marshall, C. M. Eakin, G. Goby, H. Schuttenberg and C. M. Spillman (2009) [A Strategic Framework for Responding to Coral Bleaching Events in a Changing Climate](#). *Environmental Management*, DOI 10.1007/s00267-009-9295-7.

Vroom, Peter S., Molly A.V. Timmers (2009) [Spatial and temporal comparison of algal biodiversity and benthic cover at Gardner Pinnacles, Northwestern Hawaiian Islands](#). *Journal of Phycology* **45**: 337-347.

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



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