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SANCTUARY WATCH

National Marine Sanctuary Program Ocean Discoveries

2002

From the shipwreck site of the USS *Monitor*... to a 7,800-ft. undersea mountain...to a visit from a rare marbled grouper—a Sanctuary Summer of exploration mapped new ocean landscapes and joined the best and the brightest in partnerships of discovery.

Sanctuary Quest

The ROV camera capture the image of a deep-water anemone. Photo: National Marine Sanctuary Program

Davidson Seamount Exploration

Chaunacid anglerfish peers from beneath a rock. (*Bathychaunax coloratus*) Photo: Monterey Bay Aquarium Research Institute

Monitor *Mission 2002*

A side view illustration of the current position of the *Monitor* on the seafloor. Illustration: Jeff Johnston

Sanctuary Quest

Lobsters hide in deepwater habits. Photo: National Marine Sanctuary Program

Photo: National Marine Sanctuary Program

Dan Howard, chief scientist helps control the ROV along with a pilot and navigator from the NOAA ship McArthur.

The spirit of discovery guided the National Oceanic and Atmospheric Administration's (NOAA) National Marine Sanctuary Program this summer as scientists on both coasts and in the Gulf of the Mexico conducted ocean expeditions, monitored familiar marine areas with new technologies and attempted a long anticipated recovery of the revolving turret and cannons from the famed Civil War ironclad, the USS *Monitor*. In the Great Lakes, explorer Bob Ballard, scientists from his Institute for Exploration, and sanctuary staff returned to shipwrecks surveyed in an earlier mission and to newly discovered wrecks to continue video documentation. Sanctuary Quest: West Coast Expedition 2002, *Monitor* Mission 2002, the Davidson Seamount Mission, the Stetson Monitoring Cruise, and a Great Lakes shipwrecks exploration — each emphasized the program's many strong partnerships forged over the years and its renewed energy in uncovering marine and maritime mysteries.

Researchers aboard these voyages of discovery included scientists from the University of California at Santa Barbara, Channel Islands National Park, U.S. Geological Survey, California Department of Fish and Game, U.S Naval Facilities Engineering Services Center,

(cont'd on pg. 4)

INSIDE...

NATIONAL MARINE SANCTUARIES ™
1972 × 2002
30th Anniversary

The world's largest intentionally scuttled artificial reef had a mind of its own, capsizing hours before its planned sinking.

Photo: Bernd Altmeier

Spiegel Grove Continues its High Profile in Florida

Picture a proud 510-ft. long, 6,880-ton warship, a hulking superstructure of metal, plowing through the water, dwarfing everything in its wake. Now picture the ocean-going behemoth sunk beneath the waves, flipped upside down at a 45-degree angle, with its bow piercing the surface on its way to becoming an artificial reef.

Commissioned in 1956, The USS *Spiegel Grove* served the Navy in transporting combat troops and amphibious vehicles. The *Spiegel Grove* was decommissioned in 1989, 15 years after serving a final tour of duty with the Atlantic Fleet. The crew once affectionately referred to the ship as the "Spiegel Beagle," even painting a picture of Snoopy on the floor.

After eight years of negotiation, the *Spiegel Grove* was slated to become the largest ship to ever be intentionally scuttled as an artificial reef. The steam turbine-powered ship was sent to Chesapeake, Va., to be cleansed of all residual petroleum products and other possible environmental contaminants. Once it was determined pristine enough to become a marine habitat, the retired vessel was anchored six miles off the coast of Key Largo, in the Florida Keys National Marine Sanctuary.

It was the original intention of the Key Largo Chamber of Commerce and the Keys Tourism Council to create an artificial reef by sinking the ship in 130-ft of water, with its top resting at 40-ft beneath the surface, to appeal to a wide range of SCUBA divers and snorkelers.

On May 17th, the *Spiegel Grove* began to sink prematurely, sending 40 crewmembers rushing to safety. Pulled onto its starboard side, the vessel today rests on the sandy bottom.

A public opening of the new reef was further delayed by a mysterious fuel sheen. Now fuel-free, the ship was dedicated as an artificial reef on June 26, 2002. The sanctuary reports that the ship is well on its way to becoming a live ecosystem, having already attracted algal growth and schooling fish.

Most *Spiegel Grove* crewmembers never thought they'd get to see her again and many are delighted at the prospect of joining her once again—albeit underwater.

—Miriam Stein

Wellwood Restoration Offers Damaged Corals a Second Chance in Florida Marine Sanctuary

Tall branches of elkhorn and staghorn corals toppled. Purple sea fans lay crushed on the ocean floor. When the M/V *Wellwood* was finally removed 12 days after it grounded in the Molasses Keys, 5,805 square meter of living coral was destroyed and over 75,000 square meters of reef habitat was injured.

Now 18 years after the grounding, NOAA's National Marine Sanctuary Program (NMSP) has begun an ambitious restoration project on Molasses Reef, now part of the Florida Keys National Marine Sanctuary.

Within one of the third largest barrier reef system in the world, Molasses Reef contains some of the most aesthetically valuable and heavily visited reefs in the continental United States.

On August 4, 1984, the M/V *Wellwood*, a 122-meter Cypriot-registered freighter carrying pelletized chicken feed, ran aground in six meters of water about six nautical miles southeast of Key Largo. Early attempts to power off the reef, tugboat prop wash abrasion, extended periods of shading under the vessel and cable abrasion during several failed removal attempts added to the damage.

NOAA biologists thoroughly searched the area for survival of damaged coral colonies. Few corals actually survived the initial impact and the grounding period. The corals that did survive were salvaged and reoriented, including several large head corals (greater than 6 feet diameter) that were turned over and left in place. The rest of the reef, however, was flattened like a parking lot, a name later assigned to the area by scientists.

The reef was even further injured as a result of storms

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A diver from Underwater Engineering Services Inc. secures the tremie concrete tube for the first reef module in the reef restoration project.

Photo: Coastal Planning and Engineering, Inc

Helping Latinos make a difference in ocean conservation—A Latino's perspective

Tanto monta, monta tanto is a Spanish saying meaning, "It makes no difference." Many Latinos, as well as many other Americans of other ethnic backgrounds, have the belief that what they do will not have a great impact on the many plants and animals that inhabit our oceans or don't understand how important their participation is in helping protect the marine environment.

In many cases, this attitude is the result of the lack of information that Latinos have about the oceans or what they could do to help out. Some have the belief that such help would be better done by scientists and researchers.

Many national marine sanctuaries are now providing Latino communities with information about the many ways for them to get involved in marine conservation. By participating in beach clean ups, visiting aquariums with the family, or simply taking sanctuary cruises, one could make a big difference in the well-being of the sanctuaries and make things easier for those who devote their lives in protecting these special areas. *El trabajo compartido es m`as llevadero* or "many hands make light work."

Sanctuary staff are thinking of ways to help Latinos discover just how important national marine sanctuaries are to their communities. In marine sanctuaries with a high Latino population nearby, such as Monterey Bay, brochures, coloring books, radio and bus advertisements in Spanish are helping. In the Florida Keys, the sanctuary created Spanish videos about boating safety and diving. Still, more can be done to encourage residents to get involved and to teach the importance of preserving the oceans and the life it maintains. Tours of visitors centers and other educational programs led by Spanish speaking staff would help. Discounts for scuba gear or boat rentals would encourage Latino families to participate in the recreational activities offered by the sanctuary.

It's important to know that to get a response from the Latino community, information needs to be presented to them in ways that they will understand and feel welcomed.

Only through education is change possible. Baba Dioum, a poet from Senegal, once wrote, "In the end we will only conserve what we love. We will only love what we understand. We will understand only what we are taught."

—Javier Delgadillo
University of California at Santa Barbara

Newsplash

Sanctuary Program's "Down Under, Out Yonder" Annual Education Workshop Honored—The Flower Garden Banks National Marine Sanctuary will receive second place honors in the Youth/Education category of the "Gulf Guardian" Awards for the Sanctuary's "Down Under, Out Yonder" annual education workshop. The Environmental Protection Agency sponsors the awards in their Gulf of Mexico Program. The program's goal is to recognize and honor "community groups, businesses, individuals and agencies who are taking positive steps to keep the Gulf healthy, beautiful and productive."

Awards will be presented during the Clean Gulf Conference on November 5-7 in Galveston, Texas.

Journal Features Sustainable Seas Expeditions (SSE) Research—An article just published in the scientific journal *Coral Reefs* (21:73-82) features research conducted on the 2000 SSE in the Hawaiian Islands Humpback Whale National Marine Sanctuary. The article, "Drowned reefs and antecedent karst topography, Au'au Channel, SE Hawaiian Islands," describes bottom formations, benthic communities and the history of sea level and its influence on the seabed between Maui and Lanai since the last Ice Age, when sea surface was 120 meters below current levels. The authors concluded that the islands of Maui, Lanai and Molokai were interconnected by emergent limestone bridges until about 14,000 years ago, resulting in numerous basins and other complex features formed by exposed rock formations.These features are still evident on the now-flooded seabed, providing ideal habitat for a variety of diverse hard-bottom communities. Dr. Richard Grigg, of the University of Hawaii, was lead author. Co-authors included National Marine Sanctuary Program Scientist **Dr. Steve Gittings**, Dr. E.E. Grossman (USGS), Dr. Sylvia Earle (National Geographic Society), Dave Lott and John McDonough (NOAA Special Projects Office).

More Sanctuary News, All the Time—Valarie Thorpe and **Georgia Shao**, Internet developers in the National Marine Sanctuary Program's Communication Branch, are helping NOS Special Projects Office to build an online NOS level publications library. At the same time, project will also be used to develop a program online library. When completed the new library will be merged with the NOAA Library and made available to outside commercial, international databases. Currently, the new library houses management plan reviews, national and site State of the Sanctuary Reports, and various other brochures and regulation documents.

—Nancy O'Donnell

Wellwood Restoration *(cont'd from pg. 2)*

over the following years: scouring and vertical erosion to the reef and several pits were created in the parking lot, exposing the underlying framework cracks to the potential of future erosion. Scientists determined that without physical restoration, recovery of the reef would be extremely slow, and the site would deteriorate further during future storms.

During NMSP's current restoration, 14 separate sites damaged during the 1984 grounding will receive a total of 22 dome-shaped "reef modules," reinforced concrete slabs covered by a hollow concrete and limestone dome. In general, the modules will be placed and anchored to natural reef by a process of pumping tremie concrete beneath and around the base of each module, which will secure it to the natural reef structure. Workers will then compare each reef repair site to the adjacent undamaged coral reef in order to create an ambient structure similar to the conditions of both the adjacent reef and the reef prior to the grounding.

To learn more, visit *http:/www.sanctuaries.nos.noaa.gov/special/wellwood/*.

—Columbine Culberg

Summer of Exploration *(cont'd from pg. 1)*

Washington Department of Fish and Wildlife, Cascadia Research, Makah Cultural Research Center, National Marine Fisheries Service, U.S. Navy's Naval Sea Systems Command and Mobile Diving and Salvage Unit, along with many academic and private institutions.

In many of the missions, a U.S, Navy remotely operated vehicle (ROV) aided scientists by sending back pictures of waters 2,500 feet deep and scanned never before scaled underwater mountains and canyons. Tethered to a vessel, the ROV's lasers, lights, video camera and "arms" offered new vistas to the researchers. In other missions, sidescan sonar devices bounced sound waves off the sea floor and created rough maps of sanctuary terrain.

"The Sanctuary Quest expeditions were conceived to help the National Marine Sanctuary Program understand how the sanctuaries function as a system," explained Daniel J. Basta, director of the National Marine Sanctuary Program. "The area of this expedition represents a small part of a much larger, very dynamic ecosystem. This research is an example of how the program integrates science with management of resources within a larger ecosystem. The observations and data are critically needed to make sound management decisions."

In the Channel Islands National Marine Sanctuary, Sanctuary Quest researchers study of its vibrant marine life diversity and abundance will help Sanctuary staff to better

(cont'd on pg. 7)

A science sampler from Sanctuary Quest...

Gulf of the Farallones National Marine Sanctuary

• Research operations were conducted 24-hours a day with plankton sampling at night and wildlife observations and remotely operated vehicle (ROV) dives during the day.

• Three ROV dives explored the benthic habitat at 70m (~228ft) near the Farallon Islands allowing a glimpse of bottom habitats and associated marine life.

• Wildlife observers saw aggregations of surface feeding Sooty Shearwaters and lots of Cassin's Auklets and common murres. The latter two species are foraging in the food rich waters to feed their young on the nearby Farallon Islands.

Cordell Bank National Marine Sanctuary

• The Cordell Bank mission conducted six ROV dives each lasting 3-4 hours, looking at habitats never before documented. (Sandy habitat, transition zone to the Bank, cobbles, boulder, pinnacles, and rocky reef.)

• Three different six-gill sharks, many species of rockfish, lingcod, sponges, hydrocoral, algae, anemones and echinoderms were observed.

• Researchers monitored all 16 different Ecosystem Dynamics Study stations in the sanctuary, each getting plankton samples and profiles of temperature and salinity from surface to bottom.

• During daylight hours zooplankton were sampled acoustically along transects concurrent with seabird and marine mammal observations, allowing scientists to estimate krill biomass. Measuring krill biomass in this manner increases the understanding of forces that are affecting distribution of organisms within the sanctuary.

Olympic Coast National Marine Sanctuary

• Seven ROV benthic dives and one water column divewere completed. The deepest dive at 380m (~1200ft) provided a glimpse of the seafloor in the Nitinat submarine canyon.

• Eleven marine mammal and seabird survey transects were completed as well as 10 unique transects and one duplicate transect to correlate with trophic relationships using hydroacoustic equipment.

•16 stations were sampled for harmful algal bloom toxins, phytoplankton species composition, and nutrient and chlorophyll levels.

• A record high number of humpback whales were seen in the sanctuary—139. This number exceeds previous surveys in 1995, 1997 and 1998. One orca and 30 humpback whales were photographed for individual identification.

—Sarah Marquis

Voices from the Sanctuary Summer of Ocean Explorations

Black-footed albatross in the Olympic Coast Sanctuary

Photo: John Brooks

Alert birdwatchers monitor the sea within 300 meters of the ship.

Photo: Robert Steelquist

A skate cruises along the ocean floor.

Photo: NOAA National Marine Sanctuary Program

*Venus's-flytrap anemone (***Actinoscyphia sp***) on the Davidson Seamount at 1874 meters.* Photo: Monterey Bay Aquarium Research Institute

*Basket star (***Gorgonocephalus***) on yellow sponge at 1362 meters, Davidson Seamount.*

Photo: Monterey Bay Aquarium Research Institute

*Deep-sea blob sculpin (***Psychrolutes Phrictus***) at 1317 meters.*

Photo: Monterey Bay Aquarium Research Institute

*Gorgonian coral (***Paragorgia arborea***) at 1257 meters.*

Photo: Monterey Bay Aquarium Research Institute

The drop into the canyon goes slowly. Through both cameras, we see swarms of plankton and detritus, the snow of the oceans. Siphonophores, salps, ctenophores, jellies, shrimp, larval forms of fish and invertebrates swirl past as the ROV descends. Numbers on the screen get larger 100, then 200 meters. Creatures that have never been exposed to light race past the camera and lights. Strange chains of polyps, filigrees and webs, feathery organisms. The sheer density of tiny, translucent living organisms is astonishing. Pulsating, writhing, darting, drifting, wiggling, floating—as though the entire early evolution of locomotion is being demonstrated before our eyes.

—Bob Steelquist (from Mission log)
Olympic Coast National Marine Sanctuary

The Sanctuary Quest West Coast Expedition 2002 certainly presented its share of challenges: high seas, strong winds, and mechanical problems with the equipment. However, the people involved— scientists, technicians, and deck crew—rose to these challenges. Early results include high resolution images of deep water habitats and species that have never been visited before, as well as information on seabirds and marine mammals that call the sanctuaries home.

As with all expeditions, the work has just begun. Scientists will assess the video tapes and still images, analyze the sediment and water samples, and assess the data collected through other instruments for weeks and months to come.

—John McDonough,
NOAA/Special Projects Office

With the array of sampling equipment and combined expertise of scientists on board, we had a unique opportunity to explore the Cordell Bank National Marine Sanctuary from top to bottom. Sampling during the middle of our spring upwelling season really gave us a feel for the incredible productivity and dynamic nature of these special marine areas during upwelling.

—Dan Howard
Cordell Bank National Marine Sanctuary

Prior to the McArthur cruises, really our knowledge of what was out here pretty much stopped a mile or two or three offshore, and beyond that, we knew there were whales, but there wasn't very much information.

As a biologist, I'm interested in that because it's a big piece of the picture that we didn't have.

—Barry Troutman,
Washington Dept. of Fish & Wildlife

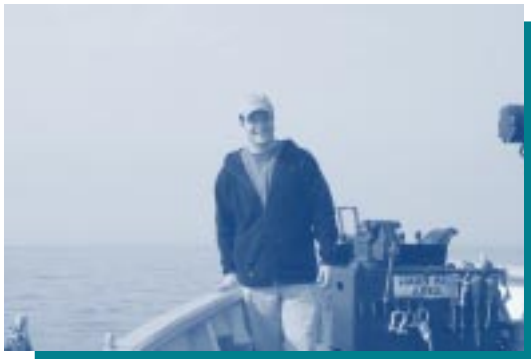

Photo: Ellen Brody

Jefferson Gray, Thunder Bay Sanctuary's new manager boards the R/V vessel Shenehon *for an emergency diver evacuation drill in the Great Lakes shipwreck sanctuary.*

Introducing Thunder Bay Sanctuary's New Manager

On July 15, 2002, the Thunder Bay National Marine Sanctuary and Underwater Preserve welcomed Jefferson J. Gray as its first official manager since the sanctuary's designation in October 2000.

Following an exhaustive applicant search, the sanctuary was delighted to have found an exemplary candidate to take the helm of the sanctuary's management.

"A unique combination of academic credentials and Great Lakes fieldwork placed Gray in the ideal position to take over the management of Thunder Bay's maritime heritage," said Daniel J. Basta, director of the National Marine Sanctuary Program.

The new manager acknowledged that while it is "a major step to move from state to federal management, it is a natural progression in my career and a responsibility that I am honored to have."

Gray received a B.A. in Anthropology and Archaeology from Wisconsin's Beloit College and an M.A. in Maritime History and Underwater Archaeology from North Carolina's East Carolina University. He arrives at the Alpena, Michigan office, having worked most recently as the State Underwater Archaeologist at the Wisconsin Historical Society.

Gray brings to the sanctuary his expertise in statewide cultural resource management and in developing partnerships between government, corporate, nonprofit and local community entities. His background includes underwater diving and research for NOAA and archaeological work not only in the Great Lakes system, but also all over the world. Gray was also instrumental in the development and implementation of the Wisconsin Maritime Trails system.

This experience has primed Gray to monitor the sanctuary's estimated 116 shipwrecks and significant underwater resources, while concurrently developing local education initiatives and cultural awareness activities such as the Tall Ships Festival. Gray's enthusiasm in joining the sanctuary system was apparent when he described his big plans for a visitor center at Thunder Bay.

"I hope to make the Sanctuary/Preserve into a major destination in Michigan," said Gray. "Although people within the state know the sanctuary is there, I anticipate bringing the Great Lakes to the rest of the country."

The first sanctuary in the Great Lakes, Thunder Bay is jointly managed with the State of Michigan.

To learn more about the Thunder Bay National Marine Sanctuary and Underwater Preserve at *http://www.glerl.noaa.gov/glsr/thunderbay/*.

—Miriam Stein

National Marine Sanctuary Foundation Ocean Week Focuses Capitol Hill on Marine Issues

The National Marine Sanctuary Foundation gathered ocean experts, policymakers, and supporters from far and wide for Capitol Hill Oceans Week (CHOW) on June 4-6. CHOW workshops concentrated on ways to increase the nation's ocean literacy and understanding of the challenges involved in protecting coral reefs and to raise the profile of the National Marine Sanctuary Program.

Co-sponsors included the Senate Commerce, Science and Transportation and Transportation Committee's Subcommittee on Oceans, Atmosphere and Fisheries; the House Oceans Caucus; the National Geographic Society; the American Oceans Campaign and other federal agencies and nonprofits.

Leon Panetta, Chair of the Pew Oceans Commission, began Ocean Week activities with a thought-provoking assessment of current ocean practices.

"It's not enough to just designate sanctuaries," said Panetta. "It's extremely important to try to make sure that these sanctuaries develop the support system they need in order to do the job. You've got to make them real. You've got to protect them and provide the education so that people understand the value of these sanctuaries."

Visit the National Marine Sanctuary Foundation at *http://www.nmsfocean.org/* Copies of CHOW presentations are available at *www.house.gov/greenwood/oceans*.

—Nancy O'Donnell

Photo: National Marine Sanctuary Foundation

"Will we govern our oceans by leadership or crisis?" Leon Panetta asked participants at the CHOW workshop.

Sanctuary Summer of Exploration

manage and set policy for the 1,658-square mile sanctuary that surrounds the five Channel Islands.

Next Sanctuary Quest scientists traveled to the Gulf of the Farallones National Marine Sanctuary, a 1,255-square mile area that contains thousands of seals and sea lions and in certain months Great White Sharks. Here, the Navy ROV illuminated odd crab and fish species such as the deep water canary rockfish. Especially heartening to the sanctuary was the discovery of a healthy amount of krill, tiny pink crustaceans that live thousands of feet below the surface before rising to become an important food staple for many ocean creatures.

On June 11th scientists and resource managers completed the final leg of the mission in the Olympic Coast National Marine Sanctuary, the nation's third largest marine sanctuary. This exploration provided record-breaking marine mammal and seabird observations while below the surface ROVs captured underwater video footage as deep as 1200 feet. Also during the mission, researchers reported a record high count of 136 humpback whales, the highest number seen in the sanctuary during recent surveys.

Also this summer, the Monterey Bay National Marine Sanctuary played a major role in exploring the Davidson Seamount, a 7,800-foot-tall underwater mountain 60 miles offshore of central California. Each day, sanctuary staff and scientists from the Monterey Bay Aquarium Research Institute launched the Tiburon, an unmanned submersible, to study the undersea mountain that promised a wealth of data on fish.

Monterey Bay Sanctuary Superintendent William J. Douros was joined by deep-sea biologists, geologists, seabird and marine mammal biologists, who worked together to collect and identify data. On one day, researchers digitized the image of a six-inch-long fish and orchestrated an online collaboration to ichthyologists in the field who reported back that the fish was from a seldom seen sea toad family.

Meanwhile in the Gulf of Mexico, the Flower Garden Banks National Marine Sanctuary got to visit deep regions of the sanctuary never before viewed by humans. During a four-day research cruise aboard the chartered vessel, M/V *Spree*, sanctuary researchers joined by National Undersea Research Center scientists launched ROV Phantom S-2 some 14 times in an effort to classify fish populations and to create a map of their habitats. While the sanctuary's East and West Banks' coral reefs are well documented, at least 95% of the sanctuary is beyond SCUBA depth and remains a mystery to the sanctuary staff charged with protecting it.

The mission's highpoint, researchers reported, was the appearance of six marbled groupers, a rare glimpse of a fish favored by both commercial and sport fishermen and susceptible to overfishing.

Sanctuary Manager G.P. Schmahl was hopeful that their

(cont'd on pg. 8)

Monterey Bay Goes Live inside Mystic Aquarium

On the evening of Friday, June 21, the national marine sanctuaries were officially "opened for viewing" at the Mystic Aquarium & Institute for Exploration's launch of their new project, Immersion Institute™. The Immersion Institute™ is the official name of the underwater telepresence project that sanctuary staff have been developing in cooperation with Mystic Aquarium & the Institute for Exploration in Mystic, Connecticut.

The Immersion Institute™ combines live digital video, robotics, and interactive games to educate the public about the wonders of the national marine sanctuaries. Visitors to the Immersion Institute are greeted by a short film about the sanctuary system that emphasizes the importance of preservation. Inside the interactive theater, visitors sit at consoles where they can work individually or in pairs. The half-hour experience begins with a short tour of the Monterey Bay kelp beds, above and below water, that is provided by a live link video delivered via Internet II from a ROV, a remotely operated vehicle, tethered about 30 yards offshore from the Monterey Aquarium. Visitors can pilot *Orpheus* the ROV from the Mystic Aquarium & Institute for Exploration and participate in a "live" exploration of the sanctuary.

After the video tour, visitors using interactive touch screen consoles can drive the ROV and answer questions about marine creatures encountered. The consoles provide a virtual tour of the kelp bed, a library of information on the marine life that inhabit the sanctuary, and an interactive game that allows players to earn points by answering questions about the creatures (including sea lions, sea anemones, and Bat Stars) encountered during the virtual tour.

Immersion Institute™ has received very positive reactions, according to Lisa R. Jaccoma, Vice President of Public Affairs for Mystic Aquarium & Institute for Exploration, who said "Feedback from the press and the public has been mind-blowing."

While the launch show features a Monterey Bay kelp forest, programs from Channel Islands, Thunder Bay and the Florida Keys National Marine Sanctuaries are expected to follow in the next 18 months. The launch version is geared for the general public, but plans are also in place to develop a curriculum-based version for educators. A description of the project, including video clips should soon be available on the website *http://www.mysticaquarium.org*.

—Alice Stratton

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SANCTUARY WATCH

NATIONAL MARINE SANCTUARIES ™
1972 ✕ 2002
30th Anniversary

vision *People value marine sanctuaries as treasured places protected for future generations.*

mission *To serve as the trustee for the nation's system of marine protected areas to conserve, protect, and enhance their biodiversity, ecological integrity, and cultural legacy.*

August/September Calendar

Natural Events · Mass coral spawning at the Flower Garden Banks National Marine Sanctuary. Each year eight nights around the full moon in August between the hours of 8-9 p.m., several species of coral release their gametes, causing an underwater snowstorm. Humpback whales court and calve in Fagatele Bay Sanctuary, August through October. In September, Cordell Bank Sanctuary fills with pods of thousands of Pacific-White Sided Dolphins cruising sanctuary waters through the fall and winter. Common murre chicks have fledged and are following their dads around the sanctuary learning how to catch food. Gulf of the Farallones and Cordell Bank Sanctuaries, California.

August 16-18 —Thunder Bay Tall Ships Festival in Alpena, Michigan. For more info, contact 743-741-2270.

In September · On each Saturday, Monterey Bay National Marine Sanctuary will be celebrating its 10th Anniversary. Events will take place Half Moon Bay, Monterey, San Simeon, and Santa Cruz. For more information, contact 831-647-4201.

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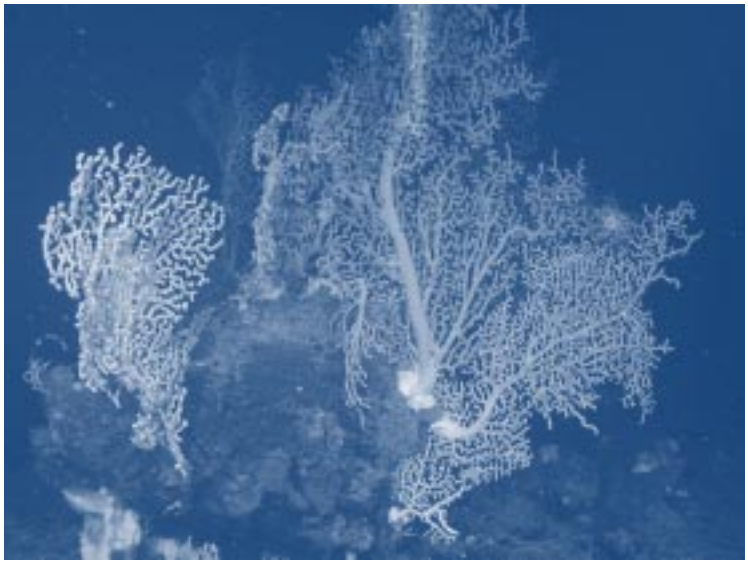
appearance in the sanctuary could provide valuable information to scientists who want to know how groupers interact within the reef ecosystem.

In July, a team of NOAA marine archeologists and the U.S. Navy divers banded together in a historic effort to recover the USS *Monitor*'s revolving turret and two 11-inch Dahlgren cannons. NOAA divers will follow this mission with a survey of remaining artifacts.



The recovery followed earlier missions that saw the ship's propeller, steam-powered engine and other dozen of other artifacts recovered more than a century after the vessel wrecked off Cape Hatteras, N.C.

Later this summer, Bob Ballard's Institute for Exploration (IFE) will return to the Thunder Bay National Marine Sanctuary and Underwater Preserve. The second of a three-year IFE project, scientists hope to discover, document and provide public access to the public to the sanctuary's geological, biological and cultural resources.

Technological advances—a newly-discovered multi-frequency sidescan and sub bottom profiling sonar system, ECHO, an ARGUS imaging sled and a ROV Little Hero-—will enable scientists to look for unknown shipwrecks that have been lost in dangerous regions of Lake Huron as well as study submerged terrain that may once have been the site of Native American communities when the ancient lake's shoreline existed at a deeper depth.

In the coming months, data collected from the sanctuary summer of discovery will be analyzed and publicized to benefit not only the entire system of national marine sanctuaries but also the field of ocean conservation around the globe.

"With each new sanctuary mission, we open a window on unknown marine worlds," said Basta, the program's director. "During the coming year as we plan for next year's missions, and for missions in the years beyond, we will always be aware of how essential the ocean is to our everyday lives. Our weather, our economy, our enjoyment of the oceans' beauty, each depends on our learning more about the marine world than we know today. We're committed to a program of ocean discovery. It's that important."

—Nancy O'Donnell

(Photo above: Gorgonian corals *(Paragorgia arborea)* illuminates in light on the Davidson Seamount
Photo: Monterey Bay Aquarium Research Institute (MBARI)

Sanctuary Watch is a publication of the Department of Commerce National Oceanic and Atmospheric Administration's (NOAA) National Marine Sanctuary Program, Communications and Development Branch.

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