

Sounding Line

News of the Florida Keys National Marine Sanctuary

Fall 2005

Mystery Wreck Explored by Archaeologists

Cheva Heck, FKNMS Communications Manager

Archaeologists from the National Oceanic and Atmospheric Administration and the State of Florida conducted a 10-day mission to document an unknown shipwreck — possibly centuries old — in shallow water off Marathon in the Florida Keys National Marine Sanctuary. The team hoped to obtain information that will help them identify the mystery wreck and add a new chapter to the maritime history of the Florida Keys.

“The Florida Keys National Marine Sanctuary welcomes this project as a chance to learn more about a potentially significant Keys shipwreck, share that knowledge with the community and better plan for the site’s protection,” said LCDR Stephen Beckwith, FKNMS Upper Region manager. “Protecting our maritime heritage and sharing the stories behind shipwrecks with the American public is an important part of the sanctuary’s mission.”

Joined by sanctuary staff, the archaeologists mapped the ballast pile, exposed ship timbers and the coral on the site and documented the site using video and still photography. To assist with dating and possible identification of the shipwreck, the team took small samples of wood from the remaining timbers. The team also surveyed the area seaward of the wreck for additional maritime heritage resources.



A team of archaeologists surveys an unidentified shipwreck in the Florida Keys National Marine Sanctuary. Researchers believe the wreck may be centuries old and hope to learn more about its history through additional fieldwork. (Photo: Jeff Anderson)

Inside this Issue

Superintendent’s Message	2
Around the Sanctuary	3
Seaflower MPA	4
National MPA Network	5
Boy Scouts Clean Reef	6
Seagrass Restoration Projects	7
GIS Workshop about Sanctuaries ..	8



Funding for the project was provided through a mini-grant from the NOAA Maritime Heritage Program. Both the sanctuary and the State of Florida provided personnel, equipment and other resources to support the project. The field work took place in late June 2005.

“The mystery wreck site is unique because many of the ship’s timber are exposed beneath the ballast pile,” said Roger Smith, Ph.D., state underwater archaeologist. “Due to the size of both the ship’s timbers and the ballast pile, this appears to have been a large vessel. We believe it may be historically significant, possibly even predating the Spanish fleet that was decimated by a ferocious storm in the Straits of Florida in 1733.”

The National Marine Sanctuaries Act charges the Florida Keys National Marine Sanctuary with managing archaeological and historical resources in its waters to protect the public’s interest and prohibits disturbing, removing or possessing artifacts without a permit. NOAA and the State of Florida work together to protect and interpret maritime heritage sites in state waters of the sanctuary.

(continued on p. 6)

**Florida Keys
National Marine
Sanctuary**

Billy D. Causey
Superintendent

Kacky Andrews
State Co-trustee

Sanctuary Advisory Council

Bruce Popham--Chair
Boating Industry

Ken Nedimyer--Vice Chair
Commercial Fishing-
Marine/Tropical

Chris Bergh
Conservation and
Environment

Ralph Boragine
Commercial Fishing-
Shell/Scale

Jack Curlett
Citizen at Large-Upper Keys

Todd Firm
Diving-Upper Keys

Richard Grathwohl
Charter Fishing-Flats Guide

Debra Harrison
Conservation and
Environment

David Hawtof
Citizen at Large-Lower Keys

Don Kincaid
Diving-Lower Keys

Mark Klingbeil
Recreational Fisher

Jerry Lorenz
South Florida Ecosystem
Restoration

Martin Moe
Education/Outreach

George R. Neugent,
Elected Official

Krueger Nicholson
Tourism-Upper Keys

Kathleen Patton
Tourism-Lower Keys

Deborah A. Shaw
Research and Monitoring

Captain Robert Simonds
Charter Fishing/Sport Fishing

Denis Trelewicz
Submerged Cultural
Resources

Vacant
Citizen at Large-Middle Keys



Dear Reader:

This past summer it was my pleasure to attend the Annual Volunteer Recognition Reception given in honor of the many wonderful and talented people who have dedicated their time to the Florida Keys National Marine Sanctuary during the past year. The contributions of our hardworking volunteers extend beyond today, serving to protect our shared resources into the future.

Recently, I attended the National Marine Sanctuary Foundation Annual Leadership Banquet held in Washington D.C. as part of Capitol Hill Oceans Week. At the banquet, the Foundation honored Monroe County Commissioner George Neugent as the *Volunteer of the Year* for the Florida Keys National Marine Sanctuary. Through the years, Commissioner Neugent has worked tirelessly on sanctuary issues, made many valuable contributions, and has been responsible for gaining huge support for the sanctuary from the local community.

The sanctuary is happy to announce that the Florida High Adventure Sea Base, a national Boy Scouts of America facility located in the Florida Keys, has joined our team in helping to keep the coral reefs clean and healthy. The scouts conducted their first marine service project on the water with the guidance of the sanctuary's law enforcement officers. Find out more about this meaningful partnership in this issue of *Sounding Line*.

The waters of the Florida Keys are rich in both natural and maritime heritage resources. During the summer, a team of highly trained federal and state archaeologists examined a wooden shipwreck that could prove to be older than wrecks from the 1733 Spanish Treasure Fleet. By documenting this wreck site, these irreplaceable historic remnants can be better managed for future generations. I want to extend a hearty "congratulations" to those who worked so hard exploring and documenting the "mystery wreck," featured in this newsletter issue.

As a member of the International Advisory Board (IAB) for CORALINA, I recently participated in a meeting in the San Andres Archipelago in the southwest Caribbean. IAB reviews the progress of the development of the management programs by the staff of CORALINA for the Seaflower MPA. Our friends at CORALINA have done a tremendous job of reaching consensus with residents and stakeholders on the selection of areas to be zoned as "no-take" in this 29,5000 square mile MPA. The Seaflower MPA, designated by the Columbian government in 2004, is the largest MPA in the Wider Caribbean.

Protecting a coral reef ecosystem like the one in the Seaflower MPA is in itself very significant; however, it becomes more important when the ecological and oceanographic connections of the region are considered. Oceanic surface currents carry larvae, spawned from spiny lobsters, fish, queen conch and other marine life, from one area to another where they may settle out and grow to maturity. Setting aside these upstream spawning grounds in the southwest Caribbean helps to ensure that young fish and lobsters from other Caribbean reefs populate the ecosystem of the Keys. Good management and strong conservation measures in the Seaflower MPA will benefit all of our downstream coastal coral reefs. This issue of *Sounding Line*, features an article about the Seaflower MPA and one about our country's national network of MPAs.

The sanctuary team has been busy and I am forever reminded how fortunate I am to work with such dedicated public servants. The commitment and hard work of the sanctuary team continues to amaze me!

Sincerely,

Billy D. Causey



Sanctuary Volunteers Recognized at Reception

Six sanctuary volunteers were recognized for their contributions during the past year at the Annual Volunteer Recognition Reception held in June. Sanctuary volunteers worked a total of 4,180 hours on sanctuary programs and projects, the equivalent of about \$75,000 worth of contributions during this year alone.

2005 Volunteers of the Year

Julio Martinez--Coral Reef Classroom

Denis Trelewicz--Maritime Heritage

Jeff Belsnik--Operations

Jan Blackmon--Reef Medics

Richard Grathwohl--Sanctuary Advisory Council

Steve Davidson--Special Projects

Chuck Wagner--Team OCEAN



Volunteers and sanctuary staff attended the Annual Volunteer Recognition Reception. From left to right: Team OCEAN's Robert Keeley, Reef Medics Volunteer of the Year Jan Blackmon, Reef Medics Volunteer Karen Strickland and Team OCEAN Volunteer of the Year Chuck Wagner.



Resource Specialist Laurie MacLaughlin presents Jan Blackmon with the Volunteer of the Year Award for Reef Medics. (Photo: Chuck Wagner)



At the Foundation's Annual Leadership Banquet, Sanctuary Superintendent Billy Causey (left) and Commissioner George Neugent (right) pose for a photograph. (Photo: Laurie Howell)

Sanctuary Foundation Honors Commissioner Neugent

Monroe County Commissioner George Neugent was recognized by the National Marine Sanctuary Foundation as the *Volunteer of the Year* for the Florida Keys National Marine Sanctuary. National Marine Sanctuaries Program Director Dan Basta presented the award to Commissioner Neugent at the Foundation's Annual Leadership Banquet, held in Washington, D.C. as part of Capitol Hills Ocean Week. The Foundation honored one volunteer from each of the thirteen National Marine Sanctuaries at the ceremony.

Commissioner Neugent represents local government on the Sanctuary Advisory Council and served as the Council Chair for six years. During his service, he has demonstrated dedication and outstanding leadership in the community.



Seaflower MPA Protects Marine Resources in the Caribbean

Nancy Diersing FKNMS Education Specialist

In 2004, Columbia officially declared 29,500 square miles in the San Andres Archipelago, located in the southwest Caribbean, to be three multi-use “marine protected areas.” The Seaflower MPAs are the first Marine Protected Areas under Columbian law. In 2000, UNESCO (United Nations Educational, Scientific, and Cultural Organization) declared the archipelago to be a Biosphere Reserve called the Seaflower Biosphere Reserve. The recent MPA designation made it possible to implement additional resource protection measures, such as creating marine zones that limit or prohibit fishing and other consumptive activities.

The Seaflower MPA includes miles of fringing and barrier coral reefs, patch reefs, seagrass meadows, mangrove shoreline and deep water. This area is thought to be a source of fish and invertebrate larvae for other areas in the Caribbean, including the Florida Keys.

Mapping the area and developing a zoning plan for human activities within the MPA has been a collaborative process that has involved gathering input from fishers, local dive operators, and other stakeholders during the past five years. CORALINA, a regional government agency, was established to oversee the entire process and implement plans in the area. To oversee the day-to-day decisions, a co-management structure consisting of community commissions, scientific advisory committees and CORALINA officials has been established.



Sanctuary mooring buoy specialists installed mooring buoys at some of the more popular diving sites in the San Andres Archipelago during a trip taken two years ago. (Photo: Hank Becker)

An International Advisory Board (IAB) was created as a Special Advisory Committee to CORALINA to give advice on management of the Seaflower MPA. At their fifth meeting in July 2005, CORALINA’s International Advisory Board released a report that stated, “Over the years, the Board has repeatedly been impressed by the dedication and accomplishments of the CORALINA MPA team. However, the achievements over the past nine months since the last IAB meeting in October 2004 are truly phenomenal.

The Board congratulates CORALINA in securing the legal declaration of the MPA, now the largest MPA in the Wider Caribbean region and the second largest in the hemisphere (after the Northwestern Hawaiian Islands).”

The July 2005 report continued by adding, “Completing the zoning plans for all sections of the new and expanded MPA, with such strong community support, is a fantastic and tremendously important achievement. Good work has of course been done on many other aspects as well, including the draft umbrella regulations, the Integrated Management Plan, and the various Action Plans, but securing community approval of the zoning is a tremendous feat and bodes well for the future of the MPA, the resources, and the community.”

Some of the most important resource recommendations included in the IAB report involve quickly marking the newly defined zones using buoys, signage and public outreach; limiting fishing in special use zones; and securing better protection of spawning aggregation sites by closing them seasonally to fishing, eventually closing them year-round.



The land mass in the San Andres Archipelago consists of three major islands and seven atolls, with five located to the north of the major islands. (Photo: Hank Becker)

Marine Protected Areas Advisory Committee Issues Report

After two years of meetings, presentations and onsite visits, the Marine Protected Area (MPA) Federal Advisory Committee (FAC) issued a report containing recommendations for creating and managing a national network of MPAs that includes both existing sites and newly established ones that meet certain criteria. The FAC was established through Executive Order 13158 and is charged with providing advice and recommendations to the departments of Commerce and Interior.

According to Executive Order 13158, an MPA is “any area of the marine environment that has been reserved by federal, state, territorial, tribal or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.” This definition is not very different from the one developed by the World Conservation Union, which is accepted by many resource managers and scientists. MPAs have been established for various purposes, have different management characteristics, and have different levels of protection. Some may be in federal waters; others lie in state waters and some MPAs encompass both federal and state waters. Certain types of MPAs may adopt a system of marine zones, designating discrete areas within the MPA that prohibit certain types of human activities, such as fishing and waste discharge.

National marine sanctuaries, managed under the Department of Commerce’s National Oceanic and Atmospheric Administration, and national parks with coastal waters, managed under the Department of Interior’s National Park Service, are considered to be MPAs. Fishery management zones, national seashores, national estuarine research reserves, national wildlife refuges, state conservation areas, and others are also classified as MPAs.

According to the FAC report, the primary goal of a national system of MPAs would be to “enhance effective stewardship, lasting protection, and sustainable use of the nation’s natural and cultural marine resources with due consideration of the interests of and implications for all who use and care about our marine environments.” To achieve this goal, the report presents a statement of purpose, outlines the benefits of a national system, sets forth guiding principals, and explains key aspects of implementation.

The 30 members of the FAC are stakeholders with diverse interests including nonfederal scientists, recreational and commercial fisheries representatives, environmental groups, and others. Members serve a two-year term. A new committee is scheduled to meet in November 2005.

For more information, visit: www.mpa.gov/.

**“MPAs are used as a management tool to protect, maintain, or restore natural and cultural resources in coastal and marine waters. They have been used effectively both nationally and internationally to conserve biodiversity, manage natural resources, protect endangered species, reduce user conflicts, provide educational and research opportunities, and enhance commercial and recreational activities.”*

**Excerpted from: Salm, R.V., J. Clark, and E. Siirila. 2000. Marine and Coastal Protected Areas: A Guide for Planners and Managers. Washington, DC: IUCN – The World Conservation Union. xxi + 371 pp.*



The Florida Keys National Marine Sanctuary is itself an MPA that uses zoning as a marine management tool. In 2001, the Tortugas Ecological Reserve (TER) was established as part of the sanctuary. The TER protects deepwater coral reefs that are spawning grounds for many fish and invertebrates. (Photo: John Halas)

Sanctuary Partners with Boy Scouts to Keep Reefs Healthy and Clean

Liz Riesz, Sanctuary FWC Officer



The Ocean Adventure team retrieves the derelict shrimp net and transports it to land where it was disposed of properly. (Photo: Liz Riesz)

The “Order of the Arrow” (OA), the Boy Scout equivalent to a National Honor Society, has partnered with the Florida Keys National Marine Sanctuary, creating programs to spread conservation awareness and protect Keys reefs. OA is an elite group of Boy Scouts focusing their efforts on service and leadership in communities nationwide. This summer marked the first year OA has teamed up with the sanctuary in tailoring an educational- and service-oriented program benefiting both organizations, and, more importantly, the environment. The Florida High Adventure Sea Base on Lower Matecumbe, one of only three National High Adventure areas in the entire nation, will serve as the operations base for this new partnership.

The “OA Ocean Adventure” brought OA members from all over the country for a two-week long program. The first week focused on scuba diving certification and perfecting buoyancy skills. During the second week, the divers assisted researchers by conducting fish counts, reef cleanups, reef monitoring and other marine-oriented service projects. While awaiting their first summer crew, the OA staff from Sea Base assisted the Florida Fish and Wildlife Conservation Commission’s (FWC) Sanctuary Enforcement Team in removing a derelict shrimp trawl net from sanctuary waters.

While on patrol on May 28, 2005, sanctuary Officer Liz Riesz and sanctuary Investigator David Roudebush located a large section of shrimp trawl netting near Caloosa Rocks. The net was derelict and a hazard to navigation, as well as marine life. The trawl net was snagged on hard bottom with living coral and extended from the bottom to the surface, where it was connected to a large metal hoop and floats.

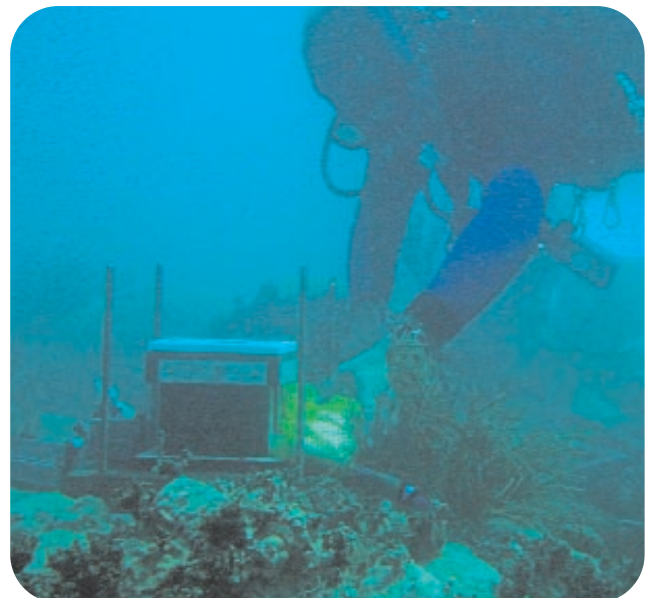
Officer Riesz made contact with the Sea Base OA staff, and on May 31, 2005, OA staff members Kyle Kleppe, Aaron Barber, Rich Moore, Ryan Kerr, and Nick Digirolamo removed the netting and debris, and properly disposed of it back on land.

Historic Keys Wreck Examined

(continued from p. 1)

The NOAA Office of National Marine Sanctuaries seeks to increase the public awareness of America’s maritime heritage by conducting scientific research, monitoring, exploration and educational programs. The Office of Marine Sanctuaries manages the National Marine Sanctuary System, which includes 13 national marine sanctuaries and one coral reef ecosystem reserve that together encompass more than 150,000 square miles of America’s ocean and Great Lakes natural and cultural resources.

Sanctuary Coral Restoration Monitoring Biologist Jeff Anderson assists Resource Manager Harold Hudson with the drill stabilizing structure used to core the star coral *Montastrea faveolata*. The core was taken from a coral that grew on top of the wreck pile and will undergo growth rate analysis to assist with the ship’s age identification. (Photo: Brenda Altmeier)





Sanctuary is Site for Seagrass Restoration Techniques

Alicia Farrer, Environmental Specialist

There are very few places in North America like the Florida Keys. One of the main attractions of this area is its bank barrier coral reef. Behind the glamorous glow of the coral is an equally important habitat that serves numerous crucial functions. It is a natural filter for sediments, a storm surge protector and a nursery for most of the recreationally and commercially important fish and shellfish species. It is the seagrass bed.

Monroe County is home to 54.6 percent of all Florida seagrass bed acreage, mostly in Florida Bay and the Florida Keys. It also has the highest percentage of moderate and severe scarring in the state. This scarring is due to the cumulative impact of vessel groundings throughout the Florida Keys. In 2001, approximately 500 boat groundings occurred in the Florida Keys National Marine Sanctuary, with about 60-70% of these taking place in seagrass beds.



Pearock is poured from a barge to fill a blowhole. Deeper scars and blowholes must be filled because seagrass plants will not grow downward, away from the sun. (Photo: Alicia Farrer)

A vessel grounding injury on a seagrass bed typically consists of three physical characteristics: propeller scars, blowholes and berms. Propeller scars are formed by the dredging effect of a turning propeller making contact with a shallow seagrass bed. When the captain uses the power of the engines in an attempt to free the vessel from the bank, a blowhole is formed from the force of propeller wash. This “technique” almost never works and the boat will usually require the help of a salvage professional. When the material ejected from the blowhole covers surrounding seagrass, it may create an elevated feature known as a berm, which often smothers healthy seagrass.

These injuries may never completely recover and have the potential to expand and merge with other injuries. However, there are restoration methods that enhance injury recovery and some methods may be used in conjunction with others, depending upon the site conditions.

NOAA’s Center for Coastal Fisheries and Habitat Research in Charleston, S.C. has been conducting research on seagrass restoration for 20 years. Ecosystem managers have applied this research in a seagrass restoration program in the sanctuary. Some of this past summer’s projects were funded by Florida’s Ocean Initiative, a comprehensive program focused on managing Florida’s marine resources.

The presence of numerous “t-shaped bird roosting stakes” placed close together on a banktop makes it easy to recognize a site that is being restored. These stakes serve as a platform for birds (most often cormorants) that defecate while roosting and provide excrement, rich in nutrients, for the water and sediment beneath the stakes. In combination with fertilization, planting faster-growing opportunistic species like *Halodule wrightii* (shoal grass) or *Syringodium filiforme* (manatee grass) serves as a temporary substitute for the climax species, *Thalassia testudinum* (turtle grass). This temporary substitution is referred to as “modified compressed succession.” After regrowth takes place, scientists will remove the bird stakes to prevent over-fertilization of the site.

The scarred seafloor can be returned to its original depth in the deeper blowholes and prop scars by filling the depression with pearock before transplanting. This helps stabilize the substrate to prevent further deterioration from erosion and to prepare the area for colonization by neighboring or transplanted seagrasses. The sediment fill, small limestone pearock from local quarries, is transported by barge to the site and placed into the blowhole or deep scar. Eventually, fine sediments settle out from the water column and fill the interstitial spaces of the pea rock, creating the desired habitat for new seagrass growth.

Seagrass transplants may be selectively removed from healthy seagrass beds located near the injury or from seagrass beds designated as donor sites. The plants are collected in a manner to ensure the bed is not degraded. The “planting unit” is made from seagrass picked by hand, bundled together and secured with galvanized wire. It is then inserted in a small hand dug hole in the sediment. In time and if the conditions hold, the transplants will establish themselves and begin to grow.



GIS Workshop for Educators Focuses on Marine Sanctuaries

Ivy Kelley, FKNMS Education Specialist

Eighteen educators discovered the wonders of GIS (Geographic Information Systems) during Mapping Ocean Sanctuaries, a teacher workshop held this June in Key Largo. "I never knew that so much information could be so easily accessible," said Misty Scevola, who had traveled from Aloha, Oregon to attend the three-day session.

Two days of intensive practice using ARCVIEW software and one day of field experience with GPS (Global Positioning Units) allowed the teachers to trace their own journeys and to overlay or "layer" information about everything from political boundaries to precipitation on their computer generated maps.

The workshop was sponsored by Florida Keys National Marine Sanctuary in partnership with the Center for Image Processing in Education (CIPE) and funded by a 2003 Grosvenor Geography Education Grant from the National Geographic Society Education Foundation.

"We are very excited to be a part of the GIS information revolution," said Mary Tagliareni, sanctuary education coordinator. "This workshop highlighted four lessons from the 'Exploring Data with GIS to Experience Sanctuaries' (EDGES) curriculum that was developed by CIPE with the National Marine Sanctuary Program and funding from a National Marine Sanctuary Program Education Catalyst mini-grant. We hope to offer similar workshops in the future."



Dana Wingate (left) of MarineLab in Key Largo and Shannon Willy (right), a kindergarten teacher from Ft. Myers, find high oxygen levels in local waters. (Photo: Sera Harold)

The Florida Keys National Marine Sanctuary thanks everyone who contributed their articles, photographs, and editing expertise to *Sounding Line* newsletter. *Sounding Line* is produced by the Florida Keys National Marine Sanctuary. For more information or to be placed on the mailing list, email the editor at Nancy.Diersing@noaa.gov.



Florida Keys National Marine Sanctuary
P.O. Box 500368
Marathon, Florida 33050

<http://floridakeys.noaa.gov/>

