

Characterization of Navassa Island, National Wildlife Refuge

Period of cruise: 04/18/2006 - 05/01/2006

Research Platform: Aboard NOAA ship
NANCY FOSTER

Background Information:



Navassa Region Map

In 1999, Navassa Island was designated as a National Wildlife Refuge under the jurisdiction of U.S. Fish and Wildlife Service (USFWS). Navassa is a small (5 km²) uninhabited island west of Haiti, largely inaccessible except for a small and precarious landing at Lulu Bay. Navassa Island has a very energetic coastal wave environment, particularly the exposed east coast. Possibly intense, but largely unquantified artisanal fishing pressure from nearby Haiti may be affecting the biodiversity and reducing the fish stocks. Much of the coral reefs of Navassa Island on the deep slopes below 30 meters are as yet unexplored.

Cruise Objectives:

Relatively few research cruises have been conducted on Navassa Island. Previous research has focused mostly on terrestrial and shallow water (<30 m) resources. This cruise will expand upon valuable information collected from previous research and include surveys of the deep terrace (30-50 m).

Personnel

In order to handle the unique conditions created by working in Navassa and to achieve our diverse study objectives, we have collected a group of highly skilled people from a variety of backgrounds.

NOAA/NCCOS: Center for Coastal Fisheries and Habitat Research

- Dr. Greg Piniak, Chief Scientist
- Christine Addison
- Brian Degan
- Dr. Vanessa Nero
- Abigail Poray
- Jenny Vander Pluym
- Amy Uhrin
- Paula Whitfield

NOAA/NCCOS: Center for Sponsored Coastal Ocean Research

- David Hilmer

NOAA/NCCOS: Silver Spring Headquarters

- Dr. Ruth Keltly

NOAA Public Health Service, Marine Operations Center - Pacific

- Will Foust, Dive Medical Officer

Perry Institute for Marine Science

- Dr. John Marr

Fondation Pour La Protection de la Biodiversite Marine (FoProBiM)

- Jean Wiener, Translator

National Park Service, Biscayne National Park, Homestead, FL

- Shelby Moneysmith

Solmar Hydro

- Mike Stecher, Multibeam Surveyor

Our mission objectives include:

- Generating habitat maps for resource managers using:
 - Side scan sonar
 - Multibeam sonar
 - Drop cameras for ground truth verification
 - Diver surveys (fish transects, benthic photoquadrats)
- Interviewing fishermen, and investigating traps with diver surveys and drop camera verification to determine:
 - Abundance of artisanal fishing gear
 - Types of gear used
 - Catch landed
 - Benthic habitats fished
 - Potential impact to benthic resources
- Collecting specimens for stable isotope analyses and herbivory assays to determine:
 - the trophic structure on coral reefs in Navassa and
 - energy transfer between trophic guilds and/or habitat types
- Quantification of the physical environment around Navassa using:
 - CTD casts
 - Light profiles
 - Installation of long-term temperature loggers
 - Acoustic Doppler Current Profiler data
- Assessment of the population status of species possibly impacted by artisanal fishers such as:
 - Conch
 - Sea turtles
 - Lobsters

Read more about Navassa Island

DAY 1 - 4/21/2006: ARRIVAL ON SITE



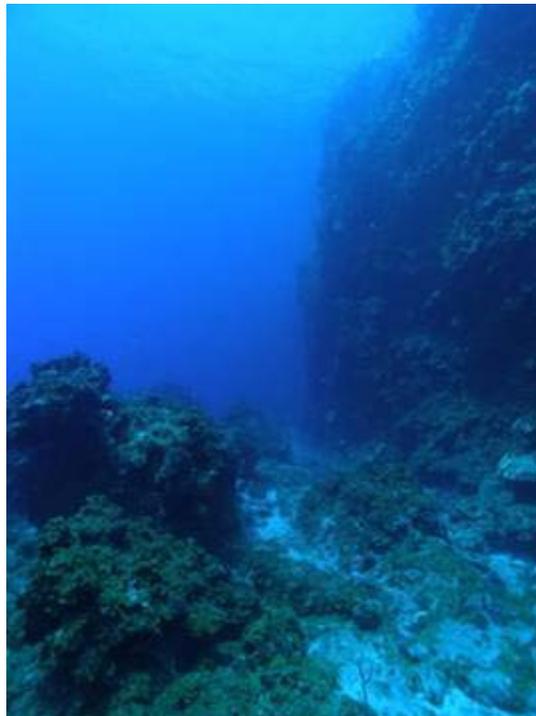
divers aboard SeaArk
by Jenny VanderPluym

On our first afternoon of operations we made initial contact with artisanal Haitian fishermen and had a “gear shake-down dive”. Much to our delight, the seas were calm enough to lull a baby to sleep. All divers suited up as the ship’s crew launched two small crafts with impressive skill and agility. The atmosphere on deck was one of excitement and nerves.

Today’s dive focused on orientation, exploration, and safety checks-no data collection yet. Some folks practiced their fish identification skills while others became more familiar with the camera equipment.



dive prep camera
photo by Christine Addison)



Navassa Wall
by Abigail Poray

Highlights of the dive included

- juvenile conch
- black wire coral

- a rare sighting of a large Nassau grouper
- visibility of 100 feet and beyond

Only one word could sum up today's activities: OUTSTANDING!

Navassa Cruise 2006 Day 2

Day 2: 4.21.06 - First day of operations

Mission: Habitat Characterization of Navassa Island

Today was our first full day of operations on Navassa Island. With the shakedown dive behind us, everyone was ready and confident to begin sampling. Today, we:

- did two deep water habitat surveys
- made contact with Haitian fishermen
- began conch surveys
- collected fish for ciguatera studies.

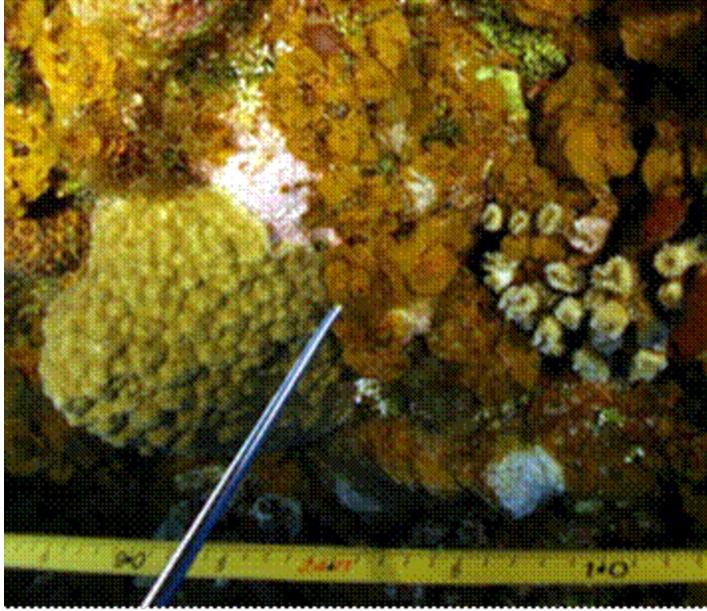
Habitat Surveys



*Paula Whitfield, Dave Hilmer,
and Amy Uhrin prepare to dive,
photo by C. Addison*

Our habitat dives focused on the south side of the island. We surveyed two sites, with eight divers doing three dives per site.





Our objective is to characterize and describe habitat and fish communities in water depths 90 feet and greater, supplementing shallow water surveys done on previous research cruises by Dr. Margaret Miller, NOAA-Fisheries Southeast Fisheries Science Center, and others.

The most common habitat encountered on today's dives was patchy reef with dense algal and hard cover coral. The photo shows an example of a benthic habitat photo which will later be analyzed to find out what organisms (such as corals, sponges, algae, etc.) were present and in what densities.

Common fish recorded in fish counts today were:

- squirrelfish
- barracuda
- surgeon fish
- lobster

Queen Conch Census



*photo: snorkeler doing conch survey,
by C. Addison*

Today's objective was to do an initial coarse scale survey for conch aggregations around the island. Little is known about conch populations surrounding Navassa, but on other Caribbean islands, conch face heavy fishing pressure. We surveyed most of the south side of Navassa by towing a snorkeler on a manta board, a small board towed behind a boat at a slow speed. Due to conch's well camouflaged shells (often encrusted with algae) we were unable to identify them from the surface. We did see amazing

rock structures, steep coral encrusted ledges, small reef fishes, and barracudas. Tomorrow we will do a fine scale conch survey using SCUBA and we hope to determine the age structure and density of resident conch populations.

Gear Impact Study



*photo: Haitian fishermen,
by A. Uhrin*

Yesterday, scientists Amy Uhrin and Jean Weiner made their first contact with a group of Haitian fishermen. With Jean translating from the fishermen's native Creole language, Amy and Jean would converse with the fishermen in their native Creole language and inquire about the location of some of their traps. These Haitian fishermen mark their traps with scavenged plastic bottles filled with foam, a simple yet effective method.



*photo: fishermen's catch,
by A. Uhrin*



*photo: Jean and drop camera,
by A. Uhrin*

Today, these fishermen caught the following fish types:

- rock beauty
- squirrelfish
- cowfish

The scientists used an underwater drop-camera to survey the types of habitat being fished as well as to investigate potential habitat damage from traps and other fishing gear. Tomorrow, Amy and Jean will continue talking with the fishermen and searching for additional fishing gear.

Ciguatera Sampling

Ciguatera is an illness that is caused by consumption of seafood containing toxins that are produced by species of harmful algae (dinoflagellates in the genus *Gambierdiscus*). Ciguatera poisoning is the most common form of seafood poisoning affecting as many as 50,000 people yearly world wide. The toxins are transferred up the food chain from the single celled *Gambierdiscus* microalgae through small fishes that feed on the cells to the larger predatory fishes that feed on the small fish to humans and animals that consume the small and larger predatory fishes. The toxins produced by *Gambierdiscus* species are called ciguatoxins and are classified as neurotoxins because they affect the central nervous system. Some symptoms of ciguatera poisoning include nausea, vomiting, itching, blurred vision, numbness and tingling, hot and cold reversal, and cardiovascular irregularities. Severe poisoning can result in paralysis, coma, and death. Symptoms can persist for days or for as long as years with occasional recurrences.



Paula Whitfield and barracuda,
by J. VanderPluym



photo: blackfin tuna and Jenny VanderPluym,
by B. Degan

The research goals of our lab include collecting ciguatoxic fishes and new strains of *Gambierdiscus* cells for laboratory culture so that we can begin physiological and ecological studies to gain a better understanding of ciguatera dinoflagellates and their biology.

Fish of interest to us include:

- barracudas
- jacks
- amberjacks
- groupers
- hogfish

Fish sampling using conventional fishing gear allows the scientists aboard the Nancy Foster to be productive even in transit between dive sites. Today's fishing was quite successful bringing in black fin tuna and two barracudas, one exceeding 3 feet in length. Both barracudas will be great contributions to the lab's ongoing ciguatoxins study.

Navassa cruise Day 3 - 4.22.06

Day 3: 4.22.06

Conch Survey



queen conch (*Strombus gigas*)
by S. Moneysmith

Today we completed a conch survey dive on the south side of Navassa. We targeted sandy and rubble substrates, as these appear to be preferred for both adult and juvenile conch. Dave Hilmer and Christine Addison surveyed three 30 meter transects, each four meters wide. Within this transect belt, 5 milk conch (*Strombus costatus*) and no queen conch (*Strombus gigas*) were observed. In addition, fish

counters found five adult conch during our morning habitat dive. Adult conch are distinguishable from juveniles by the presence of a flared lip, heavily encrusted with algae and well hidden.

Fish and Habitat Data Surveys



photo: sponges on a spur & groove reef,
by A. Poray

We also surveyed two deepwater habitat sites today. The second dive of the day was in a spur and groove habitat. The term "spur and groove" describes a series of reef and/or rock ridges alternating with valleys of sand and/or rubble, as if a comb pulled through the reef.



Ruth Kelly reels in a transect tape at the end of her fish survey.
(photo by J. Marr)



Paula Whitfield deploys a surface float at the beginning of the ascent from her dive.
(photo by A. Uhrin)



Divers returned from this dive with sightings of:

- schooling ocean triggerfish (+20) (*photo by A. Poray*)
- a large hogfish
- sponges nearly the size of 50 gallon drums
- large stands of lettuce coral (*Agaricia sp.*)

Birds



*photo: adult brown booby,
by C. Addison)*

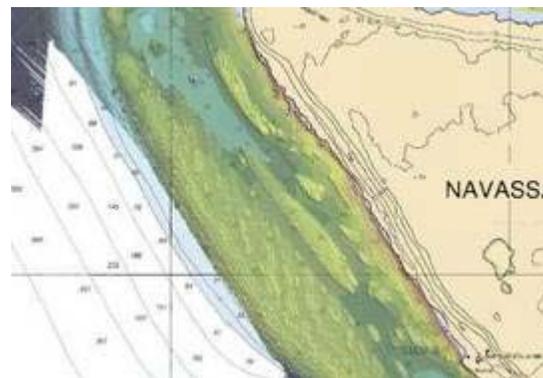
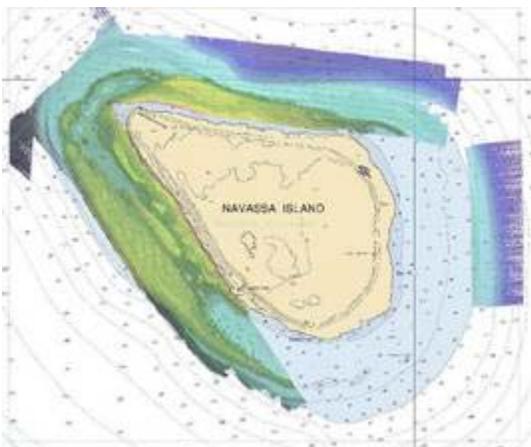
While waiting to dive, scientists did some bird watching. Navassa Island has a large population of magnificent frigate birds, brown footed boobies, with an occasional tropic bird and red footed boobies. One brown footed adult landed on the cliff face near the scientist's boats. Higher up the cliff was another adult with a young chick.



photo: booby nest,
by C. Addison

Bathymetric Mapping of Navassa Island

In accordance with a congressional mandate to map all coral reef habitat in United States waters, the Nancy Foster is using a technique called multibeam sonar to map a 100 km² area of the sea-floor that surrounds Navassa Island National Wildlife Refuge. The hull of the ship is outfitted with a sweep sonar, or transducer, which can send out 111 pings (sound waves) in a sweep formation 10 times per second. The transducer then measures the time travel of sound waves from the boat to the sea-floor and back again at 111 angles, and mechanically compensates for the natural pitch and roll of the ship. These highly accurate maps will help ground-truth maps put together from drop-camera work previously conducted by Dr. Margaret Miller of the NOAA-Fisheries, Southeast Fisheries Science Center. We will use these maps in concert with our fine-scale SCUBA habitat survey data to get a more complete picture of the extent of coral reefs around the island.



(photos: Navassa with multibeam images, Western Navassa with multibeam-zoomed in, by M. Stecher and D. Boles)

Dan Boles, the resident survey tech aboard the Nancy Foster, and Mike Stecher, owner and founder of the survey contractor Solmar Hydro, plan and execute these surveys remotely from the command room. Dan and Mike along with the ship's crew have been working around the clock and have made significant progress to date.

Day 4: 4.22.06

Water temperature monitoring

Today we installed temperature loggers at four different sites around the island in water depths ranging from 30-110 feet. The data loggers are configured to record a temperature measurement every hour for up to three years. Dr. Margaret Miller from the NOAA Southeast Fisheries Science Center in Miami will retrieve our loggers during her research cruise in November.



photo: diver C. Addison installs a temperature logger marked with small blue subsurface float, by J. Marr

Sea surface temperature in remote locations like Navassa are monitored by satellite measurements, but because the waters around Navassa are very deep, surface temperatures may not be the same as those on the sea floor. Data from the network of underwater temperature loggers that we install will show how similar sea surface temperatures are to bottom temperatures where corals actually live. Coral mortality events have been observed during previous research studies at Navassa reefs. These mortality events may have been caused by coral bleaching, which is often associated with high water temperatures. However, no bottom temperature data exist to confirm these hypothesized high temperature events.

Fish and Habitat Surveys



Chief Scientist G. Piniak splashes into a dive,
photo by A. Poray



Schooling Bermuda chub,
photo by C. Addison



Divers J. VanderPluym and C. Addison compare notes during a dive,
by S.Moneysmith



Divers G. Piniak and R. Kelty at the surface giving the OK sign,
by A. Poray.

A closer look at the Nancy Foster and her crew



photo: fantail of Nancy Foster

The NOAA ship Nancy Foster was originally built for the U.S. Navy as a yard torpedo test craft. She is 187 feet long, 40 feet wide, and draws 12 feet. In 2001, the ship was transferred to NOAA and converted to conduct marine research along the Atlantic, Gulf, and Caribbean coasts.

Who works on the Nancy Foster?

Her crew consists of 20 NOAA employees who serve in three different capacities: as NOAA Corps officers, wage mariners, and General Schedule employees.

What is the NOAA Corps?

The NOAA Corps began in 1807 with the establishment of the Survey of the Coast by President Thomas Jefferson. Today's NOAA Corps officers serve at sea aboard NOAA research and survey ships, in flight aboard research aircraft investigating anything from snow cover to hurricanes, and on shore in NOAA labs and offices. All officers have bachelor degrees and go through a lengthy application process before beginning a three-month training curriculum at King's Point, New York. Positions held by NOAA Corps officers aboard the Nancy Foster are: Junior Officer, Navigational Officer, Operations Officer, Executive Officer, and Commanding Officer (Captain of the ship). NOAA Corps officers are commissioned officers appointed by the President of the United States.

What is a Wage Mariner?

Wage mariners fill a variety of positions from piloting small craft to keeping the intricate ship systems and engines running. Wage mariner positions on the Nancy Foster are: Chief Boatswain, Able-Bodied Seaman, General Vessel Assistant, Licensed Engineer, Steward, and Survey Technician. There are two routes to become a wage mariner, either by attending a maritime academy for marine training (referred to as the Academy route) or by starting at entry level and working up the ladder (self-titled "Hawspipers"). Wage mariners sign on with a boat for shorter periods of time (months) up to 30 years, or as their skills are needed for specific cruises or vessels.

A closer look at two new Nancy Foster crew members

Matt Trembley, General Vessel Assistant



The youngest member of the crew is 19 year-old Matt Trembley from Bremerton, WA. After high school, Matt looked into the Navy but decided he wanted to experience life at sea before he made such a commitment. He signed up as a wage mariner for NOAA and received a call asking him to get to Seattle in two hours. Within two days he was boarding the Nancy Foster in St. Croix, U.S. Virgin Islands. In his one and a half months at sea, he has been to the U.S. Virgin Islands, Puerto Rico, and Navassa Island. Today, Matt went snorkeling for the first time in his life.

Matt's daily duties include:

- deck maintenance
- operation of deck cranes
- bridge watch
- assistance in launch and recovery of small vessels.

Matt considers this line of work more of a lifestyle than a job. *(photo by J. VanderPluym)*

Lecia Salerno, Ensign



One of the two female crew members on board is Ensign Lecia Salerno, from Halifax, PA. She studied marine biology at Coastal Carolina University. She discovered the NOAA Corps while surfing the NOAA website for job openings. Lecia has been an officer since completing her three months of basic training in October 2005.

Ensign Salerno's daily duties include:

- managing the ships store, medical supplies, and impressed funds
- standing bridge watch
- completing daily ship logs
- assessing weather conditions
- launching and retrieving small vessels

In addition, Lecia recently redesigned the Nancy Foster website. Once her two and a half year sea assignment concludes, she will then have a three year land assignment during which she hopes to work with sharks. She had this to say about her experience so far, "I get paid to dive and to see the sunset and sunrise over the Caribbean every day." In short, it is worth it. (photo by J. VanderPluym)

Day 5: 4.24.06

Gear Impact Study



Part of today's mission was to observe and document the species of fish caught in the artisanal Haitian fish traps. (photo: fish trap with A. Uhrin, by A.Poray)



When scientist Amy Uhrin first hopped off the boat to observe the trap by snorkeling on the sea surface, she discovered that Haitian fishermen are not the only ones utilizing the fish traps here at Navassa Island. A dolphin was observed investigating the trap in about 75 ft of water! This trap was resting on its side, perhaps out of curiosity or trying to get at the fish caught in the trap? The

Chief Scientist tossed her a camera and Flipper was caught in the act! (photo: dolphin checking out trap, by A. Uhrin)



Two scientists and a crew member later dove on another trap, this one located on sandy substrate near the edge of a colonized boulder field. (photo: A. Uhrin and L. Salerno ascending after a trap investigation dive, by A. Poray)



The traps, called Caribbean Z-traps, are made of meshed/woven bamboo with wood cross supports and corners. Rocks are used as ballast and are tied at opposite corners of the traps with bamboo strips. (photo: Caribbean Z trap, by A. Poray)



Caribbean Z traps have opposing funnel entrances (*photo: funnel entrance to Z trap, by A. Poray*). In addition to finfish, lobsters are often caught in the traps. Today, however, only three parrotfish were found swimming around inside.

Scientist Jean Wiener has been surprised that there is only one Haitian boat currently fishing the area. In a number of interviews conducted by Jean on the mainland, most Haitian fishermen agree that the best fishing around Navassa Island is during the Easter season, between March, April, and May. In conversations with the four fishermen presently at Navassa, Jean has discovered that the moon phase may also be driving fishing activities; the currently waning moon is not the preferred lunar phase for the fishermen. It remains to be seen whether lunar phase can be linked with fish behavior, distribution, and abundance here at Navassa.

Fish and habitat surveys



An example of coral diversity on the north side of Navassa (photo by A. Poray)



Large ctenophore spotted in the water column during a dive safety stop (photo by A. Uhrin)



Dave Hilmer ascending from dive
(photo by A. Uhrin)

IN THE SPOTLIGHT: Crew members of the NOAA Ship Nancy Foster

Greg Walker, Able Bodied Seaman



Greg joined the Nancy Foster two months ago after retiring from the Navy. His naval career included active duty in Desert Storm and Desert Shield, Quarter master (Navigation), and Career Recruiting. He also worked with the Explosive Ordnance Disposal Unit (E.O.D.) in Mine Recovery, serving as support for fleet divers that trained sea lions to aid in the recovery and deployment of mines. After retiring last year, Greg spent six months with his family before joining NOAA as an Unlimited Able Bodied Seaman. Due to his considerable

experience, he can work on any type of vessel, thus the title “Unlimited.”

Some of Greg's daily duties include:

- launch and recovery of small vessels (which requires operation of large cranes and other heavy machinery)
- deck maintenance
- bridge watch
- small vessel operation

Greg estimates that he will spend up to eight months out of the year at sea. His final comment about on life on the Nancy Foster was, "I could do this for another 20 years." (*photo by J. VanderPluym*)

Robert "Bob" Ellis, Junior Engineer



Bob came aboard the Nancy Foster upon the urging of his brother's neighbor, Chief Marine Engineer Tim Olsen, and has been onboard for 1.5 years. Bob has previously worked as a commercial crabber, equipment operator, mechanic, and now is an engineer. He signed on as a general vessel assistant, but advanced to junior engineer due to his previous experience in diesel engine mechanics.

Some of Bob's daily duties include:

- continuous maintenance of the small vessels
- main engine maintenance
- engineering watch duty
- deck machinery maintenance

Bob also has helped the scientists catch fish, mainly barracuda, for the NOAA project focused on ciguatera-related toxins outlined in Day 2's log. To date, his favorite port of call has been St. Croix, U.S. Virgin Islands due to its small town feel and relaxed atmosphere. (*photo by J. VanderPluym*)

Dave Leaphart, Able Bodied Seaman



A native of Mt. Pleasant, South Carolina, Dave was able to see the Nancy Foster in her home port of Charleston before he decided to leave his job working with the Local 25, a union of operating engineers, and join NOAA as an able bodied seaman (ABS) for tug operations. He began his career in construction which then led to marine construction and dredging operations. He has been aboard the Nancy Foster since January 2005.

Some of Dave's daily duties include:

- bridge watch (two per day)
- small vessel operation
- deck machinery operation
- small vessel launch and retrieval

After all of his experiences, he says he enjoys the atmosphere of the Nancy Foster the best. When asked what made this ship so special, he replied, "I work with people that are passionate about the ocean and what they are doing. I find that inspiring." (*photo by J.*)

Day 6: 4.25.06

Stable Isotope Collections



photo: B. Degan collecting fish for stable isotope analysis, by A. Poray)

Stable isotope analysis is a tool used to examine the trophic (feeding) linkages between plants and animals in an ecosystem through examination of carbon and nitrogen levels across the food web. Piscivorous (fish-eating), herbivorous (plant-eating), and planktivorous (plankton-eating) fish as well as various species of invertebrates and algae are being collected on this research cruise as representatives of

Navassa's complex food web. Isotope analysis will provide us with a better understanding of the movement of energy from the primary producers (such as photosynthetic plants and plankton) to the top consumers (such as fish) for the communities associated with Navassa Island.

For samples to be analyzed using stable isotopes, the science crew collects fish, coral, and algae specimens based on a predetermined species list. This kind of collection at Navassa Island National Wildlife Refuge is allowed by the permit from the US Fish and Wildlife Service. Species collection is cautiously balanced between the abundance and availability of each desired species and the sample priority list.

- Fish collections may be by trawl, hook and line, or by spearfishing. (
- For coral sample collection, divers carefully take only a small sample of tissue, about the size of a quarter, off the edge of a colony with a chisel and hammer.
- Clumps of macroalgae are hand-collected by divers.

All specimens collected are preserved in a deep freezer aboard the Nancy Foster for future analysis back at the lab. There, muscle tissue is removed from fish, dried, and ground for analysis in a mass spectrometer.

Habitat and Fish Surveys

Fair seas during the last two days have allowed us to dive on the east side of the island. This windward side of the island can often be inaccessible because of the trade winds and potentially large waves. Both of today's habitat and fish survey dives were in approximately 100 feet of water on a pavement-like hardbottom. Although this area does not have the large rock features of some of our previous sites, it still provides valuable habitat to a variety of fishes and invertebrates. We have observed fish species such as large French angelfish, bicolor coney, and soapfish.



Large flower cup coral (*Eusmilia fastigiata*) surrounded by sponges.
Photo by S. Moneysmith



Brown boobies interested in the radio antenna on a small boat.
Photo by A. Uhrin

Scientists in the spotlight



The dive team self-titled "The Chorbitas" are just one example of the extensive interagency cooperation evident in the scientific party. Photo: Divers J. VanderPluym (front) and C. Addison enjoying their safety stop at the end of their dive, by S. Moneysmith



Shelby Moneysmith is the team habitat photographer. Shelby is a Biological Science Technician and the Dive Safety Officer (DSO) for Biscayne National Park, in Homestead, FL, where she is a valuable contributor to a variety of ongoing natural and cultural resource management projects. We are fortunate to have Shelby's positive attitude and superior dive skills on this, her first offshore research cruise. Photographer extraordinaire, S. Moneysmith, making a rare appearance in front of the camera, by C. Addison



Jenny VanderPluym, research technician, departed on the Navassa cruise just one week after starting at CCFHR. Jenny's main duties on the cruise are counting fish as a scientific diver and writing website copy. In March, Jenny completed her master's degree in marine science at North Carolina State University. *Photo by S. Moneysmith*



Christine Addison, biological technician at CCFHR, is a fish counter and Principal Investigator for the conch survey. Christine has enjoyed the exploration of such a remote, tropical location with its rich marine and terrestrial wildlife and has been an avid bird watcher between dive operations. Christine will be pursuing a master of marine science degree at the University of California, Santa Barbara this fall. *Photo of Shelby Moneysmith (L) and Christine Addison (R) by J. VanderPluym.*

Spotlight on Crew members

Tom Cleary, Third Engineer



“I’m from Cape Cod originally,” says Tom with an accent to make any Massachusetts native proud. He began working on the water as a mate while a teenager and continued as a ferry boat captain (100 ton license) even after graduating with a double major in History and Political Science from Elon University, in Burlington, NC. After applying to NOAA, he was offered a job in the engineering department and jumped at the chance to work from one of his favorite ports of call, Charleston, S.C. Tom has worked with NOAA for five years and has been on the Nancy Foster for one year. Although he misses his wife and two children, he loves the engineering work and enjoys the Foster crew.

Tom's daily duties include:

- engine room watch
- continuous engine maintenance
- small vessel maintenance
- large machinery repair
- maintaining the many electrical and plumbing systems of the Nancy Foster

Photo by J. VanderPluym



Will Wells, NOAA Corps Navigational Officer

Will entered the NOAA Corps directly after graduating from the University of North Carolina, Asheville with a major in atmospheric science. The 25 year old North Carolina native will complete his entire at-sea assignment on the Nancy Foster and couldn't be happier about it: "I can honestly say I work with one of the best crews in the fleet." He enjoys the diversity of projects this ship takes part in: coral habitat classification, multi-beam operations, whale watching, and water quality sampling after Hurricane's Rita and Katrina. After completing his at-sea assignment, he will move to the National Data Buoy Center in the Stennis Space Center in Mississippi.

Will's daily duties include:

- updating navigational charts
- correcting coast pilots (NOAA publications that detail points of interest in the area)
- maintaining navigational publications
- maintaining navigational instruments
- standing watch and driving the Nancy Foster
- operating small vessels.

Photo by J. VanderPluym

Brad Delinski, Acting Boatswain Group Leader



Brad has worked at sea for the last 10 years, making port in 27 different countries. Perhaps this was because of spending his first 10 years in the landlocked desert of Arizona. Brad, 30, initially gained valuable ship experience during eight years as an Army Quartermaster on a 130 foot ocean tug. In the three years that Brad has been with NOAA, he has worked on three NOAA ships: the Rude, the Ronald H. Brown, and the Nancy Foster, where he's been since July 2005. Brad has been promoted from Ordinary Seaman to Group Leader, which requires him to be a master at multi-tasking.

Brad's responsibilities include:

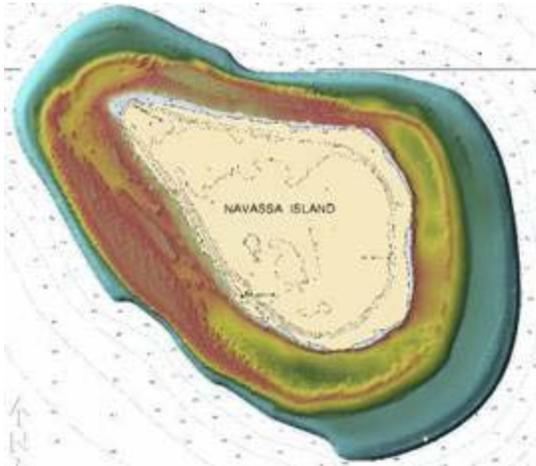
- launching and recovering small boats
- standing bridge watch
- maintaining boats and deck equipment
- operating all deck machinery
- directly assisting the Chief Boatswain
- being a diver, dive medic and medical person in charge (MPIC)

Brad's future plan is to get his Mate's license and work on the bridge. He makes this comment about his demanding job: "people pay to go on vacation, where we are paid to go to work>the view from my office window is never the same twice." *Photo by J. VanderPluym*

Day 7: 4.26.06

Research continues on the Nancy Foster

Navassa multibeam



(Image by Mike Stecher of Solmar Hydro Industries and Dan Boles, NOAA Survey Technician)

With over 102 km² (330 line km) of survey area, the sea-floor mapping around Navassa Island is nearly complete. Shallow water mapping has been completed, and the deeper track lines will hopefully be completed tomorrow. Mike Stecher, Dan Boles, and the ship's crew have been working extremely long hours, taking advantage of our good weather window to complete the survey.



Mike Stecher and Dan Boles take a break in the dry lab,
by J. Vander Pluym

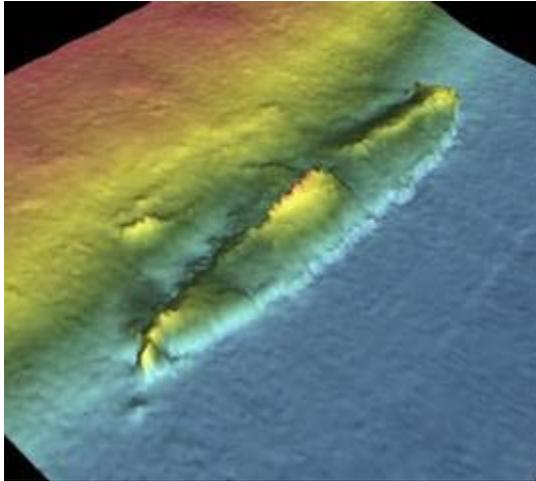
The Nancy Foster's transducer is a Simrad EM1002, a 95/98 kHz sonar sweep system that provides 100% ensonification (acoustically imaged area) of the seafloor with a ping rate of up to ten times a second. This is the first time the area around Navassa Island has been mapped to such high resolution. The data will be used for:

- habitat classification maps
- updating navigational charts
- resource managers to use for characterization of resources

Location of a shipwreck

During a multibeam survey on Tuesday, a shipwreck was located far from its previously mapped location on the navigation chart. The wreck had been searched in previous hydrographic surveys with echo sounder and range azimuth control but was not found.

Using the Automated Water Obstruction Information System (AWOIS), we were able to obtain historical information on this shipwreck. It could be the Ferngarth, which was a 380 foot, steel hull, British steamer built in 1911. In addition to a crew of 31, she carried general cargo from New York to Australian ports. On August 13, 1921, the Ferngarth sent a distress signal stating the vessel was on fire and in need of immediate assistance. Her crew was rescued by the steamer Yalza, bound for Boston.



(Image by Mike Stecher of Solmar Hydro Industries and Dan Boles, NOAA Survey Technician)

This afternoon, scientists deployed a drift camera over the area and confirmed that the object in the multibeam image was a shipwreck and seemed to be mostly intact. A diverse fish community was seen over the wreckage including:

- ocean triggerfish
- barracuda
- jacks
- chubs
- snapper.

Conch surveys



Conch surveys continued around the island. Only a few adult conch have been counted during the surveys. One conch in particular stood out from the rest with a full grown sponge hitching a ride on its shell. (*Photo by S. Moneysmith*)

Fish and Habitat Surveys

Buoys are deployed early each morning on randomly generated GPS points around the island. Dive teams then survey each site using the buoy as their starting point and proceeding along different headings.



Buoy set-up on deck ,
by C. Addison



Buoy dropped by C. Addison,
by P. Whitfield



Dive gear set-up: W. Foust and J. VanderPluym
by C. Addison



Boats away ,
by C. Addison



Acropora ,
by R. Kelty



Underwater landscape during an afternoon stable isotope sampling dive,
by R. Kelty



Black Jack,
by A. Poray

SCIENTISTS IN THE SPOTLIGHT



marine biology at California State University, Northridge and conduct algal research on the



Abigail Poray has worked at CCFHR for two years. She was a 5 Colleges intern at CCFHR and worked on spatial analysis of monitoring data collected in the Dry Tortugas Ecological Reserve. A year after she graduated from University of Massachusetts, Amherst, she returned to CCFHR as a research technician. Among many other tasks, she has significantly contributed to six research cruises and has an ongoing project focused on salt-marsh shoreline exposure in Bogue Sound, North Carolina. This fall, Abby will pursue a master’s degree in marine biology at California State University, Northridge and conduct algal research on the island of Moorea. (Photo of Abby Poray (L) and Brian Degan (R) by S. Moneysmith.)

Brian Degan, a North Carolina native, has been a biological technician at the NOAA lab in Beaufort since 2001. During his undergraduate studies in the Fish and Wildlife Department of North Carolina State University, Brian interned with the Beaufort lab working on hook mortality of adult red drum in the Neuse River Estuary and effects of low dissolved oxygen on menhaden populations. Little did he know that he would be sent on over 30 research cruises with NOAA including projects in the Caribbean, southeastern U.S., and Alaska. (Photo of dive team: beauty and the beast? of A. Poray (L) and B. Degan (R), by S. Moneysmith)

Brian Degan, Abigail Poray and Amy Uhrin have been on two back-to-back research cruises on the Nancy Foster. The first leg, around eastern Puerto Rico and Vieques, was dedicated to calibrating and ground-truthing seagrass growth models as well as assessing seagrass bed injury due to manatee feeding. Without skipping a beat, these scientists dove into to the Navassa Island survey. When the Navassa research cruise ends, they will have been on the ship for over a month straight!

NOAA Ship Nancy Foster Crew Spotlight



Cornell Hill, Acting Chief Boatswain

For a man who has traveled around the world three times, Cornell is a very humble man. He will celebrate his 58 birthday in June, but cannot imagine his life without working as he enjoys the feeling of accomplishment that working gives him. Cornell began working for NOAA as a Messman on the Discoverer in 1968. He has since worked as a Steward, Seaman Surveyer, Boatswain Group Leader, Chief Boatswain and now Acting Chief

Boatswain. In his 30 years of working for NOAA, he has worked for NOAA on 7 different ships, dedicated either to fishing operations, submarine work, data buoy deployment, or scientific research. “I have no regrets and have truly enjoyed working for NOAA,” says Cornell about all of his experiences so far. His favorite place is Bora Bora, an island off of Tahiti, a place he remembers fondly because of a mountain climb that resulted in touching a cloud. He feels that working with the scientists has been very special due to all of the interesting people he has been able to meet.

Cornell's duties include:

- management of deck staff
- launch and retrieval of small vessels
- bridge watch
- operation and maintenance of deck machinery.

(Photo by J. VanderPluym)

Day 8 4.27.06

Habitat ground-truthing

Art Gleason, University of Miami, provided habitat data that he interpreted from single-beam bathymetry and backscatter data. His data was collected on previous Navassa research expeditions using a Quester Tangent Corporation instrument.

We have been surveying selected locations with a drop camera connected to a high-accuracy GPS to provide additional information on the type of habitat at a given location. This video footage will help:

- assess the accuracy of habitat maps
- provide supplemental habitat information for our multibeam charts.

Conch update



Today's objective was to examine sizes of conch shells discarded by Haitian fishermen in Lulu Bay. In previous conversations with fishermen, Jean Weiner learned that fishermen typically return to Haiti with their conch catch whole. When fishermen catch smaller conch, they knock a hole near the tip of the spire to release the muscle attachment and remove the animal from its shell. They eat these juvenile conch while fishing around Navassa. We expected to find a majority of juvenile shells. Much to our surprise, we found almost exclusively adult shells. Many of the shells were heavily encrusted,

providing substrate for a variety of algae and habitat for numerous juvenile fish species. This leads us to wonder:

- Where are the juvenile conch?
- What is the population of juvenile conch around Navassa Island?
- With increased fishing pressure, what are the effects of low juvenile densities on the longer term survival of conch populations?

Photo of seafloor in Lulu Bay, by Christine Addison

BEHIND THE SCENES OF OUR DIVE ACTIVITIES

Many planning activities must take place prior to divers completing any underwater science.



Diver and photographer, Abby Poray, prepares her camera and lights prior to a dive. Before and after each dive, cameras are soaked in fresh water and checked carefully for leaks. After every immersion in seawater, dried salt must be thoroughly removed in order to prevent leaks. A series of small rubber rings, or O-rings, keep the water from entering the camera housing. Divers must use extreme care in camera maintenance and preparation. Photo by J. Vander Pluym



Divers are responsible for loading and unloading dive equipment on small boats. Preparing for her morning dive, Ruth Kelty carries the hang tank up a deck to the small boat, NF1. Throughout the day, over 20 sets of dive gear are loaded and unloaded into the small boats. Photo by C. Addison.



Deploying small boats requires coordinated efforts by the crew. These vessels are deployed and recovered multiple times each day. Photo by C. Addison.



Once on site, divers must carefully put on their dive gear. On days with wind and sea swell, donning a tank requires the assistance of fellow divers. Here, Amy Uhrin steadies John Marr's tank. Photo by P. Whitfield.



Shelby Moneysmith takes habitat photos.
Photo by C. Addison.



Paula Whitfield makes notes from her fish transect.
Photo by A. Uhrin.



Another successful dive. Divers' pictures (L to R): Brian Degan, Amy Uhrin, Jean Weiner, Ruth Kelty, Abby Poray, and John Marr.
Photo by P. Whitfield.

Scientist in the Spotlight



Mike Stetcher, Multibeam Team Member

Mike Stecher is the lead hydrographer on this research cruise. He will produce high resolution bathymetry data to be used by NOS, CCFHR, and resource managers. Mike is responsible for:

- multibeam data quality acquisition
- data management
- survey planning and execution
- data post-processing.

Data will be submitted to NOS to be reviewed for possible revisions to navigational charts of the Navassa area. Navassa Island was last surveyed in 1899.

Mike is the founder and owner of Solmar Hydro, a hydrographic firm based in Portland, Oregon that specializes in high resolution bathymetric surveys. Mike has a BS in Geology from the University of Oregon. He began his career in hydrographic work on the NOAA Ship Rainier in 1997. Mike has been aboard the Nancy Foster for 6 of the last 8 weeks making valuable contributions to not only the Navassa research cruise, but also to the NOAA CCMA Biogeography team's research cruise surveying Buck Island Reef National Monument near St. Croix, USVI. He is an avid windsurfer and mountain biker, anxiously waiting to enjoy the summer weather and arrival of his first child in August. Photo by D. Boles.

NOAA Ship Nancy Foster: Crew in the Spotlight



Dan Boles, Multibeam Team Member

Dan Boles has been the Survey Technician for the Nancy Foster since December 2005. After graduating from College of Charleston with a B.S. in Geology and a B.A. in French, he worked for the South Carolina Department of Natural Resources. He started with NOAA as a survey technician on the Rainier and conducted hydrographic surveys from Washington state to Alaska. On the Nancy Foster's previous research cruise off of Puerto Rico, he had a memorable encounter with Moises the Manatee. He has enjoyed the variety of the Nancy Foster's mission with:

- diving operations
- small boat operation
- hydrographic surveying.

Dan's duties include:

- casting the Conductivity Temperature Depth (CTD) probe
- small vessel operation (certified coxswain)
- multibeam data processing
- general multibeam trouble-shooting.

Photo by J. Vander Pluym.

Dennis Moore, Second Cook



Dennis Moore truly earns the title “Man of the Sea.” At a spry 61, he has been sailing (as he calls it) for over 44 years. After graduating high school in Omaha, Nebraska, Dennis went straight into the Navy where he served on three aircraft carriers as a Ship Serviceman, Steward, Barber, Master at Arms, and Mess Management. Dennis also attended the Defense Race Relations Institute located at Patrick Air Force base where he sat side by side with Army Commanders to learn how to ease integration in the armed forces. He led and taught various workshops focused on equal opportunity within the armed services as well as how to work and live together as a diverse military. He retired after 20 years of service in November 1982. He started working with NOAA a few months later, in March of 1983.

Dennis has sailed on nearly all the ships in the Atlantic fleet working as Second Cook and Chief Steward. He has been on the Nancy Foster since she set sail in May 2004. He plans on retiring next March after 25 years with NOAA. He plans to return to Hopewell, VA to his very patient and understanding wife of 40 years. Although he has traveled all over the world and witnessed many changes in our nation's history, Dennis is a humble man who likes to ride his motor scooter to the post office to see if he has won any of the sweepstakes he has entered. Photo by J. Vander Pluym.

Day 9: 4.28.06

Gear Impacts at Lulu Bay



Photo: Fishermen smoking fish in hull of boat.

Haitian fishermen navigate the 35 mile crossing to Navassa Island in wooden plank vessels. The vessels are up to 17 ft in length. They power their boats with a combination of sails, oars, and small (~15 hp) motors.

The boats have been observed to hold from 3–8 fishermen. They usually carry five. Fishermen spend from 2–21 days at the island and average eight days. They must bring their own food and water.

We observed four fishermen working from a small vessel over the past week. Their fishing trip lasted from April 21 to 26. During their stay, they used seven traps and fished with hook and line. Traps were marked with soda, milk or motor oil bottles. We were able to locate six of the seven traps, as they were actively fished. The buoys attached to the seventh trap were pulled under by the current. Even the fishermen could not locate it at times.



Photo: Jean Weiner giving fishermen water, by A. Uhrin

At each trap, we deployed a drop camera to observe the type of habitat the trap rested on. A GPS coordinate was collected on the buoy. A portable depth sounder was used to determine water depth. We revisited the traps, relocating all seven, and repeated all documentation. Since the fishermen departed the island, traps will remain on the bottom for an indeterminate amount of time. This has potential to impact the substrate and the fishery. One example of such a potential impact would be if the buoy marking the location of the trap disappears and the fishermen cannot relocate the trap. Then the trap becomes a ghost trap that would continue to capture fish until it eventually disintegrated or broke up into pieces. Also, the longer a trap sits on live coral, the

stronger the likelihood of coral tissue injury from abrasion or from shading, which could lead to coral death.

We interacted with the fishermen throughout the cruise. Scientist Jean Wiener conversed with them in Creole about the lack of fishing activity during our stay. He discussed other points regarding the Haitian–Navassa fishery. This information will be used to refine a report drafted for NOAA’s National Marine Fisheries Service.



Photo: Jean Wiener giving fishermen hammer and nails to fix their rudder,
by A. Uhrin

The fishermen’s rudder had broken during the week. Jean gave them nails and a hammer to fix it. The men informed us that the Nancy Foster had inadvertently cut one of their trap buoy lines. We deployed divers and attached a new buoy line.

Although we had anticipated a larger fishing fleet, we were still able to extract important information about the fishery. One important lesson learned is that factors driving the presence of fishermen at Navassa may not be consistent from year to year or even within one year.

Lulu Bay

Lulu Bay is a small cove on the southern side of Navassa. It is the only landing site on the island. The bay acts as home base for the Haitian fishermen during their stay. Sails and rigging used in the journey are tucked away into small nooks in the cliff wall. On the southeastern side of the bay, a trail leftover from historical mining activities is cut directly into rock. Getting to the trail requires scaling a ~ 20 ft vertical wall. The trail leads to a lighthouse with cisterns. Fishermen collect rainwater from the cisterns for bathing and washing clothes.

Underwater in Lulu Bay are middens, mounds of empty conch shells discarded when the animal was removed. Remnants of earlier mining activities and operation of the lighthouse litter the bottom such as:

- metal tanks
- railway tracks
- mining cart wheels
- ship anchors

Scientists in the Spotlight



Dive Team B Members: **Amy Uhrin**, **Dave Hilmer**, and **Paula Whitfield**,



Amy Uhrin is one of the team's habitat photographers as well as the principle investigator of the gear impact survey component of the cruise that was conducted using drop camera and SCUBA operations. She is a research ecologist at the NOAA CCFHR in Beaufort, NC. Amy specializes in seagrass disturbance ecology and specifically focuses on restoration and blade transplants. Amy has enjoyed the diving. She found the interactions with the Haitian fisherman very rewarding.



Paula Whitfield is the team's fish counter. She is a fisheries biologist at CCFHR in Beaufort, NC and a technical diver. Paula is the principle investigator of an Invasive Indo-Pacific Lionfish project which involves technical diving offshore of North Carolina. She is writer, director, narrator, and cinematographer for video of North Carolina shipwrecks featuring aggregations of sand tiger sharks. Although Paula has been diving all over the world, she is in awe of the beautiful clear waters that surround Navassa Island.



Dave Hilmer is a program manager for the NOAA Center for Sponsored Coastal Ocean Research (CSCOR) in Silver Springs, MD. CSCOR has developed a coral reef research program to address the impact of stressors, such as pollution and climate change, on coral reef ecosystems. Dave is the other habitat photographer for dive team B. He has enjoyed the amazing underwater visibility and working with the other scientists. Photo: Dave Hilmer reeling in tape for habitat dive, by A. Uhrin.

In the Spotlight: Nancy Foster crew members

Tracy Hamburger, Operations Officer NOAA Corps



Tracy graduated from Texas A&M University in Galveston with a B.S. in Marine Biology as well as a Coast Guard Third Mate license. This, together with her work experience sailing cargo ships as a third mate, allowed her to advance to Navigation Officer just after her NOAA Corps training (this usually takes a year of service). Tracy plans on a career as a NOAA Corps Officer with aspirations to become a Captain and a Commanding Officer. For her upcoming 3-year land assignment, she hopes to be assigned to the National Marine Sanctuary Office of either the Channel Islands or the Flower Garden Banks. Although she misses her family in the midwest, Tracy enjoys the shared feeling of accomplishment she gets upon completion of each of the diverse missions (scientific or hydrographic) the Nancy Foster undertakes. Her favorite operation so far has been with the Lionfish project off the coast of North Carolina during which the divers deploy directly from the Nancy Foster.

As a certified NOAA diver, she contributes to dive operations along with her other duties as a NOAA Corps Officer such as:

- bridge watch
- ship operations scheduling (for our project she assigns coxswains and safety divers for each operation)
- operation of the Nancy Foster
- small vessel launch
- small vessel operation.

Photo by J. Vander Pluym

Jesse Stiggins, Chief Steward



Jesse calls himself a true Florida Cracker with pride as he grew up working on cattle ranches in Florida. He was a baker out of high school until he joined the Navy in 1981 where he became a "Tin Can Sailor," by which he refers to working on destroyers and cruisers. His most memorable service in the Navy was a four-year assignment in Keflavik, Iceland where he worked as a cook at the Naval Air Station there. He remembers fondly the Icelandic community as filled with history and a laid back atmosphere. Jesse began work with NOAA weeks before his retirement from the Navy in 2001. He

started off on the NOAA Ship Delaware II which conducted fisheries research from Cape Cod up to the Bay of Fundy and then worked on the Oregon II which conducted long line fishing and scientific missions. When the Oregon II went into the shipyard for repairs, Jesse moved to the Nancy Foster as the Chief Steward.

Jesse is extremely happy with the facilities and the crew aboard the Nancy Foster, not to mention the many trips to the Caribbean. Although he misses his family, he truly enjoys the feeling of traveling on the water and the freedom of the position.

Jesse's duties include:

- menu preparation
- shared shopping duties
- order placement
- meal preparation
- food storage.

Photo by J. Vander Pluym.

Day 10: 4.29.2006

Day 10: 4.29.2006 Last Day of Work

Navassa Island in Summary

by Chief Scientist Greg Piniak

As with any first trip to a new research area, I approached the Navassa cruise with great anticipation and a touch of trepidation. It's exciting to go to new places and learn new things, particularly in a remote and rarely visited area like Navassa. We had a very ambitious research agenda. Before the trip, there were many unknowns, including:

- what the physical location would be like to work in
- what the potentially difficult weather and sea conditions would be like
- what the interactions with the Haitian fishermen would be like
- how the fishermen's gear deployments might affect our research objectives
- an unusually high number of new collaborators-- about half the science party had never been to sea with us before.

However, the trip was very positive on virtually every level. Everybody on the team worked extremely hard and did a fantastic job. The weather was very cooperative and we were able to conduct research on all sides of the island.

Some highlights:



Brian and Christine were able to run their own sampling programs for fish and conch. (Photo of Brian Degan and Christine Addison sampling barracuda for the ciguatera research group by J. Vander Pluym)



Amy and Jean had great interactions with the Haitian fishermen (Photo of Jean Wiener with Haitian fishermen by A. Uhrin). Although there was only one boat of fishermen for them to interview, fewer fishermen meant fewer gear deployments. Fishing gear, such as buoys, were navigational hazards. With fewer of these in the water, the ship was better able to maneuver for multibeam bathymetry surveys. Therefore, Mike Stecher and Dan Boles were able to produce some incredible multibeam data.



We also had enough time to accommodate the research interests of several colleagues, including:

- stable isotope sampling
- ciguatera sampling- see photograph of silk snapper caught by Brian Degan during night fishing operations
- drop-camera surveys to ground-truth habitat maps and satellite imagery.



We were able to take advantage of unexpected opportunities, such as documenting a shipwreck off the southeast corner of the island. We accomplished every research item we had scheduled, with one exception-- equipment failure prevented us from investigating potential deep-sea coral habitat to the southwest of the island (coral photographs taken by A. Poray during habitat survey diving operations at 100 feet).



Our surveys should be extensive enough to allow us to detect changes over time, but there is still a significant amount of new work to do in the area on future missions. All of our habitat dives were along the deep shelf (90-110'); a large amount of deeper habitat remains to be explored via tech diving or remote surveys with a drop camera or remotely operated vehicle (ROV).



The National Wildlife Refuge extends to a 12-mile radius from Navassa island. The extremely deep water beyond the shelf is virtually unstudied and may well contain significant resources (pelagic fish, deep sea coral, etc.) that are unimpacted by human activities. Although we established a temperature logger network, the physical environment (waves, currents, nutrient levels, etc.) is still not well-described. (photo of fin flips taken by P. Whitfield)

Scientists in the Spotlight



Dive Team D: Greg Piniak, John Marr, and Ruth Kely
Photo of the team doing a fish and habitat survey transect, by A. Poray



Greg Piniak was the Chief Scientist of this research cruise. This means he not only worked out operational details but also contributed to the scientific design of the habitat and fish surveys. Greg is a Research Ecologist at CCFHR in Beaufort, NC and focuses on multiple coral reef ecology projects. Greg was one of his dive team's habitat photographers. This allowed him to get close to the data he will be analyzing later. He has been extremely impressed with how well this diverse group works together and couldn't be happier with the water clarity of Navassa as well as the excellent weather we have experienced during the cruise. (Photo of Greg on small vessel heading out to dive operation)



John Marr is the Director of the Caribbean Marine Research Center (CMRC) of the Perry Institute for Marine Science, one of six National Undersea Research Centers. CMRC is a remote research station on Lee Stocking Island in the Bahamas. A wide variety of pioneering research is conducted there. While at the station, John met Greg Piniak and learned about some of the projects CCFHR researchers were doing. John was invited to join the Navassa cruise and has enhanced the experience for all. (photo of John Marr on small vessel heading out to a dive, by A. Uhrin)



John was one of the dive team's habitat photographers. His highlight of this experience is working with a great set of individuals on such a unique project. He says he has devoted his career to different aspects of marine science because: "The work is fun and full of discovery about people, places, and nature." (photo of John on SCUBA, by A. Uhrin)



Ruth Kelty is an ecologist at the NCCOS headquarters in Silver Spring, MD. She is participating in the NOAA Leadership Competency Development Program (LCDP) along with her other duties of integrating research across scientific disciplines (federal, academic, and industrial) for coastal decision-makers. Ruth feels that she is helping to create a culture in which management decisions are made based on an understanding of the impacts of those decisions on affected components of the ecosystem, including human beings. (Photo of Ruth Kelty in a hardhat unloading a small vessel, by J. Vander Pluym)



Ruth has been her team's fish surveyor. She has enjoyed interacting with the ship's crew and scientists, and especially the conversations about each person's path that led them to the Nancy Foster. (Photo of Ruth Kelty on SCUBA, by J. Marr).



Dive Team E: Jean Wiener and Will Foust . These multitalented two were able to assist with many different operations.

Jean Weiner, a native of Haiti, has dedicated his life to this field in order to help Haitians conserve their resources. He is the:

- Director/Founder of the NGO (non-governmental organization) Fondation pour la Protection de la Biodiversité Marine (FOPROBIM) based in Port-au-Prince
- Director/Founder of EnviroSynergy, a NGO based in Bethesda, MD
- head of a NOAA outreach program focused on the prevention and mitigation of derelict fishing gear and marine pollution with Haitian fishermen
- head of an education program within the Haitian community about sea turtles
- Jean is also continuing his graduate work investigating the presence of a rock-boring sea urchin found in Haiti but not yet documented around Navassa Island or Jamaica.



On the cruise he was an interpreter with the local fishermen and worked with Amy Uhrin to locate fishing traps around the island. He has also contributed to diving operations throughout the cruise. (Photos of Jean are: 1- in gear all set-up before deploying for a dive, by A. Uhrin and 2- ready for a dive, by J. Vander Pluym)



Will Foust works at the NOAA Marine Operations Center of the Pacific in Seattle, WA. His work as a Diving Medical Officer and an active duty Lieutenant Commander in the United States Public Health Service (PHS) rotates him to different NOAA vessels as each mission requires his expertise. He received his dive medicine training at the U.S. Navy Diving Center in Panama City, FL. When Greg Piniak's request for a dive medic came to the NOAA MOC, Will volunteered right away for the opportunity to experience such a unique area. He is happy with his decision as the diving has been excellent! Will enjoys his job because it allows him to combine his medical career, SCUBA diving, and exploring the oceans all in one career. (Photo of Will ready to go in the water, by P. Whitfield)

NOAA Ship Nancy Foster: Crew in the Spotlight



Tim Olsen, Chief Engineer

Tim has been the Chief Engineer on the Nancy Foster since she was converted from a Navy torpedo tester to the current oceanographic research vessel. Prior to working for NOAA, he sailed in the US Army's navy for 20 years and retired from the Army. He then worked as a mission critical facilities manager for 3 years. Tim was NOAA MOC Atlantic Employee of the Year in 2005. Not surprisingly, his favorite place is outdoors. Photo of Tim fishing for ciguatera sample collections, by J. Vander Pluym.



Tim especially enjoys working with the various scientific crews who do research aboard the Nancy Foster and supporting them by fabricating any and all special tools or equipment they need to perform their mission.

Photo of Tim snorkeling during a crew snorkeling break, by M. Stecher.

James Verlaque, Commanding Officer NOAA Corps



James spent the first ten years of his life between Madrid and the Mediterranean beaches of Spain. After moving to Delaware, he began his life on the water working on charter fishing boats that targeted tuna and billfish. He graduated from the University of Delaware with a double major in math and physics and was recruited by NOAA Corps. Almost 20 years later, James has ascended the ranks of the Corps, completed a masters degree in Public Administration, and completed the NOAA Leadership Competency Development Program (LCDP). This provided James with a well-rounded approach to leadership by combining the operational

and managerial sides. He worked under his mentor, Vice-Admiral Conrad C. Lautenbacher, Jr., in the Program Coordination Office as a liaison for the Office of Marine and Aviation Operations.

He has served in many different posts during his 19.5 years of service, including:

- Commanding Officer of the NOAA Ship Rude, a hydrographic vessel
- Office of Labor Relations
- Atlantic Hydrographic Branch
- Commanding Officer of the Nancy Foster.

He takes pride in the versatility of the Nancy Foster. Last year, \$2 million in renovations were completed under his command. Although he misses his family when he is away, he prefers at-sea assignments. As a commissioned officer in NOAA Corps, James feels that he has gotten three things no other job could have given him, “the vision, the experience, and the resources to make an effective leader.” Photo of James on the Nancy Foster with the Dominican Republic behind him, by J. Vander Pluym

August 13, 2007.