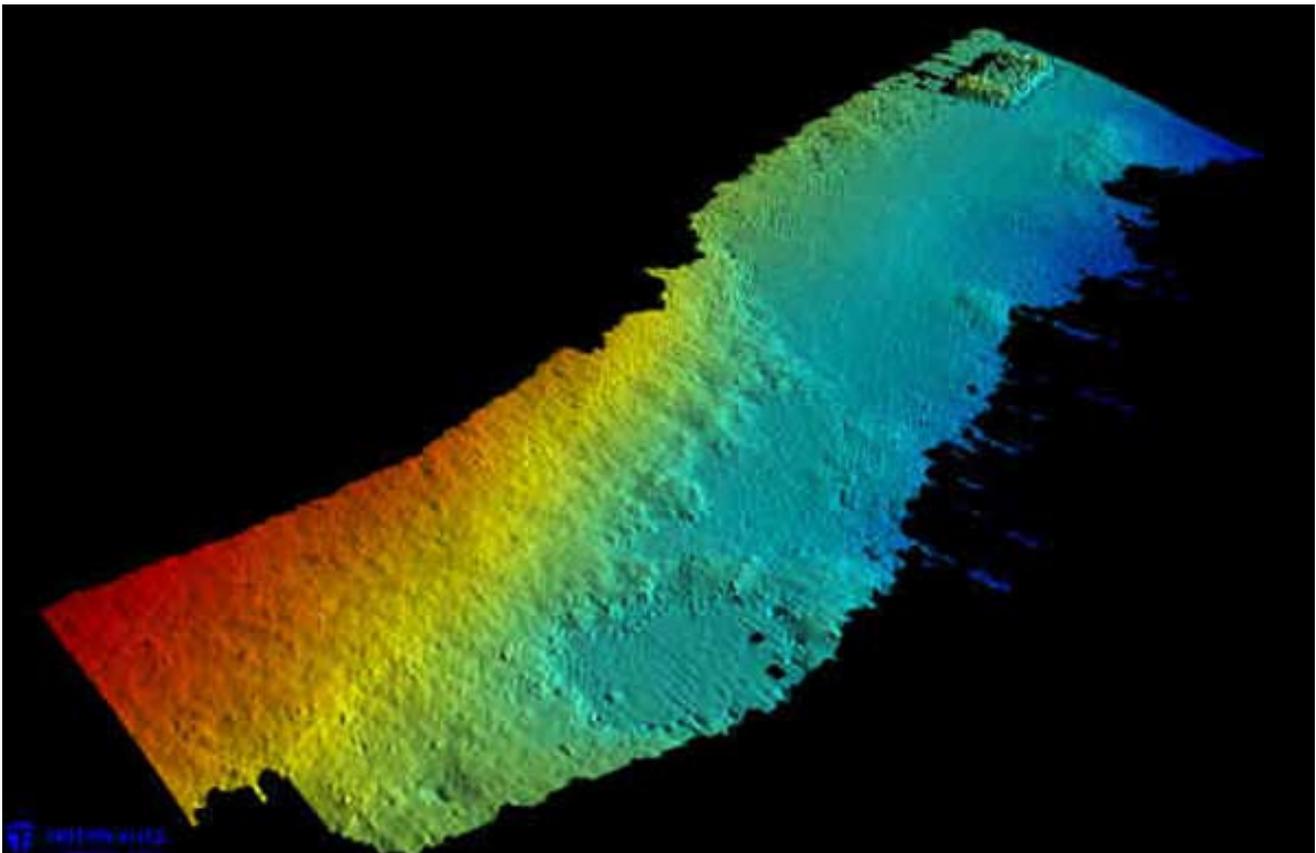


February 21, 2004  
Nancy Foster Mission Cruise Update #1

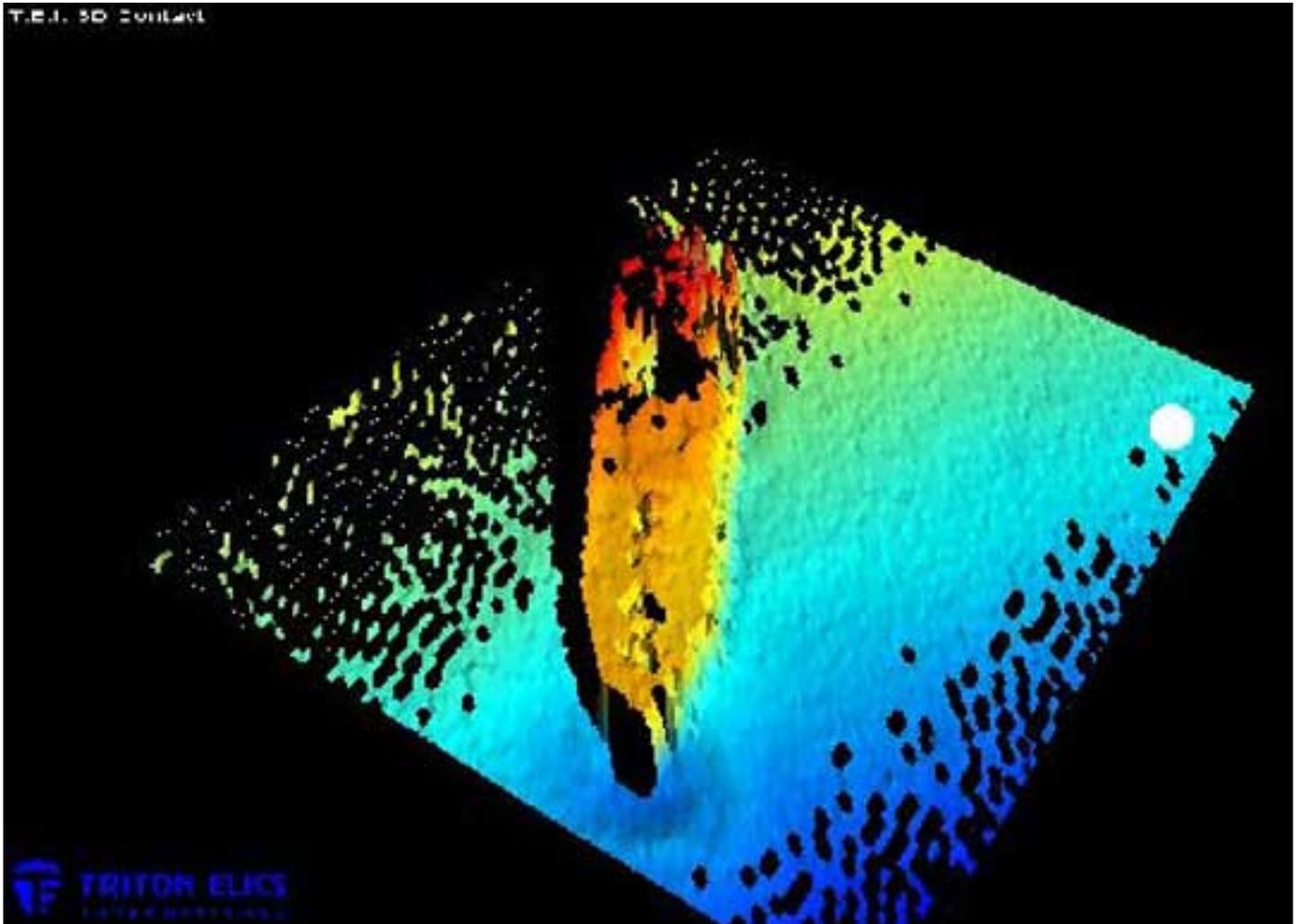
The Nancy Foster and her crew began deep water mapping and biological assessment activities in and around the Buck Island Reef National Monument (St. Croix, USVI) at 0830 on Saturday, February 21. Before she headed out to sea on this exciting mission, members of the scientific crew, the ships crew, and the local media had an opportunity to meet and discuss the planned activities. Members of the press were treated to a tour of the Foster and all of her onboard equipment. Chief scientist Mark Monaco, Zandy Hillis-Starr of the National Park Service, and Commander Fred Rossmann each fielded questions from the press.



Once under way, the first order of business was to obtain multibeam sonar data for a reef site near the Fredriksted pier on the western side of St. Croix. While this data acquisition was not initially part of the cruise plan, mission collaborators from the US Virgin Islands Division of Fish and Wildlife requested that the Foster collect these data to help them characterize the physiography of this reef which is in very close proximity to an anchoring zone (see figure below). The anchor block can be seen in the upper right hand corner of this bathymetry model developed from the multibeam data. The reef in question can be seen extending down and towards the lower left side of this image (warm colors).



After completing the above activity, the Foster then proceeded to a site where several sunken barges are known to exist. These barges were used as a target to calibrate the multibeam sonar. The strong contrast between the barge and the surrounding seafloor (see figure below, barge shown as warm colors) provided optimum calibration data necessary to develop spatial adjustments (correction factors) that must be applied to all of the subsequently acquired data. These correction factors are necessary to maintain a high standard of quality and accuracy in the multibeam sonar data.



Once calibration was complete, the Foster steamed over to the western side of Buck Island (St. Croix) for a round of deep water SCUBA diving. Three of the Foster's tender boats were lowered into the water using a crane, loaded up with a dive team, and headed to 3 separate pre-selected dive sites. Dive profiles were generally 110 feet for 20 minutes, and divers were breathing enriched air (32% Nitrox Mix). Each dive team had 2 members, one of which focused on counting fishes, conch, and lobsters, while the second diver collected information about the habitat in the area. The figure below provides an example of the habitat that divers encountered and characterized.



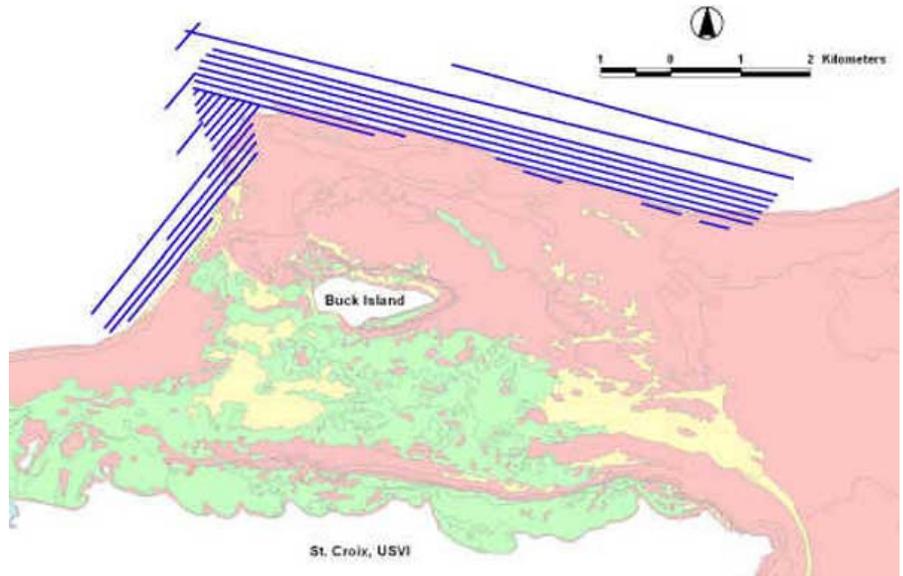
Upon return to the Foster, divers unloaded gear from the tenders and settled in for dinner. Beginning at 1700 hrs., the Foster initiated deep water mapping activities along the north and western edges of the Buck Island Reef National Monument. This activity is currently ongoing, and will continue through the night. Please come back soon to see processed imagery and data from this portion of our mission.

February 22, 2004

## Nancy Foster Mission Cruise Update #2

The Nancy Foster and her crew continued deepwater mapping exercises through the night (2-21), and completed the set of target lines of acquisition by 0700. The figure above shows the configuration of lines that the Foster completed in order to collect multi-beam data from depths ranging from approximately 60 to 1000 feet along the northern and western shelf edge of Buck Island. The blue lines indicate the path of the Foster. The underlying map shows benthic habitats mapped by NOAA and its many partners in 2001.

These shallow water habitats include several hardbottom types (shown in red; including corals, pavement, spur and groove formations, etc.), submerged vegetation types (shown in green; including seagrasses and macroalgal species), and unconsolidated sediments (shown in yellow; including sand, mud, and others).



At approximately 0800 in the morning, the Foster once again used her cranes to hoist the tender boats into the water loaded with SCUBA divers. The same 3 teams of divers then navigated to today's pre-selected dive sites to characterize the deeper (~110 feet) reef habitats and the fishes and invertebrates that inhabit them. Dr. Alan Friedlander can be seen below counting fishes along his early morning transect.

Upon completion of the morning dives, the 3 teams converged on Buck Island to have lunch, and to help the National Park Service (NPS) capture hawksbill sea turtles in the Buck Island Lagoon. NPS does this to monitor the population of turtles utilizing the Buck Island Reef National Monument. The dive teams and several Foster crew members formed a line which crossed the entire extent of the lagoon and began slowly swimming in a common direction while scanning for turtles. Using this search formation, the research party located and captured (by hand) 2 turtles. Below Kim Woody of the National Park Service is shown releasing one of the turtles after several measurements were made, and the turtle was tagged. After lunch (and turtle wrangling), the crew headed back out for their second dive of the day; again, to characterize habitats and the animals that use them.

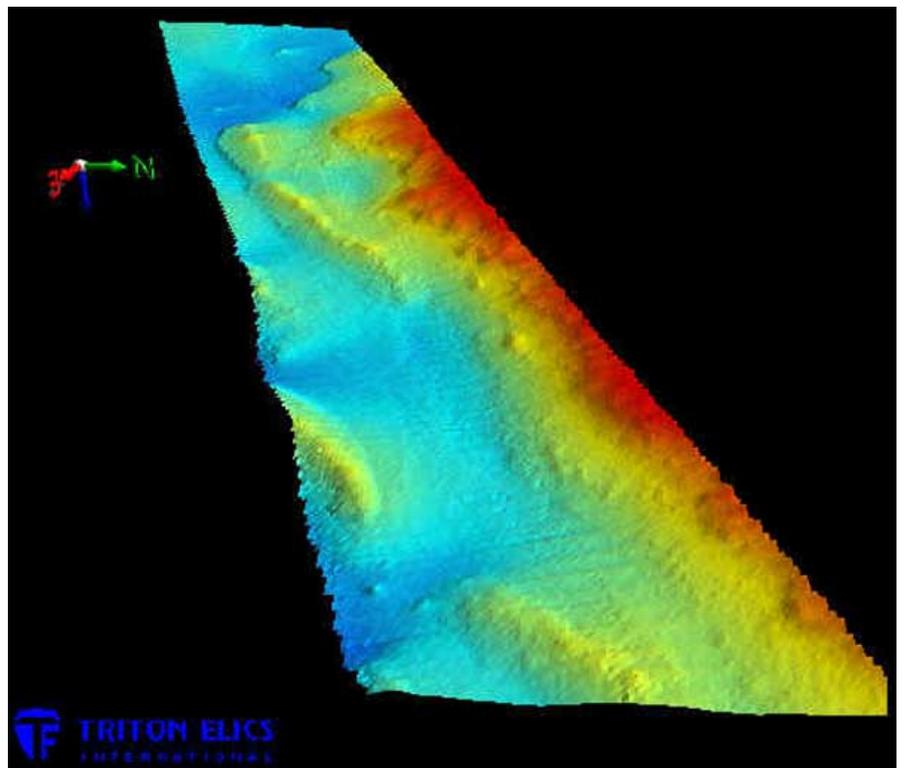


It is now 19:30, and all SCUBA divers are safely back aboard the Foster. After dinner, the crew will be running a few final lines of multibeam sonar to fill in a few remaining data gaps. The graphic below shows the extent of multibeam data collected around Buck Island to date. Commanding officer Fred Rossmann suspects that we will only need to run the Foster along these remaining lines for a few more hours, then he'll point the ship north to make the transit to St. John, where we expect to spend the day loading more gear and personnel for the next 10 days of operations. Check back again tomorrow for the next update from the Foster.

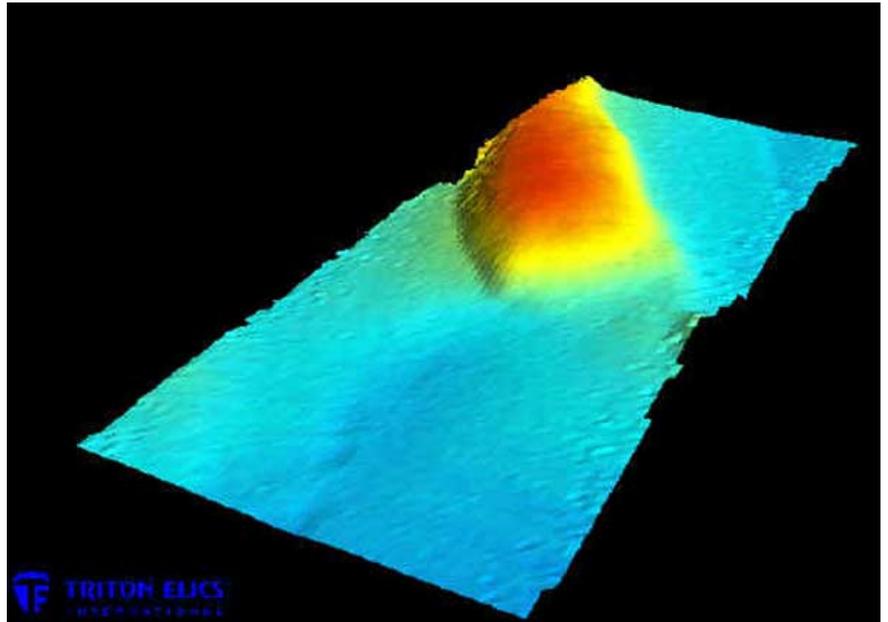


February 23, 2004  
Nancy Foster Mission Cruise Update #3

During the early hours of February 23, the Foster initiated mapping operations off of the southern shores of St. John and St. Thomas, in an area called the Midshelf Reef (MSR). The MSR is a significant rise of hardbottom in the seafloor that generally extends in an east-west direction for tens of kilometers, and has several "veins" that connect to the continental shelf. The figure above displays the initial line of multibeam sonar derived bathymetry along this impressive physiographic feature. The objective for the duration of the Foster mission is to map and characterize this midshelf reef.



Along the way, Harold Orlinsky of Triton Elics International (one of the many collaborators aboard the Foster) noticed a conspicuous rise in the seafloor that, to date, has not been charted. This feature, shown above, was estimated to be approximately 80 meters in width by 300 meters in length. Because this line of data acquisition was at the outermost edge of the planned mission geographic extent, scientists can only guesstimate its actual dimension. If time permits, scientists aboard the Foster hope to revisit the site to map it in its entirety. mapping from vessel



After mapping was completed (approximately 10:00 am), scientists removed the portable multibeam sonar unit (figure above) from the water so that the Foster could steam into Cruz Bay, St. John to pick up trapping gear and more scientists from the National Park Service. Once aboard, Rob Waara (NPS), Jason Vasques (US Virgin Islands Division of Fish & Wildlife), and Dr. Alan Friedlander (NCCOS) could be seen on the fantail outfitting the fish traps with buoys, and discussing deployment techniques for the first scheduled “soaking” of these traps. Because of the time taken loading gear and personnel in St. John, there were no dive operations today; however, the crew plans on resuming dive operations at 08:00 tomorrow morning. Please check back tomorrow to see pictures of these dives, and more mapping images collected and processed overnight.





February 24, 2004  
Nancy Foster Mission Cruise Update #4

After a full night and early morning of multibeam sonar data collection, the Foster was positioned to deploy a full complement of scientific divers (see previous day's accounts for details on dive operations). The image above shows the Foster holding steady, ready to release her tender boats for the deployment. A total of 12 man dives were performed today along the midshelf reef complex which runs east-west just off St. John and St. Thomas. Today's dives were all along the eastern side of the MSR within the National Park Service's Virgin Islands Coral Reef National Monument (VICRNM). The early morning dives were all to a depth of 115 feet, and the afternoon dives to depths not exceeding 100 feet. As you can imagine, the dives were exciting and not without surprises.



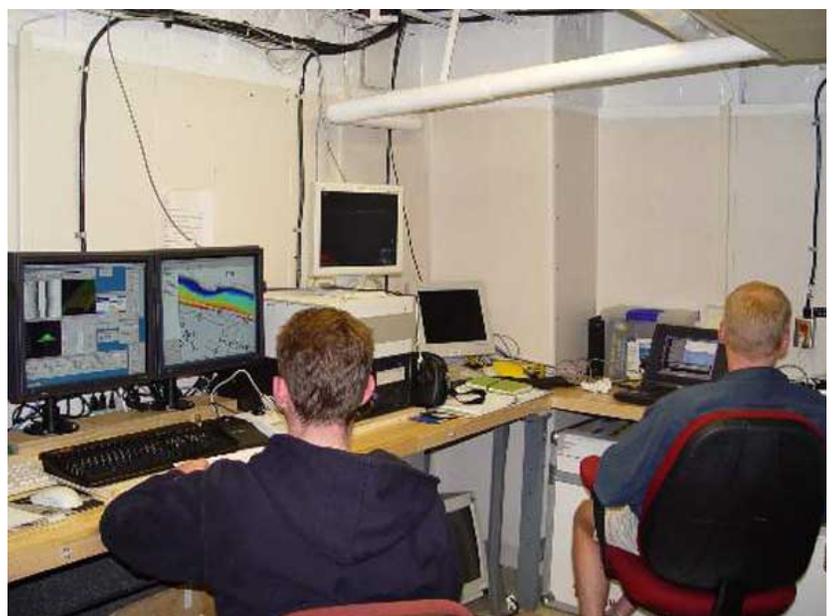
Above, NPS scientist Rob Waara working his way down to 115 feet with video and still cameras in hand. Rob was sent along on this particular dive to video and photo-document the research activities, and to document the habitat and biological resources in the area. He was met by a few curious horse-eye jacks (*Carnax latus*) while on his safety stop at 20 feet (below).



Between dive operations, the Foster was again mobilized to acquire more multibeam sonar data. As the data streamed in (real time), a crew of hydrographers processed the data in the Foster's "Dry Lab" (shown below). The dry lab crew has been working 24-7 handling the data and turning it around for the website, and most importantly, so that we will be able to walk off of the Foster with completely processed and quality controlled data. The crew is a patchwork of talented folks from NOAA's Marine Operations Center (MOC), Office of Coast Survey (OCS), National Centers for Coastal Ocean Science (NCCOS), Triton Elics International, Inc., and the US Virgin Islands Division of Fish and Wildlife.



After the evening dive, and a little dinner, it was time to set fish traps for an overnight soak. Below, John Christensen (NCCOS) and Rob Waara (NPS) prepare to set a trap off the stern of the Foster. Traps will be set both inside and outside of the boundaries of the VICRNM so that the Park Service and NCCOS scientists can characterize the abundance and distribution of several fishery species. The hope is, that by providing protection for natural resources inside the Monument, populations there will thrive, and by monitoring these populations both inside and outside, we will be able to evaluate the efficacy of the Monument as a management tool. Be sure to check back tomorrow to see what we caught in our traps, along with more pictures and information about the day's activities.





February 25, 2004  
Nancy Foster Mission Cruise Update #5

As has become usual during this mission, the Foster and her crew continued multibeam sonar data collection activities all through the night. At sunrise, SCUBA divers prepared for their morning dives, again to depths averaging 115 feet. NCCOS scientists Chris Caldwell and Matt Kendall happened upon a large fish trap (above) during their dive. Traps such as these, are called “ghost traps”, and represent a management problem that is difficult to solve. Luckily, this trap had been submerged for long enough, that the caging was corroded, and fishes could swim in and out of the trap at will.



As you can see from the picture below, several species of grunts (tomtate - *Haemulon aurolineatum*, and cottonwick - *Haemulon melanurum*) have recruited to the trap as a source of refuge.

As discussed in yesterday's mission update, the scientific team aboard the Foster is also monitoring fish populations both inside and outside of the Virgin Islands Coral Reef National Monument (VICRNM) using traps that are soaked overnight (average soak time is approximately 17 hours). The objective of this portion of our study is to evaluate the efficacy of the Monument as a management tool by comparing catches both in and outside of Monument boundaries. The scientists were met with a measure of success, and caught several fishes, representing 3 species. The picture below shows a trap that was hauled onto the Foster's deck that contained several squirrelfish (*Holocentrus adscensionis*), a long-spine squirrelfish (*Holocentrus rufus*), and a schoolmaster snapper (*Lutjanus apodus*).

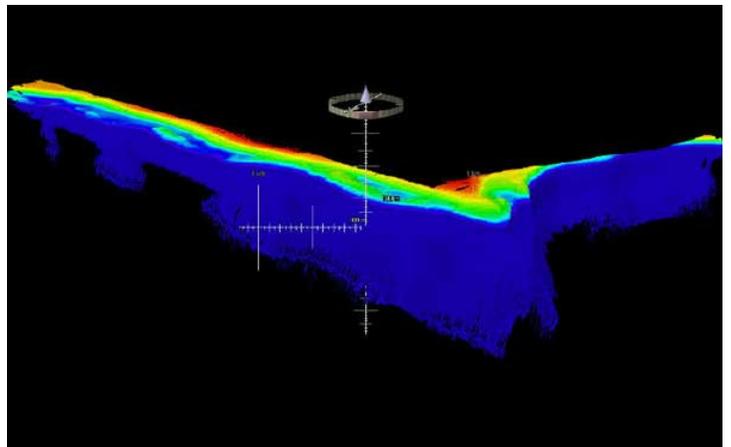


The traps were carefully hauled at a slow and deliberate rate of ascent from depths of 120 feet plus, and were given time to decompress at 40 feet for 2 minutes. This was done to relieve the pressure that can build up in the swim bladders of fishes hauled up from deep waters. Once aboard, the fish were transferred to holding tanks outfitted with aerators. When the fishes were determined to be in good health, and generally in an "unstressed" condition, they were quickly transferred to a scale to take a weight measurement, then on to a measuring board to record standard, total, and fork lengths. The fishes were then placed back into the holding tanks so that we could be sure they were in good health, and ultimately they were released back to the reefs from which they came. We are happy to report that all were returned safely.





When the trapping activities were completed, it was time for a second set of SCUBA dives. Mother nature; however, had a different idea, and the dives had to be scrubbed due to high winds and heavy seas. It's now evening time again aboard the Foster, and the mapping crew has taken back over. Grant Froehlich (NOAA's Marine Operations Center (MOC)) of the mapping team provided a processed image for the website. The figure below is a 3 dimensional image of the Buck Island Reef National Monument shelf edge (see mission updates 1 and 2) from the sidescan sonar data. This image represents quality controlled, fully processed bathymetric data that will be one of the many products of this mission (cool colors represent deeper depths, warm colors represent shallower depths). Bathymetric data such as this will be used by NCCOS, NPS, and other scientists as input data to spatially-articulated models describing natural resource distribution and abundance in the region. Be sure to come back tomorrow to see the next round of trapping, mapping, and diving from aboard the Foster.

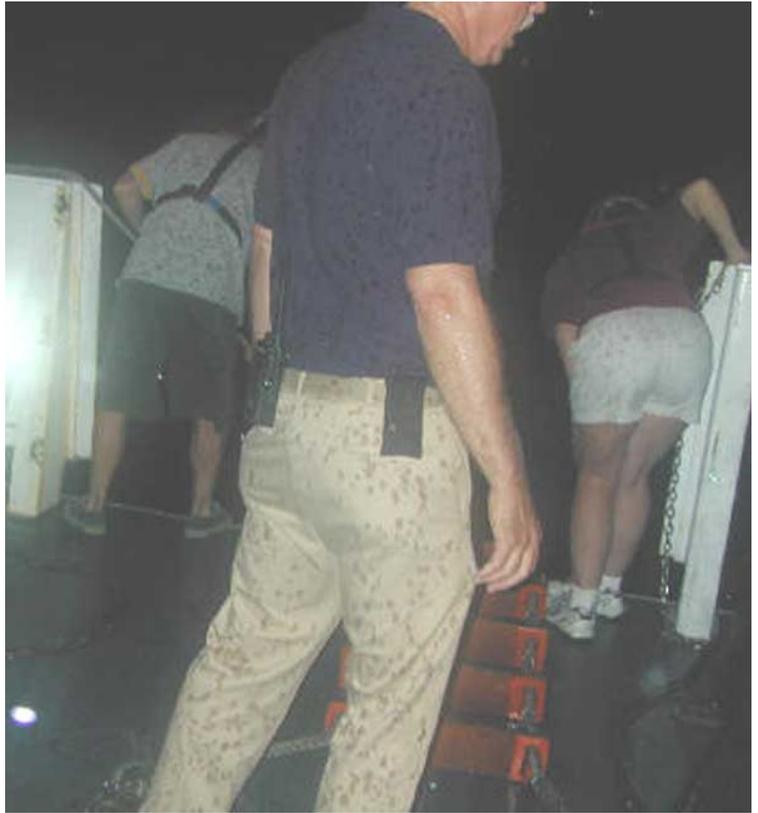


February 26, 2004

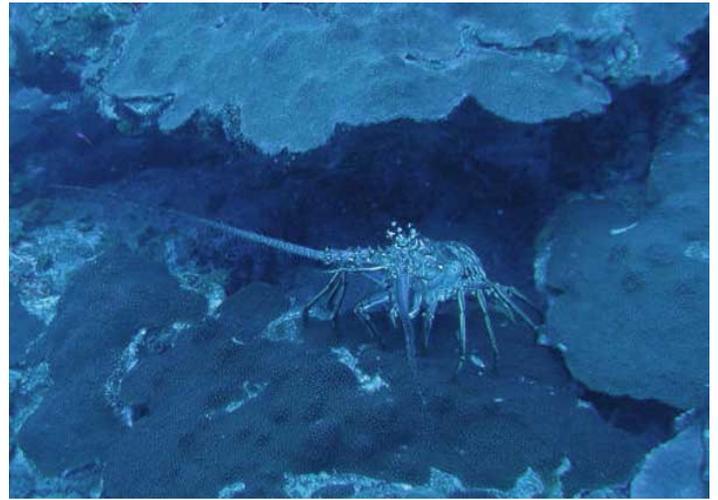
## Nancy Foster Mission Cruise Update #6

Not long after we signed off last night (see previous day's mission update), the crew of the Foster settled in for a night of multibeam sonar surveys. The seas steadily became rougher as a series of squalls associated with a low pressure system rolled through the area. Soon after the sun went down, the crew of the Foster noticed a flare that had been set off by a couple of fishermen in distress. Commander Fred Rossmann responded immediately to provide assistance. The Commander pulled along side of the small vessel which had lost power and was drifting in the darkness, and brought the fishermen aboard the Foster. Once safe, the commander and his crew arranged an at sea rendezvous with National Park Service (NPS) enforcement officers to transport the fishermen from the Foster back to St. John.

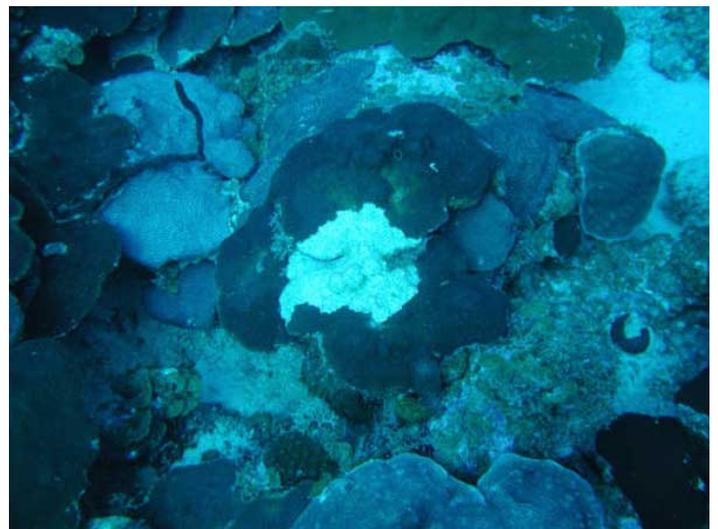
After all of the excitement, the mapping crew remanned their stations to collect multibeam sonar through the night until 0800 the next morning, at which time the SCUBA diving crew were preparing themselves for the first dive of the day. All three dive teams were sent out to pre-selected sites within and outside the NPS's Virgin Islands Coral Reef National Monument (VICRNM). As usual, dives were to depths averaging 110 feet. What the divers encountered; however, was not the usual. All three teams descended to reef sites that were characterized by extremely high levels of live coral cover. Divers surfaced with an average of 65% live cover on their respective dives. This amount of live coral is very rare in the region. Jeff Miller of the National Park Service who has been diving and working in St. John for many years stated that it was the highest live cover he's ever encountered. Most dive sites that he has studied had less than a quarter of that amount. Needless to say, the Mid-shelf reef (MSR) that the Foster and her crew are studying contains pockets of very pristine habitat. The image above shows Ruth Kelty surveying the coral cover at her dive site.



Not only were the dive sites characterized by high coral cover, there was a diversity of associated fauna using the habitat. Divers counted many species of fishes, and many divers encountered lobsters on their surveys. While all of this was very promising, scientists also found evidence of disease among these deep coral populations. The picture below shows a colony of Mountainous Star Coral (*Montastraea flaveolata*) with a large patch of white plague. Jeff Miller of the Park Service was very surprised to see this disease at such a remote site, and at such depths. He explained to the scientific crew that finding this disease here raises many questions that need to be addressed by research; such as how the disease causing pathogen can get to such a remote place, among many others.

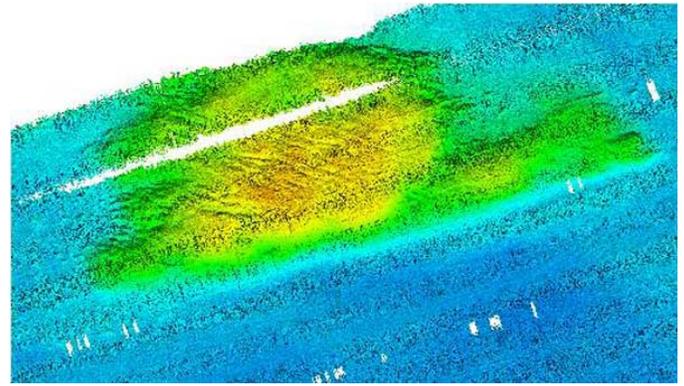


After the morning dive was completed, the fish trapping crew reassembled to haul a set of traps that had been set the previous evening. A total of four traps were set, which produced a fairly diverse catch, including a spotted moray eel (*Gymnothorax moringa*), a Nassau grouper (*Epinephelus striatus*), a banded butterflyfish (*Chaetodon striatus*), a foureye butterflyfish (*Chaetodon capistratus*), several blue tang (*Acanthurus coeruleus*), and a bucketload of squirrelfish (*Holocentrus adscensionis*). All traps were set inside of the VICRNM, and we are scheduled for one more night of trapping in the Monument. Once these have been hauled, the crew will begin trapping operations in similar habitats outside of the monument.



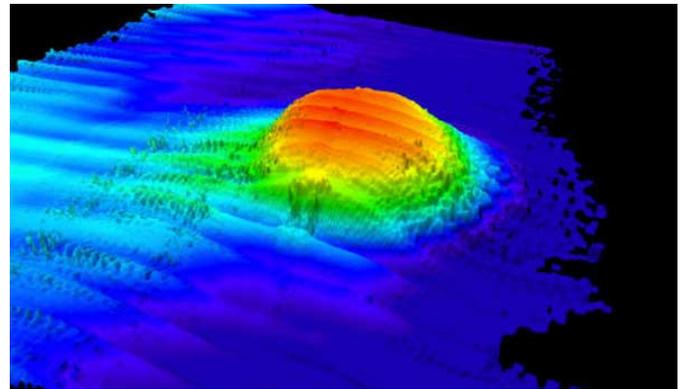
It is now 19:30, and the crew has once again settled into its evening mapping operations. The multibeam sonar surveys are scheduled to continue through 08:00 hours tomorrow morning, at which time the SCUBA crew will suit up for the morning dive. Please check back tomorrow for an update on those activities. We'll leave you with the latest bathymetric image of the MSR generated from the multibeam data.....there'll be more to come tomorrow!



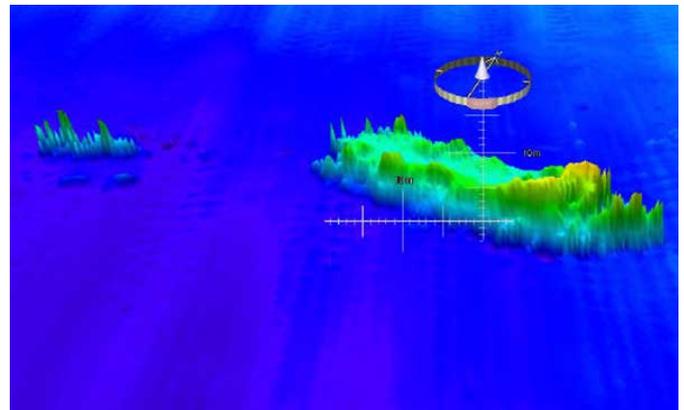


February 27, 2004  
Nancy Foster Mission Cruise Update #7

As has often been the case, the Foster's late night multibeam sonar mapping crew found several interesting physiographic features while the rest of us slept. The figure above shows an almost perfectly circular rise in the seafloor several kilometers south of Reef Bay St. John. This, along with many other features detected by the multibeam sonar unit, are uncharted reef areas that are all associated with the Midshelf Reef complex discussed in previous mission updates. The picture below shows what sonar technicians Grant Froelich (of NOAA's Marine Operations Center) and Jay Lazar (Of Triton Elics, International, Inc.) believe to be a barge that burned and sank south of St. John several years ago. The barge was transiting from Puerto Rico to Tortolla (British Virgin Islands) when it caught fire and sank. The barge was carrying a load of Ford F-150 trucks. The multibeam image clearly shows the outline of a ship, with several smaller features (possibly trucks) scattered behind it.



At 09:00 hours, the diving crew readied themselves for the first dive of the day. Once again, divers were met with a fantastic display of coral habitats and fish diversity. NCCOS scientist and Mission Dive Master Chris Caldwell can be seen below preparing to start a fish counting transect. You can see from the image that he has tied off a tape measure to the anchor line, and is shooting a random vector to swim along using his compass. Along the way, Chris's dive buddy (Matt Kendall) encountered a very large hogfish (*Lachnolaimus maximus*) and several red hind (*Epinephelus guttatus*) groupers. Fishes such as these are often targeted for their value as table fare.



Between dives, much of the daytime hours were spent video documenting the seafloor using a towed camera called the MiniBat. The “Bat”, as we all like to call it, will provide valuable documentation of seafloor topography and type along the areas that the multibeam sonar data is being collected. This video data will then be used by NCCOS scientists to classify the sonar data collected into meaningful collections of habitat type, such as spur and groove reef, algal plain, patch reef, etc. Operating the Bat requires several crew members, such as Chief Mission Oceanographer Tim Battista (NCCOS) (below) relaying a message into the ship’s scientific laboratory where the Bat operator guides the cameras just above the seafloor. NCCOS scientist Ken Buja (note the bat-cape) can be seen at the controls of the Bat. He uses several video screens, along with integrated fathometers to guide the towed cameras along its path. The MiniBat was provided to the mission crew by our NCCOS colleagues in Beaufort, and we’d particularly like to thank the Beaufort crew for sending Christine Addison down to St. Croix to train the crew in operating the Bat. Without this equipment and training, we would not be able to collect this valuable habitat information.

Be sure to check back tomorrow for the next update from the Foster, and be sure to read all of our past adventures!





February 28, 2004  
Nancy Foster Mission Cruise Update #8

Seas were calm during the early hours of the 28th, and the SCUBA diving crew once again prepared for their morning dives. Dive locations were scattered all along the mid-shelf Reef (MSR - see previous updates for a description of the MSR); however, unlike previous dives, these were all preformed outside of the boundary of the US National Park Service's Virgin Islands Coral Reef National Monument (VI-CRNM). The habitats and associated fauna that SCUBA divers encountered here are not afforded the same degree of protection. While it is generally difficult to tell the difference between inside and outside the monument based on the fishes encountered, fishing pressure is noticeably higher outside of the monument.

The pictures above show several stoplight parrotfish (*Sparisoma viride*) and a smooth trunkfish (*Lactophrys triqueter*) caught in a trap near one of our dive locations. This trap was fished in a series with several other traps attached to it. For the most part, we saw many of the same fishes as we have seen over the past several days inside the monument. The bi-colored fish below is a curious coney (*Cephalopholis fulvus*) that decided to pay mission chief scientist Mark Monaco a visit. On his way back up to the boat, mission chief biologist John Christensen encountered a large barracuda (*Sphyraena barracuda*) circling the divers, always keeping a safe distance from the strange visitors from above.



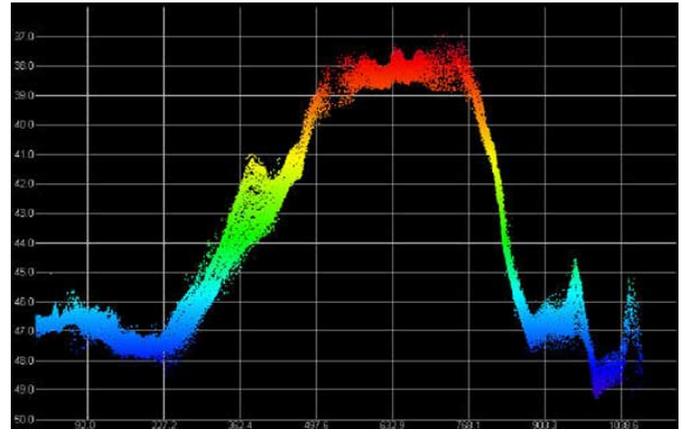
Once the divers returned to the Foster, it was again time to haul the fish traps that we had set the night before. This was the last set of traps that were to be fished inside of the Monument. Today's haul was the largest yet, with many species represented in the catch. The haul was dominated by French grunt (*Haemulon flavolineatum*), but also contained several yellow goatfish (*Mulloidichthys martinicus*), blue tang (*Acanthurus coeruleus*), schoolmaster snappers (*Lutjanus apodus*), and red hind (*Epinephelus guttatus*) which is shown below. Here you can see NCCOS scientist Alan Friedlander measuring the length of the red hind that will be used to help construct a picture of the age and size-class structure of this species along the MSR. We are again happy to note that all fishes captured in the overnight trap sets were safely released back to the reef below once weighed and measured.



After the trapping activities, it was time to continue multibeam sonar mapping activities. Prior to collecting the sonar data (and every 4 hours during data collection), mission scientists must perform a "CTD cast". This is simply a device that is lowered into the water to measure conductivity, depth, and water temperature from the surface to the bottom. Because the multibeam generates data using sound waves, it is critical to use the CTD data to calibrate the sonar, as these parameters can affect the velocity at which sound travels through the water. Below, Mission Chief Oceanographer Tim Battista can be seen along with Grant Froelich of NOAA's Marine Operations Center (MOC) discussing the next cast. Once the cast was completed, the sonar unit was turned on, and the Foster once again began to collect this valuable bathymetric and associated backscatter data. An example of a standard realtime output from the multibeam sonar unit is also shown below. This particular image shows a 10 meter rise of the seafloor, and likely represents a coral reef area that has never been mapped to date. NCCOS and its many partners will use these data to characterize and map the MSR all along the southern shore of St. John.



Be sure to check back tomorrow for the next set of maps and images from the Foster's mission in the US Virgin Islands!



February 29, 2004  
Nancy Foster Mission Cruise Update #9

The seas on Sunday morning were flat calm, and the scientific divers prepared themselves for a set of deep dives on portions of the Mid-shelf reef (MSR) that are known to be in pristine condition. The US National Park Service (NPS) and NOAA's NCCOS have been collaborating on a coral reef ecosystem monitoring effort on these reefs for several years now, and the team was excited to get back to one of their favorite dive sites. As usual, the relatively pristine reefs did not let them down. Various species of Star coral (*Montastraea* spp.) are the most common reef building corals in the US Caribbean, and usually take on a mounded shape in shallow waters; however, due to the depths at which these dives took place (approximately 115 feet), these corals take on a more plate-like form (see top picture).



While at depth, divers encountered many species of fishes that make their home among the healthy deep-water reefs of the MSR. Pictured below, a lone Atlantic spadefish (*Cheateodipterus faber*) swimming high above the reef, with a juvenile sharksucker (*Echeneis naucrates*) attached to its side (note long, slender attachment on fish's nape). Also high above the reef, divers were greeted by a pair of very curious ocean triggerfish (*Canthidermis sufflamen*). These two seemed to be attracted to our bubbles, and stayed with the scientists for much of the dive. Lower on the reef, NPS scientist Rob Waara and NCCOS scientist Alan Friedlander scared up this very large tiger grouper (*Mycteroperca tigris*). Tigers are rarely seen on reefs in the region due to over-exploitation. Our divers counted a total of 8 tigers on the reef this morning, a phenomenal number for a single dive.

After the morning dive, it was again time to set fish traps so that we can compare catches of fishery species from both inside and outside of the NPS's Virgin Islands Coral Reef National Monument (VICRNM). Mission Chief Biologist John Christensen (NCCOS) and his colleague Rob Waara (NPS) can be seen here on the fantail of the Foster preparing traps for deployment. Once the traps had been deployed at their pre-selected sites, the Foster steamed to the locations where traps were set the evening before. These traps were the first of a series to be set outside of VICRNM boundaries. The trap catch was once again diverse, and was dominated by the French grunt (*Haemulon flavolineatum*). Other fish species that were seen in the traps included princess parrotfishes (*Scarus taeniopterus*), red hind (*Epinephelus guttatus*), coney (*Cephalopholis fulvus*), yellowtail snapper (*Ocyurus chrysurus*), and this queen triggerfish (*Balistes vetula*) (below).



While the trapping crew worked up the remainder of the fish, and returned them to the reef below, weather began to descend on the Foster from the north. A large low pressure system swept in while the MiniBat crew (see update #7, 2.27.2004 for info on the MiniBat) attempted to acquire video of the substrate below. Low visibility due to the squalls, coupled with the many traps that were being fished in the area made "Batting" a difficult task. Twice the Foster had to be stopped because the Bat was caught up in "ghost trap" lines (traps that have no surface floats). The picture below shows chief scientist Mark Monaco (NCCOS), Chris Caldwell (NCCOS), Russell Callender (NCCOS), Jason Vasques (USVI Division of Fish & Wildlife), Tim Battista (NCCOS), and the Foster's chief Bosun Jeff Brawley hand pulling the Bat back aboard during a rainstorm.

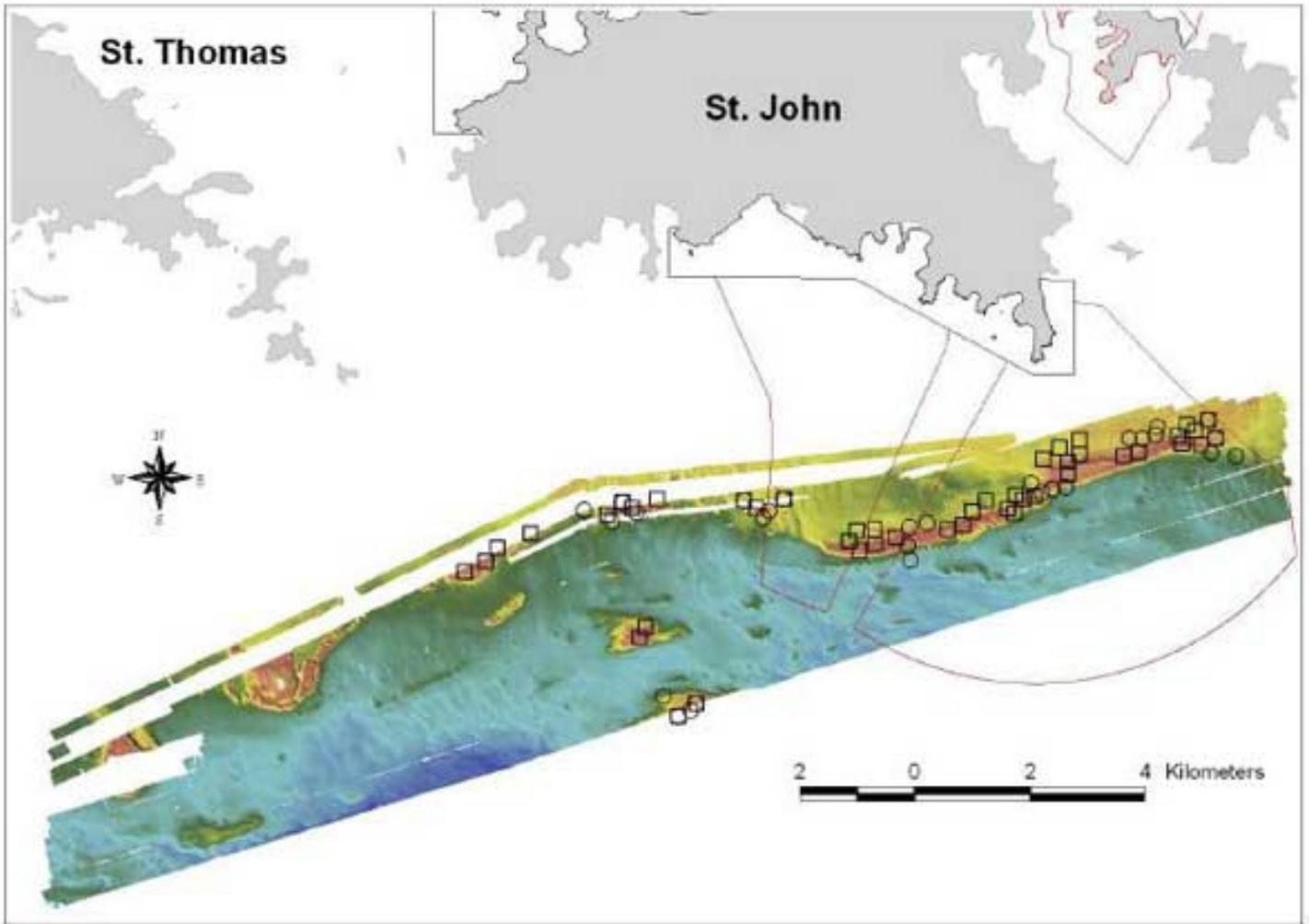


The day is now gone, and our mapping crew has once again taken over for the night and early morning hours. We've decided to leave you with a composite image of the bathymetry collected to date along the MSR. Warm tones indicate shallower areas, while blues and green indicate deeper water. The MSR is now becoming clearly visible from the sonar data. Dive sites that we have visited during the past 7 days are also shown on the map (squares), while trapped sites are shown as open circles. As we head into the remaining few days of the cruise, we will dive, trap, and map more of the western side of the MSR. Please



come back again tomorrow to see what's going on aboard the NOAA Ship Nancy Foster.





March 1, 2004  
Nancy Foster Mission Cruise Update #10

The weather that began to build up yesterday afternoon persisted through the late night hours and on into this morning. With winds gusting to 30 knots, and wave forecasts of 8-11 feet, all dive operations had to be suspended. Because we had set out fish traps the evening before, we had to be sure to haul them today.....a task that proved to be no small feat. High seas made it nearly impossible to spot our floats, and when we were finally able to sight them, the Foster's able helmsmen and women had an even more difficult time bringing us along side of them in the high winds. We're happy to report; however, that we were able to retrieve the traps.

What had usually taken us about 90 minutes (hauling all traps aboard), turned out to be a 4 hour effort! On a positive note, the trap hauls were rich with groupers. The image above shows NCCOS biologist Matt Kendall preparing a red hind (*Epinephelus guttatus*) to have its swim bladder vented prior to release.



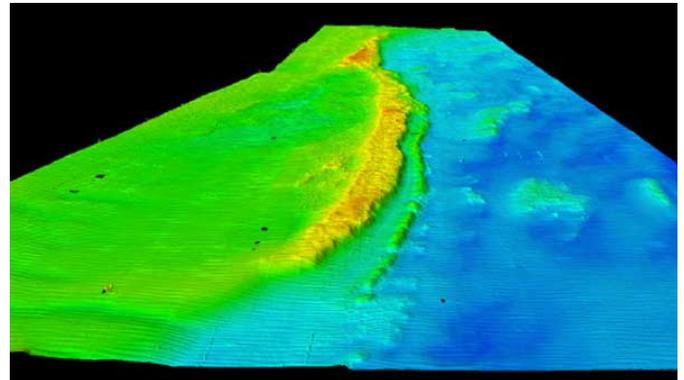
The wind and seas continued to rise as the day progressed; so all trapping and SCUBA operations were called off for the remainder of the day. The picture below gives a general idea of the sea state for much of the day (and I suspect much of tonight as well). With little else to do this afternoon but hope for calmer seas, the mapping crew stepped out on the fantail for a bit of fresh air, and to express their feelings about today's ride.



With the extra time available for multibeam sonar mapping activities (in lieu of all of the diving, trapping, and MiniBatting), the mapping team completed all of the sonar activities in our primary target area, and now the Foster has moved on to a second target area further to the east. This area is an extension of the Mid-shelf Reef (MSR) that continues the entire length of St. Thomas, USVI. We've decided to leave you again tonight with an image of multibeam sonar derived bathymetry. This perspective view (looking from west to east) shows the about half of the MSR complex south of St. John (the primary target area). Approximate dimensions of the image are 10 kilometers long by 3.5 kilometers wide.



Keep your fingers crossed for calm weather, and be sure to check back again tomorrow for the next update from the NOAA Ship Nancy Foster.



March 9, 2004

## Nancy Foster Mission Cruise Update #11

The mission is now complete, and as you may have guessed from previous updates, the crew of the Foster did not see a reprieve in the wind and waves. As such, the last 36 hours of ship time was spent mapping the deepwater reefs using multibeam sonar along the southeastern shores of St. Thomas. All of the scientific crew are now safely back at home, and are already busily working on all of the data post-processing and quality control. Don't hesitate to use the "contact us" link on this page to request data, as we intend to make all of the information (bathymetry, SCUBA transects, fish trapping, etc.) available as soon as possible.



We'd like to take this opportunity to thank all of the scientific crew who worked tirelessly to collect all of this exciting and important data. We'd particularly like to thank the US National Park Service, NOAA's Office of Coast Survey, Triton Elics International, and the US Virgin Islands Division of Fish and Wildlife for all of the field support. Lastly, we would like to thank NOAA's Marine Operations Center for their outstanding support to the mission. The Foster's crew were incredibly flexible and responsive to our many requests. The picture below shows the Foster's officers (from back: Commanding Officer Fred Rossmann, Executive Officer Ralph Rogers, Field Operations Officer Louis Novak, Ensign Amy Daniel, and Ensign Amanda Middlemiss), all of whom contributed to a very smooth mission. Not pictured here are the many other Foster crew members who also made our mission a success, including the engineers Tim Olsen, John Clark, Mark Honaker, and Steve Weber; Bosuns Jeff Brawley Cornell Hill, Don Pratt, and Steve Ralson; and the stewards who kept us all well fed, Jesse Stiggins and Dennis Moore.

Thank you all for a safe and successful mission.

We'd also like to thank all of you who have visited this website to track our progress over the past several weeks. While we were at sea, this website was visited over 7,000 times, with an average of 350 unique viewers per day. In total, more than 600 unique hosts visited the site from 18 countries. We hope to see you, and many more, next year.

Sincerely,

Mark E. Monaco - Chief Scientist

Tim Battista - Chief Oceanographer

John Christensen - Chief Biological Scientist

