






Searching for Natalee Holloway in Aruba

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Message/Author

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On July 8-12, 2005, [VideoRay](#) was invited by the [Florida State University Underwater Crime Scene Investigation](#) team to assist them in the search for Natalee Holloway in Aruba in underwater areas that have been otherwise inaccessible to search teams that were already there. These locations included a shoreline cave, a lagoon and a quarry. [Texas EquuSearch](#) is the organization that is leading the search effort.

PURPOSE & DISCLAIMER

This posting is intended to discuss the strategies, tactics and techniques involved in the search for Natalee and to benefit those who find themselves in search and rescue and recovery operations. This posting is not intended to provide any speculation or news about the disappearance of Natalee Holloway or any of the suspects involved. Please keep postings on-topic.

DEDICATION

This posting is dedicated to Natalee Holloway and her family. They have my deepest concern and sympathy. Please pray for them.

BACKGROUND

Aruba is about 20 miles long by 6 miles wide, and is located off the North coast of Venezuela. The island runs NW-SE and the Eastern shore is rocky coral with very rough surf. The Western shore is sandy, flat and with very little surf. The climate is hot and arid – it is South of hurricane alley and gets little rainfall. There is usually a steady breeze of 10-20 knots blowing from the East. The terrain is flat with the exception of a prominent, centrally located 600' (180m) peak. Vegetation is low and scrubby.

Natalee Holloway was last seen on May 30th leaving Carlos' N Charlie's in the company of three men (see http://www.texasequusearch.org/missing_persons/NataleeHolloway.htm). Carlos' N Charlie's is in Oranjestad, which is located a little North of center on the Western shore. Statements have been made that she visited the California Lighthouse on the Northwest tip of the island after leaving Carlos' N Charlie's.

Texas EquuSearch has been searching many ground locations for more than three weeks using trained crews with dogs and other methods. More than 70 persons from many locations have participated on site at some point in time. They had identified several underwater locations including a shoreline cave on the North coast, a lagoon, and a quarry that was filled with heavily silted water.

DAY 1 - July 8

I arrived in the evening carrying a VideoRay Pro III with manipulator, Trittech sonar, Desert Star Pilot positioning system, TDS with 250' neutral tether, 250' negative tether and 100' performance tether, an integrated control box with 15" display, a GVD 1000 mini-DV recorder, 800 Watt inverter, digital camera, laptop PC, a pair of 2 way radios, binoculars, toolkit and other miscellaneous supplies. Personal gear included a rain poncho, outback hat, sunscreen, insect repellent and extra clothing, such as shoes. The first problem encountered was transporting all this gear while traveling solo. I either had to locate a cart, or shuttle a few bags at a time and go back for the rest. If anyone has any suggestions for transporting gear efficiently, please reply.

I met some of the crew and received a briefing about the next day's operations.

DAY 2 - July 9

Up at 5:30 AM to prepare for searching the first site - the cave on the Northern shore. I arrived on-site with the FSU team, and we both agreed the water surge in and out of the cave was too rough to deploy an ROV. Frequently, ROVs are used to help keep divers out of hazardous conditions, but in this case, divers were deemed the most viable option. The entrance to the cave was crescent shaped, with a drop of 10-15 feet (3-5 m) to the water. The FSU team deployed a drop camera to recon the cave area in preparation for diving.



Deploying the Drop Camera at the Cave Entrance

A ladder (which was difficult to procure) was secured from the top edge to the bottom, about 50 feet (15 m) from the cave entrance, while divers suited up. The dive was conducted with surface supplied air and each diver wore about 50 lb (23 kg) of weight to help them resist the surge. As a precaution, an ambulance crew was on standby at the site before the dive commenced. All participants who worked close to the edge were required to be harnessed.



Topside Dive Station



Divers Entering the Water

Once the divers deployed inside the cave, a second, smaller drop camera was delivered over the edge to them. I connected the output from that camera to the GVD-1000 and ICB in order to record the video and provide a second larger screen for viewing. I used a 12 V battery with my inverter for power. The cave was actually two distinct cavern areas each about 60 feet deep. The dive lasted about two hours and the only item recovered was a male beach sandal, which did not match the description of what Natalee was wearing the night she disappeared.

Difficulties included procuring supplies locally, such as the ladder, and the sun and heat. Much water was consumed and planning for such accommodation should not be overlooked on any mission.

Volunteers delivered lunch on-site, and we then proceeded to the second location, a lagoon that emptied in to the ocean and was crossed by two roads.

At the lagoon, it was decided that two divers would snorkel along the mangroves on each shoreline, and the VideoRay would search near and under the bridge. The bridge was about 200 feet (60 m) long and supported by vertical concrete slab pilings spaced about 12 feet (4 m) apart. Many of the openings were partially or completely blocked. The bridge was about 6 feet (2 m) above the water, and there was a catwalk along the bridge that allowed for foot travel off of the roadway. The first problem I encountered was not having enough weight to properly ballast the VideoRay - it seems someone used my weights on a previous mission and didn't replace them. Not enough can be said about using checklists faithfully, and for everything, even if you think you have it covered. I overcame the embarrassment and problem by installing the sonar and positioning system transponder (to add weight, even though I didn't plan to use these items on this dive) and by creatively weighting the sub to the desired buoyancy. Power was provided by a 7 KW generator, which was difficult to transport, but the only option available. Water visibility was about 10-12 feet (3-4 m), and the bridge area was cleared from one side in about an hour. It was too late to relocate the controller to the other side so we retired for the day.



Bridge over the Lagoon



Snorklers with the Bridge to be Searched in the Background

One thing that I was not used to, was working in front of TV and print news crews. Cameras, audio engineers and reporters went everywhere we went. I have to commend the crews. While they wanted to get in close for views of the video screen and asked me several times to pause or do something again, they were both helpful and very quick to get out of the way as soon as I moved in their direction.

DAY 3 - July 10

Up at 5:30 again. Our first mission was to search a quarry where cadaver dogs (trained to sniff human remains) found an area of interest. The challenge was to get to the location, which was backed by steep cliffs. It was determined that we could access this portion of the quarry from the far side, and then use a boat to get across to the site of interest. The difficulty was in launching the boat because at the water's edge the sandy/clay would not support the boat trailer. Manual labor in knee deep sandy clay was required to transport the boat and gear the last few feet. The water was very silty, with visibility of only an inch or two (2-4 cm), so the plan was to use sonar to try to identify any possible targets. Unfortunately, the sonar connector had an intermittent break in it and I couldn't get it working consistently. I visually navigated on the surface to the area of interest, and then tried several attempts to search in the area, but with the extremely limited visibility, it proved to be too inefficient. I left the area to go back to the lagoon while FSU deployed divers to do a hand over hand search in the area.



At the Quarry

The logistics of getting the boat in and out of the quarry did not leave much time, but at the lagoon, we were able to clear the other side of the bridge in the same manner we accomplished the first side on the day before.

Earlier in the day, the divers had been deployed to the lagoon to use side scan sonar in the open channel area, but the boat that was obtained broke down and they were unable to get in the water at all. I felt a little better about my sonar not working knowing that even the low-tech stuff fails. I still felt bad for the search effort due to both systems failures.

DAY 4 - July 11

Up at 5:30 and off to clear more of the lagoon. This time we were going to sweep the area that was supposed to be searched using the side scan sonar. The technique we decided to use was to run passes parallel to the bridge and use sonar to maintain a specific distance on each pass. I was able to field repair the sonar connection and planned to use it to assist in navigation. Initially, we operated the sonar at what might be considered standard settings. It was easy to see the bridge and shorelines. After searching for a while, we decided that visibility was good enough, and there were very few targets of interest that we would get an even better picture of the bridge and shoreline by increasing the gain and reducing the color scale. (I was amazed at how little trash there was in the water in an area next to a bridge - I expected to find cans, bottles, etc.) By increasing the gain and decreasing the color scale, we were able to make all areas in the water very bright as opposed to the dark bridge and shoreline areas. Jeff Huva and Kerri Bingham, two volunteer divers from Portland, OR assisted with the sonar during the operations. While I was watching the video, they called out directions to keep me at a constant distance from the bridge on each pass. They did an excellent job even though they had never operated sonar before. I could have used the Picture-in Picture capabilities of the system to watch the sonar and video at the same time, but I decided it would work better keeping the both visual and sonar image as large as possible to search for any evidence. Having a three person crew was ideal for this - one person operating the VideoRay, one on the sonar, and one on the tether.

DAY 5 - July 12

No operations were planned, as this was the day the FSU UCSI team and I had to depart for home. We left disappointed that we did not find Natalee, but satisfied that we were able to clear areas of interest and be confident that she was not in those areas.

SUMMARY

Most of the challenges we faced were working in the hot sun, with wind and sand. The temperature was around 90° F and the sun was relentless. One thing I dearly missed, that we frequently use on demos, was the pop up shade awnings. We couldn't seem to find them in Aruba. The wind was also constant, and I had to stop often to clean the screen of fine powdery sand. You couldn't really feel the grit, but when you cleaned the screen the difference was amazing. Does anyone have any suggestions for working in these conditions?

I brought along a new sunshade for the video display that I designed. It hooks right on the pelican case latches. It worked well, but I've got a few concerns. First, when installed, the wind can lift the sides a little, and second, if you secure the sides, then the shade catches more wind and can tip the control panel. I may refine the design a little bit before we release it.

Locating equipment and resources from locals was difficult (finding a ladder to use at the cave took quite a while, and we could not find a replacement for the boat that broke down). I'm not being critical of the local people, on the contrary, they were most gracious hosts, but I did want to mention it as food for thought for what to bring and what to acquire locally. On the other hand if you bring things in, you have to deal with transporting them and that can be equally difficult.

One of the main challenges faced by the coordinators was sorting the real leads from the rumors. I don't think the rumors were intentional, but with limited resources and time, we wanted to search the most likely sites first. I did not envy their job of trying to prioritize the leads and deploy crews.

ACKNOWLEDGEMENTS

I would first like to thank VideoRay for voluntarily sending me and providing equipment.

It was a real privilege and honor to work with the experts from Texas EquuSearch, the Florida State University Crime Scene Investigation team and numerous individual volunteers. Everyone was extremely skilled and dedicated to the cause.

I would also like to commend the "ground pounders," as they were called. In every location I participated, we were near the water and the breeze offered some relief from the temperature and sun. The land search teams and dogs often had to work in areas with low scrub that blocked the wind and that with thick with thorns, briars and burs.

And finally, I would like to thank the people of Aruba for their hospitality to me and the rest of the search team. One local family devoted countless hours helping to make all sorts of arrangements, and many local businesses donated food or other amenities to the cause.

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