

[MA9001@aol.com](mailto:MA9001@aol.com)

773-282-7114 M A Gagliardi

## **Cow Springs Underwater Restoration Project**

Michael Angelo Gagliardi

We worked for ten months to find a way to restore the vandalized clay bank in the Cow Spring system. Forrest Wilson, Kelly Jessop, and other members of the Cave Diving Section Board of Directors helped me develop a way to restore the natural beauty of the clay bank.

Forrest e-mailed me asking if I could use my skills as an artist to come up with ideas. At the same moment (our e-mails literally crossed in the net), I volunteered my skills as both a fine art sculptor and theatrical sculptor. My only condition was that nothing be rushed.

We needed to do it correctly with a well-thought-out plan. We agreed that if I thought at any point the fix would cause more damage, I would abort the repair. I asked that my participation in this project not become general knowledge so I could work pressure-free and make decisions on the best way to proceed. I want to thank Forrest and Kelly for adhering to my wishes.

At the time, I was working on the show "THE COLOR PURPLE" in Los Angeles for several months and knew I couldn't even get to Florida until May 2008. We talked for several months about the different ideas bouncing around. With my artistic background I knew I could work clay but had major concerns about the high flow. I would have to remain stationary over the damage for over an hour at a time.

In June of 2008 I did a dive with Bill Bowden and Mike McCauliffe to look at the damage. I had planned to take samples of the clay, but my fears about the flow were correct. I aborted the dive. Forrest (along with CDS BOD) and I began coming up with ways to rig a diver to be stationary in the current long enough to make the repair. We came up with several ideas.

### **Materials Research and Project Planning**

Last August after the NSS convention we did a second dive. Forrest rigged a rope across the mud bank. I was able to use the rope across my chest and put my fins on the ceiling to remain stationary long enough to take samples of the clay.

I matched the clay samples to artist ceramic clays. Our plan was to fill the letters with clay, smooth the surface, and finish by spreading some of the particulate already in the cave. Or we could allow the particulate to adhere naturally. Kelly suggested that a small table with thin legs be set up beside the rope as a work station.

I began by contacting some north Florida ceramic artists but found out they get their clay from the Midwest. After visiting a few Chicago-based ceramic suppliers, I was directed to Great Lakes Clay Supply in Carpentersville, Illinois. These folks supply clay to the

regional art suppliers. I made a phone call to their tech support, Tim, and explained the Cow Springs project. Tim invited me to come out to Carpentersville where I showed the samples to Al, one of their clay techs.

Al showed me several clays both in moist form and powered form. (They receive the clays from around the country in powered form where it's sifted through a fine screen then reconstituted with distilled water.) This makes the potters' clay very clean and made me feel better about not transporting organisms in the system.

In my studio I thinned down all the clays to a paste form and mixed them to match the colors and consistencies of the cave. Also I modified a chalk gun (I milled the plunger to fit inside PVC tubes) to fit cartridges I made out of 2 x12-inch PVC with a fitting on the end for a 3/4-inch nozzle.

Here's how these parts go together. The different color clays go inside the PVC tubes. Stretchy plastic covers both ends and is taped in place. A rod punctures the bag once I am on-site and ready to go. The clay is dispensed into the letters in the bank like caulking. Using other clay sculpting tools I can mush the new clay in. I also have two types of soft-hair paint brushes to smooth over the top of the repaired clay.

Basically I am creating caulking tubes filled with matching clays as a practical way of applying the clay underwater. My clay modeling kit already contains many clay working tools and sponges. Out of the spare 3/4-inch PVC and some scrap ply, I made a small folding work station. We added a pouch to hold the tools while we worked.

### **Monday, January 5, 2009: Bye-Bye PY**

The restoration team consisted of Michael Angelo Gagliardi, Wayne Kinard, and Gene Page. Bill Bowden acted as surface support. Our objective was to complete a set-up dive.

We set the rigging rope. Positioned the work table in the right place. Arranged the tools, caulking gun, and brushes on the table. We planned to take samples of the clay around the PY, and then test one of the two clay tubes we brought in with us.

From photos on-site, I saw that the clay I had mixed already matched exactly so I decided to go ahead and attempt a fix. The first test of the clay gun failed. I put the tube in without breaking the plastic on the front end of the tube. The back end broke and the clay came out the back. The second tube was inserted in the gun after first poking a hole in the front of the tube. It worked exactly as planned.

The clay filled the letters and stuck. I then took a soft-hair brush and blended it all in. I continued filling in around the lower half of the graffiti and blending. If the marring was shallow I simply used the brush on it.

The letters were gone and the bank was fixed, but as predicted it was cleaner than the rest of the wall. We could try to spread some silt to blend it—or we could just wait for natural processes. In four months no one will be able to tell anything was ever there.

Gene shot over 200 photos of the dive. He also carried in a stage bottle acting as safety diver. We left the table rope and tools in place, and removed only the empty tubes. Dive time was 103 minutes.

### **Tuesday, January 6, 2009: Begin Removing DIC**

We did our second restoration dive today. The team consisted of Michael Angelo Gagliardi, Wayne Kinard (repair team), Jill Heinerth (primary photographer), and Gene Page (safety diver and Jill's assistant). Bill Bowden was once again wonderful as surface support and good-natured sherpa. We did a team photo then entered the water. About 400 feet in I had a reg problem and called the dive. On the surface Bill switched out regulators for me and we were back in business.

There were no incidents getting to the site. At the site Wayne checked the rigging while I began resetting the tools on the bench. We attacked the DIC. We filled and smoothed the clay. After an hour or so we had about 80% of the DIC gone, but little remains. I called the dive at this time due to thirds—but also fatigue. We collected the bag of empty tubes, secured the tools to the line, and began exiting.

I want to thank the Cow Spring Restoration Team. The team effort and skill of these four individuals is outstanding. It's a pleasure working with them. Working with Wayne is like working with a telepath. He knew every tool I needed as soon as I realized I needed it. All I had to do was hand one tool back and the next tool was popped into my hand. Bill Bowden's surface support saved us hours in sherpa hauling, and the emergency repair got us going again in 20 minutes. I also want to thank Dive Outpost for their help and support.

### **Cow Springs Project Day 3: Restoration Complete and Successful**

The dive team consisted of Michael Angelo Gagliardi, Wayne Kinard, and Gene Page. Bill Bowden stayed an extra day to once again act as surface support. After meeting at Dive Outpost where we went over the day's plan, we left for Cow Springs. Both Wayne and Gene back-mounted while I side-mounted. Gene had an extra 80 already in the cave as safety bottle. I carried an 80 which I used as travel gas. We wanted to do one long dive in which we would finish the restoration and clear all the tools, workstation, and rigging rope. We were planning on a 2 to 2 ½-hour dive.

Once at the site, I clipped the stage bottle to the line and went to work moving the tools from the line to the work bench. Wayne checked the rigging then began assisting me in the repair. The DIC was still visible.

I took a clay modeling tool (a rubber scraper shaped like a French curve). With this tool I began working the clay from the center of the letters and blended over the letters. This technique buried the filler-clay with the clay from the bank itself, making the letters disappear.

Next I went to the darker sienna-colored streaks and began dragging the streaks across the place where the letters were connecting it to the streaks on the other side. This technique began restoring the multi colored streaking.

Next, I used two soft-haired brushes to smooth and blend the restoration further, which was a slow and meticulous process taking about 60 minutes. The rigging line was invaluable in holding me in place for this amount of time. It allowed me to focus on the work. When I finished this stage I got an OK from telepathic Wayne who always put the right tool in my hand.

Once all three agreed this stage was done, I began handing Wayne all the tools and tubes. He bagged them and clipped them off to the permanent line. I made myself buoyant and pulled the table. This was harder than I thought due to the weights we attached. I eventually moved it to the permanent line where I folded it and clipped it off. This left four small holes in the floor. I used the clay in the legs to fill these holes. Wayne then placed darker material on top making them disappear.

Using the rigging line and the larger brush I slowly moved along the wall creating what we are calling a controlled silt-out. Using the brush to fan where the wall meets the floor. The loose clay droppings from vandalism and repair kicked into the flow where the particles were taken away or immediately disincarnated. I started working on the upstream end of the wall and worked slowly a foot at a time to fan the debris away. The fanning process took visibility to zero inches. I had to wait for it to clear, fan again, wait some more, and so on. When an area was clean I moved a foot or two and repeated the process. I am guessing it took 30 minutes.

During my exit the previous day, I collected sand and dark gravel in a bag. I now slowly released this particulate into the water just upstream of the repair. This action provided the final blending. The lighter particulate landed on the clay wall and the heavier landed on the floor. If you've never been in this system before, you would now not be able to find the vandalism or the repair. I am hoping it even fools some that know the system well.

We were finished with the repair. We began gathering stage bottles, table, and bags of tools. Taking one last look at our work, we shook hands and exited.

The flow helped moved the gear out. We each would go half-way through the restriction turn and wait for the diver behind, ready to assist if needed.

At the decompression stop, Wayne had a regulator malfunction which he repaired in water. With deco finished I went back and pulled the reel. On the surface we gathered everything with Bill and got it up the hill. There were a few yahoos and some back slapping.

This last dive was 138 minutes. All in-cave work times stated are estimates. We all three had just under 1/3 of our gas left. All told counting Forrest's setup dive and Bill's sherpa

help, we had over 30 caver hours in this project. This is not counting off-site activities like getting fills. Nor does it count all my research time, shop time, or Gene's post dive photo editing time.

Dive Outpost and Amigos donated the gas for this project. Gene shot over 500 pics and posted a few at Cave Diving Forum [www.cavediver.net](http://www.cavediver.net). Since the table and other tubes were built specifically for this project, I would like to donate them to the Cave Diving Museum.

After the dive, the team had a victory dinner at Sonny's (in keeping with cave diving tradition) where we proved that when it comes to cave divers, gluttony is not a sin but an expectation.

### **The Rest of the Story ...**

Ken Hill and others have been work tirelessly in an effort to investigate this crime. Thru their efforts individuals have been identified. Many have expressed their anger, but I would like to add a point of calm. The individual has come clean and promised restitution funds. I don't want to cut off the vandals fingers. That solves nothing. Vengeance doesn't help the conservation effort. Education does. I would like the money he's promised to go to making a short video on proper conservation ethics to be shown before being allowed to dive an NSS-CDS site—much like the video about swimming with the Manatee.