



Quarterly Reporter

“Helping to preserve and protect South Carolina’s maritime archaeological heritage through research, management, and public education and outreach.”

July 2014

Volume 5, Issue 2

Things You Need to Know:

- 2014 Quarter 2 Reports Due by July 10, 2014
- RiverDog Wing Night
- Pirate Festival August 10th
- MRD Gear Now Available!

Articles:

The New MRD	1
July Reports	2
ASSC	2
MRD News & Events	3
FTC Part I	4
Hobby Diver of the Quarter	4-5
RiverDog Wing Night	5
Field Notes	5-7
Features	8-12
Diver Safety	12-13
Conservation Corner	13-15
Paleontologist’s Panel	16
Notes from Editor	17

The New MRD

By Ashley Deming, MRD

The Maritime Research Division launched their new website with a brand new look on June 2, 2014. We are very excited about the new site and layout. The site contains information about our past projects and publications, the South Carolina Underwater Antiquities Act, upcoming classes and events, and much, much more! We hope you get the opportunity to check out the new site and read all about the MRD.

Information and forms are also available regarding Hobby Licenses. All of the forms are updated, so please be sure to use those instead of any other forms you may have. We have also added and updated many of our Artifact Identification Resource links for your convenience. We hope this helps you to identify some of your finds for your reports.

Additionally, the new site has up to date [News](#) and a [Calendar](#) so you can join us for many events and classes, but also see when those reports are due, when we will be away from the office, and any upcoming volunteer opportunities.

To check out the new website please visit: www.artsandsciences.sc.edu/u/sciaa/mrd

As mentioned in the previous issue of the *Quarterly Reporter*, we will no longer be using the Sport Diver Archaeology Management Program (SDAMP) name. Please make sure that any correspondence to the Division is directed through our new email address at mrd@sc.edu and NOT the previous address of sdamp@sc.edu.

We are also pleased to announce that we now have MRD Gear available for purchase as part of our fundraising initiatives. We have t-shirts, hats, travel mugs, and embroidered patches all with the new MRD emblem. You can show your support for the program by purchasing your own MRD Gear and

wearing it to our events and out on the water. All proceeds from the MRD Gear go to support Division research and education and outreach. At this time, we are unable to ship MRD Gear, but we will have it available at any of our functions. You may pre-order your MRD Gear for pick-up at the next event. Please see page 3 for information on our next event or visit our [News](#) page. You can view what is available for purchase at our [MRD Gear](#) webpage.

We are thrilled about the new changes for the Division and we look forward to adding more pictures and video to the website over the course of the year. ■



New MRD Gear

July Quarterly Reports

This is a reminder that your Quarter 2 2014 reports are due by July 10, 2014. These reports should cover all of the collecting you have done between April 1st and June 30th of 2014.

will no longer be accepting outdated versions.

Artifact Reports

Your *artifact* reports should be filed online or may be sent to:

Artifact Report Forms
PO Box 12448
Charleston, SC 29422

You may also fax forms to: (843) 762-5831

Email forms to us at: mrd@sc.edu

Fossil Reports

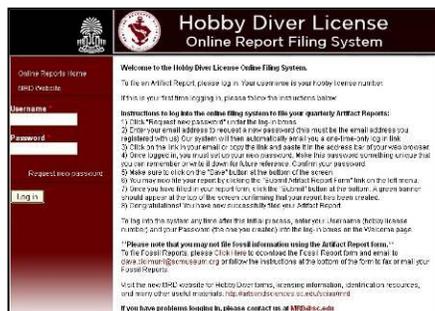
Your *fossil* report forms should be emailed to Dave Cicimurri at: dave.cicimurri@scmuseum.org

Or mailed to:

Curator of Natural History
301 Gervais St.
Columbia, SC 29201

Make sure that you file reports with both agencies even if you have not done any collecting. If you have not done any collecting, just tick the box that reads "No Recoveries Made This Quarter" and send it to the appropriate agency.

If you have any questions regarding reports, please visit our website at: www.artsandsciences.sc.edu/sciaa/mrd/onlinefiling
 Or give us a call at: (843) 762-6105. ■



Quarterly Reports due by July 10, 2014

Please file your artifact reports using our online system. You can submit forms online at: src6.cas.sc.edu/sdamp (Note: If this is the first time you are filing on this system, you will need to activate your account by following the directions on the home page).

All report forms can be found on our website at: www.artsandsciences.sc.edu/sciaa/mrd/forms
 Please use the newest versions of the forms. We

Archaeological Society of South Carolina Update

By Sarah Stephens, ASSC Newsletter Editor

The Archaeological Society of South Carolina (ASSC) is a non-profit organization of professional and avocational archaeologists and concerned citizens working together to educate people about archaeology and preserve South Carolina's cultural heritage. We have three active chapters: Foothills, Hilton Head, and Beaufort. Recently the Foothill Chapter held volunteer excavations at the Walnut Grove Plantation in Spartanburg County. Lamar Nelson led the dig in hopes of locating the slave quarters. Volunteers uncovered many typical

historical artifacts, such as brick and glass, but also a horse bridle, skeleton key, and a possible copper pendent. An article is featured in the current ASSC Features & Profiles newsletter (2014 Issue 2), which is available on our website at www.assc.net.

We are currently preparing for our annual Fall Field Day. The event will include primitive skill demonstrators, storytellers, and other events. This year it will be at Croft Park in Greenville on Saturday, November 15.

ASSC is holding a t-shirt design contest. The winner will receive a \$50 cash

prize, their signature on the shirts, & a free t-shirt featuring their design. The contest is open to everyone. Deadline for entries is August 15. For more information, please contact us at archaeologysocietysc@gmail.com.

For more information on the ASSC and how to become a member, please visit our website: www.assc.net. Members receive a quarterly newsletter and an annual copy of the journal, *South Carolina Antiquities*.

Find us on [Facebook](#) or follow us on Twitter @SC_Archaeology.

The Maritime Research Division (MRD) is a proud supporter of the Archaeology Society of South Carolina. Each year MRD participates in the annual conference and Fall Field Day, both highlighting the great work conducted by professional and avocational archaeologists in the state.

We hope you will consider joining this great organization in helping to protect and preserve South Carolina cultural heritage! ASSC is a great way to get involved in the archaeology around the state. ■

Upcoming Events

RiverDog Baseball

Join the Charleston MRD for a special event at the Joe Riley Stadium, home of the Charleston RiverDogs July 18th. The game starts at 7pm with a fireworks show after. For details on how to purchase tickets, see page 5.

Pirate Festival

The Maritime Research Division will have a display at the second annual Pirate Festival on August 10, 2014 from 11am-3pm. The display will feature the archaeology of piracy. Other events include a

poster contest, storytelling, and a musket drill.

Admission is free and the event will take place at the Charleston Maritime Center. For more information on the festival, visit:

www.charlestonpiratefestival.com

Hobcaw Barony Project

The MRD will be conducting a weeklong field project off the Hobcaw Barony near Georgetown August 11-15 as part of a SCIAA collaborative project. During this time, both the

Columbia and Charleston MRD offices will be closed.

Columbia Wing Night

Our next Columbia Wing Night will be August 27th from 6:30-9:00pm at the British Bulldog Pub.

Please feel free to bring some artifacts and fossils for identification.

USS Housatonic Project

For two week in September and two weeks in October, the MRD will be conducting survey and excavation of the *USS Housatonic* site. More

information to come.

Oyster Roast

Our 4th Annual Oyster Roast will be held November 8, 2014. Mark your calendars for a shuckin' good time!

Please continue to read the *Quarterly Reporter*, emails, our website, and follow us on [Facebook](#) for information about upcoming events and volunteering opportunities.■

MRD News

It is important to us that our divers and friends are aware of the education and outreach we do throughout the year. We hope to keep you updated on all that we are involved in so that you too will get involved.

Remember that MRD is on [Facebook](#)! Leave a message on our wall!

April

- The MRD conducted two weeks of remote sensing and diving on the Stone Fleet Project.
- Ashley Deming and Nate Fulmer presented a lecture on maritime archaeology to a class of College of Charleston undergraduates.
- Nate Fulmer and Ashley Deming assessed two Native American pottery collections from hobby divers.
- Charleston Wing Night was held April 30th.

May

- Nate Fulmer attended a boat safety training seminar on May 1st.
- The MRD conducted two weeks of diving operations on the Stone Fleet. See pages 9-12 for more info.
- Ashley Deming and Nate Fulmer conducted a site assessment of a dugout canoe. See page 5-6.
- Nate Fulmer and Ashley Deming attended the NOAA lecture regarding finding of Robert Smalls' ship the *Planter* on May 12th.
- The MRD Charleston crew conducted a site assessment of a historic causeway on Daniel Island. See page 6 for the story.
- On May 27th, Nate Fulmer and Ashley Deming visited the College of Charleston archaeology field school at Dixie Plantation. Nate and Ashley discussed the potential maritime archaeology opportunities

available at Dixie as well as with the Division.

- Columbia Wing Night was held May 28th at the British Bulldog and was coupled with a presentation by Wateree Scuba club divers on diving with great white sharks.
- The MRD premiered their new MRD Gear of t-shirts, hats, mugs, and patches with the new MRD emblem.

June

- The MRD launched their new website June 2nd. See page 1 for more information.
- MRD returned to the Combahee for a week to continue diving and dredging operations for the 2014 project. This is an ongoing collaborative project between the MRD and SCIAA archaeologist Dr. Chester DePratter.
- Charleston Wing Night was held June 25th.
- The MRD annual Field

Training Course Part I was held June 28-29 for five students. See page 4 for the story.

Upcoming...

July

- Quarter 2 2014 reports are due July 10th.
- RiverDog Game July 18th at 7pm.

August

- Pirate Festival August 10th.
- Hobcaw Barony Project August 11-15. MRD offices will be closed.
- Columbia Wing Night August 27th.

September

- USS Housatonic* Project September 8-19. Offices closed.
- Wing Night September 24th.

October

- USS Housatonic* Project October 6-17. Offices closed.■

2014 Field Training Course Part I

By Ashley Deming, MRD

One of the educational highlights for the Division is our Field Training Course (FTC) offered each year. This course is intended to introduce divers to the science behind underwater archaeology. It is not about roaming the bottom of a site and collecting artifacts. Underwater archaeology involves a number of scientific disciplines to accurately observe and record an underwater site.

This year, we were joined by four divers and one non-diver student who were interested in learning the scientific practices involved in mapping underwater sites. This included both physically mapping sites as well as using some remote sensing technology.

The weekend course began in the classroom where students heard lectures about common sites in South Carolina as well as basic theory regarding archaeological site mapping. They spent that afternoon practicing

those skills on a mock shipwreck site set up on the grounds of the DNR Marine Resource Center in Charleston. On Sunday, the students, instructors, and Mt. Pleasant fire fighter Paul Ceglia met at a Mt. Pleasant Fire Department training pond to practice recording underwater. Non-diving student Roddy O'Connor brought out an ROV (Remotely Operated Vehicle) to show the students some remote sensing technology that he works with to identify potential underwater sites.

The location for the course posed a couple of setbacks (low to zero visibility due to silt and "gunk"), but the real-world experience was invaluable and the students didn't seem too bothered by the "gunk". Despite the lack of visibility, the students did a fantastic job of navigating the site and mapping the mock shipwreck. Nate Fulmer and I saw some very good measured sketches on student dive slates. We all

learned a lot and had a great time in the process.

Graduates of Part I are eligible to participate in any future Part II which is held on an actual maritime site in South Carolina. Unfortunately, due to our heavy field season this year, Part II will not be available, but we hope to pick it back up in 2015. This is a great opportunity to get down and dirty with real maritime archaeology, don't miss the 2015 FTC class next

summer!

Thank you to Greg Kent, Paul Ceglia and the Mt. Pleasant Fire Department for arranging the use of their great facility. We would also like to thank Roddy O'Connor for bringing out his ROV for demonstrations.

We are extremely proud of all of our 2014 FTC grads and can't wait to include them in future classes and projects. Well done!■



Above: 2014 FTC Part I students Brian Baltzegar, Rick Norris, Joy Krutek, and Gary Laubscher listen to instructor Ashley Deming for a site briefing.

Left: Roddy O'Connor with his ROV.

Hobby Diver of the Quarter

This section of the newsletter is devoted to the hobby diver(s) who go above and beyond the call of duty. He/she has submitted excellent reports, been an exceptional volunteer, has gone out of their way to preserve cultural and/or natural heritage in the state, or has

been a general inspiration to other licensees, the public, or us.

Each quarter we will pick a licensee that resembles one or more of these noteworthy traits. Hopefully, it will be you! If you know of someone who fits some or all of these categories and would like to

nominate them, please send us a brief email of who and why you think they should be Hobby Diver of the Quarter.

The honor of Hobby Diver of the Quarter for Quarter 2 2014 goes to licensee Ted Churchill (#4164).

Ted has been a licensed

hobby diver since 2005. He began volunteering with us on projects in 2009 on the [Allyon's Capitana Survey](#).

Ted has been a volunteer diver with us on our [Allendale Project](#), the [Charleston Harbor Project](#), the [Black River Project](#), and most recently, the

(Continued on page 5)

RiverDog Baseball Event

By Ashley Deming, MRD

Join us for a special event at the Charleston [RiverDogs](#)! In lieu of Wing Night in July, we will be meeting up Friday, July 18th at the Joe Riley stadium in Charleston to watch the Charleston RiverDogs vs. Augusta GreenJackets for a 7:05pm game. The game will be followed by a fireworks display.

The MRD will have our new gear available for pre-order so you can show

your support by wearing it at the game. MRD Gear may be viewed on our website at:

www.artsandsciences.sc.edu/sciaa/mrd/mrdgear

Pre-order yours today by emailing mrd@sc.edu.

Tickets for the game are \$8 and can be purchased at the link:

<http://cr1.glitnirticketing.com/crticket/web/gpcaptc/ha.php?refresh>.

Make sure to enter the

password: *mrdusc* to be seated with us.

Info is also available on our website at:

www.artsandsciences.sc.edu/sciaa/mrd/riverdogsbaseballnews_14 and on our

[Facebook](#) page. If you have any questions on how to purchase tickets or the event, please call us at 843-

762-6105.■



Hobby Diver (Continued from page 4)

[Combahee River Project](#).

Ted always has a smile on his face and never fails to keep the morale up even in the toughest of diving conditions with his great sense of humor and love of life. His fun and happy outlook on life is infectious and makes any project he is

with us on even more enjoyable.

Ted has volunteered with many of our outreach events such as the ASSC Fall Field Day and enjoys sharing his love of fossils with school classes.

Ted is a frequent attendee of our Charleston

Wing Nights with his lovely and supportive wife Linda.

We love having Ted as an avid volunteer and supporter and hope he continues with us for years to come.

Thank you, Ted! You are truly an inspiration to us all!■



**Hobby Diver of the Quarter
Ted Churchill**

Field Notes

Dugout Canoe on Rantowles Creek

By Nate Fulmer, MRD

In late April, The Maritime Research Division's Charleston field office was contacted by local boater Dale Theiling regarding a possible dugout canoe on the bank of Rantowles Creek near the Stono River. Photographs and video submitted by Mr. Theiling depicted what appeared to be a portion of a canoe protruding from the shore. The suspected dugout, visible only at low tide, was exposed by erosion on the creek bank.

After receiving the report, we determined the Institute did not have an existing site file in the vicinity and decided to visit the site with Mr. Theiling as soon as our field schedule allowed. Mr. Theiling agreed to meet at a nearby boat landing prior to low tide on a Friday afternoon in early May when Ashley Deming and I accompanied him to the site.

We were able to locate it and quickly determined it

was indeed the partial remains of a dugout canoe fashioned from a single cypress timber. The remains were carefully photographed and a steel probe was employed to determine that the unexposed portion of the hull extends several feet into the pluff mud along the creek. Working on pluff can be an incredibly difficult affair, and Ashley demonstrated this to the best of her abilities by

(Continued on page 6)



Ashley Deming probing the pluff mud for the prehistoric canoe in Rantowles Creek.

Canoe (Continued from page 5)

jumping ashore and promptly sinking to her knees in the miry muck. As my predecessor, Carl Naylor, once profoundly declared, “Mud sucks!” A brief rescue operation ensued, and she was able to extract herself enough to climb back onto the bow of the boat.

The Rantowles canoe is in an overall advanced state of decay and much of the

exposed timber is spongy to the touch. Despite the condition, clear evidence of burn and scrape construction was observed and photographed on the inside of the hull, providing an indication the vessel may be of prehistoric origin.

Sadly, based on the poor condition of the timber and the wreck’s position in a tidal environment, the remains are currently

endangered. Thanks to Mr. Theiling for bringing this site to our attention and accompanying us to the site so that it could be documented by the Division. ■

Ashley Deming and Nate Fulmer observing the “burn and scrape” of the canoe. (photo courtesy of Dale Theiling)



Historic Causeway Identified on Daniel Island

By Nate Fulmer, MRD

Around the time we received the report of the dugout canoe in Rantowles Creek, Brenda Thorn from the Daniel Island Historical Society (DIHS) contacted us about a timber structure that is eroding from the bank of a small creek on Daniel Island. Initially observed from a privately-owned dock adjacent to the creek, portions of this rather extensive structure are exposed at low tide. The ends of numerous horizontally arranged logs

and some lower cross-timbers can be seen protruding along the creek. Based on the description and several photographs, we believed it to be the remnants of a historic elevated causeway.

On a sunny afternoon in May, Ashley Deming and I met Brenda and island historian Michael Dahlman onsite at low tide to assess the structure. Michael bravely joined us as we waded through ankle-deep pluff mud and



Nate Fulmer examines the timbers of the historic causeway. (photo courtesy of Elizabeth Bush, DIHS)

chest-high marsh grass to get a better view of the structure. On closer inspection, we observed that the structure consisted of several levels of successive timber construction and even noted the presence of some milled planking on top of the logs. Several large disarticulated bricks of an undetermined origin were also observed. Other sections of this causeway can be seen from the ground and on aerial imagery. A series of

historic plats and maps provided by Michael Dahlman clearly show a causeway dating from the last half of the 18th century to the 20th century in very close proximity to the site we observed. We appreciate DIHS for bringing this unique structure to our attention. In addition to further archival research, we plan to return in a future field season to further document the remains of this now-defunct historic roadway. ■



Ashley Deming and Nate Fulmer brave the sharp marsh grass as they survey the causeway (photo courtesy of Elizabeth Bush, DIHS)

Ploughing the Stono

By Nate Fulmer, MRD

One afternoon in April while Ashley Deming and I were conducting fieldwork offshore, spring semester intern Sally Topping fielded a phone call about an unusual find by local boater Fred Dockery. Fred told Sally he had snagged a rusty cast iron artifact while fishing on the Stono River. Sally noted that the object “has a date on it as well as some other writing,” and that Fred contacted us because he thought it might be a piece of ship rigging. Upon our return the following week, we called Fred to request some photos of the artifact, and he graciously sent us a few snapshots.

The largest section of the artifact (pictured) measures approximately 16 inches and it exhibits

obvious evidence of fracture in several areas. To simplify identification, Fred’s mystery fragment conveniently included a name and patent date stamped right into the iron: “DODGE’S PAT OCT 8 1867” Our initial hypothesis that the object could be a portion of a bell mounting assembly was seemingly bolstered by the discovery that “Dodge’s” was J.G. Dodge & Co, a foundry in Louisville, Kentucky that had manufactured several types of bells in the mid 19th century.

However, a bit of archival research made it clear that Fred’s artifact was not associated with the maritime legacy on the Stono and that it is instead most likely related to post-

antebellum agricultural endeavors in the area. A US Patent Office application (#69643) dated Oct 8, 1867 tells us that J.G. Dodge was manufacturing an “Improved Plough.” On the application, Jacob Dodge states, “My invention consists in a novel construction of the various parts of a plough, whereby it may be cheaply constructed, and easily and cheaply repaired when worn, and

at the same time be rendered strong and durable.” Fig. 1 on the application (pictured) is a perspective view of the cast-iron frame and it shows us that Fred’s artifact is indeed a large portion of the iron frame of Dodge’s Improved Plow. How this object made it into the river is a matter of conjecture, but we appreciate Fred’s effort to bring this interesting find to our attention. ■

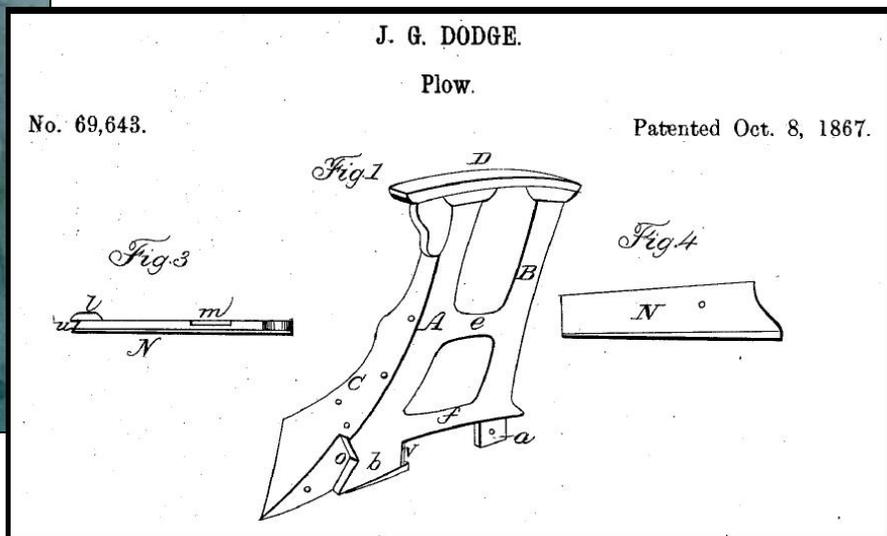
Below: Image showing the patent date of the plow. (photo courtesy of Fred Dockery)



Left: Image of the odd iron object Mr. Dockery found in the Stono. (photo courtesy of Fred Dockery)



Right: Figure of the patent for the J. G. Dodge & Co. plow design



Feature Articles

Each quarter we would love to feature one or two articles by you. Your article can be about an artifact or fossil you found, your collection, your research, your experience with the program, a humorous diving anecdote, or just something interesting that relates to South Carolina's

past. Feel free to include images that can be used with your article.

You should submit your articles to MRD for review and editing. Once we have approved your article, we will do our best to get it into the next issue of the *Quarterly Reporter*. If your article is accepted, we will

contact you to let you know.

We want to hear from you, so get writing! Submit your articles to:

mrd@sc.edu ■

Volunteers Phil Hartmeyer and Ryan Bradley on the 2014 Stone Fleet Project



Working with the MRD

By Jessica Glickman, URI graduate student



Jessica Glickman diving on the 2014 Stone Fleet Project

My name is Jessica; I am a graduate student from the University of Rhode Island, studying underwater archaeology and history. I recently had the pleasure of spending 3 weeks surveying and diving with the Maritime Research Division team of SCIAA. Working

with these talented South Carolina divers off the coast of Charleston while looking for remains of the stone fleet (civil war era blockade vessels), proved to be a challenge but a great experience.

Arriving in South Carolina in late spring

meant that I was in for cold water, and the world being what it is, meant that we were all in for some wacky weather. Being blown out and rained on became a regular part of the experience, but one that gave me the time to get to know everyone on the team.

I learned about the hazards that the area presents including the low visibility. Coming from a recent trip to Bermuda, the first dive was a little bit of a shock. However, everyone on the team was very helpful and taught me the skills that I needed to be a more self-sufficient diver and tackle the low to no visibility that is the norm.

I was also pleasantly

surprised by the amount of life and the amount of preservation that we discovered off shore. As an underwater archaeologist, the ballast piles and fasteners were all very exciting and I was honored to be a part of their discovery. The beautiful corals, sponges, fish and marine life were very enjoyable and taught me more about the ecology of the area.

Overall, I learned a plethora of skills that I will be able to use as I pursue a career in underwater archaeology. I also made some great friends and look forward to working with them again in the future. ■

Second Stone Fleet Experience

By Phil Hartmeyer, ECU graduate

I was first introduced to South Carolina State Maritime Archaeologist Jim Spirek in October 2013 when he spoke to my Cultural Resource Management class at East Carolina University. He presented on SCIAA, the

MRD, and their projects that would fill their upcoming field season, including the search for the Stone Fleets just outside Charleston Harbor. After reconnecting in Quebec at the Society for Historical Archaeology Conference,

Jim offered fellow ECU graduate student Ryan Bradley and I an opportunity to assist with the survey operations to relocate the failed blockade of retired whaling and merchant ships.

While Ryan and I were

only aboard the MRD research vessel (a 25ft C-Hawk) for four days, the experience I gleaned greatly enhanced our previous, classroom-based exposures to side scan sonar and magnetometer. Most

(Continued on page 9)

Stone Fleet Experience (Continued from page 8)

importantly, I learned how to drive survey lanes using two methods. First, we used ArcGIS software with real time geo-referencing. A laptop screen displayed our planned survey area superimposed by a current nautical chart and a historic, 1863 Civil War chart. Together, these three resources allowed us to hone in on probable locations for the scuttled vessels and drive accurate survey lanes along our planned routes. The second method involved driving the C-Hawk along survey lanes established by the onboard Trimble GPS.

Once ArcGIS confirmed that we were in the correct quadrant of our planned survey area, we inputted survey parameters into the GPS (length of lane, width between lanes) and the unit guided us up and down the coast of Isle of Palms. During our four days, we ground-truthed one target, and marked several more anomalies for future investigation using these methods.

While exposure to the two survey methodologies was incredibly rewarding, the staff of MRD and the flow of operations made my experience in



Phil Hartmeyer driving lanes in the MRD C-Hawk during the 2014 Stone Fleet Project

Charleston hard to forget. Jim, Joe, Ashley, and Nate: you guys run a great operation and I'm glad I

could get some South Carolina mud under my nails. ■

Fieldwork on the Charleston Harbor Stone Fleets

By Jim Spirek, SC State Maritime Archaeologist, MRD, SCIAA

Bundled up and huddled against the bulkhead on the MRD's C-Hawk, volunteer Bruce Orr chattered, "It's snowing." Ashley Deming, looking about the aft deck, deadpanned that he was mistaken it wasn't snow rather it was the PVC of our tarp support simply shedding white flakes. Whether natural or man-made flakes, it was sure cold that day, which coincided with one of the coldest days in the recorded history of Charleston. Poking our nose out into the harbor and finding it freezing and wet, we succumbed to the cold, stiff breeze, lumpy seas, turned the boat around, and headed back to the landing. Unfortunately, an all too familiar conclusion to many a day on the harbor

this year. Prognostications of only worsening weather for the remainder of the week caused us to call off the first week of diving operations in early March of this year. We hoped that in several weeks more time we would find sunnier days and smoother waters. However, the first week was only a precursor to weather continually interfering with our six weeks of slated fieldwork.

As mentioned in my article in the previous *Quarterly Reporter* about our archival research trip to DC, in which a snow storm caused us to lose time at the National Archives, bad weather continued to plague our efforts to document the remains of the First and Second Stone Fleets. Of the six weeks and potential 30 days to

conduct remote sensing and diving operations we only managed to work offshore for 18 days.

Despite the limitations imposed upon us by forces beyond our control, we managed to dive on 13 of the 29 wreck sites. Due to the shortened time, we did not dive on those sites we had previously investigated which numbered eight wrecks, although we did return to one site to record iron knees that rested on the rocks.

Sneaking out between bouts of bad weather our initial efforts concentrated on the First Stone Fleet sunk at the entrance to the Main Ship Channel. During a previous project, we had located 15 of the 16 rock mounds associated with this fleet. We had also dove on five of the wrecks,

including one that bore evidence of burning, which suggested the remains of the whale ship *Robin Hood*, of Mystic, Connecticut, the only vessel burned to signal to the Confederates the closing of the Main Ship Channel. Therefore, we wanted to find the last shipwreck and to dive on the remaining eleven shipwrecks. However, when we went to relocate one of the ballast mounds, we found that the extent of the site had shrunk considerably in size. Instead of a nice sized ballast mound as seen in our original 2010 sonogram, we found a sliver of a rock mound. We posited that perhaps the site had been covered up in sediments, but that seems unlikely as the rock

(Continued on page 10)

Stone Fleet (Continued from page 9)

mounds stand proud of the bottom anywhere from 8-10 feet in height. Diving the site did not turn up any similar diagnostic features, i.e., copper-alloy fasteners or amount and height of rocks that the other sites exhibited. Unsure whether this ballast mound is related to the stone fleet or perhaps from another period forced us to drop the site total number down to 14 shipwrecks. After diving a few more sites, we investigated a new rock mound detected during sonar operations at a near-by wreck. This wreck was a stone fleet vessel which had a large amount of worm-eaten structure on one end of the ballast mound. Our total once again returned to 15 shipwrecks. While conducting additional remote sensing at one of the other wrecks, we found another shipwreck. Diving this shipwreck ascertained it was not part of the stone fleet, having a very limited quantity of small cobble stones, but rather a small wooden sailing vessel that had a portion of a windlass remaining on the site. Dating to the nineteenth-century further investigations may assist in pinpointing a date or name of the shipwreck.

Next, we turned our attention to locating the shipwrecks associated with the Second Stone Fleet. During our previous grant work, we had discovered one shipwreck, and had dove on two shipwrecks marked on modern nautical charts. In an earlier foray in late 2013 in support of our current grant, we had located an additional two shipwrecks, with one right next to one of the marked shipwrecks. Initially, I had thought the three previously investigated wrecks were not related to the Second Stone Fleet, but perhaps stone-barges reported sunk during the hurricane of 1885. This was based on the extremely large-sized rocks on these sites, including one site that bore quarrying marks similar to ones visible along the Fort Moultrie waterfront on Sullivan's Island. With the



Large rectangular rock covered in marine growth on Second Stone Fleet (SCIAA).

discovery of these two shipwrecks, with one extremely close to one of the marked shipwrecks, suggested that perhaps all the shipwrecks were indeed associated with the Second Stone Fleet. At this point we had located five of the 13 shipwrecks sunk as part of this fleet at the entrance of Maffitt's or Beach Channel. To find the remaining eight ballast mounds, we began additional remote sensing survey; filling in gaps between our initial survey lines spaced 164 feet (50 meters) apart and headed further east and west. Despite squeezing in lanes and broadening our survey area succeeded in only finding one additional ballast mound. Diving on that ballast mound noted a large quantity of stone and several right-angle iron knees, a structural element used to brace a frame to the underside of a deck beam, which suggested affiliation with the stone fleet. We also detected a small mound of rocks, but circumstances prevented diving on the site to determine its relationship if any to the stone fleet.

One of the more intriguing wrecks of the Second Stone Fleet is the ship *Bogota*, 302 tons, purchased in New York City. Historical research in support of the grant has resulted in a great amount of information composed of whaling logs, newspaper articles, lawsuits, reminiscences, ship registries, and other documents for 44 of the vessels of the two fleets. Historical information about the ship *Bogota*, however, had proved elusive. Newspaper articles in New York City did mention a ship *Bogota* regularly plying between Cartagena, New Granada (now Columbia) and New York from the late 1840s which then disappeared from the papers in late 1850. A ship *Bogota* only reappears in the New York City papers and other documents in 1860. The ship was captured by USS *Crusader*, Captain John N. Maffitt, off the coast of Cuba with a load of between 400-500 slaves destined to the sugar cane fields. The slave ship was condemned and sold in Key West to a businessman whereupon the ship entered the coasting trade laden with cotton from New Orleans and sugar from Cuba ultimately destined for New York City. So the question became was the slaver and the stone ship *Bogota* the one and the same?

In an 1860 ship registry, the purported tonnage or carrying capacity of the ship was 232 tons, quite a different tonnage than the 302 tons reported in the late 1861 newspaper article about purchasing the vessel for naval use. An advertisement in the newspapers in the fall of 1860 offered the fine bark *Bogota*, 100 feet in length, 25 feet in breadth, 12 ½ feet in depth, coppered, and copper-fastened, and 301 tons. Again a conflicting tonnage between the slaver *Bogota*, although corresponding to the stone ship *Bogota*. Interestingly in the ship registry the vessel was stated as having been built in Honfleur, France in 1852, along with another useful tidbit—the vessel was constructed with iron knees. Using the powers of the

(Continued on page 11)

Stone Fleet (Continued from page 10)

internet and Google translate, I succeeded in locating information in French sources about a ship *Bogota* in France that operated as a packet ship plying between Havre, France and South American ports from 1852 to 1859. I also found testimony of a slave case brought against a Havre merchant by the French government for outfitting the ship *Bogota* as a slaver in late 1859. The document consisted of the defendant's lawyer attempting to persuade the judge of his client's innocence, but did provide interesting details of the ship's outfitting and voyage and eventual capture off Cuba. But, I was still uncertain as to whether the slaver and the stone ship were the same vessels, until Corey Malcolm with the Mel Fisher Maritime Heritage Society in Key West, provided me with a passenger manifest that reported *Bogota* was 302 tons, along with the name of the captain that corresponded to previous voyages of *Bogota* mentioned as 232 tons. As an aside, I have found that the reported tonnages of the stone fleet vessels were apt to change, usually slightly, but sometimes by over 100 tons. Unfortunately, among the purchasing papers for the stone fleets, there was no mention of when the *Bogota* was actually purchased, but the vessel was in the port of New York City according to the newspapers while assembling the Second Stone Fleet. This information seems to seal the identity of the stone ship *Bogota*, as a French-built ship captured as a slaver off the coast of Cuba. As for the iron knees mentioned above, we found two ballast mounds that have iron knees. One of the ballast mounds has the more traditional right-angle iron knees, while the other has staple-knees—think of a staple used to fasten papers together. This type of frame was more robust and instead of simply connecting a frame to a beam, this particular style of knee, also joined the two aforementioned structural components to the floor for additional strength. Perhaps the strength needed for a ship traversing the Atlantic Ocean between France and South America. In an ironic twist of fate, *Bogota* was sunk in Maffitt's Channel, named in honor of the Charleston coastal survey work in the 1850s done by John N. Maffitt, the captain of the US navy ship that captured the French slaver.

During our diving inspections of the sites, one of the curious features was the extremely large size of some of the rocks on these ballast mounds. New England lore states that farmers robbed their fences and fields of stones and sold them to the government at approximately 50 cents a pound. This seems to imply that the stones were movable and manageable by one to two people. While some of the smaller rocks may have been acquired in that manner, the larger ones, several feet in length, breadth, and depth, obviously required mechanical and industrial means to move them from their source to on-board the ships. Most



Volunteer Bruce Orr helping ECU graduate student Jessica Glickman suit up for dive on stone fleet shipwreck (photo courtesy of Joe Beatty, SCIAA).

of these large rocks were rectangular in shape, although a number were also rounded—think extremely large cobblestones. These two types of rocks apparently came from boulder and surface ledge quarries. The rounded boulders were deposited on the New England landscape during the last glacial retreat, while the rectangular stones were most likely acquired from surface ledges, areas of exposed bedrock oftentimes on hillsides, although some may have also come from deep pit quarries. One of the Second Stone Fleet shipwrecks had a number of rectangular rocks bearing evidence of the plug and feather method used to split rocks apart to form suitable sizes and shapes. Most of the stones at this time are believed to be granite. One of the First Stone Fleet shipwrecks, however, had about half its load composed of bricks, some loose, but others mortared together, suggesting the use of debris from a demolished structure. In some instances, there was a large amount of smaller traditional cobblestones on a site along with a quantity of larger stones. Some of the purchased merchant ships most likely had remaining ballast on-board from their previous voyage and may have required less stones to make the load. The whaling vessels on the other hand probably required a greater amount of purchased stones, as they typically used as ballast casks filled with water and as the voyage proceeded, replaced that liquid with oil. In the case of the whaling bark *Messenger* of Salem, Massachusetts, this pre-conception may be tempered by the fact the whaler already had on-board 60 tons of ballast, and the agent purchased an additional 151 tons to ready the vessel for sinking.

Despite the limitations imposed upon us by Mother Nature, we preserved to document a number of the shipwrecks composing the First and Second Stone Fleets. We hope to continue our fieldwork in the future to detect and record the seven elusive ballast mounds composing the Second Stone Fleet, and to pinpoint the last remaining

(Continued on page 12)

Stone Fleet (Continued from page 11)

First Stone Fleet ballast mound. Look to future newsletter articles about this ongoing work to document these two obstructions on the Charleston Harbor Naval Battlefield. I would like to thank the staff of the MRD—Ashley Deming, Joe Beatty, and Nathan

Fulmer, for their efforts on the project, and a number of volunteers that included Ted Churchill, Bruce Orr, and Rick Presnell. We also had aboard several graduate students namely Jessica Glickman Irwin, from the University of Rhode Island, who worked with us for three weeks, along with

Ryan Bradley and Phil Hartmeyer, from East Carolina University, who were with us for a week. I also want to thank Corey Malcolm of the Mel Fisher Maritime Heritage Society in Key West for his research assistance concerning the ship *Bogota*. The work described in this

article is funded by a National Park Service Historic Preservation Fund grant administered by the South Carolina Department of Archives and History with matching funds from the University of South Carolina—Columbia. ■

Diver Safety

Surface Interval Safety

By Maureen Robbs, Divers Alert Network

The value of pre-dive prep and safe diving practices cannot be overemphasized, but what can divers do to increase their safety during surface intervals? Here are some important factors to keep in mind between your dives.

Exercise and Diving:

While regular exercise is an important factor in fitness to dive and is recommended, there are some special considerations when it comes to timing your exercise relative to diving. Intense physical exercise may be problematic when performed too close to diving. To minimize the potential contribution exercise may have on development of decompression sickness (DCS), DAN® recommends avoiding strenuous exercise for 24 hours after making a dive.

Sun Safety: When on the surface, minimize exposure to direct sunlight, particularly when wearing

thermal protection and heat-absorbent dark colors. Bring a wide-brimmed hat and UV-protective sunglasses. Be conscientious about applying sunscreen; if you plan to apply sunscreen prior to diving, consider using a [biodegradable sunscreen](#) that contains a mineral ingredient such as titanium oxide or zinc oxide as these are not known to have adverse environmental effect. Be vigilant for signs of heat illnesses and prepared to respond appropriately.

Hydration: Maintaining an adequate level of hydration is important, as poor hydration may impact the risk of DCS (This element is not as significant a risk factor as provocative dive profile). Use your surface intervals as an opportunity to stay hydrated. It's important to note that rehydration efforts should be complete 30 minutes prior to diving; fluid ingested closer to

immersion in water will almost all be flushed immediately from the kidneys to the bladder, as a result of a phenomenon called [immersion diuresis](#). When it comes to hydration, water is a reliable method; however, if you prefer the flavor of sports drinks, they can be used as well. Sports drinks are designed to keep a person hydrated and in electrolyte balance; however, many sports drinks contain high levels of sugar and are high in calories.

Drinking and Diving:

Alcohol consumption is strongly discouraged. Alcohol consumption results in the depression of the central nervous system, impairing a diver's judgment and reducing reaction time and coordination. It can also be a potential cause for dehydration, which may increase risk for decompression illness.

Hot Tubs or Hot

Showers: Getting into a

hot tub or taking a hot shower immediately after diving has an effect on decompression stress based primarily on the individual's inert gas load and the magnitude of heat stress. Heating tissue will reduce gas solubility, which may precipitate onset of DCS symptoms. There are several ways divers can manage this risk: delay jumping into a hot shower or hot tub, reduce the temperature of the water or dive more conservative dive profiles.

Breath-Hold Diving:

Some recreational divers wish to conduct breath-hold dives during their surface intervals, raising the question of whether this activity may increase their risk of DCS. Freediving after scuba diving is not recommended. The added exercise could promote bubble formation and there is a theoretical risk of redistribution of bubbles that could lead to

(Continued on page 13)

Diver Safety (Continued from page 12)

symptoms. Relaxed snorkeling, while remaining very near the surface with minimal exertion, is probably fine, but more aggressive breath-hold activity should be avoided.

Always maintain safe practices both above and below the surface. If you have any dive safety

questions, explore the [DAN Medical Frequently Asked Questions](#), email the DAN Medical Information team at medic@dan.org or call the DAN Medical Information Line at +1-919-684-2948.

Learn More...

[“Preconditioning and DCI”](#)
[“Timing exercise and](#)

[diving”](#)

[“Field Management of Heat Illness and Hypothermia”](#)

[“Drinking and Diving: Is It Safe?”](#)

[“Hot Tubs After Diving.”](#)

[“Could Breath-Hold Diving after Scuba Cause](#)

[Decompression Sickness?”](#)

[“Breath-hold diving and SCUBA”](#)

Divers Alert Network (DAN) is a nonprofit organization dedicated to the safety and health of scuba divers. DAN operates a 24-hour emergency hotline (+1-919-684-9111) to help divers in need of medical emergency assistance for diving or non-diving incidents. ■

Conservation Corner

The Ballast Blocks: Interesting Artifacts from the Interior of the *H.L. Hunley* Submarine

By Michael P. Scafuri, Archaeologist, H.L. Hunley Project, Warren Lasch Conservation Center, Clemson University Restoration Institute

During the excavation of the *H.L. Hunley* submarine in 2001, scientists at the Warren Lasch Conservation Center (WLCC) discovered that the bottom of the interior of submarine was covered by a variety of loose iron blocks (Figure 1). These iron blocks were not attached to the hull in any way, often irregular in shape and size, and placed throughout the length of the hull, even in the ballast tank areas at the bow and stern. Their placement seems to suggest that the blocks served as adjustable ballast for the submarine, adding more centerline weight to the vessel to increase stability, to counter the port-side position of the crew, or to make the submarine simply less buoyant to reduce the amount of water ballast needed for diving operations. A total of 95 wrought and cast iron

blocks were uncovered and removed from the interior of the vessel.

Follow their recovery from the submarine, the iron blocks were placed into conservation treatment. The blocks were first documented and cleaned of concretion using hand tools and pneumatic chisels. The next and most significant step in the conservation of artifacts exposed to a marine environment is the removal of the salts or chlorides from the artifact that cause corrosion. This was accomplished by immersing the ballast blocks in an alkaline solution (1% w/v NaOH) for an extended period, with periodic monitoring and changing of the treatment solution. Following desalination, the artifacts were rinsed with deionized water, air-dried, cleaned with a fine air abrasive powder, and

finished with the application of a rust converter (tannic acid) and an air drying oil (Figure 2).

Some of the ballast blocks were also successively stabilized using subcritical fluid technology. This new desalination treatment has been studied and developed at the WLCC since 2003. It is performed via the immersion of artifacts in a reactor cell filled with alkaline solution at high pressure and temperature, and can dramatically reduce the treatment time for an artifact (Figure 3).

The cleaning of areas where the original surface was missing can provide information about the manufacturing process through the preserved corrosion pattern of the wrought iron blocks. The conservation treatment of the ballast blocks also revealed marks or stamps

that may provide a clue to the original purpose and/or the manufacturing method of the blocks (Figure 4).

In addition to conservation treatment, the ballast blocks were documented with a structured-light 3D scanner (Breuckmann OptoTOP-HE) to create detailed, color-textured, polygonal models for each block. For the archaeological team investigating the distribution of artifacts in the interior, modeling the ballast blocks was a key component of the 3D reconstruction of the interior crew compartment (Figure 5).

The 3D site plan is an essential tool for the archaeological team at the WLCC in the investigation of the *H.L. Hunley*. Since the layer of ballast blocks defined the effective floor of the submarine, accurately
(Continued on page 14)

Conservation Corner (Continued from page 13)

reconstructing their positions within the submarine is crucial to understanding the overall placement of artifacts in the 3D site plan (Figure 6).

The ballast blocks found in the interior of the *H.L. Hunley* may have played an important role in the successful operation of the submarine, and the

information revealed by both their conservation treatment and the 3D reconstruction of their distribution may provide scientists at the WLCC with

more clues in their quest to solve the mystery of the sinking of the *H.L. Hunley* submarine. ■



Figure 1. The interior of the central portion of the submarine, showing some of the bottom iron ballast blocks. (Copyright FOTH)

Figure 2. Conservator Virginia Ternisien using sodium bicarbonate abrasive to clean the surfaces of the ballast blocks. (Copyright FOTH)

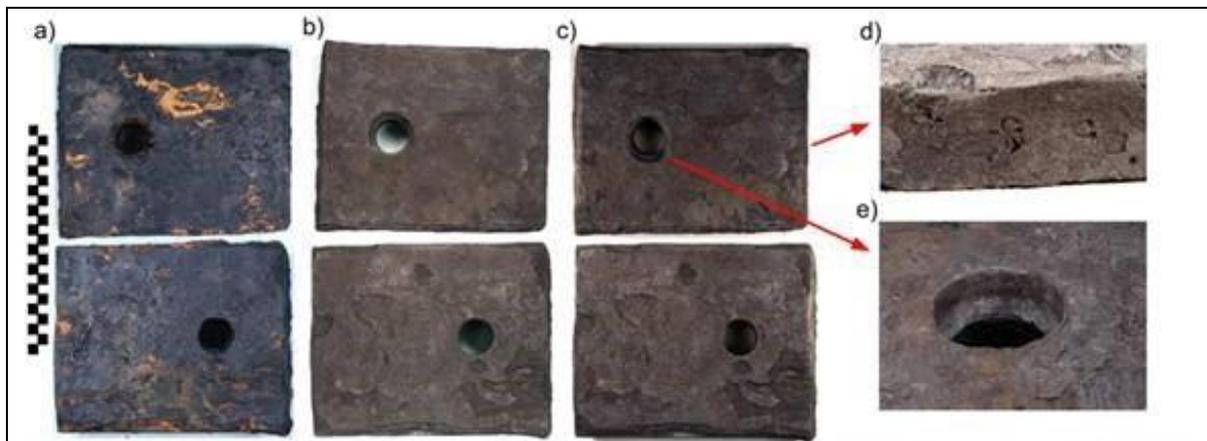


Figure 3. Ballast blocks after subcritical treatment: a) before stabilization treatment (10/2009), b) shortly after stabilization, drying and cleaning (11/2009), c) condition after nearly 2 years exposed to varying storage conditions (08/2011), d) and e) surface details. (Copyright FOTH)



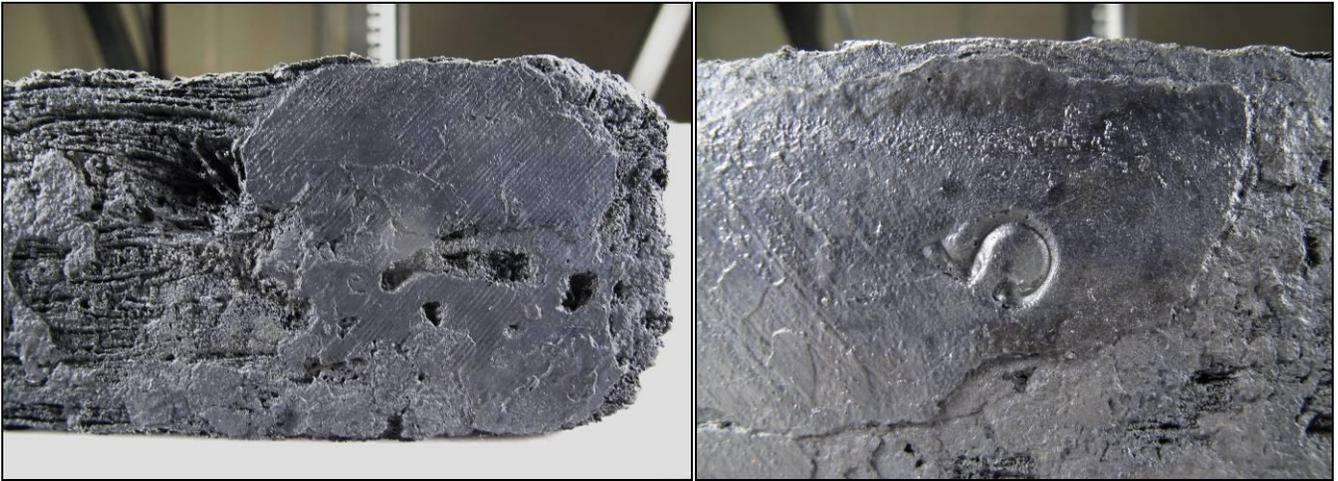


Figure 4. Close-up view of the corrosion pattern and cut marks (left) and a stamped mark on the side (right) of ballast block HL2449. (Copyright FOTH)



Figure 5. A comparison of a photo of a section of ballast blocks from the interior (left) to the 3D reconstruction of the blocks in the site plan (right). (Copyright FOTH)

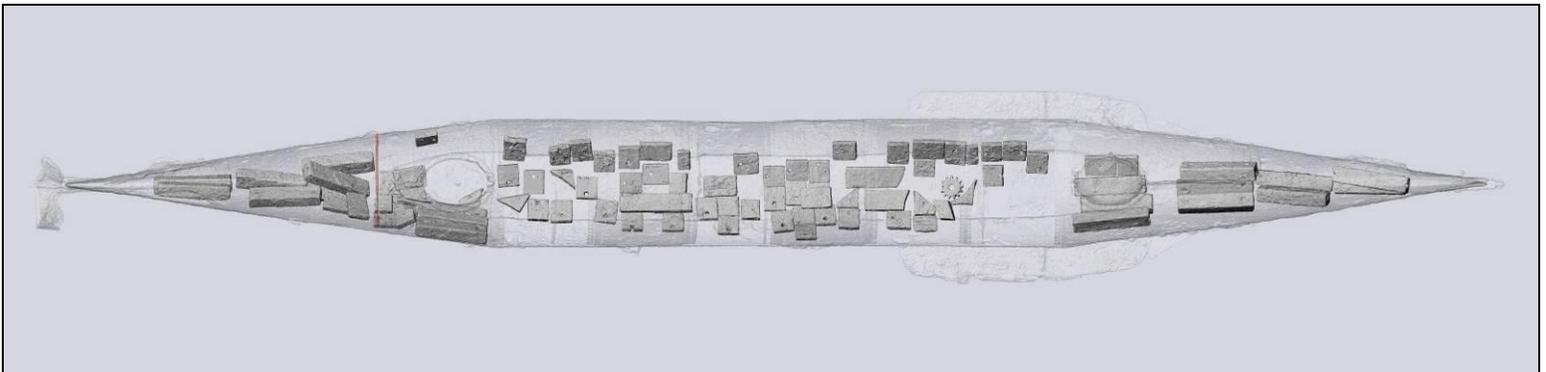


Figure 6. An overhead (plan) view of the distribution of ballast blocks within the 3D reconstruction of the H.L. Hunley. (Copyright FOTH)



Paleontologists Panel

College of Charleston Offers Fossil Preparation Courses

By Diana Fulmer, BS Biology, College of Charleston

There is nothing more exciting than digging through a bag of fossils... At least that's the opinion of anyone who has been lucky enough to secure a spot in one of the College of Charleston's fossil preparation courses. I had the privilege of participating in three of these classes during my undergraduate studies, and can honestly say they were some of my most cherished college experiences.

Each semester, CofC Natural History Museum benefactor and fossil enthusiast Mace Brown shares his time and knowledge with eager students, who learn the fine

art of preparing fossils for museum exhibition and academic research. This program is one of only two such offerings nationwide, and is kept alive partially through contributions from local hobby divers. After each semester, students get the pride of viewing their completed fossil projects on display as part of the museum's ever-growing collection.

Visitors to the museum journey through evolutionary history as they explore a timeline of hundreds of fossils stretching from 3.5 billion year old stromatolites to 100,000-year-old mastodons and everything

in between. There are truly some amazing specimens in this collection, and scientists from across the country have visited the campus to study our rare assemblage. The museum has been so successful that it is now in the process of expanding its footprint at the college.

The newest exhibit is entitled, "Evolution of Whales", and is scheduled for completion in September of this year. Its purpose is to illustrate how in only 40 million years, the whale evolved from a large otter-like creature to the majestic animals we know today. Prepared by volunteer graduates, these



Pieces of a fossilized whale jaw being reconstructed.
(photo courtesy of Diana Fulmer)

exhibits will include anatomical adaptations such as the migration of the nasal cavity from the end of the snout to the top of the skull, the transformation of weight bearing limbs into flippers, the development of sonar, and more. There will also be two complete specimens on display including an Oligocene whale from Charleston County.

So remember to visit the museum this summer, and consider supporting its mission with your fossil finds. The museum is located at 202 Calhoun Street, and is open from 11-4 every day except Wednesday. Hope to see you there! ■



Above: 2013 fossil preparation students Neah Baechler (left), Garth Groshans (middle), Diana Fulmer (middle), and Rachel Silverstein (right) with their completed American Mastodon femur.
(photo courtesy of Diana Fulmer)



Left: A few of the fossil exhibits at the College of Charleston Natural History Museum.
(photo courtesy of Diana Fulmer)

The Maritime Research Division

The *Quarterly Reporter* is a quarterly newsletter from the Maritime Research Division of the South Carolina Institute of Archaeology and Anthropology at the University of South Carolina.

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Letters to the Editors

If you have something that you would like to say about the division or have questions that you think others like yourself would like to have answered, look no further. This section of the newsletter is just for you. Send in your

questions, comments, and concerns and we will post them here. You can also send in comments responding to letters from other. MRD staff will respond to your comments and answer your questions for all to read.

Just like your artifact report forms, you can email, fax, or send your letters to MRD. We look forward to hearing from all of you.■

Notes from the Editor

We hope everyone is having a safe and fun diving season! Spring and summer have flown by while we have been very busy with fieldwork and outreach.

Many of you may have noticed we haven't been in the office much this year so far due to our busy field season. As a result, licenses and reports are taking a little longer to process than normal. Nate has been doing a great job with keeping up with the reports and renewals in the times we have been in the office. We try to get renewals processed within two weeks of receiving them. If you have a renewal pending longer than two weeks, there are several reasons for that:

1) We have been away in the field and have not had a chance to get to it yet,

2) We are waiting to hear back from Dave Cicimurri at the SC State Museum regarding your fossil report submissions,

3) You are missing either artifact or fossil reports.

There are a few ways you can speed up the renewal process.

1) Get those renewals to us well before your license expires or you plan to dive.

2) Copy us on correspondence with Dave regarding your reports. That way we have a record and won't be at the mercy of his very busy schedule.

3) FILE YOUR REPORTS! If all of your reports are filed on time, your renewal will have a very quick turnaround. Although most people

have been doing great with artifact reports, fossil reporting has been disappointing. Remember, you don't have to wait until the due date to file. We encourage you to file right after the dive so it is fresh in your mind. This allows us (and the State Museum) the opportunity to focus on your reports and answer questions before the major influx of reports around the due date.

As always, if you have any questions or concerns, please don't hesitate to contact us for help or explanation. Dive safe!■



Ashley Deming & Nate Fulmer on the 2014 Combahee River Project

Useful Website Information

For more information on

MRD: <http://www.artsandsciences.sc.edu/sciaa/mrd>

SCIAA: <http://artsandsciences.sc.edu/sciaa/>

SCIAA publication *Legacy*: <http://artsandsciences.sc.edu/sciaa/current-legacy-publications>



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