

## Things You Need to Know:

- 2012 Quarter 1 Reports Due by April 10, 2012
- Allendale Project Sign-Up Deadline April 20, 2012
- \*New Fossil Form\*
- Field Training Course Sign-Up

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*"Helping to preserve and protect South Carolina's maritime heritage through research, education, and public outreach."*

## SDAMP Leap Year Wing Night

By SDAMP

Since the inception of SDAMP Wing Night, we have always been very happy with the turnouts each time we have hosted the event. We were blown away by the turnout at the SDAMP Leap Year Wing Night in Columbia! When 60 people filtered into the small back room at the British Bulldog Pub in Columbia, we were overwhelmed by the support from our hobby divers. It is not often we can wrangle that many of you under one roof! It definitely was a huge plus to have our guest from the State Museum there. We would like to thank Chief Curator of Natural History for the South Carolina State

Museum, Dave Cicimurri, for coming to our event and being the main attraction. Dave didn't get to sit down all night as wave after wave of fascinated divers came with fossils and questions. He certainly didn't seem to mind as he drooled over the many specimens before him!

We were also honored to have a few SCIAA staff there as well. Director Charlie Cobb, Chester DePratter, and our very own Maritime Research Division's Joe Beatty were also among the mix. Thank you guys for coming out to support us and our hobby divers!

We also cannot forget to send out a

great big thank you to Wateree Dive Center, who helped us organize this event and acted as our co-hosts. Without them, this would not have been possible.

Our Columbia Wing Night was such a success that we are planning to have a SDAMP Wing Night in Columbia once each quarter. The next Columbia Wing Night is scheduled for May 23<sup>rd</sup>. Keep an eye out for more information to come.

Thank you to everyone who came out to this event. We greatly appreciate your support!

If you would like to see some photos of the event, check out our [Facebook](#) page. ■



**2012 SDAMP Leap Year Wing Night**





**Quarterly Reports due by April 10, 2012**



**April Quarterly Reports**

This is a reminder that your 1<sup>st</sup> quarter 2012 reports are due by April 10, 2012. These reports should cover all of the collecting you have done between January 1<sup>st</sup> and March 31<sup>st</sup> of 2012.

Please file your artifact reports using our new online system.

You can submit forms online at: <http://src6.cas.sc.edu/sdamp>

(Note: If this is the first time you are filing on this system, you will need to create a new password by clicking the link below the sign-in boxes).

All report forms can be found on our website at:

[www.cas.sc.edu/sciaa/mrd/sdamp\\_hdl\\_forms.html](http://www.cas.sc.edu/sciaa/mrd/sdamp_hdl_forms.html)

Please use the newest versions of the forms. We will no longer be accepting outdated versions.

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: [sdamp@sc.edu](mailto:sdamp@sc.edu)

Your *fossil* report forms should be emailed to Dave Cicimurri at: [dave.cicimurri@scmuseum.org](mailto:dave.cicimurri@scmuseum.org)

Or mailed to:  
Chief 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. 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.cas.sc.edu/sciaa/mrd/sdamp\\_hdl\\_forms.html](http://www.cas.sc.edu/sciaa/mrd/sdamp_hdl_forms.html)

Or give us a call at: (843) 762-6105. ■

**NEW Fillable PDF Fossil Form!**

The State Museum is proud to announce that they will have a fillable PDF Fossil Form available for download by April 10, 2012! This format will allow you to download the form, fill it out, save it, and email it to curator Dave Cicimurri. No more having to mail forms via snail mail! No more returned forms from old addresses!

We know that this has been a long-time coming and both SDAMP and the State Museum have been working together to make reporting both

fossils and artifacts a little easier for you.

This form is only the first step. The State Museum plans to develop an online filing system similar to the one already in place for your artifact forms. While this online filing system is being developed, you are encouraged to email all fossil forms instead of mailing them. As always, pictures are most welcome and can now be easily attached to the email with your form.

The new fossil forms can be found on

the SDAMP website at: [http://www.cas.sc.edu/sciaa/mrd/sdamp\\_hdl\\_forms.html](http://www.cas.sc.edu/sciaa/mrd/sdamp_hdl_forms.html)

If you need any help with identifying your fossils or assistance in filling out your fossil forms, please contact Curator of Natural History Dave Cicimurri at: [dave.cicimurri@scmuseum.org](mailto:dave.cicimurri@scmuseum.org) or give him a call at: 803-898-4946. ■

**NEW Fillable PDF Fossil Form**

## Upcoming Events

### ASSC Conference

On April 14<sup>th</sup>, Ashley Deming will be representing SDAMP at the 2012 Archaeology Society of South Carolina (ASSC) Conference in Columbia. She will be presenting on the cannonball conservation project. For more information on this project, please see page 11. For more information on ASSC, please visit their website at: [www.assc.net](http://www.assc.net)

### ASSC Hilton Head

SDAMP will be presenting to the Hilton Head Chapter of ASSC on April 17<sup>th</sup>. The event will be taking place at the Hilton Head Coastal

Discovery Museum on Honey Horn Plantation in the Discovery House at 7pm. The presentation is free and everyone is welcome.

### April Wing Night

The next SDAMP Wing Night will be held on April 25, 2012. Wing Night will be in Mt. Pleasant at Wild Wing Café.

### CofC Workshop

SDAMP will be conducting an Artifact Identification Workshop for College of Charleston students and faculty on April 21<sup>st</sup>.

### Allendale Project

The Allendale Project will run from April 30-

May 4 and May 7-11 this year. We are currently accepting volunteers for the project. Please see page 4 for details on the project and how you can get involved.

### May Wing Night

Our previous Columbia Wing Night was such a success that we are proud to be partnering with Wateree Dive Center again for our May Wing Night. May Wing Night will be on Wednesday the 23<sup>rd</sup>. Please look out for our emails with further details.

### Field Training Course

SDAMP is again running our FTC this summer. Part I is

scheduled for June 23-24 and Part II in July 12-15. This course is designed to teach students how to record and catalogue underwater sites. You must be a diver to attend this course. If you are interested in signing up, please see page 5 for further details.

There will be many more events throughout the year. Please continue to read the *Quarterly Reporter*, emails, and our website for information about upcoming events and volunteering opportunities. ■

## SDAMP News

It is important to us that our Hobby Divers 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 SDAMP is on [Facebook](https://www.facebook.com/SDAMP)! Leave a message on our wall!

### January

•Ashley Deming presented two papers on SDAMP at the Society for Historical Archaeology Conference in Baltimore, MD.

### February

•Ashley Deming was guest lecturer at the College of Charleston

on February 13<sup>th</sup>.

•SDAMP staff worked a booth about the program and underwater archaeology at the Charles Towne Landing Archaeology Conference on the 18<sup>th</sup>.  
•February Leap Year Wing Night in Columbia on the 29<sup>th</sup> was a great success with 60 attendants. See page 1 for the story.

### March

•On March 24<sup>th</sup>, SDAMP hosted an Artifact Identification Workshop in Charleston for 13 students.

•SDAMP finished the conservation of the cannonball. Story on page 11)

• The Center for

Archaeology and Anthropology at Coastal Carolina University sponsored an Artifact Identification Workshop for students and members of the public on March 31<sup>st</sup>. Seven students attended.

### Upcoming...

#### April

•Ashley Deming will be representing SDAMP at the ASSC Conference in Columbia on April 14<sup>th</sup>.  
•SDAMP will be giving a presentation on the program to the Hilton Head Chapter of ASSC on April 17<sup>th</sup>.

•An Artifact Identification Workshop will be held at the College of Charleston for students and

faculty.

•SDAMP Wing Night will be held on April 25<sup>th</sup> at Wild Wing Café in Mt. Pleasant from 6:30pm-9:00pm

#### May

•The SDAMP office will be closed April 30- May 11 while we are away during Allendale Project.

•Wing Night on May 23<sup>rd</sup> in Columbia. Location TBD.

•SDAMP will be visiting James Island Middle School to talk to students about Charleston archaeology.

#### June

•Field Training Course Part I June 23-24. See page 5 for details. ■

## 2012 Allendale Project – Volunteer Opportunity

Since 1985, SCIAA has conducted an archaeological project at a prehistoric site in Allendale County. Excavations at the Topper Site have revealed that ancient humans were present 16,000 or more years ago, two to three thousand years earlier than previously believed.

Using mostly volunteers, Dr. Albert Goodyear,

archaeologist for SCIAA, has excavated a large amount of the Topper Site and uncovered many prehistoric artifacts including some that date back to pre-Clovis times.

Each year SDAMP joins the excavation for 2 weeks to carry out underwater archaeology in Smith Lake Creek that runs along the Allendale

Chert Quarry. SDAMP volunteers get the opportunity to dredge, screen, man equipment, and monitor artifact recovery. This year the Allendale Project will run from April 30-May 4 and May 7-11.

SDAMP is looking for 3 volunteers for week 1 and 5 for week 2. We are only accepting volunteers who can commit a full week to the project. Divers will need to bring their own dive gear and SDAMP will provide the tanks. Lunches and dinners are provided, but volunteers will need to supply their own breakfast. Divers may camp free with the rest

of the volunteers (you must provide your own camping equipment) or can stay in a motel at their own expense. Dark water experience is preferred and there is a 25-dive minimum requirement. You will be required to complete a dive resume and medical form.

Volunteers are selected on a first come first placed basis with current Hobby Diver licensees given priority.

If you are interested in volunteering, please contact SDAMP for more information.

For more information on the Allendale Project visit: [www.allendale-expedition.net](http://www.allendale-expedition.net) ■



**2011 Dredgeheads**

## Artifact Identification Workshops

SDAMP has had a great time already with our Artifact Identification Workshops this year! Our March workshop yielded 13 students who did a fantastic job of absorbing information about various types of artifacts that can be found in SC waters. While historic ceramics might have seemed daunting for some, these students took it all in stride and did a fantastic job of identifying some pretty tough transitional whitewares. Bottles?

Forget about it! These folks are now pros at spotting BIMALS. Great job everyone!

We were also fortunate enough to be sponsored to host a workshop by the Center for Archaeology & Anthropology at Coastal Carolina University in Conway, SC.

On March 31<sup>st</sup>, SDAMP's Carl Naylor and Ashley Deming gathered with 5 Coastal Carolina students and 2 local hobby divers for a day of fun and learning. Although a huge storm

thundered outside, we were nice in cozy inside, cuddled up with history! We would really like to thank Dr. Cheryl Ward and the Center for Archaeology & Anthropology at Coastal for sponsoring the workshop.

SDAMP will be holding another artifact workshop in Columbia in August. More details to follow closer to the date. ■

### March Artifact Identification Workshops



## 2012 Field Training Course

SDAMP is offering our field training course in underwater archaeology again this year. We are pleased to announce that we will be offering Part I as well as Part II. This course is designed mainly for hobby divers, but is great for anyone who wants to get involved with underwater archaeology.

### Part I

Part I consists of teaching basic techniques that can be used in the field to observe, report, and record underwater sites. This course will be a mixture of hands-on activities and lectures designed to teach the average diver how to be first responders to sites that they may come across while diving. Think of it as a kind of Field Underwater Archaeology 101. The class will be on Saturday and Sunday, June 23 & 24.

Saturday will consist of classroom lectures and dry land hands-on sessions, while Sunday will be underwater sessions using the skills developed on Saturday. Part I is available to 10 students. The cost is \$150 per person. This includes both days, a handbook, all materials involved, and air tanks. Divers will need to provide their own dive gear, lunches (food and drink for all day),

and transportation. The Saturday session will run from 9am-5pm at the Fort Johnson Marine Resource Center in Charleston. The Sunday session will be located at a training pond in Awendaw and run from 10am-4pm.

When: Saturday and Sunday, June 23 & 24  
From: Saturday 9am-5pm, Sunday 10am-4pm

Where: Saturday- Fort Johnson Marine Resource Center, Charleston & Sunday- Awendaw  
Cost: \$150- make checks payable to USC and send them to:  
FTC Part I  
PO Box 12448  
Charleston, SC 29422

Please email Ashley Deming at: [deming@sc.edu](mailto:deming@sc.edu) or call (843-762-6105) if you are interested. Checks must be received by

June 8<sup>th</sup> if you would like to attend Part I.

### Part II

Part II is a 3 ½ -day course taking place on Hilton Head Island where we will be excavating and recording a beached shipwreck. You *must* have attended Part I to be able to sign up for Part II. We will be using all the techniques of Part I to accurately record this site. You will be working alongside maritime archaeologists to record a site that has never been recorded before. We are planning on staying at Waddell Mariculture Center which will also serve as our base camp for evening meals, lectures, and drawing up our measurements from the day.

We are still in the logistical planning phase of Part II, but

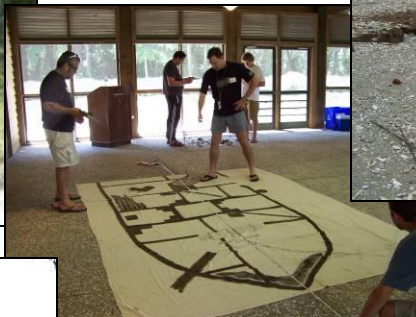
hope to have food, lodging, and recording equipment included in the course fee. You will need to provide your own wetsuit and appropriate weather gear.

This course is designed for a maximum of 6 students.

When: July 12-15, 2012  
From: 3pm July 12<sup>th</sup> - 5pm July 15<sup>th</sup>  
Where: Hilton Head Island  
Cost: TBD

Please contact SDAMP if you are interested in attending one or both parts of the Field Training Course. You may sign up for both at the same time.

This is a great opportunity to get down and dirty with real maritime archaeology, so sign up now!■



**SDAMP Field  
Training Course**



# 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 1 2012 goes to divers Drew Ruddy (#246) and Steve Howard (#80).

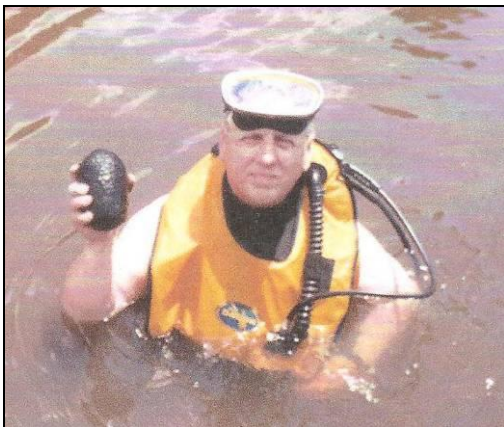
Drew and Steve have been diving and collecting in SC waters since well before there was a law regulating it.

They have always been interested in the history and archaeology of this great state.

Today, they still can be found on (or under) the water whenever they get a chance. They were ever kind enough to let SDAMP intern Mike Slot and manager Ashley Deming tag along on an offshore dive trip!

In their spare time, they are devoted to an ongoing project to record the artifact collections and diving stories of many of the

divers of South Carolina. If you or someone you know might be interested in getting involved with this project, you can meet Drew at the ASSC Conference in Columbia on April 14<sup>th</sup> or email him at: [druddydv@yahoo.com](mailto:druddydv@yahoo.com) Thank you, Drew and Steve! You are truly an inspiration to us all!■



**Hobby Diver  
Drew Ruddy**



**Hobby Diver  
Steve Howard**

## Feature Hobby Diver Article

Each quarter we would love to feature one or two articles by you, the hobby diver. 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 SDAMP 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:

[sdamp@sc.edu](mailto:sdamp@sc.edu) ■



***This could be you!***

## My First SC Diving Experience

By Mike Slot, SDAMP Intern

The second week of March we were invited to dive on the artificial reefs by long-time hobby divers Drew Ruddy, Steve Howard, and Jim Lesto. I was so excited to go out. This would be my first dive in South Carolina waters and it had been ages since my last dive. I was also pretty nervous. I bought a bunch of used gear before leaving Michigan but never got a chance to try it out. I had no idea whether it even worked. I checked and rechecked everything. It all seemed okay but I was concerned with my wetsuit. It's only a 3mm, 2 piece, long john suit and I couldn't even find the top to it. Everyone's been telling me how warm the water is down here, you'd think a 3mm would work just fine, right? We took off early in the morning to a spot about

10 miles off Edisto. Once on site, we dropped anchor and went over the side. With Ashley as my dive buddy, I worked my way down the anchor line to a depth of about 40 feet. I wanted to get all my equipment in order before I started exploring and she wanted to make sure I was "OK." I think she asked about four times. I fiddled with things for a little while, it all checked out and I started swimming around. It was amazing. I had never seen an artificial reef before and it felt great to be back in the water. This part of the reef was made from the hull of an old ship known as the Robison Wreck and measured 437 feet. Because of the low visibility, it looked like it went on forever. My dive experience comes mostly from the Great Barrier Reef in

Australia and the ice cold, but crystal clear, lakes in Michigan. Even though we were this far off shore, we could still only see about 5 feet. The ship's hull stood 15' off the seafloor and every time I'd rise above it the current would knock me back and throw off my buoyancy. One of the times it pushed me right into Ashley's fins. After that I decided to stay closer to the bottom. There was coral growing all over down there, the sides of the ship were covered, and even though it was cloudy you could still see how colorful they were. Not to mention the fish everywhere. I'm no expert but it was like a page out of "One Fish, Two Fish." There were big ones, small ones, light ones, dark ones. I felt like I was Dr Seuss. I even had one little guy who was fascinated with

my face mask and kept antagonizing my left eye.

I was just beginning to feel comfortable diving again when I started to get cold, a shiver here, a chill there, no big deal. I could tough it out--we Michiganders are built for cold. As you'd expect it only got worse. I was burning through my air supply and not even looking at the reef anymore. By the time we finished our decompression stop I was numb and back on deck I couldn't stop shaking. Ashley insisted on wrapping her towel around me to warm me up faster. She's kind of a mother hen that way. We had been down for 40 minutes and the water temperature was only 62 degrees. My equipment all worked fine. The 3mm wetsuit did not. We visited two other sites that day but I had to sit out. The first half of my first dive was fantastic. It was cut short only because I was unprepared. I've recently inherited a new wet suit. Hopefully, my next dive will be a warmer one. ■



**SDAMP intern Mike Slot warming up after his first SC dive.**

## Native America Site Found On Congaree River

By Owen Gunter Osborne, USC Anthropology MA candidate

On the Congaree River, south of Columbia, a small area of the bank has eroded into the river. This soil contained numerous ceramics that are now scattered in pieces along the riverbed. The type of pottery found on site, suggests a late Mississippian to Contact period occupation, probably between the 15<sup>th</sup> and the 17<sup>th</sup> century. However, no historic record of this site yet has been found. This suggests that the site was abandoned prior to contact with Europeans.

The native ceramics of this river valley are very distinctive and unique to the area. There is a large variety of curvilinear complicated stamped sherds that show a number of different designs from large overlapping spirals to interconnecting crossed lines with looped borders. There are also many different

rim treatments from this site that include appliquéd nodes that protrude out from the rim and small reed impressed buttons in rows around the entire edge. Many of these vessels appear to be about twelve inches wide at the rim suggesting they were used for cooking or storage.

A small number of related non-ceramic artifacts have been found within this small area as well. Only two projectile points have been found at this site so far and these were made of local quartz. A very interesting find was that of two oyster shells from the coast that had been drilled several times possibly for beads. These were found together with a three-inch-long split boar's tusk, all three located within a square foot of riverbed.

Diving operations are scheduled with SCIAA



**Mississippian pottery from the Congaree River**

for the upcoming weeks to uncover the size of the artifact plume and to recover some examples of this Congaree pottery. Shovel testing is currently being conducted on the bank to find the actual size of this site and excavations will most likely begin this fall. This site is in the process of being registered with SCIAA and protected by the state of South Carolina.

Owen Gunter Osborne is a Columbia, SC native and has been diving since the age of twelve. He has a Bachelors of Science Degree in Marine Science and is currently enrolled in the Anthropology Department at USC. Owen will be applying for the USC Anthropology MA Program in January 2013. ■

## Diver Safety

### Say What?

By Dan Orr, President, Divers Alert Network (DAN)

One of the most important issues in diving safety is communication. As part of your preparation for diving, you and your diving partners generally spend considerable time and effort putting together a comprehensive dive plan. That plan includes topics such as maximum depth of the dive, planned maximum bottom time and how much air you should have when you surface at the

end of the dive. Many divers limit their plan to these bare essential topics and leave the rest to memory or chance. One area generally neglected is any discussion or review of hand signals to communicate important information during the dive. Just about everyone has been taught standard hand signals in their entry-level certification course such as: up, down, OK, air (low and out) and others. Like you, I know those signals well

(Continued on page 9)



## Say What? (Continued from page 8)

and use them where and when appropriate. A few years ago, I was enjoying a beautiful wall dive when another diver approached me and put both hands to her throat. Thinking she was choking, I grabbed her and quickly helped her to the surface. Once I'd made sure she was buoyant on the surface, she spit her regulator out and with a perplexed look said, "What in the h@##'s wrong with you?"

As it turned out, the signal, "both hands at the throat," was one she and her buddies had been using to signal that they were low on air. Once back onboard our dive boat, I asked why they didn't use the standard clenched fist at the chest to indicate "low on air." She said that since almost all their diving was done in quarries and other areas of limited visibility, they found it nearly impossible to see the wet suited hand against a dark BCD and wetsuit. Therefore, they began using something they could all could recognize. Both hands at the throat seemed to work . . . until now.

On another series of dives while traveling in the Pacific, I was told by three separate divemasters that we were to use what turned out to be three different signals to indicate we had reached the point where we should turn the dive because of air. One was two fingers pressed against the forearm, another was a slashing/cutting motion across the forearm and, yet another, was a two-handed "T" sign that looks like the 'time out' signal in sports. To be honest, I had always just pointed to my pressure gauge and made a circular motion with my finger to indicate we should turn around. To take the confusion over hand signals issue further, how many times have you casually asked your diving partner underwater, "Are you OK?" using the standard thumb and forefinger "O" signal only to receive a thumbs up signal in return? Basically, saying "Yeah!"

These examples dramatize the importance of reviewing hand signals prior to any dive. Misunderstanding hand signals or using hand signals for anything other than their intended purpose or meaning can be confusing at best and disastrous at worst. Therefore, you and your diving partners should review all critical hand signals as part of your comprehensive pre-dive preparation. And, to avoid confusion, it is best to use universal hand signals while diving or, at least, spend some time explaining 'pet' or regional hand signal variations with the folks you dive with.

As part of this pre-dive preparation, you

and your diving partner(s) may want to review the entire dive and discuss how you would communicate critical information as the dive progresses. As part of this process, it's not a bad idea to discuss in detail when you are likely to pause during the dive to exchange information such as "Are you OK?," "How much air do you have?," and so on. In previous articles, I have mentioned that I like to pause during my descent, especially if I'm diving with a new partner at about 15' or so below the surface just to make sure that everything's OK. I make sure my diving partners know that is part of the plan so it's no surprise. My safety stop on the descent gives us a chance to make sure everything's OK before continuing the dive. If things are not OK, we can easily return to the surface to solve whatever the problem before continuing the dive.

There is no doubt that hand signals are extremely important in effectively communicating what you want to say while diving. One of the most important is the simple "thumbs up" signal. One of the most important things I learned during my full cave training many years ago was that giving the "thumbs up" signal meant the dive was over, no questions asked. I still strongly believe in the importance of that signal. It also means that each individual is in control of the dive. Each person has equal responsibility and ability to 'call' the dive at any time and that includes before the dive even begins. You and your diving partners should decide as part of your pre-dive preparation that each diver has the ability to 'call' the dive whenever they decide the dive should be over. It should be agreed upon by everyone on the dive that if you no longer feel you should continue on the dive, all you have to do is raise your thumb and the dive is over, no questions asked. If you are a buddy of someone who 'calls' the dive, you should accompany them back to the boat or to the shore making sure they are safely out of the water before trying to locate another diving partner to continue the dive. The same thing goes for a threesome. Both buddies accompany the one who called the dive back to the exit point waiting until that diver is safely out of the water before you continue your dive. There are many cases where divers simply said goodbye to their buddies who had 'called' the dive never to see them again.

Knowing how to effectively communicate underwater is a critical skill and one that must be discussed and reviewed with your diving partner as part of your pre-dive preparation for each dive you make. You can't leave something as critical as communicating with your diving partners to memory or chance hoping that you will be understood when safety is in the balance. ■

## Conservation Corner

### Storing Your Collection

By Johanna Rivera, Conservator, HL Hunley Project, Warren Lasch Conservator Center, Clemson University

To extend the life of an artifact collection, conservators practice what is called “preventive care” which has been discussed in the previous *Quarterly Reporter*. Preventive care covers all aspects related to warding off anticipated causes of deterioration and/or damage to cultural property. As the saying goes, “An ounce of prevention is worth a pound of cure.”

Preventive conservation includes proper handling, packing and transport, housing/storage, monitoring the environment, conducting surveys and assessments, preparing

for emergencies, and providing guidelines for the continuing use and care of a collection.

One way to protect our collections is through proper storage. This is by using materials that are inert and that won't affect the chemistry of the artifacts. It sounds complicated but it is easier to put in practice than one would think.

One of the first things to do is to avoid anything that is acidic in nature, such as cardboard, wrapping paper, newspaper, and sometimes wood supports or panels. All these materials eventually will react with the environment and become acidic,

affecting the artifact that is in contact with it. An example is newspaper yellowing over time. Since the paper itself is poor quality it will break down chemically, changing the color of the surface. Over time the newspaper will become brittle and will break very easily.

To store your artifacts safely, you should use plastic boxes such as Tupperware™ or Rubbermaid™. These boxes are made of polyethylene which is inert, stable and it won't change over time. As cushioning and protection, you should ideally wrap your finds

in acid free paper – available through conservation suppliers or in office supply stores in the form of most regular printing paper (Image 1). You can also wrap your artifacts with polyethylene foam (Image 2). This foam provides excellent cushioning and will remain stable over time. The foam can be found in hardware stores. Do not use polyurethane foams! They will chemically transform over time releasing contaminants that could be detrimental for your materials (Image 3). This foam can be recognized as it usually comes in pink or yellow colors.

If you're storing ceramics or glass, it is always recommended to store them wrapped in foam and then into a plastic container to avoid breakage. Metals and organics (depending how fragile they are) should be stored separately from each other and in individual packaging such as Ziploc bags inside of a plastic container. Boxes should be stored in a dry, cool place away from sun light. In the next Conservation Corner we will be discussing how to display your collection safely! ■



**Image 1**



**Image 2**



**Image 3**



**Image 4**



**Image 5**



**Image 6**

**Image 1: Historic glass bottle recovered from the H. L. Hunley site. Bottle is being stored wrapped in acid free paper (©FOTH)**

**Image 2: Same bottle stored with acid free paper and polyethylene foam. (©FOTH)**

**Image 3: Another historic bottle stored incorrectly in polyurethane foam. (©FOTH)**

**Image 4: Glass shards stored in acid free paper and individually in Ziploc bags to avoid scratching and breakage. (©FOTH)**

**Image 5: Historic bottle stored incorrectly in only a Ziploc bag. (©FOTH)**

**Image 6: Same bottle wrapped in polyethylene foam inside a Ziploc bag. The bottle was placed in a plastic container with extra cushioning inside the container. (©FOTH)**

## From Gunboat to Garbage Can: The Conservation of a Cannonball *Final*

By Ashley Deming, Maritime Archaeologist, SDAMP Manager

We undertook this project for two main reasons:

- 1) To conserve an artifact so it will last for many generations to come and
- 2) To conduct a conservation project in a way that not only effectively conserved the artifact, but was also comprehensible and affordable for many hobby divers to do to their own artifacts if or when they ever brought up metal objects.

We spent many hours in the lab cleaning off the corrosion and checking the ball to make sure everything was still working the way it should. We changed the solution out every three months and fretted that the ball would have deteriorated more each time we pulled it out of the conservation tank.

The cannonball was removed from the

solution on the 22<sup>nd</sup> of February. I consulted our cannonball guru Freddie Clark about the next step in the process. I asked him what we should do with the ball now that we had removed it from the tank and cleaned it for the final time. "Put it outside," he said. "Just outside? Are you sure? Totally exposed?" I replied. I couldn't fathom doing all this conservation just to stick the ball right back outside where it could rot and rust all over again. Not to mention what Johanna Rivera would say as a trained conservator! Freddie just laughed and told me to trust him, which I did. He said the ball needed to be exposed to the elements and the soda ash (sodium carbonate) needed to leach out of the ball. He said this would look like the ball was snowing. If

it didn't 'snow' much, or stopped 'snowing' after a month or two, we had done a great job and the ball was ready to for its final treatment. This was the final test to see if the electrolysis had really worked.

I followed Freddie's advice and stuck the ball outside under the steps of our trailer (Figure 1). Sure enough, it started 'snowing' almost immediately. I cannot tell you how nerve-racking it was just leaving it out there. I made Mike check it every day to see if it was rusting any more or had split into pieces (my worst fear). We rinsed it a few times to remove the 'snow' and left it outside to do its thing. After a month, the 'snow' was gone and the ball was still in really good shape (Figure 2). We had passed the test! Freddie told me

he had some great new stuff he'd been using for other cannonball and shell conservation that was a little different from the normally used tannic acid. Carl, Mike, and I headed over to his place to find out what this magical new substance might be.

Freddie looked at the ball and seemed pleased at our efforts. We weighed it in at 11.5lbs and 5.25" in diameter. Since it started out with a diameter of 5.25" and a weight of 11.6lbs, we felt pretty good about the whole thing! We discovered that it most likely would have been an 18 pounder originally as the size is more consistent with the 18lb shot preferred by the British during the Revolutionary War.

After the dimensions were recorded, Freddie began  
(Continued on page 12)



**Figure 1**

**Ball under the trailer after removed from electrolysis and cleaned**

**Figure 2**

**Ball after 1 month outside**

## From Gunboat to Garbage Can (continued from page 11)

applying a coat of the special sealer (Figure 3). This final seal is to prevent the ball from any further corrosion. The magic substance is LifeGuard Active Rust Primer. It is used to coat ship hulls to prevent against rust and corrosion. Seemed like the perfect substance to us. We looked at a few

cannonballs Freddie had already applied it to and the results were fantastic! We coated our cannonball with 2-3 coats of Active Rust Primer and let it dry (Figure 4). It started to dry immediately and was dry enough to handle after only 15 minutes! This certainly seems like a great substance for this use.

Well, it took a year from when our cannonball went into the electrolysis tank to when we put the final coat of sealer on it and the time has seemed to fly by. The ball is now fully conserved and looks great (Figure 5)! We have decided to name it Fred after our amazing advisor to the project. Fred will be a

main attraction in our education and outreach programs. We would like to thank Jason Thompson for the donation of the ball, Glenn Dutton and Rufus Perdue for their guidance and support, and most of all Freddie Clark; for without his tutelage and patience we would have been totally lost. ■



**Image 3**  
*Freddie Clark applying the Active Rust Primer*



**Image 4**  
*Immediately following the coating of Active Rust Primer*



**Image 5**  
*Fred, our conserved Rev. War cannonball*

## Paleontologist's Panel

### The Mammoth Mammoth

*By Dave Cicimurri, Chief Curator of Natural History, South Carolina State Museum*

It was standing room only at the British Bulldog Pub in Columbia, where I attended my first "wing night" gathering of hobby divers (29 February). I got to meet a great crowd of people and see a lot of

awesome fossils, and man I'm really looking forward to the next event. Folks brought a nice variety of shark teeth (mako, snaggletooth, sandtiger, and good old "megs" and "ricks"), whale teeth and sawfish spines,

along with a few nice odds and ends that included a horse neck vertebra and some teeth, part of a muskrat skull, and a sea turtle jaw. A big THANKS for showing off your finds and letting me ramble on about them, and

especially for the warm welcome. Hopefully, I'll get to see you at the next event!

I also brought something from the State Museum's collection to show off, but I didn't really get to talking about it in

**(Continued on page 13)**

## Mammoth (Continued from page 12)

detail. This seems like a good time to do that, and if you didn't get to see it at wing night, take a look at the accompanying photo. The specimen is a big tooth that was found on the bottom of a South Carolina river. How big is the tooth? Big - more than 12 inches from front to back. Unfortunately, I don't have any idea which river it came from or even how it got to the Museum because there is no information associated with it. I can tell you that it's a lower left molar of a mammoth (*Mammuthus* sp.). I'll bet that most of you know how to tell a mammoth tooth from a mastodon tooth, but if not I'll fill you in. Mastodon teeth generally have 2-5 pairs (depending on jaw position, age, and/or species) of big conical cusps that are joined by a central ridge, and these are set one in front of the other. In contrast, mammoth teeth appear to be made up of multiple enamel "plates" that are set one in front of the other (like modern elephant teeth). By knowing a few other things about mammoth teeth, you can tell a lot about one that you find. The low height (chewing surface to root base) of the tooth in the photo indicates it's from a dentary (lower jaw). Upper teeth are twice as high. Teeth are worn from front to back, and in the photo the front of

the tooth, where it's worn flat, is at the left. If you looked directly on the chewing surface of this tooth, you could tell which side of the jaw it's from by noticing the curvature - the convex surface is to the outer side of the jaw, and in this case it's at the left. So, we can conclude that this is a lower left tooth.

Now, you may be asking yourself what type of mammoth is that tooth from. Well, first we should determine exactly which tooth it is. Mammoths had only 24 teeth to use throughout their life (six in each jaw), but at any given time there were only one or two functional teeth in each jaw. As mammoths grew, the teeth at the front of the jaw wore down and were gradually replaced by progressively larger teeth. So, the smallest and therefore oldest tooth is the first molar (M1), and the largest tooth (youngest) is the sixth molar (M6). The M1 can be identified by its small size, and there are only 3-5 enamel "plates". The M2-M5 are progressively larger and correspondingly have more and more "plates", with 18 "plates" or more being found on the M6. I consider the Museum's lower right molar to be an M6 because of its large size and it has 21 enamel "plates". In modern elephants, the M6 erupts at around

age 24, so we can hypothesize that our mammoth was a little bit older because the tooth was functional for a while before it died (the M6s of modern elephants eventually become so worn that they don't grind food anymore, and because there are no new teeth to take its place, the animal eventually starves to death - around age 60).

Getting back to the question of species, the number of enamel "plates" can also give us a clue as to which mammoth our specimen belongs to. Our specimen has 21 "plates", which is in the range of at least two species, the Columbian (*Mammuthus columbi*) and woolly (*M. primigenius*) mammoths. A larger sample size of teeth from the same deposits would help determine potential variations in plate number within each tooth position, and therefore pin down exactly which species we are dealing with. Interestingly, if we could conduct some chemical analyses of the enamel, we might be able to tell what our animal was eating and what time of year it died! Most of the time you'll only find

partial teeth because the individual enamel "plates" break away from each other along the weaker dentine parts of the tooth. But try following the guidelines I've outlined the next time you find a reasonably complete tooth. You might be able to tell your friends a really good story about it.

I'll close now by asking you to keep filling out and sending in your dive reports - whether you dive or not and if you find anything or not during your dives. I'm slowly getting through the reports from last quarter, and I appreciate the maps and photos that are being included. Keep it up, and remember that you can now send in your reports by email through the new fillable pdf or via snail mail. Enjoy your dives!

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**Mammoth Tooth**  
(Photo courtesy of the  
SC State Museum)



## Sport Diver Archaeology Management Program

The *Quarterly Reporter* is a quarterly newsletter from the Sport Diver Archaeology Management Program (SDAMP), part of the Maritime Research Division of the South Carolina Institute of Archaeology and Anthropology, University of South Carolina.

Ashley Deming- Chief Editor

Carl Naylor- Editor

## Letters to the Editors

If you have something that you would like to say about the program 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 hobby divers. Ashley and Carl 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 SDAMP. We look forward to hearing from all of you.■

## Notes from the Editor

We had a whopping 500 active hobby divers during Quarter 4 2011! We had a reporting rate of 65%. That still means over 100 people have not filed artifact reports for Quarter 4. If you have not filed, please make sure to do so or we will not renew your license! We hope that we can really increase reporting this year to at least 80%. It is just so easy now with the online filing system! If

you don't have anything to report, you can file in only 3 clicks of your mouse! No excuses. File your reports!

To try to make filing even easier for you, SDAMP and the State Museum have worked together to create a Fossil Form that you can fill in and email to the State Museum. Forms are available on the forms page of the SDAMP website.

We strongly

encourage you to file your reports online (or through email for the State Museum). This makes our processing times much faster and more efficient, so we can be out there doing more archaeology and paleontology with you! If you haven't used the online system before, don't be discouraged! Feel free to call or email us with your questions and we can walk you through the process.■



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