

## Things You Need to Know:

- 2011 Quarter 4 Reports Due by January 10, 2012
- Welcome Intern Mike Slot!
- New Chief Curator of Natural History at SC State Museum
- Please Report Online!

## Articles:

Oyster Roast	1
January Reports	2
Lecture Series	2
Upcoming Events	3
SDAMP News	3
Wing Nights	4
Artifact Workshop	4
Connection Section	5
Hobby Diver of the Quarter	5
Features	6-9
Conservation Corner	10
Cannonball: Part IV	11
**NEWbies**	12-13
Notes from Editor	14

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

## 1<sup>st</sup> SDAMP Oyster Roast Success!

By SDAMP

Here at SDAMP, we are always trying to come up with ways to encourage our divers to actively participate in preserving the cultural heritage of South Carolina. If there is one thing we know about our divers, it's that they love to eat and have a good time! What better way for us to meet divers, share the importance of maritime heritage, and eat lots of food than a good ole' fashioned oyster roast!

On the evening of November 19, 2011, SDAMP threw our very first Maritime Heritage Awareness Oyster Roast at Fort Johnson

Marine Resource Center in Charleston. We could not have asked for more perfect weather for our outdoor event. Forty-five people gathered near the beach of stunning Charleston Harbor to enjoy amazing oysters and purlow, laughs, and share in the rich history of our State.

Guests also had the opportunity to participate in a silent auction with lots of great prizes. Prizes included *H.L. Hunley* tours, Charleston Harbor cruises, dive shop vouchers, t-shirts, and much more! We would like to extend our most sincere

thanks to all of our sponsors for supplying the silent auction items and to all of our oyster roast attendees who generously bid on them. We were able to raise around \$1000 to go toward our education and outreach initiatives! We cannot thank all of you enough for attending and helping to preserve SC maritime heritage.

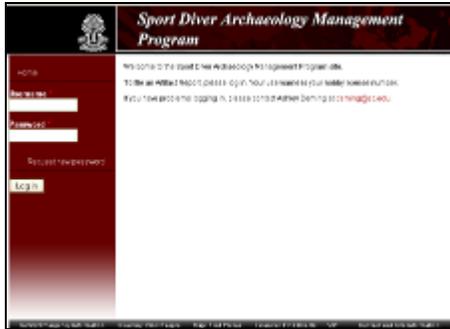
We also want to thank Dixieland Delights for catering. The oysters were some of the best we have ever eaten!

Since the event was such a success and so much fun, we are hoping to make it a yearly event. We hope you will consider joining us next year!

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



**2011 SDAMP Maritime Heritage Awareness Oyster Roast**



**Quarterly Reports due by October 10, 2011**



**January Quarterly Reports**

This is a reminder that your 4<sup>th</sup> quarter 2011 reports are due by January 10, 2012. These reports should cover all of the collecting you have done between October 1<sup>st</sup> and December 31<sup>st</sup> of 2011.

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 sent 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. ■

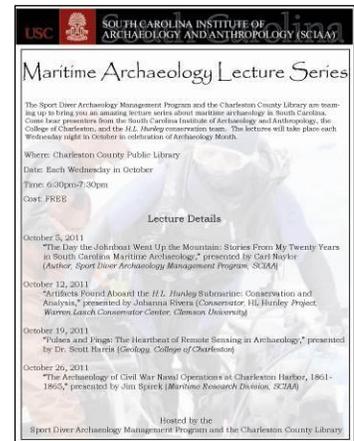
**Maritime Archaeology Lecture Series**

In October 2011, SDAMP teamed up with the Charleston County Library to host a Maritime Archaeology Lecture Series in honor of Archaeology Month. Each week a lecturer would present on a different topic in maritime archaeology. The lectures included: “The Day the Johnboat Went Up the Mountain: Stories From My Twenty Years in South Carolina Archaeology,” by Carl Naylor (*Author, SDAMP, SCIAA, University of South Carolina*)

“Artifacts Found Aboard the *H.L. Hunley* Submarine: Conservation and Analysis,” by Johanna Rivera (*Conservator, HL Hunley Project, Warren Lasch Conservator Center, Clemson*)  
“Pulses and Pings: The Heartbeat of Remote Sensing in Archaeology,” by Dr. Scott Harris (*Geology, College of Charleston*)  
“The Archaeology of Civil War Naval Operations at Charleston Harbor, 1861-1865,” by Jim Spirek (*Maritime Research Division,*

*SCIAA*). We thought the lecture series was a great success and had a blast listening to all of the lecturers. On average, 25 people attended each lecture. Due to its popularity, we hope to host another lecture series in 2012. If you would like to present or know of a potential presenter, please contact us at [sdamp@sc.edu](mailto:sdamp@sc.edu). ■

**2011 October Lecture Series**



## Upcoming Events

### SHA Conference

Ashley Deming will be representing SDAMP at the 2012 Society for Historical Archaeology Conference in Baltimore, MD. She will be presenting two papers on the Sport Diver Program at its success to hundreds of archaeologists from around the world. The conference runs from January 4-8, 2012.

### January Wing Night

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

### February Wing Night

We are very excited to be partnering with

Wateree Dive Center for our February Wing Night. As it is a Leap Year, we are co-hosting a very special Wing Night that doesn't come around very often! This February 29<sup>th</sup>, join Wateree Dive Center, SDAMP, and the South Carolina State Museum Chief Curator of Natural History for the biggest Wing Night yet! See details on page 4.

### Artifact Workshop

The next Artifact Identification Workshop will be held in Charleston on March 24, 2012. If you are interested in signing up for the workshop, please read the article on page 4 or contact our office.

### Allendale Project

As many of you know, we offer a volunteer opportunity in May working with some of the world's top experts in paleoamerican archaeology. For two weeks, we work the underwater component of one of the oldest known Native American sites in the country. This year, we will be accepting 6-8 volunteers per week for this project. More information will be sent via email closer to the project date. Don't miss this incredible opportunity!

### SDAMP Wants You!

We are planning to be more involved with divers over the coming

year. This means we would like to do more diving and interacting with you one-on-one! We would like you to contact us about sites you have found or artifact collections we could come look at. If you are interested or know of someone who might be, give us a call or email us so we can arrange a time to meet. We look forward to hearing from you!

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](#)! Leave a message on our wall!

### October

- Ashley Deming went Hobby Diving with Ted Churchill and Jay Hubbell. Read her story page 6.
- The Maritime Archaeology Lecture Series was held each Wednesday night in October in honor of

Archaeology Month.

Details on page 2.

- SDAMP's monthly Wing Night was held on the 27<sup>th</sup>. See page 4 for information on upcoming Wing Nights.
- SDAMP and volunteers The Lee Family attended Fall Field Day at Lynches River County Park near Florence, SC. This event is hosted yearly by the Archaeology Society of South Carolina.

### November

- On November 2 and 30, Ashley Deming and SDAMP intern Mike Slot joined hobby divers Doug Boehme and George Pledger to conduct some side-scan sonar surveys of the

Ashley River.

- Ashley Deming and Chris Amer attended a meeting with DNR and Santee Cooper to discuss the low water levels in the lakes.
- SDAMP hosted our first oyster roast. There were forty-five people in attendance. See page 1 for article.

### December

- Ashley Deming and Mike Slot worked on the cannonball conservation on December 13<sup>th</sup>. See page 11 for article.
- The Maritime Research Division (which includes SDAMP) attended the 2011 Dive Safety and Control Board Meeting at the South Carolina

Aquarium.

- The SDAMP office closed for the holiday season December 19<sup>th</sup> - January 2<sup>nd</sup>.

*Upcoming...*

### January

- Ashley Deming will attend the SHA Conference in Baltimore.
- Wing Night on January 25<sup>th</sup> from 6:30-9:00pm.

### February

- Wing Night in Columbia February 29<sup>th</sup>. See page 4 for details.

### March

- Artifact Workshop March 24, 2012. See page 4 for details. ■

## SDAMP Wing Nights

We are thrilled that so many of you have taken the opportunity to meet us and connect with other divers at our SDAMP Wing Nights.

We had to postpone our Wing Nights for the months of November and December due to other major events and of course, the holiday season. We will be starting our monthly Wing Nights back up in full force in January. The January Wing Night will be on Wednesday the 25<sup>th</sup> from 6:30-9:00pm at Wild Wing Café in My Pleasant.

We hope you will join us and kick-off the New Year right.

If coming to Charleston is a bit too far for you, maybe you will consider coming to our February Wing Night in Columbia. That's right, for the first time ever, we will be co-hosting a Wing Night in Cola with Wateree Diver Center!

This event is so special, we are holding it on the February 29<sup>th</sup> (that day only comes around every 4 years)! Wing Night will start at 6:30pm at Carolina Wings and Rib House in

Columbia. SDAMP will be there to help identify artifacts and issue licenses. New Chief Curator of Natural History for the SC State Museum, Dave Cicimurri will be there to help identify your fossil finds.

If you are planning on attending our Leap Year Wing Night in Columbia, please email us at [sdamp@sc.edu](mailto:sdamp@sc.edu) to let us know (we want to be able to do this again and don't want to overwhelm the staff).

We hope you will be able to make it to

one of our Wing Nights. Feel free to bring finds, family, and friends! ■



## Artifact Identification Workshop

SDAMP is offering our first Artifact Identification Workshop of 2012 this March. The workshop consists of a mixture of lectures and hands-on activities designed to help you identify some of the types of artifacts you collect from South Carolina waters. We hope to help you better understand and identify artifacts so that you can love your collection even more and report your finds more accurately to us.

Historic and prehistoric ceramics, bottles, Native American stone tools, and much more will be covered. You will get the

opportunity to work with real archaeological material. Please note that we will not be covering any paleontological material (fossils: i.e. shark teeth and bone). The details about the workshop are below.

### SDAMP Artifact Identification Workshop

Date: March 24, 2012  
 Time: 9am-5pm  
 Location: Charleston, SC  
 Cost: \$30 (make checks payable to USC)

There are only 15 places available for this workshop. Email us at

[sdamp@sc.edu](mailto:sdamp@sc.edu) or call us at 843-762-6105 to reserve your spot or for information on this workshop. Workshop fees may be paid using the following methods: cash, check, or money order. Before you can be on the official list, payment must be received. The deadline for fees is March 12, 2012.

This is always a fun day and you will learn a lot. We look forward to having you join us! ■

### Artifact Identification Workshop



## Connection Section



Have you been searching for a dive buddy that shares similar diving interests with you in South Carolina? Maybe you are from out of state and were hoping you could partner up with someone in South Carolina who could

show you the ropes? Perhaps you just want to meet some divers in your area who are ready to hop in the water when you are. Look no further! Connection Section is the stop for you! This is a brand new section in our newsletter. SDAMP

wanted another way for divers to connect to one another. In this section, we will feature the contact info and a short profile of an individual or a group that are looking for dive buddies. Maybe you will meet your diving soul mate!

**\*\* No New Entries \*\***

If you are interested in meeting a dive buddy, email a brief profile and your contact info to: [sdamp@sc.edu](mailto:sdamp@sc.edu) ■

## 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 4 2011 goes to dive buddies George Pledger (#218) and Doug Boehme (#3042).

George and Doug have been diving SC waters for...well...ever. They have always been strong supporters of our program and have actively volunteered with us since the program began. George and Doug continue to conduct archaeological surveys on their own and readily share their info with us.

Thank you, George and Doug! You are truly an inspiration to us all! ■



***Dive buddies George Pledger and Doug Boehme***

## 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!***

## Springing Into Archaeology

By Charlie Wonderlic, Hobby Diver #5072

With the Wando River's temperatures dropping below 60 degrees and visibility improving daily, I set out for my first cold water dive of the season on November 6, 2011. The conditions could not have been better. Clear sunny skies, warm air temperature and slack low tide. I geared up and entered the water at one of my favorite diving spots near Cat Island. I began hunting to a maximum depth of approximately fifteen feet. Within thirty minutes I had collected several nice Megladon, Angustidens, Tiger and Mako teeth and fragments, the largest of which (Meg) measures 4 ¼ inches. Needless to say, I was very excited to be in the right place at the right time. I was moving/scanning

rapidly across the gravel and oyster debris covered bottom to maximize the amount of area that I could cover before having to battle the incoming tide.

Spotting teeth in this cover takes a considerable amount of concentration and focus so I almost disregarded the crustacean-covered cylinder that ended up really making my day.

Curious, but suspicious that it was simply modern garbage; I lifted the object and immediately noted its weight, texture and odd looped handle. Back in the boat, I carefully unpacked the finds and was thrilled to see that the cylinder was, in fact, some sort of stoneware jug with obscured but interesting markings. Not sure of how to

proceed with cleaning and identification of the jug, I decided to contact SDAMP for some help. I sent an email with attached photos of my find to SDAMP to get their advice. The SDAMP crew told me that it looked like a German salt-glazed stoneware beer/wine jug that probably dated to the 19<sup>th</sup> century, but they would have to see the markings after it was cleaned to determine more. They suggested that I soak the jug in fresh water with some vinegar to clean off the barnacles and I could remove some of the algae and mud with a soft toothbrush and some dish soap.

The jug was cleaned by submersing it for two weeks in a 75% vinegar/water solution. With the help of SDAMP, we were able to identify the jug. These earthenware jugs were handcrafted by local potters and filled in the small town of Niederselters (population 800) with the famous Selter's Springs mineral water (the original Seltzer water, 1728). The process of bottling and distribution is known as "mineralwasservasand," a process that requires the participation of nearly every citizen of the town to ensure that the jugs were properly



### **Nassau Selters Company emblem**

manufactured, cleaned, filled, corked to maintain carbonation, crated, loaded onto horse-drawn wagons and transported to the Lahn or Rhine river ports.

This specific jug is a "Sektter" - a salt-glazed, wheel-thrown stoneware with a ringed neck and a ring-lip neck finish that was manufactured by Nassau Selter Co., in the Nassau District of western Germany and imported to the United States by Houck and Dieter of El Paso, TX from 1893 to 1895. It carries an impressed seal with SELTERS around a German eagle that contains the initials F.R. on his chest and may have arrived in the US as early as 1846.

Thanks to SDAMP the jug has been accurately identified and cleaned and hobby diver #5072 has written his first diving article! ■



**Stoneware jug before (left)  
and after (right) cleaning**

## Dangerous Diving

By Grady Starnes, Hobby Diver #4889

September 10, 2011 was a beautiful day. Five friends and I had booked a charter on the Cooper River to look for sharks teeth and other artifacts. This was my third trip but my past experiences would not prepare me the dangerous encounter I would face today.

The captain was a great guy and was very knowledgeable about finding sharks teeth. He put us on some great spots but we just could not find the

big Megs we were looking for. The Captain told us if we heard him rev up his engine three times to surface. On the third dive, I heard the engine rev up so I checked my equipment and surfaced. I surfaced about 20 yards from a green boat. I saw four men pulling on ropes and struggling with something in the water. Then I saw one of the men lean over the side with a pistol and shoot. That's when I saw the massive head of an

alligator rise out of the water. At this point lots of things go through your mind. The only thing I could think of was swamp people and that guy who yells "shoot him shoot" that's when I yelled to the hunters "shoot him again". At this point, I don't know who was more shocked to see a SCUBA diver in the water, the 3 boats who had gathered to watch or the hunter with the gun. The hunter shot the gator once more and

I drifted back to my boat. The engine I heard rev up was the gator hunters.

Once on my boat I thanked God for my safety. The Captain moved us closer to the hunters where we helped load the gator and gets some pictures. The gator was over 13 feet long and was the biggest the hunters had ever killed. The boy who shot the gator with his bow was 14 years old. The young man told us we were crazy because there were alligators in the water here.

Yes, I do plan to dive the Cooper River again and I understand the dangers. It's all worth it for the thrill of touching and pulling something out of the water that could be millions of years old!■



## Wafer Seals

By Carl Naylor, SDAMP

We here at SDAMP headquarters have never met an artifact we didn't like. That goes double for an artifact recovered from the bottom of the Cooper River by licensed hobby diver Catherine Sawyer. Cat recently sent us photos of her find: an implement used to seal letters and documents with glue wafers, mostly in the eighteenth and early nineteenth centuries. It's called a wafer seal.

Like the more familiar sealing wax, wafers provided a somewhat secure closure for personal correspondence. In fact, the choice of wafers or wax reflected social customs of the day. When sending a letter to one's betters, etiquette required the use of sealing wax. Wafers were for equals or one's inferiors. One can only imagine the hours spend in eighteenth and early nineteenth

century parlors discussing who fit into which category.

Glue wafers were made of a mixture of wheat flour, water, egg white, and (most often) coloring, that was made into a paste, dried in sheets, and punched out into small, flat discs. A fancier form, called "medallion seals," was made by filling molds with colored paste which when dried mimicked wax seals, provided your vision

was bad. Wafers were commonly colored red, but other colors became popular as well. As was the fashion with wax seals, the color of the wafer often indicated the user's sentiments. Black was used by those in mourning, green indicated friendship, yellow was for holidays and journeys, purple for invitations, and so on. The wafer could be applied in one of two

(Continued on page 8)

## Wafer Seals (continued from page 7)

ways. They could be used like sticky labels, by wetting the bottom of the wafer and placing it over the join, or as an adhesive, by wetting it entirely and placing it between two pieces of paper. Either way, pressure needed to be maintained until the pre-wetted wafer dried. The wafer seal supplied this pressure.

Wafer seals are often misidentified as either their cousins wax seals or as pipe

tampers. Pipe tampers, due to their single function of tamping down tobacco in round pipe bowls of all sizes, have round, flat, and usually smaller working ends than wafer seals. Wax seals most often have monograms, coats of arms, or other insignia to leave an impression in the wax. Wafer seals have a simple crosshatched design on their bases, which is most often round, but sometimes

square or rectangular.

The introduction of self-adhesive envelopes in the middle of the nineteenth century rendered the use of wax and wafer seals obsolete.

The best artifacts are those that not only show us how we accomplished tasks in the past but also reveal social customs. Cat's recent find certainly does that. Thanks for the photos, Cat!■



**18<sup>th</sup> century wafer seal found by hobby diver Catherine Sawyer**

## My First Hobby Diving Experience

By Ashley Deming, SDAMP

On the morning of October 4, 2011, I joined Hobby Divers Ted Churchill and Jay Hubbell for my very first hobby diving experience. My goal was to understand a day in the life of a hobby diver. I've been diving loads of times in the Cooper, but always as an archaeologist and usually on a shipwreck. I really wanted to know what it would be like to

view the day through the eyes of one of our hobby divers.

We suited up at the landing and set off to an undisclosed location on the Cooper. Ted wanted me to experience the raging currents of the river so we got in, he tethered me to him, and we rode this current that was pointless to swim against. I now completely understand

why all of you wear kneepads. The knees of my wetsuit now look like a wild animal attacked me!

Now it was time for the hunt. We moved onto a spot where Ted and Jay assured me we would find some teeth and maybe some artifacts. When I dropped down, it looked (yes looked, as there was at least five feet of visibility!) like a place where glassware goes to die. Broken glass of all time periods scattered the bottom in only around 15 feet. I'm more into ceramics, but I thought Carl might appreciate identifying a nice medicine bottle if I found one. And I did! A cute little thing that looked like the typical ones I had seen time and time again in hobby reports. Couldn't hurt

to have another in the SDAMP collection for our workshops. I put it in my BC pocket and ventured father on in search of these meg teeth I have heard so much about.

I dropped down onto a shelf ledge to around 20 feet. I worked my way along it appreciating the geology of the marl and the amazing power of water erosion (can't help being a scientist I guess!), when I saw it. There on the ledge, teetering on the edge of the drop-off, was a 4 ½" meg tooth. I had seen fragments and small teeth on this dive, but this was huge! I assumed that my dive buddy left it there for me just to make sure I had a good first experience. It was just placed there with nothing else around it

**(Continued on page 9)**



**My first big meg tooth**

## My First Hobby Diving Experience (continued from page 8)

on this ledge. It had to have been left there by Ted. Then I started to think about Ted. Knowing him as I do, there is no way he would leave a tooth that size on the edge of a drop-off or part with a tooth that size...ever. It was as if the river was giving me a gift. "Here you go, Ashley. This is what it is all about," it said.

I surfaced to show my dive buddies my finds. I had done what I came there to do and it wasn't going to get any better than that! I pulled the bottle out first, which Jay was kind enough to clean off for me. He then asked if I had found any teeth. I hummed and hawed and said I'd seen a few small fragments but didn't collect them. He was just about to say something along the lines of "better luck next time," when I pulled out my find. I thought Jay's eyes were going to pop out of his head. "You found this on your first time out!?" he asked in surprise. Neither he nor Ted had found anything that size on this trip, so I think they were both a little jealous. They kept muttering about beginner's luck and how boat tolls must be paid in meg teeth...

I felt pretty satisfied that I had achieved my goal on the water. Now, I had to finish the experience by identifying and

recording my finds with the State Museum and SDAMP.

The meg tooth would be the hardest for me as I am not a paleontologist and don't know squat about shark teeth. I do, however, know the curator of natural history at the State Museum, so I will be seeking his help to properly date and catalogue my find.

The "medicine" bottle identification is definitely in my wheelhouse, so I looked forward to identifying that. I use "medicine" bottle in quotations because, although it is the common name for a bottle with this appearance, these bottles held anything from medicine to sewing machine oil. My bottle was embossed with "McCormick & Co, Baltimore." It was good place to start.

Thankfully, SDAMP has some great links through their website that can help with identification of artifacts. Carl and I popped onto the SHA

(Society for Historical Archaeology) website that relates to bottles. My bottle was actually pictured and written about specifically! What luck! The McCormick Company is the same one that is still in business today. They specialize in spices and seasonings. You probably have some of their product in your cupboard right now. My bottle would have contained some sort of liquid flavoring extract (like vanilla or almond) and bears maker's markings that date it to 1936 or 1939. I had new SDAMP intern, Mike Slot take lots of pictures of both finds so we have a good catalogue for our files. Mike made sure to take the pictures with scale and on a background that isn't too distracting, as you can see from the included photos.

I really did get the real sense of being a hobby diver on my trip. In revealing to me the extract bottle and the meg tooth, the Cooper



wanted me to understand and share what draws all of you to its dark, murky depths. The thrill of adventure and discovery. Mysteries of millions of years past. As an archaeologist, I can certainly understand that draw. It is what drew me to archaeology in the first place. It is the opportunity to travel back in time and to bring to life the story of a people (or creature) long since faded from this world. These artifacts and fossils are tangible pieces of history that go far beyond what you can read in a book.

I had just as much fun identifying my artifact as I did finding it and sharing it with all of you. We, at SDAMP, hope that you feel the same way and will continue to share your finds with us through your reports. We are always interested in what you find and will do our best to help you identify it and conserve it. We will even be willing to go out with you and identify your artifacts right in your own boat

hint...hint...■



## Conservation Corner

### Care of Collections and Preventive Conservation: Part I

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

Preventive Conservation seeks to protect collections from deterioration and damage through the implementation of policies and procedures dealing with environmental conditions, object handling, storage, exhibition, use, etc. The goal of preventive conservation is to diminish the daily stress on collections that build up over time and to avoid damage or loss (Merritt and Reilly, 2010).

In conservation, nine agents of deterioration have been identified as detrimental for collections, some of them are:

*High relative humidity is*

extremely damaging to collections and it should be avoided. With high relative humidity during summer, gaseous pollutants become more reactive, mold can grow and metals can corrode. Anything above 60% could be damaging for materials. Avoid storing objects in extreme settings such as attics, basements or sheds. Try to store your collection, especially metals, wherever there is a working AC unit. Since it is difficult to control relative humidity during summer, metals should be stored separately from the rest of the collection by using cabinets or boxes to buffer the artifacts from the environment or with



**Johanna Rivera**  
Conservator

the use of desiccants like silica gel.

*Temperature* could also play a significant role in material deterioration. High temperatures can lead to desiccation, discoloration and chemical deterioration in organic materials since heat increases the rate of chemical reactions. As mentioned earlier, one way to avoid temperature deterioration is by not storing collections in extreme locations such as attics or sheds.

*Light* could also be very detrimental for organic materials. Light effects are cumulative and cannot be reversed. Avoid exposing your artifacts to UV light as much as possible by not displaying artifacts near windows. You could also use curtains or shutters to block out sunlight.

*Dust* is a common contaminant that can

accelerate deterioration. Dust is composed of different materials including skin cells, hair, and other particulates such as pollen or sand grains that may be in the air. Dust could be an issue for metals since it could retain moisture-accelerating corrosion. Routine housekeeping is very important to remove potentially harmful dust. Cleaning of the object may be done with soft cloths and soft brushes. Make sure that you are not doing any damage by pushing dust into recesses or scraping abrasive particles like sand across the surface.

Proper care and maintenance of your collection will ensure that they are available for future generations to enjoy. In the next Conservation Corner find out how to safely store your collection using inert storage materials.■



**HL Hunley brass binoculars stored on silica gel (FOTH©)**

## From Gunboat to Garbage Can: The Conservation of a Cannonball *Part 4*

By Ashley Deming, Maritime Archaeologist, SDAMP Manager

The cannonball has now been through ten full months of electrolysis. We are hoping that these next few months will be the last that the cannonball will have to undergo this conservation technique. In February or March, we hope to finish off the conservation of the ball outside of the tank.

We did have to replace the steel components in the tank during the last three month period as they were too corroded to continue to produce enough charge for the circuit. Once replaced, we were once again able to continue the process without too much trouble.

In December, SDAMP intern, Mike Slot and I removed the ball from the solution for its three-month cleaning and solution

change. We remixed the sodium carbonate and water solution in our tank and let it settle while we worked with the ball.

Mike and I worked using dental tools to carefully remove any of the active corrosion from the cannonball's surface as well as the pits and holes (Figure 1). There are a few more pits in the ball's surface than there was during the last cleaning interval. Some of these are as deep as 1 inch toward the center of the ball. There is also a small amount of additional corrosion in the existing pits. All active corrosion must be removed to prevent further corrosion later.

Although there is certainly more corrosion happening and pits forming (Figure



**Figure 1**  
**Intern Mike Slot cleaning cannonball for its 10-month cleaning**

2), the overall stability of the ball is greatly improved. We had very little sloughing off the surface of the ball and not much new corrosion in the preexisting pits and holes. What this leads us to believe is that the ball is slowly becoming more and more stable and the conservation process is working.

The pits and holes do not make us happy, but we are

dealing with a 200-year-old artifact that was submerged in a brackish environment. It isn't going to be perfect. We will continue to consult with experts regarding the conservation of the ball, so we are able to do everything we can to conserve as much of the ball as possible. We are hoping for the best possible outcome and are confident we will achieve it. ■

(Photos of stages on page 12)



**Figure 2**  
**New pitting and holes**



**Figure 3**  
**Deep holes must be cleaned to prevent further corrosion**



**After initial corrosion removed**



**After 1-month cleaning**



**After 4-month cleaning**



**After 7-month cleaning**



**After 10-month cleaning**

## Welcome Aboard!

### Hello Divers!

*By Mike Slot, Intern, SDAMP*

My name is Mike Slot and I am the newest member of the SDAMP crew. I will be filling the internship role at the SDAMP office here in Charleston. Like most of you, I like looking for cool stuff underwater. My educational background includes a bachelor's degree in anthropology with a strong focus in underwater archaeology as well as a historical archaeology field school in Nevada searching for evidence of a 19<sup>th</sup>

century opera house. I recently moved here to Charleston from Michigan where I did my undergraduate work at Grand Valley State University. So far it's been great (I'm pretty sure it's snowing back home). My areas of interest include pretty much anything that can be associated with history or the water, to quote Clive Custer "If it's old, I'm into it." Prior to this internship, I worked at the Great Lakes Naval Memorial

and Museum in Muskegon, Michigan. There, I helped conduct submarine surveys with Remote Operated Vehicles or ROVs. I was also part of a team working to design the ROV institute, an afterschool program for junior high students that encourages kids to design, build and operate their own ROV. My goal is to one day go to graduate school for underwater archaeology. I love the water, love the ocean,

and I'm excited to be here in Charleston working with SDAMP. I am looking forward to meeting and diving with you come spring! ■



### SC State Museum Welcomes New Curator

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

My name is Dave Cicimurri and I'm the Natural History Curator at the South Carolina State Museum (SCSM) in Columbia. Although I'm new to the State Museum, I've been studying the geology and fossil record of the

state since arriving here from South Dakota in 1999. Over the past 12 years I've had opportunities to explore our state from east to west, north to south, and everywhere in between. I'm constantly amazed at the geological

and paleontological diversity here, and the more I dig, the more I learn. I've only scratched the surface (no pun intended) when it comes to deciphering our state's ancient history.

My focus has

been on tracing changes in environment and species composition over the past 75 million years. Did you know that the Florence area was a complex delta system where dinosaurs roamed the shorelines, crocodiles lurked in the

**(Continued on page 12)**

swamplands, and sharks swam just offshore? Or that, 55 million years ago, the Jamestown area was an estuary system that supported an incredibly diverse range of marine animals like fish (sharks and rays), turtles, crocodilians, and sea snakes? This was a tropical environment where water temperatures were 10-15 degrees warmer than today's summertime temperatures! In the Summerville area 29 million years ago, a wide variety of whales, turtles and fish swam over what was then the sea floor. Nearly half a million years ago, giant ground sloths, horses, giant armadillos, saber-toothed cats, tapirs, and giant tortoises lived alongside a forested river system in the Harleyville area. All of these species are extinct in North America (half are extinct globally).

I have certainly

not made these discoveries on my own. There are relatively few paleontologists in the U.S., and our knowledge of the past has benefitted greatly from the discoveries made by folks who are curious about the past and are out having fun. There are literally thousands of fossils in the State Museum's collection that have been donated by "hobby" collectors, and all of these fossils have proven important in understanding the pre-history of our state. Many specimens are unique – they 1) represent new species; 2) represent the only record of a species anywhere in the world; 3) represent the oldest record of a species; 4) represent the youngest record of a species; or 5) represent the best example of a known fossil species. The point here is that every fossil discovery is important and potentially a

fantastic new discovery.

This brings me to my conclusion. As divers in South Carolina, you are able to keep the fossils you find. Your only requirement, for licensing purposes, is to submit quarterly reports, whether you find something or not. I'm not going to come knocking on your door looking for any of the specimens you report. I will, though, ask for your help with the research going on here at the SCSM. You all fill out the sections on the report to list the types of fossils you've discovered and how many of them found, but I would like you to include photographs as well as maps of where your discoveries were made. I know this can be a pain and is extra work, but it will help me with determining exactly what type of shark teeth you found, or what type of whale tooth, or what type of other species your fossils represent. Yes, the rivers you dive in move the fossils out of their original context, but by looking at your maps we can still determine their approximate area of origination by studying the local geology. I would also like to request that, should you make a particularly interesting discovery (a fossil elk skull, for example), that you consider sharing your find with all of South

Carolina by 1) allowing us to take detailed photographs or 2) make a cast of the specimen(s), or even 3) donating the fossil(s) to the SCSM.

I'm hoping to make the reporting process easier by setting up a pdf on both the SCSM and the SDAMP websites so that you can fill in and submit electronically. This will include options to upload pictures and maps along with your report. You would still be able to fill out and send the report the old-fashioned way (not that any of you are old-fashioned, just if you can't fill it out electronically) or you may email reports as attachments to me at [dave.cicimurri@scmuseum.org](mailto:dave.cicimurri@scmuseum.org).

I'm looking forward to working with you all over the coming years, and hopefully we'll have the chance to meet face-to-face. Please don't hesitate to contact me if you have any questions about the fossils you find.

Thanks!  
Dave

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## 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.

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## 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

Congrats, Divers! We have made it to between a 65-70% reporting rate. You guys are doing a great job! We are hoping to have an 80% reporting rate by the end of the year. Please help us reach that goal by filing all of your 2012 reports on time.

We are strongly encouraging you to file your reports online. This makes our processing times much faster and more efficient, so we can be out there doing more

archaeology 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. You will not be disappointed and you will be able to file your reports quicker and easier.

*In other news...*

I would like to take this opportunity to welcome new SDAMP intern, Mike Slot as well as new Chief Curator of Natural

History, Dave Cicimurri to the fold. I know that both of these fine individuals are going to make a huge difference in making this program a real South Carolina treasure! Welcome to both of you and we hope you enjoy your new positions. Divers, please feel free to contact either of these individuals with questions about the program or their experience. I know they look forward to meeting you! ■



**Your SDAMP Staff  
Ashley Deming  
&  
Carl Naylor**

### Useful Website Information

For more information on

SDAMP: [www.cas.sc.edu/sciaa/mrd/sdamp.html](http://www.cas.sc.edu/sciaa/mrd/sdamp.html)

MRD: [www.cas.sc.edu/sciaa/mrd/mrd\\_index.html](http://www.cas.sc.edu/sciaa/mrd/mrd_index.html)

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