

Quarterly Reporter

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

January 2013

Volume 3, Issue 4

Things You Need to Know:

- 2012 Quarter 4 Reports Due by January 10, 2013
- Wing Night January 30th
- Charles Towne Landing Archaeology Conference February 16th
- Columbia Wing Night February 27th
- ASSC Conference March 2nd

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Farewell to Intern Mike Slot

By SDAMP

In November of 2012, we said goodbye to SDAMP Intern Mike Slot. Mike was with us for a year and became a valuable member of our staff. During his time here, Mike worked on a variety of projects. He aided the office in processing licenses, reviewing reports, and managing the online database. He also was instrumental in the conservation of Fred, our Revolutionary War cannonball conservation project, as well as stabilizing an anchor recovered from Charleston Harbor. Mike assisted SDAMP staff with various site assessments like the Helen B. wreck (an early 19th century vessel on Daniel Island) and Ashley River surveys. He was involved in a number of education and outreach programs throughout 2012

including Science Day at James Island Middle School, where he presented maritime archaeology topics to sixth graders, Pirate Day at the Charleston Museum, Wing Nights, and gathering silent auction donations for the 2nd Annual SDAMP Oyster Roast.

Mike continued his maritime archaeology education with us by attending both our Artifact Identification Workshop as well as the Field Training Course Part I. He also conducted an independent research project that culminated with him giving an excellent presentation on privateering in Charleston during the War of 1812 for our 2012 October Lecture Series.

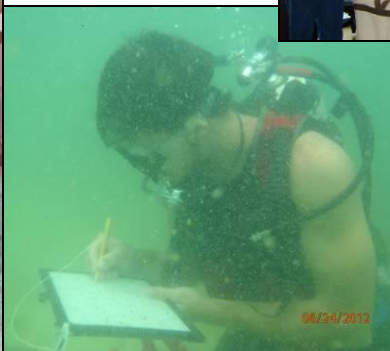
In addition to donating so much of his time to our office, for nothing more than the experience, Mike

also held down two part-time jobs and started his own small business.

We are exceedingly proud of Mike and all of his accomplishments. He was a pleasure to work with in the office and in the field. He was always quick with a smile and a joke to lighten even the most stressful of days. He will be hard to replace.

Mike plans to return to his home state of Michigan where he hopes to continue his involvement with the maritime world (including maritime archaeology!) in the many lakes and rivers the state has to offer.

We wish you the very best, Mike, in all of your future endeavors! ■



2012 SDAMP Intern Mike Slot

January Quarterly Reports

This is a reminder that your 4th quarter 2012 reports are due by January 10, 2013. These reports should cover all of the collecting you have done between October 1st and December 31st of 2012.

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: artsandsciences.sc.edu/sciaa/mrd/sdamp_hdl_forms.html

Please use the newest

versions of the forms. We 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: sdamp@sc.edu

Fossil Reports

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

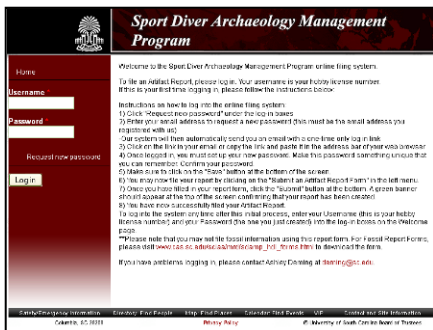
Or mailed to:

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

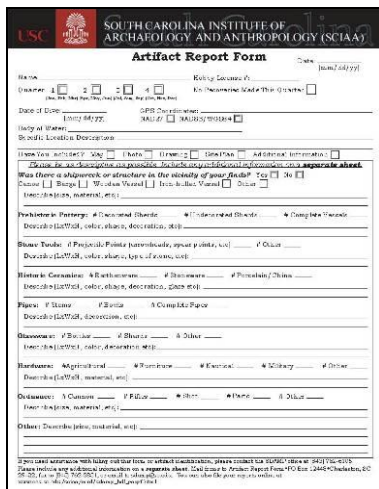
Make sure that you file reports with both agencies even if you have not done any collecting. Just tick the box that reads “*No Recoveries Made This Quarter*” and send it to the appropriate agency.

If you have any questions regarding reports, please visit our website at: artsandsciences.sc.edu/sciaa/mrd/sdamp_hdl_forms.html

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



Quarterly Reports due by January 10, 2013



2nd Annual SDAMP Oyster Roast

The 2nd Annual Maritime Heritage Awareness Oyster Roast was another great success! The roast was on October 13th at Fort Johnson Marine Resources Center in Charleston. It was a gorgeous evening with some gusty winds that kept all the bugs away. Forty-five attendees enjoyed amazing local oysters, purloin, and delicious veggie chili while listening to live bluegrass music (thanks Dolores Payne!) and taking in the beautiful sunset on Charleston Harbor. A great big thank you to Dixieland Delight

Catering for the delectable food.

This year’s silent auction featured fantastic items such as dive charters, museum passes, carriage tours, and lots more that had a few folks involved in bidding wars. Thank you to all of our generous sponsors for those great additions to the auction!

Thanks to all of our sponsors and attendees, the roast raised \$1000 for the education and outreach programs SDAMP provides. Great job everyone! We are looking forward to the 2013 roast that will be

even bigger and better than 2012. We hope we will see you there! ■



2nd Annual Maritime Heritage Awareness Oyster Roast

Upcoming Events

Wing Night

SDAMP will kick off 2013 Wing Nights starting January 30th. Wing Night will be at Wild Wing Café in Mt. Pleasant from 6:30-9:00pm. Please feel free to bring family, friends, and finds!

Also, join us in Columbia on February 27th for our joint Wing Night with Wateree Dive Center.

Lowcountry Scuba Talk

SDAMP will be giving a presentation to the

Lowcountry Scuba Dive Club on February 7th at Sticky Fingers in Mt. Pleasant at 7pm. The presentation is free of charge and all are welcome.

Charles Towne Landing Conference

The theme of this year's conference is "Thinking Outside of the Dig Box: Revitalizing the Public's Role in Archaeology and Preservation." SDAMP will be presenting a paper on the importance of

volunteers in our research as well as feature an exhibit with information about the program.

The conference is Saturday, February 16th from 9am-5pm. Admission TBA.

ASSC Conference

The Archaeology Society of South Carolina will be holding their annual conference in Columbia on March 2nd. For more information visit: www.assc.net.

Artifact Identification Workshop

The SDAMP Artifact Workshop will be held on March 16th in Charleston from 9am-5pm. Cost is \$35. Please see page 4 for more information.

Please continue to read the *Quarterly Reporter*, emails, our website, and follow us on Facebook 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!

October

■SDAMP hosted their War of 1812 Lecture Series each Wednesday night in October. Lecture topics were 1) HMS *Colibri*- Jim Spirek, 2) Sackett's Harbor survey- Dr. Scott Harris 3) Charleston privateering- Mike Slot 4) Post war economics, the John and Lavinia Fisher story- Bruce Orr. Lectures were all well attended.

■The 2nd Annual Maritime Heritage Awareness Oyster Roast was held October 13th at the Fort Johnson Marine Resource Center. Please see page 2 for the

story.

■ASSC held Fall Field Day on October 20th in celebration of Archaeology Month. The theme was Civil War Shipwrecks. The Maritime Research Division (MRD) presented papers and featured exhibits. Hobby diver Bob Butler and Ted Gragg displayed an exhibit on the CSS *Pee Dee* and volunteers Sam Daniels, Bruce Orr, and Nate and Diana Fulmer helped with the SDAMP exhibit.

November

■SDAMP presented to 50 Langley-Bath-Clearwater 7th and 8th graders through College of Charleston's marine sciences day on November 2nd.

■MRD visited the Pee Dee River to conduct archaeological investigations on the Civil War cannon at Mars Bluff on November 7th.

■MRD continued the search for the 2nd Stone

Fleet in Charleston Harbor November 12th-15th.

■Ashley Deming joined CofC's Dr. Scott Harris and student Craig Garrison for a site assessment near Ft. Johnson.

December

■MRD returned to the Pee Dee on December 4th to continue investigations.

■The Dive Safety and Control Board for MRD held their annual meeting December 12th at the South Carolina Aquarium.

■The SDAMP office was closed for the holidays December 21st-January 1st.

Upcoming...

January

■Quarter 4 2012 report are due by January 10th. See page 2 for details.

■Charleston Wing Night will be on January 30th from 6:30-9:00pm at Wild Wing Café in Mt. Pleasant.

February

■SDAMP will be presenting to the Lowcountry Scuba Dive

Club February 7th at Sticky Fingers in Mt. Pleasant at 7pm.

■Ashley Deming and Jim Spirek will be attending the South Carolina Arc GIS Users Network conference February 11-12 in Columbia. Their paper will discuss the use of GIS in SC maritime archaeology research.

■SDAMP will be attending the Charles Towne Landing Archaeology Conference on February 16th.

■Columbia Wing Night will be on February 27th at the British Bull Dog Pub from 6:30-9:00pm.

March

■SDAMP will be presenting at the ASSC conference in Columbia on March 2nd.

■The SDAMP Artifact Identification Workshop will be held in Charleston March 16th. Please see page 4 for details. ■

Artifact Identification Workshop

SDAMP is offering our first Artifact Identification Workshop of 2013 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 16, 2013

Time: 9am-5pm

Location: Charleston, SC

Cost: \$35 (make checks payable to USC)

There are only 15 places available for this workshop. Email us at 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 4, 2013.

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



**August 2012 Artifact Workshop students
Teresa Donelan and Chavous Camp**

The Archaeology Society of South Carolina

By ASSC & SDAMP

The Archaeological Society of South Carolina, Inc.



(ASSC) is an association of professional and avocational archaeologists and concerned citizens uniting in a cooperative effort to understand the prehistory and history of South Carolina.

It is a society of dedicated members exerting their combined efforts toward the interpretation and preservation of South

Carolina's rich cultural heritage

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 SC cultural heritage! ASSC is a great way to get involved in the archaeology around the state.

For more information on how to become a member with ASSC, visit: www.assc.net ■

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 2012 goes to diver Joe Harvey (#3052).

Joe has been an avid supporter of the program for many years. He always gives us great reports with
(Continued on page 5)

Hobby Diver (Continued from page 5)

lots of pictures!

Joe is a frequent exhibitor at fossil shows and can be found in classrooms around Berkeley County teaching students about South Carolina's past. Joe has also donated and loaned a variety of pieces from his collection to the

Berkeley County Museum.

Joe has attended the SDAMP Artifact Workshop, volunteered for ASSC Fall Field Day by bringing a large artifact display of his own, and even submitted articles for the newsletter.

We look forward to

working more with Joe as he plans to volunteer for 2013 projects.

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

2011 Artifact Workshop students Joe Harvey (left) and Matt Weas (right)



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

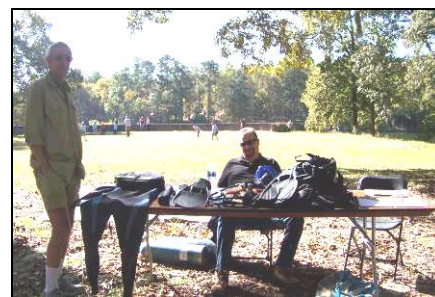
relates to South Carolina's past. Feel free to include images that can be used with your article.

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 ■



Fall Field Day 2012 volunteers Sam Daniels (left) and Bruce Orr (right)

Cooper River Diving with Best Friends

By Roy Neeley, Hobby Diver #3793

The diving day generally starts about 7:00 on a Saturday morning. Jimmy and Dennis are almost without fail parked in my driveway well before the appointed time. As friends, we are obliged to teach whoever may be late a lesson on promptness.

Once you've had just the one lesson you will not want another. We then load the dive equipment into the boat, and off we head toward Charleston.

Rarely is much said during this time because if a kind word is spoken or a nice jester given, it will be

viewed as weakness by the other two and they will pounce without mercy on the hapless soul that dared to act human. Before we are a mile from the house, we are all verbally tearing each other apart for the entire day. I do believe that this behavior will change one day because it has been going on like this now for only about 14 years or so.

Once we start diving, someone is always in the boat to stay near the divers at all times. We look after one another like we are the others' children. We ensure that the divers are properly checked out before rolling off into the water. Rarely do any of us make a

mistake because, **well, just refer to the lesson above on promptness.**

After each dive, we inspect each other's finds and always make a big deal over every fossil and artifact found. The ride back home is usually somewhat a little more subdued but, not by much. Dennis will usually feign that he is asleep most of the way back to avoid the abuse. We arrive home just before dark and unload the boat, help each other with our equipment. We then shake hands and/or do the 'Bro' hug and tell each other how much fun we had. None of us would have it any other way and we can hardly wait until the next dive. ■



Shark Teeth (photo courtesy of Roy Neeley)

Saved by the Bell...Well, Horn...

By Joe Harvey, Hobby Diver #3052

A couple of years ago, I along with a few friends, were diving the Cooper River. It was a nice hot summer day and on the boat ride out we spotted lots of Big Lizards enjoying the sun which is not unusual on the Cooper. We had already made a couple of good dives and I was on my last dive. Nearing the end of my dive (#500), as I was getting ready to start up, I could hear the boat traffic, one boat right after the other. Since I couldn't start up, I pattered around looking for fossils and stuff, listening and waiting. We found out later that a boat club out of Charleston

with over 70 boats was on their way to Gilligan's Restaurant. With no let up of boats overhead and with air now down to 250psi, I had no choice but to come up on the edge of the grass, which is about 10ft off the bank. I would much rather face snakes and gators than a boat propeller any time. I hit the surface, looked around, and as luck would have it, an 8ft alligator was laying on the edge of the bank about 20 yards from me. I could see a BIG SMILE on that big boys face and he started moving towards me. Well I felt that I had only two choices, 1) swim 10ft to the bank and

stand up to show him that I'm not just a bird sitting on the water or 2) try the Dive Alert signal device I had just installed (a super loud air horn). Well I hit the signal as I was swimming towards the bank and that gator decided he didn't want anything to do with me. Big Sigh of Relief.

On the way back to the boat landing we would ease up to gators and hit the DiveAlert and we got the same reaction. I am very happy with this little device. I have been diving the rivers of SC for over 25 years and have had some very uncomfortable Gator vs. Diver situations and this

little alert device, for around \$50 bucks, is money well spent! Happy Diving...Safe Diving. ■



DiveAlert air horn

Update on Mars Bluff Navy Yard/CSS Pee Dee Cannon Investigations

By Jim Spirek, SC State Underwater Archaeologist, SCIAA

We are still working to document and to prepare for the recovery of three cannons that were thrown overboard from the CSS *Pee Dee* in the Great Pee Dee River at the Mars Bluff Navy Yard during the

waning days of the Civil War. The armament of the Confederate gunboat consisted of two Brooke rifles, a 6.4-inch and a 7-inch, and a 9-inch Dahlgren smoothbore. These guns were the premiere naval

weapons of the Civil War. Until recently, we had only verified the presence of two of the three cannons—the 6.4-in Brooke rifle and the 9-in Dahlgren smoothbore.

These two cannons were found a number of years ago by the CSS *Pee Dee* Research and Recovery Team led by Ted Gragg and Bob Butler. Their group was originally licensed by the Maritime Research Division (MRD) through an Intensive Survey License that evolved into a Data Recovery License to investigate the river bottom alongside the abandoned navy yard. Besides discovering and

documenting the two cannons, the group recorded and recovered a number of artifacts including carpenter and shipbuilding tools and other sundry items. They also recovered a number of munitions associated with the two Brooke guns, but interestingly, none for the Dahlgren. These items are on display at the South Carolina Civil War Museum in Myrtle Beach operated by Gragg. I would suggest that if you are in Myrtle Beach to visit the museum and take a look at this important Civil War naval collection. Gragg has also

(Continued on page 7)



A 7-inch Brooke rifle at the Washington Navy Yard

Cannon Investigations (Continued from page 6)

published a book titled, *Guns of the Pee Dee: The Search for the Warship CSS Pee Dee's Cannons*, that relates the team's odyssey to investigate the remains of the gunboat, armament, and the navy yard. The archaeological conundrum was that while each caliber shell for the Brooke rifles were present, the physical remains of the 7-inch proved elusive. Despite methodically searching the waterfront, and along the apparent line of the two other jettisoned cannons, with physical probing, excavation, and deploying a cesium magnetometer, the remains of the 7-inch cannon remained obscured by sand, trees, and other magnetic debris. That is, until the adjacent landowners, Glenn Dutton and Rufus Perdue, decided to take advantage of extremely low-water to give it a go and search for the cannons themselves. Observing two piling stumps that only appear at very low river levels, the pair deployed a metal detector and searched around the area. Noting a magnetic disturbance that corresponded in length to a large object, the men recorded their findings on a map of the site, and alerted us to its potential discovery.

On 4 December, the MRD deployed to verify the discovery of the 7-inch Brooke rifle. Gathering together our crew and volunteers (Ted Gragg, Bob and Chad Butler, David and Cody Freeman), and assisted by Glenn Dutton

and Rufus Perdue, we located the object with our metal detector and immediately excavated several feet of sand to find the muzzle of the cannon. The cannon lays parallel to the river with its muzzle pointed upriver. Additionally, we inserted a GoPro Hero2 underwater camera down the bore of the cannon and noted the rifling was in excellent condition. As mentioned above, the elusive nature of the cannon was puzzling because of the lack of a large magnetic presence, especially as the mass of iron weighs approximately 15,000 lbs. Another factor to obscuring its location was that it was thrown a bit further into the stream, rather than as presumed near the riverbank like the other two. We had planned to systematically weed through a number of large magnetic anomalies along the shoreline in the future to search for the gun, but were saved the time and expense by the landowners' discovery of it.

Now that all three cannons are accounted for, there still remains one mystery—where did the Dahlgren come from? The pedigree's of the two Brooke rifles are known, both cast in Selma, AL and shipped directly to the Mars Bluff Navy Yard to arm the gunboat in 1864. Markings on the trunnions and breech of the Dahlgren indicate it was cast in Fort Pitt, PA in mid-1862. According to research undertaken by Dr. Larry

Babits, now retired director of the Program in Maritime Studies at East Carolina University, it is posited that the gun was captured from one of three Union gunboats due to the manufacture of the Dahlgren in mid-1862. Two of the Union gunboats were out west, which seemed unlikely for the Dahlgren to have come that far due to the railroad logistics at that time in the war. Whereas the Confederate salvage of the 9-inch battery, consisting of five 9-inch Dahlgren smoothbores, off the rammed and sunk USS *Southfield* on the Roanoke River at Plymouth, NC seemed a more viable candidate, particularly as the railroad logistics were conducive for transporting the gun to Mars Bluff.

Dr. Babits' research indicating that the USS *Southfield* seemed the most viable candidate for the Confederates to obtain a captured 9-inch Dahlgren intrigued me greatly, considering that I had written my graduate thesis

on the remains of the gunboat while a student at ECU. I immediately poured over my notes to see if I had come across any information on the markings on the *Southfield* guns. When reviewing my notes associated with a Confederate attack on Union army and naval forces in Plymouth in December 1862, in which the *Southfield* was disabled, I hit paydirt. The captain of the *Southfield*, responding to an inquiry of the conduct of the gunboat during the attack, listed each of his guns along with their markings. Perusing the markings of the five 9-inch guns indicated that they were cast before the war had commenced, and therefore did not match the one in the river. However, correspondence before the gunboat was rammed and sunk in early 1864 indicated that either one or two 9-inch Dahlgren guns were headed to the *Southfield* to replace two injured guns. On 30 March 1864, the two guns arrived in Plymouth

(Continued on page 8)



Underwater image of the 9-inch Dahlgren smoothbore in the Pee Dee River

Cannon Investigations (Continued from page 7)

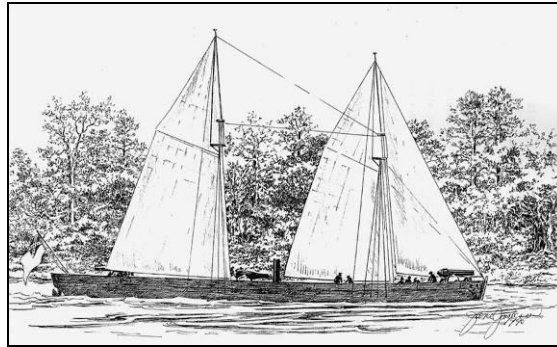
and were immediately placed aboard the gunboat. If the *Pee Dee* Dahlgren gun is from the *Southfield* then it must be one of these two that arrived just in time for its penultimate engagement with the CSS *Albemarle* that destroyed the Union gunboat in the early morning hours of 18 April 1864.

The MRD intends to launch a research foray at the National Archives in Washington, DC, hopefully to answer these questions using Union navy correspondence, as well as

to gather information from Confederate correspondence, relating to the identity of this 9-inch Dahlgren. In the meantime, we are preparing

the necessary material requested by the US General Services Administration, the Federal agency that owns this historic property on behalf

of the American public, to obtain an indefinite loan to display the cannons at the new Florence County Museum. Additionally, we are preparing information to create a Request For Proposal to recover, conserve, and transport the cannons. We hope that this will occur in late summer/early fall 2013. These research activities are funded by a Drs. Bruce & Lee Foundation grant. Look to upcoming issues of the *Quarterly Reporter* for updates on this project. ■



Modern rendering of CSS Pee Dee

Diver Safety

Be Prepared

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

Preparation for scuba diving begins long before you arrive at the dive site. In addition to the skills required to enjoy the dive, it is important to be in good health and prepared to meet the physical demands of the sport.

In reviewing the data DAN Research has compiled on dive accidents, almost one-third of the diving fatalities were attributed to cardiac incidents; approximately half of these incidents occurred in divers 40-59 years old. What is really disturbing is that 60 percent of those fatalities had signs and symptoms they or others around them recognized as cardiac-related before or during the dive, but they continued to

dive anyway.

DAN medics recommend all divers get an annual physical from a physician familiar with diving medicine beginning at age 35 or whenever there is any significant change in health status. An annual physical can help identify heart-related issues and corrective actions to take to reduce the likelihood of experiencing a cardiac-related issue while scuba diving. If you suspect someone is exhibiting signs or symptoms that could indicate a cardiac problem, call the dive or notify the divemaster, trip leader or other authority.

Maintain your gear

Thorough preparation also involves making sure your equipment is

maintained properly and has been inspected annually by a qualified maintenance technician. In addition, when travelling to a dive site it is good to pack a "Save-A-Dive" kit that includes critical replacement parts. The basic "Save-A-Dive" kit typically includes rubber goods likely to break or wear out such as mask and fin straps, "O" rings and a regulator mouthpiece with tie wraps. If any of your equipment requires batteries, replacements are a good addition. Depending upon the type of diving you do, the equipment you use and how remote your travel is, your "Save-A-Dive" kit may need to be more extensive. If you are a technical or rebreather

diver, it would be wise to incorporate redundant replacement parts for any critical or essential equipment.

Preventative precautions

In order to make sure you don't forget to pack everything you need, it is wise to make a comprehensive checklist. This same checklist will also be helpful when repacking at the end of your trip to ensure nothing is left behind. Once you arrive at the dive site, whether it is a shore site or a dive boat, you and your diving partners should follow a regular pre-dive ritual in preparation for each dive. Pre-dive rituals and the use of checklists are essential components in

(Continued on page 9)

Dive Safety (Continued from page 8)

proper dive preparation; they reduce the likelihood of equipment errors that could transform an otherwise enjoyable dive into an emergency situation.

If you are planning a boat dive and you or your diving partners tend to experience seasickness, it is advisable to configure, assemble and check your equipment before the boat ever leaves the dock. You don't want to be preparing your equipment while managing wave action at an offshore dive site.

Part of your pre-dive checklist should include ensuring your dive location has all the necessary emergency and first aid equipment such as emergency communications (cell phone, marine radio, satellite phone, etc.), first aid and emergency oxygen equipment. If you are not bringing first aid equipment to the dive site yourself, you should ask about the availability of this equipment when you travel.

When I board a dive boat or a dock, part of my pre-dive ritual is to take a look at the first aid supplies and emergency oxygen equipment before we depart. The recognized standard of care in pressure-related diving emergencies is the use of 100% oxygen. Emergency oxygen first aid can help resolve symptoms of decompression illness (DCI) but should not be considered treatment. Any diver showing signs or symptoms of DCI should seek appropriate medical attention.

Pre-dive rituals include configuring, assembling and checking your equipment, review of the dive plan and contingencies, review of hand signals (especially communicating breathing gas management signals), and a review of common emergency procedures such as the removal of weights, managing out-of-air emergencies and buddy separation. Unfortunately, there have been lives lost

because divers have been unfamiliar critical emergency skills that require a working knowledge of equipment used by you and your diving partners including with how to jettison weights in an emergency.

Your pre-dive ritual should also include a check of your partner's equipment to make sure everything is in place and working. This means a thorough inspection to ensure breathing gas is on and the regulator is working, the regulator and octopus are configured and functioning properly, the power inflator is attached and working, and emergency signaling equipment (safety sausage, whistle, etc.) is working and in place. Once you've done all of this, you're ready to dive.

Although preparation may not prevent an accident from happening, an effective pre-dive ritual and comprehensive checklist can reduce the likelihood that an otherwise

enjoyable dive will turn into a tragedy. As they say in The Royal Air Force, "Learn from your mistakes, better still, learn from others." Dive safely. ■



Save-A-Dive Kits

Conservation Corner

Conserving a Unique Set of Binoculars from the H.L.Hunley Submarine (1864)

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

During excavation of the Civil War submarine *H.L. Hunley*, archaeologists uncovered skeletal remains of the eight-man crew along with fragile, waterlogged fragments of their clothing and personal

possessions. Among the remains of Lt. George Dixon, the commander of the vessel, were a pair of small brass binoculars. The brass oval shaped binoculars consisted of two main barrels, oculars

(inserted in the barrels) and three sets of lenses. To adjust the barrels and oculars the binoculars had three bridges and a central focus knob made of horn (determined by analysis). The interior of the barrels,

as well as the oculars, were painted in black. The brass body was covered in copper corrosion products. Iron corrosion products were also found in specific places of the binoculars, which

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Hunley Binoculars (Continued from page 9)

indicated that iron pins or clips were holding certain features such as the lenses and the oculars in place.

Upon closer examination, two out of the three sets of lenses seemed to have been affected by weathering clouding the surface. The third set, found in the middle of the barrel, however, was found heavily affected by weathering in which a thick black enamel-like layer formed in the surface.

The biggest concern we had was the flaking paint from the interior of the barrels, since as soon as it dried out it would peel. The other unstable material was the horn. This material could not be allowed to dry in an uncontrolled manner

otherwise, it could crack.

The objective of the treatment was to remove salts from the copper alloy, remove the corrosion products, preserve the painted section in the barrels, and to dry the materials in a safe manner. The binoculars were disassembled by removing the objects from the barrel and removing the lenses. The metal components were cleaned using mechanical tools and later soaked in a bath of a chemical solution that removed most of the corrosion products and salts. The rinsing process took about two months, in warmed deionized water.

For the black paint covering the interior of the

barrels, several trials were done with different types of primers and synthetic waxes to adhere the paint to the metal barrels. Finally we were able to identify a polymer strong enough (Polyethylene Glycol) to hold the paint in place.

The sets of lenses were also cleaned and stored in deionized water for desalination. The decision to remove the weathered layer from one of the sets was made in agreement between archaeologists and conservators. We considered that this layer was obscuring whatever was left of the lenses, and it would keep reacting with the environment making it a risk to keep it on the lens.

Since the focus knob

could not be removed, it was slowly air dried together with the body of the binoculars. This also allowed the preservation of part of the paint from the barrels, after consolidation. After the conservation and drying of the different components, the binoculars were reassembled using conservation grade materials. The binoculars, barrels, and oculars were then coated using an acrylic resin to give the object a more satin finish and for protection. The artifact is currently being stored in acid free foam, acid free tissue, and a polyethylene box in a sealed package with small amount of desiccant. ■



© Friends of the Hunley

Binoculars before conservation



© Friends of the Hunley

Lens after removal of the weathering layer



© Friends of the Hunley

Three sets of lenses during drying



© Friends of the Hunley

Binoculars after conservation



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Paleontologist's Panel

Hobby Diver Winter 2012

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

Happy New Year to all of the hobby divers out there! I hope you all have successful (and safe) dives this year. Speaking of dives, a few of you braved the colder waters in the last quarter of 2012 and came up with some spectacular finds (particularly big shark teeth). It's great to see so many of you reporting, and I appreciate the photos that have been sent in that show off the fossils that were found. A picture really is worth a thousand words, and if you have the ability to send images of your finds with your report, I'd like to see them. Remember that you can save yourself a stamp by downloading the fossil form off the SDAMP

website (details on page 2), filling it out, and then emailing it to me along with pictures or any other information you would like to add.

Well, 2013 will be one of changes at the SC State Museum. We're getting ready to start construction on a major renovation to the Museum, which will include new lobby spaces, a 4D theater, planetarium, and observatory. We'll be open while construction progresses, so come on by and take a look at the other changes that we're making. On the natural history floor, we've added life-sized models of a great white shark and scalloped hammerhead shark. These are up on the wall next to

the model of the megalodon shark, which is a great spot because you can really get a sense of how big a great white is, and at the same time how small it is compared to the megalodon. In the near future, we'll be adding a small exhibit on the evolution of mega-toothed sharks, which will include fossils of at least five different species within the lineage (several of these are dive finds!). We're also planning to use more than 300 sq. ft. of wall space for a big exhibit that will focus on fossil and modern sharks known from South Carolina. Over in our SPA (Specimen Preparation Area) we're putting together a "Fossil Cats of

South Carolina" display, which will include saber-cat, jaguar, American cheetah, and American lion fossils (mostly dive specimens) alongside skulls of modern cats like a South American jaguar and African lion and cheetah.

Lastly, as far as exhibits go, Ashley and I will be discussing the possibility of the State Museum hosting a display case set aside for SDAMP to use as a rotating display to highlight the program by showing off artifacts and fossils recovered by licensed hobby divers. We'll be talking more about this soon and will have updates in future newsletters. ■

**South Carolina State Museum
shark exhibit**



**New life-sized great white shark model
(photo courtesy of the SC State Museum)**

The 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 at the University of South Carolina.

Ashley Deming- Chief Editor

Carl Naylor- Editor



SDAMP
PO Box 12448
Charleston, SC 29422

PHONE:
(843) 762-6105

FAX:
(843) 762-5831

E-MAIL:
sdamp@sc.edu

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

Happy New Year, Everyone! We felt like we ended 2012 on a strong note and are ready to meet 2013 head on. It's shaping up to be a very busy year and we are looking forward to it. We have Artifact Workshops, Wing Nights, conferences, and Field Training Courses. Not to mention two volunteer-based projects this year; the Allendale and the Black River projects. The Allendale Project will run April 29-May 3 and May 6-10. The Black River project will be over a two-week period and most likely take place in August. We will be surveying in Black Mingo Creek Week 1 and recording two ferryboats at Brown's Ferry Week 2. I

will send out more info on these opportunities as it gets a little closer to the time.

At this time, we are interested in contacting anyone who has been diving in Black Mingo Creek and may have run across a shipwreck or structure while diving. This information will help us refine our investigations. If you or someone you know has information regarding Black Mingo Creek, please contact us at sdamp@sc.edu or give us a call at 843-762-6105. We request that you please pinpoint your wreck location on a map for us for clarification.

You may also have noticed that the newsletter

looks a little different. We are now conforming to the new USC publication policies. Our SDAMP website will soon follow suit. We don't want to drive away any of our Clemson or other supporters, so please don't get too riled up at our Gamecock affiliations. We welcome everyone! If you have any suggestions for the website, please let us know.

We hope that you kick off this season with some great SC diving and reporting and that you consider volunteering with us for 2013 projects and events. Get out there and get diving!■



Happy New Year!
From: Ashley Deming
& Carl Naylor

Useful Website Information

For more information on

SDAMP: <http://artsandsciences.sc.edu/sciaa/mrd/sdamp.html>

MRD: http://artsandsciences.sc.edu/sciaa/mrd/mrd_index.html

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

SCIAA publication *Legacy*: <http://artsandsciences.sc.edu/sciaa/legacy.html>



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