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Steve Sellers with an artifact inscribed with the name Kad’yak in Cyrillic, positively identifying the Alaskan shipwreck.

Summer spent cold but fruitful . . . braving the brisk air and frigid waters of Michigan and Alaska
From the Editor:

2004 has been an amazing year for the Maritime Studies Program. Students participated in field schools at Thunder Bay, Michigan and Washington, NC. Several students worked on individual projects and internships over the summer, from Kodiak, Alaska to Sandy Hook, New Jersey. As always, we wish the best of luck to all our fellow classmates who successfully defended their theses this year. In addition, we would also like to welcome the new and diverse MA and PhD candidates to the Maritime Studies Program. We would like to thank all our supporters for their encouragement and continued interest in the Maritime Studies Program.

– Adam Lehman

From the Former Director:

The Maritime Studies Program began the year with a large number of participants in the annual Society for Historical Archaeology meeting in St. Louis and a dedication. On January 15, 2004 a ribbon cutting ceremony opened the new Queen Anne’s Revenge Shipwreck Conservation Laboratory at ECU’s West Campus. Created through a partnership between the ECU Maritime Studies Program and the North Carolina Department of Cultural Resources, the laboratory has enabled the continued investigation of the early eighteenth century site off Beaufort, NC, thought to be the remains of Blackbeard’s ship. Recent support of $240,000 includes funds for student internships.

The Program hosted several visiting speakers: Dr. Sheli Smith of Napa Valley College on the China trade vessel Frolic wrecked in California, Paul Johnston and Paula Johnson of the Smithsonian Institution who shared with students their plans for the museum’s new maritime exhibit that may include material from the ECU Queen Anne’s Revenge Shipwreck Laboratory which they visited, and Dr. James Delgado, director of the Vancouver Maritime Museum and a Maritime Studies Program graduate, who spoke about his discovery in Panama of the early Union submarine Explorer.

Faculty members have been active on several fronts. Brad Rodgers published An Archaeologist’s Manual for Conservation: A Guide to Non-Toxic, Minimal Intervention Artifact Stabilization (Springer) and Larry Babits and Josh Howard (ECU Maritime Studies MA; PhD candidate Ohio State) edited Fortitude and Forbearance: The North Carolina Continental Line in the Revolutionary War, 1775-1783 (NC Office of Archives and History). Articles, book chapters and extensive research reports came from Annalies Corbin and Brad Rodgers, Nathan Richards, Frank Cantelas and myself. Research projects undertaken by faculty and graduate students are noted in this issue.

Our students continue to achieve and win recognition. Coastal Resources Management doctoral student Steve Workman was awarded a prestigious Knauss Fellowship and will spend 2005 in Washington, DC working on Capitol Hill. Several recent MA recipients have entered doctoral programs, including three who have chosen the CRM program at ECU, and several began employment in the public and private sectors. The list includes Russ and Cathy Green at NOAA’s Thunder Bay National Marine Sanctuary, Danielle LaFleur at the Muskegon County Museum, David Krop, conservator at the USS Monitor at the Mariners’ Museum, Kelly Gleason for NOAA in Hawaii, Jeff Bowdoin, historian at the US Coast Guard, Amy Mitchell at the University of West Florida, and there are others noted at the back of this issue in “Where Are They Now.” A large number of those graduates and current students attended and presented at the triennial Maritime Heritage Conference in Norfolk.

Our field school at Thunder Bay was an initial effort to investigate some of the best preserved shipwrecks in the United States. In the cool waters of Lake Huron, students and faculty worked with Sanctuary personnel to document some of the sites.
The fall field semester focus on nearby Washington, NC was an effort to investigate the maritime landscape of an important historic maritime center. The home port for our research vessel R/V Perkins, the town of Washington embraced the project. The Estuarium (a museum of the Tar-Pamlico River estuary) generously hosted a public presentation of the research by students in the class.

Research projects engaged our faculty and students at various sites. Ocracoke village on the Outer Banks was the base for our continued investigation of shipwrecks in the Graveyard of the Atlantic. Supported by a NOAA Ocean Exploration research grant awarded to myself and Frank Cantelas, several doctoral and MA students have received funding to work on the database and remote sensing work in university vessels. Our database now includes over 2,000 shipwrecks in the historical records. NOAA also funded another proposal by Frank and me that was inspired by Evgenia Anichtchenko, from St. Petersburg, Russia. A team spent July in Kodiak, Alaska exploring the remains of a vessel we proved to be the Russian-American Company three-masted barque Kad'yak lost in 1860. The news was featured in the Science section of the New York Times and was a front page story in Alaska, and a special on National Public Radio. Evgenia completed a thesis on Russian-American Company ships.

The Search for the Union submarine USS Alligator lost off Cape Hatteras in 1863 involved Frank Cantelas, myself and six graduate students. We spent a week at sea on the 108-foot Afloat Lab provided by the Office of Naval Research and talented staff from the National Oceanic and Atmospheric Administration. Our partnership was a unique effort and a remarkable learning opportunity for our students. We are grateful to Chief of Naval Research, Rear Admiral Jay Cohen and wife Nancy, who inspired the search, Rear Admiral Jay DeLoach, deputy commander of US submarine forces in the Atlantic, and Daniel Basta, director of NOAA’s National Marine Sanctuaries Program.

ECU graduate students received over $70,000 in financial support from research grants awarded to Frank Cantelas and myself. Our total grant awards from NOAA, the National Science Foundation, and other sources exceeded $200,000. Dr Nancy White, director of the UNC Coastal Studies Institute, generously provided support for two doctoral students.

We continue our efforts to establish with our partner the NC Center for the Advancement of Teaching, a Maritime Studies Research Center at the former Coast Guard station at Ocracoke. An architect was recently selected for the project. The center will be used by all ECU coastal programs. Vice Chancellor for Academic Affairs Jim Smith and Associate VC George Harrell are important catalysts here. We are active in pressing forward the Coastal Studies Institute in Manteo where land has been designated, a board of trustees created, and a search for an architect is underway. Vice Chancellor for Research John Lehman and Institute for Coastal and Marine Resources director Bill Queen work with us on this project. Nancy White’s leadership is moving forward this important project to establish a coastal research and teaching center on Roanoke Island.

We welcome new ECU Chancellor Steve Ballard and wife Nancy to Greenville. Chancellor Ballard attended the fall reception for new Maritime Studies students with Jim Smith, interim Vice Chancellor for Academic Affairs and Maritime Studies Program director Tim Runyan.

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FROM THE DIRECTOR, continued

My nine years as director of the Maritime Studies program was punctuated with incoming classes, new departures. We revised the MA, added the PhD in Coastal Resources Management, acquired the 65-foot R/V Perkins, directed the completion of dozens of theses, won some of the most competitive grants awarded in the field, began initiatives for a maritime research center, a coastal studies center, developed agreements with the National Park Service at St. John, USVI, the Naval Historical Center, the Mariners’ Museum, the NC Department of Cultural Resources to create the Queen Anne’s Revenge Conservation Laboratory, and even remodeled Eller House to make a computer lab out of the old garage. Rewards have included an operating budget increase thanks to Dean Keats Sparrow, a new faculty position, and new equipment including a Remote Operated Vehicle acquired this year. Most rewarding was work with colleagues, the annual arrival of new students and the many friends and supporters gained along the way. Only a few friends can be mentioned here, but heartfelt thanks to Harry Stetser, Wally Van Horn and Tom Rassau for their volunteer efforts on the R/V Perkins, Bren and Tim Cheatham for their continued support in many forms including the creation of a trust for an endowed chair in Maritime Studies, Matt Landers for helping our graduate students through a generously endowed fellowship, the Perkins Trust, Eddie Smith at Grady-White Boats, Anna McCann and Tom Taggergert, Milton Fields, Chan Zucker, Bill Still, and I could continue. Founded in 1981, the maritime program will soon celebrate its 25th anniversary, thanks to our many friends who have helped us along the way. Only a few friends can be mentioned here, but heartfelt thanks to Harry Stetser, Wally Van Horn and Tom Rassau for their volunteer efforts on the R/V Perkins, Bren and Jim Cheatham for their continued support in many forms including the creation of a trust for an endowed chair in Maritime Studies, Matt Landers for helping our graduate students through a generously endowed fellowship, the Perkins Trust, Eddie Smith at Grady-White Boats, Anna McCann and Bob Taggert, Milton Fields, Chan Zucker, Bill Still, and I could continue. Founded in 1981, the maritime program will soon celebrate its 25th anniversary, thanks to our many friends who have helped us along the way.

– Dr. Timothy Runyan

From the New Director:

A photo titled “a tough act to follow” appeared on my door this fall. Those words were quite prophetic as the helm came under my hand late in the year. Bill and Tim are a tough act to follow. As anyone who has come on deck and stood up to the tiller in drizzly conditions knows, it’s not all that fun. So it is now. The ship is still on course; only two directors over 21 years testifies to that. There won’t be any major changes as we continue what we do best; giving students an outstanding practical education in maritime history and archaeology.

At this early stage, much of the duty seems reactive but we are looking forward. The summer field school will examine the Civil War vessel USS Otsego in the Roanoke River’s dark waters. The fall field semester will examine sites in Wisconsin and Michigan with better visibility but much colder water. Annalies Corbin will be on leave and a one year replacement is currently being sought. In the spring, Paul Fontenoy will lead a class recording Currituck Sound’s small watercraft.

The backlog of reports generated will start coming out as students edit them for inclusion in our publication series. On tap are the Pamlico and Pungo surveys, Anguilla, Richmond waterfront, Castle Island, Monohansett and Tranter’s Creek. Eventually, we hope to include them on the web site. Publication is covered by the field school “lab fees” so that at least one or two students are continually working on reports that will give them a publication for their CV’s.

As this year moves on, there will undoubtedly be subtle changes, but anyone from the “early days” will probably see familiar people and activity. More recent graduates will not notice anything different. As with Tim and Bill, my office will be open, but I won’t be the curmudgeonly Bill or the socially adept Tim, you can’t improve on them. My own situation will develop as did theirs.

– Dr. Larry Babits

East Carolina Tourism Conference

In October of 2004, Dr. Tim Runyan asked his Legal and Professional Issues class to consider a presentation for the East Carolina University Tourism Conference held at the Greenville Convention Center. Adam Morrisette, Tiffany Pecoraro, and Jodi Carpenter agreed and gave a powerpoint presentation on the marketability of maritime cultural heritage in eastern North Carolina. The paper, entitled Maritime Heritage and Tourism in Eastern North Carolina, identified the existing maritime-related cultural resources in coastal and inland areas of the state. The object was to tie maritime heritage sites within proposed Maritime Heritage Corridors.

According to the Department of Commerce for North Carolina, over 49 million tourists visited the state in 2003. Of that 49 million, 7.8% of the visitors’ destinations were to historic sites and museums. Last year state tourism statistics show 89% of all tourist travel in North Carolina was by car, truck, or camper/RV. This demonstrates the need to market to tourists using these modes of travel. The class used this information to direct their research.

A study was proposed to find innovative ways to present the state’s maritime cultural heritage, identify and target specific interest groups to broaden the tourist base, and develop educational opportuni-
ties that would further public attention. We provided examples of how the data generated from this study will be used to develop a marketing program to promote growth in the state’s economy based on maritime cultural heritage tourism. Tourism can provide avenues for public support and funding for conservation and research in archaeology and history. The abundance of North Carolina’s coastal and inland maritime heritage resources can be used to provide the opportunity to expand into this growing market. As a result of interest generated from this presentation, a journal article is planned for publication.

This project was a worthwhile endeavor. It required research, teamwork, writing and editing, the preparation of a shared powerpoint presentation, and a public presentation to a packed room of tourism professionals.

– Adam Morrisette, Tiffany Pecoraro, and Jodi Carpenter

Fellowships Awards and Fall Graduates

The December Graduation and Awards Ceremony recognized new MA recipients and those awarded 2004-05 fellowships. Graduates present at the ceremony included Jake Betts and Heather White (far right) and Evgenia Anichtchenko (second from left). Not present was Eleftheria Mantzouka. Adam Lehman, Jennifer Joyner (not present), Liz Whitfield and Erica Seltzer (third and fourth from right) received the Lokken Scholarship. The Landers Fellowship was awarded to Claire Dappert (third from left) and Franklin Price (far left) who also received the Murray Fellowship.

CRM/Maritimer Selected Knauss Sea Grant Fellow

Steve Workman, ECU’s Maritime Studies Program, and a current PhD student in the Coastal Resources Management Program, was recently named a 2005 recipient of the Dean John A. Knauss Marine Policy Fellowship. Sponsored by NOAA and the National Sea Grant College Program, the Knauss Marine Policy Fellowships provide unique educational experiences to students enrolled in graduate programs in fields related to ocean, coastal and Great Lakes resources and in the national policy decisions affecting those resources. Through a competitive application process conducted by the state Sea Grant programs and the National Sea Grant College Program office, outstanding graduate students are selected and matched with hosts in legislative or executive branch offices located in the Washington, D.C. area.

Starting in January 2005, Workman (shown above in dive gear) will serve for a year on the staff of Congressman Wayne Gilchrest, a Republican representing Maryland’s First Congressional District located on Maryland’s Eastern Shore. Congressman Gilchrest sits on the House Resources, Science, and Transportation & Infrastructure Committees. Workman began his graduate studies at ECU after retiring from the Navy as a commander in 2000. His wife, Terri Workman, is an Associate Vice Chancellor in ECU’s Division of Health Sciences. They have two sons.

Three additional North Carolina grad students, two from UNC-Chapel Hall and one from Duke University, were selected as Knauss Sea Grant Fellows for 2005 and will serve in executive branch positions. Another ECU CRM doctoral student, Bo Dame, was selected as a Knauss Sea Grant Fellow last year, and is presently finishing his year on the Republican staff of the House Resources Subcommittee on Fisheries Conservation, Wildlife and Oceans. For more information about the Knauss Marine Policy Fellowships, check out the NOAA/National Sea Grant website at: http://www.seagrant.noaa.gov/knauss/knauss.html.

– Jeff Bowdoin
Mapping the Great Lakes Bulk Steamer *Monohansett*

This summer, I was one of the six students from the Program in Maritime Studies who traveled to the Thunder Bay National Marine Sanctuary and Underwater Preserve in Alpena, Michigan. The purpose of our trip was to document the Great Lakes Bulk freighter *Monohansett*, one of more than one hundred vessels contained within the sanctuary. Led by Dr. Brad Rodgers (principal investigator) and Nathan Richards (co-principal investigator), the crew of eleven students and assistants gathered their gear and archaeological equipment from storage in Greenville, NC, and with boats in tow, headed off towards Lake Huron. The drudgery of the two-day cross country trek was alleviated by a hospitable overnight at the Ohio home of ECU professor Dr. Annalies Corbin. The group arrived in Alpena the following evening where the group quickly settled into our temporary residences - town homes typically reserved for students of the local community college.

The group spent the first day at the National Oceanographic and Atmospheric Administration building in Alpena, where they were greeted by several staff, a number of whom are graduates of the SCU Maritime Studies Program. The NOAA staff included; Jeff Gray – Director of the Sanctuary, Wayne Lusardi – Archaeologist, Cathy Green – Educational Coordinator and Russ Green – Archaeologist. After our introductions and welcoming, we unloaded the gear into the storage facilities at the NOAA building, and launched the two research boats. Students then split into three research teams, which for the duration of the field school, took turns alternating tasks so as to ensure that each member of the field school had an equal opportunity to participate in the three major tasks at hand; the documentation of the *Monohansett*, the documentation of the fishing vessel *Katherine V*, and the installation of the Thunder Bay National Marine Sanctuary and Underwater Preserve exhibit at the NOAA building.

“Days were long and tiring but the results were well worth the effort.”

Among the tasks at hand was the documentation of the fishing vessel *Katherine V*, housed in an outside shed at the Jesse Besser Museum. The vessel is a unique example of vernacular fishing craft of the Great Lakes. The vessel has a tin deck-house with large bay doors at port, starboard and stern to facilitate paying-out and reeling-in fishing nets. A full length iron keel-shoe protected the hull from ice and severe groundings, and the completely enclosed deckhouse enabled those working the ship to operate in extreme conditions. Both characteristics intimate the harsh conditions which can be experienced on the Lake. Students created a scaled drawing of the vessel, illustrating the ship’s lines, a plan view of the deck and appurtenant features, and a detail of the stern shaft and rudder assembly. The recording of the *Katherine V* served to be a terrific preliminary exercise, in which the students were able to practice and hone techniques for map-
ping that they would later employ on the less predictable site of the Monohansett. The map was later given to the Jesse Besser Museum, and was well received by several representatives before the students departed from Alpena.

Student tasks involved assisting with the installation of the Thunder Bay National Marine Sanctuary and Underwater Preserve exhibit. This was an opportunity for students to participate in the creation of a unique museum exhibit dedicated to the natural and cultural resources of the Sanctuary and Lake Huron. Students assisted with the set-up of several elements of the exhibit including artifact displays, and the installation of a large fresh water fish tank highlighting the many marine species that can be found in the Lake. The exhibit was a success. It was received by the Governor of Michigan in late June during her stop in Alpena to promote regional tourism.

The primary task of the field school was mapping the Great Lakes bulk freighter Monohansett. Built in 1872 by Linn and Craig Shipbuilders of Gilbralter, Michigan, the Monohansett was built of wood and driven by a single four-blade propeller under steam power. At one hundred sixty-five feet long, a thirty-two foot beam and a nine foot draft, the Monohansett was a large vessel, built for the lucrative Great Lake’s bulk freight trade. For many years she plied the waters of Lake Huron, making port in Alpena numerous times, until on November 23rd, 1907 when she burned while inbound to Alpena. She is now located about 8 miles from Alpena and just 500 feet from Thunder Bay Island’s southern shore. She lies in a mere twenty feet of crystalline water. The large boiler, now located off the port stern of the wreck, rose to within ten feet of the surface. The large propeller was within fifteen feet of the surface. It scoured the limestone lake-bed when the ship had dragged to a halt.

Two of ECU’s twenty-four foot research boats were brought to Alpena for the field work: the center console Sea-Hawk and the Carolina Skiff. The two boats were moored on site during each dive day, and ferried the groups and gear between Thunder Bay Island and the NOAA dock in Alpena. Divers conducted their field work on surface-supply scuba and conventional air cylinders. In the cold 40 degree water of Lake Huron, divers donned heavy 7mm john and jacket wetsuits, others opted to wear dry-suits or semi-dry suits to keep them warm for the long two-hour dive times. The teams conducted baseline offset and trilateration measurements to plot the wreckage. After each day of diving, the dive team rallied around a large conference table in the basement of the NOAA building to plot their data and create a scaled map of the wreck site. Days were long and tiring but the results were well worth the effort. Before their departure, the students and staff of the Maritime Studies Program were able to present the staff of the Thunder Bay National Marine Sanctuary and Underwater Preserve with a map of the Monohansett wreck site.

Despite its vast size and ease of accessibility, the Monohansett is remarkably well preserved. Due to natural factors: Lake Huron’s cold temperatures and fresh water. These factors create an environment well suited to archaeological preservation. The sites location of the vessel in a relatively well protected body of water along Thunder Bay Island’s southern lee, protect it from severe weather. Ideal environmental conditions alone, however, cannot protect all wreck sites, and if it were not for the monitoring work performed by the NOAA office at the Thunder Bay National Marine Sanctuary and Underwater Preserve, the condition of the Monohansett and other wrecks, might not be what it is today. Among the many cultural resource management tasks the office performs is the maintenance of on site mooring buoys to prevent destructive anchoring practices while encouraging cultural tourism in the area.

This field school was a unique and mutually beneficial partnering of the NOAA office at the Thunder Bay National Marine Sanctuary and Underwater Preserve and the Program in Maritime Studies at East Carolina University. Despite chilly Michigan weather and frigid lake temperatures, this summer’s field school was a great success. A special thanks is extended to the people of the NOAA office at Thunder Bay, especially to Russ and Cathy Green, Pat Labadie, Jeff Gray and Wayne Lusardi for their tireless support in our endeavors. We look forward to our return to Thunder Bay in the summer of 2005.

– Matthew De Felice

Nathan Richards inspecting measurements on a dive slate before returning to the surface of Lake Huron.
In June 2004, a team of archaeologists and divers conducted a two-week fieldwork project to document several shipwrecks in the Thunder Bay National Marine Sanctuary and Underwater Preserve (TBNMS&UP). NOAA’s Office of Ocean Exploration provided funding for the project that included participants from TBNMS&UP, East Carolina University, and NOAA’s Maritime Heritage Program Archaeology Center (MAC). The sanctuary was established in 2000 on Lake Huron and maintains stewardship over one of the nation’s most historically significant collection of shipwrecks. Located in the northeast corner of Michigan’s lower peninsula, the 448 square mile Sanctuary contains 40 known historic shipwrecks. Archival research indicates that over 150 sites await discovery in and around the Sanctuary. Well preserved by Lake Huron’s cold, fresh water, the shipwrecks of Thunder Bay are virtual time capsules, providing a tangible link to our maritime past. The sanctuary seeks to ensure that divers and non-divers of all ages share equally in the discovery, exploration and preservation of Thunder Bay’s historic shipwrecks.

Russ Green, with TBNMS&UP, was the Principal Investigator and organized the field project. Other participants included Tane Casserley, an underwater archaeologist with NOAA’s Maritime Archaeology Center, Frank Cantelas with the ECU Maritime Studies Program, Steve Sellers and Mark Keusenkothen from the ECU Office of Diving and Water Safety, and Joe Hoyt, an incoming Maritime Studies student and the Rolex Scholar for the Our World Underwater Scholarship Society.

Most of the project was spent documenting two schooners; the 136-foot schooner *E. B. Allen*, built 1864, and an unidentified vessel designated Target 7 that was located by an Institute for Exploration expedition in 2002. The data collected supplements ROV footage obtained in 2003 and will be used to conduct archaeological analysis, make informed management decisions and create interpretive materials.

*E. B. Allen*, lost in a collision in 1871, rests in 110 feet of water and is remarkably intact. There is evidence of collision damage on the port side amidships that caused her to sink. The pivoting bowsprit that marks her as a canaler built for the Welland Canal rest on the bottom near the bow. The windlass and anchor chains on the bow are one of the most distinctive features of the wreck.

Target 7 is a newly discovered shipwreck and, at 150 feet, has never been visited by divers. This wooden schooner appears similar to the *E. B. Allen*, though less intact. A large number of undisturbed rigging artifacts litter the deck and more artifacts are certainly contained in the hull. The number of artifacts is extraordinary. This shipwreck reflects the condition that all of the wrecks in the sanctuary once enjoyed. The stark contrast of items still on this wreck compared to others in the area is a testament of how artifacts are treated as souvenirs by divers. It is unusual for archaeologists to find a site before others collect material. There have been no divers on Target 7 until the
archaeological investigations this summer. The sanctuary may decide to release the location to the public after carefully documenting the site and producing a site plan. If this is done, research completed on the wreck will help monitor diver impact and gauge the progression of artifact loss.

The documentation strategy employed on both the E. B. Allen and Target 7 was very effective. Patrick Labadie, the sanctuary historian, created a rough deck plan of both vessels based on historical sources and by reviewing video footage obtained with an ROV in 2003. From this he developed a list of key features needed to create an accurate site plan. A baseline was laid along the centerline of each vessel in order to make trilateration and offset measurements. Two buddy teams and one safety diver were able to collect an enormous amount of information using this approach. To supplement measurements the team also did photo mosaics of the wrecks. A diver propulsion vehicle was rigged so that the operator could tow a second diver shooting video at a constant depth. Still images captured from the video were stitched together to create a photo mosaic. It is an arduous but very effective process. The sanctuary intends to create a site plan and analyze each wreck, and eventually produce slates to guide visiting divers that can guide them around interesting features and provide some background history. This will enhance their experience in the preserve.

In addition to documenting the E. B. Allen and Target 7, we also examined other wrecks in the sanctuary as possible candidates for future projects. These included the 235-foot Montana and the 269-foot Grecian. The side-wheel steamship Montana was built in 1872 at Port Huron for the Western Transportation Company of Buffalo, New York. She burned and sank in 70 feet of water on Sunday, September 6, 1914. Most of the superstructure burned away during the fire and the lower hull is collapsed outward on the bottom. This creates a dramatic profile of her huge double steeple compound steam engine and fire tube boiler.

Grecian was a larger steel-hulled steamship that, like so many other vessels in the Thunder Bay region, sank after a collision with another vessel. This wreck is at 105 feet. However, since the hull is intact the upper deck is just over 70 feet below the surface. Eventually these wrecks may get the same treatment as the E. B. Allen and Target 7. Each wreck in the study is chosen because it is typically representative of a particular shipbuilding style or important period in maritime history.

The Thunder Bay National Marine Sanctuary and Underwater Preserve is a unique underwater park. The sanctuary caters to divers and non-divers. Those interested in learning more about shipwrecks and Great Lakes maritime history will find a museum located at the sanctuary’s headquarters in Alpena. An extensive research collection on the Great Lakes can be found in the C. Patrick Labadie Collection in the Alpena Public Library.

— Joe Hoyt

In early September 2004, a team of six Maritime Studies graduate students led by Drs. Annalies Corbin and Nathan Richards began a comprehensive investigation concerning the maritime heritage of Washington, North Carolina. The multifaceted study consisted of several research objectives highlighted by a full Phase III archaeological excavation of a submerged 19th century schooner near the confluence of Tranters Creek and the Tar River. In addition, the historical and archaeological survey also involved a wide-ranging remote sensing component complemented by numerous individual underwater and terrestrial site assessments. Washington, NC has a rich historical background steeped in maritime activity which fostered its growth and enabled its development, but much of what occurred along its nearby waterways remains undocumented. By merging the individual research components of this study into a comprehensive whole, a more complete representation of the region’s maritime culture can be attained, and hopefully more clearly understood.

Of the numerous shipwrecks in the Washington area, the Tranters Creek site was chosen as a field school project for several reasons. The wreck is readily accessible and had been briefly investigated several years prior to this study allowing comparisons to be made about its current condition and rate of deterioration. Additionally, the vessel is believed to have been abandoned on site, thereby suggesting a limited amount of material culture would remain.

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This conclusion lessened the potential for extensive artifact conservation at the end of a full Phase III excavation and made the site more approachable. A thorough examination of the centerboard schooner’s construction will contribute to a better understanding 19th century North Carolina wooden sailing craft. The shipwreck also provided students with an excellent opportunity to hone their underwater archaeological survey and mapping skills in a near zero visibility environment.

While the Tranters Creek shipwreck excavation was an integral part of the overall project, it was not the only component in which Maritime graduate students participated. Team members also utilized a shallow draft research vessel to conduct side scan sonar remote sensing sweeps of the inland waters surrounding Washington. During these operations, previously undocumented archaeological sites were rediscovered and evaluated. Each student was tasked with conducting individual site assessment surveys of both underwater and terrestrial significance. Examples included the remains of a Colonial-era crib wharf, plank-built plantation flats, an isolated creekside chimney, abandoned underwater boilers, derelict timber corrals, and several submerged wrecks.

The significance and diversity of these sites provide additional weight to an already important regional maritime reputation, and their analyses are as varied as the sites themselves. The student reports are important pieces to an expanding cultural puzzle and are filled with systematic visual inspection studies, interpretations of remote sensing data, digital photographic evidence, extensive mapping, environmental information, historical research, appraisals of maritime heritage significance, and recommendations for future archaeological endeavors. The quality of each individual effort was surpassed only by the formation of an expansive cultural framework which has greatly increased the potential for regional historical awareness and understanding.

– Chris McCabe

Re-Enactment of The Battle of Cowpens

Fresh from sailing aboard the Niagara in Lake Erie, Matt Brenckle and Larry Babits picked up Josh Howard in Greenville and drove to Chesnee, SC. We were immediately thrust into interpretive scenarios dealing with the Battle of Cowpens for a History Channel Battlefield Detectives segment. Granada Films had made contact with us early in the year. The Cowpens National Park Service staff was enthusiastic about learning more about the battle while obtaining free publicity that might counteract Mel Gibson’s Patriot imagery.

There were several research questions about soil conditions and troop movements, artifact survival and the like. These were generally answered fairly quickly using reenactors, including Josh and Matt. Limited archaeological testing using South Carolina’s Institute of Archaeology and Anthropology’s ground penetrating radar and metal detectors found very few artifacts, but three bullets did answer questions about troop positions.

Then, as with any TV program, there were interpretive vignettes. The about face of the “retreating” Americans was recreated as a test of how long it took charging Scottish Highlanders to cover the ground between their firing position and the original American position. Attacking British dragoons had their opportunity but could not intimidate a stalwart Matt Brenckle in a cameo role as a plodding militiaman.

Following the recreations, a series of tests, firing rifles and muskets at watermelons and slabs of beef, were done. These rather gory, ultra slow motion film spots went a long way toward showing why the Highlanders were seized with an “unaccountable” panic when the Americans fired into their faces at less than fifteen yards. The ignition sequencing of the flintlocks was instructive when seen in such slow motion. Watching bullets coming right at you, thanks to modern technology, was disconcerting.

After a week’s work in South Carolina, the trio returned to Greenville. As Josh later pointed out, “Where else could you get paid for blowing up watermelons?”

– Dr. Larry Babits

“Banastre Tarleton” and Matt Brenckle “come to blows” at last!
This summer I returned to the SUNY, Stony Brook Field School in underwater archaeology as a staff assistant and Divemaster. I rejoined Principal Investigator and field school Director Daria Merwin of Stony Brook’s IDPAS doctoral program. The field school, “10,000 Years Beneath New York Harbor and the Hudson River,” visited Croton Bay in Croton-on-Hudson, NY, and revisited offshore site east of Sandy Hook, NJ. In this final field season the goal remained the same - to search for evidence of the area’s maritime prehistory.

Ten students from various institutions and programs were selected for the field school, and though most students were from Stony Brook University of the SUNY university system, students from Arizona State University, Florida State University and the University of California also attended. East Carolina University’s Program in Maritime Studies was further represented, when Franklin H. Price, a second year “maritim” volunteered his services for a few days in mid-August.

The first three weeks of the project were conducted in the shallow, murky waters of Croton Park, near the mouth of the Croton River about thirty miles north of Manhattan. In the past several years stone tool artifacts have been recovered from the shore in increasing numbers, most artifacts are turned into the Parks Office where the can be cared for. Officials from the park, aware of the significance of the finds, contacted Ms. Merwin to enlist her expertise on the areas submerged prehistory; such was the genesis of the Croton Point project.

The first week of the investigation was dedicated to lectures on safety, lithic culture and regional prehistory. The first week concluded with diver checkouts and the establishment of a baseline and transect grid on site. During weeks two and three, archaeological divers took to the water for a phase one survey. The survey area was approximately 200’x 1000’ and water depth varied from on shore to just under six feet. Survey methods prescribed for the site were to conduct “shovel” test-pits at ten foot intervals nearly 3-5 feet below the low waterline, and to map five-meter grid transects above the low waterline. Students gained experience in traditional archaeological mapping techniques, as well as the conditions specific to working in an inundated site.

During weeks four through six, the field school returned to New Jersey near the site of the 2003 field season. In the early 1990s, offshore dredging activities for beach replenishment had deposited many lithic artifacts onshore. Beachcombers had spotted these artifacts and turned them over to State Park officials at Sandy Hook, NJ. Merwin’s research has been exploring the offshore origins of these artifacts.

Much to the disappointment of the staff and students, this year’s offshore field investigation did not produce much in the way of cultural material; nonetheless, the field school was a great success. Challenging environmental conditions and unique research focuses allowed the students participating in this summer season to gain legitimate experience in underwater archaeology. Students gained practical knowledge of surveying, data recording, artifact processing, excavation procedures and a wealth of other knowledge.

Professor Merwin presented some of her findings September 29-30 at the Greater New York’s Ocean Future Symposium held at the Explorers Club, New York. It was organized by NOAA’s National Marine Sanctuaries Program.

Our thanks to Professor Merwin. The value of such experience is incalculable. ±

– Matthew De Felice

“\textit{The value of such experience is incalculable.}”
Hunt for the USS Alligator

Late this summer the Maritime Studies Program was granted the momentous opportunity of participating in the 2004 Hunt for the USS Alligator, in conjunction with the Office of Naval Research (ONR) and the National Oceanic and Atmospheric Administration (NOAA). Various faculty, staff, and students were invited to join the crew aboard the naval vessel YP-679, also called the Afloat Lab, for remote sensing survey work that occurred August 22-30. ECU participants were Dr. Tim Runyan, Frank Cantelas, Sam Blake, Valerie Grussing, Melissa Madrigal, Chris McCabe, Franklin Price, and Steve Workman.

The USS Alligator was the Navy's first submarine, though it never had a chance to prove itself in battle. Launched in 1862, the 47-foot-long green submarine was cut loose from the vessel towing it to Charleston when they encountered a fierce storm off Cape Hatteras in 1863. How far the submarine drifted before it sank is a mystery, and its location has never been discovered. Research into the loss of the Alligator was begun in 2002 by NOAA and Naval personnel, as well as U.S. Naval Academy professors and midshipmen, who explored an exhaustive range of sources to determine the best place to survey. The first search for the vessel was conducted in 2003 by ONR and NOAA. Participation of the Maritime Studies Program was solicited this year because of the strong collaborative relationship maintained with NOAA. Our involvement in the project proved mutually beneficial.

The survey expedition was truly a joint effort. The research vessel and crew were provided by ONR. Supporters of the project who were in attendance included RADM Jay Cohen, Chief of Naval Research, RADM Jay DeLoach, Deputy Commander, Submarine Fleet Atlantic, Dan Basta, Director of NOAA’s National Marine Sanctuaries Program (NMSP), and Dr. John Broadwater, Director of NOAA’s Maritime Heritage Program. The Chief Scientist was Mike Overfield, a Maritime Studies alumnus and Maritime Archaeologist with NMSP.

The Alligator project was organized by NOAA personnel, including Catherine Marzin, National Partnerships Coordinator for NMSP, and Michiko Martin, National Education Coordinator. Other NOAA personnel performed such functions as media coordination, data analysis, and dive operations. Other participants included Ivar Babb, Director of the National Undersea Research Center at the University of Connecticut, Dwight Coleman, Director of Research at the Institute for Exploration at Mystic Aquarium, as well as a teacher and student from Washington, DC. A crew filming for the Discovery Science Channel also joined us for part of the week. The Maritime Studies program was able to contribute not only the time and effort of researchers and students, but also the use of remote sensing equipment and an ROV.

Our duties as students were diverse. We were called upon to assist with deployment and retrieval of the remote sensing equipment, and to take shifts monitoring the output screens and logging targets. The command center of the YP boasts an impressive setup, with two massive flat panel moni-

“Participation of the Maritime Studies Program was solicited this year because of the strong collaborative relationship maintained with NOAA.”
tors mounted from the ceiling. Some of us were even enlisted in the pilot house for vessel operations far into the night.

Educational outreach components of the project include K-12 curriculum materials, plans for live web casts into classrooms, a website (http://www.sanctuaries.noaa.gov/alligator), and a press day during the survey week, in which we also participated. On this day the YP was open for public tours, where some of us took shifts in the command center explaining the readouts from the remote sensing equipment. In the afternoon there was a marathon presentation, consisting of lectures on the history of the Alligator, the associated research process, details of the remote sensing survey, and images of target hits. There was a great deal of public interest, and visitors seemed highly satisfied with the effort made to inform them about the project.

We are still examining the data gathered, but it does not appear that the Alligator was discovered this year. The project was nonetheless productive for all parties involved, and fostered many promising relationships. Involvement of the Maritime Studies Program in the project will hopefully continue, as it is an excellent opportunity for student professional development.

– Valerie Grussing

During the press day, the YP-679 Afloat Lab was open for public tours. Visitors could view the remote sensing equipment on the fantail, tour the pilot house, and see examples of target hits on the monitors in the command center.

Above, in the command center of the YP-679, Dwight Coleman, Frank Cantelas, and Mike Overfield monitor the remote sensing output screens and the progress of the YP along its set course.

At left, Frank Cantelas and crew of YP-679 deploy the side-scan sonar. Crew members include electrical and mechanical engineers who serve as working crew, but also address technical issues when they arise.
The Kad’yak: A Russian-American Company Shipwreck in Alaska

In July, faculty and students traveled to Kodiak, Alaska, to conduct an underwater survey of a mid-nineteenth century shipwreck. It was discovered in 2003 and believed to be the Russian-American Company vessel Kad’yak. This project is the result of a two year effort to raise funds to find and survey the site that initially started as research paper by maritime student Evgenia Anichtchenko. NOAA awarded a grant for the project in early 2004, about the same time the State of Alaska invited Timothy Runyan and Frank Cantelas to participate in a shipwreck manager’s workshop held in Anchorage at the end of February. The workshop included state and federal agencies with management responsibilities for submerged cultural resources and included presentations by ECU and NOAA’s Ocean Exploration Program and National Marine Sanctuary Program. The Lieutenant governor of Alaska attended the workshop.

While in Alaska Timothy Runyan, Frank Cantelas, and Evgenia Anichtchenko (ECU), Jeremy Weirich (NOAA Ocean Exploration), and Jeff Gray (Director, Thunder Bay National Marine Sanctuary and ECU alumnus) made a short trip to visit Kodiak. They met with individuals from several organizations who support the project including the Kodiak Historical Society, which operates the Baranov Museum, the Alutiiq Museum and Archaeological Repository, the Ouzinkie Tribal Council, the Ouzinkie Native Corporation, and the Kodiak Maritime Museum. The visitors gave talks in an open public forum on underwater archaeology and shipwreck management that attracted over 100 people. The highlight of the visit was the opportunity to make a dive on the Kad’yak site. The water temperature was 37 degrees. The dive was arranged with local dive shop owner Verlin Pherson and charter boat operator Marty Owen.

Over the past two years Evgenia Anichtchenko conducted extensive historical research on the Kad’yak in the National Archives in Washington, DC, city archives in Lübeck, Germany, and in the Russian Naval Archives in St. Petersburg. The Kad’yak was launched in 1851 at the Hans Jacob Albrecht Meyer shipyard in Lübeck, Germany. Built for the Russian-American Company, the vessel was destined to sail around Cape Horn and spend its career in the north Pacific. The Kad’yak served in Alaska for nine years before sinking near Kodiak Island.

Alaska has an extensive coast line stretching 44,000 miles and includes many bays, harbors and islands. The Russians who colonized the region established a maritime economy based on moving supplies and trade goods by water instead of over land. The Kad’yak was part of the Russian-American Company fleet.

Kad’yak was built as a bark-rigged sailing vessel carrying three masts and measured roughly 130 feet long by 30 feet wide with a 20 foot depth of hold. She sailed in the Russian-American Company fleet in the final years before the United States purchase of Alaska in 1867.

On her final voyage, the Kad’yak was transporting a cargo of ice to San Francisco, where the Russian American Company enjoyed a profitable trade with gold-seekers. On putting to sea from Kodiak harbor on March 30 with 356 tons of
The vessel hit an uncharted submerged rock and immediately filled with water. The captain, a Creole named Illarion Arkhimandritov, the officers, and crew took to the ship’s boats. The Kad’yaq, kept afloat for three days by her cargo of ice, drifted towards Spruce Island and sank in 80 feet of water in Icon Bay on April 2, 1860. The mast of the ship protruded above the water with a single yard forming the shape of a cross, visible from the shrine of Father Herman (later St. Herman) on the shore of Spruce Island. According to legend, the Kad’yaq’s captain failed to fulfill his promise to venerate relics of this famous monk on Spruce Island. The circumstances of the Kad’yaq’s wrecking made her an object of religious importance, and thus she entered the local lore and legend of the island. Captain Arkhimandritov was later commissioned to chart the coast of Spruce Island. His notes with the compass bearings for the protruding mast of the Kad’yaq allowed Dr. Bradley Stevens, of the NOAA Kodiak Fisheries Research Center, to lead an expedition that discovered the shipwreck in July 2003 before Father Herman’s chapel.

In July, researchers led by Frank Cantelas, returned to Alaska to complete a pre-disturbance survey of the Kad’yaq shipwreck site. The expedition included Timothy Runyan along with students Evgenia Anichtchenko and Jason Rogers and diving safety officer Steve Sellers all from ECU, Tane Casserley from NOAA’s Maritime Archaeology Center, Brad Stevens, Pete Cummiskey and Scott Van Sant from the NOAA Kodiak Fisheries Research Center, Alaska’s State Archaeologist Dave McMahan and a number of volunteers who assisted as divers or provided surface support. Cantelas and Runyan were awarded a $50,000 grant through the highly competitive NOAA grants Ocean Exploration Program. The National Science Foundation provided over $50,000 in support. Verlin Pherson, his wife Sandy, and Lon White filled our scuba tanks and provided all the gear we left in Greenville. The people from ECU and some of the volunteers had the great fortune of living and working on the Big Valley, a 92-foot commercial king crab boat, captained by Gary Edwards and crewed by Brice and Jesse Kidd. We met Gary on the trip to Kodiak in February 2004 and chartered his boat with support from the National Science Foundation. He proved to be a remarkable host and helped fabricate equipment on the spot so that we could accomplish many of our objectives. By far the best thing about living aboard the Big Valley was the camaraderie we enjoyed in the galley while eating Jesse’s wonderful meals.

Today the Kad’yaq lies in 80 feet of water on a sand and rocky bottom between two submerged ridges. The site was mapped along with considerable video and photographic documentation. Due to wood eating marine organisms and stormy seas, the vessel has been considerably reduced from its original form. A portion of the wooden hull remains only because it was buried under the sand. It includes floors, ceiling planking and hull planking sheathed in Muntz metal to prevent fouling by marine organisms. The hull remains, along with the location of the anchors and windlass, reveal the orientation of the ship.

It often seems to happen that new discoveries are made near the end of projects. This was the case when an unknown portion of the Kad’yaq was found with only two days remaining. Several bronze gudgeons and pintles marked the new area along with encrusted chain and large metal concretions. No wooden remains were found but the assembly appears to be the remains of the stern including the rudder and steering gear. This new area, quite a distance from the main site, was mapped and documented on the last field day.

Lt. Jeremy Weirich, with the Office of Ocean Exploration, arranged for the NOAA ship Rainier to complete a multibeam sonar survey of Icon Bay including the site area. While in Kodiak we met with LCDR Dave Neander, Executive Officer of the Rainier, to discuss the boundaries and hazards of the survey area. Icon Bay is full of submerged rocks and reefs making navigation treacherous. The survey will help to interpret site formation processes occurring at this location.

Education is also an important aspect of the project. John Adams and Balika Haakanson, two Kodiak school teachers, are preparing educational materials for students in the Kodiak public schools that will tell the story of the Kad’yaq. During the project we gave talks to the local community in Ouzinke Native Village on Spruce Island and at Kodiak College. The project’s public outreach component, conducted through the internet, is integral to presenting the history and archaeology of the Kad’yaq to a general audience, especially in Alaska. More information is available on NOAA’s Ocean Explorer web site http://oceanexplorer.noaa.gov/projects/projects.html and from the State of Alaska http://www.dnr.state.ak.us/parks/oha/kadyak/kadyakindex.htm.

“... is integral to presenting the history and archaeology of the Kad’yaq to a general audience, especially in Alaska.”

– Frank Cantelas, Evgenia Anichtchenko, and Jason Rogers
Why sailing has always been romanticized. . .

**Sailing Aboard the US Brig Niagara**

As a Maritime Studies student studying to become an underwater archaeologist, my research is dependent on understanding the maritime culture. Many historical accounts describe the life of a sailor as tough. The sailor is always at war with an uncontrollable beast, the wind, yet the sailor is also dependent on it. This love-hate relationship wreaks havoc on men aboard a vessel for long periods of time. Food goes rotten and bickering between men could result in a flogging from an officer. Or worse, the ship could founder, and all would be lost. Despite the apparent salty lifestyle of living aboard a ship, sailing has always been romanticized. The tragic endings of these vessels likely scares away a lot of individuals. However, I’ve always been the adventurous type. I climbed aboard the US Brig *Niagara* along with two classmates, Erica Seltzer and Matt Brenckle, and Dr. Larry Babits with the hope of finding out why sailing has always been romanticized.

I had never before seen a tall ship. I’ve seen plenty of pictures and read descriptions, but nothing beats seeing one in person. The directions to the Erie Maritime Museum were a little vague, so Erica and I decided to drive the bay front and hope that we could find the dock. As we turned a corner and peeked over a small hill, the two black masts of the *Niagara* seemed to rise from the ground. As we drove closer, our mouths dropped to the floorboard of the car as the red gun ports came into view. The black, red, and yellow color scheme was highlighted against the backdrop of the concrete docking area. And there was so much rigging. So much rigging, that my first thoughts were “how am I going to learn all of these lines”?

After parking the car in the Erie Maritime Museum parking lot, we made our way through the museum and out onto the dock. Dr. Babits and Matt Brenckle waved invitingly upon our arrival. We climbed the gangway onto the ship. The deck was caulked with oakum and tar. Neatly coiled manila lines were strung about the deck. The first day made me ponder upon some of the sailing books that I’ve read, like *Two Years Before the Mast*. The next few weeks were composed of lots of small boat handling and working aloft. We were underway for at least three day sails a week with one overnight sail on the *Niagara*. It wasn’t long before I knew the lines and was shouting commands.

The highlight of the experience was going aloft while underway. It was quite exhilarating trying to climb up the shrouds while the ship was rocking back and forth. Once aloft, I always tried to climb to the farthest point out on the yard. On the last week, I climbed up to the fore topsail, which is almost 110 feet above the water. Needless to say I was very shaky climbing the shrouds, but it was an achievement that will be hard to match.

It was there that I found peace. The wind blew my hair back and whistled in my ears. Those peaceful moments out on the yard enlightened me why sailing is so romanticized. The view is indescribable and is marvelously compounded with the noise of rope and wood working in synchronization. The ship actually sounds as if it is alive. During the few overnight sails, I stayed up to watch the sunset and listen to the ship splash, creak, and groan with every wave. The inner peace that I found during those moments will last forever.

— Claire Dappert

Above, Dr. Larry Babits helps secure one of *Niagara*’s cannon.

At left, treading amidst lines deployed while tacking, Claire Dappert heads back to galley duty.
One requirement of the doctoral program in Coastal Resources Management at ECU is to complete a three-month paid internship. To satisfy this requirement, I found an internship with the National Oceanic and Atmospheric Administration’s Maritime Heritage Program/Maritime Archaeology Center within the National Marine Sanctuaries Program in Newport News, VA. There were other opportunities in specific sanctuaries within the National Marine Sanctuaries Program, however, I decided that an internship with a central office in the program would afford me a more generalized, and policy-focused, experience. Not only was this internship interesting to me, combining marine policy with maritime archaeology, but it was a rewarding way to satisfy the requirements of the CRM program…and best of all, it was a paid position.

The Maritime Heritage Program/Maritime Archaeology Center (MHP/MAC) is a new program for NOAA and the National Marine Sanctuaries Program. The MHP exists to administer, protect, research, and educate the public on maritime cultural resources that exist in National Marine Sanctuaries. While this currently focuses on shipwrecks, it encompasses all types of maritime heritage resources. Although the MHP was created in 2002, the program is still finding its place within the National Marine Sanctuaries Program. The employees of the Monitor National Marine Sanctuary (MNMS) currently staff the MHP. I interacted daily with Dr. John Broadwater, the new manager of MHP (and acting manager of MNMS), Jeff Johnston, MNMS historian, Tane Casserley, MNMS archaeologist, and June Feggins, the administrative assistant for MNMS.

My initial task was to catalogue donations. My second major task was to continue the archaeological excavations inside the USS Monitor’s gun turret in order to facilitate the removal of both cannon. The MNMS removed the Monitor’s gun turret from its location under the vessel in 240 feet of water off Cape Hatteras in August of 2002. Excavations were conducted in the fall of 2002 and eventually halted due to winter weather. The excavation I participated in was a continuation of the initial one. The excavation was conducted over six weeks and at the end of excavations, David Krop, an intern from The Mariners’ Museum, and I had cleared out debris, and artifacts, from around and in-between the cannon and facilitated the clear and safe removal of the guns. Afterwards, David and I compiled our notes and sketches and finalized the excavation report with scale-drawings for review of both the sanctuary and the museum. This is a yearly conference for employees of National Marine Sanctuaries across the country to come together and discuss maritime cultural heritage issues, the yearly strategic plan for the MHP, and the maritime cultural heritage activities of each of the sanctuaries. During this conference, I learned of the important maritime heritage issues involving the NMSP as well as discovered what types of research and education concerned other sanctuaries, and what types of projects were coming up in the new fiscal year. Most importantly, I learned of new amendments to the National Marine Sanctuaries Act, the reauthorization of the National Marine Sanctuaries Act, and was able to participate in the discussion of terminology and public perception of the Act and have a chance to review the written draft. In addition to this, I was able to meet, face-to-face, many of the other people working in the National Marine Sanctuaries, as well as the National Programs Branch, and the Marine Protected Areas Program. This was an invaluable opportunity to network with other people in government who deal with maritime cultural resources and speak with them about the Coastal Resources Management program and my specific training.

In working for MNMS, I was able to see first-hand how the government manages and protects cultural resources, even when those resources must be available for public consumption. In the end, while I felt well trained for all of the tasks assigned to me, I also learned many lessons that simply cannot be taught in the classroom.

– Jessica Curci
Sailing on a Periauger

Last summer saw the fruition of a long research, funding and construction effort that resulted in the launching of the first periauger seen on North Carolina's waters in over a century. The idea was the conception of Larry Babits and Mike Alford (then of the NC Maritime Museum) and involved numerous students in research and planning, especially Harry Pecorelli and Deirdre O'Regan. Funds were raised by the Perquimans County Restoration Association while the vessel was built by volunteers at the NC Maritime Museum under the watchful eyes of Paul Fontenoy and Craig Wright.

The periauger was probably the southeast's most common vernacular watercraft during the eighteenth and nineteenth centuries. It's precise origins are lost in time, but there is convincing evidence that a French ancestry is likely. North Carolina's periauger history begins with John Lawson's exploratory travel through the Carolinas during 1701. He noticed a particularly unique boat type while discussing trees: "After the Tree is moulded and dug, they saw them in two Pieces, and so put a Plank between, and a small Keel, to preserve them from the Oyster-Banks ... They carry two Masts, and Bermudas Sails" (Lawson 1967:16).

A German artist drew a “petiager,” the only visual example that is named. Periauger (and its thirty plus spelling variants) was a generic name for a vessel class: a split-log cypress dugout with a plank keel inserted down the middle, propelled by oars and sails, and two masts without stays. Based on the written descriptions and the cryptic drawing, Mike Alford created a model and fine-tuned it to generate support from the PCRA.

Perquimans County was chosen because the Newbold-White House Historic Site had a periauger in 1750 according to the will of Abraham Sanders. It was felt that creating the boat would aid on-site interpretation and serve as an educational tool as well. The PCRA, with a host of volunteers, raised matching funds, in-kind labor (the masts and oars were fabricated by volunteers), and submitted grants.

In the meantime, the vessel was built over the winter and spring of 2004 at the NC Maritime Museum. Again, many volunteers contributed time while relearning forgotten skills. The periauger was launched just in time to be threatened by the summer's hurricanes.

Some sea trials were conducted at Beaufort but the real test came as the periauger went home to Perquimans County. The “Periauger Odyssey” took place over three weeks under the leadership of John Ernst (PCRA). Larry Babits sailed and rowed the vessel in a variety of weather conditions, as the “Odyssey” became a shakedown cruise leading to rigging and cosmetic alterations. The rigging was altered to make handling easier and more effective; the cosmetic changes dealt with authenticity.

Without additional line and blocks, the crew shifted fasteners, blocks and rigging points to provide more power and better control. Two sets of masts were fabricated, one solid timber; the other a built up composite, thought to be lighter and easier to handle. The composite masts bent out of plumb between assembly and use, something that probably happened to solid masts in the past. The composite mainmast broke completely and the foremost cracked. Solid masts, the “old way”, definitely worked better.

Without a keel, the periauger drifted to leeward. Tacking was an adventure, especially getting the periauger’s bow through eye of wind. Backing the foresail while tacking worked fairly well, as did using one sweep to help pull the bow through, especially when lacking sufficient headway. As with all boats, it was important to plan ahead and be aware of inertia whilst turning, docking, or in close proximity to another vessel. Braking with the sweeps worked, but good line handlers were more effective.

With the periauger, the Silver Chalice of the Queen Elizabeth II Historic Site and the newly built deadrise shad boat at Manteo, a growing fleet of historically accurate, traditional watercraft is appearing on the waters of the Albemarle-Pamlico Estuarine System. The entire Periauger Odyssey journal and numerous images of the vessel at sea can be seen on the Newbold-White House web site: www.newboldwhitehouse.com. Click on the Periauger Image, then on the Periauger Odyssey.

Dr. Larry Babits

REFERENCES CITED

Lawson, John
This past summer I had the opportunity to study a mid-nineteenth century shipwreck near Mendocino, in northern California. On July 25, 1850 the brig Frolic sunk near Point Cabrillo, California, laden with a cargo of cheap Chinese goods for consumer hungry Gold Rush prospectors. Fifty-four years later to the day, Indiana University and Napa College began their second Frolic Field School. The objectives of this project were to build upon the previous season’s mapping project and complete a catalog of the artifacts from the wreck site, to collect a representative sample of artifacts still extant on the seafloor, and to make a scientific assessment of the site’s biological as well as its cultural components.

Recent interest in the wreck was sparked by Dr. Thomas Layton. He discovered blue-on-white Chinese ceramics at the terrestrial Pomo site of Three Chop Village which led him on a journey begun in the 1980s that culminated with the rediscovery of the brig’s final resting place. He has written two books on the subject.

This year’s expedition was led by Dr. Sheli Smith of Napa College, Professor Charles Beeker of Indiana University, and Dr. Annalies Corbin of ECU, and Dr. Thomas Layton, of San Jose State University. The research team included students, hail ing from California, Indiana, Ireland, France, Poland, and Maine. They represented Napa College, Indiana University, the University of California at Santa Cruz, the University of Nevada at Reno, and ECU.

During the first week, we processed artifacts from the Frolic shipwreck site in the Mendocino County Museum at Willits and on the grounds of the Point Cabrillo Lighthouse. The first week catalogued the museum’s significant holdings on the site, and the students studied the various artifact assemblages that we might encounter. We methodically learned the differences between various Chinese ceramic designs.

Throughout the second week the team built upon last season’s map and survey work by collecting a diagnostic sample of artifacts from the ocean floor. Although sport divers had recovered numerous artifacts over the years, the diagnostic collection we recovered was the first to be provenienced. This is the first time in California history that an underwater park has had a cultural resource study completed before its designation as a cultural resource.

Although at a depth below 25 feet, the underwater environment was crisp, challenging, and exciting. Nicknamed “the washing machine,” for its dynamic wave surge, waves easily swept divers several feet in either direction.

The Frolic was the subject of the History Channel “Deep Sea Detectives” program. Over the course of the summer, we were visited by newspaper and radio reporters coming from Mendocino to Los Angeles. This provided an excellent opportunity to increase public awareness and build public interest in the project. Community involvement was the cornerstone of the project, spearheaded by the Point Cabrillo Lighthouse and Preserve. These enthusiastic volunteers provided food, a beach house with hot tub, and coordinated an end-of-project celebration complete with a press conference. The support they offered was greatly appreciated by all of the staff and students working on the project.

Frolic Field School

Diving in “the washing machine”...

Franklin Price discusses the Frolic project with author Dr. Thomas Layton of San Jose State University.

Multi-Talented Author Bland Simpson visits ECU

Bland Simpson, director of UNC-Chapel Hill’s Creative Writing Program, musician and author was a guest speaker/performer at Eller House. He is author of the recently published Ghost Ship of Diamond Shoals: The Mystery of the Carroll A. Deering (UNC Press). Bland wanted to talk with mariners about his research for the book. He is at work on another book, on islands in the North Carolina sounds. As always, the discussions were lively and punctuated with humor. Bland is a member of the famous, Tony Award-winning, stringband the Red Clay Ramblers. He concluded the presentation by singing coastal songs while accompanying himself on keyboard. His “King Mackeral and the Blues are Running” had Eller House rocking and the the students singing along.

R/V Perkins Volunteers

Volunteers Captain Wally Van Horn and ECU’s Tom Rassau (Department of Industrial Technology) share some stories in the pilot house of the R/V Perkins enroute to the former Coast Guard Station on Ocracoke Island, site of the planned Maritime Studies Research Center. With Harry Stetser, they have made remarkable progress on the vessel this year, including a refit of a 500-pound generator attachment that reduced noise and fuel consumption.
The 7th Maritime Heritage Conference, held October 27-30 in Norfolk, VA, was a huge success—more than 500 persons attended from across the US and from abroad. More than fifty of those attending had ties to ECU.

All fields of maritime heritage were represented including historic ships, educational programs, lighthouse, life saving stations, nautical archaeology, maritime history, maritime museums, preservation, libraries, cultural resource management, among other fields. Several organizations held their annual meeting jointly with the conference, including the Council of American Maritime Museums, the American Lighthouse Coordinating Committee, the Museum Small Craft Association and the Historic Naval Ships Association. A symposium on the hunt for the lost Union submarine USS Alligator organized by NOAA National Marine Sanctuaries Program and the Office of Naval Research was held at Nauticus. A cruise boat carried conference attendees over the site of the battle between the USS Monitor and CSS Virginia en route to the Mariners’ Museum to see the recently recovered turret and guns from the Monitor, sunk off Cape Hatteras. The conference was directed by Capt. Channing Zucker, program chair Joe Mosier, and Wisconsin director Capt. Mary Mosier. Program planning and support was provided by ECU faculty, students and alumni. A featured speaker was alumnus Jim Delagado, along with Nathaniel Philbrick and Pter Stanford.

The maritime heritage conferences are organized by the National Maritime Alliance chaired by Tim Runyan. San Francisco will be the site of the 8th Maritime Heritage Conference in 2007.

**Students Visit Naval Historical Center**

Coastal Resources Management doctoral students Ewa Klopotek, Valerie Grussing and Melissa Madrigal discuss the Confederate submarine CSS Hunkey research with Dr. Robert Neyland at the Naval Historical Center in Washington DC. They also visited with Wendy Coble and Steve Schmidt in the underwater archaeology department. This followed a meeting with Center director Dr. William Dudley on maritime preservation.

**Smithsonian Curators Examine Artifacts at Conservation Laboratory**

Paula Johnson and Paul Johnston (third and second from right), maritime curators at the Smithsonian Institution’s National Museum of American History, visited the maritime program this fall to examine artifacts at the Queen Anne’s Revenge Shipwreck Conservation Laboratory for possible use in a new exhibit. They are creating a major new maritime history and archaeology exhibit. The meeting with ECU students focused on exhibit plans and current issues in the maritime field. Shown with them are students (L-R), Matthew DeFelice, Adam Morrisette, Jennifer Cobb, Melissa Madrigal, Jodi Carpenter, and staff archaeologist Frank Cantelas.

**Maritime Studies’ Newest . . .**

Shown here is Maritime Programs new ROV, a NOVARAY, made in Seattle, WA. This highly innovative device has been tested to over 1000 feet and has side-scan sonar in addition to a camera.
New MA Students in the Maritime Studies Program

Dina Marie Bazzill is from Warrensburg, Missouri. She recently graduated from Southwest Missouri State University with a BA in Anthropology and Antiquities. She chooses to study Maritime Archaeology after spending a summer doing a cultural study tour of Jamaica. Her interests include cultural resources management of both terrestrial and submerged sites.

Michelle Liss moved here from Nixa, Missouri. She graduated in December 2002 from Southwest Missouri State University with a BA in Anthropology. Before coming to ECU, she worked at a Cultural Resources Management firm working with Repatriation and Historic Preservation. She is interested in medieval European culture, especially Ireland and Scotland. In her spare time, she likes photography, concerts, and traveling.

Katey McFadden is from McKinney, Texas. She graduated from Texas A&M with a BA in Anthropology. She then spent a year building wooden boats at the Northwest School of Wooden Boatbuilding. She is interested in Viking ship building and swimming.

Emily Robinson is from Hampton, Virginia. She has a BA in American Studies from William and Mary and an MSc in Cultural Studies from the University of Edinburgh. She is interested in public history, museum studies, and the oral history of coastal communities. When she has spare time, she enjoys traveling and listening to live music.

Heather Hatch is originally from Fredericton, New Brunswick, Canada. She has a BA in anthropology from the University of New Brunswick, and an MA in European Historical Archaeology from the University of Sheffield in England. She is interested in examining piracy in the early eighteenth century through a combined archaeological and historical approach. Other interests include Middle East dance, creative writing, medieval re-enactment, and pillaging.

Tiffany Pecoraro grew up in Athens, Greece and later Cambridge, England, before moving to Las Vegas, Nevada, where she received her BA in Anthropology at UNLV. Her areas of interest include her three children, as well as public education and management of inundated resources. When not completely buried in school work or making school lunches, she likes hiking, road trips, good food, and long days at the beach.

Brian Diveley is from Great Falls, Montana. After spending eight years in the U.S. Coast Guard, he received a B.S. in Anthropology and a B.A. in Journalism at the University of Oregon. Brian is interested in maritime components in Pacific and Caribbean island archaeology and has spent several years working throughout Micronesia and the Grenadine islands.

Sammi Seeb, originally from Denver, Colorado, has a BA in Underwater Archaeology from Boston University. She is interested in maritime associated fringe societies, material culture, museum studies, and public archaeology. In her spare time, Sammi loves alpine skiing, reading books of her own choosing, knitting, and travel.

Kristin Koshgarian is originally from Troy, New York. She recently moved to Greenville from Albuquerque, N.M. where she earned a BS degree in Anthropology, and a minor in Biology from the University of New Mexico. Her research interests include the maritime history of North Carolina, material culture, dendroarchaeology and conservation. She has worked on archaeological projects in New Mexico, Arizona, Colorado, and Cantabria, Spain. Kristin is an avid traveler and enjoys camping, hiking and kayaking.

Stephanie Allen hails from New Hampshire. She earned a BA in Archaeology and Material Culture from Hampshire College in Amherst, MA. Since graduating, she has been teaching English in Barcelona. Her interests include the archaeology and material culture of Spanish colonial sites, many aspects of the trans-Atlantic slave trade and maritime cultural heritage education through museums and history experience programs. When not doing scholastic activities she enjoys theater, sailing and traveling.

Ahoy Mates! Welcome to ECU:

The 2004 Class at Eller House. Top: Adam Morrisette, Tiffany Pecoraro, Brian Diveley, Katherine McFadden; middle: Jodi Carpenter, Heather Hatch, Kristin Koshgarian, Claire Dappert, Michelle Liss, Dina Bazzill; front: Sammi Seeb, Stephanie Allen, Emily Robinson.

Ahoy Mates! continues on page 24 with our incoming CRM PhD students.
Where Are They Now? - 2005:

James Allan, PhD – Lecturer, St Mary’s College of California, Moraga, CA
Ray Ashley, PhD – Executive Director, San Diego Maritime Museum and Professor of Public History, University of California at San Diego, CA
Paul Avery – University of Maine Law School

David Baumer – The Mariners’ Museum, Newport News, VA
David Beard – Curator, Independence Seaport Museum, Philadelphia, PA
Sam Belcher – US Navy Corpsman, Guam
Colin Bentley – Sailing Dock Master, College of Charleston

Kathryn Bequette – Director, Maritime Archaeology and Research, OCMA, Westminster, CO, and consultant with Denver Ocean Journey Aquarium
Jemison Beshears – Butterfield & Butterfield Auction House, San Francisco, CA
Matthew Brenchle – USS Constitution Museum, Charleston, MA
Robert Browning, PhD – Historian, US Coast Guard, Washington, DC

Christopher Cartellone – U.S. Army, Iraq
Robert Church – Nautical Archaeologist, C&G Technologies Survey Services
Wendy Coble – Aviation Archaeology Specialist, Naval Historical Center, Washington, DC
Patrick Cole – Writer, living in Barcelona, Spain
Edwin Combs, PhD – Visiting Assistant Professor, Mississippi State University, MS
Michael Coogan – Manager, Strategic Technology, Wilmington, NC

Diane Cooper – Consultant for the San Francisco Maritime National Historic Park.
Lee Cox – Contract Nautical Archaeologist, Dolan Research, Philadelphia, PA

James P. Delgado – Executive Director, Vancouver Maritime Museum, Canada
Jeff DiFrizito – High School teacher in New Hampshire
Robert Dickens – Doctor of Veterinary Medicine, Raleigh, NC

Wade Dudley, PhD – Visiting Assistant Professor, Department of History, East Carolina University, Greenville, NC
Stan Duncan – Regional Sales Consultant, NUS Consulting Group, Inc., Oak Ridge, TN

James Embrey – Archaeologist, John Milner and Associates
Scott Emory – Maritime Archaeologist, McCormick, Taylor and Associates, Cherry Hill, NJ
Jenna (Watts) Enright – Archaeologist, PBS&E, Austin, TX
Jeff Enright – Nautical Archaeologist and Diving Supervisor, PBS&E, Austin, TX

Sabra S. Faber – Fullbright Coordinator, AMIDEAST, Yemen
Rita Folse-Elliot – Senior Archaeologist, Southern Research Historic Preservation Consultants and Education Coordinator, LAMAR Institute
Richard Fontanez – Contract Archaeologist, Puerto Rico
Paul Fontenoy, PhD – Curator of Maritime Research and Technology, NC Maritime Museum, Beaufort, NC
Chris E. Fonville, Jr., PhD – Assistant Professor, UNC-Wilmington, Wilmington, NC

Kevin Foster – Chief, National Maritime Heritage Program, Washington, DC
Joe Friday – Sergeant, Greenville Police Department, Greenville, NC

Kate Goodall – Volunteer, Maritime Heritage Program, National Park Service, Washington, DC
Amy (Rubenstei) Gottschamer – Real estate broker in Santa Fe, NM, and Lawrence, KS
Jeff Gray – Manager, NOAA Thunder Bay National Marine Sanctuary, Alpena, MI
Joe Greely – Curator and Nautical Interpreter, St. Mary’s City, MD
Cathy (Fuch) Green – Education Coordinator, NOAA Thunder Bay National Marine Sanctuary, Alpena, MI

Russ Green – Maritime Archaeologist, NOAA Thunder Bay National Marine Sanctuary, Alpena, MI

Richard Haidroo – Contract Archaeologist, Miami, FL
Wesley K. Hall – Director, Mid-Atlantic Technology, Wilmington, NC

Lynn B. Harris, PhD – Faculty member, College of Charleston, Charleston, SC
Tim Hastings – Tiffany and Company, Philadelphia, PA
Robert Holcombe – Senior Naval Historian and Curator, Port Columbus Civil War Naval Center, Columbus, GA
Joshua Howard – PhD candidate, Ohio State University, Columbus, OH
Michael D. Hughes – Logistics firm, Washington, DC

Claude V. Jackson – Museum Curator, St. Louis, MO
Brian Jaeschke – Wheelsman on Great Lakes freighters
John O. Jensen, PhD – Exhibits Research Fellow, Mystic Seaport, Mystic, CT
Rick Jones – Building Contractor, Greenville, NC

John Kennington – Manager, Borders Books, Atlanta, GA
Kurt Knoerl – Maritime Archaeological and Historical Society, Washington, DC
Mike Krivor – Nautical Archaeologist, Panamanian Maritime, Memphis, TN

Danielle LaFleur – Assistant Curator, Muskegon County Museum, Muskegon, MI
Matthew Lawrence – Maritime Archaeologist, Stellwagon Bank National Marine Sanctuary, Scituate, MA
Wayne Lusardi – Maritime Archaeologist and research coordinator, NOAA Thunder Bay National Marine Sanctuary, Alpena, MI

Eleftheria Mantzouka – Underwater Archaeologist, Athens, Greece, PhD candidate, University of Southampton, UK
Amy Jo (Knowles) Marshall – Curator, Wrangell-St. Elias National Park & Preserve, Copper Center, AK
Timothy Marshall – Archaeologist, Wrangell-St. Elias National Park & Preserve, Copper Center, AK
Deborah Marx – Maritime Archaeologist, Stellwagon Bank National Marine Sanctuary, Scituate, MA
Coral Magnusson – International Archaeological Research Institute, Honolulu, HI
Are They Now? Where Are They Now? Where Are They Now?

Tom Marcinko – South Carolina Department of Natural Resources, Charleston, SC
Rodrick Mather, PhD – Assistant Professor, Department of History, University of Rhode Island
Peter McCracken – Principal, Serials Solutions, Seattle, WA
John McWatters – PhD candidate, Bowling Green State University, OH
Phillip H. McGuinn – Captain (USN, Res.), Public affairs, Norfolk, VA
Salvatore Mercogliano, PhD – Instructor, Campbell College, NC
John McWatters – PhD candidate, Bowling Green State University, OH
Phillip Reid – Consultant, Wilmington, NC

Adrienne (Askins) Neidinger – Archaeologist, Submerged Resources Center, National Park Service
Sam Newell – Schoolteacher, Greenville, NC
Kevin Nichols – Department of Homeland Security

Chris Olson – Curator, Minnesota Transportation Museum, Railroad and Minnetonka Divisions
Deirdre O’Regan – Editor, Sea History magazine and Instructor, Seamester Program, Long Island University
Mike Overfield – RUST Program, NOAA National Marine Sanitaries Program, Silver Spring, MD

Jason Paling – Teacher, Nashua, NH
Harry Pecorelli – Underwater Archaeologist, H.L. Hunley Submarine Project, Charleston, SC
Martin Peebles – Archaeological Illustrator, St. Petersburg, FL
Mike Plakos – Oceaneering and Office of Naval Intelligence
Darren Poupore – Curator, Biltmore Estates, Asheville, NC
Edward Prados – Graduate Student, Georgetown University

James R. Reedy, Jr. – Contract Archaeologist, Beaufort, NC

Phillip Reid – Consultant, Wilmington, NC
Todd Robinson – Instructor, Department of History; Head Coach Men’s Soccer, James Island Charter High School, Charleston, SC
Matthew Russell – Submerged Resources Center, National Park Service, Santa Fe, NM

John Schaefer – Schoolteacher, Washington, NC
James Schmidt – Nautical Archaeologist, Naval Historical Center, Washington, DC
Robert Schneller, PhD – Historian, Naval Historical Center, Washington, DC
Joshua Smith, PhD – US Merchant Marine Academy, Kings Point, NY
Chris Southerly – NC Underwater Archaeology Branch, NC Division of Archives & History
James Spierek – Underwater Archaeologist, SC Institute of Archaeology & Anthropology

Bruce Terrell – Maritime Historian and Archaeologist, NOAA
William H. Thiesen, PhD – Assistant Director and Curator, Wisconsin Maritime Museum
Hans Van Tilburg, PhD – Maritime Heritage Manager, Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve
Ray Tubby – Nautical Archaeologist, Tidewater Atlantic Research, Washington, NC
Lex Turner – Emergency Room Nursing Student, East Carolina University, Greenville, NC

Daniel Warren – Nautical Archaeologist, C&C Technologies Survey Services
Sarah Waters – Instructor, Seamaster Program, Long Island University
Gordon P. Watts, PhD – Retired from ECU 2001, Director, Tidewater Atlantic Research and International Institute of Maritime Archaeology, Washington, NC
Wilson West, PhD – Historian, US Coast Guard, Portsmouth, VA
Robert Westrick – Consultant, Toledo, OH
Scott Whitesides – Maritime Curator, NC Maritime Museum on Roanoke Island, Manteo, NC
Heather (Cain) Williams – Hollis, NH
Kimberly Williams – Teacher, Hillsborough Community College, Tampa, FL
Stephen Williams – PhD candidate, Antioch New England Graduate School, Keene, NH
Sarah Wolfe – Curator, Museum of Aviation, Warner Robins, GA
Steve Workman – PhD candidate, ECU Coastal Resources Management Program

Mariners Jodi Carpenter, Dina Bazzill, Tim Runyan, Michelle Liss and Adam Morrisey as “Pirates on the Perkins” in Washington, NC for the annual Washington Riverfront Festival. Washington is home port for R/V Perkins, thanks to city leaders.
New PhD Students in the Coastal Resources Management Program

Ewa Klopotek is from Poland. She has an MA in Underwater Archaeology from Nicolas Copernicus University in Torun, Poland. She has worked on archaeological projects in Lithuania, Poland, and Ukraine. Her research interests include medieval shipwrecks and early modern galleys. She joined the CRM program to gain broader perspective on maritime and coastal issues. She loves to travel and cook Polish food.

Calvin Mires has participated in the MA program in Maritime Studies at ECU for the past two years, and is currently completing his thesis The Role of Lake Tourism in Glacier National Park, Montana. He is enjoying the eclectic nature and experiences of his various classes. His research plans tentatively involve issues regarding cultural and heritage tourism and management.

— Jason Rogers

ECU MARITIME STUDIES THESIS DEFENDED IN 2004


Jacob Michael Betz, “A Tactical Reactionary: Andrew Furuseth and the 1915 La Follette Seamen’s Act.”

Matthew Brenckle, “British and American Sailor Clothing, 1750 to 1815.”


Eleftheria Mantzouka, “The Transport Amphoras from a Shipwreck Found off the Island of Alonnesos, Northern Sporades, Greece.”

Jacqueline Piero, “Site Formation Processes Acting on Ferrous Hulled Shipwrecks.”


Jason Samuel Rogers, “Logboats of the Moravian Gate: Monoxyl Dugout Vessels from Central Europe.”

Heather M. White, “Chowan’s Best: Women, Labor, and Change in the Bertie County Herring Industry.”

Stephen Williams, “Trieme Origin Theory: The Development of the Three-Level Oared Warship, 8th – 6th Century B.C.”