

Spring 2013

THE



FOUNTAIN

THE GRADUATE SCHOOL
THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

WATER WORKS

THE FOUNTAIN is an annual publication of The Graduate School of the University of North Carolina at Chapel Hill. This publication showcases the achievements of graduate students and alumni, informs readers about the research of Carolina graduate students, and demonstrates the impact of private giving for graduate education. *The Fountain* is supported by private gifts from generous alumni and friends of The Graduate School.

This edition of The Fountain explores graduate education through the lens of the campus-wide theme of Water in Our World.

An outgrowth of the UNC-Chapel Hill 2011 academic plan, this two-year, pan-university theme aims to build community and bring attention to one of the world's most significant issues. Water is a highly complex subject that affects our lives in various ways. This campus-wide exploration enables critical thinking and examination of our many relationships with water.

Much graduate research is inherently interdisciplinary and collaborative, as knowledge and methodologies from many fields are used to innovatively address critical problems. These articles highlight the benefits of such partnerships and the creativity of graduate students, with research as diverse as controversies in naval history and muscle strain in swimmers, to identifying E. coli in water and understanding the dynamics of jellyfish movement.

Water in Our World is promoting discussion of global and local issues surrounding water. For example, graduate students in the Royster Society of Fellows and the Weiss Urban Livability Program hosted seminars to facilitate related interdisciplinary learning and engaged scholarship. Please see these and more online exclusives at our website: fountain.unc.edu.

The Fountain, Spring 2013, was produced by Senior Editor Cindy J. Austin and Assistant Editor Laura Lacy, both master's students in the School of Journalism and Mass Communication, with the guidance of Sandra Hoeflich, Associate Dean for Interdisciplinary Education, Fellowships and Communication. Please send your comments or suggestions to: Sandra_Hoeflich@unc.edu, (919) 962-6323.



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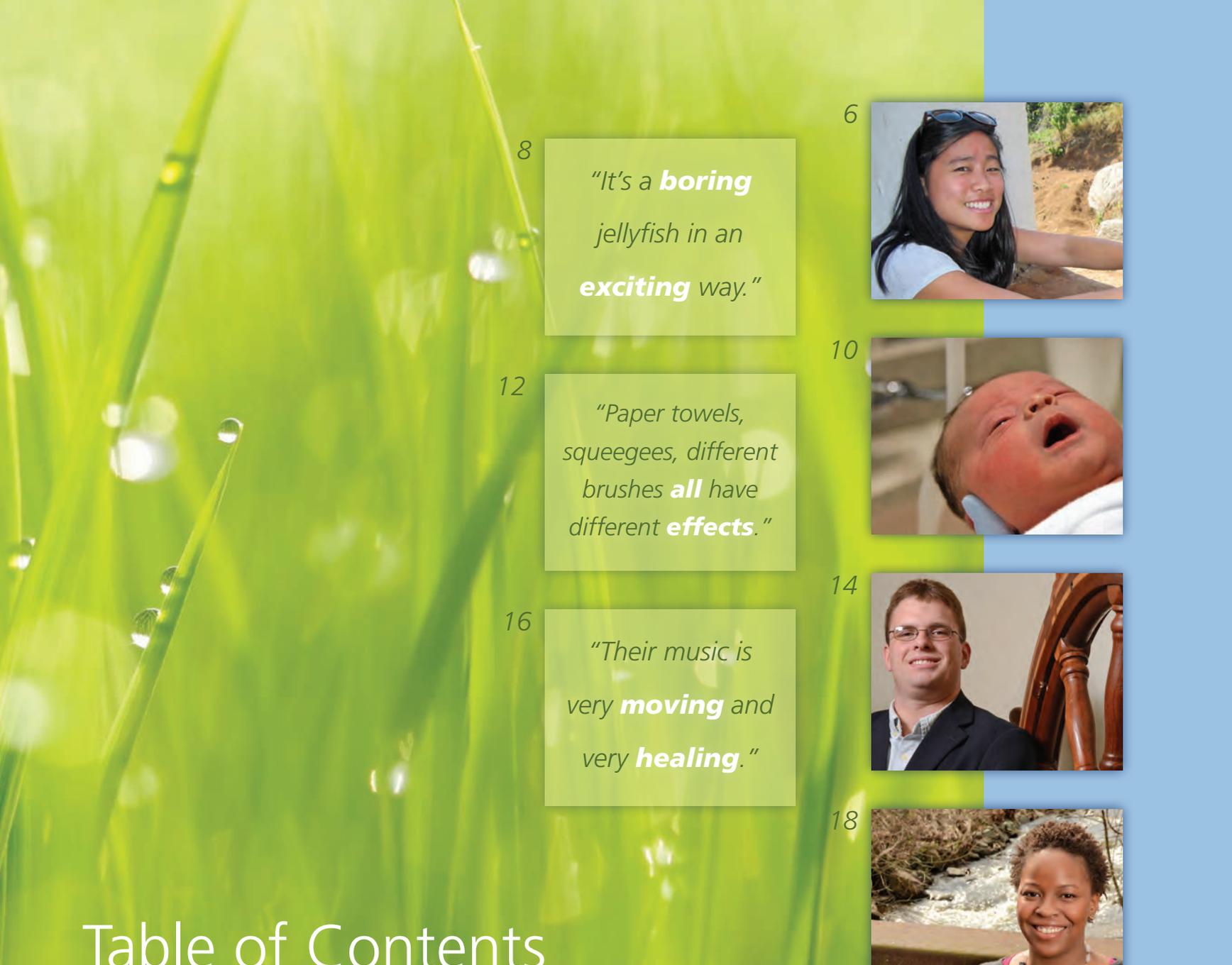
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A special thanks to our donors:
The Fountain is produced exclusively with private funding.

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8

*"It's a **boring** jellyfish in an **exciting** way."*

6



12

*"Paper towels, squeegees, different brushes **all** have different **effects**."*

10



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*"Their music is very **moving** and very **healing**."*

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Collaborative Culture Thrives at Carolina

Cindy J. Austin

*“Water is one of today’s most important challenges,” Graduate School Dean Steve Matson says, “and thoughtful, **effective solutions** won’t come from any one discipline alone.”*

Having been a researcher and faculty member for 30 years, Matson understands the importance of collaborative research. He credits the quality and interdisciplinary teamwork of faculty and graduate students for the success of research and graduate education at the University of North Carolina at Chapel Hill.

While incorporating the knowledge and approaches of different disciplines can result in optimal problem solutions, collective work also holds its own challenges. Learning how to work collaboratively and contribute effectively to a team project is a critical skill that Matson stresses for graduate students. “This open-mindedness and cooperative skill set will help our students have a stronger impact throughout their careers,” Matson says.

The Graduate School encourages interdisciplinary work through fellowships like the Royster Society of Fellows and the Weiss Urban Livability fellowships. Students from different fields host and participate in seminars from a variety of disciplinary perspectives to expand their thinking and learn from other areas of study. The Royster Society and Weiss Program have both sponsored events on water-related issues during the 2012-2013 academic year, and the fellows themselves have taken the lead in planning these events.

Matson says the goal of The Graduate School is to ensure students are involved and trained in the most

cutting-edge research techniques so they can follow their curiosity and stimulate new thought. One of the most important assets to research, he says, is learning from other students to gain otherwise unrealized insights.

Matson sees UNC-Chapel Hill as a place to analyze and confront huge global issues such as energy, disease, poverty and political civility. “Not only do our graduate students go on to do incredible things once they graduate, these students are doing incredible things while they’re here.”

Students can do their best work if they are personally and financially supported, according to Matson. That support is what enables graduate students to focus on their work and advance knowledge as a whole.

“The most precious thing we can give our graduate students is time—time to think, time to explore and time to do their best work,” Matson says. That message resonates within the larger community that supports these students: the faculty, staff and friends of graduate education. “Graduate students at Carolina are taking on the world’s key problems, and their impact is evident locally, nationally and globally.” ♦

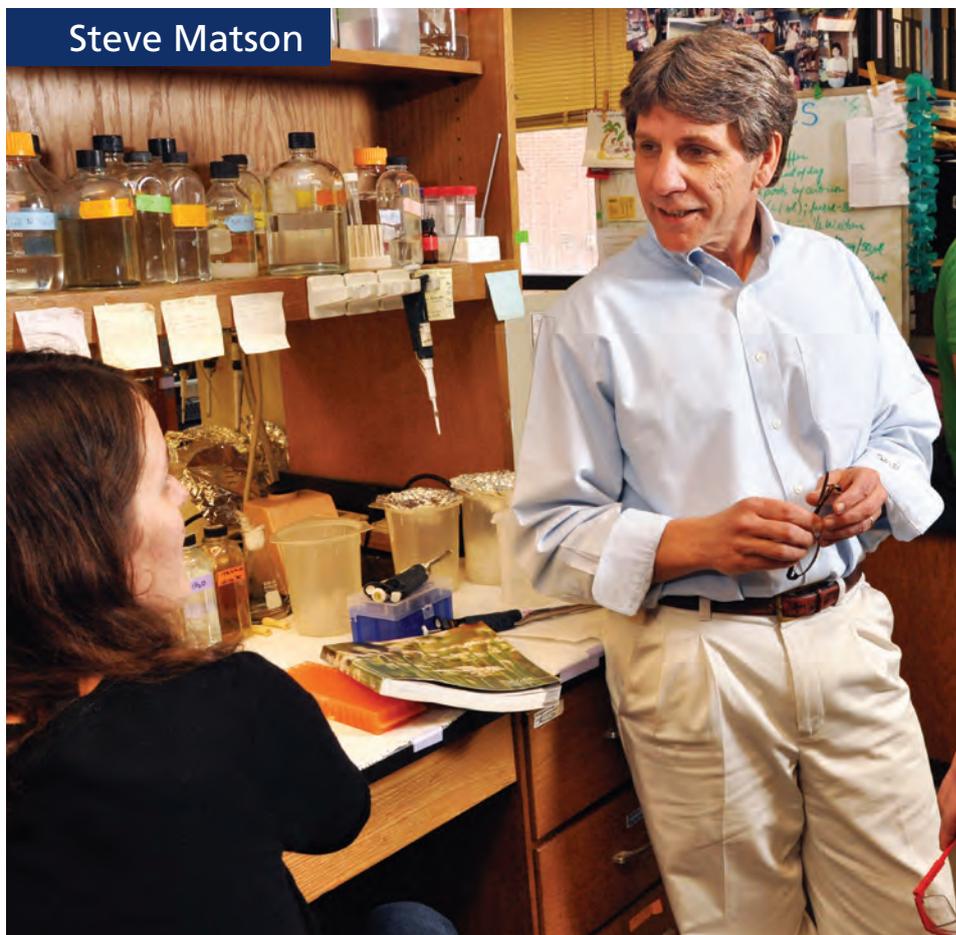


Photo by Will Owens

Terry Rhodes



Photo by Will Owens

Jamie Bartram

Theme Calls Campus to Action

Laura Lacy

Brilliant minds populate the University of North Carolina at Chapel Hill. What could they achieve when an **innovative educational initiative** brings them together?

Water in Our World is Carolina's pan-campus theme, inviting individuals across disciplines to discuss, celebrate and research the planet's most valuable resource. It's not only the first time that UNC-Chapel Hill has introduced a two-year theme to the campus community—it's the first time any university has incorporated a theme to this extent. This level of commitment also demonstrates the university's consideration of water issues now and in the future.

"Major international players are saying that water is the defining challenge of the 21st century," says Jamie Bartram, co-chair of the theme's steering committee, professor in the Gillings School of Global Public Health, and director of the Water Institute at UNC-Chapel Hill. "And this university is positioning itself at the forefront—across vastly different domains—of this rising issue."

Water in Our World evolved from

the 2011 academic strategic plan, which called for a theme to connect the campus over a common concern. "Water is a topic that enables the Carolina community to put their heads together and think about it from different angles," explains Terry Rhodes, co-chair of the steering committee and Senior Associate Dean for Fine Arts & Humanities. "Everyone brings different perspectives to the table, which has heightened and enriched the conversation."

The reaction to *Water in Our World* has been exceptional. "We've seen a response from just about every corner of campus," Bartram says. Tar Heels have participated in varied ways. For example, students led a plan to post engaging and humorous signage about water conservation in every residence hall.

Another development was the *Water In Our World* course, open to undergraduate and graduate students. The course

invited varied leaders in water-related scholarship to teach a seminar one week. The following week, the students engaged in a discussion about the topic. A true success, the course will be offered next year and will include guests like Thomas Otten, a member of the music faculty, who will discuss the influence of water on Debussy's piano music.

The theme's second year will also engage more members of the Chapel Hill community, both on campus and surrounding it. In order to incorporate the theme into their programming, organizations like PlayMakers Repertory Company, Carolina Performing Arts, and Morehead Planetarium and Science Center needed the planning time that this two-year schedule facilitated. "The second year is going to be even richer with its schedule of cultural and scholarly events," Rhodes says. "We're hearing about new *Water in Our World* initiatives daily. There's a lot of momentum."

Carolina is uniquely capable of fostering this momentum. "We have an incomparable culture of collegiality here," Bartram says. "For people to come together across disciplines, you need an environment that fosters that. That's the culture we have at UNC." ♦

"WATER

The sun evaporates a **TRILLION TONS** of water every day.³



The average distance... 1

...women in developing countries... 2

DAILY WATER USAGE



Average American

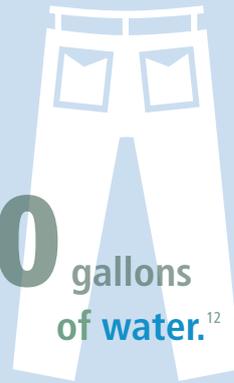
176 gallons



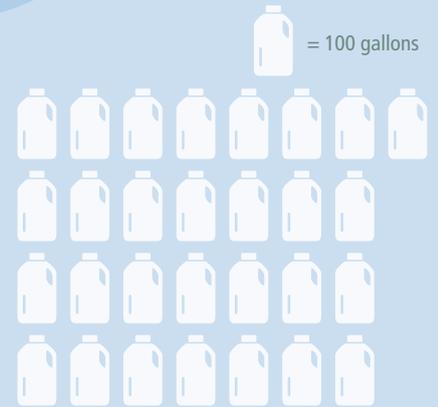
Average African Family¹⁷

5 gallons

Creating a pair of jeans requires



2900 gallons of water.¹²



A cow must drink **4 gallons** of **WATER** to produce **1 gallon** of **MILK**.²⁰



MORE people have

MOBILE PHONES than **TOILETS**.¹⁹

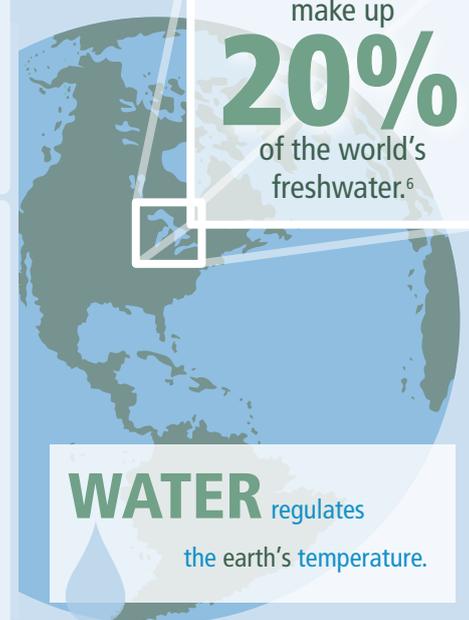


VS



Only **2.5%** of the world's water is **FRESHWATER**.⁵

The **GREAT LAKES** make up **20%** of the world's freshwater.⁶



With many shipwrecks, the water off the North Carolina coast is known as...



The Graveyard of the Atlantic.¹⁴



1 in 8 people **WORLDWIDE**

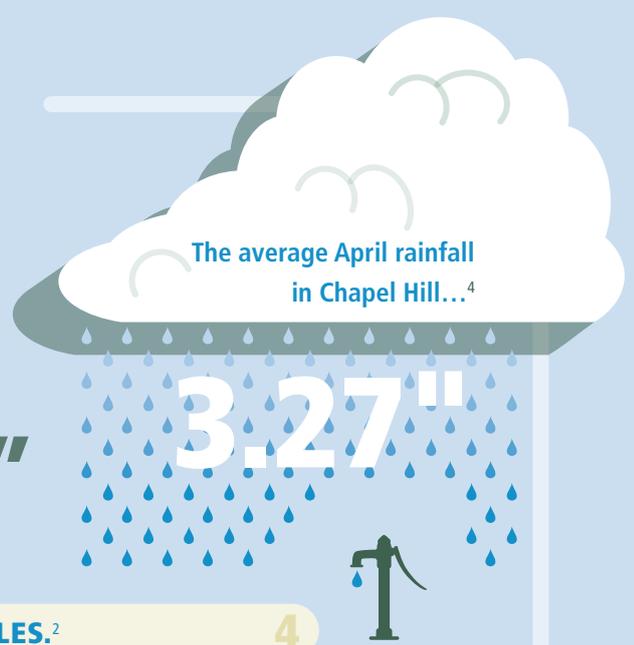


lack access to drinking water.¹⁶

WATER regulates the earth's temperature.

is the *Driving Force* of **ALL NATURE.**"

— Leonardo DaVinci ¹



...walk to get water each day is... **3**

...4 MILES.²

4

Koala bears **DON'T DRINK WATER**

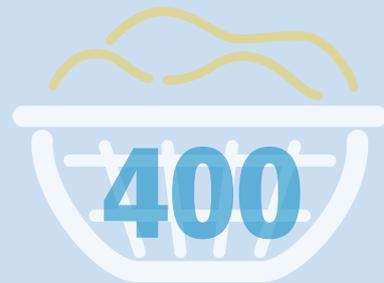
but get moisture from food.²³



gallons

The cost of **WATER** in the United States.²¹

The average family does



loads of laundry a year.¹⁸

Blood is **83%** water.⁸

The human body is **66%** water.⁹

A woman's body has a **lower percentage of water** than a man's body.¹⁰

WATER also regulates the human body temperature.⁷

| S | M | T | W | T | F | S |
|----|----|----|----|----|----|----|
| | | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | | | |

You can survive **1 month** without food but only **1 week** without water.¹⁵

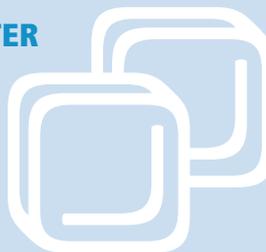


In the 1700 and 1800s, **PIRATES PILLAGED** the Ohio and Mississippi Rivers.²²

HOT WATER FREEZING FASTER

than **COLD WATER** is known as the

MPEMBA EFFECT.¹³



About

40%

of the bottled water in the United States is

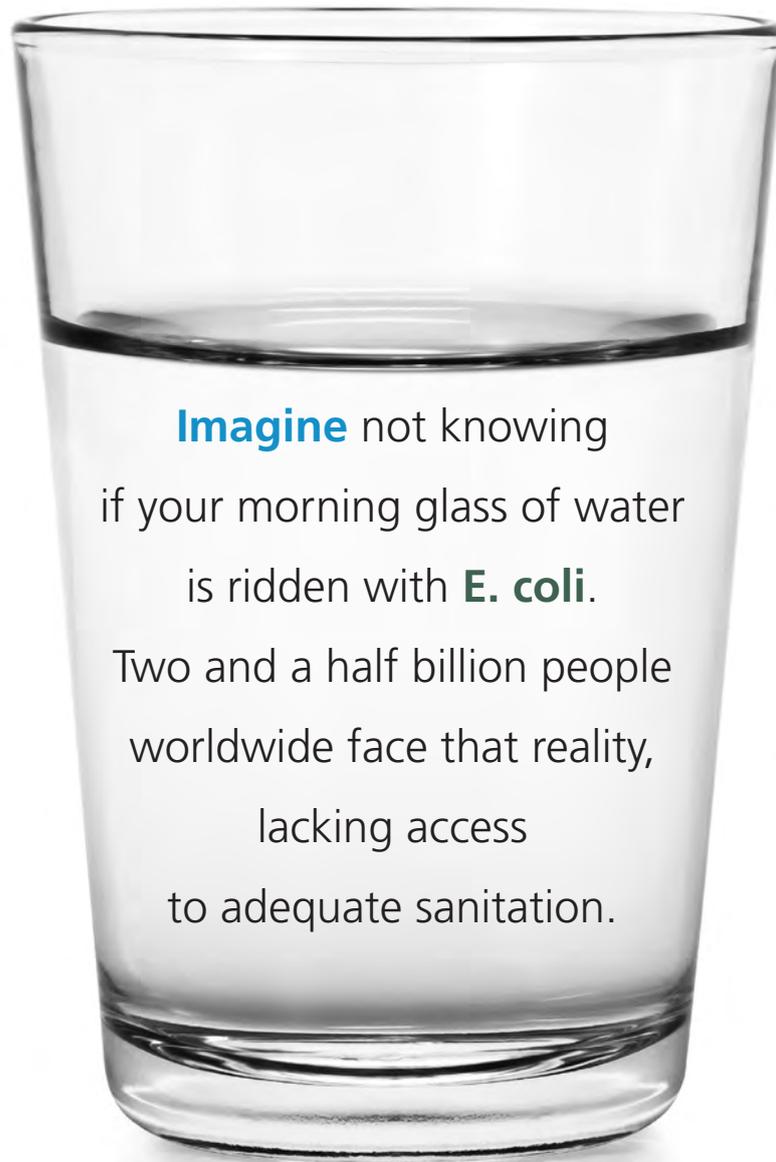
JUST FILTERED TAP WATER.¹¹



⁸ waterinfo.org ⁹ emedicinehealth.com ¹⁰ ga.water.usgs.gov ¹¹ amnh.org ¹² audubonmagazine.org ¹³ phys.org ²¹ water.epa.gov ²² americanrivers.org ²³ prestigewater.com

TESTING *the* WATERS

Cindy J. Austin



Imagine not knowing if your morning glass of water is ridden with **E. coli**. Two and a half billion people worldwide face that reality, lacking access to adequate sanitation.

Alice Wang is changing that.

When Alice Wang was an undergraduate at the University of North Carolina at Chapel Hill, she worked with Mark Sobsey, professor in Environmental Sciences and Engineering. After graduating in 2010, she came back to the university for her doctorate in Public Health, rejoining Sobsey and his initiatives towards clean water.

In 2010, Sobsey won an award for water innovation sponsored by Nike, NASA and USAID. From the award money, the team was able to prototype their compartment bag test—a simple, portable test of water sanitation. “The goal was to make it easy enough that anyone can do it anywhere,” Wang says.

The prototype is a plastic bag with five different compartments, each a different size, that add up to 100 milliliters. A water sample is mixed with a bacteriological culture medium, poured into the bag, and then each compartment is sealed off with external clips. Once the sample incubates overnight, compartments that turn blue are contaminated with *E. coli*. The number of compartments that turn blue indicates the saturation of *E. coli* in the water.

While there are other field tests for water contamination, this UNC-Chapel Hill team created one that has been shown to work under a greater range of temperatures, that does not need to be taken to a lab to determine results, and that tests the UNICEF-recommended sample size of 100mL.

The test, which determines whether water sources are precarious, can be used to collect nationwide data on water sources, storage and safety. Hundreds of the compartment bag tests were sent to Haiti after the 2010 cholera outbreak, and the test was used in five continents this summer alone. Similarly, Wang hopes the test will be used in a USAID pilot in Liberia this spring to test water conditions in sub-Saharan Africa.

The innovation has won awards from Carolina Challenge, Walmart Better Business Plan, and the Campus Y, totaling \$33,000.

Wang has been able to focus exclusively on this research because she received a highly competitive fellowship, the EPA Science to Achieve Results Fellowship, from the federal Environmental Protection Agency. Given the opportunity to work solely on her research, Wang has been able to focus all her attention on this world-changing project.

In May, Wang, Sobsey, and two other Carolina staff

members cofounded Aquagenx, LLC and hired a chief operating officer to commercialize their product. After her expected graduation in May 2014, Wang plans to continue working with the expanding company. "We've put so much energy into this," Wang says, "and I really do think we can better the world with it." ♦



Alice Wang (left) has traveled the world, sharing her product to help people drink safe water.

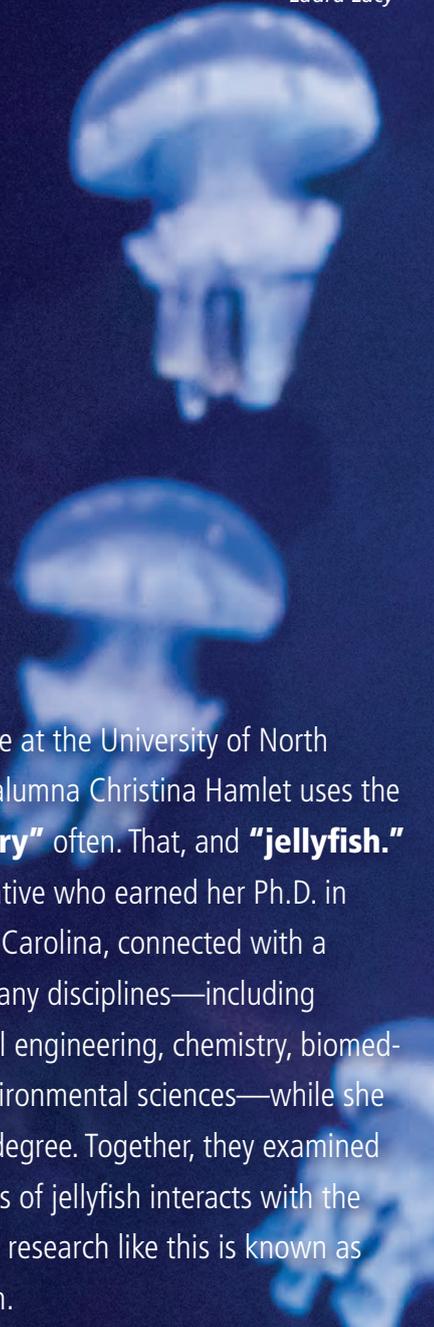




WATER + Jellyfish

Marine MATH

Laura Lacy



When describing her time at the University of North Carolina at Chapel Hill, alumna Christina Hamlet uses the word **“interdisciplinary”** often. That, and **“jellyfish.”**

Hamlet, a Kentucky native who earned her Ph.D. in Mathematics in 2011 at Carolina, connected with a cohort of people from many disciplines—including mathematics, mechanical engineering, chemistry, biomedical engineering and environmental sciences—while she completed her doctoral degree. Together, they examined the way a specific species of jellyfish interacts with the water around it. Broadly, research like this is known as fluid structure interaction.

Photo by Judi Bottoni

Special thanks to the Audubon Aquarium of the Americas

"Imagine something with a soft body, like a jellyfish, pushing on fluid. The fluid can also push back on it," explains Hamlet. "When you're trying to figure out how something moves through the water, you can't just look at how it twists its body and moves."

Hamlet and the diverse group of researchers worked with Laura Miller, professor in the UNC-Chapel Hill Department of Mathematics. They studied the *Cassiopea*, or "upside-down," jellyfish, Hamlet says. In particular, Hamlet performed numerical simulations, wherein a computer would solve equations related to the jellyfish's motion. Using this information, researchers could graph or animate the results.

Hamlet's study at Carolina was funded in many ways, including an interdisciplinary fellowship, research grants and teaching assistantships. And while Hamlet wanted teaching experience, she greatly appreciated the diversity of funding opportunities that allowed her to occasionally take a break from teaching and focus solely on her research. "It freed me from being tied to a teaching schedule all the time," she says. "As a result, I could collaborate and network. When you're doing interdisciplinary and collaborative work, being able to travel, talk to people and network becomes that much more important."

The *Cassiopea* jellyfish provided an interesting subject of this research. While this jellyfish can swim, it generally sits along the bottom of a body of water and pulses the water so food comes to it rather than moving to feed. The group believed this would be an opportunity to examine how this organism draws fluid to it, uptakes particles and dispels waste particles all while remaining stationary.

"It's just sitting there," Hamlet muses. "It's kind of a boring jellyfish in an exciting way."

The lab where the research took place enabled the group to do their own "wet-work." In other words, they actually had a jellyfish in-house, a rare situation.

"One of the issues when you do interdisciplinary work is finding a collaborator that has the data you need to explore specific questions you are interested in," Hamlet explains. "If you are a mathematician who doesn't do experiments, you have to either find data in past writings that you can use or find a collaborator that is willing to gather the data for you. Having the jellyfish in the lab allowed us to design experiments that integrated well with our mathematical models."

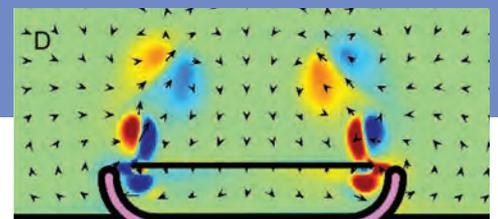
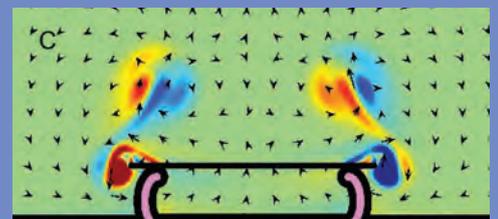
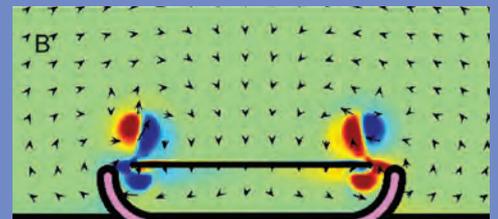
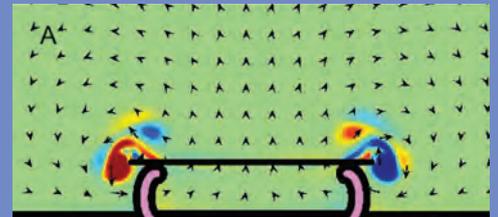
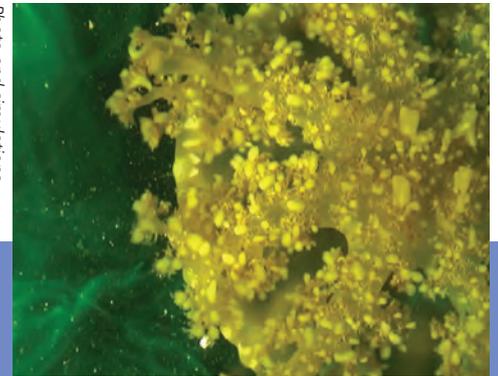
How does this research apply outside the lab? For one, jellyfish have been studied as inspiration for underwater vehicle design, Hamlet explains. And the movement of underwater creatures led to the design for one of the machines that was recently used to swim through and filter water after the BP oil spill.

Hamlet's time since Carolina has also been promising. She currently is a post-doctoral research associate in the lab of Lisa Fauci, the associate director of the Center for Computational Science at Tulane University and Eric Tytell, co-PI and UNC-Chapel Hill alumnus. The ongoing project that Hamlet has joined examines how lampreys swim. As lampreys are one of the simplest vertebrates, Hamlet says, results can help researchers learn more about other vertebrates as well. She's currently working to build a comprehensive model showing how the creatures undulate through the water. In the future, however, she sees herself returning to her research roots.

"I'd like to gain a bit more experience doing integrated models and then eventually return to mathematical models of jellyfish—and also sea

anemones—because there's a lot we can learn from them, especially how they do complicated motions using pretty small muscles," Hamlet says. It seems the *Cassiopea* jellyfish don't only send pulses through the water to attract food—they've also attracted the interest of one Chapel Hill alumna. ♦

Photo and simulations
courtesy of Laura Miller



Hamlet observed a *Cassiopea* jellyfish (top photo) to create simulations of its movement (pictured below).

the



Water
powers
everything

Water
powers
life

In spring 2012, a group of journalism students began piecing together ideas of what would become their annual video production on what fuels the nation. Students brainstormed conventional fuel options like electricity and petroleum, as well as abstract ideas such as advertising and sex.

“It’s a unique opportunity where the students can do whatever they want under the umbrella of what powers the nation,” says Josh Davis, a University of North Carolina at Chapel Hill graduate alumnus who served as managing editor on the project. Ultimately, the students chose water because it powers life.

The student group effort, called *Powering a Nation*, is an ongoing initiative in the School of Journalism and Mass Communication that investigates power sources in the United States. The annual project looks at political, economic, and scientific tensions behind energy sources through in-depth reporting.

The four undergraduate and three graduate journalism students chose to forego a traditional documentary-style video in pursuit of a multi-dimensional, innovative and informational multimedia project; which came to be known as *100 Gallons*.

“The water crisis is local,” says Davis. “We wanted to pick a subject that affected North Carolinians but was also a global issue.” The project was meant to make people look at water as a natural resource that drives life on our planet—both locally and globally.

The *Powering a Nation* group members discussed whether the project should be politically or socially controversial, but instead decided to use moments with which people could universally identify. “Even if the issue is controversial, finding a character to identify with can make the viewer think more critically about the issue,” Davis says, a thought that led them to aim for a widely universal approach.

“You can go anywhere with water,” Davis says. “Water is used for energy, food, daily tasks, not to mention what you actually drink.” He says water is more important than any other energy-related source. “Water is our most precious resource. You can live without oil—you can’t drink oil—but you have to drink water to live.”

Through individual video shots stitched together, *100 Gallons* shows how water

of WATER

Cindy J. Austin

powers life from birth until death. Pausing the video throughout displays additional text, video, interactives and graphics with more information and statistics about water during the paused shot.

Outside professionals and faculty members encouraged the students to challenge the way people look at water. One such coach was UNC-Chapel Hill multimedia professor Steven King. He and his wife were expecting a baby in the first month of production. “We got to shoot the first time his baby was being washed after the birth, which turned out to be the shot that opened the video,” Davis says. It pushed the group to think about equally inspiring locations and characters they could shoot to continue in this vein that water powers life from birth to death.

Some stories covered in the project were just one shot, such as the new King baby, but others were more in-depth. “We found this really interesting character outside of Austin, Texas with a rainwater collection business,” Davis says. “We knew we needed to do a longer story about him because he was such a unique personality and he thought about water in a very distinct way.” Richard Heineken bottles the rain water and sells it to posh hotels and organic food stores.

The students knew they wanted to stay true to journalistic standards by making sure to not set up any shots. “Every one of our shots was shot documentary-style,” Davis says. “If we wanted to catch someone walking through a wave we’d have to wait on the pier for a few hours and hope the light was still good when we finally got the shot.”

Davis worked in video production after graduating from the University of Maryland in 2000, doing freelance work for the Discovery Channel and National Geographic, as well as teaching video journalism classes at New York University. When his career started to veer into reality television, Davis decided to go back to school for his master’s degree in 2010 to focus on more socially significant documentary work. While he was accepted to other top schools, Davis chose Carolina because it offered him a top-notch education and full funding. Leaving school without debt has enabled Davis to continue his fulfilling documentary work on projects like *100 Gallons*, putting his talent toward the public good. ♦

Through individual video
shots stitched together,
100 Gallons shows how
water powers life from
birth until death.



drips, drops and water spots

Laura Lacy



The panels hanging on the studio walls might look aged, but in reality they are part of a new series of work. The marks are man-made and the water spot splatters, in truth, aren't even water. Damian Stamer, MFA candidate at Carolina, experiments with various tools. "Paper towels, squeegees, different brushes all have different effects." And the splatters? They're made with oil paint. ♦

Read more and see more examples of Damian's work at fountain.unc.edu.

Members of the Carolina swim team have a burden on their shoulders. Literally.

Shoulder pain is the number one complaint from Carolina swimmers. “Think about it,” explains Reid Jones, a second year student in the athletic training MA program in the Department of Exercise and Sport Science. “Swimmers use the shoulder joint every time they take a stroke.”

Jones works with the swimming and diving team as part of her clinical education at the University of North Carolina at Chapel Hill. A long academic journey preceded her arrival at Carolina, beginning with her bachelor’s in Equine Sciences from Colorado State University. She then worked in the thoroughbred industry in Lexington, Ky for a few years before deciding to return to school.

“In my previous career, I occasionally attended to the horses’ medical needs like wrapping or bandaging,” Jones says, “but on a day-to-day basis, I didn’t feel intellectually challenged. I like being active, and I didn’t want a desk job. I knew athletic training would be hands-on.”

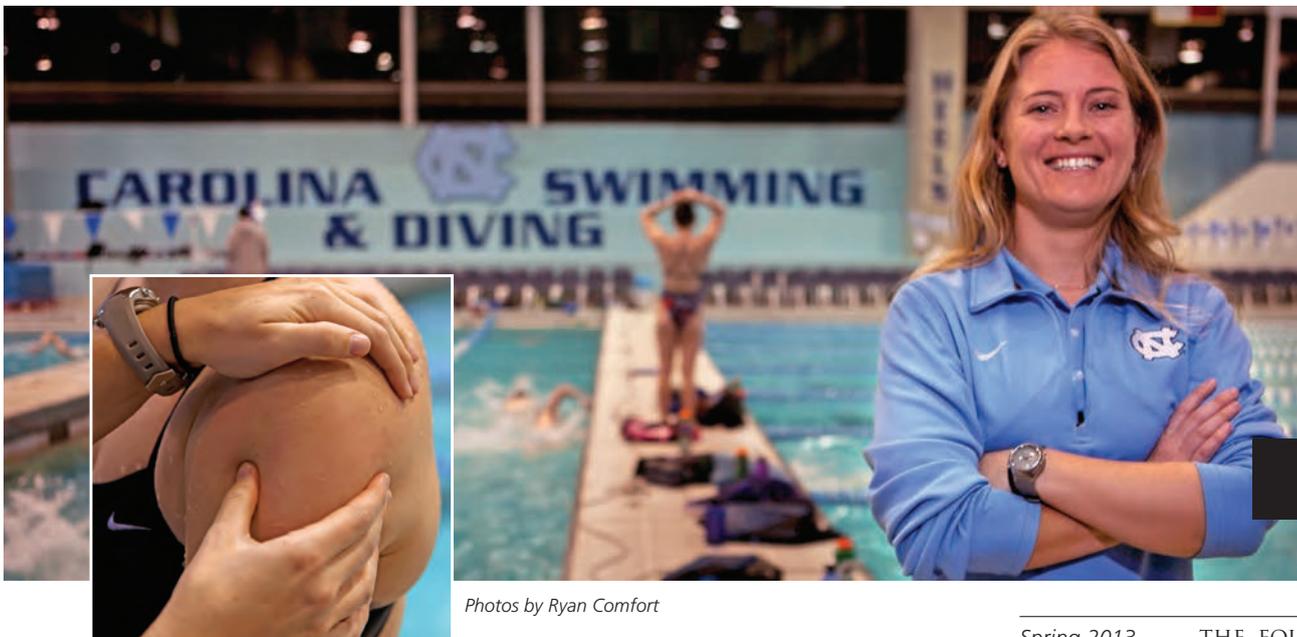
When Jones researched more about athletic training, she learned she would need more relevant undergraduate course work before entering a master’s program. Surprised but determined, she returned to school as an undergraduate at Eastern Kentucky University.

UNC-Chapel Hill was her first choice of master’s programs, so Jones was delighted when she learned she would receive a graduate assistantship that included her research, teaching and clinical experience.

The clinical experience component offered in the athletic training program was a selling point for Jones. And while she wasn’t a swimmer herself, she’s enjoyed learning about the sport. “They put in so much time in the water,” she muses. “They are constantly swimming.” Jones and the rest of the athletic training staff meet with the swimmers and divers to provide injury prevention, clinical evaluation, emergency response, and injury treatment, rehabilitation and documentation. And, of course, battle the shoulder pain.

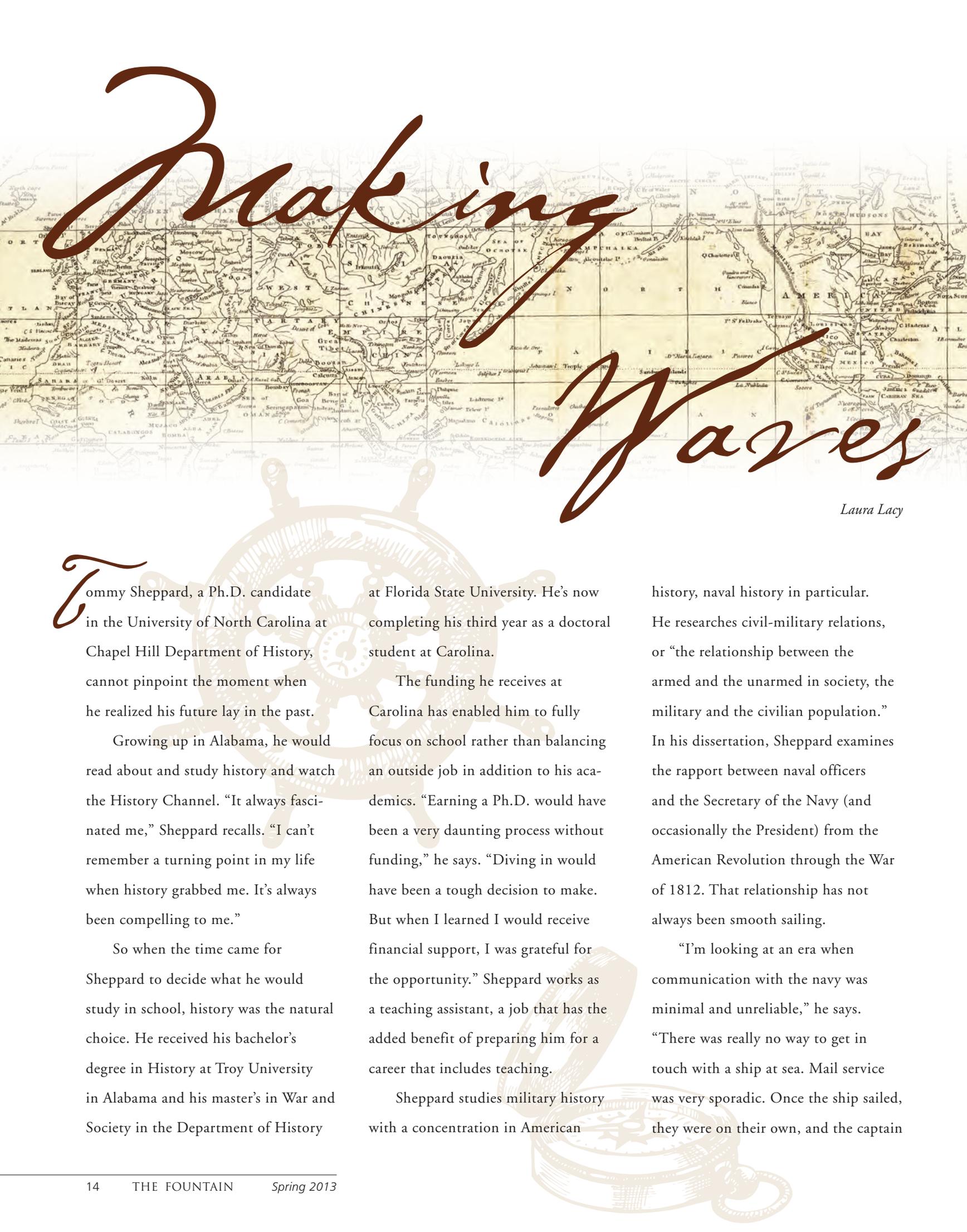
This work inspired Jones’ thesis topic. “I’m looking at the swimmers over a five-month training period,” she explains, “and how the time in the water affects their forward head, forward shoulder posture.” Jones hypothesizes that posture will worsen during the intense training period due to the upper extremity motions the swimmers use. And posture, she says, has been linked as an indirect cause of shoulder pain.

“If we can pinpoint when posture changes the most,” she explains, “we might find the ideal time for athletic trainers to intervene with a rehab program to counteract what swimmers do in the water.” ♦



Photos by Ryan Comfort

Laura Lacy



Breaking Waves

Laura Lacy

Tommy Sheppard, a Ph.D. candidate in the University of North Carolina at Chapel Hill Department of History, cannot pinpoint the moment when he realized his future lay in the past.

Growing up in Alabama, he would read about and study history and watch the History Channel. “It always fascinated me,” Sheppard recalls. “I can’t remember a turning point in my life when history grabbed me. It’s always been compelling to me.”

So when the time came for Sheppard to decide what he would study in school, history was the natural choice. He received his bachelor’s degree in History at Troy University in Alabama and his master’s in War and Society in the Department of History

at Florida State University. He’s now completing his third year as a doctoral student at Carolina.

The funding he receives at Carolina has enabled him to fully focus on school rather than balancing an outside job in addition to his academics. “Earning a Ph.D. would have been a very daunting process without funding,” he says. “Diving in would have been a tough decision to make. But when I learned I would receive financial support, I was grateful for the opportunity.” Sheppard works as a teaching assistant, a job that has the added benefit of preparing him for a career that includes teaching.

Sheppard studies military history with a concentration in American

history, naval history in particular.

He researches civil-military relations, or “the relationship between the armed and the unarmed in society, the military and the civilian population.” In his dissertation, Sheppard examines the rapport between naval officers and the Secretary of the Navy (and occasionally the President) from the American Revolution through the War of 1812. That relationship has not always been smooth sailing.

“I’m looking at an era when communication with the navy was minimal and unreliable,” he says. “There was really no way to get in touch with a ship at sea. Mail service was very sporadic. Once the ship sailed, they were on their own, and the captain



had an almost godlike authority over all of his subordinate officers and the seamen. This didn't foster a mentality of subordination to their civilian superiors when they got back into port."

The tension between these two groups during this time period was evident to Sheppard when he began reading correspondence from the period at both the National Archives and the Library of Congress in Washington, D.C. One of the most intriguing stories he found while exploring those archives is the story of a naval officer who was willing to sacrifice his career after a disagreement with the Secretary of the Navy.

The archival materials tell the story of naval officer Thomas Truxtun,

who served during the American Revolutionary War and after. At the end of his career, Truxtun commanded a squadron of ships, but he still had to serve as captain of the ship on which he sailed. He bristled at this situation. While tending to the day-to-day needs of one ship, he reasoned, the squadron as a whole might not get the attention it needed. If he made an oversight or a mistake due to the arrangement, his reputation would be in jeopardy.

Truxtun asked the Secretary of the Navy for a captain to deal with the daily responsibilities of the ship on which he sailed so that he could manage the squadron more effectively.

When the Secretary refused, Truxtun resigned in 1802, saying "I owed my

life to the service of my country. But I knew of no duty imposing on me the obligation to sacrifice my reputation."

Filled with information such as this, Sheppard's dissertation could ultimately turn into a book, he hopes. But that's not the best part of writing, he says. "There is a real thrill in reading a huge stack of books on a subject by established historians you admire and being able to say 'Aha! They missed something.' The sense that to some small degree you're adding yourself to that stack of books or inserting yourself into the scholarship gives the most satisfaction." ♦



DARK WATER RISING

Laura Lacy



“We are blessed to travel around to different places and share part of our culture.”

When the band Dark Water Rising opened with the first notes of their performance at the Graduate Student Center at the University of North Carolina at Chapel Hill last November, the audience was instantly entranced.

All four musicians of Dark Water Rising are members of the Lumbee Tribe of North Carolina, and three are alumni of UNC-Chapel Hill. The group's name is inspired by the water of the Lumbee River. Their music blends aspects of the Lumbee culture with a mainstream sound.

"We are blessed to travel around to different places and share part of our culture," said lead singer Charly Lowry as she spoke to the crowd.

First Nations Graduate Circle (FNGC), an organization of graduate and professional students devoted to advocacy and support of American Indians at Carolina, invited the group to campus to allow students to interact and connect with the local American Indian community.

The importance of an event like this is apparent to the members of FNGC. Member Chelsea Kolander recalls a recent exchange she overheard while visiting a museum. A mother and daughter walked through the history museum together. They came upon a group of Cherokees that the museum had invited to share some dance from their culture. "Look honey!" said the mother. "Native Americans!"

A descendent of the Choctaw Nation of Oklahoma and American Indian Recruitment and Success graduate student assistant in The Graduate School, Kolander recognized this as an example of a common misconception—that American Indian culture is removed and

remote. "If you're not in the buckskins and the beadwork and the feathers, then it's like people think you're not an Indian," Kolander says.

As a result, the American Indian population can seem virtually hidden, says Brooke Bauer, from the Catawba Indian Nation and co-president of FNGC. "That perpetuates that notion



of the invisibility or absence of American Indians," Bauer says.

This fallacy is one that Kolander, Bauer and other members of FNGC strive to counteract. "Education is important where this is concerned," Kolander says. One way in which the group did so this year was by asking Dark Water Rising to perform on campus for American Indian Heritage Month, an event both educational and entertaining.

"When we were talking at the beginning of the year about events we'd like to plan, we were hoping to focus on and connect with local communities," says Liz Ellis, co-president of FNGC and a

member of the Peoria Tribe of Oklahoma. "And to move beyond academic discussions of American Indian life to incorporate some contemporary culture. Dark Water Rising seemed like a natural fit."

The award-winning band has been featured on NPR's *The Story with Dick Gordon*. They won the 2010 Native American Music Award for "Debut Duo or Group of the Year."

During their performance, Dark Water Rising played their unique and powerful blend of musical traditions, which they have dubbed "rocky soul." The group seamlessly blended aspects of the Lumbee culture with their songs to create a moving show. For example, during one song, Lowry performed a traditional Lumbee dance, the "Fancy Dance," her feet flying with the music.

"They have amazing amounts of energy," says Kolander, who, with Ellis, saw them perform again at Cat's Cradle in Carrboro a few days later after a wearying tour schedule. "Their music is very moving and very healing."

FNGC was able to bring this show to Carolina with the help of the Performing Arts Special Activities Fund (PASAF) grant, which, according to the grant's application, supports quality performing arts projects to enhance the creative and cultural environment at UNC-Chapel Hill.

"We believe it is important to give students an opportunity to interact with local artists and connect with our neighboring Native communities," Bauer says, "and to publicly showcase and remind the Carolina community at large that Indian people and culture continue to flourish" ♦

Working on Watersheds

Danielle Spurlock is a doctoral student in City and Regional Planning and a member of the Royster Society of Fellows. After graduating from Stanford University and working in public health, she was drawn to the University of North Carolina at Chapel Hill by the initiative of Carolina students and her interest in their research. She now researches infrastructure and planning capacity in watersheds, also known as drainage basins. The Fountain's Senior Editor Cindy J. Austin sat down with her to learn more.



I heard you're a two-time Tar Heel. Tell me more about that.

Yes, I am, I bleed Carolina Blue. I graduated with my master's in 2005 from the dual degree program between the Department of Health Behavior and Health Education and the Department of City and Regional Planning. I was one of two guinea pigs the first year of the dual degree but it was great to have a program that fit my curiosity as a student so perfectly. Now I'm back at UNC working on my Ph.D.

What attracted you to UNC-Chapel Hill?

While working in public health in Oakland, I saw footage from the Annual Minority Health Conference held here that is completely student-run and was amazed at what these students were studying and accomplishing. I thought to myself, "I have to be a part of that." And in the past few years I've served as a session speaker at that very conference.

How did you become interested in public health's relationship with regional planning?

There was a moment when I was in a class at Stanford that looked at immune response. I was fascinated by a

throwaway story the professor told about increased malaria rates in war-torn countries because water was collecting in bomb craters. It was a passing moment for everyone else but it was when I realized what I wanted to study.

What does your dissertation work entail?

I'm looking at two watersheds in different states and I'm finding that planning institutions and policy interventions aren't producing a higher quality plan. I want to see if we are incorporating scientific data from other fields to plan watersheds, and then are we implementing policies all the way down to approved and constructed plans? If so, does it make a difference in the end product or repair?

What impact could your research have?

I hope my research will better inform policy interventions around watershed protection and encourage planners to incorporate scientific data. One thing I've learned from the Royster Fellowship is that we have a lot to learn from other disciplines, so using all the best research can optimize policies and plans for the future. ♦

For more information on Royster Society fellows like Danielle Spurlock, please visit gradschool.unc.edu/royster.

The Gift of Time

Deb Saine

When meeting the refined professional that Harold Glass is today, it's hard to picture him as a young man in a hard hat and work boots, laboring at a construction site on a hot, summer day.

Today, Glass is a Professor of Health Policy at the University of the Sciences in Philadelphia and Senior Research Fellow at the Centre for Evidence Based Policy, Kings College, the University of London. He is the founder of two companies, both of which he has since sold.

However, one summer during his doctoral education, Glass supported himself by working in the Hamilton Hall library—and as a construction worker on a building site off US 15-501. He remembers the experience with clarity.

“It was very hard, after having worked all day in construction, to focus on doing research,” he says.

That is one of the reasons Glass, who received his Ph.D. in Political Science from the University of North Carolina at Chapel Hill, is committed to supporting The Graduate School's Summer Research Fellowship program. Thanks to private donors such as Glass, dozens of graduate students have received the opportunity to focus exclusively on their dissertation research over a summer. These students, primarily within the humanities and social and behavioral sciences, would normally have needed to interrupt their research to support themselves during this time.

In the 2010-2011 academic year, Glass provided funding that enabled two graduate students to receive summer fellowships. For the 2011-2012 academic year, he provided funding that made five summer fellowships possible. And for the summer of 2013, Glass is providing



Photo by Will Owens

In his role as a member of the Graduate Education Advancement Board, **HAROLD GLASS** presents 2012 Impact Award recipient Aadra Bhatt with a plaque to honor her outstanding research. Glass supports graduate education at Carolina in many ways, including providing financial gifts that have created 17 Summer Research Fellowships for graduate students over the past three years.

funding that will enable 10 graduate students to focus exclusively on their research.

Glass also generously gives his time to supporting graduate education at Carolina as a member of the Graduate Education Advancement Board.

“Harold is determined to do all he can to help graduate students at Carolina, and I am truly inspired by his financial commitment toward graduate student success,” said Steve Matson, Dean of The Graduate School. “As both a member of the academy and a businessman, he also offers a deeply valuable perspective on these students’ needs and on the skills they will need to successfully navigate a rapidly changing workforce.”

In his work with doctoral students, Glass is constantly connecting to the “big intellectual leap” these students take in pursuing original research and structuring that research into a dissertation. “You

are undertaking such a large step where you present your ideas and your argument so your work is different than what anyone has done before. Then you must say, ‘This is my work and I will share it with everyone in the world.’”

The process is even more difficult when financial challenges potentially interrupt that work.

“Eliminating students’ financial roadblocks enables them to contribute their ideas to the world much faster,” Glass says. “And that benefits everyone.” ♦

MAKING A DIFFERENCE



Photos by Will Owens

The Graduate Education Advancement Board

(GEAB) assists The Graduate School and the University through proactive advocacy and generating funds for graduate education at the University of North Carolina at Chapel Hill. Members of the board are appointed based on their distinguished character and leadership, a belief in the importance of graduate education at Carolina, a sensitivity to different perspectives about graduate education and fundraising, and a willingness to apply their special skills and strengths to advance the mission of The Graduate School. During the 2012 fall meeting, Chancellor Holden Thorp and faculty



members from Computer Science, Political Science and Religious Studies shared their perspectives on the future of the public research university and graduate education. The Chancellor spoke of the University's commitment to excellence, access, diversity and innovation and discovery aimed at solving the world's challenges.

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In front of Bynum Hall, which houses **The Graduate School**, stands a spectacular fountain. It is a popular gathering place and welcomes visitors to the University. The title of this magazine, which was first published in 1999, is inspired by this landmark. *The Fountain* showcases the pursuits and accomplishments of individual graduate students, while also reflecting the dynamic, holistic, multi-disciplinary view of graduate education at the University of North Carolina at Chapel Hill.

- *The fountain was a gift from the undergraduate Class of 1988 to honor Chancellor Emeritus Christopher Fordham III, who also served as Dean of the School of Medicine, and died in 2008.*
- *A volleyball court once graced the area on which Fordham Fountain now stands and Bynum Hall served as a gymnasium from 1905 to 1937.*
- *The Fordham Fountain was completed November 1995.*
- *Stone amphitheatre seating and brick walkways surround Fordham Fountain to create a venue for outdoor class meetings and private reflection.*

