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American Lifeguard Magazine™

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The USLA manages the American Lifeguard Magazine™ and publishes it tri-annually with a Summer Issue (July 1), Winter Issue (Nov. 1), and a Spring Issue (Feb. 1). The 36 page publication is mailed directly to its 14,000 members comprised of ocean lifeguards, administrators, junior guards, competitors and alumni. The American Lifeguard Magazine™ serves to inform USLA members on a variety of public safety topics ranging from training and educational programs to innovative products, practices and services. More importantly, it is the only national magazine to target beach lifeguards and open water rescuers. The rates are:

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Editor’s Note: If your photo is used on the cover of the ALM, the USLA will send you a check for $100.00. Please send your photos on disk in the highest possible resolution, preferably taken with a digital camera with 5 mega pixels or higher to: USLA – American Lifeguard Magazine, 15481 Cottonwood Circle, Huntington Beach, CA 92647.

Cover Shot: July 4th, 2010, Huntington Beach, CA. Photo courtesy of Chris Clarke, Huntington Beach, CA

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If you want to be respected as a professional, you’ve got to act like a professional.

I was reminded of that dictum as I recently toured the brand new beach patrol headquarters in Miami Beach with Lt. Gerry Falconer. On the beach at 10th Street and Ocean Drive, it includes a spacious workout facility, a ready room, a classroom, several individual offices, a reception area, a locker room, and a variety of related facilities. The lifeguards are no longer crammed into a substandard facility. The members of this recently USLA certified agency are treated as public safety professionals.

Miami Beach is not alone in the metamorphosis of lifeguard facilities. A few years ago, the Volusia County (Florida) Beach Patrol headquarters was rebuilt. By all accounts it's an incredible building, 23,000 square feet in size, with a large community meeting area, along with all of the accoutrements included in the Miami Beach facility, and more.

Los Angeles County just completed a brand new $5 million lifeguard headquarters in Avalon on Santa Catalina Island. The paramedic lifeguards there will now work from a 7,000 square foot, two-story, Spanish-style building adjacent to the city’s fire station. It includes two large kitchens and sleeping quarters for the two to three full-time lifeguard paramedics assigned there at any one time, as well as five part-time lifeguards in summer. There are two day rooms, a reception office for the public, and a 4-vehicle apparatus bay.

In 2006, one of San Diego's lifeguard observation stations I’d worked at in the Pacific Beach area, where we could barely fit a single Jeep in the garage, and where the unisex locker room and ready room were on the observation deck, was replaced with a 4,400 square foot facility. It includes separate locker space for men and women, offices, sleeping quarters for lifeguards on the 24-hour response shift, a multi-vehicle garage, and a commanding, isolated observation deck. I was pleased to have a small hand in the building’s planning.

A year prior, a new headquarters building opened in Huntington Beach. The two-story, $4 million, 12,000 square foot facility came equipped with surveillance gear, an observation deck, office space, separate male/female locker rooms, and a 14 vehicle garage, among many other features. Steps away, a standalone 5,500 square foot Marine Safety Educational Center was built for the training of lifeguards and junior lifeguards.

It was not always this way, of course. I recall, in the 1980s, working out of facilities that were primitive, at best. At San Diego's Black’s Beach, we sat in flimsy, folding beach chairs upon the overturned rescue board atop our emergency vehicle, so that we could get a better view of the teeming crowds (of mostly nudists). Our restroom was the ocean. At North Pacific Beach in San Diego, we worked out of a two-level, collapsible plywood shack, and walked to the public restroom. We kept 'em floating, but we felt like itinerant workers.

There were certainly advances in the 1980s and 1990s. Some larger lifeguard facilities were built in a few places, but they were the welcome aberration, not the norm. Thankfully, those primitive days of lifesaving are becoming memories. Appropriately sized, well constructed facilities are increasingly rising on beaches around the US. In San
Diego, three new permanent towers are slated to be built in the next few years; in Laguna Beach, if regulatory hurdles can be overcome, a new headquarters is budgeted; and in Redondo Beach, a shared 4,000 square foot facility for lifeguards and harbor patrol officers is in the works.

There is a reason for all of this. Our young profession, which began in earnest only a little over 100 years ago, is transforming in the public mind from one of a casual summer avocation, to one of a respected, essential public safety service. And while we may still seem to be hurt a little more than other public safety providers in a down economy and rewarded a little less in an up economy, we are on the move, as Martin Luther King said, “Like an idea whose time has come.”

The opportunity to work as a professional lifeguard is a gift few will ever experience. Those who came before us felt obligated to make it better for those who came after. And they did so. It takes many years to build the sort of professional reputation that demands the respect implied by these lifesaving edifices. It takes years to plan them, fund them, and build them. And those who will benefit by them are now similarly obligated to ensure that lifeguards who come after them have it better too. The torch is passed.

Tomorrow, when you put on your uniform, make sure it’s clean and neat; make sure you look like a professional; go about your day with dignity and humility; remember that you represent us all, and that it is our collective image that allows our profession to advance.

If you want to be respected as a professional, you’ve got to act like a professional. We have. We are. We progress. Lifesaving aye.

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AT A TIME WHEN ECONOMIES ARE UNDER DURESS, SOME MAY WONDER IF TAXPAYERS CAN AFFORD TO CONTINUE TO FUND GOVERNMENT LIFEGUARD OPERATIONS. A BETTER WAY OF POSING THE QUESTION MIGHT BE: CAN WE AFFORD NOT TO? IN 2001, THE CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC) ISSUED ITS LIFEGUARD EFFECTIVENESS REPORT WHICH, BASED ON AN ECONOMIC COST-BENEFIT ANALYSIS, FOUND “ALTHOUGH WATER-RELATED INJURIES AND DROWNINGS ALREADY RESULT IN TREMENDOUS COSTS, THEY WOULD BE SUBSTANTIALLY HIGHER WITHOUT LIFEGUARDS.”

JUST OVER FIFTY PERCENT OF FLORIDA’S LIFEGUARD AGENCIES CURRENTLY REPORT THEIR OPERATIONAL STATISTICS ANNUALLY TO THE UNITED STATES LIFESAVING ASSOCIATION (USLA), A NATIONAL, NON-PROFIT ORGANIZATION DEDICATED TO REDUCING THE INCIDENCE OF DROWNING IN THE OPEN WATER ENVIRONMENT. THESE COMBINED AGENCIES REPORTED 55 MILLION BEACH VISITS IN FLORIDA IN 2008, WITH LIFEGUARDS LOGGING JUST FEWER THAN 6,000 AQUATIC RESCUES. IF ONE PERCENT OF THESE RESCUES HAD INSTEAD RESULTED IN DEATH DUE TO THE ABSENCE OF LIFEGUARD PROTECTION, THE ECONOMIC VALUE OF THOSE DEATHS, BASED UPON STATISTICS COMPiled BY THE NATIONAL SAFETY COUNCIL, WOULD EXCEED $270 MILLION.

THE PRIMARY RESPONSIBILITY OF A LIFEGUARD IS TO SAVE LIVES. LIFEGUARDS PERFORM WORK THAT IS PHYSICALLY DEMANDING AND ARDUOUS; IT IS WORK THAT REQUIRES EXTRAORDINARY AGILITY AND MENTAL ACUITY. LIFEGUARDS ARE THE ONLY CLASS OF EMERGENCY SERVICES WORKERS WHO ARE PERFORMANCE TESTED ANNUALLY, THROUGHOUT THEIR CAREERS.

NEARLY FIFTY PERCENT OF FLORIDA’S LIFEGUARD AGENCIES ARE CURRENTLY MANAGED BY PUBLIC SAFETY DEPARTMENTS. LIFEGUARD AGENCIES ARE REQUIRED BY LAW TO ENTER INTO A MEMORANDUM OF UNDERSTANDING WITH THE EMERGENCY SERVICES LICENSEE IN THEIR RESPECTIVE AREAS OF OPERATION. SOME LIFEGUARD AGENCIES HAVE POLICE POWERS AND SOME SHARE RESPONSIBILITY FOR EVACUATIONS DURING NATURAL DISASTERS. COASTAL LIFEGUARDS ARE RECOGNIZED AS A CONSTITUENCY GROUP MEMBER OF THE FLORIDA DEPARTMENT OF HEALTH’S EMS ADVISORY COUNCIL.

TO BE SURE, THE CIRCUMSTANCES OF THE RECENT AND TRAGIC INCIDENT IN WHICH KITEBOARDER STEVE SCHAFER LOST HIS LIFE DUE TO A SHARK ATTACK, AND MARTIN COUNTY LIFEGUARD DAN LUND RISKED HIS IN AN EFFORT TO SAVE SCHAFER, WERE EXTRAORDINARY, BUT THE PROFESSIONAL LIFEGUARD IS ALWAYS PREPARED AND WILLING TO RESPOND TO UNEXPECTED LIFE-THREATENING EMERGENCIES. IN RETURN, LIFEGUARDS ASK ONLY TO BE RECOGNIZED AND SUPPORTED FOR THE TYPE OF WORK THEY PERFORM.

“Am I the only one on Medicare who is taking the test today?” With these words, Don Davis presented proof of his age as he registered to take the National Park Service’s (NPS’) Surf-Lifeguard Pre-Employment Test at Fordham University on January 9. As it turns out, he was. The participant next closest to him in age that day was 49.

Davis, a 65-year-old former chief lifeguard for City of New York Parks Department, successfully completed the test as an annual requirement of all those seeking to work on the surf-lifeguard staff at Gateway National Recreation Area.

Davis’ noteworthy performance was not lost on Gateway National Recreation Area Water Safety Coordinator Carl Martinez or the other test participants. “All participants that day witnessed the truly inspiring power of personal example,” said Martinez. “Whether they were 15 or 49 years old, each of them will retain the memory of Don’s feat. And, in life, it really does not get very much better than that.”

The three-part test consists of timed performance objectives designed to measure for factors directly related to surf-lifeguard work, such as speed, strength, and stamina; knowledge of basic swimming-rescue and adult CPR procedures; and readily observable skill in effectively applying such knowledge under stressful conditions.

The first part of the test requires completion of a 600-yard swim in less than 10 minutes (in a 25-yard pool or other measured course, using a swim stroke on the front only). Davis completed the required distance in 9:45 minutes. By contrast, another test-taker, age 20, failed this section of the test with a finish time of 10:03 minutes.

The next section of the test, the speed rescue, involves swimming 50 yards to a dummy; towing that dummy 50 yards back to the starting point; quickly exiting the pool; then performing three cycles of adult CPR on a manikin—all in less than 4 minutes. Davis completed this section of the test in 3:25 minutes.

The final part of the test requires completion of a 1-mile run in less than 12 minutes (on a 1-mile track or other measured course). Davis completed the required distance in 11:36 minutes. By contrast, another test-taker, age 29, failed this part of the test with a finish time of 12:07 minutes.

Davis passed the required test to qualify for a highly coveted spot on the surf-lifeguard staff of Gateway National Recreation Area.

Since the park’s first summer season, in 1974, this staff of some 150 dedicated women and men has provided professional life-guarding services to more than 100 million beach goers. Gateway National Recreation Area sees over 9 million visitors a year, making it one of the most visited sites in the National Park System, in the largest metropolitan area in the country.
In this article, I am going to be talking about some concepts and ideas that are “food for thought” for the beach lifeguard. If put into practice, these concepts can raise the percentages for a favorable outcome during any myriad of emergent situations that one may encounter while on or off duty. Hopefully some of this can pertain to you and your work environment. Enjoy.

In regards to our lifeguards here at my agency, I am very fortunate and honored to be in the position to oversee training. I get to implement and try new ideas and concepts and I get a lot of feedback while doing so. Once or twice per year I get to speak with candidates that are in the “San Diego Regional Lifeguard Academy”. When addressing academy students over the last few years, I have always talked about the concept of being a “Waterman!” I ask for students to give their definition of the word and we get some neat responses. All of them are usually correct to some extent if not entirely so. It makes for an interesting start to an interesting set of concepts.

Watermen come in all types and sizes and all walks of life. There is a chapter in James Michener’s book “Chesapeake” called “The Waterman”. These are men who made their living dredging oysters in all kinds of conditions on the venerable skipjack. I am sure they know nothing of towing into big waves like Laird Hamilton does and he is no doubt an accomplished waterman as well. To me, the word “Waterman” when used to define an individual is someone who has a very complete sense of the environment that they live, work, and or recreate in. This individual has an exquisite knowledge and understanding of the elements at play around them and an expert understanding of the tasks they undertake. And to all you big strong guys out there, don’t think even for a second that the term only applies to men. Two of the best lifeguards I work with are women that can swim, paddle, and make rescues with the best of em’!!! They are an excellent example of what we should all strive for in regards to competence within our operational area.

Now that we have decided on an acceptable definition for the aforementioned, we can get to taking a look at some specifics. What I like to do is draw a large circle on the chalk board. Then I ask all the students to tell me everything you can do in the near-shore ocean environment (near-shore should be defined as three nautical mi. or less) where we work. You should try it and see how many things you can come up with. Place each activity in the circle to form a “pie chart”. While you make your chart, be sure to make it as thorough as possible. For example; You can dive in the ocean. So when you place “Dive” on your chart, is that a thorough answer? Maybe not… You can free-dive, SCUBA Dive to sport diving depth limits, or you could be a deep diver trained in “Tri-mix” diving etc. I am sure you get the point. Once you really get into it, you begin to see an absolute multitude of possible activities one can do in our work environment. Oh, and don’t forget to put “lifeguarding” or something of the like on there as well.

Paul Chapman, Encinitas, CA

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Now that we have a definition for a type of individual as well as a visual aid to show us several different types of activities that take place in our operational area, I like to make the following request. “Take a good look at that chart and ask yourself just how many things on that chart you are truly competent at doing”. Now before doing so, we should ask ourselves just what does “competent” mean? Let’s take the item on your pie chart that says “surfing”. If you are truly competent at surfing then you could probably have the following resume with the requisite knowledge:

- You have ridden waves of all sizes on all types of boards
- You have knowledge of where waves come from and why they break
- You understand the effects of tide, wind, current etc. on the surf
- You could give some history of the sport as well as how that has effected the way we ride waves and the equipment we use

This is could go on and on. The point being is that true competency does not come easy and may be a lot more involved than a first glance might dictate. So now we are ready to relate the above definitions with our visual aid to form a basic concept of how being a competent waterman applies to our work as professional open water lifesavers. To put it simply; I can guarantee that if you work on the ocean for only one summer you will make rescues and/or medical aids. If you work on the ocean for several summers, you will participate in life changing rescues that had both good and not so good outcomes. And if you look at the chart, I can guarantee that someone was doing one of those activities. In your water, these activities are taking place by individuals who fill a broad spectrum when we look at their level of competence! In other words, they may have none at all.

That is precisely why we should strive for true competence in as many areas of the chart as we reasonably can. The training you receive in regards to rescuing victims and rendering first aid is top notch. However it just isn’t practical to take all the lifeguards out sailing is it? There is a very good chance that at some point in your job duties, someone who doesn’t sail so well is going to have a problem in your water. The lifeguard will make effective and professional semaphore and/or radio communications to get the right resources to assist the sailor in need. However the waterman who knows boats and how to sail might just save the whole boat instead of just the crew.

So to wrap it all up, why not build a chart of your own and look at your development as a waterman and how it relates to lifeguarding? Look at those areas you might have limited or no experience at and think about developing some new water skills or enhancing some of the ones you already have. It’s fun if you love the ocean, and the best part is that you never stop learning no matter how much you know. I hope you found this “food for thought” interesting. Striving to be the best lifeguards we can be, can sometimes take us to places beyond our on-the-job training. For me, it is a very rewarding pursuit. Here’s wishing you the best in your goals and aspirations as a professional lifesaver. You too can take pride in being able to say;

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On a certain level, the cities of Lima and Los Angeles resemble each other in a few important ways. Both are a large coastal metropolis composed of an urban sprawl defined on its western edge by the Pacific Ocean shaped into a smooth bay, and only slightly connected by a cohesive public transportation system. Another salient similarity is the Spanish language, which as any Angelino knows is often the lingua franca of our city of Angeles. But what Los Angeles and Lima really have in common is their system of lifeguard operations, something I have noticed since I arrived in Lima and began working with the Peruvian lifeguards over two months ago.

My name is Max Dean Goldstein, and I have worked with the Los Angeles County Fire Department as an Ocean Lifeguard since the summer of 2003. Upon graduating from Bowdoin College in Brunswick, Maine, in May of 2009, I was awarded a Thomas J. Watson Fellowship, granting me a year of international travel based around a project of my own design. The requirements: to remain out of the U.S. for an entire year, to not go anywhere that I’ve previously travelled to, and to stay away from countries in the midst of warfare. My project: to swim around the world. Awesome: yes. Possibility: infinite.

I left the U.S. on August 2nd, 2009 after another summer working as a Junior Lifeguard instructor in Santa Monica. I spent the first three months of my fellowship year between Spain and Morocco, training to swim across the Strait of Gibraltar with various swim teams and lifesaving clubs, ultimately leaving behind a series of projects that I hope to return to in March of 2010. These include swimming and lifesaving programs in Morocco, and the goal to assemble an international relay of swimmers to cross the Strait of Gibraltar, symbolizing how we can actually swim across a border that divides us. If you are interested in these projects, please contact me, but for now, let us get back to Peru…

*to page 17...*
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The Lifesaving Society is the exclusive North American distributor of Dolphin Surf Craft – Australia’s premier surf craft.
I arrived in Peru on November 3rd, together with Carlos Alonso Ruiz, a Spanish lifeguard that I met while in Spain. Carlos competes on the international level in ocean lifesaving, and taking advantage of a paid trip to a competition in Brazil, he decided to hop across the South American continent and spend the next three months with me in Peru.

Arriving in Lima, we found that the Peruvian lifeguards are managed through the Peruvian National Police, and are first and foremost policemen. Not only do they form the national police force, however, they are actually the police that work in anti-disturbios y control de multitudes—the crowd control and riot police. This is slightly different than your typical lifeguard, who tends to spend the off months as a student or teacher, and this difference was the basis of our surprise when we first went to the lifeguard headquarters in Lima and encountered ourselves in the middle of a South American police outpost.

When we arrived that first day at Lifeguard Headquarters, we were greeted by armed guards and a security check. Things calmed down when Captain Herbert Ramos appeared, welcoming us to what he referred to as our new home. He gave us a tour of headquarters, revealing a highly outfitted compound in need of some TLC. Their huge stash of boards is at least 15 years old, all of which have no side straps and are made of thick waterlogged foam—more of a hazard in the water than they are a help. There is one jet ski that works, most of the time, and many more that don’t have motors. The rescue cans are the same torpedo shape as the ones we use in L.A. The problem is that many are made of fiberglass and not plastic, and have all been repaired in some very creative ways, making me doubt their practical use. Aside from the armed guards that patrol the compound holding large guns, or the riot police that stroll in for lunch bearing shields, helmets and batons, the general ambience of the headquarters is similar to what you would expect: a bunch of lifeguards moving in and out of the place, dressed in reds and wearing sandals on slightly sandy feet.

Their training academy is extremely challenging and is designed to filter out the unfit. Their motto is “Nuestra razón de ser es la vida de nuestros semejantes” or “Our reason to be is the life of our fellow brethren”. They interpret the physical challenges of their academy as a way to determine who has the strength and spiritual capacity to put their life on the line for a victim. Given that they begin the academy in early October, amidst the cold end-of-winter-ocean in Lima, the filtering/freezing process isn’t hard to do.

To enter the lifeguard training academy (assuming you are already a member of the police force), you must pass a swimming exam that consists of swimming 25m of each of the four strokes, plus 25m of sidestroke. Once accepted, the rookies begin a long three month academy, where Monday thru Saturday, from 7am until 6pm, they are at the mercy of their instructors. This year, 102 participants began the academy and only 60 finished.

During the first six weeks of the academy they focus on enhancing the swimming skills of the lifeguards, spending hours each day in the pool and ocean. They are also consistently given written exams on lifeguard protocol, oceanography, first aid, and CPR. The instructors are very tough, ordering push-ups and extra swims at the slightest misbehavior. In order to finish the academy, they must pass...
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USLA SPRING NATIONAL MEETING IN GALVESTON, TEXAS
For his outstanding contributions to Water Safety throughout the world, Chris Brewster, President of the United States Lifesaving Association (USLA), was honored with the “Paragon Award” in the Water Safety Category presented by the International Swimming Hall of Fame (ISHOF). The ceremony took place on May 7, 2010, at the International Swimming Hall of Fame in Fort Lauderdale, FL and included several other awards at their annual ceremony and AT&T International Diving Grand Prix.

Chris Brewster began his lifesaving career as a lifeguard on the beaches of San Diego, California in 1979 and has grown over the past thirty years to become one of the world’s most influential promoters of beach and open water safety. His passion for lifesaving education has caused him to serve in leadership capacities on numerous lifesaving and water safety organizations including President of United States Lifesaving Association (USLA), America’s professional association of beach lifeguards charged with reducing the incidence of death and injury by drowning. Through Brewster’s initiatives and planning, the Lifeguard Agency Certification Program, the Lifeguard Agency Response Team Program and the USLA National Manual, designed and implemented to help professional lifeguards be more prepared and effective.

Chris serves as Vice President of the International Lifesaving Federation, the world’s international organization of lifesavers and as President of the Americas Region, where he oversees ILF activities throughout the western hemisphere including North, South, and Central America, the Caribbean, and Hawaii. He is lifeguard Chief (retired) of the San Diego Lifeguard Service and Harbor Master with an annual budget of $10 million with two hundred and forty employees. He has authored, co-authored or edited over twenty one written articles, bills or papers; presented over twenty four lectures and presentations in seven countries; given over twenty five media appearances; and attended or presided over one hundred and thirty meetings, seminars, and events around the world.

As author of the “USLA Manual of Open Water Lifesaving”, he has initiated the US National Certification Program for Beaches and served as Chair of the National Certification Committee. For more information on Brewster, please visit www.lifesaver1.com.
Huntington Beach Marine Safety Officer II Claude Panis (lifeguard rescue boat captain on left) was summoned to the scene of a boat fire in Huntington Harbor in April 2010 to transport fire fighters to the OC Sheriffs boat for fire suppression. The 42 foot cabin cruiser exploded and was engulfed with flames after starting their engines at a fuel dock and failing to properly ventilate the fuel vapors. The operator and passengers were treated for injuries and no deaths were reported.
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On the beach at Ocean City, Maryland lifeguards like Ben Davis learn to read the waves and whistle swimmers and waders away from rip currents. Davis is crew chief down at the south end of the beach where the wooden city pier creates frequent rips by steering longshore currents out to sea. Credit: Michael W. Fincham.

IT'S D-DAY MINUS 1, AND BEN DAVIS BEGINS HIS MORNING with a 5:45 am workout. Two days earlier it was an 800 meter run, 30 kettleball swings, and 30 pull-ups, five rounds of each. Today it's ten snatches with maximum weight. He's doing Crossfit training, a popular regimen promoted for "forging elite fitness," especially for first responders.

Fitness matters for Davis. He's a first responder, a crew chief for the lifeguards watching the south end of the 10-mile sand beach at Ocean City, Maryland. A four-year veteran of the Coast Guard and a nine-year veteran of the Ocean City Beach Patrol, Davis has brown, sun-streaked hair and a solid build he has to keep in shape. At 31 years old, he's got to be ready to run fast on wet sand, swim hard through heavy swells, and haul drowning bodies off the bottom of the ocean.

Fitness comes easier for Billy DePaola. He's a wiry, curly-haired first timer, fresh from college and four years of lacrosse and soccer. For DePaola, D-Day minus 1 begins with lifeguard drills on the beach. He carries injured swimmers out of the breaking waves. He practices sprinting, diving, and swimming out through the swells, first with his small red buoy, then with a landline, and finally with a long, yellow rescue surfboard.

It's final exam day for DePaola and 33 other rookies working with the Ocean City Beach Patrol. For them, the beach drills are more fun than work, letting them race from one drill station to the next, then plunge into the surf, compete in teams, pull out practice victims, and celebrate with wisecracks and fist bumps. If they pass, they graduate, go off probation, and get a pay raise.

It feels like any last practice before any big game, but it's also like a war game of sorts. At each station sergeants and lieutenants are giving orders. Wherever they go veterans are walking around, arms folded, yelling "Keep your eyes on the ocean." Tomorrow is the start of the three-day July 4th weekend, D-Day for the Beach Patrol. This holiday always brings a massive invasion of beachgoers down to one of the East Coast's busiest beaches. That means tens of thousands of people will be plunging into the waves, many of them with weak swimming skills, and most with little understanding of what can happen when those waves slide back out to sea.

Beachgoers worry about sharks and lightning, but lifeguards worry about rip currents. Along most American beaches, they are the big killers. On any shore with breaking waves, channels of seaward-flowing water can suddenly open up and sweep swimmers and waders out past the breakers into deeper waters well beyond the beach. For most victims, swimming back against the current proves futile, leaving them exhausted and swept further out to sea. Most drownings on American beaches are rip current drownings. And ninety percent of the rescues by lifeguards at Ocean City are rip current rescues.

"Rotate! Watch your rotation," barks a sandy-haired man who's watching the beach action from beside a white jeep. Butch Arbin, captain of the Beach Patrol and a 37-year veteran, set up these final maneuvers and he wants them done right — all of them. "Station leaders," he yells through a loudspeaker, "Keep your people moving."

He wants all his guards, both veterans and rookies, ready for D-Day. He remembers what happened this time last year.

TONY DALRYMPLE AND VARJOLA NELKO thought they would never find a hotel in Ocean City. This was the fall of 2006 and the two scientists weren't looking for a room. What they wanted was a roof with a view. There they would set up four video cameras that would take pictures of the beach every day of the year. All the hotel managers hesitated. They had to check with ownership and ownership was often a corporation located in another town that saw little to gain from letting two scientists loose on a rooftop. It took dozens of phone calls and treks to 15 hotels before the manager of one hotel, the Grand Stowaway Hotel, said yes. What was the argument that worked? The cameras, the scientists said, could help save lives.

What would save lives, said Dalrymple, would be an accurate forecast for dangerous rip currents. Tony Dalrymple is lean, laconic, and white-haired, a coastal engineer at Johns Hopkins University who's published widely on wave dynamics and their effects on coastal structures like beaches, breakwaters, jetties, and derricks. He's been consulted on tsunamis in Thailand, hurricanes in New Orleans, and giant surfing waves in Hawaii. He's also kept up a long-standing interest in wave dynamics and their effects on coastal structures like beaches, breakwaters, jetties, and derricks. He's been consulted on tsunamis in Thailand, hurricanes in New Orleans, and giant surfing waves in Hawaii. He's also kept up a long-standing interest in wave dynamics and their effects on coastal structures like beaches, breakwaters, jetties, and derricks.

...to page 28...
a less-famous subject: rip currents. When a new grad student, Varrjola Nelko, arrived from Albania and Turkey in search of a Ph.D. topic, he gave her a tough one. They would work up a new way of predicting when rip currents are likely to show up.

How could they sharpen rip current forecasts using cameras? By capturing actual photos of rip currents as they formed. Then by correlating those rips in the photos with weather data about wind and waves, the natural forces that drive these killer currents. That, at least, was the approach he wanted to try.

Observation, analysis, and predictive modeling, that’s a classic progression, but it’s not the way scientists usually forecast rip currents. Ever since the late 1980s scientists have focused on rip current rescues, not on actual rip currents observed in action. With their cameras, Dalrymple and Nelko were trying to change the ground rules of the forecasting game.

HISTORY’S MOST FAMOUS D-DAY WAS the large beach invasion that happened 65 years ago this summer. On June 6, 1944, more than 150,000 American, British, and Canadian troops waded ashore through a three-foot surf, launching the Normandy Invasion that began the liberation of Europe and helped end World War II. One little-known key to the success of that long-ago assault was a top-secret technique, newly invented, that helped forecast the waves and surf that would be hitting the target beaches that day. On one of the bloodiest days of the war, that forecast helped save lives.

That technique, created by an Austrian named Walter Munk and a Norwegian named Harald Sverdrup, is no longer secret. Its basic claims about wind-created waves form the conceptual starting points for contemporary wave forecasting — and now for rip current forecasting. A wave, they said, starts with a wind somewhere in the world scraping along a stretch of ocean. They called that expanse of wind-stroked water a "fetch," and they theorized that the size and speed and direction of a wave depends on how long and wide the fetch is, how long the wind blows across it, and how strong the wind is. Six decades after the Normandy Invasion, any surfer can now go to websites like Surfline.com or WaveWatch.com and find an up-to-date forecast for the wave and surf conditions they’ll probably see that day when they wade out with their boards from their local beach.

At Ocean City the beach patrol gets its wind and wave forecasts from the National Weather Service, specifically from the Wakefield, Virginia office where forecasters work up predictions using data from offshore buoys and output from the powerful numerical models that form the heart of contemporary wave forecasting. Since the buoys and the models don’t always match, the forecasters turn to other statistical tools and, finally, to their own judgments. "It’s not just: ‘Here’s the model, it’s saying this.’ And we just go with it," says John Billet, science operations officer at the Center. "We make adjustments." The final forecast is always made by people.

Standing on the shore at Ocean City, lifeguard captain Butch Arbin can now find out what kind of swells are heading towards him, even if they’re all the way from a "fetch" near Europe or Africa. Like most lifeguards, Arbin watches these wind and wave forecasts closely, but warily. What he really needs for his D-Day weekend is a way to turn those reliable wave forecasts into usable rip current forecasts.

IN THE 1980S, A METEOROLOGIST in Miami began asking medical examiners and beach patrols for reports about drowning deaths and rip current rescues along the beaches of southeast Florida. Jim Lushine, a forecaster with the National Weather Service, collected these reports and then looked for correlations between rip current rescues and weather conditions. What combinations of wind and wave conditions matched up with high rescue days, with moderate rescue days, with low rescue days? When lifeguards told him to focus on wind events, he pulled ten years of wind records for Miami Beach and found a robust correlation between strong onshore winds and high numbers of rip current rescues. Ebbing tides also correlated strongly. Focusing on winds and tides, he built the country’s first system for forecasting rip current dangers. The Miami office began issuing daily warnings about high risk, moderate risk, and low risk days.

Long-distance ocean swells, surprisingly, got little play in his early predictive model for rip currents, apparently for geographic reasons. Long-running swells that crossed the ocean from Africa or Europe and headed towards Florida were largely blocked by the shallow waters of the Bahama Islands. Surfers who track big swells call this effect the island shadow. Later scientists who adapted the Lushine scale to other beaches gave greater numerical weight to wave heights and to long-period swells originating in distant locations. The game of mixing and matching weather factors with rip rescues was on.

And the game continues today. To work up a rip current prediction for Ocean City, John Billet and the other forecasters at the Wakefield Center use a later version of the system Lushine pioneered in Florida. They call their tool MALURCS, short for the Mid-Atlantic Lushine Rip Current Scale, and in their version of Lushine’s scale ocean swells — their size, timing, and direction — are hugely important. "They are definitely the biggest input," says Billet. There are, after all, no nearby islands standing between Ocean City and the other side of the Atlantic.

The Wakefield forecasters are also using another tool: the eyeballs of Ocean City lifeguards. As Ben Davis, the veteran lifeguard, takes his place atop his chair tower, he scans the ocean in front of him, looking for signs of rip currents down near the Ocean City pier and inlet. Up the beach at 120th Street, Billy DePaola, the rookie, does the same. By 10:00 am more than 90 pairs of eyeballs are reading the ocean, look-
R E A D I N G  T H E  R I P... from page 28

...for rips. Sergeants in charge of each section report their reads back to Beach Patrol headquarters, and the dispatcher on duty faxes them to the National Weather Service. The rip current threat is forecast as low or moderate or high as calculated by lifeguards — not by a Lushine predictive scale. The fax goes out three times every day, and the last one includes another number: the day's total for rip current rescues.

Eyes in the skies, these cameras watch the beach from the rooftop at the Grand Stowaway Hotel at 21st street in Ocean City. They send their photographs over the internet to desktop computers at Johns Hopkins University, where Robert "Tony" Dalrymple and Varjola Nelko analyze the images for evidence of how dangerous rip currents form.

To see what these cameras see, go to their website: http://www.ce.jhu.edu/oceancity/. Can you pick out the rip currents? Credit: Michael W. Fincham.

These rip current reads and rescue stats will play a key role, not for today's forecasts or tomorrow's, but for next year's. In the off-season the Wakefield forecasters will verify their forecasts from the past year by comparing them against all these reports from the field. With this kind of groundtruthing, they can adjust their weighting values and sharpen their predictive power for the next year. It's a kind of off-season tune-up for their forecasting engine.

The result, in theory, should be rip current forecasts that grow more precise year by year. The official forecasts, in practice, seem to be more helpful for occasional beachgoers as more media outlets every year carry the forecasts. If you're headed for the beach you can turn on the radio or go online and get the weather forecast. If you're going in the water, you can also get the rip current forecast. If it says "moderate risk" of rip currents, you might want to stay on the beach. If it says "high risk," you might want to stay home.

For now the official forecasts are largely ignored by Captain Burch Arbin and his lifeguards. When it comes to rip currents, they'd rather trust the readings they make themselves, watching the waves from chair towers eight feet above the beach.

WHEN TONY DALRYMPLE AND VARJOLA Nelko finally found an Ocean City rooftop for their cameras, they began reading the ocean from 14 stories above the boardwalk.

Their high-angle perch in the sky lets them test a radically different approach to rip current forecasting. Instead of collecting records of rip current rescues — as Lushine and his followers have been doing for two decades — they're collecting visual records of the rip currents themselves.

Their field work was simple in concept: put video cameras on a high rooftop and then photograph the beach and surf zone where rip currents form. The cameras take photographs at 3 frames a second for 10 minutes, then average them together and shoot them straight to Dalrymple and Nelko. From the rooftop cameras to a hotel computer to the internet to a desktop computer, the beach pictures fly from Ocean City to two university offices in Baltimore. Much like lifeguards sitting on their beach chairs, the scientists can sit in their office, without sunglasses or sunblock, and try reading the waves for rip currents.

From behind a desk strewn with books and assorted spiral-bound reports, Dalrymple swivels his chair and pulls up to a large-screen computer against the wall. He taps the keyboard. Here in this long office lined with bookshelves, with a guitar case sitting on the floor, with a window looking out onto the green, quiet campus of Johns Hopkins University, we are suddenly back in Ocean City. We're looking down on a beach busy with sunbathers sprawled on blankets and sitting under umbrellas. Perhaps they're having a good time. Beyond is the surf zone: shallow water, then lines of breaking waves, then deeper, dangerous waters. Only a few waders are actually in the water. Perhaps they know what they're doing. One wishes them well. It's a god-like view from up here in the sky.

A couple more taps and Dalrymple brings up another image, a freeze-frame that averages together 10 minutes of pictures. Think of a double exposure multiplied 1800 times. The image is slightly blurry like an X-ray, and like a doctor advising a patient, Dalrymple begins diagnosing the big picture. "All the breaking is occurring right here," he says, pointing to a smudged line that compresses together hundreds of surf breaks. Waves break in shallow waters, and that smudged line of breaks tells him that's where the sandbars are.

"Then the water gets deeper again," he says, pointing to a dark strip of water trapped in a trough between the sandbar and the shore, water that has to run out to sea again somewhere. "Probably a low spot right there," he says, his finger on a dark gap in the breaker line. "Not necessarily a rip current there, but it's more likely to be there..."
than anywhere else."

None of those tiny humans wading down there in the surf can hear Dalrymple’s diagnosis of danger delivered from an office in Baltimore. "A well-trained lifeguard would know that there are likely rips there," says Dalrymple, "but it is really obvious from here." One hopes a lifeguard is alert. The view from the 14th floor may be godlike, but it’s the vision of a distant, powerless deity.

Accurate forecasts may save lives in some future summers — that's the hope at least — but there's a whiff of scientific hubris around any project trying to predict natural forces as sporadic as rip currents. Following on the success of wave forecasting, however, scientists at more than a dozen universities are now working with wave-basin studies, current meters, pressure gauges, and time-lapse photography, all in hopes of tracking rip current behavior. Much of that field and lab data are then fed into numerical models.

With their cameras and freeze-frame X-rays, Dalrymple and Nelko are among the first to directly observe rip currents in action. By turning their observations into usable data, they are working around the drawback found in all the earlier forecasts. The Lushine predictive scales all focused not on rip currents but on rescues. Rescue totals can go up and down for reasons that have nothing to do with rip currents. Rescues can rise when sunny days or holidays bring out large crowds, and they can fall when cloudy skies keep people away. When nobody’s at the beach, rip currents are still there, churning in the surf.

Why try for a new way to forecast rip currents? Because Dalrymple and Nelko tested the forecasting tool now in use and came up with a failing grade. They took MALURCS, the Mid-Atlantic Lushine Rip Current Scale used by the National Weather Service, and they asked it a simple test question: How many of the actual rip currents they caught on camera could be predicted by the Lushine scale? Their answer: For every 100 actual rip currents, MALURCS predicted only 40, well below a passing grade in most schools. A score of 40 may be better than nothing, perhaps, but it means the forecasts now used for the Mid-Atlantic region are probably failing to predict 60 percent of the rip currents along the Ocean City shore.

"IT’S NOT GODLIKE, BUT THE VIEW"

from his 8-foot lifeguard tower is high enough for Ben Davis to easily spot a flash rip and quickly whistle at a small boy who’s being tugged gently seawards. The boy looks up, then wades slowly sideways out of the rip channel. That doesn’t count as a rescue stat, but it’s probably a lifeguard’s most common catch, spotting a risk before it becomes a rescue event.

He drops the whistle and swivels his head slowly from north to south, surveying his kingdom, the slice of beach that stretches from the long wooden town pier down to the rockpile jetty at the south end of Ocean City. As crew chief, he has dominion here. With several hundred people under the watch of his crew, he has to catch more than 40 percent of the rips.

Like a lot of lifeguards, Davis is also an on-site oceanographer, reading the waves and the wind so he can make his own instant forecast of rip current dangers. Watching swells roll past the end of the pier, he notes their direction, estimates their heights, and counts off the seconds between swells.

Reading the rip, like reading music, is a learned skill. The best sign of a rip, for Davis, is color, color that’s different from the rest of the water. A rip current can be darker because the water is deeper where it flows through a channel. Or it can be lighter, especially with "flash rips," because they pick up sand from the bottom and carry it seaward. "It can be very deceptive," warns Davis. A rip current, ironically enough, can look like a safe patch of water. As a current surges out, it can knock down the surf break, creating calm-looking water that draws in timid waders who don’t want to battle breaking waves.

Lifeguards up on their tower chairs are not gods, but they’re not powerless either. When a rip opens up and it’s too late to whistle people away, they have options, primarily speed, teamwork, and training. A guard signals the next tower, then hits the sand running. "You just head there," says Davis. Next comes in-the-water triage. "You start getting people out of the shallows. If they are already in over their heads, you tell them how to swim out." If they can’t swim, then the guards go after them.

That could mean battling through the breakers with a rescue buoy to reach swimmers in panic. Or binding into the breakers with a surfer-style rescue board, perhaps the fastest way to reach a failing swimmer. Or swimming out a lifeline so lifeguards on the beach can haul exhausted swimmers back through the surf.

Last year about this time, they had to use all their tools. As the annual July 4th invasion hit Ocean City beaches, a tropical storm began forming some 3,000 miles away, starting wave trains heading this way from the west hump of Africa. By July 7, the storm, now a hurricane called Bertha, was hanging well east and south of Bermuda — and still sending wave trains headed west. The storm never came near Ocean City, hanging out past Bermuda for nearly a week. But its long-period waves began coming ashore by July 9. For the next week, a week of mostly sunny days, rip channels were opening up all along the beach, and lifeguards were scrambling to pull out all their lifesaving gear. The Ocean City Beach Patrol, according to Captain Butch Arbin, set its all-time record. In one seven-day period, lifeguards rescued over 2,000 people from killer-size rip currents. While three people drowned along the New Jersey coast, nobody drowned on the beaches at Ocean City.

HUGE STORMS LIKE BERTHA, IT TURNS out, can play a surprising role in the dynamics of rip currents at Ocean City. With freeze-frame images from their cameras in the sky, Dalrymple and Nelko are able to watch how sandbars to page 31...
are born and track where they go to die. And it's the life cycles of sandbars that largely control the setup and spacing of rip current channels.

The world of rips, according to Dalrymple, begins with a flat beach and a big storm that tears sand off the shore and carries it seaward. The sand never gets very far because the outgoing water runs into other incoming waves and simply drops its load. And voila! New sandbars are born.

The beach is now "set up" to form rip channels. When backwashing seawater can no longer run out over the sandbar, on ebbing tides for example, it then goes looking for another exit. Wherever there's a notch in a sandbar or a low spot along the beach, backwashing water will begin wedging its way through. A notch becomes a channel, and a rip current runs through it, pulsing most strongly after the arrival of large wave sets.

In the weeks after the storm, those sandbars, as seen in their photos, start creeping shorewards, pushed back towards the beach by incoming waves. During the pushback, sandbars move at different rates, and new rip channels appear among them, flashing open in unexpected places. "The beach gets very wriggly," says Dalrymple. Barring another big storm, the sandbars will eventually reattach to the beach. The beach will flatten out again and stabilize. Rip currents will dwindle.

Creatures of winds and waves, rip currents are also, it's now clear, creatures of bathymetry. For scientists with their freeze-frames, reading the rips now means reading the bottom also: seeing the setup, charting the rip channels, tracking the slow, wriggly trek towards shore. For lifeguards without X-rays of the bottom, reading the rips just got more complicated. Now they need to keep a weather eye out for how rip channels can change during a storm cycle.

AT 5:30 BEN DAVIS STANDS UP on his chair, blows his whistle, and begins waving swimmers out of the water. And so do 91 other lifeguards along the 10-mile beach. It's closing time and Davis wraps up his American flag, climbs down, and begins packing up his gear.

For his last chore he tilts his tall chair tower over his back, all 300 pounds of it, and drags it thirty yards back through the soft sand and lays it on its side. It's pure grunt work and every guard does it every day.

The ocean empties, but the beach doesn't. And ten minutes later several swimmers begin wading back into the surf.

SO WHAT'S THE FORECAST FROM THE 14TH FLOOR?

When Dalrymple and Nelko built their new predictive system, they took their real-life rip currents as captured by their cameras and looked at each of the weather forces in play that day. In university research like this most of the grunt work falls to grad students like Nelko. First she plotted rip currents against wave heights, the best measure of how energy is hitting the beach. Then she did the same thing with wave period, which gives an estimate of speed. Then with wave direction. Then with wind speed and wind direction. That's an ocean of data she had to swim through.

When they tested their new system, they got a nice number. Their forecast predicted 72 out of 100 actual rip currents. Seventy-two percent is a big jump over 40 percent, the best the official forecasts could do with the same rips. That sounds like a passing grade in most schools, but it's not good enough at Hopkins, not yet. Nelko still has more data to wade through.

The scientists want to raise their POD, their Probability of Detection, and lower their FAR, their False Alarm Ratio. Their forecast unfortunately also predicted rip currents when there were none, a prospect that might keep people at home on perfectly safe beach days. "If people don't go to the beach," says Nelko "then you have a lot of merchants who are not selling saltwater taffy. It has economic consequences." If everybody stays home, then nobody's selling much of anything, not T-shirts or hot dogs or hotel rooms with a high-angle view of the ocean.

IT COULD HAVE BEEN AN EVENING like this. The chair towers are down, the guards are gone, and the slanting sun is lighting the ocean with a brilliant, celestial blue. The two boys who went swimming that evening stayed down at the south end of the beach where their parents could watch them from the shore. From there the father was able to watch as the rip current carried both the boys, now shouting, out past the jetty. And the mother was able to watch as the father, now swimming, went out in the glowing sea to save his sons.

It was a passing boat that pulled the boys to safety. And it was an off-duty lifeguard who found the father's body. They call the work "search and recovery," and lifeguards practice this drill also. It was Butch Arbin, captain of the Beach Patrol, who sat on the beach with a sobbing mother holding a two-year-old, now fatherless baby.

"Our guards don't remember every person they've saved. I don't remember how many people I've rescued," he says. "I just don't remember." But they clearly remember the ones they couldn't save. Around the country, most rip current drownings happen much like this one at Ocean City. No lifeguards in their chairs. No cameras in the sky.

And here's where new forecasts could save lives, even when lifeguards can't. For the foreseeable future, lifeguards will probably remain their own rip current forecasters, relying on their well-earned skills at reading the waves in front of them.

But for the rest of us who may be driving to the beach or standing on the sand trying to read the waves, good forecasts count. We heard the weather forecast before we left the house and we trusted it enough to get in the car and head out.

It's here perhaps, on beaches empty of lifeguards, that good rip current forecasts would matter the most, helping us decide whether to go home, rest on the beach, or go for a plunge in the unpredictable waves.
a comprehensive written exam and complete a 6km ocean swim. If they succeed, they joyfully strip their riot gear and sport their lifeguard reds for the summer. It's as if they immediately take on the internationally common lifeguard personality: people who recognize and enjoy that their official work uniform is beach attire.

Not only will these lifeguards work the beaches of the bay of Lima, which is slightly smaller than Santa Monica Bay in Los Angeles, but they will also cover the beaches 150km north and south of the city. Around 700 lifeguards will patrol these Pacific waters and make an average of 2,200 rescues during the summer months. The Peruvian coast is known for its large surf, and from what I understand, most of these rescues are not of the preventative type, but of the near drowning type.

The lifeguards in Lima have a very established program, with the three month long training academy as the prime example of how seriously they take their lifesaving. They lack equipment and need new rescue boards and rescue cans. Their fiberglass rescue cans break easily and are a hazard in the surf line, and their rescue boards are essentially useless. Neither do they have any medical equipment, and most importantly could use an AED at each of the most visited beaches. Many lifeguards have shared stories with me of failed CPR attempts on cardiac arrest victims as they waited for the ambulance to arrive. What is really needed, however, is to increase the level of swimming within the lifeguards, because even after the first six weeks of the training academy, it is their dedication to the lives of their brethren that enables them to rescue victims, and not their strength in swimming.

A simple response to this dilemma would be to call upon the surfing and swimming communities in Peru and attract them to work as lifeguards. The problem here is that the surfers and good swimmers are both groups composed of more wealthy citizens, and given that Peruvian National Police, and therefore lifeguards, earn an average of only $350 a month, the more aquatically talented/wealthy citizens are not very likely to take on a job as a lifeguard.

I believe that the real solution is to start a Junior Lifeguard program, recruiting children of the police for a summer program of ocean lifesaving and open water swimming. There are already many examples of this police/lifeguard family legacy in Peru, but having completed a few summers of the Jr. Lifeguard program, the new generation will be much more aquatically fit and thus prepared for the lifeguard academy. Incorporating a Junior Lifeguard program into their equation will raise the level of swimming and lifesaving within Peru.

And this is what we are currently doing; organizing a Junior Lifeguard program through the Lifeguard Headquarters of the Peruvian National Police. They already have a calendar of summer youth programs, including a swimming academy, and we are simply adding a new dimension to this social service. We plan to begin on January 4th with 30 kids, ages 12-17, and foresee this summer as creating the foundation for the future of a Junior Lifeguard program in Peru. Everybody is excited about it; the captains and chiefs have already enrolled their children, and we’ve even been interviewed on national television on a few separate occasions.

The only problem is that we have very little equipment. C.S.L.A was kind enough to donate $300, which we plan on using to purchase rescue cans and uniforms, and aside from a few of those old rescue boards or any rescue cans that get left behind at headquarters, we’ll have to make do with the ocean and the sand (which is bountiful).

If you are interested in finding out more about these projects, in Peru, Spain or Morocco, please contact me via email at maxdeangoldstein@gmail.com. You can also access my photos and travel blog via: swimaroundtheworld.blogspot.com

We are specifically looking for material donations for the Peruvian lifeguards, and monetary or material donations for the Peruvian Junior Lifeguard program.
NEW JERSEY LIFEGUARD JOINS THE COAST GUARD

Bob Dillon, Belmar, NJ

Lauren Pfeiffer, of the Monmouth County, New Jersey Chapter, graduated with honors from the US Coast Guard Recruit Training Command Center in Cape May, NJ in November 2009. She was first in her company receiving the “Honor Graduate Award” as well as receiving the “Seamanship Award.” She finished second for the “Recruit Physical Fitness Award” having been beat only by a male recruit!

As a veteran guard, Pfeiffer has been competing and placing in the USLA Nationals the last two years of her surf lifesaving participation. She has been a lifeguard at the Sea Girt Beach, NJ and competes in both local tournaments, as well as in the Mid-Atlantic Regional Competitions as an avid competitor.

Pfeiffer was a record holder in swimming competitions both in high school and in college. In addition to surf lifesaving competitions, she has competed in several triathelons. With these accomplishments, her options would include becoming a Rescue Swimmer (as in “The Guardian”). Currently, Pfeiffer is stationed aboard a USCG cutter in Portsmouth, VA. It is nice to have options!

Graduation with a Bachelor’s Degree in Criminal Justice from the College of New Jersey, she has expressed an interest in pursuing the Officer Candidate School while in the Coast Guard. She is interested specifically in the law enforcement area of the Coast Guard since her long term goal is to become a NJ State Trooper.

After serving her country in the Coast Guard, her status as a veteran with law enforcement experience should certainly enhance her chances of achieving her dream as a State Trooper.

Good luck to Lauren in her pursuit of serving her country and may she always remember the USLA motto “Lifeguards For Life”!

WOMAN IS THE YOUNGEST TO CROSS AN OCEAN ALONE

Christopher Maag, Reprinted with permission, AP in Feb. 2010

Katie Spotz completed her mission recently, becoming the youngest person to row an entire ocean solo, and the first American to row a boat without help from mainland to mainland. After 70 days 5 hours 22 minutes in the Atlantic, Spotz, 22, arrived in Georgetown, Guyana, in South America.

“You’re in a situation that you can’t escape, so you really have to dig deep,” said Spotz, who left Jan. 3 from Dakar, Senegal, on the west coast of Africa.

Her 2,817-mile journey raised more than $70,000 for the Blue Planet Run Foundation, which finances drinking water projects around the world.

The trip could have ended eight days ago. But as Spotz approached Cayenne, French Guiana, the wind and currents grew so strong that she would have needed a tow for the last few miles, said Sam Williams, who rowed the Atlantic in 2008 and communicated with Spotz via satellite phone during the trip.

Determined to make the entire crossing under her own power, Spotz kept rowing to Georgetown, 400 miles to the northeast, where currents are milder.

“I’m just impressed by the way she’s got on and done it,” Williams said. “She’s had such little drama. Most people would be scared out of their minds.”

Spotz had packed enough food to last 110 days: half a million calories’ worth of mostly freeze-dried meals, granola and dried fruit. Her crossing took much less time because she had help from the trade currents, and was fortunate not to face any major weather or technical problems.

Her 19-foot yellow wooden rowboat was broadsided by 20-foot waves as she approached South America. It was a frightening ride, even though the boat was built to withstand hurricanes and 50-foot waves, said Phil Morrison, the British yacht builder who designed it.

Spotz said in a telephone interview after the trip, “I was worried the boat might capsize.”

Early in the trip, Spotz broke the cable that allowed her to steer with her foot as she rowed, forcing her to use a cumbersome hand steering system. A day before landfall, Spotz smelled smoke. Her GPS tracker, which she used to update her position on her blog, was on fire. Spotz extinguished it. Her GPS device for navigation was not affected.

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Most important, the boat's solar panels, batteries, water desalination machine and the iPod she used to play audio books on Zen meditation remained functional.

Her equipment was a vast improvement over that of the first ocean rowers, the Norwegian immigrants George Harbo and Gabriel Samuelson, who traveled from New York to France in 1896 in an open boat.

“I wouldn’t go on a trip like this without all the safety gear and technology I had,” Spotz said.

Even so, the voyage remained a grueling test of endurance. Spotz developed painful calluses and rashes from rowing 8 to 10 hours a day.

Spotz could have cooled herself at night by opening the two hatches of her watertight sleeping cabin, but doing so would have made her vulnerable to large waves. So she kept both hatches closed.

Spotz grew up in Mentor, Ohio, a suburb of Cleveland. Her career as an endurance athlete began when she ran her first marathon at age 18. Later she cycled across the United States and became the first person to swim the length of the Allegheny River.

Before leaving for Senegal, her biggest boating experience consisted of a 40-mile practice row on Lake Erie that ended with her boat being pinned against a cliff by wind and waves. The boat was nearly destroyed. Many people asked Spotz how she could row across the Atlantic if she could not even row on Lake Erie.

The answer, she said, is that the biggest danger in ocean rowing besides hurricanes is coming too close to shore, where the current can overwhelm the rower and push the boat into the rocks.

“The last day of the trip is always the most dangerous,” Williams said.

Landing safely is a major accomplishment in the sport of ocean rowing. In the last decade, 110 rowboats have successfully crossed an ocean, according to the Ocean Rowing Society. Nearly as many rowboat crews, 102, tried and failed.

One American, Nenad Belic, attempted to row solo across the Atlantic in 2001. He was lost at sea.

It took Spotz two years to plan the trip and to raise $100,000 to pay for it. Spotz’s parents tried to persuade her not to try such a dangerous adventure.

“Are you nuts?” Dan Spotz, her father, said when she told him about her plan. “When she rode a bike across the entire country, she didn’t have to worry about sharks or pirates.”

Spotz did see sharks. She was splashed by dolphins as big as her boat. Fish leapt and slapped her in the face, and exhausted birds nestled beside her as she rowed.

Rather than thinking about how far she had traveled or how many miles she had left, she tried to notice her surroundings.

“For this journey I really couldn’t think that far in advance because otherwise it would be overwhelming,” Spotz said. “It allowed me to focus on what was happening in that moment.”