



Introduction

The Blue Water Task Force (BWTF) supported by [Emergen-C Blue®](#) is the Surfrider Foundation's volunteer-run, water testing, education and advocacy program. Designed to take advantage of the daily presence of surfers and beachgoers in coastal waters, it is one of the Surfrider Foundation's most visible and successful programs to date. Chapter activists use this program to alert citizens and officials in their communities about water quality problems and to work toward solutions. The BWTF has demonstrated success by identifying problems with beach and coastal water pollution, raising public awareness of these incidents and working collaboratively with local stakeholders to find and implement pollution solutions.

The BWTF is a very diverse program. Each Surfrider Foundation chapter is able to design and implement their water testing program to best utilize their available resources and meet local needs. Some chapters collect water samples at local beaches and run their own water testing labs. Other chapters partner with coastal organizations, universities, aquariums or watershed groups. Some provide manpower to local beach monitoring programs by collecting water samples and delivering them to state or county run labs. Many chapters also have water testing programs established in local schools.

Over the last 20 years, the BWTF precipitated the establishment of state and local government water quality monitoring programs in many communities and still continues to fill in data gaps, improving the public's knowledge of the safety of their beach water. Many chapters test beaches that are not covered by state or local beach monitoring programs, or during the "off" season when lifeguards leave the beaches

but surfers continue to enjoy good swells. The BWTF water testing programs measure [bacteria](#) levels at both marine and freshwater beaches and compare them to [federal and state water quality standards](#) established by the Environmental Protection Agency (EPA) to protect public health in recreational waters.

With the generous support of Emergen-C Blue®, Surfrider revamped its [BWTF website](#) in 2011, and chapters now have a great online platform to communicate the results of their water testing programs. This website features detailed maps of each chapter's sampling sites, data tables presented by sampling date or site, and local information specific to each chapter's program.

The BWTF program also serves many purposes beyond providing a record of beach water quality. Chapters are educating students about water quality issues and promoting a coastal stewardship ethic. BWTF volunteers often become advocates for the beaches and watersheds they monitor and present their data to local decision makers when water quality issues are discovered. Many Surfrider chapters have been successful at elevating public awareness of water quality issues and integrating science into local management efforts aimed at solving beach pollution problems.

Surfrider's diverse membership is motivated by their common love for the ocean and a strong desire to protect our beaches for everyone's enjoyment. The BWTF provides a vehicle for volunteers to participate in science and to motivate coastal communities to take action to clean up watersheds and improve the water quality at beaches.



As clean water becomes an increasingly scarce resource, Emergen-C Blue® is committed to supporting, enhancing and extending the efforts of the Blue Water Task Force. For every box of Emergen-C Blue® sold, 20 cents is donated to the BWTF to further the important work it is doing to improve water quality.



*Middle school students collect water samples in the James V. Fitzgerald Marine Reserve in Moss Beach, CA.
photo: CarolannTowe*



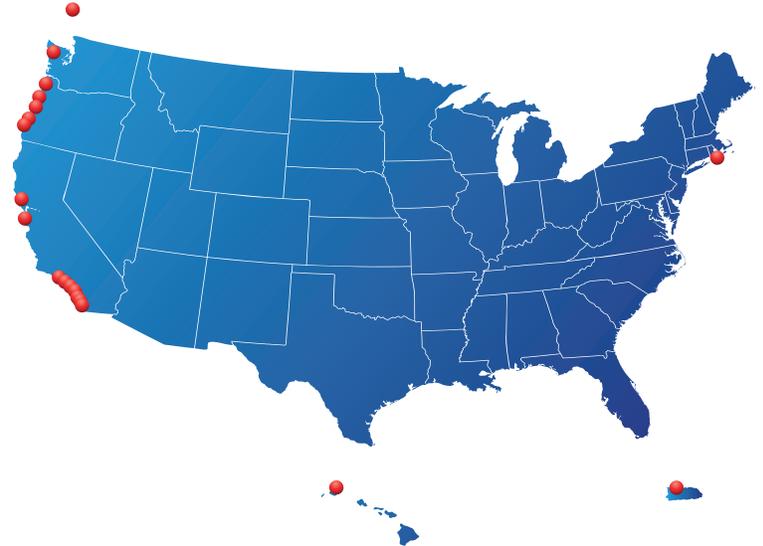
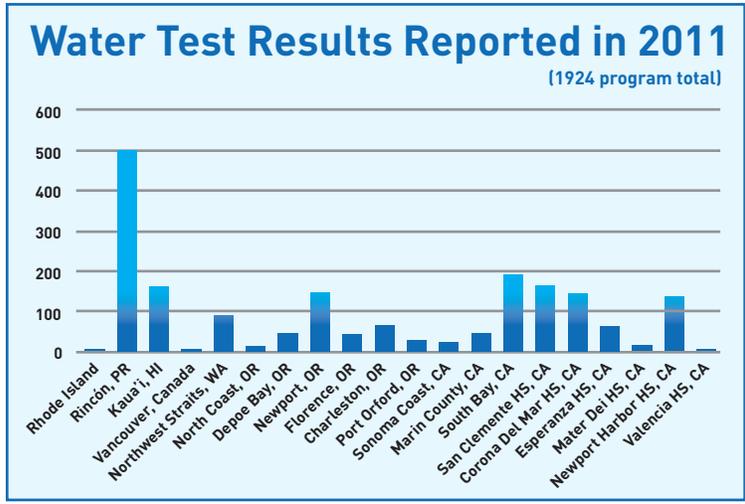
*Water samples incubate in 96-well Quanti-trays for 24 hours
photo: Charlie Plybon*



*Pacific High School, Port Orford, OR
photo: Tyson Rasor*

2011 Program Activity

The Blue Water Task Force report covers all water testing data entered into the Surfrider Foundation's BWTF website during the 2011 calendar year. To date, not all chapter programs have entered their BWTF data into the system. The data presented reflects those programs who entered data in 2011.

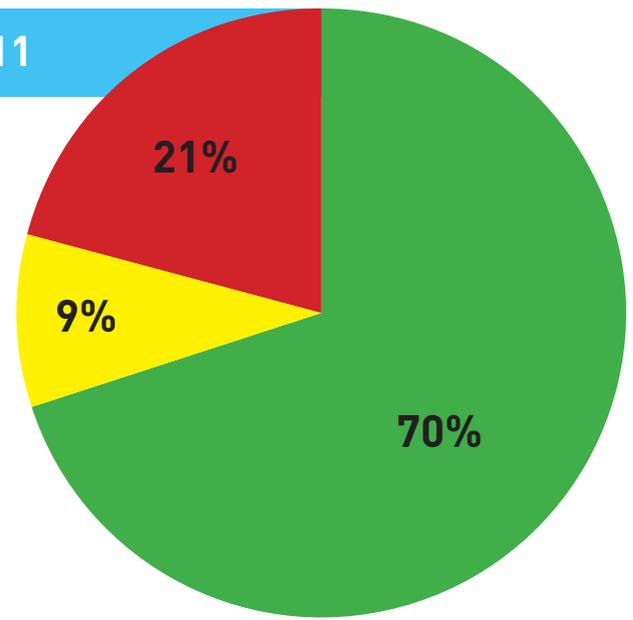


In 2011, 20 water testing labs entered data for a total of 1,924 water samples into Surfrider's BWTF database and website. Each lab listed is associated with a Surfrider Chapter or distinct group of activists, with the exception of the last five high school (HS) labs, which are all part of the Newport Beach Chapter's Teach and Test program in Southern California. The Rincón Chapter in Puerto Rico showed the most activity with 503 samples collected in 2011. Six other labs reported data for more than 100 samples each.

Bacteria Levels Measured by the BWTF in 2011

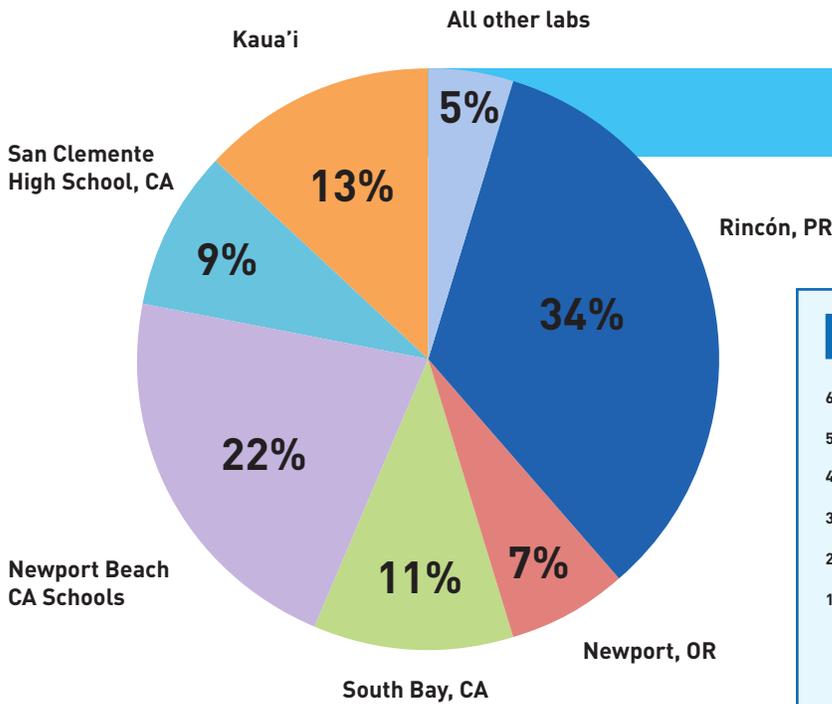
Of the 1,924 water tests reported, 70% indicated low bacteria levels, 9% indicated medium bacteria levels and 21% measured high bacterial levels above the national water quality standards set by the EPA to protect public health in recreational waters.

- Low Bacteria** ●
- Medium Bacteria** ●
- High Bacteria** ●

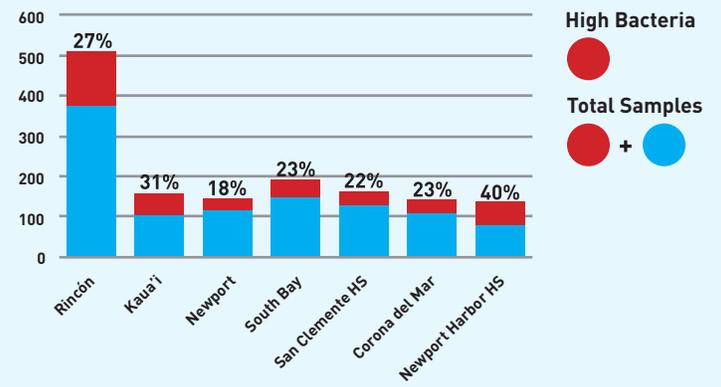


Enterococcus (MPN/100 ml): (0-35) Low Bacteria, (36-104) Medium Bacteria, (> 104) High Bacteria
E. Coli (MPN/100 ml): (0-126) Low Bacteria, (127-235) Medium Bacteria, (> 235) High Bacteria

Location of High Bacteria Counts



Lab High Bacteria Rates



Thirty-four percent of the 402 water tests that failed to meet water quality standards were collected by the Rincón Chapter. This is not surprising as they collected more samples than any other BWTF lab. Twenty-seven percent of Rincón's 503 samples gave high bacteria counts. A large majority, over 82%, of Rincón's high test results came from freshwater samples collected from rivers and streams that flow down to the beaches in Rincón and Isabella.



Heavy rains turn the Ultimo Brinco brown in Rincón, PR
photo: Brinco

Kaua'i had a high bacteria rate of 31%, which accounted for 13% of the program-wide high bacteria counts. Most of the problematic BWTF sites in Kaua'i are also located on freshwater streams that are severely impacted by stormwater runoff and at beaches located close to these sources of freshwater

Data recorded by the Corona del Mar and Newport Harbor High Schools for the Newport Beach Chapter's Teach and Test Program accounted for 22% of the program-wide high bacteria levels. Both of these schools test up in the estuary of Newport Bay and at beaches close to where the Bay empties out into the ocean. Forty percent of the samples Newport Harbor High School collected gave high bacteria counts, and Corona del Mar High School's high bacteria rate was 23%.

Nearly one in four samples collected by the South Bay Chapter measured high. More than half of their high tests came from sites located around the Ballona Creek and Wetland system, and the remaining were from ocean sites stretched along Manhattan, Hermosa, and Redondo Beaches.



A view of the Ballona Wetlands System sampled by the South Bay Teach and Test students. photo: Craig Cadwallader

Twenty two percent of San Clemente High School's samples had high bacteria levels, with most coming from Poche and Riviera Beach. Poche is one of the most consistently polluted beaches in Southern California and has both a channelized creek and a stagnant pond that likely contribute to the pollution. Riviera is not monitored by the County and receives drainage from the upland watershed.

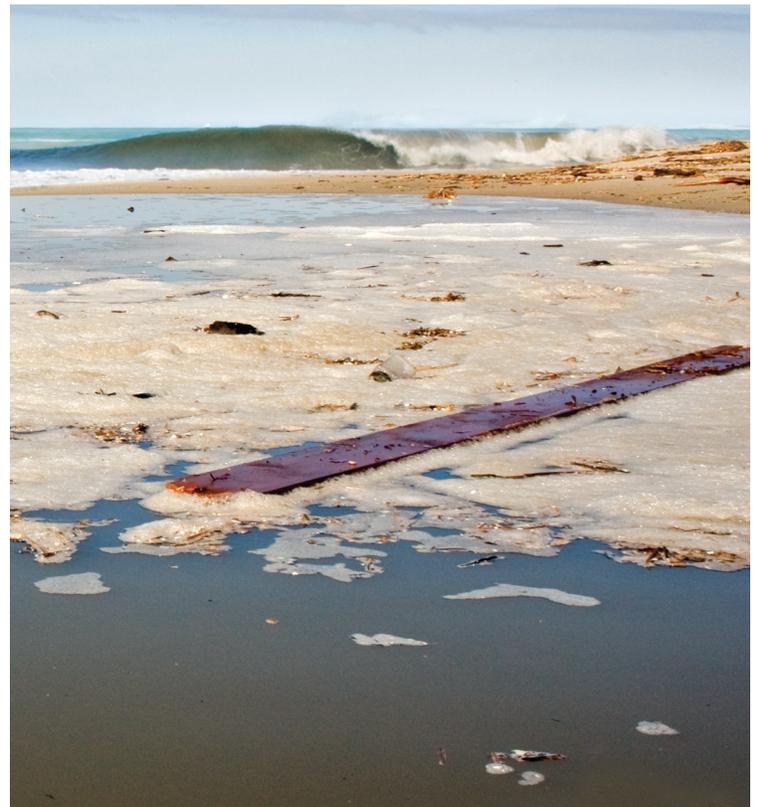


Nye Creek outfall discharging directly onto the beach in Newport, OR. photo: Charlie Plybon

The Newport Chapter in Oregon had a high bacteria rate of 18%, which accounted for 7% of the program-wide high bacteria counts. With only one exception, all of the high bacteria results measured by the Newport BWTF were collected from or near freshwater sources at Nye and Agate Beaches, including a creek outlet and a stormwater pipe outfall.



Riviera beach access engulfed by rainwater runoff. photo: Ian Swanson



Runoff at Riviera beach making its way into the surf. photo: Ian Swanson

Summary of Results

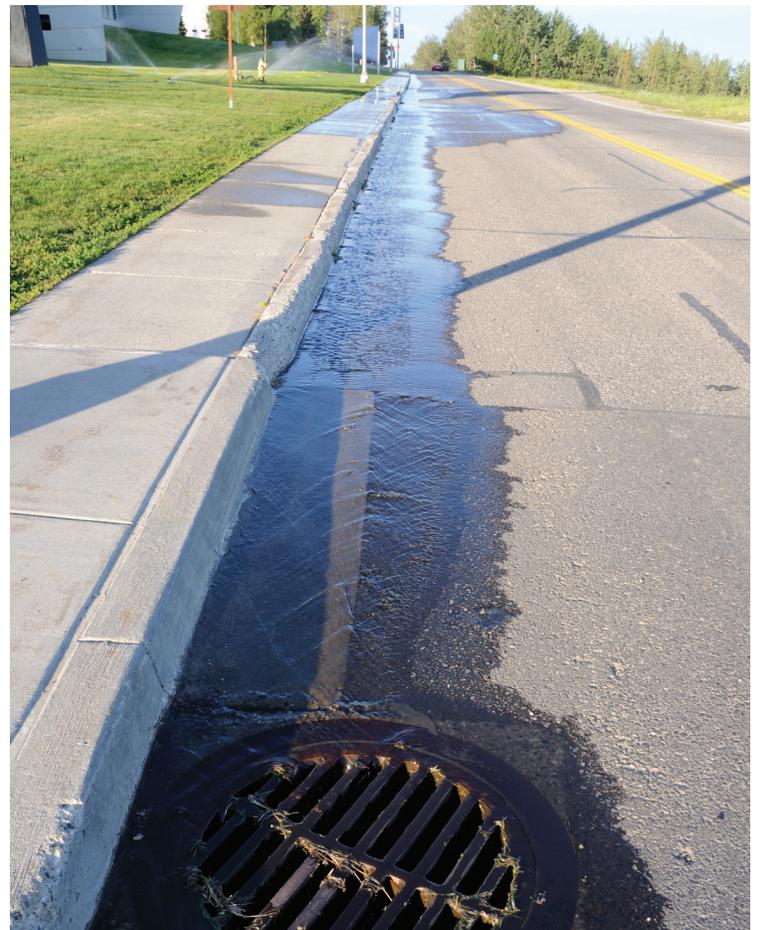
The cumulative results from 2011 show that most samples collected by Surfrider do meet national health standards. Of the samples that failed to meet these standards, the majority were taken from freshwater sources that drain the landscape or at beaches near these freshwater outlets.

This is consistent with trends seen across the country. The [Natural Resources Defense Council's Testing the Waters Report](#) continues to identify polluted [stormwater](#) runoff as the largest known source of beach pollution. In developed coastal watersheds rain typically flows off of paved and manicured city, residential and agricultural landscapes. [Urban runoff](#) picks up contaminants as it flows downstream through the [watershed](#) and into the ocean.

Another national trend apparent in the 2011 BWTF data, is that the chapters who collect and process the most samples are finding the most problems. Many coastal states whose beach monitoring programs have grown since the passage of the [B.E.A.C.H. Act](#) in 2000, are recording more impairments in coastal waters and beaches. In October 2011, The [Los Angeles Times](#) reported on the substantial jump in the number of dirty beaches found in the latest [review of water pollution data](#) in California. EPA attributed the rise to improved monitoring and data collection rather than a tide of new pollution, but without more information on the sources of local beach pollution it is hard to make this determination everywhere.



Children wade in a polluted creek in the James V. Fitzgerald Marine Reserve. photo: Carolann Towe



Urban runoff flowing through the streets and into a stormdrain which drains to the ocean. photo: Shutterstock

Solutions

The BWTF helps chapters identify water pollution problems so they can begin to educate their communities and work towards solutions. The Surfrider Foundation's [Clean Water Program](#) offers a suite of complimentary programs, campaigns and tools that chapters and activists can use to help solve water pollution problems and to educate communities about the many benefits of responsible land and water management.

[Ocean Friendly Gardens](#) educates and assists people in taking action in public spaces or their own yards to prevent pollution. By applying CPR (Conservation, Permeability and Retention), Ocean Friendly Gardens capture rainwater on-site before it can leave the property and carry pollutants to the ocean.

On a larger scale, [Know Your H₂O \(KYH₂O\)](#), educates communities on how we mis-manage and waste water resources, and presents solutions for integrated land and water management. Surfrider

Foundation's animated movie "[The Cycle of Insanity: The Real Story of Water](#)" is shown across the country to help chapters begin dialogues in communities about the various challenges and solutions relating to water management.

Ocean Friendly Gardens, treatment wetlands, green streets and other [low impact development](#) applications are some of the tools that chapter are advocating for to restore the natural cycle of water in developed areas to improve water quality and build safer and healthier communities. Chapters are also running KYH₂O campaigns to take the "waste" out of our outdated wastewater (sewage) treatment systems by eliminating ocean discharges and cleaning up the water for safe and beneficial re-use.

Contact your local Surfrider Chapter to get involved in the Blue Water Task Force or any of the other Clean Water Programs, or visit us online at [Surfrider.org](#).



An Ocean Friendly Garden thrives in a suburban community.

Case Studies

The following case studies describe how three different chapter programs are implementing their water testing program and raising awareness about water pollution issues in their communities.

Rincón, Puerto Rico

The Rincón Chapter tested more water samples in 2011 than any other chapter. They test 14 marine and freshwater sites in northwestern Puerto Rico on a weekly basis. During the course of the last five years, the chapter's BWTF has had over 45 volunteers helping collect and process water samples.

The Rincón Chapter's water testing program provides vital information on the safety and health of local waters in areas where there is not much water quality data available otherwise. They test beaches and rivers and seasonal streams that carry pollutants and stormwater down to their beaches. The Chapter sends out their weekly water testing results via email and includes photos, stories and notes from the field to make their reports more interesting and relevant for their readers. These water quality emails are sent to a massive list of 1,400 local constituents including Surfrider members, government agencies in PR, local and regional businesses and tourism agencies, media contacts, high schools, university professors and students and other interested local residents and non profits.

The Chapter's primary lab is in Rincón, but in 2011 they helped another environmental group, Rescate Playas Isabella, set up a water testing lab in an Envi-

ronmental Science class in the Ramey School where students now process samples from Isabella. Many high school students have been BWTF volunteers in Rincón as well, some going on to compete in science fairs and others to pursuing degrees in microbiology and marine sciences.

The Chapter has also been collaborating with a team from the University of Puerto Rico Medical Sciences Campus in Rio Piedras to complete a study of bacteria sources and bacteria-related diseases of the Elkhorn coral in the Reserva Marina Tres Palmas. As part of this study, the Chapter has helped map all of the outflows from Rincón's coastline including streams, old landfill sites, and sewage lines. This watershed contamination study has been a great opportunity for their BWTF volunteers to help conduct a scientific survey, participate in some much-needed research, and learn about the complex issues involved in bacterial contamination of Rincón's beaches. The Rincón Chapter hopes this new collaboration can develop into a strong partnership to begin identifying and addressing some of the more serious local bacteria sources in their area and is currently working on securing more funding to keep this source tracking study going through 2012.



Ramey School students practicing their lab techniques. photo: Steve Tamar



Collecting water samples in the Reserva Marina Tres Palmas. photo: Steve Tamar



UPR and BWTF volunteers collecting samples from the Ultimo Brinco. photo: Steve Tamar

Kaua'i, Hawaii

Like Rincón, the Kaua'i Chapter is providing valuable water quality information where government-run beach monitoring is limited. Kaua'i tests 22 surf breaks and freshwater streams on a monthly basis. Their water testing program has received extensive coverage in their [local media](#), which the Chapter has used to build community awareness of island-wide water pollution issues.

Over the years, the Kaua'i Chapter has formed a collaborative working relationship with the Hawaii Department of Health (DOH) water monitoring program. They have been successful in getting the DOH to expand their beach sampling plan to include a popular surf break and other known bacterial hot spots. They are helping the DOH by weekly sample collection and environmental monitoring at six sites along the north shore of Kaua'i. The Chapter was also the driver behind the very first advisory sign being posted on the island to warn the public of bacterial contamination at the mouth of the Hanalei River; a site where multiple indicators have demonstrated a chronic pollution problem.

The Kaua'i BWTF is now working together with the DOH and Stanford University scientists to identify bacterial hot spots caused by human sources using DNA markers and posting these contaminated areas with health advisory signs. Wastewater assessments and microbial source tracking would then be done to further pinpoint human sources and remedial actions taken (e.g. cesspool replacement).

In addition to the monthly monitoring and studies of Hanalei Watersheds, the Kaua'i BWTF coordinator has been taking their program into marine science classes at local high schools and the Kaua'i Community College (KCC), to teach students about water pollution and other local environmental issues and to expose them to career opportunities in the public health and environmental fields. The coordinator also mentors high school students doing science fair projects and KCC Marine Option Program student internships and projects.



*Advisory sign posted at the mouth of the Hanalei River.
photo: Carl berg*



*A student carefully prepares her water sample.
photo: Carl berg*

Newport, Oregon

The Newport Chapter in Oregon monitors nine sites on a weekly basis. Volunteers collect water samples from ocean beaches and stream and storm pipe outfalls that discharge onto the beach. The samples are processed at a lab run by the youth volunteers at the Oregon Coast Aquarium.

Water quality data generated by Newport's BWTF first identified problems with bacteria pollution in Nye Creek and its receiving area beaches. Chapter and BWTF youth volunteers used this data to raise awareness of the pollution in their community and convince Newport and the State of Oregon to support monitoring and to post public notices. After much campaigning by the volunteers, the City agreed to track the source of pollution and discovered several sewage cross connections in Newport's stormwater system.

Fixing these sewer issues has greatly improved the water quality at Newport's beaches but the Creek continues to be affected by stormwater runoff. To address this type of pollution throughout the watershed, the Chapter has successfully campaigned for stormwater best management practices to be added to Newport's City Code and has established demonstration Ocean Friendly Gardens at City Hall and the Oregon Coast Aquarium. The Chapter also helped determine the terms of an agreement for continued stormwater mapping and infrastructure improvements at Nye Beach through allocation of city funding to support a full-time stormwater public works employee. The BWTF youth volunteers have marked the storm drains around the City and continue to support the BWTF water testing program.



*Youth volunteers at the Oregon Coast Aquarium.
photo: Charlie Plybon*



BWTF volunteer inspects his water sample. photo: Charlie Plybon



Advisory sign posted along Nye Creek. photo: Charlie Plybon



The calm, shallow water of Nye Creek flowing across the beach is an attractive play area for children. photo: Charlie Plybon

South Bay, California

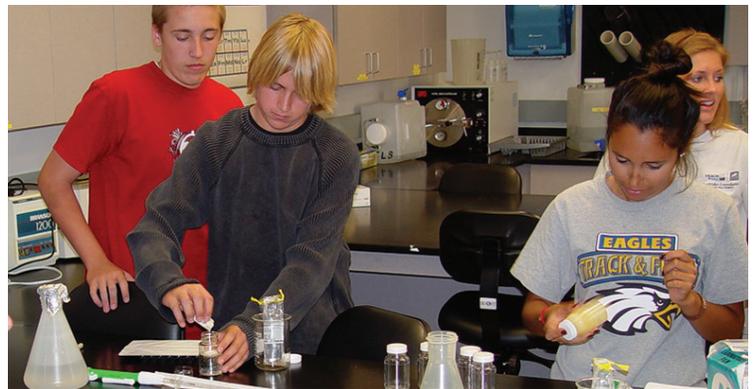
The South Bay Chapter has dubbed their water testing program “Teach and Test” as it focuses on educating students and increasing community awareness of the causes and solutions for beach pollution. The Chapter coordinates five local high schools that collect water samples every other Sunday during the school year from 18 ocean beach and wetland sites. The samples are then analyzed with the oversight of an experienced lab tech at either the SEA lab in Redondo Beach or Loyola Marymount University.

At the end of the school year, each school’s Teach and Test team presents their water testing results at a large, end-of-the-year celebration meant to reward the student’s efforts and draw attention to community water pollution issues.

During the 2010/2011 school year, two of the schools have also conducted a waste characterization study to support the Chapter’s [Rise Above Plastics](#) campaign. Trash is collected at the beach where water samples are taken, then sorted in the lab to determine where the trash came from (i.e. food wrappers, foam containers, bottles and sports items). Chapter activists have taken the information collected by the students to give presentations at city and county council meetings to advocate for bans on single use plastics.



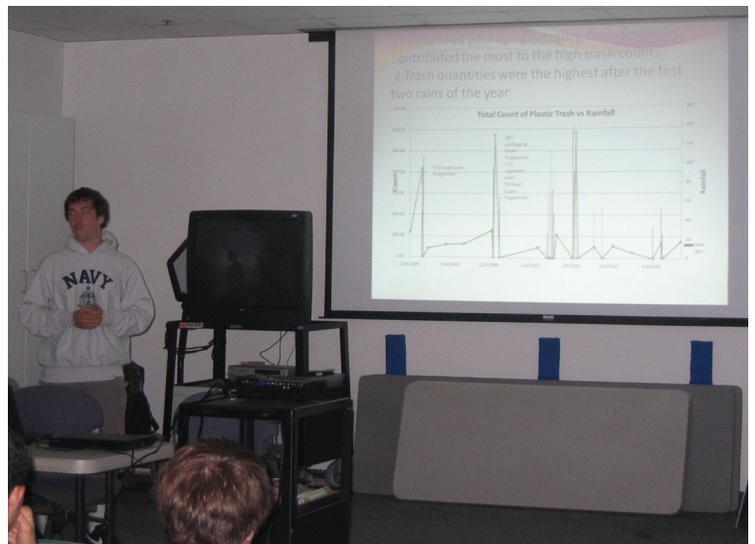
*Students collect water samples at the beach.
photo: Craig Cadwallader*



*Preparing samples for incubation in the lab
photo: Craig Cadwallader*



South Bay Teach and Test End-of-the-Year Celebration at SEA Lab. photo: Joe Geever



*Students present the findings from their beach trash study.
photo: Joe Geever*



Improving Water Quality One Sip At A Time

Water is an integral component to Emergen-C vitamin drink mix, which is why Alacer is committed to protecting and improving water quality. In 2009, the triple berry-flavored Emergen-C Blue ‘splashed’ onto the scene and forged a partnership with the Surfrider Foundation. For every box of Emergen-C Blue sold, 20 cents goes directly to the Surfrider Foundation to support their water quality efforts. As of 2011, those funds directly support the Blue Water Task Force, presented by Emergen-C, which helps raise awareness about the need for clean water by alerting communities about water quality issues in their area. Since its launch, the Fund has contributed more than \$100,000 to the Surfrider Foundation.

The Surfrider Foundation is proud to be partnered with Emergen-C. Their support of our Blue Water Task Force program allows beachgoers across the country to access accurate and timely water quality information so that they may swim and surf safely and with confidence.





For any inquiries regarding this report or the Blue Water Task Force program,
please contact mdias@surfrider.org