

Heal the Bay Surfrider Club



~ FOR IMMEDIATE RELEASE ~

MORE PICTURES BELOW

Bottles, Butts, and Bacteria – Oh My!

By Team Marine

(www.teammarine.org, <http://www.teammarine.blogspot.com/>, and <http://teachttestsm.blogspot.com/>)

Santa Monica High School 601 Pico Blvd. Santa Monica, CA 90405

Student Contact: Kou Collins koucollins@gmail.com (310) 383-0029

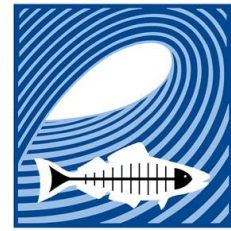
Teacher Contact: Benjamin Kay bkay@smmusd.org (310) 395-3204 x71127

Last week, October 4-6, members of Santa Monica High School's Team Marine and Teach and Test environmental groups documented the phenomenon known as the "First Flush" at the Pico-Kenter and Santa Monica Pier storm drains. Plastic marine debris and other litter that had collected in curbside catch basins during the dry season were flushed by rain water from the storm drains across the beach and into the ocean. Students groups characterized the flow and litter content over a 48-hour period, later performing an emergency beach cleanup and testing ocean water quality at three sites for fecal bacteria.



Student Michelle Shaffer cleans the beach.

As run-off pooled at the mouth of the Pico-Kenter storm drain, the water and city tractors together carved a channel in the sand allowing a myriad of styrofoam pieces, cigarette butts, plastic bags, candy wrappers, and plastic bottles and caps to pour into the ocean. Desperate to help, 26 students from Team Marine cleaned a 6702 m² area along the shore south of the Pico-Kenter Storm Drain, capturing an estimated 200+ pounds of debris and stuffing four beach trashcans to the rim (1.1 m³ in total). The team identified styrofoam and cigarettes butts as the most abundant pollutants. Meanwhile, student members of the Surfrider Foundation sponsored Teach and Test program found record high *Enterococcus* fecal bacterial levels for Lifeguard Station 26, Pico-Kenter, and Santa Monica Pier ocean sites (mean values = 885, 10112, and 1000 colony forming units per 100 mL, respectively).



Heal the Bay Surfrider Club



New Team Marine member, Morgan Rodriguez, commented, "I didn't expect to see this much trash on the beach and no one else besides us was there to clean it up. The difference we made in this area was huge, but we only cleaned maybe 1/6 of the trash. I'm still proud of our team."

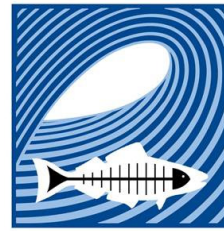
Jessica Thorson, one of the senior leaders of the group, added, "There was an overwhelming amount of tiny particles to clean up, so we changed strategies early on. Half of the group swept pollutants into dozens of baby piles by hand, while the other half followed behind us to pick them up."

Senior Team Marine leader and veteran, Kou Collins, explained, "People do not realize that throwing trash on the street is like throwing it into the ocean. Litter enters the ocean through urban run-off, and animals end up mistaking the plastic debris for natural food, which can make them choke or feel full and die of starvation. Plastic debris is not known to provide any nutrition to the animals." Collins continued, "The litter problem is a result of human apathy and ignorance as well as all the single-use plastic items that local stores provide us."

Zack Gold, co-president of the Heal the Bay Surfrider Club and student leader of the Teach and Test program explained, "The water quality results for bacteria from this week's sampling were absolutely appalling. We should never have fecal indicator bacteria levels 100 times higher than the state's acceptable level. We know for sure that the chances of getting sick increase greatly when it rains, yet I saw three surfers at Lifeguard Station 26 in disgusting water. The trend in our data is pretty clear – about 10 months of good water quality during the dry season followed by spikes of *Enterococcus* in the wet season."

Local resident Doug Kierulff, horrified by the amount of plastic debris south of the Santa Monica Pier remarked, "I took my one-year-old daughter for a walk along the beach, and all I could see was styrofoam and trash. It reminded me of garbage heaps that I've seen in the third world."

A guest at Shuttlers Hotel, Lynn Bar, said, "I live in English Bay, Vancouver, a small beach city like Santa Monica, but I've never seen this amount of trash where I live. It's crazy, and I can't believe no one has come to help clean it up."



Heal the Bay Surfrider Club



This October 26, for the fourth year in a row, Samohi students will be delivering speeches to City Council advocating a city-wide ban on single-use plastic bags and other wasteful products.

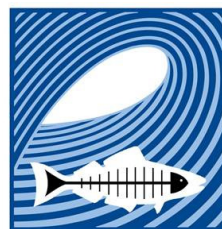
Background:

According to research by the Algalita Marine Research Foundation and 5 Gyres Institute, our plastic waste adds to the North Pacific Garbage Patch, estimated to be as big or bigger than the continental USA (AMRF staff, pers. comm.). Between 1999 and 2008, the surface density in one area of the Pacific Ocean doubled, while the dry weight ratio of plastic to plankton rose from 6:1 to 46:1 in some locations (AMRF staff, pers. comm.).

According to the United Nations Environment Program (2006), there are an estimated 46,000 plastic particles swirling around in every square mile of the ocean. Total marine litter is now 60–80% plastic, reaching 90–95% on the surface (Moore, 2008). Plastic particles also adsorb hydrophobic persistent organic chemicals, like PCBs and DDE, up to 1,000,000 times higher in concentration than the surrounding seawater, which may increase biomagnification of toxins up the food chain as plastics are ingested by marine life (Mato *et al.*, 2001; Moore, 2008).

According to the Argonaut (see references), Santa Monica City Council drafted an ordinance to ban single-use plastic bags about two years ago, but the ban did not go through because (1) the plastic bag industry threatened to sue the city, and (2) the city thought it best to prepare an environmental impact report for future legal shielding when the ban did go through.

Team Marine promotes many solutions to the plastic pollution issue including banning single-use plastic products, like water bottles and grocery store bags, refusing to purchase disposable plastic products, switching to reusable products like bamboo utensils and stainless steel canteens, pushing plastic bottle companies to leash caps to their bottles, installing screens and other advanced plastic filtration devices in curbside catch basins, increasing fines for littering, increasing storm water reclamation projects, educating youth at all grade levels about conservation and proper waste disposal, and manufacturing all necessary single-use items from bio-degradable materials.

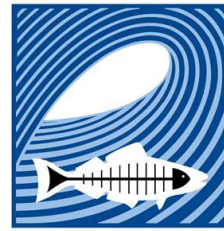


Heal the Bay Surfrider Club



References:

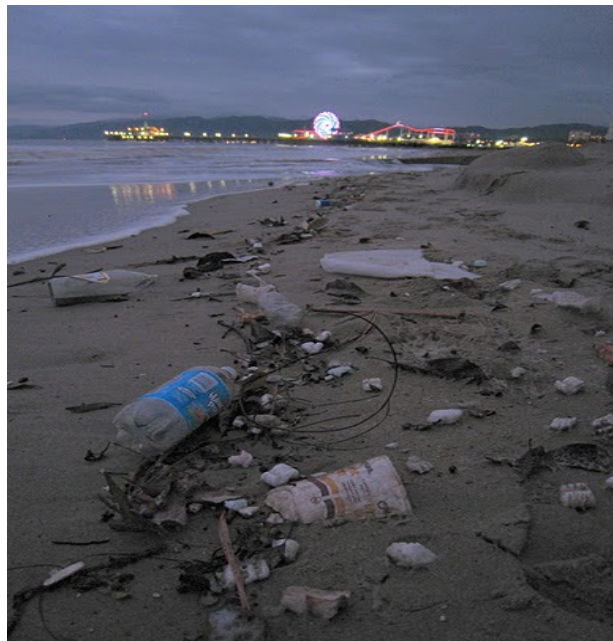
1. <http://www.latimes.com/news/printedition/la-me-ocean2aug02,0,5274274,full.story>
2. http://www.telegraph.co.uk/comment/personal-view/3626914/Fact-46000-pieces-of_plastic-float-on-each-square-mile-of-sea.html
3. Moore, C.J. 2008. Synthetic polymers in the marine environment: A rapidly increasing, long-term threat. Environmental Research. http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6WDS-4TK3FFT-3&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&_docanchor=&_view=c&_searchStrId=1146181778&_rerunOrigin=scholar.google&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=3d2a4a606e8fc7ad8ea767f347fd7830
4. http://www.argonautnewspaper.com/articles/2008/03/06/news_features/top_stories/2sm.txt
5. http://www.argonautnewspaper.com/articles/2009/01/29/news_features/top_stories/1sm.txt
6. Mato, Y., Isobe, T., Takada, H., Kanehiro, H., Ohtake, C., Kaminuma, T., 2001. Plastic resin pellets as a transport medium for toxic chemicals in the marine environment. Environmental Science and Technology 35, 318–324. <http://pubs.acs.org/doi/pdf/10.1021/es0010498>



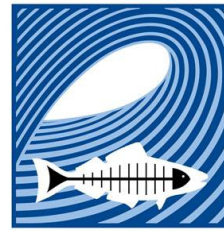
Heal the Bay Surfrider Club



A fraction of the debris washed out of the Pico-Kenter Storm Drain headed toward the ocean



Plastic debris washed up on the beach the first night of the rain.



Heal the Bay Surfrider Club



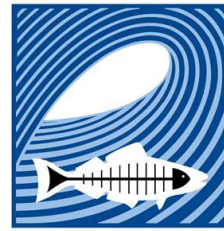
Pollutants ejected from Pico-Kenter Storm Drain.



Before Emergency Cleanup



After Emergency Cleanup



Heal the Bay Surfrider Club



Before



After



Cleaning the Beach



Bittersweet end of the day