Litter to …Bacteria? A look at E. Coli in Beach Sand and how Beach Cleaning Machines Can Help

Back in June, 2007, many studies were released that showed E. Coli was not only present in lake water, but that strong concentrations also resided in beach sand. This proved especially problematic to fresh water lakes, which are the depositories of runoff and waste-treatment overflow. Beaches found on the Great Lakes—especially Lake Michigan, Superior, and Eerie—received negative PR and multiple beach closings, which resulted in lost money and reputation.

A Little Background on E. Coli...

While it is no longer a shocking discovery today, E. Coli continues to be a regular threat to lake-shore beaches and causes many beach-closings every year. E. Coli is a bacteria found in the lower intestine in warm-blooded animals. It is often not harmful. However, certain strands of the bacteria that are frequently found in Seagull, dog, and Canadian Geese feces causes moderate to severe intestinal disease in humans. Perhaps more importantly, high levels of E. Coli act as indicators for other fecal matter contamination, like salmonella .

The threat from E. Coli originates not only from beach wildlife, but also comes from storm drains that funnel runoff directly into the lakes. This runoff transports dog, farm, and feedlot waste directly into lakes via the sewer system. Similarly, overflow from waste treatment plants often escapes directly into the lakes. Contaminated water then washes over the beach, where the bacteria attach to the sand. E.Coli in the sand won't pose a threat by simply touching the skin, but it can be dangerous for small children who put their hands in their mouths after playing in the sand.

In order to speed the recovery of contaminated beaches, beach cleaning machines can be used.

While beach cleaners are traditionally used to remove litter and unwanted materials from the beach, they can also be used to fight microbial infections.

Following the discovery of elevated E. Coli in the sand on Chicago's beaches, the city commissioned H Barber & Sons to design a machine that would help purify their beach sand. Based on studies that revealed that prolonged sunlight and exposure to air are the best natural disablers of E.Coli in the water and sand, Barber endeavored to expose the maximum amount of sand to the sun and air as possible. It created the 'Chicago Rake', which is a rake that follows the SURF RAKE beach cleaner and digs 12" deep into the sand, leaving rows of raised sand in its wake.

It functions by first allowing the beach cleaning machine to clean 6” deep to remove surface litter, like normal. Then the ‘Chicago Rake’ aerates the sand and increases the surface area exposed to the sun. With frequent cleaning, this increased sun/air exposure helps get the beaches’ bacteria levels back to normal levels. In the case of Chicago’s problem, the Chicago rake proved effective, and it was able to re-open its beaches to the public.

In conclusion, E. Coli and other bacteria can pose problems for beach maintenance personnel and beach goers. However, beach cleaning machines can be used to improve the beach sand conditions when applied properly.

This article was originally published on the www.beachcleaner.com blog 2/23/2012, which is an informational resource provided by H. Barber and Sons.