

Plastic disks contribute to floating debris in Long Island Sound

By Sarah Deonarine

Many beach goers may have noticed the appearance of small white, plastic disks around Long Island Sound last summer. Millions of these disks were accidentally released from Westchester County's Mamaroneck Wastewater Treatment Plant (WWTP) in the spring of 2011 during upgrades to the plant.

Over the past decade, several WWTP's in New York and Connecticut, including Westchester County's two largest facilities (Mamaroneck and New Rochelle), have undertaken large construction projects to upgrade their facilities in order to meet nitrogen limits established jointly by the New York State Department of Environmental Conservation (NYSDEC), the Connecticut Department of Energy and Environmental Protection, and the USEPA.

The technology used to achieve the strict nitrogen limits involves the use of biodisk media. The roughly quarter-sized disks are the shape of wagon wheel pasta and are made from non-toxic, high density polyethylene (HDPE) plastic which can be safely disposed of as trash. Microorganisms grow on the disks and help to break down nitrogen and other water pollutants that are in the wastewater.

In March 2011, during start-up testing of the new treatment process at the Mamaroneck WWTP, approximately 325 cubic yards of biodisks were released from the plant's effluent outfall pipe into the Sound. Within days, disks were reported on the beaches in Westchester County and NYSDEC began receiving reports of disks washing ashore on Long Island beaches as far east as Mattituck.

A contract crew hired by Westchester County began conducting disk cleanups in Westchester and, on April 15, extended the cleanup effort to beaches in Nassau and Suffolk counties. Several volunteer cleanups were also organized, including one in Hempstead Harbor on April 9 by the Coalition to Save Hempstead Harbor that collected 21,650 disks in one hour.

By the beginning of May, NYSDEC had determined that a more aggressive cleanup effort was needed and directed Westchester County to develop a Media Recovery Plan that would include a survey of the beaches on Long Island. NYSDEC also required the County to increase the number of cleanup crews on Long Island to make sure most of the disks were removed from the public beaches by Memorial Day weekend.

NYSDEC was also concerned with the potential risks the disks might present to birds and marine life. The only documented mortality possibly associated with the media disk release was discovered in May 2011 when a deceased adult male harp seal was found on Staten Island and removed by the Riverhead Foundation for Marine Research and Preservation. A necropsy performed by the Foundation found four biodisks in the seal's stomach, along with rocks and woody beach debris. In this case a specific cause of death was not determined and there have been no additional reports of ingestion by marine animals.

How do biodisks work?

Biodisks are used to help treat wastewater in some sewage treatment plants.

Microorganisms attach to the surface of the biodisks and decompose organic matter that is in the wastewater.



Heather Young

Plastic disks, the shape of wagon wheel pasta, escaped from a local sewage treatment plant last spring.



In total, approximately 33 million disks were released into Long Island Sound and an estimated 1.6 million have been recovered. Surveys conducted by the Westchester County Department of Environmental Facilities in late July and October determined that the number of disks on beaches had decreased considerably. The study also concluded that biodisks may continue to wash-up on the shore with other debris, especially after storm events.

As the biodisks are discovered on beaches, they can be safely removed by volunteers during regular beach cleanups or during excursions to their local beach. If anyone has any questions regarding biodisk cleanup efforts, or would like to report observations of biodisks along beaches, they should contact the Westchester County Department of Environmental Facilities at (914) 813-5400.

Deonarine is the Long Island Sound Study Coordinator with the NYSDEC.

Volunteers from the Coalition to Save Hempstead Harbor pose next to the pile of plastic disks that they collected during a beach cleanup in Sea Cliff, NY.

“What Can I Do?” to reduce marine debris

1 Can it! Keep streets, sidewalks, parking lots, and storm drains free of trash which can wash into our oceans and waterways. Empty those trash cans, dumpsters, and recycling bins regularly and make sure they are covered and secured so that they can't be opened by strong winds or animals.

2 Stash it! Remember that it is illegal to dispose of any plastic in all U.S. waters and anywhere at sea. When out on the Sound, be sure to bring ALL of your trash back to shore for proper disposal. While at the beach, make sure that trash is put in trash or recycling bins or take it with you when you leave.

3 Reduce, reuse, recycle! Choose reusable items and use fewer disposable ones. Bring your own reusable bag when you shop or ask your favorite coffee shop to fill your reusable mug instead of a disposable cup. Visit www.Earth911.com to find a way to reuse or recycle what you no longer need.

4 Don't toss that line! Recycle used fishing line in appropriate containers or at participating locations. Visit www.boatus.com/foundation/monofilament for information on monofilament recycling programs.

5 Spread the word! Encourage others to change their “litterbug” ways. Call your local environmental or resource management office to find out what materials can be recycled in your area and encourage your favorite business to start recycling.

6 No dumping! It is illegal to dump unwanted items on the ground or in the Sound. It is also illegal to litter, even the smallest thing can get you a fine. Be sure to properly dispose of unwanted items. Visit Earth911.org to find the recycling or disposal facility that is nearest to you.

7 Report it! Report illegal dumping to your local U.S. Coast Guard (USCG) Sector Office. Use Channel 16 on your VHF marine radio or call the Long Island Sound Enforcement Unit (203-468-4580).

8 And, as always, get involved! Pick up trash on your next visit to the beach, walk in the park, or stroll in your neighborhood. A little bit can go a long way! Find a cleanup in your area and encourage others to help keep the beaches and oceans clean. Visit www.lisvolunteer.net for more information.



Carol DiPaolo



Plastic disks (left) that were released from a local sewage treatment plant (story on page 3) and strips of recycled plastic bags were crocheted into a 5-ft long fish (right) by local artist, Barbara Karyo, and other beach cleanup volunteers.

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