What exactly is marine debris and why does it matter?

By Dianna Parker

When asked this question, little children seem to give the most straightforward answer. A second grader named Krish told the NOAA Marine Debris Program last year, “Everyone wants their room and home to be clean, including sea animals. I make sure that I keep my garbage in the correct bins and not thrown around, so that it doesn’t flow to the sea.”

And he’s right, even though the marine debris problem isn’t just limited to garbage. Every year, unknown numbers of marine animals are injured or die because they get tangled in or ingest marine debris, which can include plastics of any size, glass, metal, and rubber.

The NOAA Marine Debris Program defines marine debris as any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment or the Great Lakes. It is an international, on-going problem that threatens oceans, coasts, wildlife, human health, safety, and navigation.

In addition to plastics and other litter, debris can be anything that makes its way into our waters from land or ocean based sources, including lost or abandoned fishing gear and vessels. For example, crab pots and lost fishing nets can scour, break, smother, or otherwise damage important coral reefs, sea grass beds, and other sensitive areas as they drift through currents. Many of these habitats serve as the basis of marine ecosystems. They are critical to the survival of many species. Nets and pots indiscriminately tangle and kill countless marine mammals, seabirds, fish, and invertebrates.

What’s more, coastal communities spend millions of dollars annually trying to prevent and remove debris washed up on their shorelines. It not only degrades our coasts’ natural beauty, but it threatens the safety of those who work and play there.

The NOAA Marine Debris Program, established in 2006 by the Marine Debris Research, Prevention, and Reduction Act, supports local, national, and international efforts to research, prevent, and reduce the impacts of marine debris.

Working with non-governmental organizations, regional organizations, local, state and federal governments, and international organizations is a priority for the NOAA Marine Debris Program. Regional coordinators extensively cover marine debris issues in the Pacific Islands, Alaska, Great Marine Debris in the Sound

From plastic grocery bags wrapped around boat propellers to discarded fishing gear entangling marine animals to the eyesore of trash on our beaches, marine debris poses many threats to coastal and marine ecosystems, wildlife, and human health and safety. This issue of Sound Update focuses on marine debris in the Sound and the ways we are working to solve this problem.
Litter and Long Island Sound

By Kierran Broatch

Have you ever enjoyed a boat ride on Long Island Sound only to see a plastic bottle bobbing in your wake? Or have you ever taken a stroll along your favorite stretch of beach and noticed it strewn with food wrappers or Styrofoam that washed ashore? Litter that lines our streets and sidewalks can end up in storm drains after rain storms. From there, it will eventually make its way into our streams and rivers, then wind up floating in the Sound. This trash is not only an eyesore for our waterways and shorelines; it poses serious threats to the wildlife and marine life that call these areas home.

According to Save the Sound coastal cleanup data, litter such as cigarette butts, plastic bags, and food wrappers are some of the most common items washing up on our shorelines. When broken down into smaller pieces, they can be mistaken for food objects by birds, fish, or reptiles. This mistake can turn deadly when digestive tracks become blocked, leading to starvation. Another potential harmful impact is entanglement. Many of us have seen a picture of a sea turtle stuck in a six-pack ring or a sea gull wrapped in fishing line. These are real issues that are completely avoidable.

The trash floating in the Sound and washed up on its coastline comes from a number of sources. While beach-goers and boaters share some of the blame, much of this debris comes far from the shores of the Sound and its tributaries. Remember the saying, “What goes on the ground, goes in the Sound?” That saying is intended for littering as much as it is for nitrogen-loading activities like fertilizing lawns or not cleaning up after pets. A cigarette butt flicked out a car window in a town 50 miles from the Sound will wind up in the water just like one dropped from a sunbather on a beach. Litter items throughout the entire Long Island Sound watershed can find their way into storm drains during rain storms and their next stop is small streams or rivers, which all eventually flow into the Sound.

Save the Sound’s year-round Coastal Cleanup program is a way of fighting back against the onslaught of plastics and Styrofoam washing up on our beaches and riverfronts. Each spring and fall, thousands of volunteers gather together donning gloves and carrying trash bags. The program is two-fold: along with removing floatables and other marine debris, they record their findings on data cards that are compiled together and used in various reports for educational purposes. Educating the public about the harmful effects of littering is one of the keys to stopping the problem at its source.

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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.

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.
BYOB—Bring Your Own Bag: A growing trend around the Sound

By Maureen Dolan Murphy

Plastic bags have become one of the leading sources of pollution worldwide. According to the EPA, we use between 500 billion and one trillion plastic bags globally each year. They pollute our parks, beaches, waterways, roadways, shopping centers, and communities. Plastic bags are found dangling from trees, tangled in bushes, clogging storm drains, strewn across beaches, and littered throughout communities. Sea turtles mistake plastic bags for jellyfish and consume them, starving these already endangered creatures. They become tangled around the necks of birds, fish, and dolphins, strangling them to death. It is estimated that over 1 million seabirds and over 100,000 mammals die in the North Pacific region alone each year because of plastic pollution, which includes plastic bags. To add to the problem, shopping bags are unsustainably produced with fossil fuels.

In New York and Connecticut, we rely heavily on our surrounding waterways for tourism, recreation, and fishing industries. Millions of dollars a year are invested in the protection and restoration of Long Island Sound. The last few summers we have been delighted to see pods of dolphins return to the Sound, a positive indicator that restoration efforts are working. Yet, plastic pollution remains a problem. The annual International Coastal Cleanup Report documents garbage picked up during beach cleanups each year. In 2008, world-wide, plastic bags were the second highest debris item found on beaches, the first being cigarette butts. Plastic bags accounted for 12 percent of the total garbage collected. From 2008 to 2009 plastic bag pollution in the U.S. increased 16 percent along our nation’s beaches.

The problem may seem overwhelming, yet the solution is simple: BYOB, Bring Your Own Bag. We need to stop using harmful, toxic, disposable bags and make the switch to sturdy, fashionable, reusable bags. Long Island Sound coastline communities such as Westport in Connecticut and Rye in Westchester County, NY, and the eastern Long Island villages of Southampton and East Hampton have successfully banned the ubiquitous plastic bag. Westport documents a 70 percent increase in reusable bags since implementing the ban. Other municipalities, such as Washington, DC, have implemented a five cent surcharge on plastic bags. Within weeks of implementation, some stores reported reductions of 6,000 bags per week. Before the surcharge, DC consumers used 22.5 million bags a month. After the first month of the nickel fee implementation, DC consumers used three million bags, an 86 percent reduction.

Reusable bags are readily available, hold twice as many items as conventional shopping bags, and are quite sturdy. On average, a plastic bag has a lifetime of only 12 minutes, but a reusable bag lasts much longer and prevents the use of hundreds of plastic bags each year.

Consumers have relied on plastic shopping bags because they are convenient and appear to be free, but disposable bags are not free. Grocery stores estimate that plastic bags cost 1.6 cents each and paper bags cost 5.5 cents each. Retailers pay for the bags, and then pass those costs onto consumers. On the other hand, bringing your own bag saves you money. Many stores, such as Stop and Shop, Pathmark, and Whole Foods offer consumers between two to ten cents for each reusable bag that they use.

In 2011, Citizens Campaign for the Environment (CCE) launched an educational social marketing BYOB campaign in Westchester County. Educational literature was distributed to residents, elected officials, and store owners. Retailers were educated on reusable bag benefits and helpful store policies such as providing reusable bags, educating employees to ask consumers if they want or need a bag, charging for or eliminating plastic bags in their stores, and posting signs encouraging reusable bag use. Almost 30 small businesses throughout Westchester County committed to reducing or eliminating the use of harmful disposable bags and 300 individuals pledged to “kick the plastic bag habit.”

CCE is about to embark on a similar grassroots education campaign in the Long Island North Shore communities of Huntington, Northport, and Port Jefferson. These nautical downtowns provide a unique opportunity to educate residents and businesses on the pressing need to reduce plastic and make the switch to reusable bags.

If you haven’t already, make the switch and BYOB. The next time you are asked paper or plastic, say, “No thanks, I brought my own.” Bringing your own bag is a simple, easy way to protect our ocean, estuaries, marine, and avian life. For more information on CCE’s campaign and to download factsheets and brochures, please visit http://www.citizenscampaign.org/campaigns/plastic-bags.asp.

Murphy is the Executive Programs Manager with Citizens Campaign for the Environment.
Timing is everything

By Peter B. Francis

In the arena of environmental restoration, some projects stand out because of the substantial scope of work and others because of the sensitive resources being restored. The barrier beach restoration effort at Long Beach West in Stratford, CT was significant for both of these reasons. But it was truly remarkable due to the timing of the project.

Merely five months after completion of the demolition of 42 abandoned cottages and removal of the resulting debris, Hurricane Irene came barreling up the East Coast with landfall in New England projected in close proximity to this very stretch of Connecticut’s coastline. The timing of the collaborative restoration project between local, state, and federal partners and NGOs could not have been any better.

The sandy spit of land known as Long Beach West is a 32-acre barrier beach situated off the coast of Stratford. A barrier beach is typically defined as a ribbon of sand comprised of a long narrow ridge of beach and dunes separated from the mainland by a lagoon or marsh. Long Beach West is separated from the shoreline by Lewis Gut and the Great Meadows tidal wetland complex. The barrier beach that is Long Beach West separates the dynamic forces of Long Island Sound from the quiescent nature of the waterway on the leeward side of the island. These natural geological formations provide a host of ecological services including protection for the leeward embayment and marsh system, wildlife refuge and feeding areas, and significant bird nesting areas. In fact, this barrier system supports 38 state-listed species of birds and significant natural communities including globally important nesting sites for terns and plovers. It also provides valuable nesting habitat for diamondback terrapins. The natural beauty of the dunes, sandy beaches, wildlife viewing opportunities, and shorelines along two different water bodies is also attractive for recreational use as well.

For these very reasons, this idyllic waterfront—just minutes from downtown Bridgeport—was desirable enough to be developed into a small beach community on land leased out by the Town of Stratford. In the 1930s and 1940s, dozens of seasonal cottages sprung up at Long Beach West for summertime use. In time, other improvements were added including garages, sheds, retaining walls, utilities, boat launching ramps, and docks. Escaping the summer heat at such a beautiful place must have been a treat.

Time passed and the leases on the town-owned properties expired in the 1990s and the ownership of the land and structures reverted to the municipality. And, after the courts determined in 2007 that the Town of Stratford had the legal authority to do so, the residents were evicted. As the only roadway bridge had since burned down, the few remaining residents left with just what they could carry. Many of the cottages were still furnished and had garages full of seasonal amenities. Power equipment and yard furniture was strewn about. Oil tanks and utility poles were left in place.

The Town of Stratford made the bold decision not to sell the land to developers but, rather, to preserve the area as open space. The town leadership turned to the state and federal government for assistance and, through collaboration among the federal, state, and local governments and a number of NGOs, they created a vision to return the barrier beach to its natural conditions and to become a part of the Stewart B. McKinney National Wildlife Refuge.

In order to turn the vision into reality the seasonal cottages and the associated improvements had to be removed. After several years of planning and fundraising, the winter of 2010 finally saw heavy equipment roll into the deserted community and one-by-one the remaining 42 fragile cottages were dismantled. Due to the construction techniques and materials from the period of original construction, the contractors had to properly manage a variety of contaminants including lead paint, mercury switches, asbestos, and PCBs. After months of careful demolition and waste removal, Long Beach West was returned to its pre-development condition—just in time.

On August 28, 2011, Hurricane Irene, which had been downgraded to a Tropical Storm, swept into Connecticut. Its arrival coincided with a spring high tide causing a sizable storm surge along the Connecticut coast. The Long Island Sound shoreline of Long Beach West was pummeled with high winds and storm waves. As the storm pressed on, parts of the dunes along the barrier beach were washed over by storm surge. It was in these very locations of over-wash where dozens of cottages stood just months before. According to a Town of Stratford estimate, approximately 14 cottages would have been washed into Lewis Gut by the surge littering the adjacent Great Meadow marsh system. In addition to the storm debris associated with the structural components of the cottages and garages, the many contaminants that were carefully managed through the dismantling process would have been cast into the estuary only to settle into either the marsh sediment or the benthic environment of the estuary, posing both human and wildlife health concerns.

The vision of the Long Beach West restoration project sought the return of natural ecological functions of a barrier beach through the removal of the cottages and other structures. The project wound up preventing tons of marine debris and countless contaminants that would have inevitably entered the coastal and marine habitats. Fortunately, the restoration vision for Long Beach West came to pass before Tropical Storm Irene did.

Francis is a Supervising Environmental Analyst for the Office of Long Island Sound Programs with the CT Department of Energy & Environmental Protection.
Removing ghost traps to restore the Sound and protect wildlife species

By John Scotti

Recreational and commercial fishing equipment that has been lost, abandoned, or discarded in the marine environment is known as “ghost gear.” It can destroy habitats, “ghost fish” or unintentionally trap animals, introduce invasive species, cause hazards to navigation, and entangle and kill protected and endangered species.

In Long Island Sound, fishing gear that was used in harvesting the American lobster became a problem after the catastrophic lobster die-off event in 1999, which resulted in a dramatic drop in lobster abundance and landings. This event negatively impacted the biology of the marine environment and impacted the fishing industry in coastal communities both socially and economically. Lobstermen found it economically unfeasible to retrieve gear due to the decline in lobster catch and the absence of an organized disposal and storage program and lobster gear was intentionally abandoned.

Cornell Cooperative Extension (CCE) was awarded funding from the National Fish and Wildlife Foundation Fishing for Energy Fund and the Long Island Sound Futures Fund in 2011 to conduct the removal of derelict lobster traps that are currently “ghost fishing” in waters adjacent to the communities along the North Shore of Long Island. Additional partners on this project include the Village of Northport, the Towns of Huntington, Brookhaven, and Southold, New York State Department of Environmental Conservation, LIS Lobstermen’s Association, Covanta Energy, and CCE of Suffolk County Marine.

The Fishing for Energy project is in progress in eastern LIS, launching from the port of Mattituck, NY. To date, five research trips from Mattituck and three trips from Mount Sinai have been conducted removing 639 derelict “ghost fishing” traps from the Sound. One or more lobsters were removed from 21 percent of these recovered derelict traps.

This project proposes to complete a continued removal of derelict lobster traps in Northport, Huntington, Mount Sinai, and Mattituck. The fishing areas adjacent to these ports have been identified as areas of historically high-density lobster gear deployment based on the annual lobster recall survey data from 1999 to 2008. The assessment and the removal of derelict lobster gear will be achieved using techniques and methodologies that were developed during the pilot study in 2010.

Lobstermen who participate in the project are trained to use a longline grapple system. Each morning the research team travels out to the project area where suspected derelict lobster traps were lost or abandoned. The grapple line is set and towed in a clear open space in specific areas. When the grapple comes in contact with the ghost traps the gear is hauled back. Traps are hauled on deck and the research team catalogues important information. Lobster tags are set aside and the permit number, area fished, individual tag number, and state and year issued are recorded. CCE inventories each trap for live and dead species. After the research team reaches their target of 80 traps per day, the vessel heads back to port and the traps are offloaded. The traps that are recycled are crushed and disposed of in a recycling container then converted to energy.

The long-term conservation outcomes resulting from removing derelict lobster gear include establishing partnerships and reducing the impact of “ghost fishing” traps within the Sound. This project will also reduce the impacts of “ghost fishing” lobster traps on species such as blue crab, horseshoe crab, tautog, oyster toadfish, and cunner. Once complete, this project will have removed 260,000 lbs of lobster traps and one ton of ropes, buoys, and other marine debris. This project will reclaim 60 square miles of LIS bottom helping to reduce the problem of “ghost fishing” in Long Island Sound.

Scotti is a Fisheries Specialist with Cornell Cooperative Extension.
What are the issues related to Long Island Sound that most concern you?

A: Connecticut is a state rich in natural resources—notably Long Island Sound—which supports a diverse swath of wildlife and is integral to our state’s economy. In the coming year, we must update municipal waste water infrastructure and storm water remediation to reduce runoff. Protecting the Sound will restore key fisheries and habitats, and protect Connecticut’s iconic coastline. Equally important, is the work to protect upstream lands through conservation in the Connecticut River Watershed and other watersheds that feed into the Sound. I will continue to advocate and collaborate with Long Island Sound advocacy groups to implement short term and long term action plans that will secure the Sound for generations to come.

Q. How have you been supporting the protection of the Sound?

A: Now in the U.S. Senate as well as previously as Connecticut’s Attorney General, protecting Long Island Sound has been at the forefront of my priorities. This year I helped found the U.S. Senate Oceans Caucus, a bipartisan group of Senators who will come together to look collaboratively at ways to increase awareness and find common ground on issues facing our oceans. Problems and solutions are common to many of the coastlines across the nation, and this Caucus presents an opportunity to protect these resources.

Most recently, in December I sent a letter to USEPA Administrator Lisa Jackson and Office of Management and Budget Director Jacob Lew requesting additional resources in the President’s budget for the next fiscal year so that the funding for Long Island Sound will be restored to 2010 levels. I will continue to support fully funding the Long Island Sound Futures Fund, which since 2006 has awarded over $8.8 million in grants that promote restoration and protection efforts, and support thousands of jobs in our economy. Also in December, I joined Senators Gillibrand, Lieberman, and Schumer in introducing the Long Island Sound Restoration and Stewardship Act legislation to support the restoration of Long Island Sound through 2016. I look forward to continuing the work of protecting our oceans, preserving coastal communities, and growing the industries they support.

Q. What is your favorite way to experience the Sound?

A: My favorite Long Island Sound experiences are swimming in it or sailing on it or simply walking its coastline and viewing its precious, pristine beauty.

USFWS honored for Restoration Project

The U.S. Fish and Wildlife Service was honored with a Department of the Interior 2011 Environmental Achievement Award for its Long Beach West Restoration Project. The Achievement Awards are given for extraordinary commitments to sustainable practices and environmental remediation at Department of the Interior sites. The Long Beach West Project worked to fully restore wildlife habitat and passive human recreation a Connecticut barrier beach that had been developed and was later abandoned. More about this project on page 5.
“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 all 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 cleanups in your area and encourage others to help keep the beaches and oceans clean. Visit www.lisvolunteer.net for more information.

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.

Carol DiPaolo