

Notes from the Plastic Debris, Rivers to Sea Project

Conference held Sept 7 to 9, 2005 at the Crowne Plaza, Redondo Beach

1.0 The Problem

- 1.1 Plastic is the most common type of marine litter worldwide. From 60 to 80% of all marine debris is plastic. Six times more plastic than plankton by mass is floating in an area of the central Pacific known as the Mid Pacific Central Gyre. In Southern California, plastic is the most common type of human-made debris and outnumbers plankton by 2.5 to 1.
- 1.2 Plastics last over 400 years. All the plastics ever manufactured still exist in some form in the environment. It lasts much longer in a salt-water environment. It eventually breaks down to 20-micron particles, which are eaten by plankton eaters (i.e.: krill) where it works its way up the food chain. Plastic debris is known to affect at least 267 species world wide, including 86% of all sea turtle species, 44% of all sea birds, and 43 % of marine mammal species, primarily through ingestion, starvation, suffocation, and entanglement. (90% of Laysan Albatross chicks carcasses contain plastic. Items such as cigarette lighters and light sticks are found to be ingested by the Albatross.
- 1.3 During the last decade, the increased use of plastic bottle for water has been the main contributor to the increase of plastic debris. 50 billion plastic bottles used in 2005, 40 billion not recycled, 20% of those end up in the ocean. Plastic generates 25 million tons of debris of which only 3 million tons are recovered. Bottle caps can't be recycled.
- 1.4 Recycling of plastic is not working. Only resin types 1 and 2 can be recycled and only 10 to 20% are recycled. When they are recycled, they don't come back as plastic bottles and aren't recycled again. Check the number inside the recycle arrow logo to determine the resin type.
- 1.5 Plastic pellets used in the manufacture of plastic products are lost during transportation and manufacture. These pellets make their way into storm drains to the ocean and beaches and today are a major contributor to plastic debris.

2.0 Source of the problem

- 2.1 Land-based sources contribute to 80% of marine debris.
 - 2.1.1 People that litter
 - 2.1.2 Municipal land fills
 - 2.1.3 Transportation of garbage and debris
 - 2.1.4 Open trash collection containers at businesses and public venues
 - 2.1.5 Industrial facilities
 - 2.1.6 Beach visitors

2.2 Ocean spills

- 2.2.1 Commercial and recreational fishing (nets, lines, etc)
- 2.2.2 Overboard disposal of passenger and commercial shipboard waste
- 2.2.3 Cargo containers falling off ships in high seas

3.0 Solutions

- 3.1 Operation Clean Sweep – the plastics industry recommended practices for plastic manufacturers, packagers, and transporters. Mostly Best Management Practices in the handling of pellets.
- 3.2 Capture storm drain debris through the use of storm water filtration systems. (Grate and curb inlet skimmer baskets, net capture systems at the pipe end, inline filter systems)
- 3.3 Increase the CRV deposit on plastic bottles to increase collection.
- 3.4 Reduce the use of plastic bags by charging a fee for their use, us proceeds for clean-up.
- 3.5 Effective recycling programs such as the Bag to Bag program in San Juan Capistrano.
<http://www.sanjuancapistrano.org/uploads/sjcplasticbagflyer.pdf>
- 3.6 Outlaw the use of Styrofoam (Malibu)
- 3.7 Support beach clean ups.

4.0 Useful links

<http://www.plasticdebris.org/>

<http://algalita.org/>

<http://www.waterboards.ca.gov/>