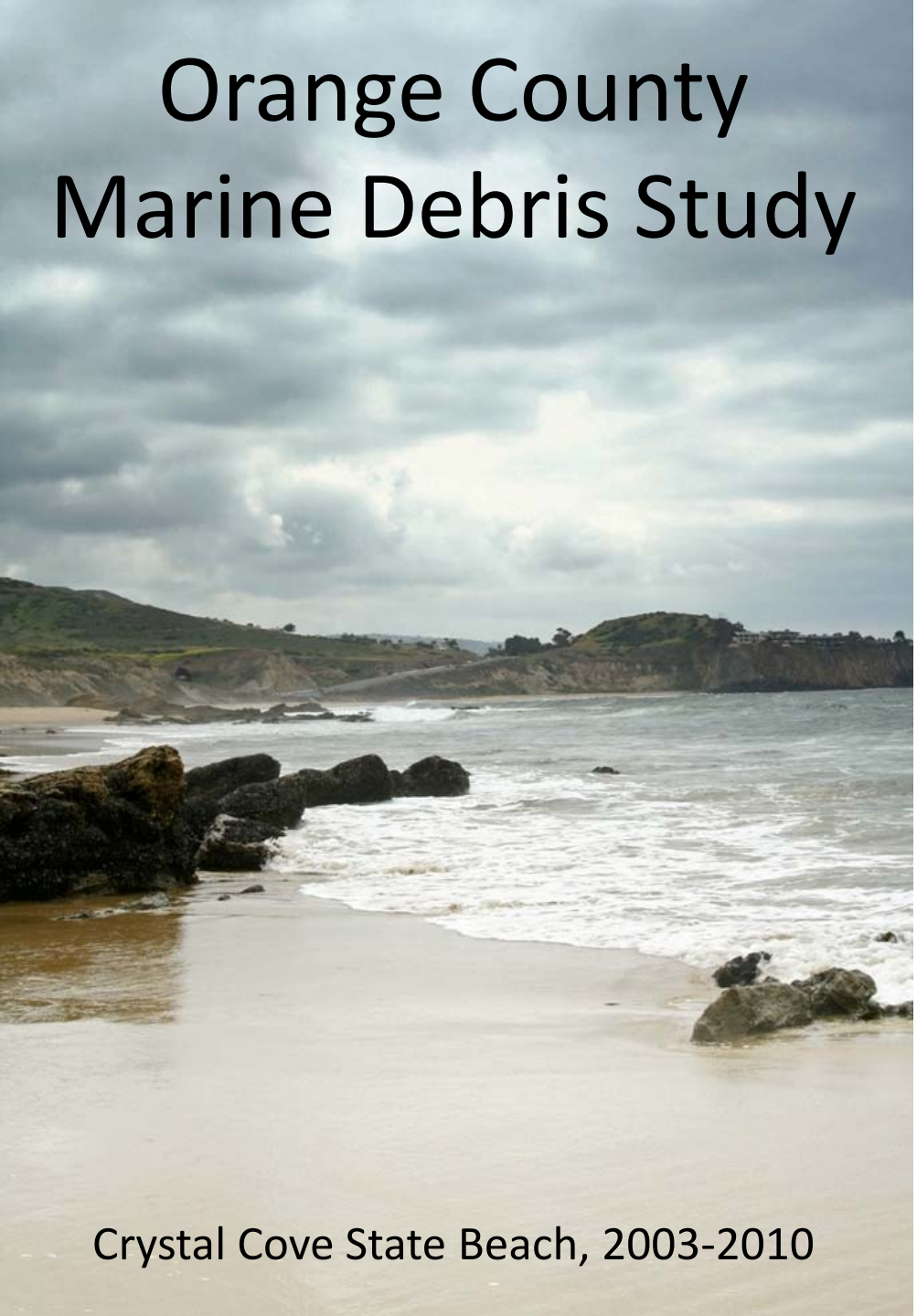
Orange County Marine Debris Study



Crystal Cove State Beach, 2003-2010

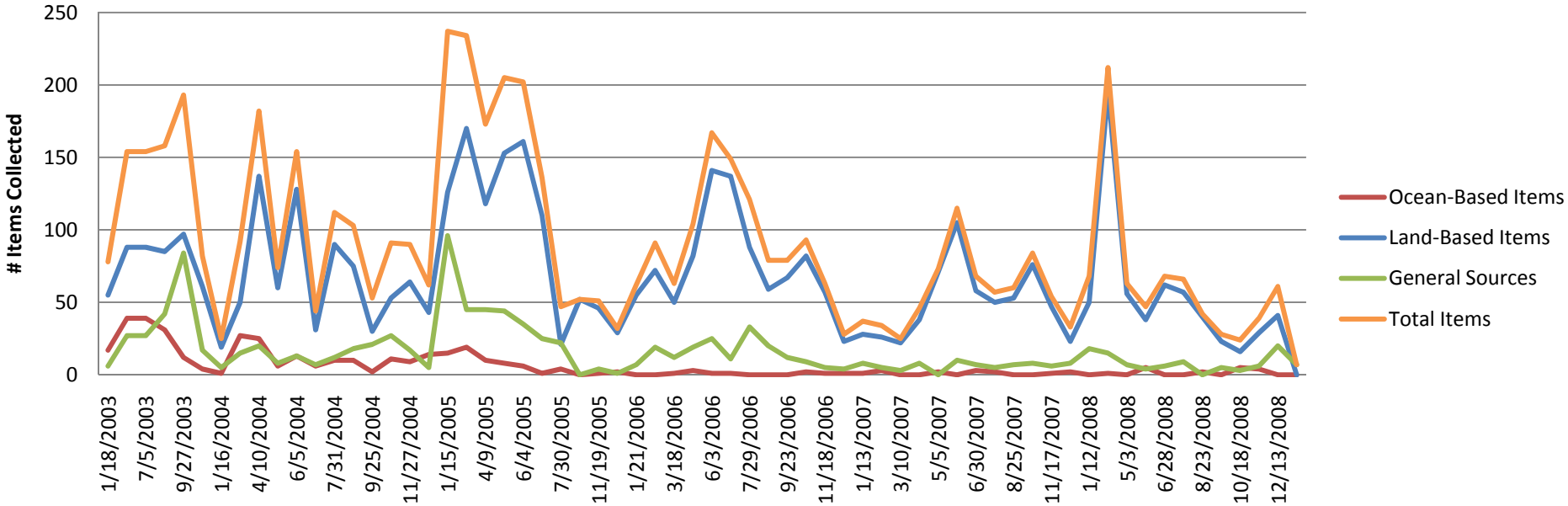
Understanding the sources of pollution is a key element in preventing and reducing it.

As a part of the Ocean Conservancy's National Marine Debris Monitoring Program, Coastkeeper volunteers from VQ Orthocare have monitored a 200 meter stretch of beach near Pelican Point in Crystal Cove State Park for the last seven years. Although the national study ended in 2006, VQ Orthocare has committed to continuing their work at Crystal Cove.

Pelican Point was randomly selected among beaches in southern California that are not subjected to mechanical beach cleanup. Three different types of marine debris were monitored over the course of the study: land-based debris, ocean-based debris, and general-source debris. This document contains a summary of the results to date.

The Marine Debris Study would not have happened without the dedication of VQ Orthocare staff. Thank you!

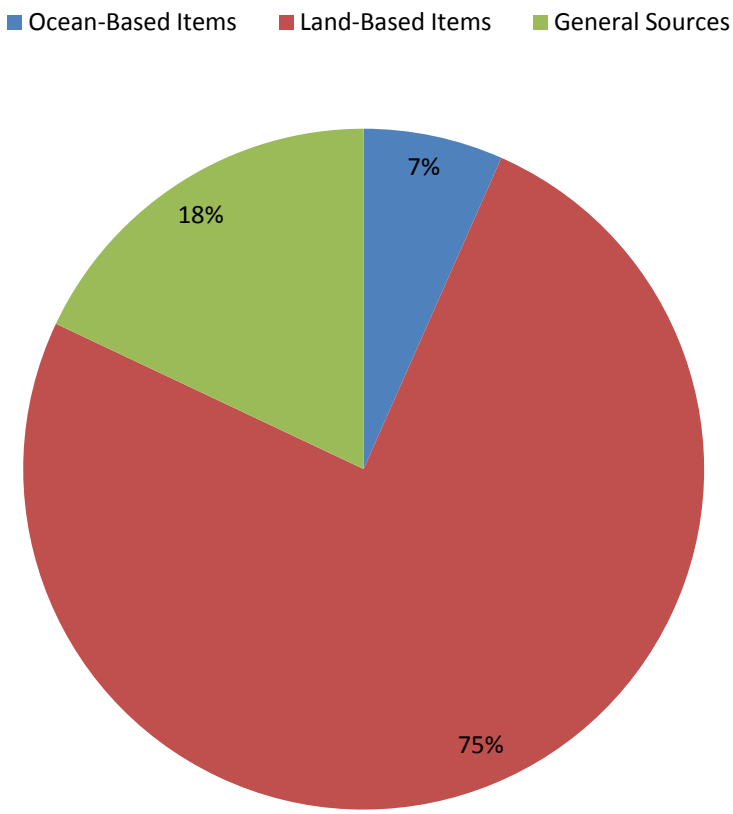
Crystal Cove Marine Debris Data Survey: Comparison Total Items vs. Items Collected by Location (January 03 to April 10)



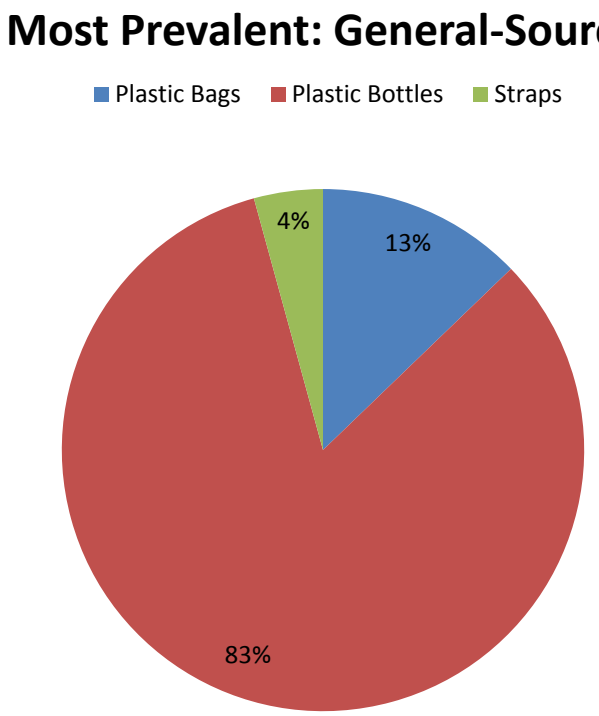
The Crystal Cove site has been surveyed approximately once a month between January 2003 and April 2010; no data was collected for 2009. The overall trend displays significant increases in observed debris during the first half of the year, peaking during the months of spring. The significance of these peaks is that they coincide with the rainy season.

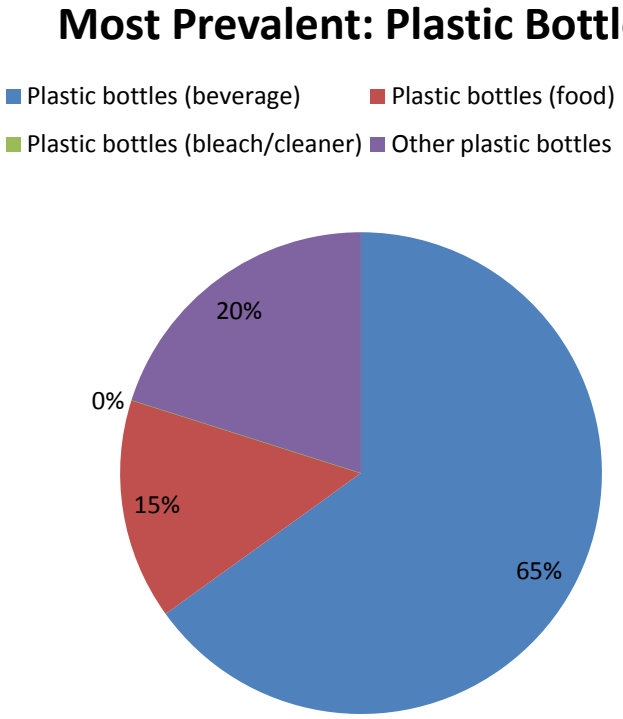
Rain leads to an increase in urban runoff, washing debris into the waterways and storm drains, and ultimately ending at our beaches. This coastal pollution negatively impacts the coastal environment and marine life within. The overall trend of the debris found at Crystal Cove has remained rather consistent over time, typically one big peak during spring and a lower but consistent prevalence of debris during the remaining months.

Total Items Collected by Area



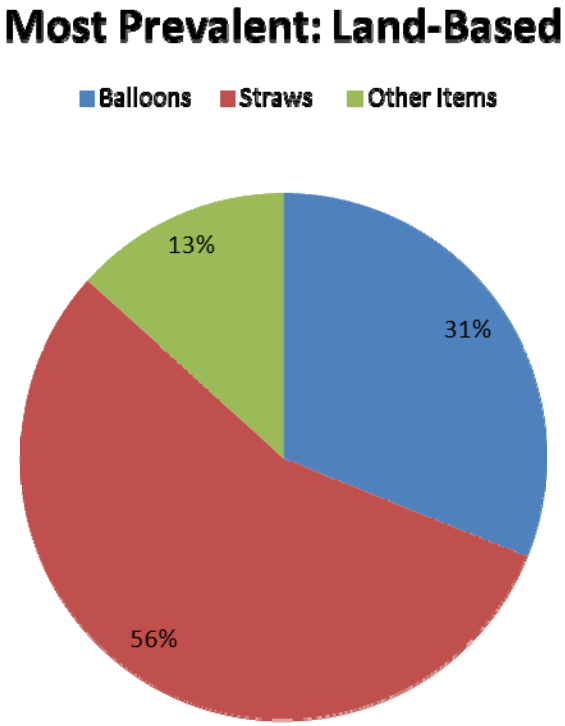
“Total Items Collected by Area” displays the suspected origin of each type of debris. Debris are categorized as ocean based, land based, or general sources. The majority of the observed debris were land based at 75%, followed by general sources at 18%, and ocean based debris at 7%.

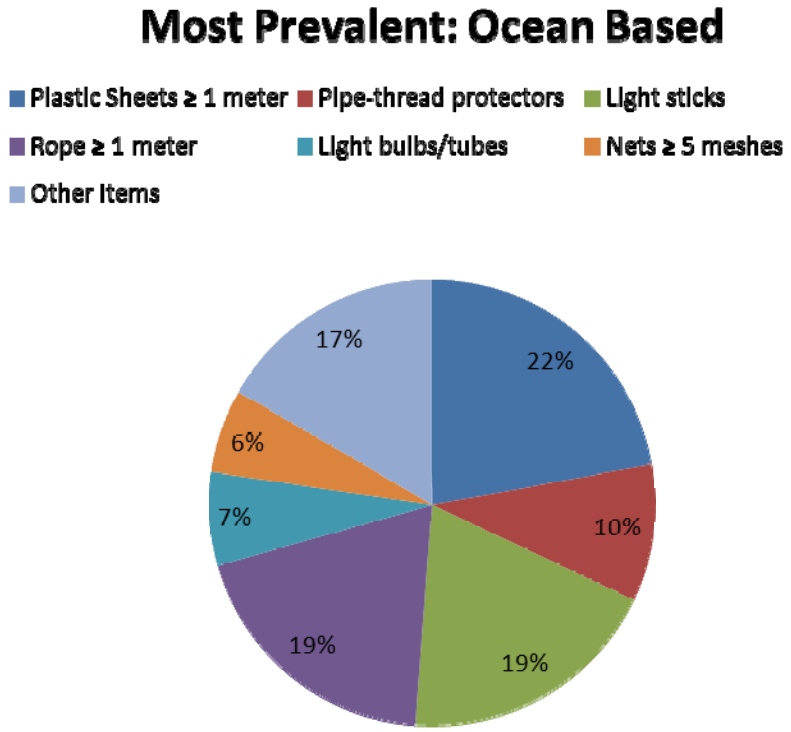




"Most Prevalent: General-Source" displays the prevalence of each type of debris for general items. The most prevalent general item debris found at Crystal Cove State Park by far was plastic bottles at 83%, followed by plastic bags at 13%, and straps at 4%.

Plastic bottles were then broken down by type: beverage, food, bleach/ cleaner, and other which can be observed in the chart titled "Most Prevalent: Plastic Bottles." The most prevalent bottle types found at Crystal Cove State Park during the survey were plastic beverage bottles at 65%, followed by other plastic bottles at 20%, and plastic food bottles at 15%.





"Most Prevalent: Land-Based" shows each type of debris by category for land based items. The most prevalent items were straws and balloons at 56% and 31%.

"Most Prevalent: Ocean-Based" displays each type of debris by category for ocean based items. The most prevalent items were plastic sheets ≥ 1 meter in length at 22%, light sticks at 19%, and rope ≥ 1 meter in length at 19%.