



## EXTENT AND MAGNITUDE OF TRASH IN SOUTHERN CALIFORNIA STREAMS

### What is it?

The stream assessment program of the Stormwater Monitoring Coalition (SMC) started its sampling program in 2009. Biological indicators (benthic macroinvertebrates and algae) are the key indicators but chemical parameters such as aquatic toxicity and physical habitat condition are also measured for this program. The SMC program provides an excellent platform to study emerging issues in southern California streams by adding additional parameters to the constituent list. In 2011, a regional pilot project trash survey was conducted at the SMC sites across southern California watersheds to assess the extent and magnitude of trash on southern California streams. To our knowledge, this project represents the first regional, quantitative, statistically robust assessment of trash in streams conducted in Southern California. Stormwater agencies throughout southern California share many similar issues regarding trash monitoring and management but to date there has been no coordinated effort to develop a consistent method of estimating loadings, understand pathways into the environment and identify and prioritize sources for remediation at a watershed scale.

The goal of the Southern California Regional Watershed Trash Assessment Pilot Project (Pilot Project) is to improve the understanding and ability to manage trash in the environment at both regional and local scales. The regional trash assessment effort collected stream trash data at sites in open space, agricultural areas, and urban streams following the State's SWAMP Rapid Trash Assessment using a probabilistic monitoring design. The focus of the Pilot Project protocol was to generate an assessment of regional conditions and provide the partners with an opportunity to examine common pathways and sources over a larger geographic scale across a range of stream conditions.

Preliminary data indicate that in general, urban streams (1,706 items at 37 sites) contained more trash than open space streams (380 items at 39 sites). Only one site in agricultural areas was surveyed (1 item at 1 site) which limits our understanding of trash impacts in areas with this type of land use. The overall results show that the top three categories of items counted in all streams were composed of 60% plastic items, followed secondly by glass comprising 11.4%, and metal items comprising 7.1%. The top five individual items, as a percent of overall items counted, were (#1) plastic bags at 18.7%, (#2) expanded Styrofoam and Styrofoam pieces at 14.3%, (#3) plastic food and container wrappers at 11.3%, (#4) pieces of glass bottles at 10.2%, and lastly (#5) at 5.9% were soft and hard plastic pieces that were generally unrecognizable from their original source. In all these five categorical items constituted 60.4% of all items collected across southern California streams.

The 2011 Pilot Project regional effort was made possible through in-kind contributions from the Southern California Stormwater Monitoring Coalition member agencies that includes Orange, San Diego, Riverside, San Bernardino, and Los Angeles County Stormwater Programs, the three southern California Regional Water Quality Control Boards through the Surface Water Ambient Monitoring Program, the Department of Fish and Game, and generous support from the Los Angeles and San Gabriel Rivers Watershed Council. In 2012, the Pilot Project partners will continue this effort.

### **Why is it important?**

This project is important to the state because it will provide critical data on trash to decision makers. The trash assessment data will allow future management actions to be better targeted toward addressing how to prevent trash from entering into our waterways and in improving beneficial uses over the long-term. In addition, this project study design can be adopted or modified for other regions of the State.

The addition of trash assessment to the southern California's stream assessment provides critical information to the stream health, and will be effectively communicated to the public. This allows citizens to gain a greater understanding of the impact of trash on local water resources which leads to improved stewardship and better solutions for resolving trash impacts.

## **How will this information be used?**

Data collected by this collaborative effort will be used in many ways and will be SWAMP comparable:

- Regional Boards and State Board will use the data to decide what management strategies need to be implemented to protect and restore southern California streams from water quality impairments related to trash.
- Stormwater agencies in southern California will use these data to decide which management strategies need to be implemented to protect southern California streams from the impact of trash.
- The data collected through this project will be uploaded into the California Environmental Data Exchange Network (CEDEN) for use by public, private and governmental organizations and individuals.
- Data can be used by State Board for identifying impaired waters under the Clean Water Act, 303(d) and 305(b) Integrated Reporting Requirement.
- Data from the trash monitoring can provide evidence of whether BMPs are working, especially in areas that have trash Total Maximum Daily Loads (TMDLs).