

# EPA National Trash Free Waters Program

*A strategic approach to reduce trash and debris in aquatic ecosystems*



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## The Environmental Priority – Fast Facts

- Trash is a pervasive problem for oceans and coasts, causing economic, aesthetic, and ecological impacts.
- No aggregate trash loading number exists (yet), but 2011 international coastal clean-up events collected over 9 million pounds of trash in a single day.
- **Approximately 80% of aquatic trash comes from land-based sources. Trash on land has numerous pathways to aquatic ecosystems.**
- Over 51 billion pieces of litter end up on US roads each year.
- Litter cleanup costs the U.S. almost \$11.5 billion each year.
- **Plastic is estimated to make up 60-80% of marine debris. Highly durable plastic containers and packaging are used for many short-term purposes.**
- Plastic debris appears to be a vector for transfer of PBTs from the water to the food web, increasing risk to all animals in the marine food web, including humans.
- D.C.'s bag tax caused a 60% reduction of bag usage in just two weeks.



## Programmatic Problems



*The issue is widely viewed as a problem but rarely as a priority, resulting in piecemeal actions with limited impact rather than sustainable solutions.*

- 1) The aquatic trash problem grows more severe every day, but there still are no “bottom line” numbers on the volume, impacts, and societal costs of litter and debris.
- 2) The major issue of human health effects remains unresolved, though studies now indicate that humans may be exposed to toxics via the marine food web.
- 3) Success depends upon behavior change, but the current public and private sector resources and initiatives do not provide a clear and compelling message.
- 4) Despite general agreement that plastics and packaging are the top trash elements, there is no effective public/private effort to reduce loadings in “game-changing” ways.
- 5) State and municipal programs are fragmented and often ill-informed about options. Successful Region 9 whole-system approach has not yet been replicated.

*Stakeholders in government, business, and other constituencies have asked EPA to play a catalyst role to help develop and implement effective strategies.*

# EPA National Trash Free Waters Program



**EPA Goal Statement:** Develop a program with a focused set of national and regional actions that support trash prevention and reduction initiatives by many public and private stakeholders, resulting in significantly less trash entering watersheds and the marine environment, approaching zero loadings of trash into coastal watersheds and ecosystems within 10 years.

## Five Essential Program Elements

- 1) Make the case that the impacts of trash in aquatic ecosystems justify priority action.  
*Analyze existing data and report on societal costs of "reactive" trash management.*
- 2) Determine whether plastic trash has major human health effects in the food chain.  
*Conduct toxic chemical pathway analysis that sets forth findings for peer review.*
- 3) Define the next generation of public engagement in trash prevention.  
*Create Resource Directory & web portal; develop public/private outreach partnership.*
- 4) Create a Sustainable Materials Management program for plastics packaging.  
*Develop a product stewardship program in key manufacturing & service sectors.*
- 5) Establish regional watershed partnership programs for zero trash in coastal watersheds.  
*Replicate Region 9's cross-media, public-private partnership approach in other regions.*

## **Trash Free Waters Element #1: Make the Case for Action**

*Make the Case that the Impacts of Trash in Aquatic Ecosystems Justify Priority Action by EPA*

**Action: Analyze existing data and report on societal costs of “reactive” trash management.**

Problem: Decision-makers lack aggregate data on the economic impacts of trash in the aquatic environment, the true costs of trash clean-up, and the ROI of proactive management. The magnitude of the problem and the benefits of proactive options have not been conveyed in a compelling way, which creates a barrier to the creation and funding of necessary state/local trash prevention and management programs.

Context: Trash data has been collected, but not analyzed and assembled to “tell the story” of economic impacts and potential benefits of proactive prevention.

Project: Review existing studies (including the EPA Region 9 trash management study and private-sector studies by the Ocean Conservancy and others). Aggregate the data and identify gaps. Extrapolate costs on a national scale. Analyze economic impacts to determine whether costs are indeed a major issue. Assemble data and analysis in a ‘user-friendly’ report that makes the ROI case for preventive action.

## **Trash Free Waters Element #2: Resolve the Health Effects Question**

*Determine Whether Plastic Trash Has Major Human Health Effects in the Food Chain*

**Action: Conduct toxic chemical pathway analysis that sets forth findings for peer review.**

Problem: Fish ingest plastic trash which has toxic constituents that may be absorbed into tissue and subsequently ingested by individuals who eat the fish. Although studies have been done, the determination of human health effects remains inconclusive. There has not yet been a broad overview and analysis of the issue by leading scientists or policymakers.

Context: Some fish tissue studies have been done (FDA, NOAA, NCRR). A new OWOW study indicates that a causal link exists. An EPA statement confirming human health impacts from plastic trash could be a “game-changer” for plastic trash reduction efforts.

Project: Take existing studies (including the Region 9 fish tissue study and the OWOW-sponsored study) to the next level of research by creating a research protocol for toxic chemical pathway analysis. Assemble and analyze prior research efforts to set up a scientific peer review process.

## **Trash Free Waters Element #3: Change Public and Corporate Behaviors**

*Define the Next Generation of Public Engagement in Trash Prevention*

**Actions: Create Resource Directory and “one-stop” EPA web portal for trash prevention; develop a public education and behavior modification campaign with public/private partners.**

Problem: Many citizens, governments, and businesses do not appreciate the magnitude of the aquatic trash problem and the impacts on the environment and the economy. They lack clear information on trash impacts and cost-effective solutions. Necessary behavior change is severely inhibited by the lack of a compelling message.

Context: An extensive but uncoordinated array of information, tools, and resources exists to address marine debris. Web tools are not well linked or integrated, creating public confusion. Current efforts to affect behaviors are piecemeal and low-impact.

Project: Create a “one-stop” resource that integrates existing government and private-sector resources. Complete ongoing development of the Resource Directory and Toolkit. Create an EPA ‘mega-site’ for trash prevention and management. Establish a public/ private trash prevention partnership with Feds, NGOs, and corporate partners with high-impact education programs, PSAs, social media, national advertising, etc.

## **Trash Free Waters Element #4: Reduce Plastics Loadings**

*Create a Sustainable Materials Management Program for Plastics Packaging*

**Action: Develop a packaging product stewardship program in key manufacturing and service sectors.**

Problem: Plastics are the #1 source of aquatic trash pollution. Their durability and huge usage volume create an ever-growing trash crisis in aquatic watersheds and oceans. Highly durable plastic containers and packaging are used for extremely short-term uses.

Context: Improved design and management of plastics *packaging* offers the best opportunity to reduce plastics loadings. Although the plastics, food, and packaging industries have taken steps to promote recycling and reduce packaging waste, these programs do not reduce loadings to “game-changing” levels. There is limited information on market growth opportunities for reduction and beneficial reuse of plastic packaging.

Project: Identify packaging as a priority in EPA's Sustainable Materials Management program, with a focus on reducing plastics loadings into the aquatic environment. Conduct an options analysis to support the development of a more proactive packaging and product stewardship program in key manufacturing and service sectors.

## Trash Free Waters Element #5: Regional Watershed Strategies

*Establish Regional Watershed Partnership Programs for Zero Trash in U.S. Coastal Watersheds*

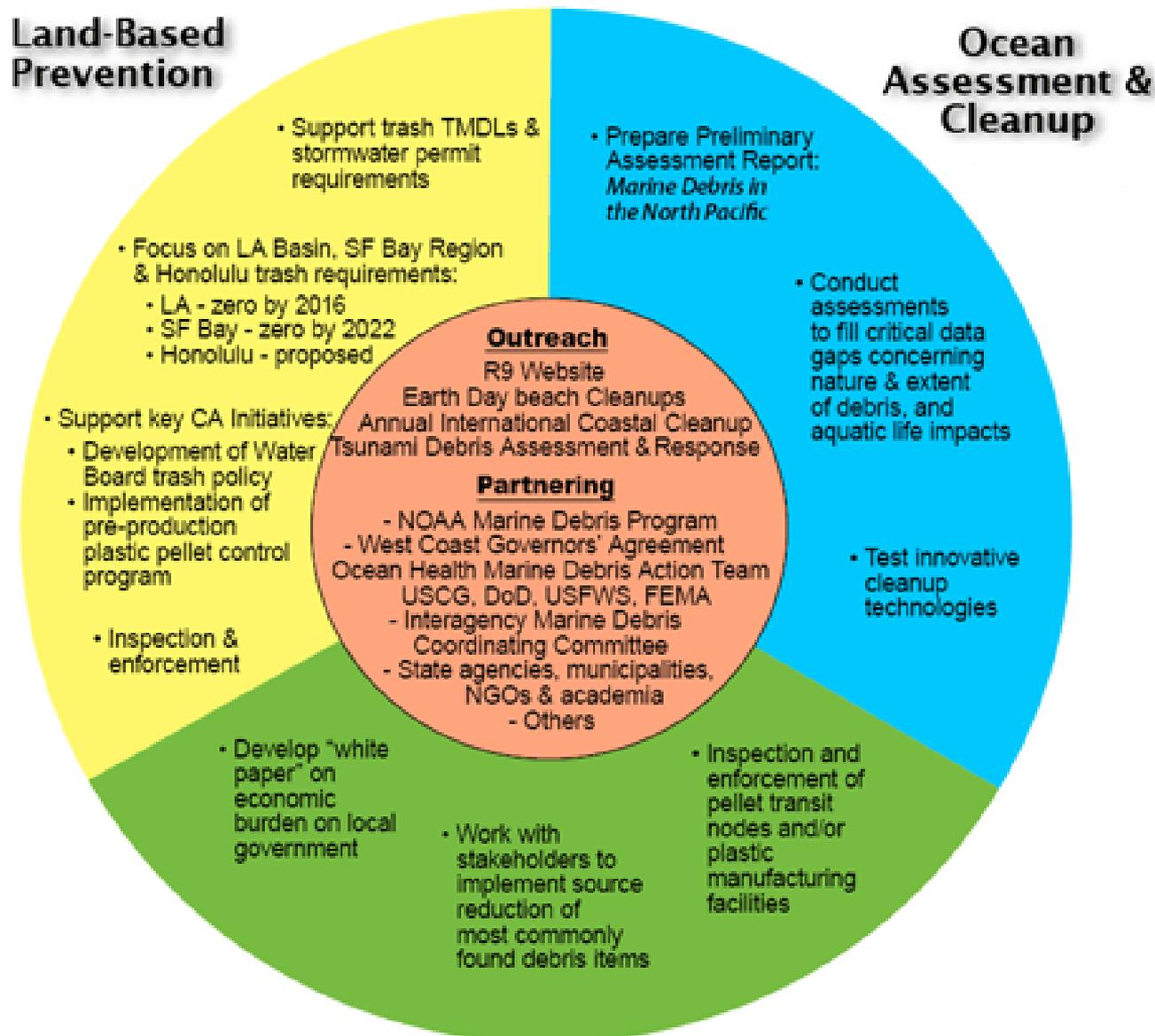
**Action: Replicate Region 9's cross-media partnership approach in other regions.**

Problem: Trash is perceived as a problem but not a priority by regional, state, and local authorities, and by citizens and businesses as well. Government decision-makers lack the knowledge and impetus to address trash loadings as part of their infrastructure management. They need support (i.e., information, incentives, success models) to create integrated 'systems' strategies to address trash using available mechanisms such as stormwater permits, regulatory standards, business stewardship, public education, and clean-up events.

Context: EPA Region 9, California, and west coast municipalities have taken proactive approaches that provide cross-media models of 'systems' approaches to proactive trash management. Additional pockets of innovation exist in other locations (e.g., Anacostia watershed). These programs can serve as prototypes for new, equally ambitious programs to be established.

Project: Replicate Region 9 public-private partnership approach in other interested regions. Evaluate innovative regulatory and non-regulatory approaches (e.g., trash TMDL, stormwater regulations, bag and bottle bills, education, etc.). Provide planning and facilitation support in collaboration with regions and states, businesses, NGOs. Develop "success metrics."

# EPA Region 9 (Pacific Southwest) Marine Debris Strategy



## Land-Based Reduction

March 2012

## Deliverables

### Prospective Outputs

- A quantified national “story” on aquatic trash impacts.
- Public/private public education partnership.
- Dialogue and findings on toxicity impacts from fish ingestion of plastic particles.
- EPA web portal for trash and debris prevention and reduction.
- Life-cycle stewardship agreements with packaging and plastics industry leaders.
- A national recycling program commitment from food and beverage industry.
- A regional “Trash-Free” Coastal Watershed program in another EPA region.
- National regulatory and permit guidance that addresses trash as a pollutant.
- New baselines for measuring progress toward trash volume and cost reduction goals.

### Prospective Long-Term Outcomes

- Coastal stewardship programs (public/private partnerships) across the U.S.
- Widespread adoption of sustainable packaging and product design by all relevant sectors.
- A new public awareness and ethic toward aquatic trash.
- Quantifiable reductions in municipal trash loadings into the aquatic environment.
- Approach trash-free status in all U.S. coastal ecosystems (including the Great Lakes).
- Quantifiable reductions in marine loadings from U.S. land sources and vessels.



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