

Marine Debris

Section 309 Enhancement Objective

Reducing marine debris entering the Nation's coastal and ocean environment by managing uses and activities that contribute to the entry of such debris

Resource Characterization

Purpose: To determine the extent to which problems and opportunities exist with regard to the enhancement objective.

1. In the table below, characterize the significance of marine debris and its impact on the coastal zone.

Source of marine debris	Extent of source (H,M,L)	Type of impact (aesthetic, resource damage, user conflicts, other)	Significant changes since last assessment (Y or N)
Land Based – Beach/Shore Litter	H	Aesthetic, economic, human health/safety, wildlife/habitat, resource damage	N
Land Based – Dumping	M	Aesthetic, economic, human health/safety, wildlife/habitat, resource damage, user conflict	N
Land Based – Storm Drains and Runoff	H	Aesthetic, economic, human health/safety, wildlife/habitat, resource damage	N
Land Based – Fishing Related (e.g. fishing line, gear)	L to M	Aesthetic, economic, human health/safety, wildlife/habitat, resource damage	N
Ocean Based – Fishing (Derelict Fishing Gear)	M to H	wildlife/habitat, boating safety, resource damage	N
Ocean Based – Derelict Vessels	M	Aesthetic, boating safety, resource damage, user conflict	N
Ocean Based – Vessel Based (cruise ship, cargo ship, general vessel)	M	Aesthetic, resource damage, user conflict	N
Ocean Based – Tire Reef	L	Aesthetic, resource damage	Y
Hurricane/Storm	M to H	Aesthetic, wildlife/habitat, resource damage	N

If information is not available to fill in the above table, provide a qualitative description of information requested, based on the best available information.

Land-Based

According to data from the International Coastal Cleanup program conducted annually in Virginia by Clean Virginia Waterways, land-based activities accounted for approximately 95% of the marine debris items collected during the 2009 cleanup. These volunteer cleanup events are held on Virginia's beaches as well as inland rivers and tributaries. In Virginia, most land-based debris is attributable to littering. Cigarette butts were the most commonly collected debris item in 2009, followed by food- and beverage-related items (including bottles, cans, plastic and paper bags, food wrappers, cups, lids, caps, straws, and stirrers). Balloon litter and fishing line, two items that present a risk of wildlife entanglement, ranked as the 17th and 18th most common items found along Virginia's beaches and waterways in 2009. While mass releases of balloons are illegal in Virginia, balloon debris is found more frequently on beaches than in or around other state waterways. Since balloons can resemble jellyfish, they present a potential ingestion hazard for wildlife. Strings and ribbons on balloons also present an entanglement hazard for wildlife. Cigarette litter, often resulting from roadway, sidewalk, and parking lot litter washing into waterways, presents a unique ingestion hazard to wildlife because it is floatable and toxic. Other potential sources of land based debris are stormwater runoff and combined sewer overflows.

Severe storm events can cause a massive influx of debris into Virginia's waterways, wetlands, and coastal areas. In such storm events, building materials and household items generate a high volume of debris.

Ocean-Based

Approximately 5% of the debris items collected during the 2009 coastal cleanup were attributable to ocean-based activity. These items included derelict fishing gear such as rope, netting, and other gear that were discarded or lost from vessels and eventually washed ashore. Two derelict gear items of specific concern in Virginia are unattended and unmarked "ghost" crab pots and discarded clam netting. These items present threats to wildlife and boating safety. A winter 2008-2009 program resulted in the recovery of more than 8,600 derelict crab pots in the Chesapeake Bay. The crab pots had trapped and killed several thousand animals, including crabs, fish, and turtles. Discarded clam netting is particularly an issue in Virginia's Eastern Shore region. A program funded by the Virginia CZM Program from 2004 to 2007 involved a survey of discarded netting in the Eastern Shore region and networking with the local shellfish aquaculture industry in order to promote environmental Best Management Practices. These programs are described in more detail later in this section.

Impacts

The impacts of marine debris in Virginia include aesthetic impacts, resource damage, economic impacts, threats to human health and safety, threats to wildlife and habitat, user conflicts, and boating safety. Economic impacts include cleanup costs and lost revenue from tourism. Threats to human health and safety include combined sewer overflows and sharp beach debris. Threats to

boating safety include discarded clam netting, which can get wrapped around boat rotors and cause engine damage.

2. Provide a brief description of any significant changes in the above sources or emerging issues.

Waste Tires

The Artificial Reef Program, which is managed by the Virginia Marine Resources Commission, used scrap tires in the construction of artificial reefs off the coast of Virginia Beach in the 1970s. The tires were cut in half and banded together with stainless steel bands. The bands over time have rusted and been disturbed, causing loose tires to float to the surface. Because of typical Atlantic storm patterns these tires have often washed up on the shore in North Carolina. The Virginia Department of Environmental Quality's Waste Tire Program estimates that the artificial reefs include one million tires.

A waste tire dump site also exists in Hoskins Creek, a tidal creek in the town of Tappahannock. An estimated 4,000 to 5,000 tires are located at this site.

Stormwater Management

There is growing interest in Virginia's urban areas in developing a Total Maximum Daily Load (TMDL) standard for floatable trash and litter items, modeled after similar TMDLs in place in California communities.

Regional Cooperation

In 2009, the Governors of New York, New Jersey, Delaware, Maryland, and Virginia created the Mid-Atlantic Regional Council on the Ocean (MARCO) as their commitment to a new comprehensive, regional approach to coastal and marine issues, including marine debris.

3. Do you use beach clean-up data? If so, how do you use this information?

The annual International Coastal Cleanup in Virginia is coordinated by Clean Virginia Waterways at Longwood University. The annual cleanup data is available for the use of the Virginia CZM Program, US Coast Guard, Virginia State Parks, National Park Service, stormwater managers, media, educators, and other entities interested in understanding litter and aquatic debris issues.

Many regional and local cleanup efforts in Virginia are organized by local governments and non-profit organizations. These cleanups are not necessarily organized under the International Coastal Cleanup or Clean Virginia Waterways and cleanup data are not necessarily available.

The Coastal Program and other agencies can use cleanup data to identify both specific sites and specific debris items (e.g. cigarette filters, balloons) that need to be addressed through pollution prevention and outreach programs.

Clean Virginia Waterways now has 15 years of cleanup data (1995 to 2009) and will be doing trend analysis. The findings of this analysis will be publicized to media, state agencies, and others.

Management Characterization

Purpose: To determine the effectiveness of management efforts to address those problems described in the above section for the enhancement objective.

1. For each of the management categories below, indicate if the approach is employed by the state or territory and if significant changes have occurred since the last assessment:

Management categories	Employed by state/territory (Y or N)	Employed by local governments (Y, N, Uncertain)	Significant changes since last assessment (Y or N)
Recycling requirements	Y	Y	Y
Littering reduction programs	Y	Y	N
Wasteful packaging reduction programs	N	N	N
Fishing gear management programs	Y	N	Y
Marine debris concerns in harbor, port, marine, & waste management plans	Y	Y	N
Post-storm related debris programs or policies	Y	Y	N
Derelict vessel removal programs or policies	Y	N	N
Research and monitoring	Y	Y	Y
Marine debris education & outreach	Y	Y	Y
Waste tire management	Y	N	N

2. For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.

- a) Characterize significant changes since the last assessment;
- b) Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and
- c) Characterize the outcomes and effectiveness of the changes.

Recycling requirements

Recycling requirements for localities

Effective July 1, 2006, the Virginia General Assembly established a two-tiered recycling mandate. Localities or solid waste planning units/regions with population densities of less than 100 persons per square mile or with unemployment rates of 50% above the state average are required to meet a 15% mandatory recycling rate. All other localities are required to meet a 25% recycling rate. In 2008, Virginia's statewide recycling rate was 38.5%.

Recycling requirements for state agencies

Released in 2009 by Governor Tim Kaine, Governor's Executive Order #82 directs state agencies to reduce waste, as well as water use, energy use, and travel. At minimum, individual agency waste reduction policies should address reducing the use of paper and other office supplies, reducing the use of disposable supplies, and recycling of white paper, mixed paper, plastic, batteries, printer cartridges, and aluminum. When relevant, the policy should address recycling of motor oil and antifreeze. Additionally, the inclusion of provisions for composting is encouraged. Despite the November 2009 election of Governor Bob McDonnell, this Executive Order will remain in effect until it expires in July 2013.

Littering reduction programs

Keep Virginia Beautiful

After years of dormancy, Keep Virginia Beautiful (KVB) is being reinstated. The organization's board has begun implementing a three-year strategic plan, and is currently seeking an Executive Director. The goals of this statewide organization are litter prevention, waste reduction, recycling, education, and beautification. KVB seeks to provide a framework for better collaboration and coordination on these issues between the public, private, and nonprofit sectors, and also between local, regional, and state government agencies. KVB will provide support for local litter prevention and recycling programs, which are often underfunded and inconsistent. KVB's strategic plan is available online at:

www.greenquestllc.com/uploads/KVB_Mission_Exploration_Session_4_01.29.09_v3.0E.ppt

Fishing gear management programs

Derelict crab pot program

A program funded by NOAA through the Virginia Marine Resources Commission and implemented through the Virginia Institute of Marine Science made significant progress in removing derelict crab pots from the Chesapeake Bay. From December 2008 to March 2009, the program paid out-of-work watermen to use side-imaging sonar units to detect and retrieve abandoned crab pots and other debris. The program is the largest of its kind in the nation and as of 12/20/10 more than 17,700 derelict pots have been recovered since the program began in 2008. . In addition to crab pots, participants recovered peeler pots, eel pots, nets and other marine debris bringing the total number of items removed during this period to 20,625. Participants covered over 1,500 square kilometers but could not reach many shallow areas estimated to harbor additional pots. Next year's program will be adjusted to include more

shallow-draft vessels that can reach these pots. The program is slated to end in the spring of 2011 and efforts are underway to identify mechanisms to address the problem once removal ceases.

Information on the 2009-2010 derelict crab pot program, including an interactive debris location map, can be viewed online at: http://ccrm.vims.edu/marine_debris_removal/index.html

Fishing line recycling program

The Virginia Department of Game and Inland Fisheries (DGIF) and the Virginia Marine Resources Commission (VMRC) have launched a monofilament fishing line recycling program across the Commonwealth. Recycling containers have been installed at public boat launches at several lakes, rivers, and coastal waters. Anglers and boaters are encouraged to deposit used monofilament fishing line into the containers. Currently, there are 77 recycling sites across the state. A map of sites is available at: <http://www.dgif.virginia.gov/fishing/fishing-line-recycling/>

Marine debris concerns in harbor, port, marine, and waste management plans

No significant change. The Virginia Clean Marina Program at the Virginia Institute of Marine Science - a partnership of the Virginia CZM Program, VA Department of Environmental Quality, VA Department of Conservation and Recreation, VA Department of Health, VA Marine Resources Commission, VA Department of Game and Inland Fisheries, Virginia Sea Grant, and NOAA - is a voluntary recognition program for marinas that take initiative to protect coastal resources. Marinas are certified based on their compliance with a set of pollution prevention practices, including solid waste management and boater education. There are currently 65 marinas certified by the Clean Marina Program, and 32 others have pledged to work toward certification.

Derelict vessel removal

No significant change since last assessment. Virginia has no specific program or funding for the removal of derelict vessels, but legislation and procedures for removal are in place.

Derelict military vessels

A fleet of derelict military vessels, known as the James River Ghost Fleet or James River Reserve Fleet, is anchored in the James River near the city of Newport News. The vessels were initially placed in the James as part of the National Defense Reserve Fleet program in the 1940s and 50s. These vessels contain hazardous content such as fuel oil, lead, and asbestos. Since 2001, approximately 75 vessels have been removed from the James and recycled for scrap or otherwise disposed of. As of November 30, 2009, 25 vessels remain at the site. The federal Maritime Administration (MARAD) has been handling the removal of these vessels. One of the ships, a 700-foot oil tanker, broke loose from its moorings during a nor'easter in November 2009 and drifted until it ran ashore about a half-mile downstream. MARAD currently plans to free the ship in January 2010 and return it to the fleet.

Waste tire management

No significant change. The Virginia Department of Environmental Quality's Waste Tire Program began locating tire dumps with a statewide survey in 1993. Since then, the Program has located over 1,200 dump sites across the state, totaling more than 25 million tires. To date, more than 1,100 of these sites have been cleaned up. The site at Hoskins Creek in Tappahannock has been partially addressed, with the tires on land having been removed but the tires in the water remaining on-site because there is uncertainty about how much damage might be caused by retrieving them. The tire reef problem in the Atlantic Ocean has not been addressed for a number of reasons, including the more pressing nature of land-based dumps which attract mosquitoes and present a fire risk, lack of information about the situation, and uncertainty about agency responsibility for the problem.

Funding for waste tire removal is in limited supply at this time. The Waste Tire Program is funded by a state-imposed fee of \$1.00 for every tire purchased in the Commonwealth. However, this funding source has recently been tapped into for other state budget needs, and as a result funding for waste tire removal projects is suffering.

Research and monitoring

Derelict gear

Research and monitoring is an important component of the VIMS derelict crab pot program discussed above. The impacts of derelict crab pots and fishing gear on wildlife, boating safety, and commercial and recreational fishing in the Bay were assessed. During the winter 2008-2009 program, information such as the locations of derelict crab pots and the number of animals trapped inside recovered crab pots was recorded.

Debris monitoring

Ocean Conservancy's National Marine Debris Monitoring Program monitored debris in two Virginia sites from 2001 to 2006 as part of an EPA-funded program that included dozens of coastal sites in the U.S. The Virginia sites were located at Back Bay National Wildlife Refuge and Chincoteague Island National Wildlife Refuge. Monitoring at these sites began in 1997, but the EPA-funded study only analyzed debris trends over a five-year period.

Education and outreach

Clean Boater Program

The Virginia Clean Marina Program added the Clean Boater Program, intended to educate boaters about pollution resulting from boating activity and recognize boaters who take steps to reduce their impact. Individuals may take a Clean Boater pledge. A Clean Boater Program brochure, which includes information about the program, clean boating tips and resources, and a Clean Boater Pledge form, was developed using funding from the Virginia CZM Program.

Boater education video

The state is beginning to phase in education and certification requirements for recreational boaters. As part of this effort, the Clean Marina program produced a short educational film called

“Bling My Boat,” which addresses marine pollution and debris issues. The film was produced using funds from the Virginia CZM Program and the Chesapeake Bay Restoration Fund.

Networking with Eastern Shore aquaculture industry

From 2005 to 2007 the Virginia Eastern Shorekeeper program, funded by the Virginia CZM Program, involved networking with local shellfish aquaculture companies and independent growers in order to promote voluntary environmental Best Management Practices (BMPs) for the clam industry, including ways to limit clam net litter on the shoreline. An earlier grant from the Virginia CZM Program to the Eastern Shorekeeper program funded a survey of the extent of discarded netting in the area, and a report that proposed recommended BMPs for the clam aquaculture industry.

Litter awareness campaigns

In conjunction with the annual International Coastal Cleanup in Virginia, Clean Virginia Waterways is working with teachers and informal educators to incorporate litter prevention and awareness lessons into curriculums.

Virginia’s Litter Prevention Program (run by the Virginia Department of Environmental Quality) coordinates the distribution of annual grants to localities for recycling and litter prevention activities, provides information and guidance on litter prevention and recycling topics, and works with localities, local litter prevention program managers, and environmental groups on improving awareness of how litter damages the environment.

Lesson plans

“Pollution Solutions” is a curriculum supplement that has 19 lessons about litter and pollution prevention based on the Standards of Learning for grades K-12. It was developed by the Virginia Resource Use Education Council and funded by the Virginia Litter Control and Recycling Fund for use in classroom presentations by local litter prevention and recycling program managers, classroom teachers, and informal educators (such as employees at state parks, Soil and Water Conservation Districts, etc.).

“Virginia’s Water Resources: A Tool for Teachers” by Clean Virginia Waterways is a Virginia-specific curriculum packet full of information and activities for teachers. It supports interdisciplinary and problem-based teaching about watersheds, water quality, stewardship, and management issues. Several of the lessons are focused on the sources and impacts of litter and marine debris, as well as solutions to these problems. It is correlated to Virginia’s Standards of Learning and supports the Chesapeake 2000 Agreement’s goal to “provide a meaningful bay or stream outdoor experience to every school student in the watershed before graduation from high school.”

Plastic bag litter

Plastic bag litter has negatively impacted the cotton farming industry in eastern Virginia. Bags become entangled in farm machinery and crops, and cannot be separated from cotton during the ginning process. This results in diminished quality of the cotton and ultimately affects farmer income. Additionally, bags present an ingestion and entanglement hazard to wildlife. Legislation was introduced to the Virginia General Assembly in 2008 that would have banned the use of

single-use plastic bags in stores. This legislation was withdrawn in early 2009, however, in favor of a pilot plastic bag recycling program in Isle of Wight County. The county received a grant from the Virginia Department of Environmental Quality which is being used to establish plastic bag drop-off sites, implement consumer education and outreach projects, and purchase a baler so that bags can be baled and sold for recycling.

Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or need description	Type of gap or need (regulatory, policy, data, training, capacity, communication & outreach)	Level of priority (H,M,L)
Continued education and outreach for general litter prevention and recycling, as well as specific concerns	Communication/Outreach	H
Increased state involvement in and coordination of marine debris issues	Capacity	H
Continued funding for removal of derelict fishing gear	Capacity	H
Analysis of tire reef issue and funding/program for cleanup	Data, Capacity	M
Formal program and funding for derelict vessel removal	Capacity	M

One major need for marine debris reduction is continued and expanded education and outreach. A large portion of marine debris is a result of individual behavior, and public education campaigns about the impacts and sources of marine debris could be an effective way to reduce debris. Possible goals of education and outreach initiatives include increasing public awareness of regulations related to waste disposal (such as dumpster maintenance and balloon release laws), options for recycling (such as where recycling facilities are located), and Best Management Practices for waste disposal. Another effective strategy may be working with the fast food industry to educate consumers about reducing waste, because many of the most commonly found debris items in Virginia are related to convenience foods. There is also a need to educate people about the connection between land-based litter and marine debris, as well as about the negative impacts that even small debris items such as cigarettes can have. Budget cuts can have a significant impact on education and outreach programs, as things like signs and brochures are often cut as a result of low funding.

In Virginia, much of the work that is done related to marine debris, such as cleanups and monitoring, is carried out by nongovernmental organizations. There is a need for increased state agency and local government involvement in the issue. Developing a state plan for addressing marine debris issues could help address the needs outlined here, as well as future needs.

Additionally, the MARCO alliance as discussed previously in this section and elsewhere in this assessment has identified marine debris as an issue to be addressed through a regional approach. A marine debris action plan developed through MARCO could help address the topic at a multijurisdictional scale.

The waste tire reef issue described above is unique among marine debris concerns in that it is the result of a program that was funded and implemented by a state agency. There is a need for cooperation between the Virginia Marine Resources Commission and the Virginia Department of Environmental Quality in assigning responsibility for the problem and cleanup. There is a need for assessment of the location, extent, and impacts of the tires. Additionally, there is a need for an operational plan and funding source to carry out the removal of the tires.

Enhancement Area Prioritization

1. What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

- High _____
- Medium _____
- Low _____

Briefly explain the level of priority given for this enhancement area.

The interagency Coastal Policy Team reviewed and ranked this issue at its February 17, 2010 meeting according to the following criteria: feasibility; importance and appropriateness. Up to 5 points were allotted to each of the three criteria so that a maximum score would be 15. Scores from 0-4.99 are considered low priority; 5-9.99 is medium priority and 10-15 is high priority. Marine debris received a score of 9.22.

2. Will the CMP develop one or more strategies for this enhancement area?

- Yes _____
- No _____

Briefly explain why a strategy will or will not be developed for this enhancement area.

Education, derelict fishing gear, and increased state involvement in marine debris issues were identified as high priority issues. After consideration of these issues, it was decided that they could be better addressed through the Ocean Resources strategy rather than through a separate Marine Debris Strategy. Key reasons were that: 1) a portion of the staff support for the Ocean Resources Strategy could be dedicated to marine debris issues, and that these issues did not warrant a position dedicated to marine debris issues alone; 2) Marine debris often ends up in the ocean becoming an ocean resources issue and marine debris is one of the four issues identified as high priority for the mid Atlantic region.

<u>2000 Assessment</u>	<u>2005 Assessment</u>	<u>This Assessment (2010)</u>
High _____	High _____	High _____
Medium <input checked="" type="checkbox"/> _____	Medium <input checked="" type="checkbox"/> _____	Medium <input checked="" type="checkbox"/> _____
Low _____	Low _____	Low _____