Virginia Marine Debris Reduction Plan Refinement

Final Report for FY21, Task 93 Grant

Photo of debris in Little Hunting Creek, Fairfax, Virginia by Zach Huntington, CVW

Submitted to the Virginia Coastal Zone Management Program by
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Grant Period: October 2021 – September 2022 (with an extension to March 30, 2023)

Virginia Coastal Zone MANAGEMENT PROGRAM

CLEAN VIRGINIA WATERWAYS
Of Longwood University

DEQ The Virginia Coastal Zone Management Program is a network of state agencies and coastal localities. The Virginia Department of Environmental Quality serves as the lead agency for the network.

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ABOUT VIRGINIA COASTAL ZONE MANAGEMENT PROGRAM
Established in 1986, the Virginia CZM Program is a network of state agencies and coastal localities that administer laws, regulations and policies to protect coastal resources and foster sustainable development. The Virginia Department of Environmental Quality serves as lead agency of the network. The Program is funded by the National Oceanic and Atmospheric Administration.

ABOUT CLEAN VIRGINIA WATERWAYS
Clean Virginia Waterways of Longwood University is a statewide organization dedicated to decreasing plastic pollution, litter, and marine debris through research, cleanup events, and building collaborations. Since 1995, more than 120,000 volunteers have removed 5 million pounds of debris from Virginia's rivers and beaches during CVW's annual cleanups that are held in September and October. CVW is funded through grants, gifts, sponsorships, and workshop fees.

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Funding for this grant: This grant was funded with $170,000, later reduced to $142,000 when $28,000 was transferred to another CZM-funded project.

Project period: This grant started on October 1, 2021, and originally, was to end on September 30, 2022. It was extended to March 30, 2023 so CVW and CZM could use the final funds in the grant to host a CBSM Workshop on Feb 27-28 and March 1, 2023.

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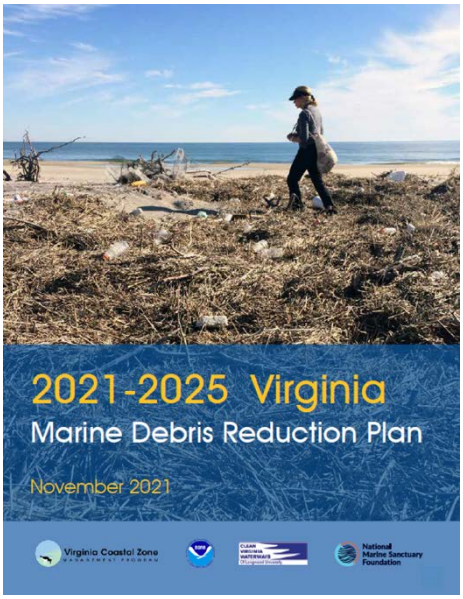
PROJECT SUMMARY

This task supported the Virginia Coastal Zone Management (CZM) Program's commitment to provide leadership in reducing the amount of trash and marine debris from land-based and water-based sources in Virginia and the Mid-Atlantic region. This grant from the Virginia CZM Program to Clean Virginia Waterways (CVW) of Longwood University supported various projects that furthered the implementation of the 2021-2025 Virginia Marine Debris Reduction Plan (funded under previous CZM grants.)



The VMDRP, serves as a roadmap and common framework for nonprofit organizations, local governments, state agencies, regional partners, researchers, and industry as they work together on sustained approaches to reducing the flow of plastic trash and other trash items into our coastal waters. This robust collaboration will lead to cleaner and healthier coastal waters and oceans.

The VMDRP includes 60 strategic and definitive actions to reduce debris in Virginia's coastal waterways and the Atlantic Ocean. The actions are grouped under four main Goals:

1. Consumer Debris (mainly single-use plastics) (22 Actions)
2. Derelict Fishing Gear (17 Actions)
3. Microplastics & microfibers (13 Actions)
4. Abandoned & Derelict Vessels (8 Actions)

Under each Goal, there are five Strategies, which are cross-cutting methods for achieving goals.

- Prevention, Behavior Change, Education and Outreach
- Research and Monitoring
- Proper Disposal, Interception and Infrastructure

- Removal
- Policy, Management, Legislation and Enforcement

Of the 60 Actions in the plan, 22 of them can be found under “Prevention, Behavior Change, Education and Outreach,” reflecting the consensus of the stakeholders who felt that prevention of litter and waste through behavior change is key to reducing marine debris from specific sources such as balloons, single-use plastic bags, food and beverage items, and cigarette butts.

The 2021-2025 Virginia Marine Debris Reduction Plan can be downloaded from the Virginia CZM Program website at https://www.deq.virginia.gov/coasts/marine-debris or from the Clean Virginia Waterways’ publication page: http://www.longwood.edu/cleanva/publications.html

Development of Local Policies and Implementation of VMDRP Goals (Product #1)

During this grant period, progress was made on implementing many aspects of the Virginia Marine Debris Reduction Plan through work described below. Under direction of the Virginia Coastal Zone Management (CZM) Program, Clean Virginia Waterways (CVW) fostered collaboration between agencies, local governments, researchers, manufacturers and businesses, non-profits, citizens, and stakeholders in Virginia as well as other mid-Atlantic states.

Product #1 for this grant was to develop detailed strategies for policy development based on the 2021-2025 VMDRP.

Originally, it was anticipated that recommendations from the Virginia Plastic Waste Prevention Advisory Council **(PWPAC)** would include development of policies to decrease plastic pollution, and that CVW would assist in implementing those recommendations. But the council's recommendations (issued October 2021 and December 2022) focused on these areas: A) having DEQ collect data on several aspects of solid waste management and also about implementation of the plastic bag tax, and phase out of expanded polystyrene; B) increased education and outreach, and C) Building capacity within the state government *"…to focus on recycling, litter, and circular economy systems that supports and sustains data collection, materials marketplaces, and other technical assistance."* See Appendix A for the complete recommendations from the PWPAC. Final recommendations from the council are expected in June 2023. At that time, CVW staff will assess which recommendations it can assist with implementing.

- Background on the **PWPAC:** A law (HB 1354) in 2020 mandated the creation of the PWPAC. The PWPAC was to "…study and make recommendations regarding plastic pollution problems in the Commonwealth, with the mission of eliminating plastic waste and contributing to the achievement of plastics packaging circular economy industry standards." The Council was not convened until June 2021, and as of May 2023 has not issued any recommendations related to public policies that would lead to decreased plastic pollution.

Another goal of this grant was to provide information to increase public awareness and facilitate data-based policy decisions to reduce plastic pollution and marine debris. This included downloadable targeted reports (informed by the Actions in the VMDRP and the 309 5-year strategy), a statewide public perception survey of Virginia voters, webinars, a Marine Debris Summit, training in Community-Based Social Marketing (CBSM), media outreach, and extensive collaboration with partners in Virginia and other Mid-Atlantic states. All are described later in this report.

Policy makers will be able to utilize the reports and public perception survey to develop

recommendations without having to expend resources on their own that are often a barrier to access for small, rural, economically disadvantaged communities. Individuals or organizations in the positions to influence change often lack access to the most relevant or recent data and these reports will provide necessary information for informed decision making. Data and reports were shared widely with CVW's network of academic and nonprofit institutions throughout the state through multiple platforms, including social media. The reports are a valuable asset to quickly provide detailed information to interested parties and help increase awareness and understanding of marine debris and plastic pollution challenges and opportunities for improvement.

Single-use Plastic Bags

In 2020, legislation (SB 11) passed in Virginia allowing counties and cities to impose a five-cent fee (tax) on plastic bags provided to consumers by certain retailers. At first, adoption of the fee was slow as Virginia's counties and independent cities cited the need for facts and data about the plastic bag problem in Virginia, as well as model legislation, and assistance in developing community support for a fee. CVW assisted local policy makers as they considered policies that will support waste minimization of the most common and harmful items found as marine debris – including plastic bags.

As of May 2023, the following localities have fees on disposable plastic bags:

1. Alexandria City
2. Arlington County
3. Fairfax County
4. Falls Church City
5. Fredericksburg City
6. Loudoun County
7. Roanoke City
8. Albemarle County (began January 1, 2023)
9. Charlottesville City (began January 1, 2023)
10. Fairfax City (began January 1, 2023)

Source: https://www.tax.virginia.gov/disposable-plastic-bag-tax

During this grant period, CVW provided data about the prevalence of litter from single-use plastic bags to several local governments as they considered implementing a fee, and assisted various groups as they developed local campaigns to advocate for the fees. Specifically, CVW provided data (from the International Coastal Cleanup) and guidance to Henrico, Fairfax, Norfolk, Virginia Beach, Charlottesville, Stafford, City of Richmond, and other communities as they consider fees on plastic bags. CVW also created and updated the "Single-use Plastic Bags: Common Litter in Virginia" webpage: http://www.longwood.edu/cleanva/bags.html

- And a spreadsheet that shows actions being taken by local governments and links to ordinance language:

https://docs.google.com/spreadsheets/d/1YrOMCAap0g1sWZa5Ctmp4r6noyaHOaiFTaORr33d5Yc/edit?usp=sharing

Lessons learned:

- One citizen group approached their county board of supervisors quickly without building adequate support amongst the supervisors prior to the vote. When the vote came up, concerns about equity caused the supervisors to vote against the fee. In other communities, the question of equity was addressed thoroughly prior to the vote being taken.
- In an interview with Roanoke, which was the first Virginia community to implement the five-cent fee, county employees stated that revenue from the fee is, if anything, disproportionately supporting lower income neighborhoods in their community. In addition to spending funds on liver prevention, litter cleanups, and increased infrastructure for solid waste, Roanoke is also spending the bag fee revenue on other environmental projects including planting more trees.
- A partnership of NGOs in Virginia Beach has worked for more than a year to address equity questions partly through extensive distribution of reusable shopping bags. Some of the reusable shopping bags were sewn from donated fabric by volunteers, others were newly purchased, while other bags were contributed to the program by people who have a surplus of reusable shopping bags. The partnership also handed out stickers, fact sheets, and created this web page to advocate for the bag fee in Virginia Beach:

  - For more on the Virginia Beach effort, view https://www.lynnhavenrivernow.org/blog/why-a-plastic-bag-fee-makes-good-sense-for-virginia-beach/
- It is important for citizens and policy makers to understand that revenues from the bag fees stay in the communities where they were raised. Some of the objections made by local supervisors were based on incorrect assumptions that the revenue from the fee was "…just another tax going to the state government." It is equally important to let people know that the revenue is to be spent on environmentally-focused projects including cleaning up communities, infrastructure to prevent litter, and other environmental priorities as determined by the local government.

Virginia's Litter Tax

CVW continued to engage with nonprofits, including Clean Fairfax, LitterFreeVA.org, Virginia Conservation Network, Lynnhaven River NOW, and the Virginia Sierra Club, to review the status of the Virginia Litter Tax which was increased in 2020 for the first time in more than 40 years. In 1980, the Virginia legislature set the annual litter tax at $10 for manufacturers, wholesalers, distributors and retailers of consumer products, and $15 for

each location where groceries, soft drinks, and beer are sold. With HB 1154, the Virginia General Assembly voted to raise the annual Virginia litter tax for the first time in 43 years from $10 to $15 and the additional annual litter tax from $15 to $30. Both taxes are imposed on manufacturers, wholesalers, distributors, and retailers of certain products, however, the additional tax applies to fewer businesses. According to CVW's research, the tax would be $37 and $73 (CPI inflation calculator, n.d.) annually per business if it had been indexed to inflation.

Releasing Helium-filled Balloons

CVW continues to educate people about Virginia's law that bans the releasing of helium-filled balloons. As of July 1, 2021, a new law (HB 2159) "Prohibits any individual 16 years of age or older or other person, including a corporation, from intentionally releasing, discarding, or causing to be released or discarded any nonbiodegradable balloon outdoors". The bill provides that if a person under the age of 16 releases a balloon at the instruction of an adult, the adult shall be liable for the civil penalty.

Expanded Polystyrene (EPS)

CVW is working with local governments and Planning District Commissions to raise awareness about the upcoming phase out the use of expanded polystyrene (EPS) food service containers. The Virginia General Assembly passed this phase out with bill HB 533 in 2020**,** and passed again during the 2021 session (HB 1902) in order to become law. The law prohibits the dispensing of food prepared by a vendor to a customer in a single-use expanded polystyrene food service container. As the law was originally passed, chain restaurants were to be required to stop using such containers by July 1, 2023, and all other food vendors had to discontinue use by July 1, 2025. A five-year extension was added to the phase-out schedule during budget negotiations and without a vote.

Resources for Legislators & Policy Makers

CVW was a lead author of the plastic pollution chapter in the Virginia Conservation Network's annual briefing book for legislators, calling for extended producer responsibility, implementation of a bottle bill, an increase in the Virginia litter tax, and a possible statewide ban or user fees on plastic bags. In addition, a recommendation was made to open the Virginia Litter Fund to nonprofit organizations (which organize most of Virginia's litter cleanups and public outreach campaigns) and to universities doing research on issues related to recycling and litter prevention.

In addition, CVW provided extensive information about the sources and impacts of litter and marine debris to legislators and their staffs as well as on the LitterFreeVA.org website, which is a collaborative effort to increase communication about legislative solutions to litter and marine debris.

Public Perception Survey: Virginia Voters' Attitudes and Support for Public Policies to Reduce Plastic Pollution (Product #2)

Background: CVW and CZM staff completed a statewide public perception survey by engaging OpinionWorks LLC. OpinionWorks has provided valuable and professional services on several previous social marketing campaigns implemented by CVW, Virginia CZM Program, MACO and the Mid-Atlantic Marine Debris Work Group.

This statewide survey of 900+ voters measured their attitudes on several aspects of plastic pollution **including their support for public policy** initiatives that might be considered in Virginia. The statistically significant representative survey also tested words and messages that are key to outreach efforts, and identified trusted messengers. The survey was sent out in March 2022 and was partly funded by this grant as well as the FY20, Section 309 grant to CVW. This survey meets one of the ten "Near-Term Action Items" of the **2021-2025 Virginia Marine Debris Reduction Plan** (downloadable from the Virginia CZM Program or Clean Virginia Waterways). The survey was followed by 10 one-on-one in-depth interviews conducted virtually to better understand the reactions to the words and messages, and to help refine messaging.

The survey was designed to give high confidence in the reliability of the results, and to reach a very good cross-section of the public, including hard-to-reach segments like people who are telephone-averse, those who are younger and more mobile, low-income people, people of color, and people who are digitally disconnected. The sample size was large enough to provide a statewide result within ±3.5% at the 95% confidence level, and allowed breakouts for demographic subgroups and the major regions of the Commonwealth. The survey results also provide a baseline to help determine effectiveness of management efforts.

Because all research that involves human subjects requires approval, CVW staff obtained approval of the survey and interview instruments from the Longwood University Institutional Review Board prior to starting the survey.

Results:
The research reveals a Virginia public that is deeply concerned about plastic pollution, worried about the impact of plastic on aquatic life, and concerned about the prevalence of microplastics making their way into the food supply. The study shows broad support for various public policy measures designed to reduce plastic pollution.

Policies to Reduce Plastic Pollution	Supported by Virginia Voters
Require less plastic in packaging	76% of voters
Shift the costs of recycling programs off of community taxpayers and onto producers	71% of voters
Deposits on beverage bottles and cans	65% of voters
Cigarette litter fee	64% of voters
Ban single-use plastic bags	63% of voters
Ban single-use plastic grocery and shopping bags	61% of voters

Testing terminology, we learned that “plastic ocean pollution” and “plastic pollution” are much more evocative then “marine debris”. During the in-depth interviews, participants revealed that they did not know that plastic is typically made from petrochemicals. Finding that out was surprising and disturbing to them, raising health, climate, and scarcity concerns all at once. The study also asked voters about their consumption of bottled water. The study shows that poor ratings of tap water are driving increased bottled water consumption. In addition to issues of health and safety, tap water *taste* appears to be driving bottled water demand.

The voters were also asked about their level of trust for various organizations. State agencies emerged as very trusted as did the Virginia Aquarium and Marine Science Center.

Regional breakdowns show how voters in several regions feel about public policies that would reduce marine debris. Below is one example, focused on a polystyrene ban. See the 28-page summary report (or the full 285-page report) for other regional breakdowns.

The Piedmont and Mountain regions of Virginia join Northern Virginia, Hampton Roads, and the rural Tidewater in posting support numbers for a polystyrene ban well above 60%.

Ban Polystyrene Containers

	Northern Virginia	Richmond Area	Hampton Roads	Rural Tidewater	Southside	Piedmont/ Mountain
Favor	67%	56%	67%	68%	51%	62%
Oppose	12%	15%	12%	17%	26%	17%
Neutral/Not sure	21%	29%	21%	15%	23%	21%

Products: In September, an 8-page summary of the key findings was sent to media with a press release, and findings were shared at the Virginia Marine Debris Summit and other venues. A PowerPoint deck of slides was also prepared and shared with partnering organizations.

A 28-page summary report provides more a detailed breakdown of the data, including regional analyses. Finally, a complete report (285 pages) includes all the raw data from the survey.

See Appendix B for the 8-page summary of the Survey, and Appendix C for the 28-page report. The full survey report (285 pages) can be downloaded from CVW's publication page: http://www.longwood.edu/cleanva/

Marine Debris Reduction in Virginia and the Mid-Atlantic (Product #3)

In close collaboration with Virginia CZM program staff, CVW under took the following projects to reduce marine debris in Virginia in the mid-Atlantic.

A. Abandoned and Derelict Vessel Work Group

A major undertaking during this grant year further addressed a pressing and growing marine debris problem in Virginia: boats that are abandoned in the marine environment causing many environmental, economic and human safety (navigational) impacts. Addressing abandoned and derelict vessels (ADV) was included in the 2014 Virginia Marine Debris Reduction Plan, and elevated to a major goal in the updated VMDRP for 2021-2025.

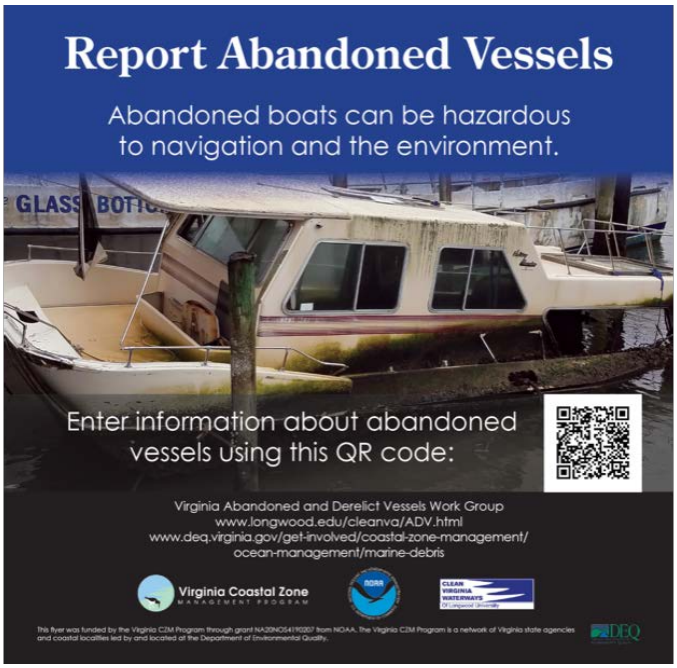
CVW & CZM staff created and co-administered the Virginia ADV Work Group (created under the previous FY20 Grant), and started meetings of the group in January 2020. The work group engaged the VIRGINIA Dept of Wildlife Resources, Virginia Marine Resources Commission, US Navy, US Coast Guard, local governments, law enforcement, marinas, and other key partners. The work group and its subcommittees focused on prevention, removal, and disposal options for ADV.

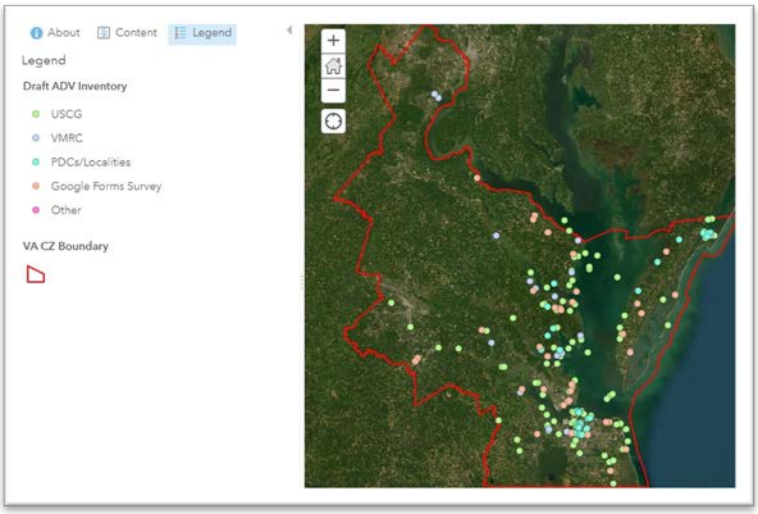
Products: CVW worked closely with Jeff Flood of Virginia CZM to write and publish a full report from the ADV Work Group, a 4-page highlight document, and a press release. See Appendix D. Several media outlets ran the story including the Bay Journal.
Staff contributed to the Virginia Coastal Policy Center's policy paper (published March 2022) which reviews current ADV-related laws in Virginia and other states.
More about this collaborative effort to address ADVs can be found on the Virginia ADV Work Group webpage, maintained by CVW.

Results:

Fiberglass disposal options: CVW & CZM engaged stakeholders including Titan America (the only cement manufacturer in VA) to explore possible use of fiberglass as an alternative energy source for cement manufacturing.

ADV Inventory: CVW printed and distributed laminated posters to marinas and the US Coast Guard to alert boaters about the statewide inventory of ADV which is currently housed at the Virginia CZM, and the need for input from boaters. Data collected through this effort contribute to the mapping of ADV in Virginia, a project undertaken by CZM staff.





Above: This "Report Abandoned Vessels" poster was designed by CZM Program staff, and disseminated by CVW and the US Coast Guard to marinas and boat ramps throughout the state. Data about ADV from several sources (USCG, the Virginia Marine Resources Commission, planning district commissions, and the public) were mapped by CZM Program staff.

Prevention and public education:
CVW & CZM, with members of the prevention and public outreach subcommittee, coordinated with the Virginia Department of Wildlife Resources to increase communication with boat owners about their legal responsibilities for correct disposal of old boats.
CVW & CZM shared the results of the Virginia ADV Work Group during a NOAA's Marine Debris Program ADV "Salvaging Solutions" webinar, with the US Coast Guard's Virginia Area Committee, and with other groups.

Capacity building: CVW & CZM staff contributed extensively to writing a proposal to the NOAA Marine Debris Program's Removal Grant that could provide $2.9 million to remove approximately 100 ADV from Virginia's coastal waterways while also building capacity for starting a comprehensive ADV Prevention and Removal Program. In writing the grant proposal, staff collaborated with Lynnhaven River NOW, BoatUS, and the Virginia underwater archaeologist at the Department of Historic Resources. While the first proposal was not selected (due to lack of available funding), the proposal was later resubmitted and was recommended for funding by NOAA.

CVW & CZM staff produced an **educational video** about ADV issues in VA. The video can be viewed on CVW's YouTube Channel: https://youtu.be/8Uwwe1R8Agk

CVW learned that no **comprehensive list of marinas in** Virginia existed, so it created a list from several resources including the Virginia Department of Health, the Virginia Clean Marina Program, and a publisher of a marina guide.

B. Regional Solutions to Marine Debris: The Mid-Atlantic Marine Debris Work Group

Since marine debris is a transboundary problem across the Mid-Atlantic, CVW staff were engaged in monthly discussions of the Mid-Atlantic Regional Council on the Ocean's Marine Debris Work Group, which is led by the Virginia CZM Program Manager, Laura McKay. CVW staff were also involved in smaller task groups working on development of regional approaches to prevent or remove marine debris. Because of Virginia's earlier work in creating a marine debris reduction plan and creating a Community-Based Social Marketing (CBSM) campaign to address balloon litter, CVW and the Virginia CZM Program staff often provided guidance and background information to the Mid-Atlantic Marine Debris Work Group.

Specifically, the Virginia CZM Program and CVW contributed to the expansion of a CBSM campaign in Mid-Atlantic states to reduce the intentional release of helium-filled balloons. CVW and Virginia CZM Program staff assisted MARCO with many aspects of its grant from NOAA Marine Debris Program including development, printing, and shipping exhibit displays to more than 15 partnering organizations and local governments. This project involved close collaboration with three aquariums in the Mid-Atlantic.

CVW contributed to this NOAA-funded effort by working with Virginia CZM to research and co-write new fact sheets about the impact of foil balloons on power lines, and contributed to updating the PreventBalloonLitter.org website and postings on several Facebook pages that are related to the effort. CVW contributed to other Mid-A Marine Debris Work Group projects through input at monthly meetings, and continue to work closely with the NOAA Marine Debris Program staff to complete Actions in the Mid-Atlantic Marine Debris Action Plan. CVW sent a media release to 140 media outlets to encourage them to stop providing coverage to balloon releases

CVW also convened partners through the mid-Atlantic to discuss options for increasing recycling of boat shrink wrap. This concern has many economic challenges to overcome, but the large quantities of high-quality shrink wrap that is sent to landfills every spring is alarming.

C. Virginia Plastic Pollution Prevention Network

The **Virginia Plastic Pollution Prevention Network** (co-created by the Virginia CZM Program, CVW and Eco Maniac Company in 2020) fosters collaboration in implementing aspects of the Virginia Marine Debris Reduction Plan, through monthly eNewsletters and zoom-based monthly webinars. Topics include:

- legislative updates
- behavior change campaigns
- information about fees on single-use bags
- upcoming events
- new marine debris research and resources
- volunteer cleanup events
- grant and funding opportunities
- other marine debris topics

The VPPP Network's goal is to facilitate communication and increase collaboration among people and organizations working on all aspects of preventing or removing marine debris, litter, and single-use plastic items.

A total of 235 people participated in the 7 meetings held during this period. No meeting was held in September 2022 so members could attend the 2022 Virginia Marine Debris Summit in Virginia Beach.

D. Engaging the Stormwater Management Community on Land-Based Sources of Marine Debris

To build local governments' capacities to prevent land-based sources of litter and marine debris from entering waterways, CVW organized the 4th annual **"Stormwater + Litter Webinar"** held on December 7, 2022, (during the extension period) via zoom. A total of 136 stormwater and public utilities professionals from local governments, military bases, universities and businesses attended. Topics included a case study (decreasing bottled water use in a high school), status of the Virginia litter tax, and instream trash trap options. Post-webinar survey results were very positive. CVW staff also gathered ideas from the stormwater and litter prevention experts in attendance on other projects that would lead to measurable decreases in marine debris, and would be transferable. The workshop was coordinated by Clean Virginia Waterways of Longwood University with the assistance of Virginia Coastal Zone Management Program.

See Appendix E for the workshop agenda and lists of speakers and attendees.

E. **Local Collaborations**

Throughout this grant period, CVW staff assisted local governments as they sought solutions to land-based sources of marine debris. Much of this was focused on implementing a 5-cent fee on single-use plastic bags.

F. Outreach, Raising Awareness and Social Media

CVW staff spoke about plastic pollution and the Virginia Marine Debris Reduction Plan to school groups, NGOs, media, the Chesapeake Bay Program Plastic Pollution Action Team (PPAT), Chesapeake Bay Commission, and others. CVW staff spoke at the EPA Trash Free Water Program's January 20, 2022 webinar, "Outreach and Education for Trash Free Waters – What Makes a Successful Campaign?" which drew over 230 attendees, and also spoke at a NOAA Abandoned & Derelict Vessel webinar.

In addition, outreach activities included:

- Contributed to two General Assembly-initiated work groups (the Waste Diversion and Recycling Task Force and the Virginia Plastic Waste Prevention Advisory Council);
- Contributed to a briefing about marine debris and ADV for Virginia's Acting Secretary of Natural and Historic Resources;
- Communicated solutions to plastic pollution to the Northern Virginia Waste Management Board and others.

During these presentations, resources, data, and information about the VMDRP, Joyful Send-off, Community-Based Social Marketing campaigns, balloon monitoring, and mid-Atlantic regional planning on marine debris prevention were shared.

G. Sharing Data: Fact Sheets & Reports

CVW published factsheets during Virginia's General Assembly about preserving the litter tax nonpayment fee, the proposed expansion of plastics-to-fossil-fuel manufacturing facilities in Virginia, and the local regulation of material recovery facilities. These fact sheets were disseminated widely, being offered to the general public through multiple outlets including the Virginia Conservation Network and Litter Free Virginia.

H. Media & Social Media

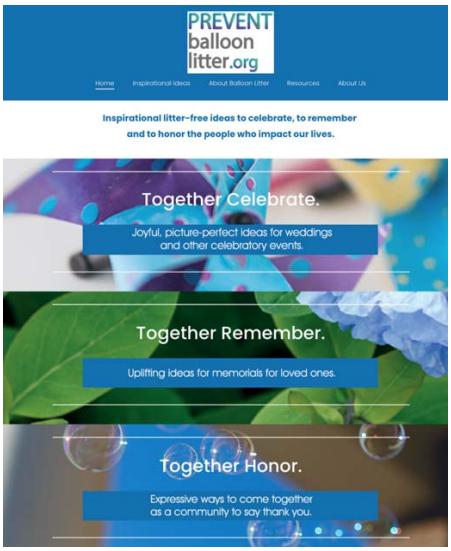
CVW staff was interviewed by reporters about marine debris, plastic pollution, microplastics, and PPE-related litter (gloves and masks).

Social Media

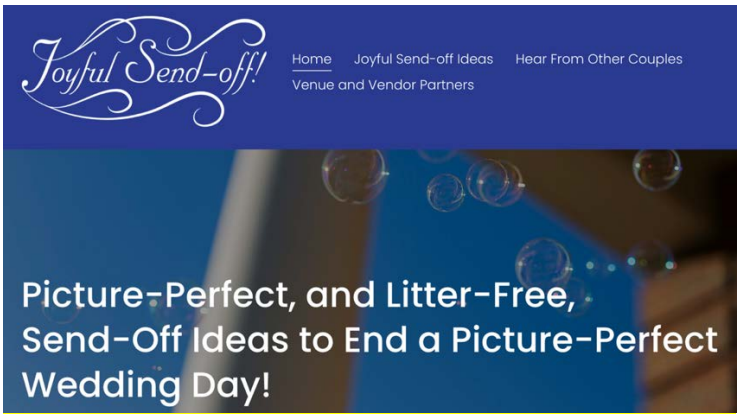
CVW maintained and contributed to several social media sites including websites and Facebook pages (CVW, Virginia Plastic Pollution Prevention Network, Keep it Beachy Clean, PreventBalloonLitter.org, and JoyfulSendoff.org), and continuously updated a spreadsheet showing local adoption of bag fees on http://www.longwood.edu/cleanva/bags.html and on LitterFreeVA.org.

This grant allowed for the continued hosting and upkeep of two web sites: JoyfulSendoff.org and PreventBalloonLitter.org. Organizations from around the world are partners on the PreventBalloonLitter.org website. The website is also serving as a resource for the Mid-Atlantic states' campaign to reduce the intentional releasing of helium-filled balloons.

CVW and Virginia CZM staff continued to maintain the Facebook pages for Joyful Send-off and Prevent Balloon Litter by adding posts to encourage litter free ideas for celebrations.



The PreventBalloonLitter.org website, designed by Virginia CZM Program's Virginia Witmer, and written by Katie Register (CVW) and Virginia Witmer, offers inspirational litter-free ideas for people to celebrate, remember or honor the people who impact their lives.



The JoyfulSendoff.org website, designed by Virginia CZM Program's Virginia Witmer, and written by Katie Register (CVW) and Virginia Witmer, offers inspirational litter-free ideas for weddings and other "happy event" celebrations.

Videos

Under previous grants, CVW and the Virginia CZM Program co-produced four animated videos that show the impacts that balloon litter has on the environment, wildlife, and power outages. The videos also feature litter-free ideas on ways to celebrate without releasing balloons. Meetings of the Virginia ADV Work Group are also available for viewing. Below is a chart showing the number of times these videos have been viewed as of April 2023.

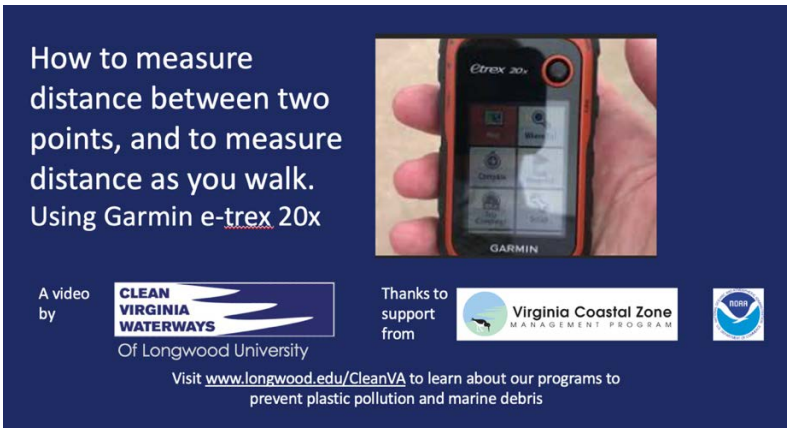
All videos are available on CVW's YouTube Channel.
https://www.youtube.com/c/CleanVirginiaWaterwaysofLongwoodUniversity

Name of Video	Views
Balloons as Litter – in English	313,000+
Balloons as Litter – in Spanish	10,000+
How to use GPS unit for measuring distances	38,000+
Balloons as Litter (produced by ATTN: and featuring CVW's and CZM's research	2,700,000

These stills from the "Alternatives to Balloon Releases" videos show that balloon litter can impact wildlife on land…and in the ocean. The videos are available in English and Spanish.

GPS Instructional Video

Under the FY17 grant from the Virginia CZM Program, CVW created an instructional video for Mid-Atlantic partners on how to use the GPS units that were provided to them through a Virginia CZM Program grant. Amazingly, this video has been viewed more than 38,000 times.



OTHER

CVW received 5 monofilament recycling bins from the NOAA Greater Atlantic Regional Fisheries Office (GARFO) and distributed these to piers in Virginia Beach in the fall of 2022.

2022 Virginia Marine Debris Summit (Product #4)

Working closely with Virginia CZM, CVW planned and executed a two-day Summit focused on consumer debris items (bags, beverage- and food-related packaging, cigarette butts, balloons, etc.) and solutions (behavior change, public policy and outreach). Held on Sept 27 & 28, 2022 at the Virginia Aquarium in Virginia Beach, a total of 117 people registered, and 101 attended the Summit which was held at the Virginia Aquarium in Virginia Beach. Field trips included tours of the aquarium's new stranding center, the soon-to-be-opened South Building (which includes a marine debris display), and marine debris monitoring field methodologies (led by NOAA Marine Debris Program and CVW staff). Many of the attendees also visited the NOAA/CZM-funded newly-installed marine debris educational kiosk located on the boardwalk in Virginia Beach.

Like the previous Virginia Marine Debris Summits (supported by FY11 and FY15 grants), and the 2019 Mid-Atlantic Marine Debris Summit (supported by the FY18 grant), the 2022 Summit was a valuable forum for the marine debris and litter prevention communities to exchange research outcomes, build collaborations, and generate new ideas.

The planning committee comprised of CZM staff and representatives from Virginia Aquarium, Clean Virginia Waterways, VIMS, and DEQ. The summit brought together marine debris experts, state and local resource managers, community educators, and potential funding sources to review the accomplishments of the Virginia Marine Debris Reduction Plan, share ongoing research, explore emerging issues and identify additional priorities. Representatives from Virginia, other MARCO states, and DC attended in order to stimulate continued regional approaches to marine debris sources, impacts, and mitigation. See Appendix F for the Summit agenda and registration list.

Balloon Debris Monitoring (Product #5)

During this grant period, surveys were conducted on Fisherman Island National Wildlife Refuge on November 17th, 2021, February 9th, 2022, and August 12th, 2022. This site was selected as Virginia's main monitoring site to track marine debris deposition over time as part of the NOAA Marine Debris Programs' grant to MARCO.

November survey: On November 17th, 2021, the survey revealed 171 pieces of balloon-related debris which represented 15.7% of all debris items (N=1087). Balloon-related litter was the most frequently found type of litter for this survey, followed by plastic beverage bottles (n=98) and clam nets (n=85). There was also a high prevalence of foam pieces (n=269) and hard plastic pieces (n=29), but because these fragments could come from a variety of sources such as foam cups, coolers, buoys, etc., these numbers are not included in the ranking of identifiable marine debris.

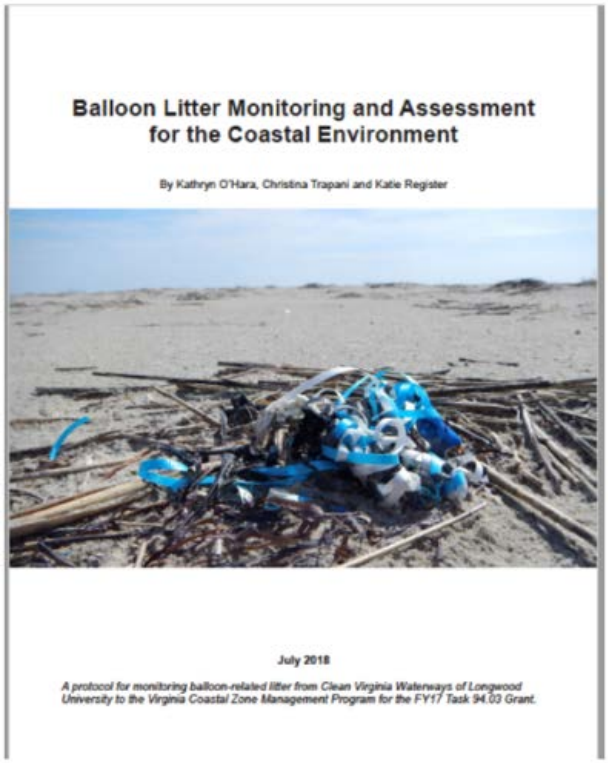
February survey: On February 9th, 2022, a total of 109 pieces of balloon-related debris were recorded, which represented 7.4% of all debris items (n=1475). Balloon-related litter was the most frequently found type of debris, closely followed by plastic beverage bottles (n=105). A high prevalence of foam pieces (n=511) and hard plastic pieces (n=86) was recorded during this survey, but were not included in rankings due to the uncertainty surrounding the source from which the pieces originated.

August survey: A survey on August 12th, 2022, found 120 balloon-related pieces of litter, representing 10.9% of all debris. For this survey, balloons were the second most frequently found type of debris, behind plastic bottles (n=164). There was a high prevalence of foam pieces (n=228) and hard plastic pieces (n=110) recorded during this survey, but due to the uncertainty of the source of these fragments mentioned above, foam pieces were not included in marine debris rankings.

Researchers Christina Trapani and Kathy O'Hara were sub-contracted by CVW to conduct monitoring of balloon litter on Fisherman Island National Wildlife Refuge to better understand the abundance, distribution, accumulation, and fate of balloon litter in coastal environments of Virginia. All permits were obtained prior to the surveys. No monitoring was done on FINWR during predator removal work and during the period of nesting of protected birds. These monitoring events included 9 volunteers for a total of 60 volunteer hours.

In order to standardize monitoring and assessment of balloon-related litter, CVW used the *Balloon Litter Monitoring and Assessment for the Coastal Environment* protocol that was developed in 2018 (FY18, Task 94.03) (O'Hara, Trapani and Register, 2018). These protocols enhance the ability to determine where balloon litter is most prevalent in specific coastal areas and provide a basis for monitoring and assessment of balloon litter on a regional, national, or international level. This protocol is used by the Mid-Atlantic states as grant partners monitor balloon litter on their beaches, and can be

downloaded from the CVW Publications page:
http://www.longwood.edu/cleanva/publications.html



This protocol allows groups to monitor balloon litter in coastal environments and create comparable data.

Highlights from this Year of Monitoring

Similar to previous years, balloon-related litter items (n=400) were the most commonly found type of debris for the three surveys combined. The rest of the top-ten list includes plastic bottles (n=367), clam nets (n=252), rope pieces (185), construction materials (n=142), glass bottles (n=121), buoys (n=100), plastic bottle caps (n=74), food wrappers (n=74), and hard plastic food containers (n=60).

Table: Data aggregated from three surveys on Fisherman Island National Wildlife Refuge show balloon-related litter (balloons, ribbons, and attachments) were the most commonly found type of debris, followed by bottles, clam nets, and rope pieces.

Rank	Item	Number
1	Balloon-related items	400
2	Bottles, plastic	367
3	Clam nets	252
4	Rope pieces	185
5	Construction materials	142
6	Bottles, glass	121
7	Buoys, floats	100
8	Bottle caps (plastic + metal)	75
9	Food wrappers	74
10	Cups & plates (plastic + foam + paper)	66

Table: Data from the three surveys show that balloon-related debris was 7.4% to 15.7% of all debris items found

Survey Date	Balloon-related debris items	Other debris items	All items	Percent of all debris that was balloon-related
11/17/2021	171	916	1,087	15.7%
2/9/2022	109	1,366	1,475	7.4%
8/12/2022	120	984	1,104	10.9%
TOTALS	**400**	**3,266**	**3,666**	**10.9%**

All Balloon-related Litter

For each balloon litter item recorded, specific information was obtained on the type (latex, foil, weather balloon) and quantity. Data were also collected about ribbons and other attachments. The 400 balloon-related litter items from these three surveys included 66 latex balloons, 74 foil balloons, 167 plastic ribbons, and 92 attachments such as plastic disks, pieces of tape, and clips used to tie-off balloons and attach plastic ribbons. One weather balloon was recorded during this study period and no sky lanterns were found.

Balloon-related debris items found on FINWR:

Latex Balloons	66
Foil Balloons	74
Ribbons	167
Attachments	92
Weather balloon	1
Total	400

Composition of Balloon Litter
Of the balloon-related litter, 41.8% was made up of plastic ribbons (n=167), 35.3% was made up of balloons (n=141), and the remaining 22.9% was made up of other attachments (n=92). Foil balloons (n=74) comprised 18.5% and latex balloons (n=66) were 16.5% of all balloon related debris.

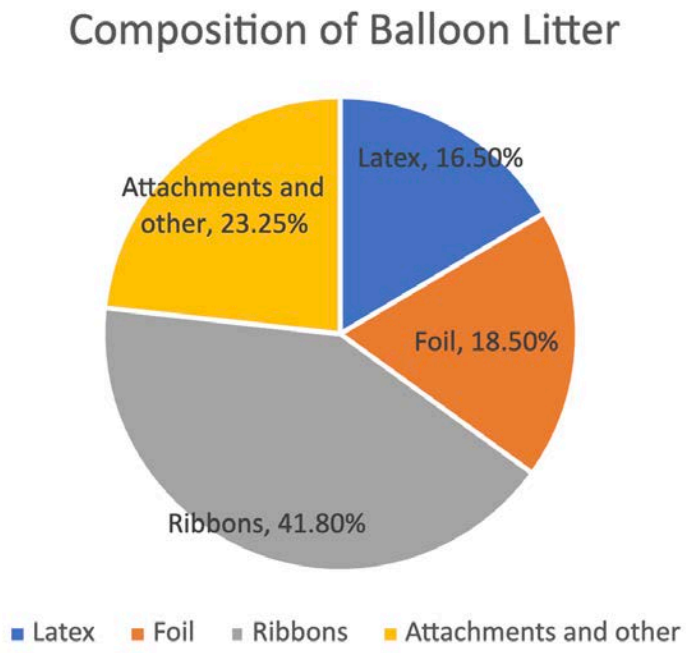


Chart: Plastic ribbons accounted for 41.75% of the balloon-related litter on Fisherman Island.

Latex vs. Foil Balloons
Similar to last year's monitoring, latex balloons (n=66) were outnumbered by foil balloons (n=74). Foil balloons comprised 52.5% of the total balloons, and latex balloons were 46.8%. The single weather balloon accounted for the remaining 0.71%. The higher prevalence of foil balloons recorded during this grant period diverges from findings of the previous five-year study where latex balloons were found to be more abundant than foil balloons.

Plastic Ribbons and Other Balloon Attachments
At least 167 plastic ribbons were collected during this study period. This count is conservative since multiple plastic ribbons entangled in a bunch could not be accurately counted in the field. In these cases, ribbon bunches were recorded as one unless distinct colors were noted. Therefore, while the plastic ribbon count was large, it is also an underestimate of true amounts.

A total of 92 attachments, including plastic disks and tape used to attach the plastic ribbon to the balloon, were found during the surveys.

Event and Greeting Messages

Both foil and latex balloons can be purchased with pre-printed messages indicating specific events and greetings such as “Happy Birthday,” “Congratulations,” and “I Love You.” During this study period special event balloons included:

Happy Birthday (n=3)
Happy Valentine’s Day (n=2)
Mother’s Day (n=1)
Father’s Day (n=1)
Congratulations (n=1)

Happy Birthday balloons were also the most common type of pre-printed balloon litter in the previous year’s monitoring (2020-2021).

Shoreline Location of Balloon Litter
The location of all balloon debris was recorded according to the beach profiles: “low” (in the swash zone), “mid” (between the high tide line and the beach face), and “high” (between the high tide line and the dune vegetation).

When aggregating data from these three surveys, we found that 53.5% (n=214) of balloon related litter were found above the high tide line and 14.5% (n=58) were found mid-beach. Only 1.3% (n=5) of balloon litter were found low on the beach. There was a decrease in the amount of litter found high on the beach in comparison to last year’s survey results, where 72.4% of litter was located above the high tide line.

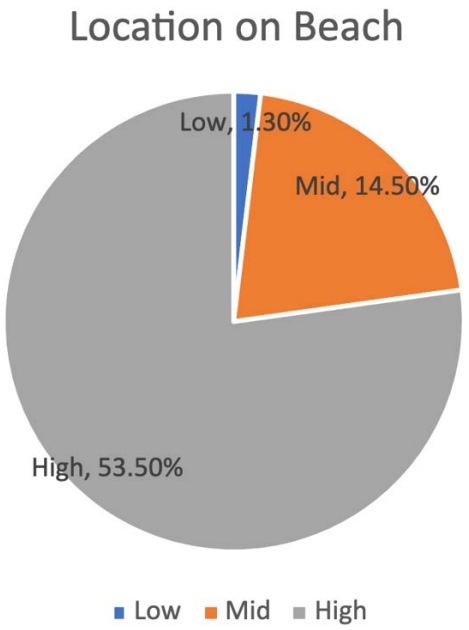


Chart: Most of the balloon-related litter items were found above the high tide line.

It is assumed that winds eventually blow lighter weight marine debris items, including balloons and plastic ribbons, toward the highest portion of the beach where it becomes

trapped by dune vegetation. As this area is critical for nesting birds, diamondback terrapins, and sea turtles, balloon-litter concentrated here may pose an increased threat of entanglement or ingestion.

Comparing to Earlier Research

The large amount of balloon-related litter recorded on Fisherman Island National Wildlife Refuge during this grant period is similar to earlier research findings that the remote beaches and barrier islands of Virginia are “hot spots” for the accumulation of balloon-related debris. Balloons and plastic ribbons continue to be of concern especially in areas designated for protecting wildlife.

The high prevalence of plastic ribbons found during this grant period is also a consistent finding from previous studies done by the Virginia Aquarium and Clean Virginia Waterways (Register, Trapani, Swingle, 2019).

During the past 5 years of monitoring on Fisherman Island National Wildlife Refuge, balloons and balloon-related litter has been within the top 5 most common types of marine debris recorded, indicating a high and continuous prevalence of balloon-related litter on Virginia’s remote beaches.

It is important to point out that it is impossible to determine where the helium-filled balloons started their journeys since balloons can travel hundreds of miles before bursting or deflating.

Clam Nets on Fisherman Island

Data aggregated from three surveys on Fisherman Island National Wildlife Refuge show clam nets totaled 252 pieces. Clam nets were the 3rd most commonly found type of debris in the monitoring site. In the previous grant year, clam nets were the fourth most commonly found type of debris. The presence of clam netting on Fisherman’s Island has been noted throughout the nine years of monitoring on the island.

Date of monitoring	Clam net pieces recorded
11/17/2021	85
2/9/2022	100
8/12/2022	67
Total	**252**

Community-Based Social Marketing Workshop (Project #6)

In November 2022, with permission from the Virginia CZM Program, unspent portions of this grant were moved to Contractual to support a three-day virtual Community-Based Social Marketing (CBSM) Workshop.

The CBSM workshop, taught by Dr. Doug McKenzie-Mohr, was offered to key partners of the Virginia Marine Debris Reduction Plan as well as CZM partners working on native plantings, living shorelines, wetland protection/restoration, flood preparedness, climate resilience, and stormwater runoff. The workshop was held on Feb 27, 28 and March 1 with 116 attendees. CVW staff did the promotion, registration, contracting with Dr. McKenzie-Mohr, and all pre- and post-workshop communications with attendees. The National Marine Sanctuary Foundation provided additional financial support for the workshop.

This workshop supported objectives within both the NOAA Marine Debris Program's Strategic Plan as well as Objectives within the Mid-Atlantic Marine Debris Action Plan and the Virginia Marine Debris Reduction Plan. By gaining insight into CBSM techniques, participants will be able to more skillfully implement prevention campaigns in their communities or target geographies. This workshop expanded the number of trained practitioners in CBSM techniques in Virginia and the Mid-Atlantic region, strengthening the ability of community organizations and individuals to implement long-lasting marine debris prevention campaigns.

See Appendix G for list of attendees.

References

O'Hara, K., Trapani, C., & Register K. (2018). *Balloon Debris on Virginia's Barrier Islands: Results of Monitoring from 2013 through 2017.* Clean Virginia Waterways, Longwood University.

Register, K., Trapani, C., Swingle, M. 2019. *Monitoring Marine Debris in Virginia's Coastal Zone,* Project Report: April 2014 through June 2018. NOAA CZM Grant NA16NOS4190171, Task 81. Virginia Aquarium & Marine Science Center Foundation Scientific Report 2019-03, Virginia Beach, VA, 80 pp.

Trapani, C., O'Hara, K., & Register K. (2018). *Balloon Litter Monitoring and Assessment for the Coastal Environment.* Clean Virginia Waterways, Longwood University.

APPENDICES

Appendix A: Recommendations of the Virginia Plastic Waste Pollution Advisory Council

Appendix B: Public Perception Survey: Virginia Voters' Attitudes and Support for Public Policies to Reduce Plastic Pollution – 8-page summary

Appendix C: Public Perception Survey: Virginia Voters' Attitudes and Support for Public Policies to Reduce Plastic Pollution – FULL REPORT (28 Pages)

Appendix D: ADV Summary report and link to full report

Appendix E: Stormwater and Litter Workshop—Agenda and attendees

Appendix F: 2022 Virginia Marine Debris Summit agenda and registration list.

Appendix G: Community-Based Social Marketing Workshop attendee list

Appendix A. Recommendations of the Virginia Plastic Waste Pollution Advisory Council.

October 30, 2021 Recommendations

State-Wide Expanded Polystyrene (EPS) Ban

• Policy - The Council does not recommend any modifications or additions to the EPS food preparation formats currently covered under the current EPS Ban (§ 10.1-1424.3). Although the Council voted (6-2) to recommend no changes, the following minority opinions were noted

• Allocation of Fines - The Council does recommend the General Assembly consider adding language or authorize a pathway to allow the fines received from non-compliant entities with the EPS Ban to go into a fund that can be used to offset the cost of alternative packaging for entities impacted by the ban.
• Tools and Resources - The Council does recommend that DEQ develops and disseminates tools and resources to impacted food retail entities to support identifying and sourcing alternatives to EPS based on learnings from EO 77.
• Procurement Alternatives - The Council does recommend identifying opportunities to facilitate or incentivize volume purchasing for alternatives to EPS for small volume purchasers.
• Education and Outreach - The Council does recommend improving the effectiveness of the EPS Ban by supporting implementation through education and outreach.
o Develop educational and outreach materials to support local implementation.
o Offer education and information on alternatives for impacted entities.
• Monitoring and Reporting - The Council does recommend that DEQ be tasked with designing and implementing a system to monitor and report compliance with the EPS Ban and report out to the public on metrics that include, but are not limited to:
o Level of compliance of impacted entities (and non-compliance).
o Revenues from non-compliance and use and allocation of collected fines.
o Environmental impact.
• Continuous Improvement - The Council does recommend the General Assembly set clear expectations for continuous improvement through the monitoring and implementation of the EPS Ban and identify opportunities for continued improvement, specifically in response to any learnings from EO 77 implementation.
• Resources - The Council acknowledges that DEQ needs to have adequate resources and appropriate authorization to implement the recommendations outlined above.
While not a minority opinion Adam Peer noted that the Virginia Manufacturers Association did not support the original legislation.

Disposable Plastic Bag Tax

• Policy - The Council does not recommend a policy shift from a Disposable Plastic Bag Tax to a state-wide bag ban. Although the Council voted (7-1) to recommend no changes, the following minority opinions were noted:
• Monitor and Report - The Council does recommend that DEQ be tasked with designing and implementing a system to monitor and report the annual environmental, economic, and performance of the Disposable Plastic Bag Tax, and report to the public on metrics that include, but are not limited to:
o Revenues (bag tax) and allocation
o Volumes and units
o Participation
o Environmental impact
• Education and Outreach - The Council does recommend asking DEQ to develop an education and information campaign reflective of best practices to support local implementation of the Disposable Plastic Bag Tax and reduce local cost of implementation.
• Education and Outreach - The Council does recommend asking DEQ to develop guidance for the use of Disposable Plastic Bag Tax revenues to include support of bag collection infrastructure and consumer education programming that explains the purpose of the Disposable Plastic Bag Tax.
• Education and Outreach - The Council does recommend asking DEQ to develop model Disposable Plastic Bag Tax ordinance language that meets state requirements in order to facilitate local implementation of the Disposable Plastic Bag Tax and reduce the cost of implementation to localities.

General Recommendation
• Waste Characterization Study - The Council does recommend that the General Assembly authorize a statewide waste characterization study to define the volume and composition of both solid waste and recyclable material streams for the Commonwealth with specific details on the amount and types of plastic waste by resin type. This data is needed to establish and to understand the amount and character of plastic waste in Virginia and develop necessary baselines. To measure the performance of any interventions, comparable data will be needed on a regular basis to determine if recommended interventions are resulting in eliminating plastic waste and growing the circular economy.

December 2022 Recommendations

The work of advancing the charge of this Council requires multiple strategic public policy interventions over time. As such, there is a need for a supported, centralized entity to facilitate data collection, assessment, creating a materials marketplace, and providing technical assistance to create and sustain momentum for the circular economy and pollution prevention transition.

Invest in state level capacity at DEQ, ideally a dedicated team, to focus on recycling, litter, and circular economy systems that supports and sustains data collection, materials marketplaces, and other technical assistance.

The Council feels this is a key enabling recommendation that could have cascading benefits to the Commonwealth and its communities while addressing plastic pollution and growing circular economies.

Additional Recommendations for the Immediate Term
Plastic Production and Consumption: Opt-in single-use food service plastics (e.g., straws, sachets): Require dining customers to request plastic straws and utensils instead of automatically providing them to all.

Recycling Processing: Promote entrepreneurial recycling business development to fill in geographic recycling access gaps by providing technical assistance and financial incentives.

Appendix B: Public Perception Survey: 8-page summary

Virginia Voters' Attitudes and Support for Public Policies to Reduce Plastic Pollution – 8-page summary

Virginia Marine Debris Reduction Plan
REPORT


Photo by Cat Volmer

2022 Public Perception Survey
Plastic Pollution
Virginia's Voters Support Action

March-May 2022

Virginia Coastal Zone MANAGEMENT PROGRAM

NOAA

CLEAN VIRGINIA WATERWAYS
A Program of Longwood University

OPINIONWORKS

PUBLIC PERCEPTIONS ABOUT PLASTIC POLLUTION: ABOUT THIS SURVEY

By Laura McKay, Manager, Virginia Coastal Zone Management Program and Katie Register, Executive Director, Clean Virginia Waterways.

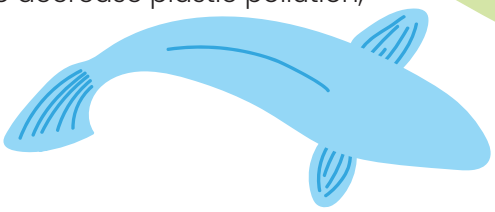
Reducing plastic pollution in our ocean, coastal waters, and on land is an urgent issue that will require a variety of actions, including public policies to address the more common and harmful sources. Plastics in the oceans are increasing at an alarming rate and having serious and sometimes lethal impacts on marine wildlife. We are also discovering plastic is making its way into the human body..

The 2021-2025 Virginia Marine Debris Reduction Plan (originally published in 2014, and updated in 2020-2021) has 60 Actions, one of which is to measure public support for new laws and policies that will reduce the sources of marine debris. The Virginia Coastal Zone Management Program, Clean Virginia Waterways, and the many partners of the Virginia Marine Debris Reduction Plan have demonstrated dedication to ALL strategies to reduce marine debris. These include: behavior modification; research and monitoring; proper disposal, interception and infrastructure; removal; and policy management, legislation and enforcement. This survey was targeted on one of these methods: public policies.

This opinion research explores the perceptions and attitudes of Virginia's voters about several leading problems, including plastic pollution. The goal is to understand public opinion on a suite of policies that have been adopted in other states to reduce litter and marine debris. These policies include:

- Deposits on beverage bottles and cans
- Requirements to decrease plastic packaging
- Shifting the costs of recycling from taxpayers to the producers of the plastic waste
- Laws to reduce the use of polystyrene, plastic bags, and other commonly littered items.

Data from this survey will assist in crafting successful behavior change campaigns as well as public policies. The findings, summarized in this report (and more fully explored in a full report) reveal that Virginia voters are deeply concerned about plastic pollution, and are ready to support policies to decrease plastic pollution, especially the plastic that ends up in the ocean.



RESEARCH METHODS

By Steve Raabe, OpinionWorks

OpinionWorks, in collaboration with the Virginia Coastal Zone Management Program and Clean Virginia Waterways of Longwood University, conducted a representative statewide sampling of 901 Virginia registered voters March 8-13, 2022. This survey sample has a potential error margin of ±3.3 at the 95% confidence level. Voters were interviewed online and on wireless and landline telephones, ensuring we reached a broadly representative cross-section of voters. This survey represented all areas of the state and matched indicators for gender, race and ethnicity, and age in proportion to the composition of the registered voter population.

In addition, topics received further exploration through ten individual in-depth interviews conducted May 11-17. These guided, probing conversations between interviewer and respondent lasted about one hour, allowing for a deep and thorough understanding of key perceptions, motivations, reservations, and questions. While not representative of the electorate as a whole, these conversations provided insight into recurring themes and voter perceptions that an opinion poll on its own cannot provide. As you will see, conflicting or contradictory viewpoints are sometimes expressed by the people we surveyed. It is important to remember that even if the concerns contradict one another, they are still valid concerns from the viewpoint of those surveyed.

McKay, L., Register, K. and Raabe, S. May 2022. Plastic Pollution: Virginia's Voters Support Action: 2022 Public Perception Survey. Prepared for the Virginia Coastal Zone Management Program

Clean Virginia Waterways of Longwood University coordinated the survey as part of a grant from the Virginia Coastal Zone Management Program which is funded through Grant #NA21NOS4190152 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended. The Virginia Coastal Zone Management Program is a network of state agencies and coastal localities. The Virginia Department of Environmental Quality (DEQ) serves as the lead agency for the network.

The views expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Department of Commerce, NOAA or any of its subagencies, or Virginia DEQ.

Key Findings

Do Virginia voters support public policies to prevent plastic pollution?
Yes, they do!

- Virginia voters are very concerned about plastic pollution, ranking it higher than climate change and the COVID pandemic.
- Here are some of the policy measures supported by Virginia voters to decrease plastic pollution:

Who Took The Survey

Gender	
Male	49%
Female	50%
Age	
Less than 25	7%
25 to 44	35%
45 to 64	33%
65 or older	19%
Race or Ethnicity (alone or in combination)	
White	69%
African-American or Black	21%
Asian	8%
Hispanic or Latino	5%
Others	5%
Political Party	
Republican	32%
Democratic	33%
Independent/Other	30%
Political Philosophy	
Conservative	29%
Moderate	39%
Progressive	27%
Community	
Rural	20%
Small town	14%
Suburban	46%
Urban, or a city	20%

Percentages may not add to 100% because some people were not sure or preferred not to say.

Rankings of Top Concerns

**Voters were asked: "Do you consider each of the following to be a very serious problem, somewhat serious problem, not much of a problem, or not a problem at all?" This ranking is based on the percentage of voters who said the issues were "very serious".*

1	Inflation and the cost of living	76%
2	**Plastic floating in the ocean**	**55%**
3	Plastics and toxins contaminating human food	47%
4	Chemicals and other toxins in the environment	44%
5	Loss of natural areas and animal habitat	42%
6	Climate change	42%
7	Lack of good-paying jobs	42%
8	The ongoing effects of the COVID-19 pandemic	38%
9	Pollution sources located close to where people live	31%
10	Severe weather events	28%
11	Trash and litter in your community	24%

POLICIES TO REDUCE PLASTIC POLLUTION	SUPPORTED BY VIRGINIA VOTERS
Require less plastic in packaging	76% of voters
Shift the costs of recycling programs off of community taxpayers and onto producers	71% of voters
Deposits on beverage bottles and cans	65% of voters
Cigarette litter fee	63% of voters
Ban single-use plastic grocery and shopping bags	63% of voters
Ban polystyrene food containers	61% of voters

76%
SUPPORT

Require less plastic in packaging

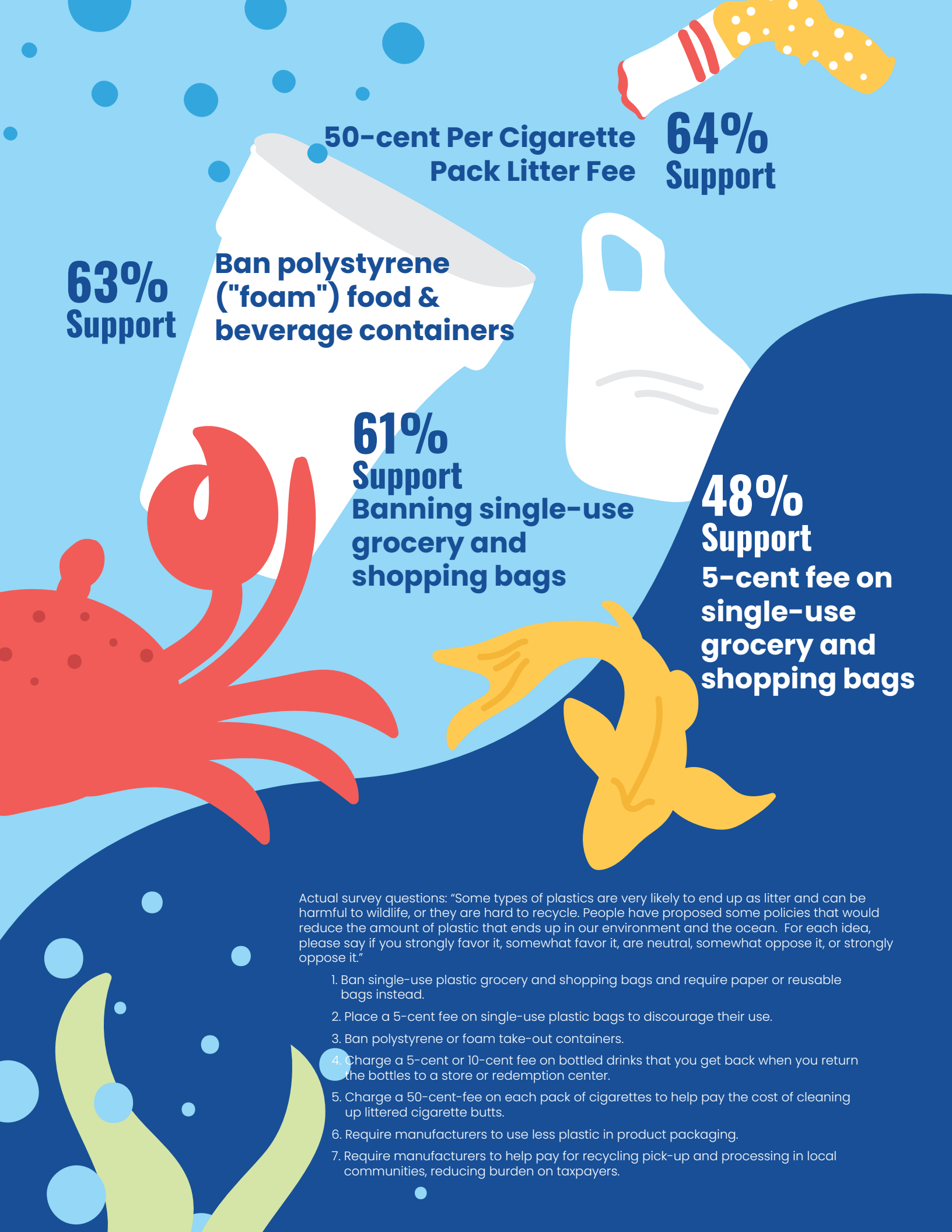
Manufacturers pay for recycling

71%
SUPPORT

65%
SUPPORT

Beverage container deposits

People are more supportive of this when they learned they get their deposits back.



Actual survey questions: "Some types of plastics are very likely to end up as litter and can be harmful to wildlife, or they are hard to recycle. People have proposed some policies that would reduce the amount of plastic that ends up in our environment and the ocean. For each idea, please say if you strongly favor it, somewhat favor it, are neutral, somewhat oppose it, or strongly oppose it."

1. Ban single-use plastic grocery and shopping bags and require paper or reusable bags instead.
2. Place a 5-cent fee on single-use plastic bags to discourage their use.
3. Ban polystyrene or foam take-out containers.
4. Charge a 5-cent or 10-cent fee on bottled drinks that you get back when you return the bottles to a store or redemption center.
5. Charge a 50-cent-fee on each pack of cigarettes to help pay the cost of cleaning up littered cigarette butts.
6. Require manufacturers to use less plastic in product packaging.
7. Require manufacturers to help pay for recycling pick-up and processing in local communities, reducing burden on taxpayers.

VIRGINIANS: WILLING TO TAKE PERSONAL ACTION TO DECREASE PLASTIC POLLUTION

In addition to supporting public policies to reduce plastic pollution, Virginia's voters expressed a broad willingness to take personal actions in their daily lives to lessen the plastic pollution problem. Virginians are willing to...

Use reusable bags instead of single-use plastic bags at the store.	**84%**
Use a refillable water bottle or drink filtered tap water instead of buying disposable plastic water bottles.	**83%**
Pick up litter when they see it.	**80%**
Stop using plastic straws.	**65%**
Stop using all single-use plastic items for a month.	**64%**

Taylor, Fairfax, VA, talking about how most marine debris comes from inland sources:

"I didn't know that 80% (of the plastic in the ocean) comes from inland. And so I think understanding that basically the litter in our community is what makes up the litter in the ocean is a huge game changer."

Patricia, Reston, VA, talking about fees and bans on plastic bags:

"I think it's about time and it's not hard to bring your own bag. "

Voters were asked to share "..one word that describes how you feel when you see litter on the ground".

Carol, Williamsburg, VA, talking about plastic pollution in water:

"It's very disturbing. I am concerned about...plastic pollution in the water and elsewhere because it affects all the fish and wildlife and people. It's not good, and it's something that we really need to get a handle on, because it's gotten to the critical point right now."

Henry, James City County, VA speaking about banning polystyrene:

"This would've been great legislation back in 1990. I support it because there are so many alternatives out there. There are so many things that are compostable, there are so many things that are easily recyclable. I have no clue why places are still using Styrofoam. "

Overall, voters in this study expressed strong support for public polices to reduce plastic pollution everywhere — in our food, our ocean and our environment.

Michael, Hampton, VA, talking about extended producer responsibility:

"It's time for (producers) to pay, because (they) need to be involved also. You're producing all these things. You need to understand the necessity of making sure things get recycled…and as a taxpayer, I think it's about time we enforce some of these things for these producers so they can start picking up the slack…so for me, when I see companies and organizations making an effort, that encourages me to make an effort also. "

Monique, Roanoke, VA, speaking about plastic pollution:

"It really kind of makes me sad that people won't take care of the Earth, and they'll just discard trash, not thinking anything about how it affects the ecosystem that we live in… it makes me wonder, why is this happening? Why hasn't anybody done something to help stop this, or reduce this?"

Clean Virginia Waterways (CVW) of Longwood University is a statewide organization dedicated to decreasing litter and marine debris through research, cleanup events, and building collaborations. Since 1995, more than 120,000 volunteers have removed more than 5 million pounds of debris from Virginia's rivers and beaches during CVW's annual cleanups that are held in September and October. CVW is funded through grants, gifts, sponsorships, and workshop fees.

The **Virginia Coastal Zone Management** (CZM) Program is a network of state agencies and coastal localities that implements the enforceable laws, regulations and policies that protect our coastal resources and foster sustainable development across Virginia's coastal zone. DEQ serves as the lead agency for the network. To accomplish its goals, the Virginia CZM Program administers an annual grant award of approximately $3 million from the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office for Coastal Management, through the federal Coastal Zone Management Act of 1972, as amended.

OpinionWorks, based in Maryland, conducts frequent opinion studies at the state and local level across the country. Since 2007, it has been the polling organization for The Baltimore Sun newspaper and has polled for numerous other media, institutions of higher education, and public interest advocates throughout the Mid-Atlantic region and beyond. They are engaged by state and local government agencies from Delaware to Oregon to assess public needs and preferences. They study human decision-making to inform behavior change efforts to help restore the Chesapeake Bay and encourage habits like recycling.

Virginia Coastal Zone MANAGEMENT PROGRAM

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

OPINIONWORKS PUBLIC SPIRITED RESEARCH

CLEAN VIRGINIA WATERWAYS

A Program of Longwood University

The full report from the Spring 2022 Virginia Survey on Plastic Pollution by the Virginia Coastal Zone Management Program, Clean Virginia Waterways, and OpinionWorks will be found on the following websites:

CZM web address: https://www.deq.virginia.gov/coasts/marine-debris

CVW web address: http://www.longwood.edu/cleanva/publications.html

Appendix C: Public Perception Survey: Full report

Virginia Voters' Attitudes and Support for Public Policies to Reduce Plastic Pollution

The following is the full report from OpinionWorks for the 2022 Public Perception Survey. The report does not, however, include the appendices that have all the raw data. The full report with appendices can be downloaded from: http://www.longwood.edu/cleanva/publications.html

Plastic Pollution:
Virginia's Voters Support Action

2022 Public Perception Survey

March-May 2022

Final Report

Virginia Coastal Zone
MANAGEMENT PROGRAM

CLEAN
VIRGINIA
WATERWAYS
Affiliated with Longwood University & Ocean Conservancy

OPINIONWORKS
PUBLIC SPIRITED RESEARCH

March-May 2022

PROJECT BACKGROUND

Clean Virginia Waterways of Longwood University and the Virginia Coastal Zone Management Program, with support from the National Oceanic and Atmospheric Administration (NOAA), commissioned this public opinion research to better understand the perceptions and attitudes of Virginians related to plastic pollution and marine debris.

The research was designed to be representative of the Commonwealth's population and objective in its approach. We wanted to thoroughly understand public perceptions related to plastics – a topic that has not been well-researched in Virginia in the recent past. The research design enables us to describe not just what Virginians perceive on these issues, but also *why* they feel that way, which we will outline in the following pages. Due to a large amount of content related to public policy, the survey sample was focused on registered voters, who could influence these issues through the electoral process.

This research was conducted in two phases:

1. **Representative Statewide Survey:** A total of 901 randomly-selected registered voters across Virginia were interviewed for the survey March 8–13, 2022. This survey sample produces a margin of sampling error of no more than ±3.3% at the 95% confidence level, meaning that if every Virginia registered voter had been interviewed, the actual results could be expected to fall within that margin at least 95% of the time.

   In conducting the survey, two methods were used:

   - A portion of the sample was reached through online consumer panels, which are databases of consumers who have signed up to take periodic surveys online about a wide variety of topics in exchange for a small incentive.
   - The remainder of the sample was reached on wireless and landline telephones through a random sampling process. These calls were made by trained and supervised live interviewers, according to opinion research best practices, from our partner's market research call center.

   Taken together, these two sampling methods helped ensure that the broadest possible cross-section of the public participated in the survey. With each method, potential survey participants were screened to ensure they were registered to vote in Virginia. Throughout this process, sampling targets for various population subgroups were established that matched the characteristics of Virginia's registered voter population.

   After the sample was collected, statistical weights were applied to bring the sample into close compliance with the demographic composition of the population, based on the latest available estimates from the U.S. Census Bureau's American Community Survey and other publicly available data describing Virginia's electorate.

   This is a breakdown of the survey sample:

Survey Sample Composition

	Virginia
Under age 25	7%
25 to 34	18%
35 to 44	17%
45 to 54	17%
55 to 64	16%
65 or more	19%
Prefer not to say	6%
Caucasian or White	69%
African-American or Black	21%
Hispanic or Latino	5%
Asian	8%
All others	5%
Prefer not to say or not sure	2%
Male	49%
Female	50%
Another gender category	1%
Prefer not to say	1%
Democrats	33%
Republicans	32%
Unaffiliated or not sure	35%
Politically Progressive	27%
Moderate	39%
Conservative	29%
Prefer not to say or not sure	6%

2. **In-Depth Interviews:** To better understand voters' reasoning on several of the key issues explored in the survey, 10 individual in-depth interviews were conducted virtually on the Zoom platform among a cross-section of survey respondents, May 11-17, 2022.

   These 45-minute interviews sought to gain a deeper understanding of perceptions of marine debris, attitudes about plastics in the environment, and motivations to support or oppose the public policy measures tested on the survey. Interview participants received a stipend in recognition of the time and effort to attend. Their observations are quoted throughout this report, opening a window into voters' thinking on some of the major issues addressed in the survey.

OpinionWorks LLC, an independent research organization based in Annapolis, Maryland, developed and conducted this perceptions research in discussion with a project team led by Katie Register, Executive Director of Clean Virginia Waterways, and Laura McKay, Program Manager, Virginia Coastal Zone Management Program. This work was made possible by funding from NOAA.

Full results follow. Additional material is appended, including the survey questionnaire with aggregate data and verbatim responses (Tab 2), segmented data for a variety of population subgroups (Tab 3), and the in-depth interview guide and transcripts (Tab 4).

EXECUTIVE SUMMARY

This perceptions research, consisting of a representative survey of 901 Virginia voters, coupled with ten in-depth follow-up interviews, provides a comprehensive picture of public attitudes about plastics in the environment. What emerges is a Virginia public that is deeply concerned about plastic pollution, worrying about the impact on aquatic life and the prevalence of microplastics making their way into the food supply. This translates into broad support for various public policy measures designed to reduce plastic pollution, as well as a willingness to take individual actions in their own daily lives.

This is a summary of the main research findings:

- Considering a list of eleven problems in the environment, economy, and COVID-19, plastic floating in the ocean was the number two concern behind inflation and the cost of living. Plastics and toxins contaminating human food was the third-ranking concern.
- The two concerns about plastic pollution surpassed a host of other problems including climate change, lack of good paying jobs, and the ongoing effects of the pandemic.
- Worries about plastic in the food supply are visceral and highly motivating.
- Describing how they feel when they see litter on the ground and images of marine debris, respondents used emotionally laden words, expressing strong, reactive feelings.
- Testing terminology, we learned that "plastic ocean pollution" and "plastic pollution" are much more evocative than "marine debris."
- In discussion during the in-depth interviews, participants revealed that they did not know that plastic is typically made from petrochemicals. Finding that out was surprising and disturbing to them, raising health, climate, and scarcity concerns all at once.
- Poor ratings of tap water are driving increasing bottled water consumption, producing many plastic bottles. More than health and safety, tap water *taste* appears to be driving bottled water demand. In fact, it appears that bottled water consumption continues to increase, especially in communities of color and among people with lower socio-economic status.
- About one-quarter of Virginians admit to dropping trash on the ground. The behavior is markedly more pronounced among people under age 25, and decreases as one ages through their 30s.
- Meanwhile, about two-thirds of Virginians said they pick up litter they see at least sometimes.
- In the legislative realm, voters expressed support for a range of proposals meant to address plastic pollution. Strong majorities support a plastic bag ban, bottle bill, polystyrene ban, and cigarette pack litter fee. Very large majorities want to require producers to limit plastic packaging and to help pay for local recycling programs. Pluralities would impose five-cent bag fees and ban plastic straws.
- Among five behavioral actions tested, respondents were most interested in reusable water bottles and reusable shopping bags. The survey provides detailed information about the most likely population subgroups who could be engaged in these behaviors.
- A variety of public agencies and private groups were tested for the level of trust the public invests in information they might provide about plastic pollution. State agencies emerged with very high trust, as did the Virginia Aquarium & Marine Science Center.

Detailed results follow.

DETAILED FINDINGS

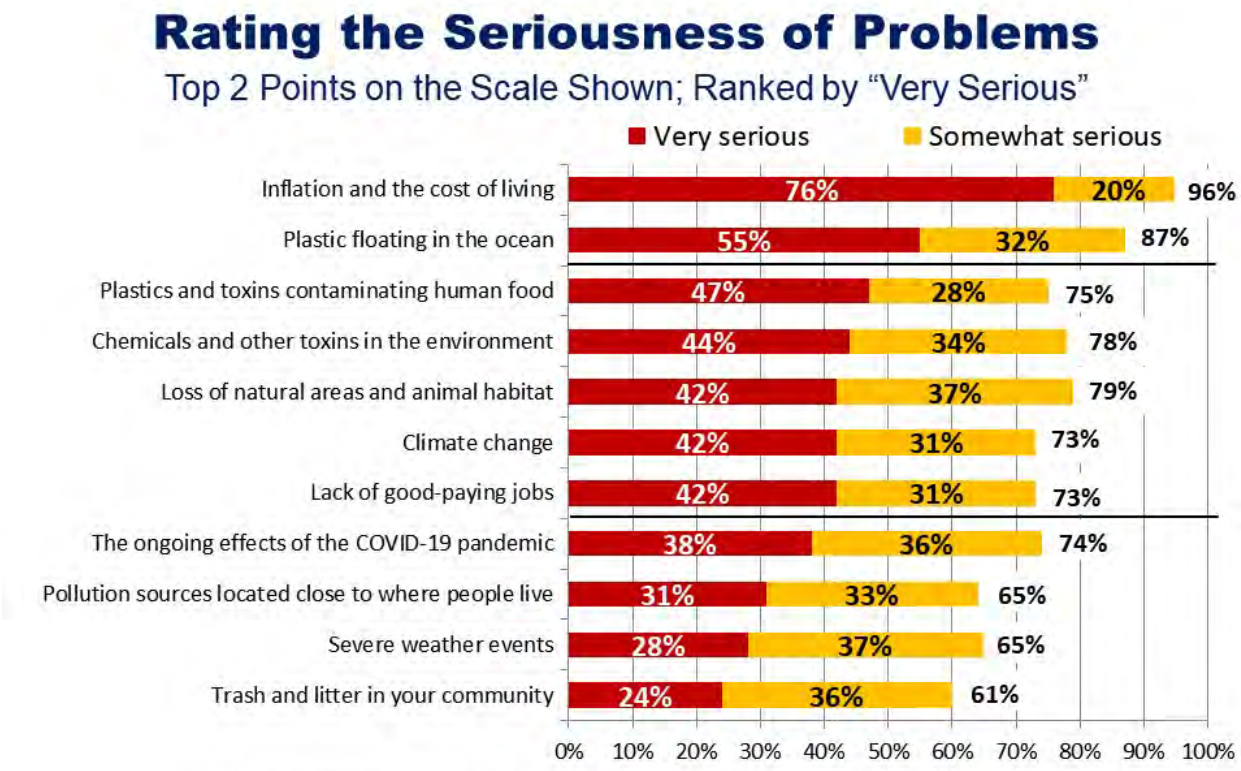
Voters' High Level of Concern about Plastic Floating in the Ocean

The statewide survey assessed the level of concern that Virginia's voters feel about a wide range of challenges. The problems of marine debris and litter found on the ground were measured in the context of a range of other environmental issues. These included climate change, the loss of natural areas and animal habitat, toxins in the environment, and other problems. In turn, this suite of environmental concerns was contextualized within the broader motif of inflation and the pandemic, which were prevalent in early 2022.

Survey respondents were asked to rate each problem on the four-part scale: "very serious problem, somewhat serious problem, not much of a problem, or not a problem at all." On this scale, it is helpful to combine the top two points (very + somewhat serious) as a total "problem" rating, and also consider the "very serious" point on its own as a measure of *intensity*.

What we found was a tremendous level of concern about plastics in the environment, with an acute focus by the public on plastics floating in the ocean. "Inflation and the cost of living" topped the list, with an astonishing total problem rating of 96%, and three-quarters of the public (76%) considering inflation to be a very serious problem.

But "plastic floating in the ocean" followed just behind, with a total problem rating of 87%, and a 55% majority calling it "very serious."



Do you consider each of the following to be a very serious problem, somewhat serious problem, not much of a problem, or not a problem at all?

Third on the list of problems, and the second-highest environmental concern, was another issue related to plastic: "Plastics and toxins contaminating human food." Three-quarters (75%) called that a problem, and a near-majority of 47% said it was a *very* serious problem.

In the next tier are chemicals and other toxins in the environment, loss of natural areas and animal habitat, and climate change. Each of these received a "very serious" number in the low to mid-40s, and a total problem number amounting to about three-quarters of Virginians. These three environmental problems were on par with "lack of good-paying jobs," which was a major concern as Virginia was only beginning to emerge from the economic fallout brought on by the pandemic.

Rounding out the list of problems were the ongoing effects of the COVID-19 pandemic, pollution sources located close to where people live, severe weather events, and trash and litter in your community.

Floating Plastic More Concerning Than Trash on the Land

It is noteworthy that trash and litter on the land, in one's own community, is much *less* of a concern than plastic floating in the ocean. Describing this disconnect, in-depth interview participants were apt to cite the ecosystem that is found in the water, and the innocence of life there. This point of view is illustrated by Carol, an in-depth interview participant from Williamsburg:

"It's very disturbing. I am concerned about…plastic pollution in the water and elsewhere because it affects all the fish and wildlife and people. It's not good, and it's something that we really need to get a handle on, because it's gotten to the critical point right now." – Carol, Williamsburg

Plastics in Our Food

There was a great deal of focus and concern expressed by the in-depth interviewees about the presence of microplastics in the food supply. The topic was already on the minds of most interviewees, but when they were informed about a recent study that documented the amount of plastic that an average person consumes, participants were set back on their heels. They indicated that they would have to do some thinking, and might be looking for ways to make some changes in what they consume.

"That's a big surprise, to be honest. (That makes me feel) kind of groggy…sick a little bit, just to think about it. You just imagine yourself biting plastic and eating, and that doesn't feel right or good at all." – Edgar, Alexandria

"I'm going to have to think a lot about what I'm eating now. …It's gross, it's sickening to know that." – Taylor, Fairfax

"I don't want to put that in my body. …We are what we eat and we're all interconnected. What we put into the ocean comes back to us." – Helen, Ashburn

"I think plastic pollution is a huge problem, especially for the wildlife and everything. … If we keep dumping as much plastic into the ocean as we are, we're not going to have usable seafood in a generation." – Henry, James City County

Plastic Pollution as a Motivating Concern

One of the key learnings from this work is how worried, moved, and motivated voters are as a result of plastic pollution. The emotional response felt by so many people translates into a desire to bring change, both legislatively and through their own individual action. Here is how one in-depth interviewee summarized her feelings:

"It really kind of makes me sad that people won't take care of the Earth, and they'll just discard trash, not thinking anything about how it affects the ecosystem that we live in… It doesn't make me necessarily angry. It just makes me kind of perplexed, like it makes me wonder, why is this happening? Why hasn't anybody done something to help stop this, or reduce this?" – Monique, Roanoke

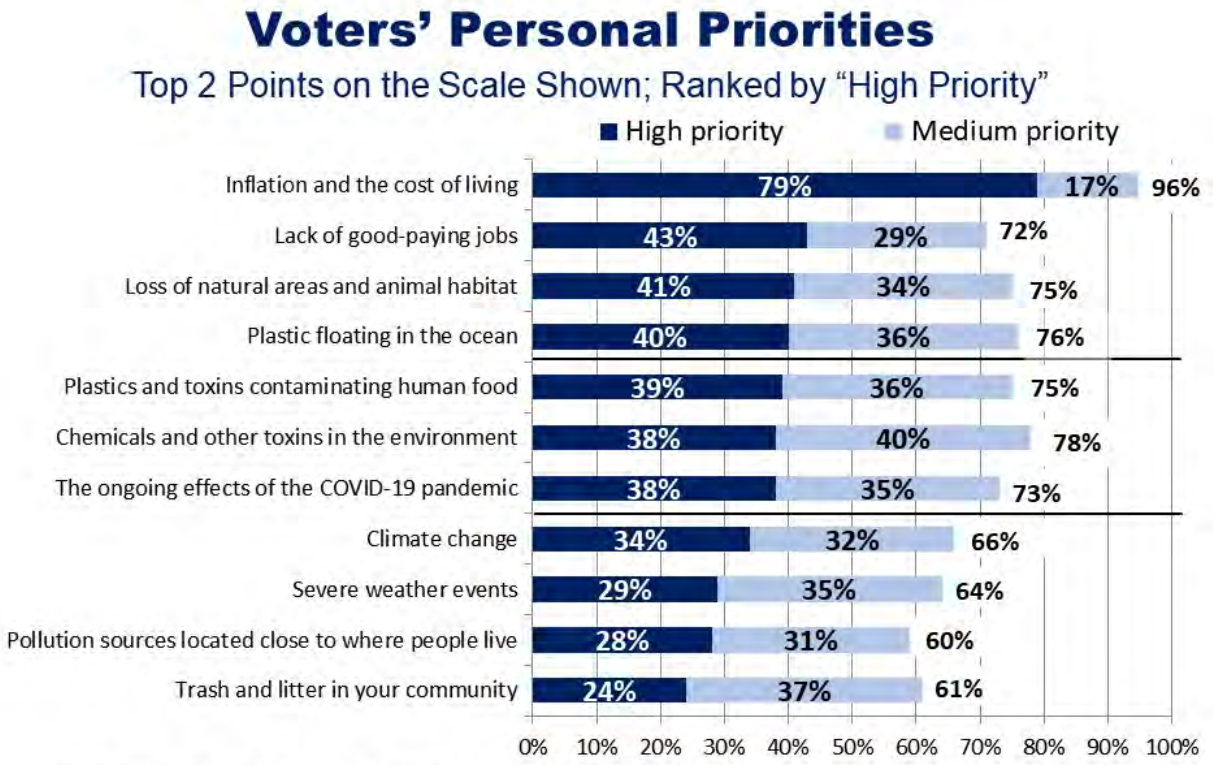
Another interviewee takes a more cynical approach:

"I know the environment's in a bad condition and most companies don't really care. They care about making a dollar. They don't care anything about us. They don't." – Michael, Hampton

Voters' Personal Priorities for Addressing These Problems

Even if voters view these issues as a problem, they may not consider them to be a personal *priority*. To assess that, each of these 11 items was measured again, and survey respondents were asked to rate them on the more personal scale of "not a priority, a low priority, a medium priority, or a high priority for you." Concern about plastics again ranked high.

In the chart below, this list of concerns is ranked based on the number who said an item was a high priority. Two economic concerns rose to the top of the list: inflation and the lack of good-paying jobs.



Let's look at that list again. For each one, please say whether it is not a priority, a low priority, a medium priority, or a high priority for you.

On par with the lack of good paying jobs – arguably higher – were the loss of natural areas and animal habitat, and plastic floating in the ocean. The next-highest priorities were plastics and toxins contaminating human food, and chemicals and other toxins in the environment. The ongoing effects of

the COVID-19 pandemic followed. As this list indicates, floating plastic and its impacts are high personal priorities for Virginians.

Following a bit further behind were climate change and severe weather events, pollution sources located close to where people live, and – at the bottom of this list – trash and litter in your community.

In the in-depth interviews, participants indicated a similar pattern. The elevated concern about *floating* debris, particularly plastic, related at least in part to the futility people feel about addressing floating debris and micro-plastics in the water. How could it ever be removed?, they asked.

But when the interviewer introduced the fact that "about 80% of the plastic in the ocean comes from inland sources, like litter by the roadside, overflowing trash cans, cigarette butts, balloon releases, food and beverage containers," participants were uniformly surprised. This fact reframed their thinking, focusing interviewees on the impacts of land-based litter. Here was a typical comment:

"I didn't know that 80% (of the plastic in the ocean) comes from inland. And so I think understanding that basically the litter in our community is what makes up the litter in the ocean is a huge game changer." – Taylor, Fairfax

Littering Behavior: Dropping It and Picking It up

Knowing that litter and trash on the land is a key source of marine debris, the survey explored individual behavior and attitudes regarding litter. In two questions that we have developed and asked in other communities dating back 15 years and tested extensively in focus groups, Virginia residents were asked if they ever toss litter, and if they ever pick it up when they see it and throw it away. The questions were asked this way:

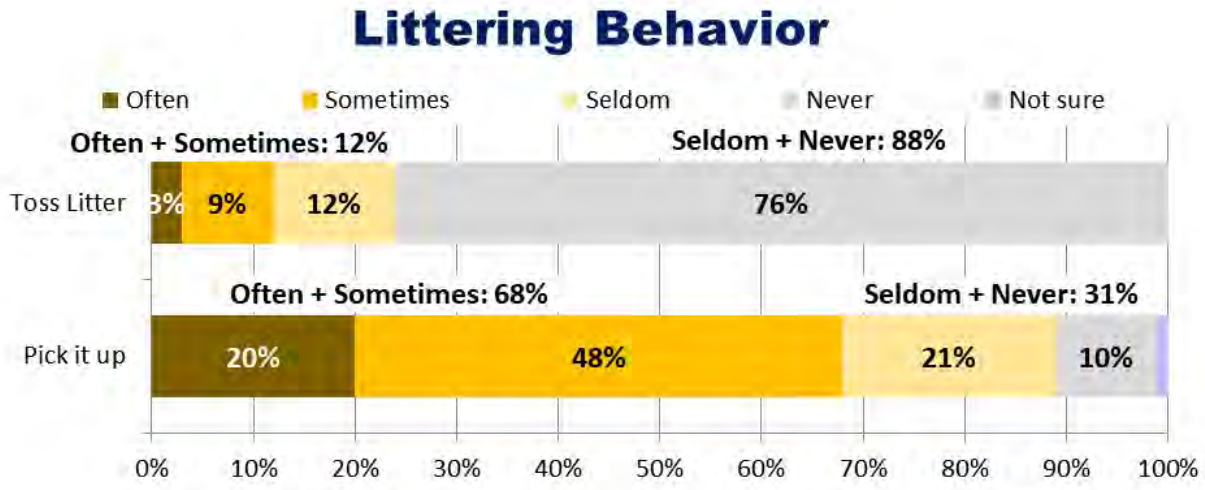
"Sometimes people toss things on the ground when they are not near a trash can. What about you? Do you often, sometimes, seldom, or never toss something on the ground when you are done with it?"

"When you see litter on the ground that someone else has put there, do you often, sometimes, seldom, or never pick it up and throw it away?"

As illustrated below, 12% of Virginians admitted that they often or sometimes toss things on the ground. Another 12% said they "seldom" do, bringing the total share of the public that at least occasionally tosses litter to about one-quarter. The other three-quarters (76%) said they "never" toss things on the ground.

Littering behavior is much more pronounced among Virginians under the age of 25, dipping significantly between the ages of 25 and 45, and dropping off almost completely after 45.

As for picking up litter when they see it, 20% said they often do, and 48% said they sometimes do – bringing the total to about two-thirds of the public who could be said to be actively picking up litter at least sometimes when they see it. The other one-third (31%) seldom or never pick it up.



Sometimes people toss things on the ground when they are not near a trash can. What about you? Do you often, sometimes, seldom, or never toss something on the ground when you are done with it?

When you see litter on the ground that someone else has put there, do you often, sometimes, seldom, or never pick it up and throw it away?

Promoting picking up litter is an important part of the strategy. Based on other in-depth work we have conducted with frequent litterers, they typically indicate they are much less likely to litter in neighborhoods where they can tell people are picking up and trying to keep things clean, and where there is social pressure not to litter. Picking up litter conveys the sense that this community cares about itself.

(continued, next page)

March-May 2022

Attitudes about Litter and Marine Debris

Make no mistake, most residents are upset by litter. Despite the 12% of the public who toss things on the ground sometimes or often, the vast majority of people use negative and emotional words to describe "how you feel when you see litter on the ground near where you live." This word cloud illustrates the adjectives that survey respondents offered, which are emotionally laden and evocative.

Use this text box to type in one word that describes how you feel when you see litter on the ground near where you live.

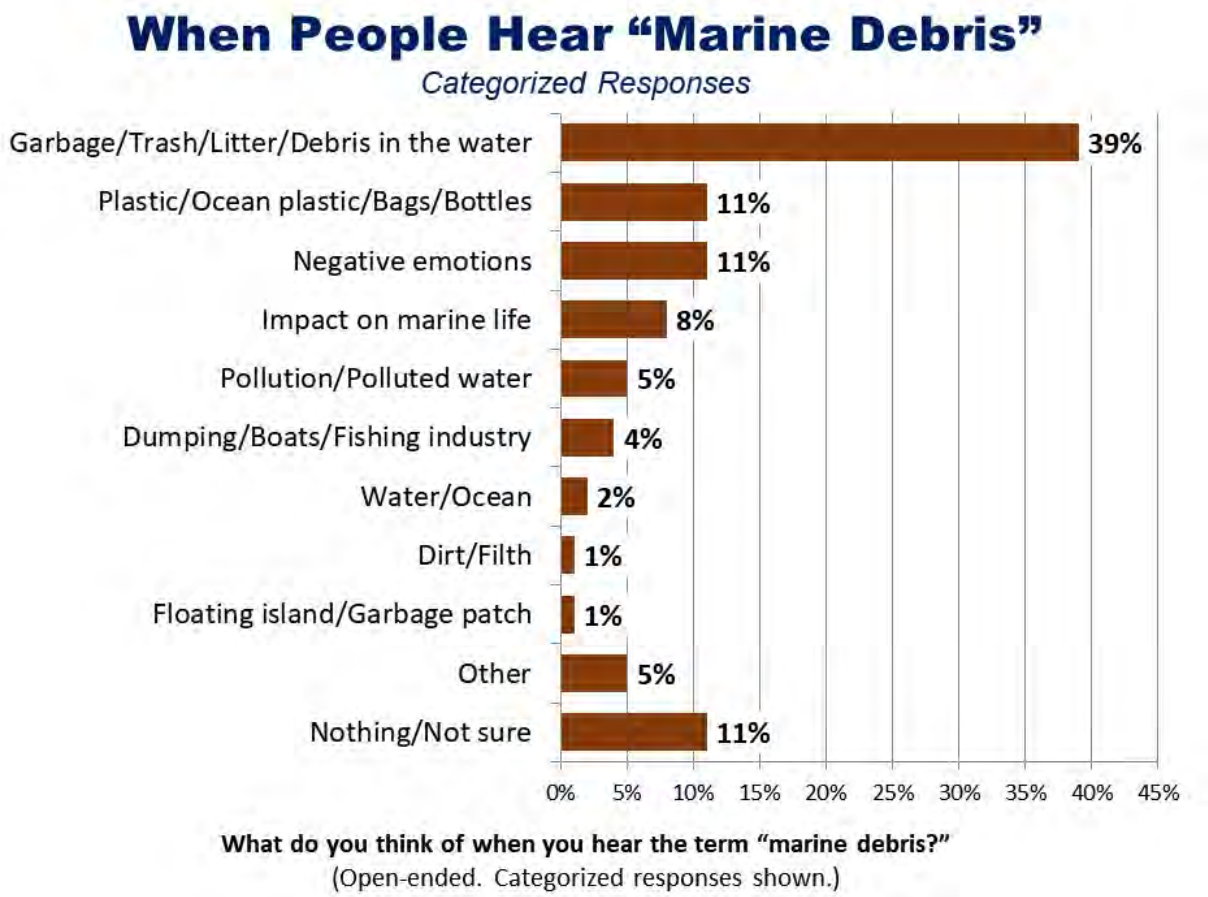
The survey tested terminology related to floating trash, including testing responses to the term "marine debris" itself. People were asked, "What do you think of when you hear the term 'marine debris?'" The question was open-ended, and responses were categorized as illustrated in the chart on the following page.

The most common response, mentioned by about four in ten (39%), was the general idea of floating garbage, trash, litter, or other debris in the water. Another 11% mentioned plastics specifically, or plastic containers such as bags or bottles.

More than one in ten (11%) mentioned an emotional, rather than a physically descriptive, word. Emotions were strong. People used words like angry, annoyed, disappointed, disgusted, heartbroken, horrified, nauseous, sad, scared, terrible, upset, and worried.

Eight percent thought immediately about the impact on marine life, and mentioned their concern that aquatic animals could be harmed.

A small number sought to blame dumping at sea on the fishing industry in particular. The full range of responses is illustrated below.



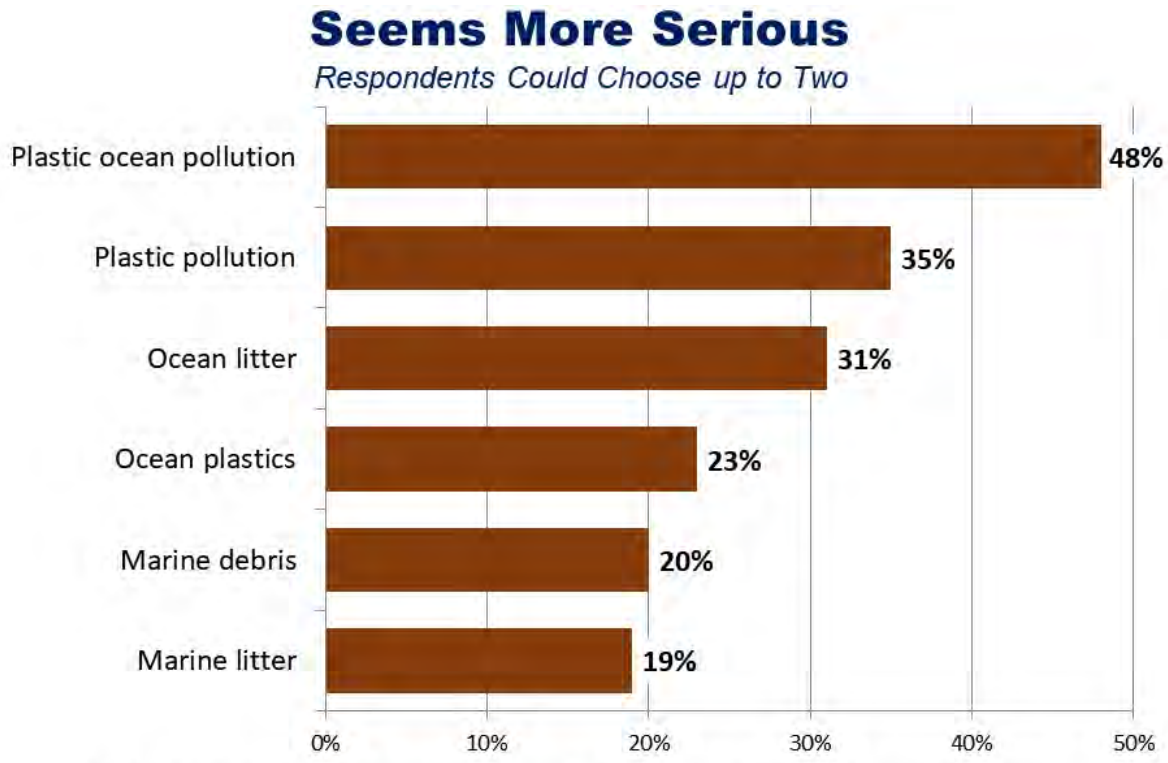
Terms That Seem More Serious

Additionally, a range of possible terms for floating debris were tested, including the common term "marine debris." Respondents were asked, "Which words seem more serious to you, or like a bigger problem?" They were invited to choose up to two from the list. The terms were:

- Marine debris
- Marine litter
- Ocean litter
- Ocean plastics
- Plastic ocean pollution
- Plastic pollution

A reason for conducting this exercise is to understand how to communicate with the public and speak in terms that convey the seriousness of the problem. In this exercise, like others on the survey, plastic rose high on the list. Combining plastic with the idea of "pollution" sounded more serious to respondents. Consequently, about half (48%) of the sample chose "plastic ocean pollution" as one of the two most serious terms. "Plastic pollution" was second, chosen by about one-third (35%).

Interestingly, the term most commonly used today, "marine debris," landed near the bottom of this list.



Which words seem more serious to you, or like a bigger problem? Choose up to two.
(Words randomized)

Finding out That Plastic in Made from Petrochemicals

The in-depth interviews delivered an unexpected finding about the derivation of plastic, and the impact on consumers of knowing where plastic comes from. Though the question was not asked on the survey, in the in-depth interviews participants were asked if they knew what plastics are typically made from. Of the ten interviewees, *none* knew that most plastics are sourced from petrochemicals.

The impact of learning the source of plastic was arresting for participants. Their reactions were strong, even verging on disgust or revulsion for some. They free-associated as they verbally processed those concerns, recoiling at the thought of storing food in plastics sourced from oil, thinking about possible climate change impacts, or the unknown, possibly dangerous chemicals that go into creating plastic.

One participant thought of the unpleasant smell of gasoline he notices as he fuels his vehicle. Another, as noted below, focused on oil as a non-renewable resource. Keep in mind that these interviews were being conducted as gasoline was hovering around $5.00 per gallon in May 2022.

"That's, that's intense. I didn't know that. I knew there were like a lot of chemicals that were put into making plastic, but I didn't know that essentially the same thing that we used to drive around is what's in plastic." – Taylor, Fairfax

"They come from a non-renewable resource, and those are limited. And so when I think about using plastics and the idea of recycling plastics or reusing plastics, it's not just the purpose of not polluting and littering, but also this idea that it comes from a non-renewable resource." – Jamie, Norfolk

March-May 2022

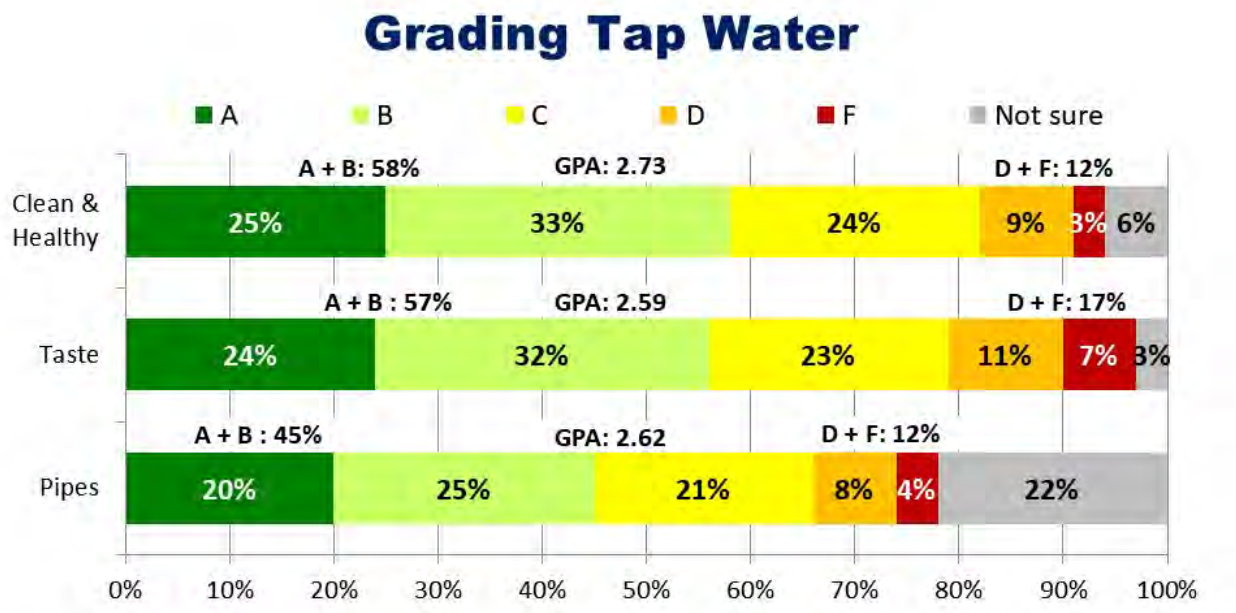
How Attitudes about Tap Water Impact Plastic Consumption

People's attitudes about and perceptions of their tap water at home help determine whether they will drink it, or seek alternatives like bottled water. The survey measured Virginians' perceptions of three issues related to their tap water, measured on a traditional A through F grading scale:

- How clean and healthy the water is
- How it tastes
- The condition of the pipes coming to your home

The chart below illustrates the range of responses. On all three of these issues, the overall score equates to a B-Minus (or a mean ranging from 2.59 to 2.73 on a traditional 4-point grading scale where A=4 and F=0).

- For being clean and healthy, 58% gave their tap water a positive grade of A or B, while 12% gave it a negative grade of D or F. The average was 2.73.
- For taste, 57% graded their tap water positively (A or B), and 17% negatively (D or F), for an average score of 2.59.
- For the condition of their pipes, 45% gave a positive grade and 12% a negative one, while a sizable 22% said they did not know. The average was 2.62.



Think about the water that comes out of the tap at your home. Please grade it for the following things on an A, B, C, D, F scale like in school, where A is excellent, and F is failing.

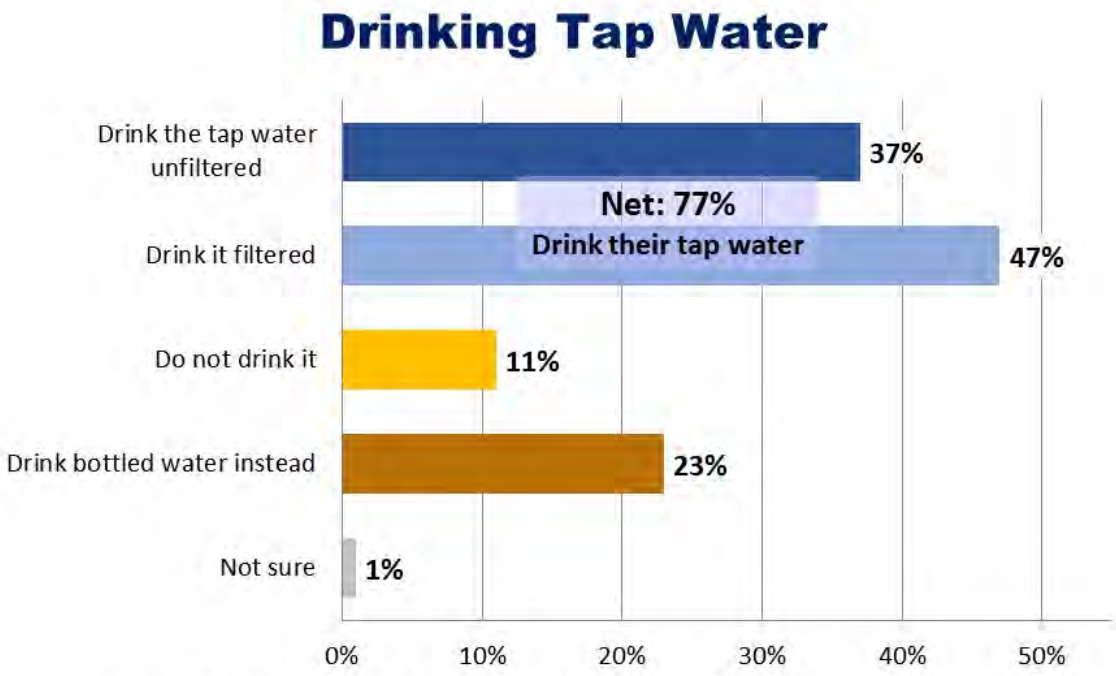
How clean and healthy the water is
How it tastes
The condition of the pipes coming to your home

It should be noted that there are some disparities within the overall population around the perceptions of tap water. African-Americans are more likely than other groups to downgrade the cleanliness and healthiness of their tap water, as are voters with lower socio-economic status (as measured by educational attainment).

Many People Avoiding Tap Water

The result of these grades is that only 37% of Virginians drink their tap water unfiltered. About half (47%) drink their tap water filtered, while 23% said they "drink bottled water instead," and 11% do not drink it at all.

Note that people could choose more than one of these options, because they may do different things at different times or in different circumstances. The net is that only 77% of residents across the Commonwealth drink their tap water at all, whether filtered or unfiltered.



Do you drink the water that comes out of your tap unfiltered, filtered, or not at all? (Respondents could choose more than one.)

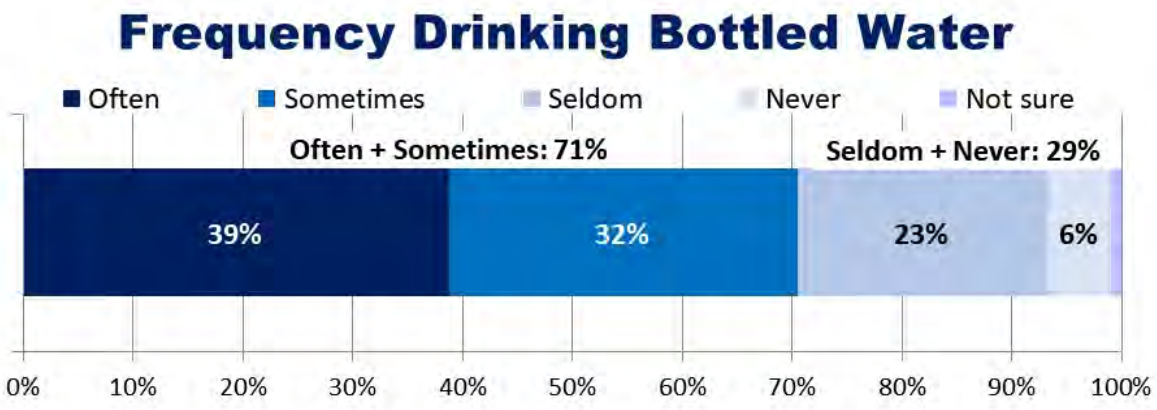
Taste appears to be a major issue among people who do *not* drink their tap water. Almost two-thirds (64%) of those who do not drink it grade the taste of their tap water as C or lower, compared to only 40% of the general population.

Increasing Consumption of Bottled Water (and Plastic Water Bottles)

Turning to bottled water, a sizable 39% of residents across Virginia drink bottle water "often." Adding in those who drink it "sometimes," the total rises to almost three-quarters (71%). Fewer than one-third (29%) drink bottled water seldom or never.

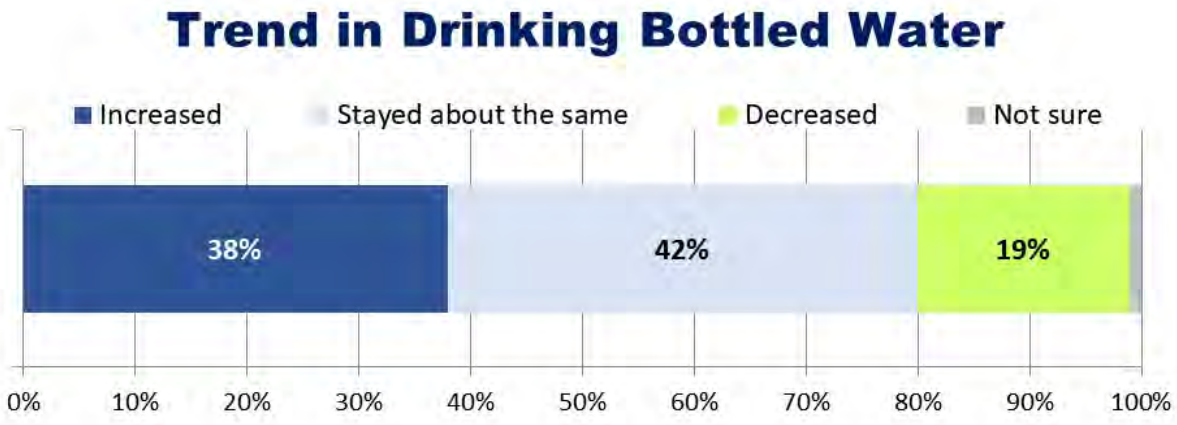
Compared to the 39% of the general population who drink bottled water often, these groups were much more likely to say they drink it often: African-Americans (58%), Hispanics (52%), and voters with only a high school education (54%).

Less likely to drink bottled water often were these groups: Northern Virginia residents (31%), suburban residents (34%), Asian (29%) and White voters (33%), and those over age 65 (31%).



Do you drink bottled water often, sometimes, seldom, or never?

What's more, the amount of bottled water that people drink appears to be dramatically increasing. Thirty-eight percent of the sample said the amount of bottled water they drink has increased "compared to a few years ago." That is double the 19% who said their bottled water consumption has decreased. Meanwhile, four in ten (42%) said their consumption has stayed about the same.



Compared to a few years ago, has the amount of bottled water you drink increased, decreased, or stayed about the same?

(continued, next page)

March-May 2022

Legislative Action: Support for Public Policy Measures Related to Plastic Waste

This statewide survey, conducted among a representative sample of registered Virginia voters, measured the level of support for a series of possible legislative initiatives aimed at curbing the amount of plastic in the environment. Each policy proposal was measured on this scale: strongly favor, somewhat favor, are neutral, somewhat oppose, or strongly oppose.

Throughout this discussion of possible legislative matters, support and opposition will be broken out by political party, to help determine whether support for a proposal is cross-cutting, or is more heavily concentrated among adherents of one party. Though Virginia does not have partisan voter registration, survey respondents were asked with which political party they more strongly identify. Results are also broken out by major regions of Virginia throughout the following discussion on public policy.

Banning Single-Use Plastic Bags

There is strong support across Virginia for a proposal to "ban single-use plastic grocery and shopping bags and require paper or reusable bags instead." The solid 61% majority in favor of this proposal is nearly three times the size of the opposition (21% opposed). Almost one voter in five (18%) remains neutral or not sure about a plastic bag ban.

In partisan terms, large majorities of Democrats (77%) and Independent voters (59%) favor this measure, along a 49% plurality of Republicans.

By region, support for a plastic bag ban is strong across all regions of the Commonwealth, well surpassing 50%. Support is *strongest* in Northern Virginia, the Richmond area, and the rural Tidewater (generally east of I-95 between Northern Virginia and Hampton Roads, including the Eastern Shore).

Ban Single-Use Plastic Bags

	Northern Virginia	Richmond Area	Hampton Roads	Rural Tidewater	Southside	Piedmont/ Mountain
Favor	68%	62%	58%	64%	56%	58%
Oppose	21%	18%	21%	8%	25%	23%
Neutral/Not sure	11%	20%	21%	28%	18%	20%

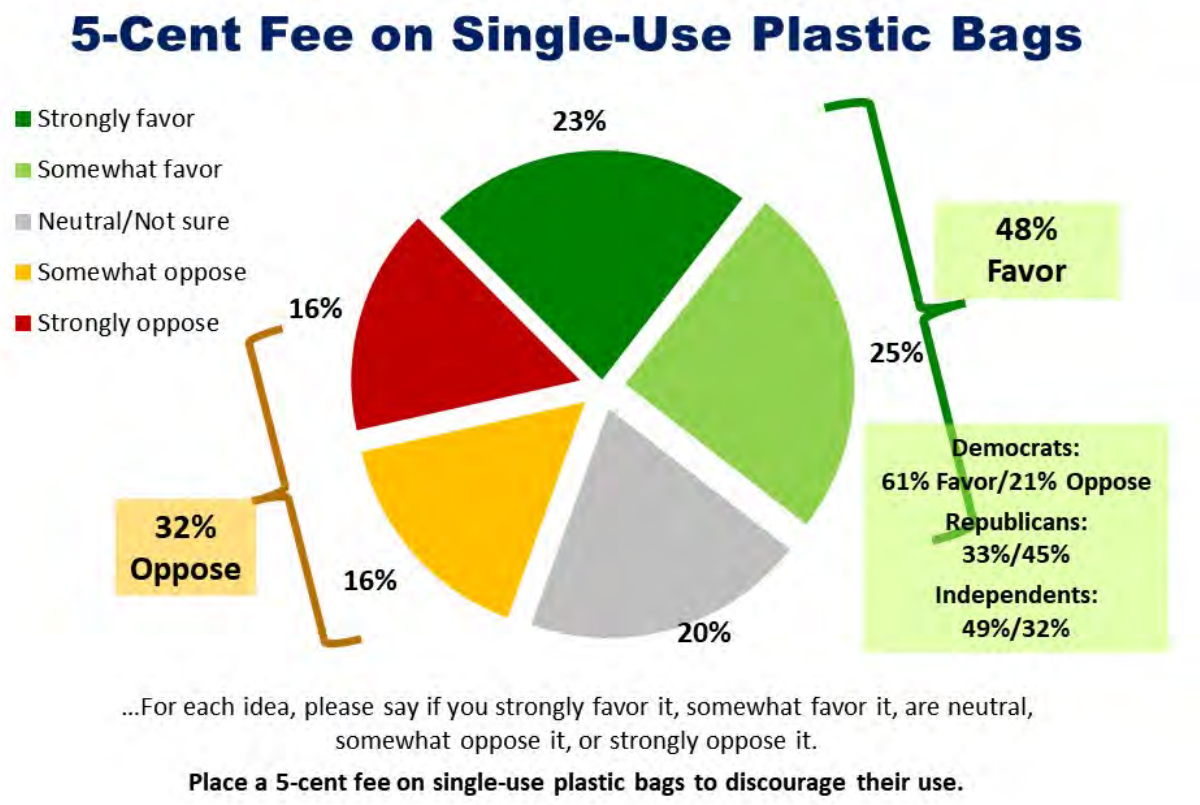
An in-depth interviewee summed up her support for this proposal this way:

"I (have) so many plastic bags just thrown in a drawer. People don't reuse (them). I think it's about time and it's not hard to bring your own bag." – Patricia, Reston

Placing a Five-Cent Fee on Single-Use Plastic Bags

A 48% to 32% plurality of voters favors placing "a five-cent fee on single-use plastic bags to discourage their use." One-fifth of voters (20%) are neutral on this proposal.

While support for banning single-use plastic bags cut across party lines, attitudes toward a five-cent fee take on a more partisan tone, with 61% of Democrats in favor, compared to 49% of Independents and 33% of Republicans.



Support for a 5-cent bag fee is by far the strongest in Northern Virginia, where the fee has been widely implemented. This follows a pattern of other jurisdictions, where support increases once residents experience the fee in practice. Elsewhere in the Commonwealth, pluralities support a bag fee, except in the rural Tidewater, where opposition narrowly edges out support, but well within the survey's margin of error.

5-Cent Fee on Single-Use Plastic Bags

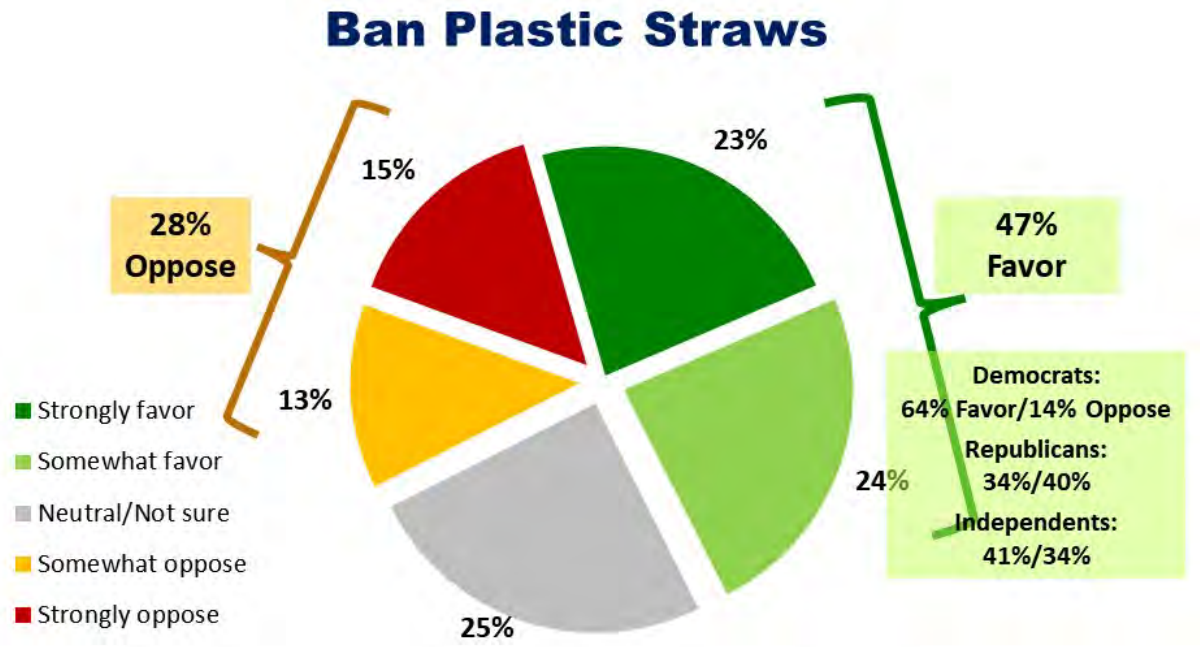
	Northern Virginia	Richmond Area	Hampton Roads	Rural Tidewater	Southside	Piedmont/ Mountain
Favor	58%	45%	47%	37%	42%	44%
Oppose	29%	33%	25%	39%	37%	39%
Neutral/Not sure	14%	21%	27%	24%	22%	18%

In-depth interviewees explained that they expected the five-cent fee received lower support than a total bag ban because the fee would be upsetting to some consumers when it came time to check out of the store. They imagined the scene as the customer ahead of them reacted badly to having to pay the fee. A bag ban avoids all that, they said.

Banning Plastic Straws

A near-majority, 47% plurality, supports banning plastic straws, while 28% oppose it. A comparatively large 25% of voters are neutral or not sure how they feel about this proposal.

Like the five-cent bag fee, there is a partisan tone to support for banning plastic straws. Democrats support it by better than four-to-one (64% to 14%), while Independents only narrowly support a straw ban (41% to 34%), and Republicans narrowly oppose it (34% to 40%).



...For each idea, please say if you strongly favor it, somewhat favor it, are neutral, somewhat oppose it, or strongly oppose it.

Ban plastic straws.

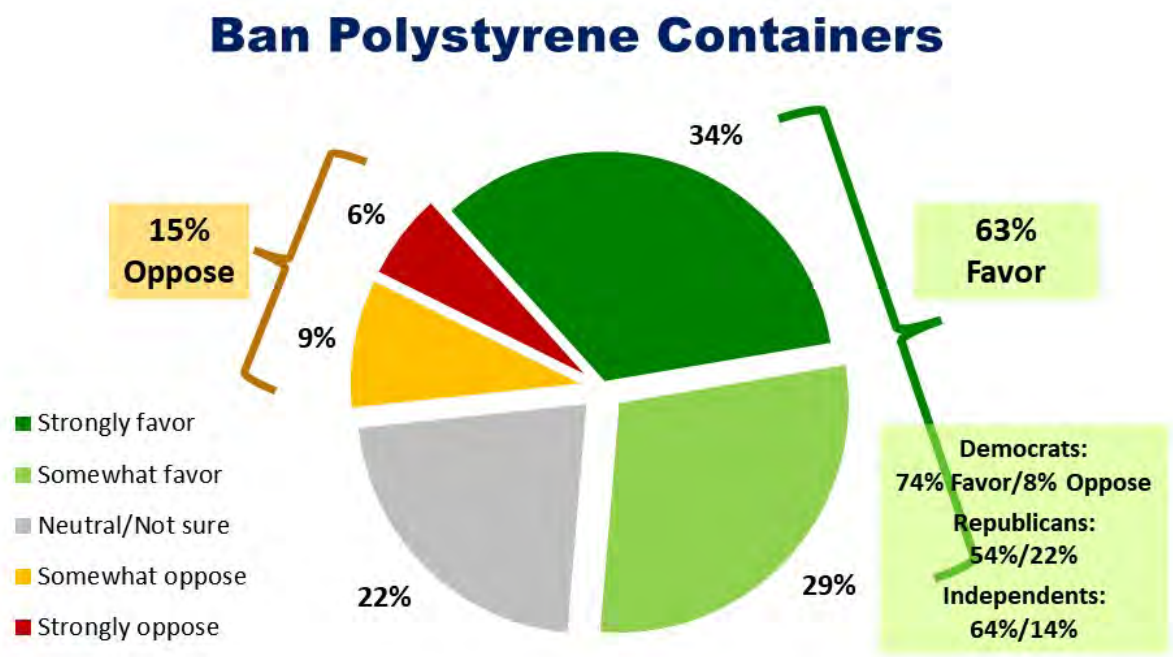
Regionally, support for banning plastic straws is stronger in Northern Virginia and Hampton Roads, followed by the rural Tidewater.

	Northern Virginia	Richmond Area	Hampton Roads	Rural Tidewater	Southside	Piedmont/ Mountain
Favor	53%	41%	50%	46%	43%	42%
Oppose	23%	35%	26%	25%	36%	31%
Neutral/Not sure	25%	24%	24%	29%	21%	14%

Banning Polystyrene Containers

There is strong, cross-cutting support for banning "polystyrene or foam take-out containers." Overall, voters statewide favor this proposal overwhelmingly by a margin of 63% to 15%. About one-firth of voters (22%) are neutral or not sure.

Support for banning polystyrene cuts across party lines. While Democrats support this proposal by a resounding 74% to 8%, Republicans also favor a ban by a solid margin of 54% to 22%. Independents favor it 64% to 14%.



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Ban polystyrene or foam take-out containers.

March-May 2022

The Piedmont and Mountain regions of Virginia join Northern Virginia, Hampton Roads, and the rural Tidewater in posting support numbers for a polystyrene ban well above 60%.

Ban Polystyrene Containers

	Northern Virginia	Richmond Area	Hampton Roads	Rural Tidewater	Southside	Piedmont/ Mountain
Favor	67%	56%	67%	68%	51%	62%
Oppose	12%	15%	12%	17%	26%	17%
Neutral/Not sure	21%	29%	21%	15%	23%	21%

In-depth interviewees across-the-board exhibited strong support for the proposal to ban polystyrene take-out containers, with an attitude verging on impatience. They felt such a ban was just common sense. As illustrated in this quote, several interviewees felt this is a measure that should have been put in place years ago.

"This would've been great legislation back in 1990. … This is something that not only do I support it, I think that it should be given two months or two weeks to find alternatives. Because there's so many alternatives out there. There's so many things that are compostable, there's so many things that are easily recyclable and cheaper for the restaurants. I have no clue why places are still using Styrofoam." – Henry, James City County

"I think they're the worst because they take so long to break down and people never ever…use (them) more than once. They don't recycle, I mean, can you even recycle them?" – Helen, Ashburn

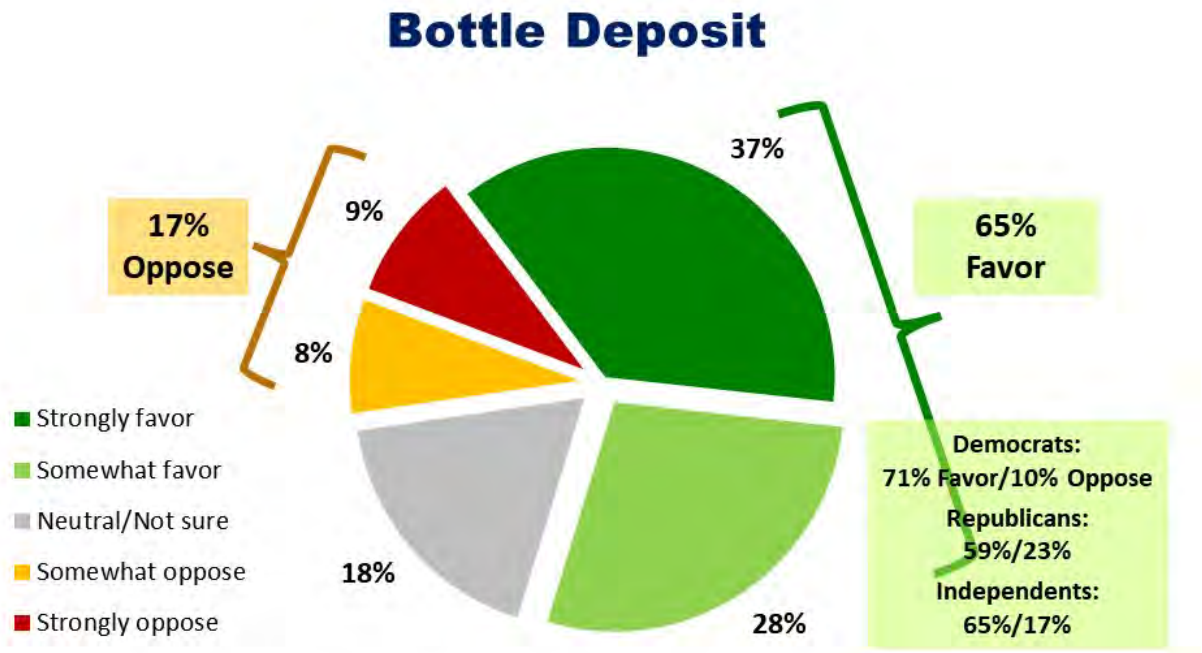
(continued, next page)

March-May 2022

Bottle Deposit

It is often thought that a bottle deposit law is not viable legislatively and could not become law. Voters, though, see this as a common-sense measure and strongly support it. In fact, support reaches almost two-thirds (65%) of Virginia voters, with only 17% opposed. Eighteen percent are neutral or not sure.

This is one of the least partisan issues measured on the survey, with 59% of Republicans, 71% of Democrats, and 65% of Independents in support.



...For each idea, please say if you strongly favor it, somewhat favor it, are neutral, somewhat oppose it, or strongly oppose it.

Charge a 5-cent or 10-cent fee on bottled drinks that you get back when you return the bottles to a store or redemption center.

The bottle deposit is popular in every region, reaching towards two-thirds of voters everywhere.

Bottle Deposit

	Northern Virginia	Richmond Area	Hampton Roads	Rural Tidewater	Southside	Piedmont/ Mountain
Favor	65%	63%	66%	76%	65%	63%
Oppose	20%	21%	13%	13%	15%	17%
Neutral/Not sure	15%	16%	21%	10%	20%	20%

In-depth interviewees understood the benefits of a bottle deposit in encouraging litter clean-up and recycling, and they liked the fact that you can get your deposit back.

"People need incentives to do things. You need incentives to do most everything. ...So when you give a person an incentive, oh, I paid the 10 cents now, but I get it back when I return it. Oh sure, I'll do it." – Michael, Hampton

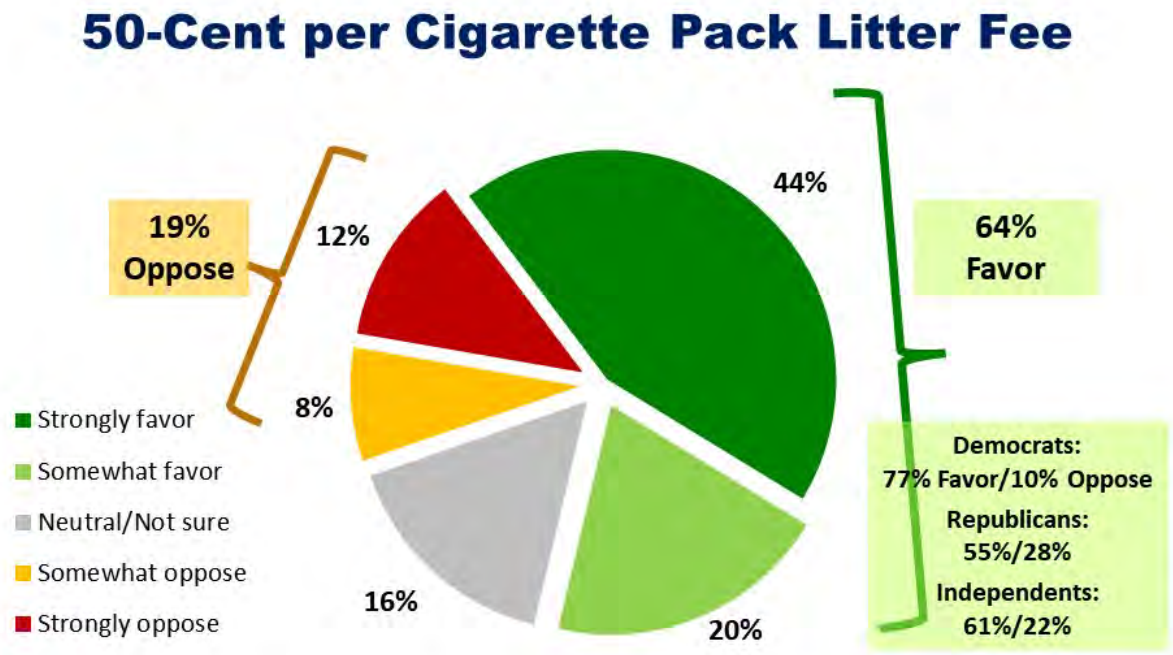
"About time. ...It keeps the streets clean. Even kids will pick up the bottles. They should do it with cans too." – Patricia, Reston

March-May 2022

Per-Cigarette-Pack Litter Fee

Virginia has a long history with tobacco. Nonetheless, the proposal to "charge a 50-cent-fee on each pack of cigarettes to help pay the cost of cleaning up littered cigarette butts" is met with strong support from voters. Almost two-thirds (64%) favor a per-pack litter fee, compared to only 19% in opposition. One in six voters (16%) are neutral or not sure.

Support crosses party lines, with Republicans in favor by two-to-one (55% to 28%), reaching even higher levels among Independents (61%) and Democrats (77%).



...For each idea, please say if you strongly favor it, somewhat favor it, are neutral, somewhat oppose it, or strongly oppose it.

Charge a 50-cent-fee on each pack of cigarettes to help pay the cost of cleaning up littered cigarette butts.

Southside is an outlier of low support for this proposal, but even there support is two-to-one in favor. Elsewhere, support for a per-pack litter fee is generally in the 60s, reaching 71% in Northern Virginia.

Per-Cigarette-Pack Litter Fee

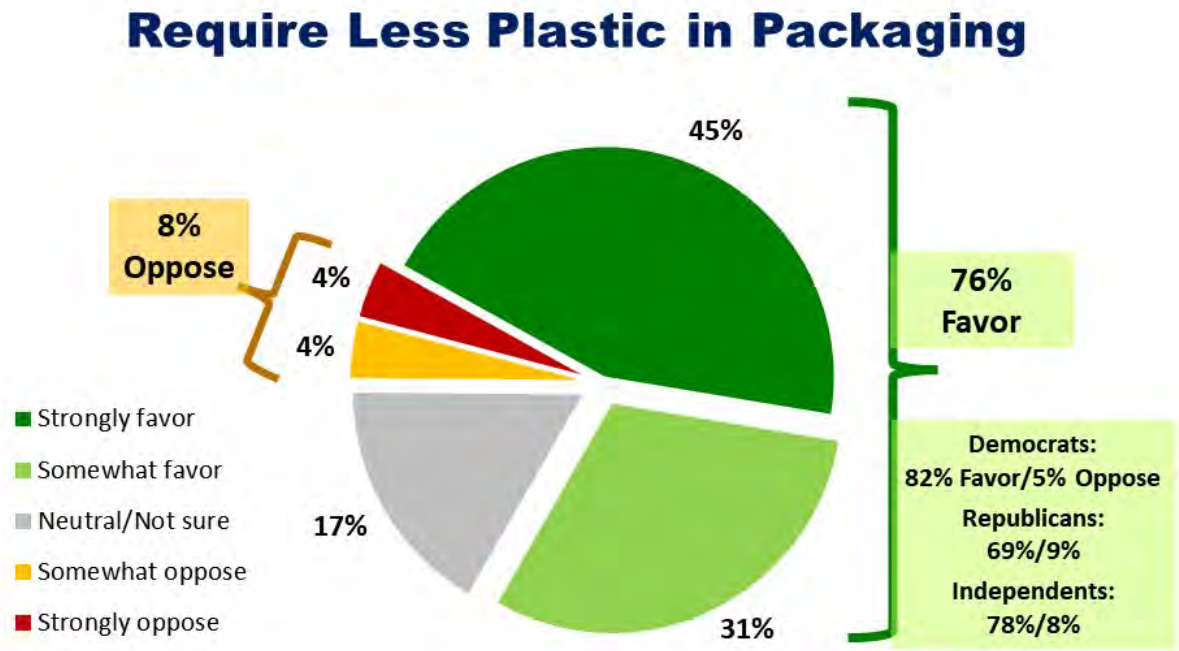
	Northern Virginia	Richmond Area	Hampton Roads	Rural Tidewater	Southside	Piedmont/ Mountain
Favor	71%	59%	65%	64%	49%	63%
Oppose	17%	23%	16%	21%	25%	21%
Neutral/Not sure	11%	17%	19%	16%	25%	17%

March-May 2022

Less Plastic in Packaging

Overwhelmingly, Virginia voters want to see producers reduce the amount of plastic in their product packaging. This translates into resounding support for a proposal to "require manufacturers to use less plastic in product packaging." Overall, three-quarters (76%) of voters support this initiative, with only 8% opposed. This result is as near consensus as almost any public policy proposal can be in the current political environment. Seventeen percent of voters are neutral on this question.

In partisan terms, support is well above two-thirds across all political stripes. Opposition does not rise out of single digits within any partisan subgroup.



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Require manufacturers to use less plastic in product packaging.

This is an enormously popular proposal, with support in the high 60s and 70s everywhere in the state. The 94% recorded in the rural Tidewater could be an anomaly due to low sample size in that region.

Require Less Plastic Packaging

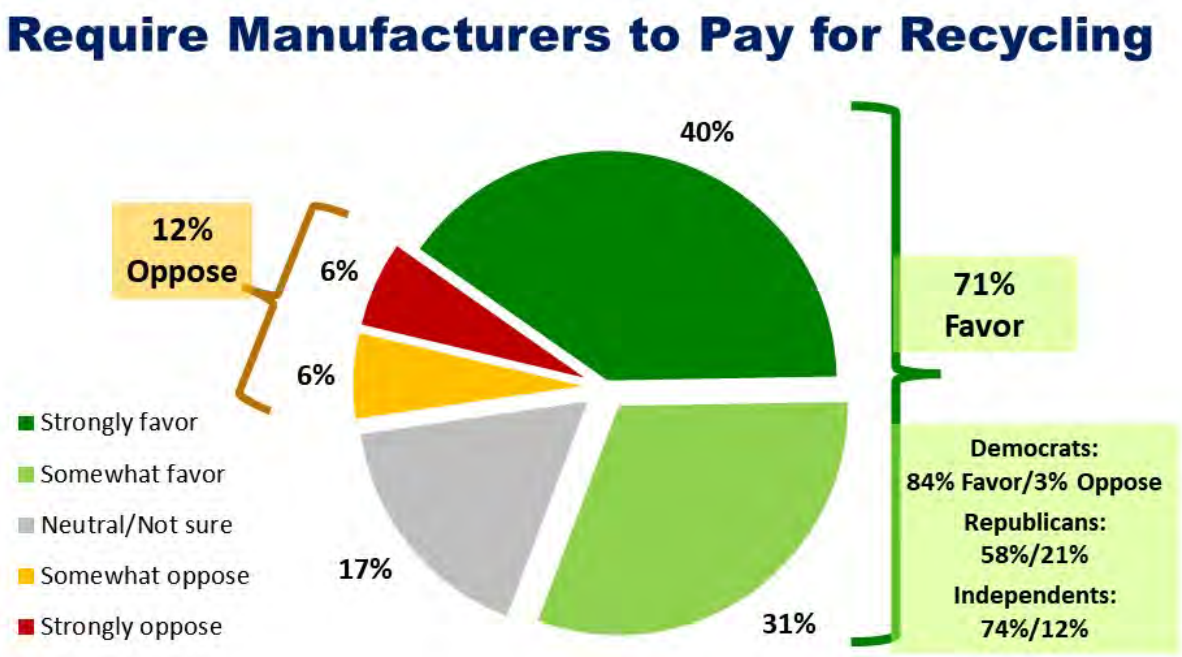
	Northern Virginia	Richmond Area	Hampton Roads	Rural Tidewater	Southside	Piedmont/ Mountain
Favor	78%	68%	74%	94%	68%	78%
Oppose	6%	11%	6%	6%	12%	7%
Neutral/Not sure	16%	21%	19%	*%	20%	15%

March-May 2022

Requiring Manufacturers to Help Pay for Local Recycling Programs

Virginia voters also overwhelmingly favor requiring "manufacturers to help pay for recycling pick-up and processing in local communities, reducing burden on taxpayers." More than seven in ten voters statewide (71%) favor this idea, with only 12% opposed. About one-sixth (17%) said they are neutral.

Democrats favor this proposal by a lopsided 84% to 3%, Republicans by 58% to 21%, and Independent voters by 74% to 12%



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Require manufacturers to help pay for recycling pick-up and processing in local communities, reducing burden on taxpayers.

There is little variation by region for this popular proposal. Support ranges from 69% to 73% across all regions.

Require Manufacturers to Help Pay for Recycling

	Northern Virginia	Richmond Area	Hampton Roads	Rural Tidewater	Southside	Piedmont/ Mountain
Favor	72%	71%	69%	73%	71%	72%
Oppose	13%	14%	13%	18%	14%	10%
Neutral/Not sure	15%	16%	19%	10%	16%	19%

In-depth interviewees were emphatic in their desire to see producers of consumer goods and product packaging bear some responsibility for dealing with the waste on the back end. This interviewee, a military retiree who lives in Hampton, said that it is not only their responsibility, but producers' involvement would also set an example and encourage people like him.

> *"It's time for (producers) to pay, because (they) need to be involved also. You're producing all these things. You need to understand the necessity of making sure things get recycled…and as a taxpayer, I think it's about time we enforce some of these things for these producers so they can start picking up the slack…so for me, when I see companies and organizations making an effort, that encourages me to make an effort also." – Michael, Hampton*

Individual Action: Willingness to Undertake Helpful Actions

Moving beyond public policy and societal action, the survey homed in on whether people would be willing to take individual action, possibly altering some habits and behaviors in their daily lives. Five individual actions were tested:

- Use a refillable water bottle or drink filtered tap water instead of buying disposable plastic water bottles.
- Pick up litter when you see it.
- Use reusable bags instead of single-use plastic bags at the store.
- Stop using plastic straws.
- Stop using all single-use plastic items for a month.

Using the scale "very likely, somewhat likely, or not likely," survey respondents were asked, "In the future, how likely would you be to do any of these things, if you thought they would reduce the amount of plastic in the environment and the ocean?" The results of this question may help advocates prioritize their efforts by lifting up the individual actions that the public seems most ready to take.

At the top of the list are two behaviors, each garnering about half the survey sample who said they would be very likely to do them: using a refillable water bottle or drinking filtered tap water, and using reusable bags.

Mid-stream on this list, with just over one-third of respondents feeling very likely, are picking up litter and not using plastic straws. Among these five actions, the public appears least ready to stop using all single-use plastic items for a month.

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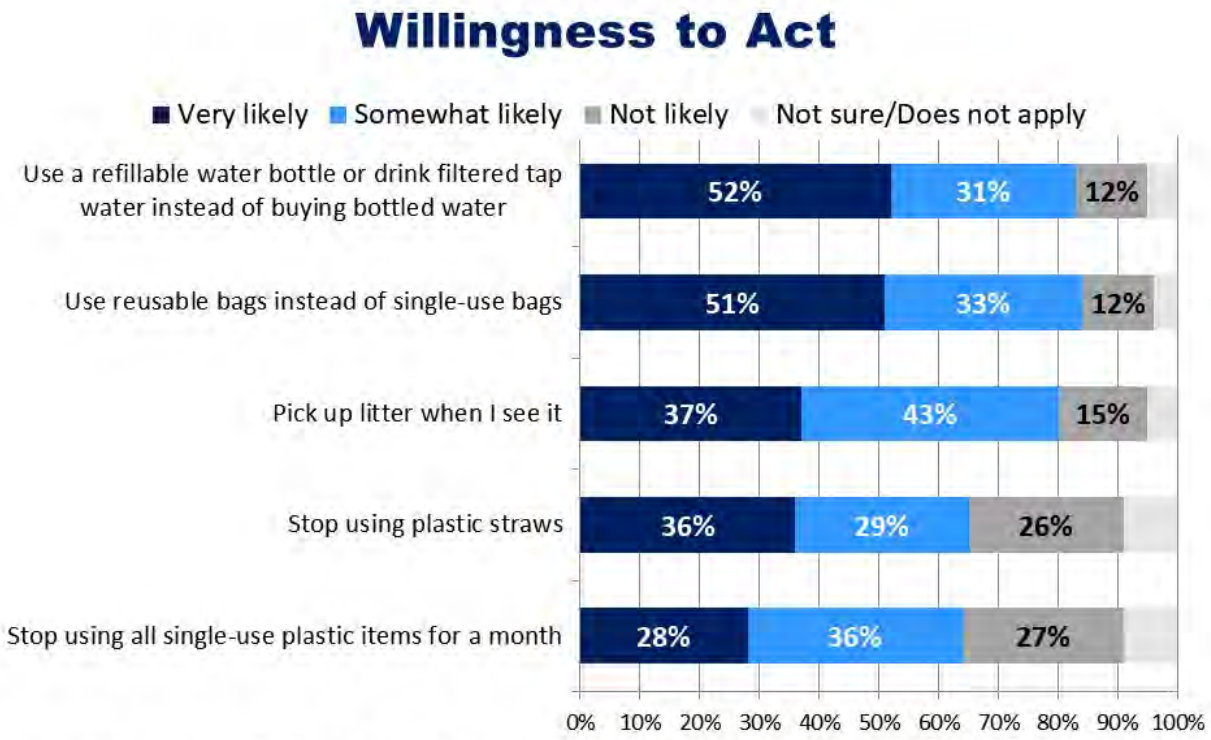


In the future, how likely would you be to do any of these things, if you thought they would reduce the amount of plastic in the environment and the ocean? For each one, please say if you would be very likely, somewhat likely, or not likely to do it. If a question does not apply to you, just say so.

Faced with the prospect of plastic pollution, many residents are asking themselves what they can do in their personal lives. It is this impulse that we can build upon in better engaging the public in individual action.

"Ever since I was little, we've been taught about recycling or taking care of our environment, taking care of the Earth. And there's maybe some times when I felt I could have done better, self-reflecting because my actions are the ones I can control." – Edgar, Alexandria

Behavior change practitioners can refer to the segmented survey data in Section 3 of this report for detailed guidance on which population subgroups would be most prone to adopt each of these behaviors.

March-May 2022

Trusted Sources of Information about Plastic Pollution

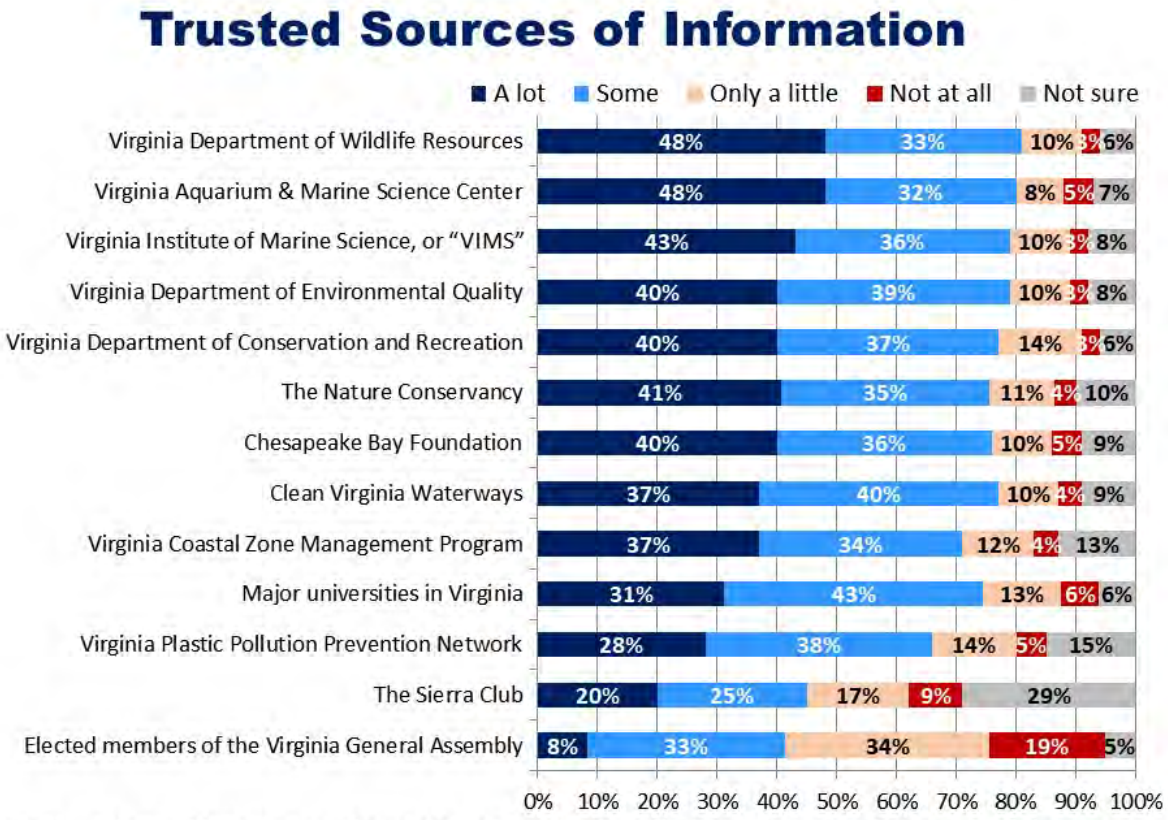
There are many agencies and organizations communicating with the public about the problems associated with plastic pollution. The survey took a measure of the standing of these organizations, as measured by the public's level of trust in the information these entities provide. Survey participants rated each one using the scale, "trust it a lot, some, only a little, or not at all."

Though this chart is roughly ranked by the overall level of trust in each entity, the first major takeaway is the relatively high level of trust in the information provided by *nearly all of* these groups. Adding "a lot" and "some," eight of these 13 groups command trust from at least three-quarters of the public.

It is also significant that four of the five top-ranked organizations on this list are public sector agencies affiliated with the Commonwealth of Virginia: DWR, VIMS, DEQ, and DCR. The one non-public entity, ranked second overall, is the Virginia Aquarium and Marine Science Center in Virginia Beach.

A regulatory agency like Virginia DEQ might be surprised to find itself held in such high regard by the public, but in fact, this survey result makes clear that the public values the quality of the information these public agencies provide. They can speak with credibility on the subject of plastic pollution.

Several non-profit organizations also are viewed as trustworthy by the public, as illustrated in the chart below. The elected members of the General Assembly rank lowest.



How much would you trust information about plastic pollution that comes from each of these sources? Say if you would trust it a lot, some, only a little, or not at all. If you don't know, just say so. (List randomized.)

CONCLUSIONS

This public opinion research among Virginia voters identifies a deep level of concern about plastic pollution – especially that found in the ocean. The public appears emotionally invested in this problem, and motivated to support a broad suite of potential public policy actions to help address it.

Beyond public policy, this research provides guidance for fostering individual action to help address plastic pollution, and offers direction for communicating with the public about this problem.

It has been a privilege to conduct this research. We stand ready to discuss it in more detail, as the sponsors of this research seek to apply it to their work.

OpinionWorks LLC
Annapolis, Maryland

Appendix D: ADV Summary report and link to full report

Below is a four-page summary of the ADV Work Group Report. The full 46-page report, and the ADV policy paper by the Virginia Coastal Policy Center (28 pages) can be downloaded from the Clean Virginia Waterways' ADV web site: https://www.longwood.edu/cleanva/ADV-resources.html

Addressing Abandoned & Derelict Vessels

Virginia Marine Debris Reduction Summary Series

What are the safety, economic and environmental impacts of abandoned and derelict vessels?

Abandoned and derelict vessels (ADVs) threaten our ocean, coasts, and even inland waterways by obstructing navigational channels, causing harm to the environment (fuel leakage, release of hazardous materials, and habitat disturbance), and diminishing commercial and recreational activities. Unsightly abandoned vessels can also be a nuisance, attract vandals, and negatively impact tourism. ADVs can present many financial impacts:

- **Marinas lose revenue when an abandoned boat occupies or damages a rentable slip.**
- **Marina owners, property owners, communities, or governments bear the expenses (in time and dollars) when they follow the process of obtaining the title for an ADV in order to legally remove it.**
- **Law enforcement and the United States Coast Guard (USCG), may be obligated to conduct costly search and rescue operations at taxpayers' expense for persons assumed to be missing when reports of ADVs are received.**

Virginia Coastal Zone Management Program

Clean Virginia Waterways Of Longwood University

Abandoned boats can be found almost anywhere—at marinas, in tidal marshes, in backwaters, and along shorelines of Virginia's waterways. Photo by Billy Gibbs.

www.deq.virginia.gov/coasts/marine-debris

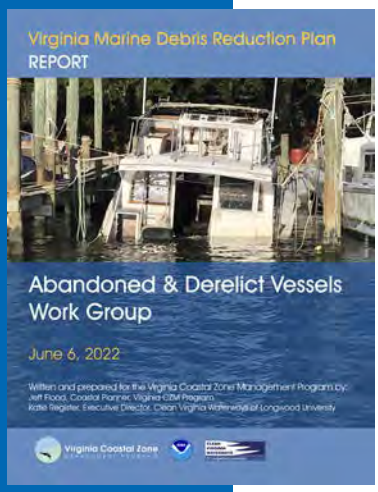
- **Destruction of, or damage to infrastructure, living shorelines, oyster reefs, aquaculture (fish or shellfish farming) gear, etc. can be caused from unmoored boats, or sunken boats that move during storms.**

From January 2021 to May 2022, the Virginia Abandoned and Derelict Vessels (ADV) Work Group, formed by the Virginia Coastal Zone Management (CZM) Program and Clean Virginia Waterways (CVW), examined the issues surrounding ADVs in Virginia, focusing on solutions that have been attempted or implemented in other states. The work group had the following overarching goal:

Creation of a comprehensive, sustainable, and robust Virginia ADV Prevention and Removal Program.

Abandoned vessel off Cedar Island. Photo by Katie Register, Clean Virginia Waterways.

About the Virginia Abandoned and Derelict Vessels Work Group



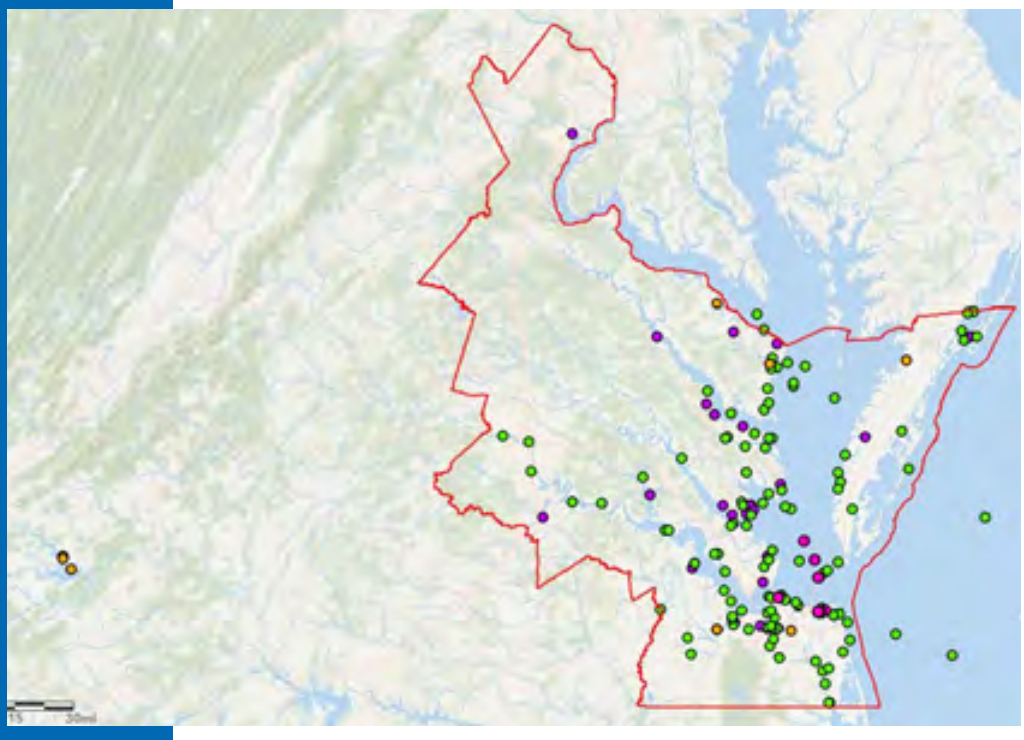
Creation of the ADV Work Group was recommended in the *2021-2025 Virginia Marine Debris Reduction Plan* (VMDRP) and the group is now led by Virginia CZM and CVW. The work group includes government agencies (Federal, state and local), Virginia Tribes, nonprofit organizations, academia, marina managers, towers, regional planning bodies, environmental non-governmental organizations, and members of the boating community. CVW and Virginia CZM authored a report including the Virginia ADV Work Group research and policy recommendations (*downloadable from Virginia CZM and CVW websites - see page 4*). Concurrent with the work of the group, the Virginia Coastal Policy Center (VCPC) at the College of William & Mary's Law School researched and published a policy paper, *Abandoned and Derelict Vessels in the Commonwealth: How to Improve Virginia's ADV Program*. This thorough legal and policy analysis provided advice to Virginia's decision-makers, government officials, and non-profit and business leaders on this complex issue.

Definitions

Virginia law defines "abandoned watercraft" as a watercraft that is left unattended on private property for more than ten (10) days without the consent of the property's owner, regardless of whether it was brought onto the private property with the consent of the owner or person in control of the private property (§ 29.1-733.2). It is unlawful in Virginia for an owner to allow a vessel to be in a state of abandonment and in danger of sinking, or in such disrepair as to constitute a hazard or obstruction to the use of a waterway as any vessel in significant disrepair that may pose a threat to the public or the environment (§ 28.2-1210(B)).

Best Practices

Virginia CZM and CVW staff researched the laws, programs, and funding associated with ADVs from nine other states to inform discussions by the ADV Work Group. Virginia CZM and CVW also solicited input from others concerned with the burden of ADVs including private waterfront property owners, local governments (including local wetlands board staff), law enforcement agencies, Tribes, and two universities.



Preliminary map of ADVs in Virginia. ADVs reported by the USCG are shown as green dots, those reported by the Virginia Marine Resources Commission are purple dots, and those reported by the Virginia CZM/CVW survey are orange dots. Dots may include more than one vessel. Note the inclusion of ADVs reported in Smith Mountain Lake, well outside Virginia's Coastal Zone (red line), but nevertheless an important region in the statewide effort to address ADVs.

Current Processes for Removal of ADVs - Stakeholder Feedback

Because ADVs are typically personal property, that property cannot be taken (by a government, marina, or others) without following strict steps, designed to protect citizens' property rights. The current process, outlined in a document by the Virginia Department of Wildlife Resources (DWR), can be time consuming, expensive, and frustrating to those who want to remove an ADV. There are also concerns about the liability associated with temporarily taking ownership of the ADV during the removal and disposal process. By far, the main concern expressed to Virginia CZM and CVW was the question of fairness – if a landowner (or marina manager) awakens to find an abandoned boat on their property, the entire burden for finding the lawful owner, and the expense of removal (if the boat's owner cannot be located or held accountable), falls to the hapless landowner. CVW and Virginia CZM heard over and over that the current process to remove an ADV places an unfair burden on property owners and marina owners. Stakeholders mentioned the need for a state-funded program that would a) make proper disposal of older boats more affordable and less burdensome for boat owners, and b) cover the costs of removal of ADVs in cases where the owner is unknown or unable to remove the vessel.

Existing Authority and Funding

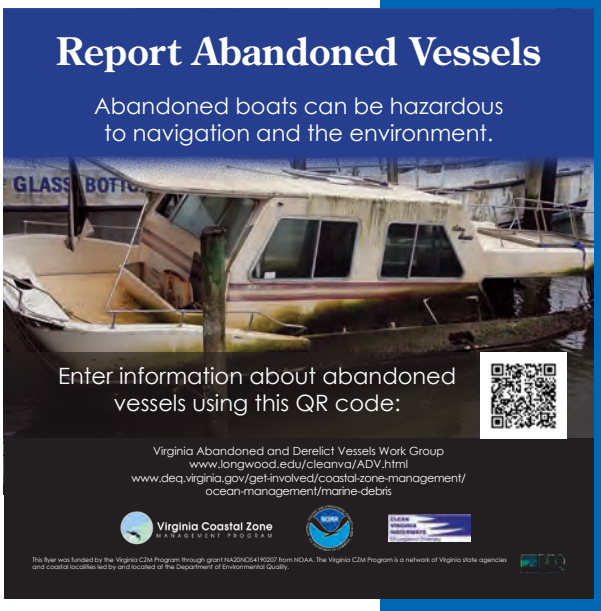
Virginia's current approach to addressing the increasingly prevalent issue of ADVs splits responsibilities between DWR and the Virginia Marine Resources Commission (VMRC); relevant statutes are in multiple chapters and sections of the Code of Virginia. There is currently no funding directly allocated to addressing ADVs at the state level. Furthermore, existing funding dedicated to DWR or VMRC is earmarked to support critical agency operations, including personnel.

Inventory

Based on researching other states' ADV programs, Virginia CZM and CVW staff started an inventory of ADV locations, status, and last known owner information to assist in the process of prioritizing vessels for removal. The nascent inventory, built on information from USCG Sector Virginia, VMRC, marinas, and boaters has approximately 200 ADVs as of June 2022.

Fiberglass Reuse Options

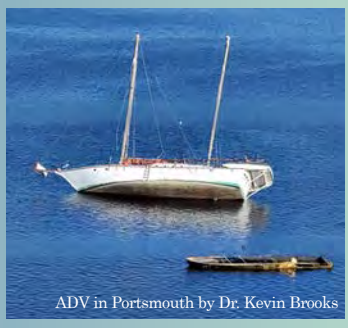
First generation fiberglass boats from the 1970s through the 1990s are at the end of their usefulness and are expensive to dispose of; some owners abandon or sink their boats to avoid the disposal expenses. The usual end-of-life disposal for old fiberglass boats in Virginia is to be chopped up, crushed, or shredded and taken to landfills where they will persist. The ADV Work Group is exploring a possible collaboration to use old fiberglass hulls as an alternative energy source for fueling cement plant kilns.



Flyer for ADV Inventory - distributed in April 2022 by members of the ADV Work Group, including USCG Sector Virginia, the U.S. Army Corps of Engineers (USACE) Norfolk District, and marinas across the state.

Resources Required for a Virginia ADV Program

A comprehensive, sustainable, and robust Virginia ADV Prevention and Removal Program will require staff to document vessel locations, track ownership, prioritize removal and disposal, and manage contracts for ADV removal and disposal. Additional resources will be needed to identify at-risk vessels, explore options for fiberglass hull reuses, create a Vessel Turn-in Program, and educate boat owners on their responsibilities to dispose of their older vessels.


ADV in Portsmouth by Dr. Kevin Brooks

Legislative Recommendations

Recognizing that the ADV problem is complex, the ADV work group focused mainly on recreational boats that have been abandoned in waterways. To address the ADV issue in Virginia, the following recommendations were made:

- In Year 1 (2023-2024) the Virginia General Assembly should allocate approximately $3 million of state FY2023 General Funds to the Virginia Marine Resources Commission's (VMRC) existing Marine Habitat and Waterways Improvement Fund (WIF) to physically remove up to 100 high-priority ADVs and fund 1-2 new full-time VMRC staff and/or Virginia Marine Police officers for the new Virginia ADV Removal and Prevention Program.
- In Year 1 (2023-2024) the General Assembly should authorize the creation of an ADV Stakeholder Advisory Council (ADVSAC) to advise the creation and implementation of the Program.
- In Year 2 (2024-2025) the General Assembly should again allocate approximately $3 million of General Funds to VMRC's WIF for continued ADV removal and Program staffing. The ADVSAC should be tasked with Program evaluation, creating a formal process to guide ADV removals, including a possible cost-benefit analysis. The ADVSAC should also review solutions to issues posed by liability during ADV removal as well as evaluate the feasibility of a Vessel Turn-in Program.
- In Year 3 (2026) and beyond the General Assembly should continue to allocate General Funds (TBD) to VMRC's Waterway Improvement Fund to support ADV removal and Program staffing. Given the anticipated progress made in Years 1 and 2, the ADV work group anticipates a streamlined program with sustainable funding and technical expertise to function self-sufficiently (with minimal work group assistance) and be able to examine the challenges and possible solutions to:
  - Abandoned commercial vessels
  - Vessels that are derelict, but not (yet) abandoned
  - Vessels that are abandoned on land, for example in parking lots
  - Vessel material salvage and reuse processes


ADV in Smith Mountain Lake by Neil Sturman


ADV in Stafford by Gary Jacobs


ADV in Virginia Beach by Jim Deppe

Resources

The following documents can be downloaded from www.deq.virginia.gov/coasts/marine-debris or www.longwood.edu/cleanva/ADV.html:

- Full ADV Work Group Report - Flood, J., and Register, K. 2022. Report from the Virginia Abandoned and Derelict Vessels Work Group. Prepared for the Virginia Coastal Zone Management Program
- 2021-2025 Virginia Marine Debris Reduction Plan
- VCPC's Policy White Paper - Abandoned and Derelict Vessels in the Commonwealth: How to Improve Virginia's ADV Program

Virginia ADV Work Group web page: www.longwood.edu/cleanva/ADV.html
CVW's YouTube Channel: www.youtube.com/c/CleanVirginiaWaterwaysofLongwoodUniversity
ADV Inventory Reporting Form: https://tinyurl.com/ReportADV

Funding to support the creation of the ADV Work Group was provided by the Virginia CZM Program to Clean Virginia Waterways through grants FY20, Task 94.04 and FY21, Task 93 from the National Oceanic and Atmospheric Administration's Office for Coastal Management, under the Coastal Zone Management Act of 1972. *June 2022*

Virginia Coastal Zone Management Program

CLEAN VIRGINIA WATERWAYS Of Longwood University

NOAA

Appendix E: Stormwater and Litter Workshop—Agenda and attendees

Stormwater + Plastic Pollution Webinar

December 7, 2022

Agenda

The Webinar was recorded, and is on CVW's YouTube Channel

The webinar addressed urban trash pollution and strategies employed to intercept a piece of trash before it becomes part of stormwater runoff and is conveyed to and through the storm sewer system.

- **International Trash Trap Network: an overview of trash trap options and considerations** by Hannah De Frond of the University of Toronto and the International Trash Trap Network

- **Engaging High Schools & Community Partners to Reduce Single-use Plastic Water Bottle Use** by Dr. Cindy Smith of George Mason University

- **Virginia's Litter Tax: Comparing it with other states and localities** by Zach Huntington of Clean Virginia Waterways

This FREE webinar was possible thanks to the donors and sponsors of Clean Virginia Waterways as well as a grant from the Virginia Coastal Zone Management Program.

Attendees

In alphabetical order by organization

	Attendees	Organization
1	Lily Whitesell	Arlington County
2	Morgan Shrewsbury	Augusta County
3	Matt Webb	Brown and Caldwell
4	Gabby Troutman	Chesapeake Bay Foundation
5	Lisa Renee Jennings	Chesapeake Bay Foundation
6	Becky Greenwald	Chesapeake Environmental Improvement Council
7	Ryan Casson	Chesterfield Stormwater
8	Barbara Brumbaugh	City of Chesapeake
9	Cody Cash	City of Irving
10	Chris Walther	City of Lynchburg
11	Erin Hawkins	City of Lynchburg
12	Morgan Brazeau	City of Lynchburg

13	Jasmine Ferrell	City of Mesquite
14	Erica Deyesu	City of Newport News
15	Tracy Stroinski	City of Newport News
16	C.W. Gaskill Jr.	City of Norfolk
17	June Whitehurst	City of Norfolk
18	Sarah Sterzing	City of Norfolk
19	Adriana Guzman	City of Virginia Beach
20	Keith Jenkins	City of Warrenton
21	Eleanor Kluegel	Clean Fairfax
22	Jen Cole	Clean Fairfax
23	Alexi Sanchez de Boado	Clean Streams LLC
24	Katie Register	Clean Virginia Waterways
25	Caroline Meehan	Community Provider Association
26	Kristi Lieske	Delware Government
27	Tim O'Hara	Dispatches From the Forest
28	Robin Dunbar	Elizabeth River Project
29	Elly Boehmer Wilson	Environment Virginia
30	Ferry Akbar Buchanan	EPA
31	Liz Ottinger	EPA
32	Annie de la Torre	Fairfax County
33	Carly Aubrey	Fairfax County
34	Kelly Atkinson	Fairfax County
35	Melissa Pennett	Fairfax County
36	Wendy Biliter	Fairfax County Public Schools
37	Emily Burton	Fairfax County Stormwater
38	Philip Latasa	Friends of Accotink Creek
39	Alyssa Accardo	George Mason University
40	Brenda Claudio	George Mason University
41	C'Faison Harris	Hampton
42	Debbie Blanton	Hampton Clean City Commission
43	Stacey Sovick	Henrico County
44	Tonya Bryant	ICF International
45	Tom Sprehe	Independent Engineer
46	Hannah De Frond	International Trash Trap Network
47	Rikke Jepsen	Interstate Commission on the Potomac River Basin
48	Steve Jackson	Isle of Wright
49	Cassie Cordova	James City County
50	Daphne Cole	James River Association

51	Scott Conley	Jefferson Lab
52	Fleta Jackson	Keep Norfolk Beautiful
53	Amanda Brown	Keep Prince William Beautiful
54	Karen Maldonado	Keep Texas Beautiful
55	Karen Forget	Lynhaven River Now
56	Kelly Garner	Mariners Musem
57	Donna Morrow	Maryland DNR
58	Eric Ruder	National Institute of Health
59	Allison Watts	Newport News
60	Mason Haggard	Newport News
61	Christy Kehoe	NOAA
62	Allie Wagner	NVRC
63	Rebecca Murphy	NVRC
64	Sarah Weller (Kollar)	Ocean Conservancy
65	Truett Sparkman	Ocean Conservancy
66	Brooke Schaab	Old Dominion University
67	Fred Dobbs	Old Dominion University
68	Kathleen Michels	One Montgomery Green
69	Rebekah Cazares	Plan RVA
70	Sarah Stewart	Plan RVA
71	Billy Goodson	Port of Virginia
72	Serena Moncion	Potomac River Keeper
73	Antonio (Tony) Marquez	Prince William County
74	Jess McCaulley	Prince William Soil and Water Conservation District
75	Sonnie Cuffey I I	Prince William Soil and Water Conservation District
76	Kansualism Berk Kansuah	Protect Environment Africa
77	Ben Rhoades	Reston Association
78	Deborah Streicker	Richmond Hill Community
79	Margaret Porter-Daniel	Richmond Public Schools
80	Alina Herron	Roanoke County
81	Beth Lewis	Southampton County
82	Jamie Durden	Suffolk County
83	sue tait	Tag EMEA
84	Mike Farr	Town of Herndon
85	Jessica Wood	University of Virginia
86	Stephen Castiglioni	US Green Building Council
87	Krystal Ayotte	US Navy
88	April Bahen	VA DEQ

89	Courtney Hayler	VA DEQ
90	Jeff Selengut	VA DEQ
91	John McCutcheon	VA DEQ
92	Robert Hill	VA DEQ
93	Sharon Baxter	VA DEQ
94	Virginia Witmer	VA DEQ
95	Jane Walker	VA Water Resources Center
96	Linda Fernandez	VCU
97	Rick Galliher	Virginia Bottle Bill Association
98	Jeff Flood	Virginia CZM
99	Tanya Wisoker	Virginia DCR
100	Tom Griffin	Virginia Green Travel
101	Mara Walters	Virginia Institute of Marine Science
102	Deanna Orr	Virginia Living Museum
103	Paige Wernig	Virginia Manufacturers Association
104	Ann Marie Mack-Schmidt	Virginia Master Naturalist
105	Camille Grabb	Virginia Master Naturalist
106	Christine Mason	Virginia Master Naturalist
107	Dori Rhodes	Virginia Master Naturalist
108	Hilary Sortor	Virginia Master Naturalist
109	Bill McCaleb	Virginia Tech
110	Cameron Braswell	Virginia Tech
111	Liz Sharp	Virginia Tech
112	Carol Rowlett	Virginia Western Community College
113	Wyatt Felt	VPI Tech
114	Audrey Rozger	Woodbridge Township New Jersey
115	Samantha McNeil	York County
116	Beverly Holmberg	
117	Bill Hafker	
118	Brian Hires	
119	Carmen Todd	
120	Diane and Paul Davidson	
121	Donna Reese	
122	Glenda Kotchish	
123	Holley Kilcullen	
124	James Dean	
125	Kathy Cornell	
126	Kimberly Sasser	
127	Lenora Kroll	

128	Mady Tobias
129	Ed Tobias
130	Meg Clute
131	Robert K. Dean
132	Roselle Clark
133	Sandee Bailey
134	Scott Kearby
135	Steve Spence
136	Thomas R McKee
137	Wendy Cohen

Appendix F: 2022 Virginia Marine Debris Summit agenda and registration list.

2022 Virginia Marine Debris Summit

Implementing Virginia's Marine Debris Reduction Plan: Tackling Plastic Ocean Pollution from Consumer Debris

September 27-28, 2022

Location: Virginia Aquarium & Marine Science Center in Virginia Beach

Sponsors:

- Virginia Coastal Zone Management Program
- Clean Virginia Waterways of Longwood University
- Virginia Aquarium & Marine Science Center

Funding support from:

- Virginia Coastal Zone Management Program through a grant from National Oceanic and Atmospheric Administration
- Freeman Family Foundation

AGENDA *as of 9/22/22*

Subject to change

Monday September 26, 2022

5:30 to 6:30 PM Tackling Plastic Pollution: An evening with plastic pollution experts

This presentation is FREE and open to the public!

Location: Virginia Aquarium & Marine Science Center, 717 General Booth Blvd., Virginia Beach, Virginia 23451

Tuesday September 27, 2022

8:30 am Coffee & light breakfast; registration in lobby of theater

9:15 am **Welcome**
Laura McKay, Virginia Coastal Zone Management Program
Cynthia Whitbred-Spanoulis, Virginia Aquarium President and CEO

Federal & State Perspectives on Consumer Debris
Nancy Wallace, NOAA Marine Debris Program
Travis Voyles, Acting Virginia Secretary of Natural & Historic Resources

2021-25 Virginia Marine Debris Reduction Plan: Accomplishments to Date
Laura McKay, Virginia Coastal Zone Management Program and
Katie Register, Clean Virginia Waterways of Longwood University

Consumer Debris Strategies: Prevention, Behavior Change, Education, Outreach
Moderator: Zach Huntington, Clean Virginia Waterways

- Behavior Change: Plastic Pollution Campaigns that Work.
  Kristina Gerken, Chief of Staff, Perpetual
- Using Community-Based Social Marketing to Prevent Balloon Litter
  Virginia Witmer, Virginia Coastal Zone Management Program
  Karen Burns, Virginia Aquarium
- Case Study: Trash Free DC: Curbside Disposal Education Campaign Pilot
  Layne Marshall, EPA Trash Free Waters
- Plastic Beverage Bottles & Beach Visitors: Encouraging Refills
  Avalon Bristow, Mid-Atlantic Regional Council on the Ocean
- Plastics in Society & the Environment: An interdisciplinary undergraduate course
  Rob Hale, PhD, Virginia Institute of Marine Science (co-author: Donna Bilkovic, PhD., Virginia Institute of Marine Science)
- The Field Guide to Unnatural Creatures (Kingdom Synthetica) in the James River
  Karen Aneiro, artist, photographer and graduate student of Falmouth University in the United Kingdom

12:00 **Lunch**

12:45 PM First group for Field Methods Tour to load on shuttle

1:00 to 2:45 pm
Field activities – outside the Aquarium.

Option 1: Tour of the new Aquarium South Building with its ocean plastics exhibits
Attendees are to walk about 10 minutes to the South Building

Option 2: Tour of the Stranding Center
Attendees are to carpool to the Center

Option 3: Field Methods for Monitoring Marine Debris
Attendees with use a shuttle to go to the oceanfront beach

2:45 pm All Attendees Return to Aquarium

3:00 pm Research: Broadening Our Understanding of Marine Debris from Consumer Items

Moderator: *Donna Bilkovic*, *Virginia Institute of Marine Science*

- Microplastics: Synergistic Interactions with Disease in Finfish
  - *Rob Hale, PhD, Professor, Virginia Institute of Marine Science*
- Microplastics from Consumer Debris in our Waste Water
  - *Ashley King, VIMS graduate student*
- Solutions Mitigating Microplastic Pollution at William & Mary
  - *Kaleea Korunka, W&M Undergraduate*
- Left Behind: Shade Tents, Umbrellas, Chairs & Toys on the Beach
  - *Katie Register, Clean Virginia Waterways*

4:20 pm Funding Sources for Marine Debris & Litter Prevention

- Environmental Protection Agency
  - *Layne Marshall,* EPA Trash Free Waters Program
- National Oceanic and Atmospheric Administration
  Katie Morgan, Mid-Atlantic Regional Coordinator, NOAA Marine Debris Program
- Keep Virginia Beautiful
  Cristi Lawton, Executive Director, Keep Virginia Beautiful

5:00 pm BREAK

5:30 pm RECEPTION -- This networking reception (with light snacks) will be on the Aquarium's dolphin watch boat (weather permitting). The boat will return around 7 PM.

7:00 pm Dinner on your own

Wednesday September 28, 2022

8:30 am Coffee, light breakfast and networking

9:15 am Welcome

Plastic Pollution & Public Policy
Moderator: Jeff Flood, Virginia CZM Program

What do Virginians Want? Survey of Virginia Voters: Findings from the 2022 CZM & CVW statewide survey.

- *Steve Raabe, OpinionWorks*

Policy, Management and Legislation

Update on Current laws

Moderator: *Karen Forget, Lynnhaven River Now and Virginia Conservation Network*

- Expanded Polystyrene Phase Out, Balloon Release Law
- Single-use Plastic Bags – overview of the legislation and Case Studies
    - Fairfax County: What a Difference a Fee Makes
        - Fairfax County Streams: Before and After Bag Fee Implementation
            - *Emily Foppe, Clean Fairfax*
        - Income from the Bag Fee: Putting it to Work
            - *Kate Daley, Fairfax County*
    - Fees on Single-use Shopping Bag: Is Your Community Next? Open discussion

Potential Legislation to Address Litter & Marine Debris

- *Elly Boehmer, State Director for Environment Virginia*
    - "Bring the Bottle Back" (bottle bills)
    - Extended Producer Responsibility (EPR)
- Litter Tax in Virginia: Right Sizing It
    - *Zach Huntington, Clean Virginia Waterways*

Pulling it all Together: Breakout Groups to Discuss Legislative & Policy Solutions

12:15 pm Lunch

Members of the Virginia Plastic Pollution Prevention Network are asked to sit together for face-to-face networking!

1:15 PM Proper Disposal, Interception, and Infrastructure

Moderator: Mark Swingle, VA Aquarium Foundation

Unique Partnerships for Litter Removal

Emily Burton, Fairfax County's Operation Stream Shield

The Big Picture: Local Waste Management Challenges

Debbie Spiliotopoulos, Solid Waste Program Planner, Northern Virginia Regional Commission

Overcoming Recycling Challenges: What is Happening to Curbside Recycling?

Jay Thompson, TFC Recycling

2:20 PM Open Mic! Share Your Ideas on Priorities, Hot Topics, Next Steps, Challenges and Opportunities

Hope for the Future– capstone remarks by *Kaleea Korunka, W&M Undergraduate*

3:00 Adjourn.

2022 Virginia Marine Debris Summit Attendees. Sept 27 & 28, 2022

#	Last Name	First Name	Organization affiliation
1	Andrews	Elizabeth	VA Coastal Policy Center, William & Mary Law School
2	Aneiro	Karen	Falmouth University, United Kingdom
3	Atkinson	Kelly	Piedmont SWCD
4	Ausink	Cris	Hampton Clean City Commission
5	Baxter	Daniel	Naturally Newport News
6	Benedict	Robin	James City County Resource and Protection Division
7	Bilkovic	Donna Marie	VIMS
8	Birge	Tiffany	Virginia Marine Resources Commission
9	Boehmer	Elly	Environment Virginia
10	Bristow	Avalon	Mid-Atlantic Regional Council on the Ocean
11	Buchanan	Julie	Central Virginia Waste Management Authority
12	Burns	Karen	Virginia Aquarium
13	Burton	Emily	Fairfax County Government
14	Cazares	Rebekah	PlanRVA
15	Chu	Jennifer	Keep Loudoun Beautiful
16	Cole	Jennifer	Clean Fairfax
17	Cordova	Cassie	James City County
18	Core	Lyndell	Arlington County Virginia Parks
19	Cullipher	Katie	HRPDC
20	Dennis	Audrey	Keep Suffolk Beautiful
21	Doan	Audrey	City of Norfolk Stormwater Management
22	Dobbs	Fred	Old Dominion University
23	Dunbar	Robin	Old Dominion University
24	Eastep	Rebekah	HRPDC
25	Eaton	Everett	Virginian-Pilot and Daily Press
26	Everitt	Deborah	Newport News Recycling
27	Fisher	Charlotte	Circular Triangle
28	Fleshman	Rico	Keep Prince William Beautiful
29	Flood	Jeff	Virginia Coastal Zone Management Program
30	Foppe	Emily	Clean Fairfax
31	Forget	Karen	Lynnhaven River NOW
32	Fuentecilla	Ken	Keep Loudoun Beautiful
33	Galliher	Rick	VA Bottle Bill
34	Gerken	Kristina	Perpetual

35	Griffin	Tom	Virginia Green Travel Alliance
36	Hale	Robert	VIMS
37	Harrington	Rachel	Nauticus
38	Hightower	Charles	Surfrider Virginia Chapter
39	Hobgood	Allie	Virginia Aquarium
40	Huntington	Zachary	Clean Virginia Waterways
41	Jackson	Fleta	Keep Norfolk Beautiful
42	Jones	Wayne	Suffolk Public Works
43	King	Ashley	Virginia Institute of Marine Science, William & Mary
44	Komenda	Sharon	Friends of Indian River
45	Korunka	Kaleea	William & Mary
46	Korunka	Kent	N/A
47	Kraus	Jessica	VA Coastal Policy Center, William & Mary Law School
48	Kuhns	Helen	Lynnhaven River Now
49	Lane	Mike	Suffolk Clean Community Commission
50	Lauer	Nancy	Duke University Environmental Law and Policy Clinic
51	Lawton	Cristi	Keep Virginia Beautiful
52	Layman II	Charles	VA Dept. of Health- Marina Program
53	Lieske	Kristi	DE DNREC, Coastal Programs
54	Mapp	George	Citizens for a Better Eastern Shore
55	Marshall	Layne	US Environmental Protection Agency
56	Martin	Faith	Keep Norfolk Beautiful
57	Mastyl	Susan	Citizens for a Better Eastern Shore
58	McCarthy	Catie	Henrico County DPW
59	McDonald	Daniel	Keep Suffolk Beautiful - SCCC
60	McKay	Laura	Virginia Coastal Zone Management Program
61	McMillan	Anita	Town of Vinton
62	Morgan	Katie	NOAA Marine Debris Program
63	Moshier	Kimberly	City of Newport News-Engineering
64	Neese	Michael	City of Winchester
65	Nowlin	Michelle	Duke Environmental Law and Policy Clinic
66	Nyfeler	Caroline	virginia commonwealth university
67	Oesterling	Michael	Shellfish Growers of Virginia
68	Plaster	Courtney	Executive Director of Clean Valley Council
69	Quinn	Meghann	VA DEQ
70	Raabe	Steven	OpinionWorks LLC
71	Register	Katie	Clean Virginia Waterways of Longwood Univ
72	Rines	Kristi	City of Virginia Beach

73	Robertson	Emily	Clean Virginia Waterways
74	Ross	Rogard	Friends of Indian River
75	Russell	Kathy	TFC Recycling
76	Salcedo-Bauza	Alexandra	City of Newport News-Engineering
77	Sanders	Hannah	US EPA - Region 3
78	Setaro	Catherine	Virginia League of Conservation Voters
79	Sorenson	Michele	Remedy Medical Legal
80	Spiliotopoulos	Debbie	Northern Virginia Regional Commission
81	Sterzing	Sarah	Keep Norfolk Beautiful
82	Stewart	Ainsley	Ocean Conservancy
83	Stout	Wendy	Virginia Tech
84	Swingle	Mark	Virginia Aquarium & Marine Science Center
85	Tangiri	Veronica	Prince William Soil and Water Conservation District
86	Thompson	Holly	PIRG
87	Trapani	Christina	Eco Maniac Company
88	Trice	Ned	Trinity Episcopal School
89	Walters	Mara	VIMS/William & Mary
90	Watson	Rebecca	Keep Virginia Beautiful
91	Watts	Allison	City of Newport News-Engineering
92	Whytlaw	Jennifer	Old Dominion University
93	Williams	Michelle	City of Norfolk Storm Water
94	Williams	Deana	Henrico County
95	Wisoker	Tanya	First Landing State Park
96	Witmer	Virginia	Virginia CZM Program
97	Worrall	Karen	Volunteer
98	Wright	Max	Virginia Aquarium
99	Wright	Bodina	City of Poquoson
100	Zeugner	Mary	Friends of Bryan Park
101	Zeugner	John	Friends of Bryan Park

Speakers via Zoom

zoom	Daley	Kate	Fairfax County
zoom	Wallace	Nancy	NOAA Marine Debris Program

Appendix G: Community-Based Social Marketing Workshop attendee list

	First Name	Last Name	Organization Name
1	Danielle	Algazi	US EPA Region 3
2	Karen	Aneiro	Falmouth University, Cornwall UK
3	Greg	Atkin	Maryland Coastal Bays Program
4	Mary Reid	Barrow	Lynnnhaven River NOW
5	Shahela	Begum	Wildlife Conservation Society
6	Summer	Benton	Chesterfield County Government
7	Devon	Blair	New Jersey Department of Environmental Protection
8	Emily	Bodsford	LRNow
9	Jeanne	Boisineau	City of Richmond Clean City Commission
10	Caitlyn	Borden	City of Norfolk, Virginia - Keep Norfolk Beautiful
11	Vince	Bowhers	LRNow
12	Davina	Bratcher	Fauquier County Environmental Services
13	Peter	Braun	Capital Region Land Conservancy
14	Morgan	Brazeau	City of Lynchburg - Water Resources
15	Megan	Brown	Keep Henrico Beautiful
16	Julie	Buchanan	Central Virginia Waste Management Authority
17	Karen	Burns	Virginia Aquarium
18	Celia	Cackowski	Virginia Institute of Marine Science
19	Lauren	Chapman	Surry County Government
20	Sarah	Chua	Chesterfield County Department of Community Enhancement
21	Prina	Chudasama	Virginia DEQ
22	Jen	Cole	Clean Fairfax
23	Sara	Coleman	Maryland DNR
24	Cassie	Cordova	James City County
25	Lyndell	Core	Arlington County Parks
26	Katie	Cullipher	Hampton Roads PDC
27	Renee	Dallman	James City County
28	Dominique	Denson	LRNow
29	Jim	Deppe	LRNow
30	Carol	Doss	Upper Tennessee River Roundtable
31	Cherrelle	Douglas	Virginia Department of Wildlife Resources
32	Nicole	Duimstra	Virginia Conservation Network
33	Robin	Dunbar	Elizabeth River Project
34	Jamie	Durden	City of Suffolk
35	Sarah	E Sterzing	Keep Norfolk Beautiful
36	Rebekah	Eastep	Hampton Roads Planning District Commission/askHRgreen.org
37	Amber	Ellis	James River Association
38	Meredith	Evans	Fauquier County Environmental Services
39	Deborah	Everitt	Newport News Recycling
40	Kathy	Fell	Plant Virginia Natives Campaign
41	Margaret	Fisher	Plant NOVA Natives/Plant NOVA Trees

42	Jeff	Flood	Virginia Coastal Zone Management Program
43	Charlie	Forbes	Fairfax County Solid Waste Management Program
44	Alan	Ford	Virginia Native Plant Society - Potowmack Chapter
45	Karen	Forget	Lynnhaven River NOW (LRNow)
46	Cassidy	Fredette-Roman	EPA (Trash Free Waters Program)
47	Shannon	Gaffey	Lord Fairfax Soil and Water Conservation District
48	Olivia	Garrett	West Piedmont Planning District Commission
49	Claudia	Godreau	Ocean Conservancy
50	Gilbrith	Gogel	PlanRVA
51	Cirse	Gonzalez	CBNERR-VA
52	Morgan	Goodman	Virginia DEQ - Office of Pollution Prevention
53	Terri	Gorman	LRNow
54	Sherry	Harding	Campbell County
55	Devon	Hathaway	Rivanna Conservation Alliance
56	Nancy	Heltman	Virginia State Parks
57	Nicole	Hersch	Plant SWVA Natives
58	Brian	Hess	City of Virginia Beach Parks & Recreation
59	Emily	Hinson	James River Association
60	Alexandria	Horan	NJ DEP - Climate Resilience Office
61	Zach	Huntington	Clean Virginia Waterways
62	Joanne	Hutton	Arlington Regional Master Naturalists
63	Will	Isenberg	Virginia Coastal Zone Management Program
64	Fleta	Jackson	Keep Norfolk Beautiful
65	Anna Maria	Johnson	Shenandoah Chapter, Virginia Native Society
66	Eric	Johnson	Caroline County
67	Wayne	Jones	Suffolk Public Works
68	Dwayne	Jones	Goochland County
69	Ann	Jurczyk	Chesapeake Bay Foundation
70	Meredith	Keppel	George Washington Regional Commission
71	Gabi	Kinney	Wetlands Watch
72	Eleanor	Kluegel	Clean Fairfax
73	Jess	Kraus	Virginia Coastal Policy Center
74	Helen	Kuhns	LRNow
75	John	Kuriawa	NOAA
76	Christopher	Labosier	Longwood University
77	Kat	Larkin	Mathews County Visitor & Information Center
78	Cristi	Lawton	Keep Virginia Beautiful
79	Tracey	Leverty	Keep Virginia Beautiful
80	Kristi	Lieske	Delaware Dept of Natural Resources, Environmental Control
81	Andreana	Lin	Virginia Conservation Network
82	Marc	Lucht	Clean Valley Council
83	Alexandra	Marstall	Fairfax County Park Authority
84	Faith	Martin	Keep Norfolk Beautiful

85	Lexy	McCarty	Virginia Institute of Marine Science Marine Advisory Program
86	Samantha	McNeil	York County Dept. of Public Works
87	Francis	McParland	New York State Department of Environmental Conservation
88	Sonia	Monson	Friends of the Occoquan
89	Katie	Morgan	NOAA Marine Debris Program
90	Kim	Moshier	City of Newport News
91	Charles	Mullins	Giles County
92	Lucresha	Murphy	City of Alexandria, VA
93	Michael	Neese	City of Winchester
94	Raya	Nickerson	Town of Dumfries
95	Brigid	Paciello	County of Powhatan Virginia
96	Rosana	Pedra Nobre	Hudson River Foundation
97	Melissa	Pennett	City of Fairfax
98	Courtney	Plaster	Clean Valley Council
99	Aaron	Proctor	VA Dept. of Environmental Quality
100	Julia	Raimondi	Virginia Department of Environmental Quality
101	Darby	Reed	Virginia Association of Soil & Water Conservation Districts
102	Katie	Register	Clean Virginia Waterways of Longwood University
103	Natasha	Roberts	LRNow
104	Rogard	Ross	Friends of Indian River
105	Hannah	Sanders	US EPA Region 3
106	Julie	Serino	Virginia Beach Parks and Recreation
107	Lisa	Shepard	Rockingham County, VA
108	Sharon	Silvey	Cape Charles Memorial Library
109	Lindsey	Slagle	Bristol TN/VA Chamber of Commerce
110	Sandi	Smith	Maryland Coastal Bays Program
111	Meghan	Sobbott	Thomas Jefferson Soil and Water Conservation District
112	Carleigh	Starkston	Friends of the Rappahannock
113	Jessica	Steelman	Accomack-Northampton Planning District Commission
114	Veronica	Tangiri	Prince William Soil and Water Conservation District
115	Julie	Tucei	Town of Vinton
116	Calvin	Vonada	Chesterfield County, VA
117	Beckey	Watson	Keep Virginia Beautiful, Inc.
118	Aaron	Wendt	VA Dept. of Conservation & Recreation
119	Michelle	Williams	City of Norfolk, Storm Water
120	Virginia	Witmer	Virginia Coastal Zone Management Program
121	Robyn	Woolsey	Colonial Soil and Water Conservation District
122	Max	Wright	Virginia Aquarium and Marine Science Center
123	Melissa	Yearick	Upper Susquehanna Coalition
124	Margaret	Zacharias	US EPA Region 3
125	Rowena	Zimmermann	Blue Ridge PRISM