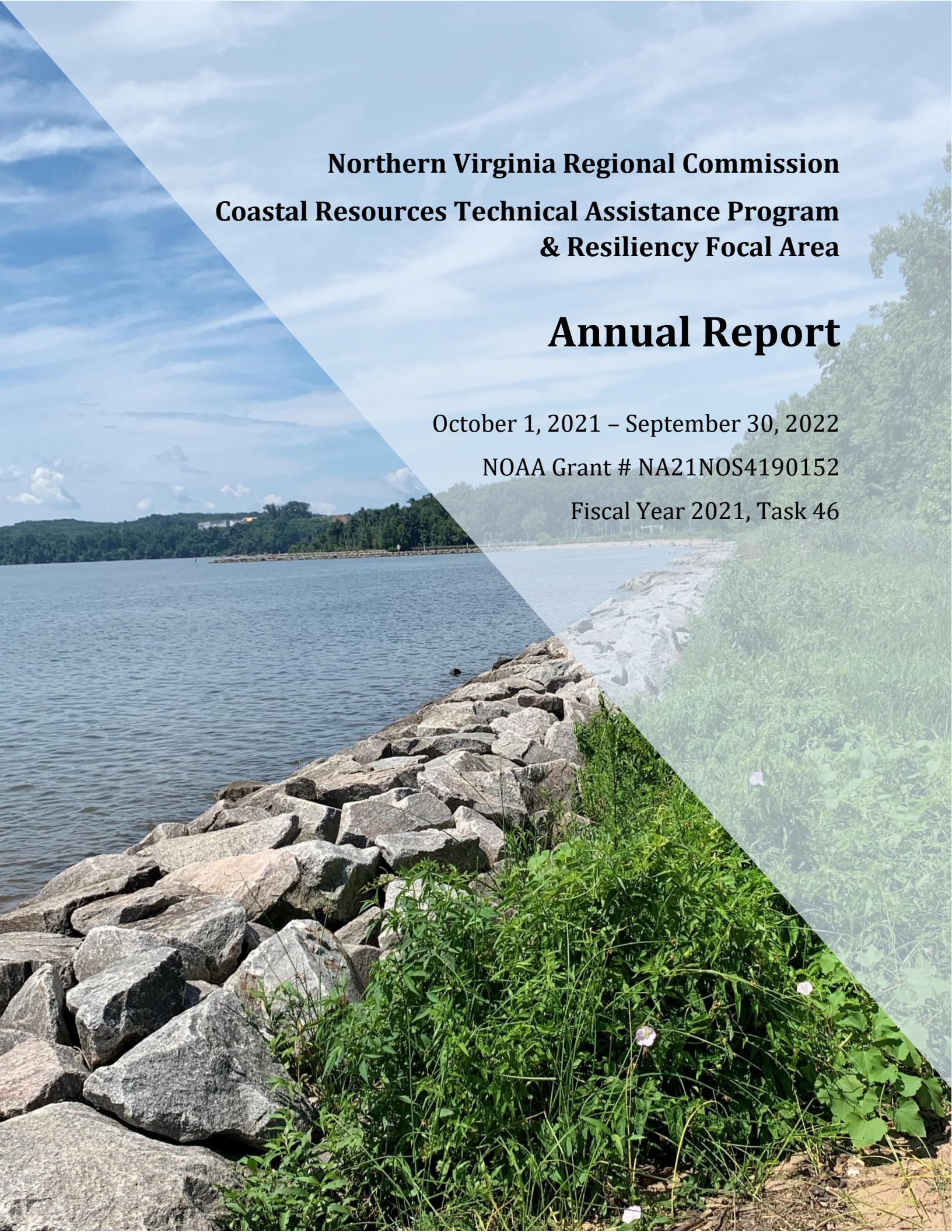

Northern Virginia Regional Commission

Coastal Resources Technical Assistance Program & Resiliency Focal Area

Annual Report

October 1, 2021 – September 30, 2022

NOAA Grant # NA21NOS4190152

Fiscal Year 2021, Task 46

In Grant Year 2021 (October 1, 2021 – September 30, 2022 for Task 46), the Northern Virginia Coastal Resources Technical Assistance Program was funded in part by the Virginia Coastal Zone Management Program at the Department of Environmental Quality, 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.

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Cover Photo: Leesylvania State Park Shoreline by Rebecca Murphy, NVRC

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Executive Summary

The Virginia Coastal Zone Management Program (Virginia CZM) Technical Assistance (TA) grant program and Focal Area strategies have allowed Northern Virginia Regional Commission (NVRC) to support and advance critical coastal resources management planning and projects in Northern Virginia since 1992. The Coastal Resources Management Program at NVRC includes coordination of regional programs that advance Virginia CZM's interests in coastal resource management, public outreach, education and training events, environmental impact and permit reviews, and other technical assistance activities around coastal issues and priorities relevant to Northern Virginia localities. This report describes NVRC's activities and outcomes from the FY21 TA grant program as well as Year 2 of CZM's FY20-22 Resiliency Focal Area strategy.

NVRC produced the following primary work products as a part of its FY21 programming:

FY21 TA Program:

Product #1: Annual Report – Northern Virginia Coastal Resources Technical Assistance Program Outcomes

Product #2: Regional Stormwater Education Campaign

Product #3: Benefits Accrued from Prior CZM Grants

Year 2 of Resiliency Focal Area:

Product #4: Resilience Planning

Introduction

Northern Virginia Regional Commission (NVRC)'s Coastal Resources Management Program has served to provide coordination of coastal resources planning and projects amongst local jurisdictions as well as state and federal entities for over twenty years. Primary objectives of NVRC's coastal program in Northern Virginia include; promote the sustainable use of coastal resources, provide technical assistance to local governments and non-governmental organizations on emerging issues facing the coast such as marine debris, water quality and coastal hazard planning; improve local capacity to protect, manage and restore coastal ecosystems; improve public access to the coast; and serve as a forum for information exchange, training, and coordination of planning among stakeholders in the region.

Through its partnership with the Virginia Coastal Zone Management Program (Virginia CZM), NVRC is able to advance a range of new and ongoing coastal resources management efforts through technical and planning assistance to Northern Virginia localities. In 2020, this work expanded to include Virginia CZM's 3-year Resiliency Focal Area strategy, in which NVRC has worked to build long-term capacity for community resilience through coordination of local resiliency planning and programming in Northern Virginia. For FY21, Virginia CZM awarded $34,500 to NVRC through its Technical Assistance (TA) grant program to continue its Coastal Resources Management Program as well as $30,000 as a part of the 3-year Resiliency Focal Area strategy between October 1, 2021 and September 30, 2022. This report provides outcomes of NVRC's activities for this grant period for both the TA program and Focal Area.

Technical Assistance Program

Product #1: Program Outcomes

Virginia CZM's TA program allows NVRC to serve as a technical resource for Northern Virginia localities on coastal resource management issues and activities, including education and outreach, local planning and projects, and regulatory processes. Specifically, through its education and outreach programming, NVRC provides several annual workshops and training events on topics of local and/or regional interest that promote relevant coastal-related projects, practices, and/or policies.

Through the program, NVRC serves as a member of the Virginia Coastal Policy Team (CPT) with semi-annual meetings and participates in quarterly coastal PDC meetings as well as regular meetings for the Coastal Virginia Shoreline Stakeholders Group (SSG), Resilient Fairfax Infrastructure Advisory Committee, Northern Virginia Urban Forestry Roundtable, Salt Management Strategy Workgroup, and Coastal VA Community Rating System (CRS) Workgroup. These meetings help NVRC to not only share relevant planning and practices from Northern Virginia, but also gain new information, tools, and best practices from other regions of the Commonwealth.

NVRC also reviews and responds to Environmental Assessment/Environmental Impact Review (EA/EIS) requests as a part of the intergovernmental review process. NVRC staff responded to three EA/EIS requests and participated in one NEPA process (I-495 Southside Express Lanes Study) over the fiscal year.

1.1 Meetings

NVRC coordinated, took part in, or provided general technical assistance for the following meetings in FY21:

Coastal PDC Meetings (Quarterly):

Date	Meeting Outcomes
1/26/22	Review of new TA Grant minimum standards and discussion of next steps for resilience programming, including the Virginia Coastal Resilience Master Plan (VCRMP), Resilience Project Database options, and applications for the Community Flood Preparedness Fund (CFPF).
5/31/22	Discussion of coastal resilience trends and ways to leverage state and federal funding for projects. The group also reviewed ways that the PDC's could become more self-sustaining with current funding available.
9/21/22	Review of the CZM Resilience Project Database and potential methods to input and track new and completed projects moving forward. The group also discussed NOAA's Section 312 Evaluation and Benefits Accrued Deliverables for the TA grant program.

Virginia CPT (Semi-Annual):

Date	Meeting Outcomes
1/26/22	Review of FY22 Grant Application and FY20-22 Resilience Focal Area, including ideas and updates on Year 3 deliverables, as well as FY22 IIJA funding opportunities and Section 309 strategies. The group also received a recap of the Coastal Partners Workshop and discussed planning for another event in the future.
9/14/22	Recap of CZM Program evaluation from NOAA and update on the VCRMP. The group also discussed potential FY23 – 25 Focal Area topics and reviewed FY21-25 Section 309 strategies.

Other Meetings:

Date	Group/Meeting
12/7/21	Clean Water Partners (Semi-Annual)
12/10/21	Resilient Fairfax Infrastructure Advisory Committee
2/1/22	Resilient Fairfax Infrastructure Advisory Committee
2/23/22	Salt Management Strategy Workgroup
3/15/22	Coastal Virginia Shoreline Stakeholders Group
3/32/22	Resilient Fairfax Infrastructure Advisory Committee
5/25/22	Coastal VA CRS Workgroup
7/21/22	Resilient Fairfax Infrastructure Advisory Committee
7/27/22	Coastal VA CRS Workgroup
9/1/22	Clean Water Partners
9/28/22	Fairfax Trees Community of Practice
9/28/22	Coastal VA CRS Workgroup

1.2 Training Events

NVRC held four virtual training events that focused on international collaborations, best practices, and strategies to advance resilience initiatives in Northern Virginia. Recordings and additional information for these events can be viewed on NVRC's website: https://www.novaregion.org/1537/Webinar-Series-2022. Please note that the November 3, 2021 webinar was unable to be recorded.

1.2.1 Prioritizing Local-Level Climate Resiliency Planning: Views from the Netherlands

11/3/21 | 97 Participants | Issue: (E) Coastal Dependent Uses and Community Development/Coastal Water Quality

A presentation on climate resilient planning at local and regional levels in the Netherlands. Topics included the development of climate resiliency plans that consider nature-based designs to restore and protect beaches as well as social inclusion and economic sustainability while realistically mitigating the threats from sea level rise and intense storm events. Post-presentation discussions focused on how to replicate this work in Northern Virginia.

1.2.2 Green Design and Planning of Data Centers: The Experiences of Frankfurt, Germany and Northern Virginia.

2/23/2022 | 101 Participants | (A) Government Coordination

A presentation on the advances made in Germany around eco-friendly design and architecture of data centers in cities such as Frankfurt. Post-presentation discussions focused on how to replicate this work in Northern Virginia.

1.2.3 Habitat Protection Strategies for Northern Virginia: Creative Innovations from Germany

3/2/2022 | 37 Participants | Issue: (C) Coastal Habitat/Marine Debris Stewardship

A presentation on how a small business entrepreneur in Germany works with the local community and government to rehabilitate habitats and increase biodiversity through practical, small-scale, and low-cost practices. Post-presentation discussions centered around ways to replicate this work in Northern Virginia.

1.2.4 Watershed Resiliency Planning: Lessons from the Danube

3/29/2022 | 44 Participants | Issue: (A) Government Coordination

A presentation on a holistic approach to managing the Danube River describing lessons on flood management, resiliency planning, and livability. A panel of Austrian and U.S. scientists, researchers, and local technical experts shared their work to promote climate-resilient planning and potential lessons to be exchanged between the two concerning climate resilience.

Product #2: Regional Stormwater Education Campaign (Special Project)

The Northern Virginia Clean Water Partners (NVCWP) is composed of a group of local governments, drinking water and sanitation authorities, schools, and businesses that share the common goals to keep Northern Virginia residents healthy and safe by reducing the amount of pollution from stormwater runoff that reaches local creeks and rivers, and empower individuals to take action to reduce pollution. Membership is voluntary and each partner makes an annual contribution to support the program. By working together, the Clean Water Partners are able to leverage their funds to develop and implement a range of bilingual education and outreach strategies throughout Northern Virginia. Since NVCWP was developed in 2003, over 20 partners now participate in the program and meet on a bi-annual basis to collaborate and advance new and ongoing pollution-reduction initiatives. Meetings during FY21 were held on 12/7/21 and 9/1/22.

As a part of their education and outreach strategies, the partners conduct an annual Regional Stormwater Education Campaign using a combination of social media, local engagement activities, television advertisements, printed materials, and the Only Rain website to distribute messaging

that aims to improve stormwater-related knowledge and behaviors. The annual campaign also helps to satisfy Municipal Separate Storm Sewer System (MS4) Phase I and Phase II permit requirements for stormwater education and documenting changes in behavior.

For the 2022 campaign year, the NVCWP identified several high priority pollution issues to address, including nutrients, illicit discharge, salt, and bacteria. Target audiences for these issues are comprised of pet owners, winter salt applicators, home mechanics, and residents with a lawn or garden. To build from previous campaign years, the partners also developed several new social marketing tools:

- A "Clean Water Pledge" on onlyrain.org for participants to adopt a new clean water behavior
- New “made for social media” psa’s for target audiences on Facebook and Twitter
- A quarterly e-newsletter
- A Facebook Group for people to interact and connect on reducing stormwater runoff

Since 2020, the Partners have utilized Facebook and Twitter to share campaign messaging and effectively target the audiences described above. During 2022 campaign, the Facebook page gained 120 new followers for a total of 403 followers. The page had 405 posts, 29,216 post engagements, and 12,740 post link clicks. The new Clean Water Partners Facebook Group also gained 53 members. The Twitter account gained 50 new followers and had 408 tweets, 1,051 tweet engagements, and 68 link clicks.

The campaign also continued to reach residents through a series of video advertisements that highlight different residential pollution reduction actions, including a new video that was produced in 2022 to illustrate the impacts of polluting on local waterways. Overall, the campaign aired two public service announcements (one in English and one in Spanish) on a combination of English and Spanish language networks for a total of 820,154 impressions, or views.

In addition to the Regional Stormwater Education Campaign, the Partners also conducted an annual online survey of 500 Northern Virginia residents to better understand changes in stormwater-related knowledge and behaviors over time. Results help the partners to assess their campaign's effectiveness and direct future education and outreach strategies. Questions for the 2022 survey focused on the campaign’s advertising effectiveness, residents' general watershed and stormwater knowledge, as well as their behaviors around relevant stormwater management and pollution issues, including pet waste, lawn and garden care, car fluids, and household hazardous waste.

In general, the results highlighted a growing awareness of the campaign in recent years through new advertising and engagement efforts, but also a need for more general education on the Chesapeake Bay watershed and how stormwater runoff ends up in its waterways. Please see Appendices for the annual summary and complete survey results for 2022. A full summary of the campaign and survey results can also be viewed on the Only Rain website: https://www.onlyrain.org/annual-summaries.

Product #3: Benefits Accrued from Prior CZM Grants

The Virginia CZM TA program has been critical to the development and success of several programs, partnerships, and projects for NVRC since 1992, including the Northern Virginia Clean Water Partners (NVCWP). Established in 2003, the NVCWP is composed of local jurisdictions, regional drinking water and sanitation authorities, schools, and businesses that work together to address regional stormwater pollution and source water protection issues through targeted education and outreach initiatives. The primary goals of the program include to:

- Identify high priority water quality issues for the region
- Identify target audience(s) for outreach
- Educate the region's residents on simple ways to reduce pollution around their homes
- Monitor changes in behavior through surveys and other data collection techniques
- Pilot new cost-effective opportunities for public outreach and education

With CZM TA funding, NVRC provides broad program coordination and administration involving the acquisition of leveraged funds from the Partners to conduct a Regional Stormwater Education Campaign. For over ten years, the campaign has utilized a range of communications through social media, television advertisements, local engagement activities, printed materials, and the Only Rain website to share relevant messaging for improved stormwater-related knowledge and behaviors. Each year, the Partners seek to incorporate new campaign strategies to ensure that they are most effectively reaching their target audiences, including updated social media platforms and messaging advertisements.

The Partners are also able to assess the effectiveness of the campaign through an annual knowledge and behavior survey of 500 Northern Virginia residents. Results from the survey help to direct future education and outreach efforts and track larger trends in stormwater-related actions over time. A summary of the 2022 survey and campaign, as well as reports from prior campaign years, can be viewed on the Partners' Only Rain Website: https://www.onlyrain.org/annual-summaries. Full results from the 2022 survey as well as the campaign summary are included in the Appendices.

Over 20 partners now participate in the program and meet on a semi-annual basis to collaborate on campaign development and ways to enhance their ongoing pollution-reduction efforts. The 2022 Stormwater Education Campaign continued to build off of prior years with a budget of $110,000 for key outreach and education activities. Notably, the Partners have been able to leverage $1,392,225 in funds for the program since 2007.

Resiliency Focal Area Outcomes

Product #4: Resilience Planning

Regional Coordination

NVRC staff have actively worked with regional stakeholders on resiliency-related planning and projects for over four years. CZM's three-year Resiliency Focal Area has further allowed NVRC to not only sustain its stakeholder network, but also expand its programming to identify and build new resilience initiatives throughout the region.

In 2021, NVRC formally established the NOVA Flood Mitigation and Resilience Workgroup as a way for stakeholders to collaborate on and prioritize resilience strategies relating to flooding and associated hazards for the region. See below for topics and outcomes from the workgroup's meetings over the past year:

Date	Flood Mitigation and Resiliency Workgroup Meeting Outcomes
10/19/21	The City of Alexandria presented on the Flood Mitigation Pilot Grant Program and the group discussed potential Community Flood Preparedness Fund applications, including funding for a regional rain gauge network.
12/17/21	Presentation from Verisk on the company's resources for the Community Rating System (CRS). The City of Alexandria highlighted their Flood Mitigation Vendor Fair, and the group discussed a general unified outreach approach around resiliency initiatives moving forward.
4/19/22	Presentations included Prince William County's flood mitigation efforts and upcoming FEMA grant opportunities. The workgroup reviewed the Chesapeake Bay Preservation Act guidance on climate change resilience and adaptation criteria and discussed radio/internet ads for FEMA Region 3's targeted flood insurance marketing campaign.
6/6/22	Presentations focused on Phase 2 of the VCRMP and Hampton Roads Planning District Commission's Resilient Stormwater Design Standards. Other discussion topics included the Community Flood Preparedness Fund, messaging for flood outreach, an upcoming statewide hydrology study, and work to standardize and expand Virginia's flood gauge network.
8/8/22	Presentations focused on flood mitigation work in the Town of Leesburg, Virginia Department of Transportation's new resiliency program, and Wetlands Watch on the CRS and Risk Rating 2.0.

Virginia Coastal Resilience Master Plan Development

In 2018, Governor Northam directed The Chief Resilience Officer, with the assistance of the Special Assistant to the Governor for Coastal Adaptation and Protection, to create and implement the Virginia Coastal Resilience Master Plan (VCRMP) for coastal Virginia to reduce the impacts of tidal and storm surge flooding. Phase 1 of the VCRMP was published in December 2021 with a second phase expected to be complete by the end of 2024. With funding from the Resiliency Focal Area, NVRC staff has contributed the VCRMP process through participation in the Technical Advisory Committee (TAC) as well as Community Outreach and Project Identification Subcommittees. In FY21, NVRC took part in the following meetings as a part of the process:

Date	**Meeting Type**
10/7/21	TAC Meeting
11/19/21	TAC Meeting
9/16/22	TAC Meeting

NVRC also sought to keep regional stakeholders informed throughout the VCRMP process. To share relevant information and progress, Virginia Department of Conservation and Recreation presented the final Phase 1 document and website to the Commission on 2/24/22 and the NOVA Flood Mitigation and Resiliency Workgroup on 6/6/2022.

Identification of Local Needs

NVRC regularly coordinates with local jurisdictions to identify and advance major priorities relating to resiliency planning and programming, including critical infrastructure, data and mapping needs, and local capacity. As a formal framework to assess resiliency-related challenges, best practices, and priorities, NVRC developed the Flood Mitigation and Resilience Workgroup in 2021 with participation from a range of local stormwater engineers, public works staff, outreach and education staff, and planners. State-level stakeholders and members from other PDC's have also engaged with the workgroup to share important information and resources with localities. As such, the workgroup has provided the foundation for NVRC and local stakeholders to collaboratively determine and address the complex range of resilience needs within Northern Virginia.

NVRC has held quarterly workgroup meetings to provide the space for identification and prioritization of potential projects as well as discussion on various topics and issues for project development, such as funding opportunities and potential partnerships at the local, state, and federal levels. Since the workgroup began meeting in October 2021, key project topics have included a regional rain gauge network, modeling for climate projects and design storms, and expanded flood hazard outreach activities.

Appendices

Appendix A: Annual Stormwater Survey Results

Northern Virginia Regional Commission 2022 Only Rain NVRC Survey

Summary Report of Findings

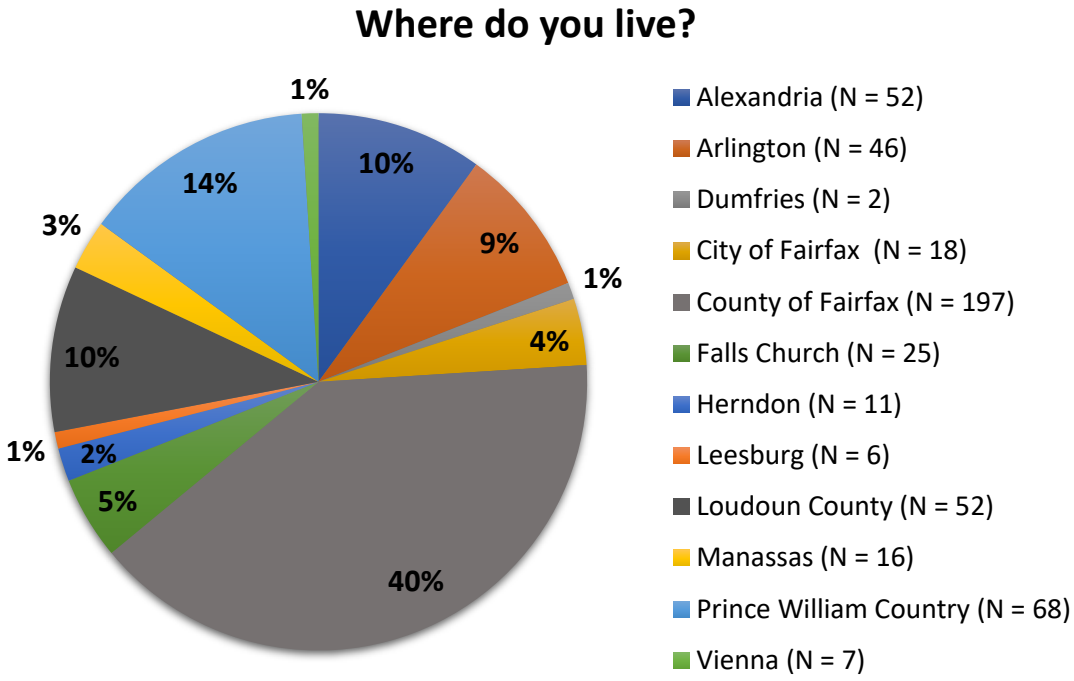
8/4/2022

Amplitude Research, Inc.

Study Methodology & Respondent Characteristics

The Northern Virginia Regional Commission (NVRC) hired Amplitude Research, Inc. to conduct a survey of residents of northern Virginia to measure beliefs and attitudes related to pollution of the Potomac River and Chesapeake Bay.

Amplitude Research administered the study online in late July of 2022. In the end, 500 surveys were completed by web panelists who live in one of the areas of Virginia shown in the chart below. (In the legend, "N =" indicates the number of respondents in each city, county, or town.)



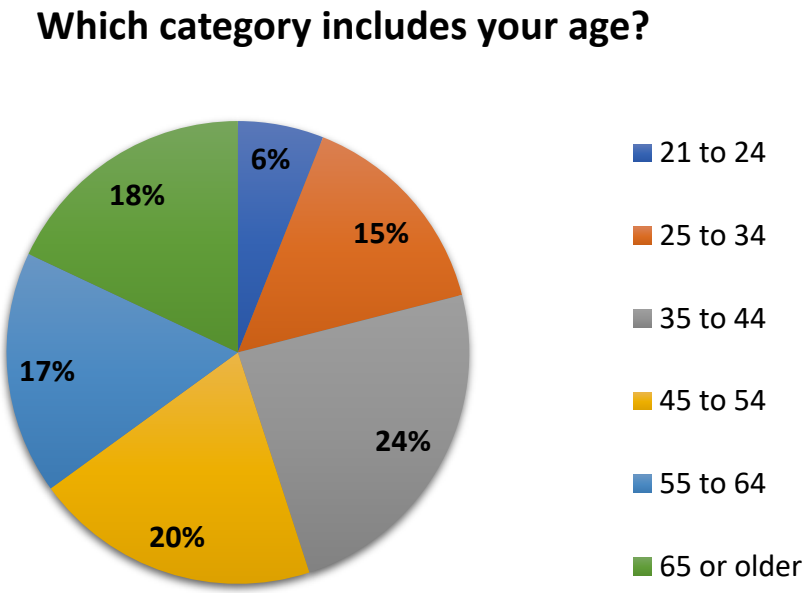
Later in this report, the results for some of the questions are "broken out" by area, in addition to presenting the results for the total sample. However, the specific areas listed above were grouped together into larger areas so that each larger area used for analysis had a reasonable number of respondents.

Residents from Leesburg and Loudoun County were combined into a single category labeled "**Leesburg / Loudoun**," since the town of Leesburg lies within Loudoun County. The City of Fairfax, Falls Church, Herndon, and Vienna were combined with Fairfax County to create the category "**Fairfax Inclusive**," since these cities and towns lie within the Fairfax County area. Although the City of Fairfax and City of Falls Church are distinct areas, their location falls within the larger area circumscribed by Fairfax County. Prince William County was added in 2021 (while Stafford County was removed). Given the proximity of Dumfries, Manassas, and

Manassas Park, these were combined with Prince William County to get the category "**Prince William Inclusive**."

Alexandria and **Arlington** each had a sufficient number of respondents so that each of these areas can be examined separately.

The minimum age to participate in the survey was 21. As shown in the chart below, each age group was well represented in the survey. Although a small proportion were age 21 to 24, this category has fewer years than the other categories shown. For analysis purposes later in this report, the categories "21 to 24" and "25 to 34" were combined into the broader category of "21 to 34."

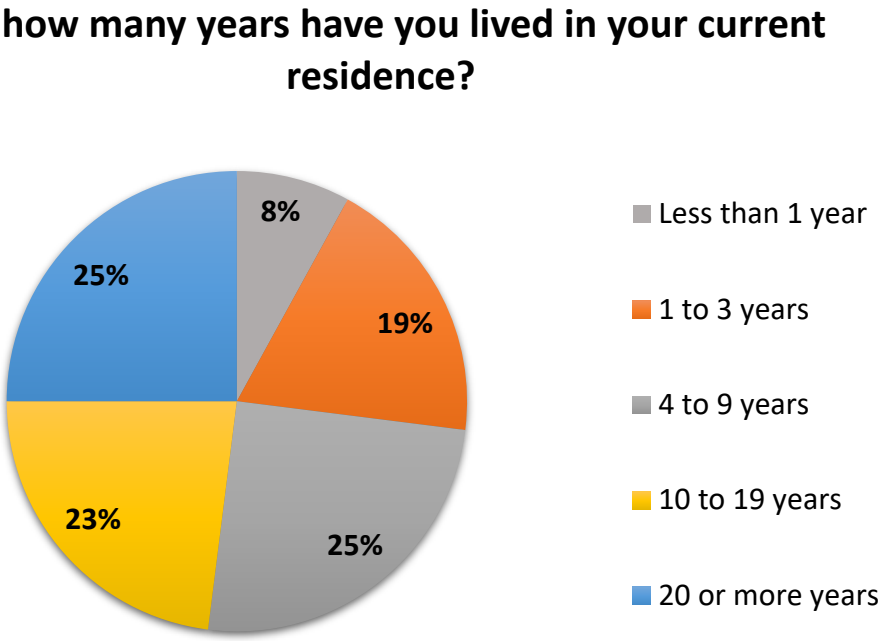


The survey respondents were split between males (49%) and females (51%), while slightly more than three-fourths (78%) indicated that they own their residence, and 22% reported renting.

The chart on the next page shows how long respondents have lived in their current residence.

A survey was conducted in each year between 2011 and 2021 that included many of the same or similar questions, targeted a similar geographic area (except the addition of Prince William County and removal of Stafford County in 2021), and had a similar demographic mix as in this 2022 study. Later in this report, comparisons between years are shown where appropriate. Initially, the title used for the study was "NVRC Resident Survey." Starting in 2013, the study title was changed to "Only Rain NVRC Survey," since a new question was added about awareness of the "Only Rain" logo. A number of new questions were added to the 2018 survey and were kept in future surveys. For this reason, many parts of this report have comparisons between just 2018 through 2022.

Although some questions have been asked for 12 years (i.e., 2011 through 2022), results in this report are shown for a maximum of 10 years for better readability. Having more than ten years in a chart can get cumbersome for the reader, as the bars and number font size get too small.



Sampling Variability

While examining the survey findings, it is helpful to keep in mind that the results are based on a sample and are therefore subject to sampling variability, often referred to as "sampling error." The degree of uncertainty for an estimate (e.g., a particular percentage from the survey) arising from sampling variability is represented through the use of a margin of error. A sampling margin of error at the "95% confidence level" can be interpreted as providing a 95% probability that the interval created by the estimate plus and minus the margin of error contains the true value. (The "true" value would be known only if everyone in the target market was surveyed rather than just a sample.) In addition to sampling variability, results may be subject to various sources of non-sampling error (e.g., non-response bias, respondent misinterpretation of question wording, etc.). The degree of non-sampling error is not represented by the sampling margin of error and is usually unknown.

For a "sample size" of 500 survey respondents, the "maximum" margin of sampling error for percentages from the survey is +/- 4.4 percentage points at the 95% confidence level. Here, "maximum" refers to the margin of error being highest for proportions from the survey near 50%, while the margin of error declines as percentages get further from 50%. For example, given the same sample size of 500 respondents, a result from the survey near 10% or 90% would have a margin of sampling error of +/- 2.6 percentage points.

The margin of sampling error increases as the sample size decreases. Thus, when a question is asked of only a subset of the total sample, the associated margin of sampling error is larger than that quoted above. Also, even if a question is asked of all respondents, when examining results for a particular subgroup, the margin of sampling error depends on the number of respondents in that subgroup. For example, the "maximum" margin of sampling error would be +/- 9.8 percentage points at the "95% confidence level" when based on a subgroup of 100 survey respondents. In some parts of this report, results are shown for subgroups that include a fairly small number of respondents, and caution is recommended when thinking about these findings.

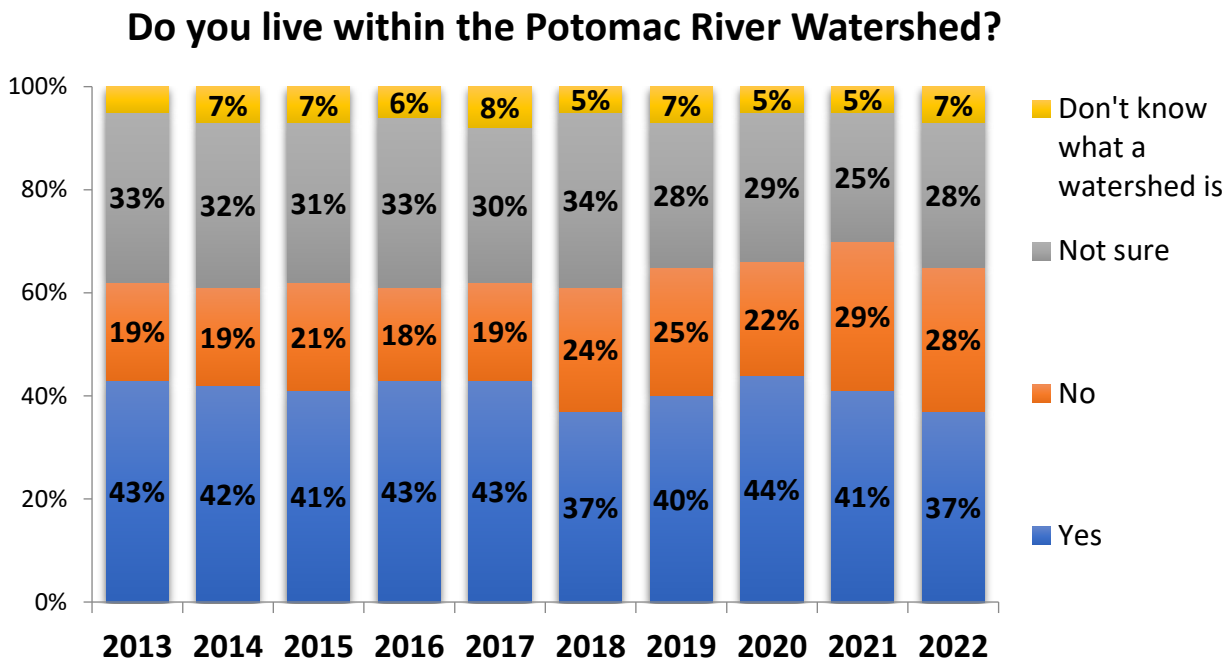
This suggests that results for different subgroups can be considered "similar" when the differences are small (i.e., small enough to be within the range of sampling error).

Results from different years can be considered similar when differences between the years are small. If the difference between two years is referred to as "statistically significant," this essentially means that the difference in the survey results is large enough to be highly confident (i.e., at the "95% confidence level") that there has been a real change. That is, a "statistically significant" difference in the survey results from one year to the next is larger than what would usually be expected from sampling error alone.

In this report, when a result from 2022 is described as "significantly" higher (or lower) than the result from a previous year, this means that the difference between these years is "statistically significant." Also, when one subgroup is described as "more likely" (or "less likely") than another subgroup to answer in a particular way, this is based on a statistically significant difference.

Potomac River Watershed

- Early in the survey, respondents were asked if they lived within the "Potomac River Watershed." As shown in the chart below, less than four-in-ten (37%) in 2022 believed that they did in fact live within the Potomac River Watershed. This 2022 result was significantly lower than in 2020 (44%), but it wasn't significantly different from other years.



- When breaking the results out by area, as shown in the table below, the proportion answering "Yes" was significantly higher in Alexandria (48%), compared to Fairfax Inclusive (33%), but other differences in the proportion "Yes" were not statistically significant.

Live Within Potomac River Watershed	**Alexandria**	**Arlington**	**Fairfax Inclusive**	**Leesburg / Loudoun**	**Prince William Inclusive**
Yes	48%	35%	33%	35%	42%
No	29%	32%	31%	22%	22%
Not sure	12%	22%	31%	33%	28%
Don't know what a watershed is	11%	11%	5%	10%	8%
N = number of respondents	*52*	*46*	*258*	*58*	*86*

- As shown in the next table, the proportion believing that they live within the Potomac River Watershed increased with the time lived in their current residence.

Live Within Potomac River Watershed	**Have Lived in Current Residence**			
	< 4 Years	**4 to 9 Years**	**10 to 19 Years**	**20 or More Years**
Yes	26%	36%	38%	47%
No	32%	34%	23%	25%
Not sure	33%	23%	31%	24%
Don't know what a watershed is	9%	7%	8%	4%
N = number of respondents	*132*	*125*	*117*	*126*

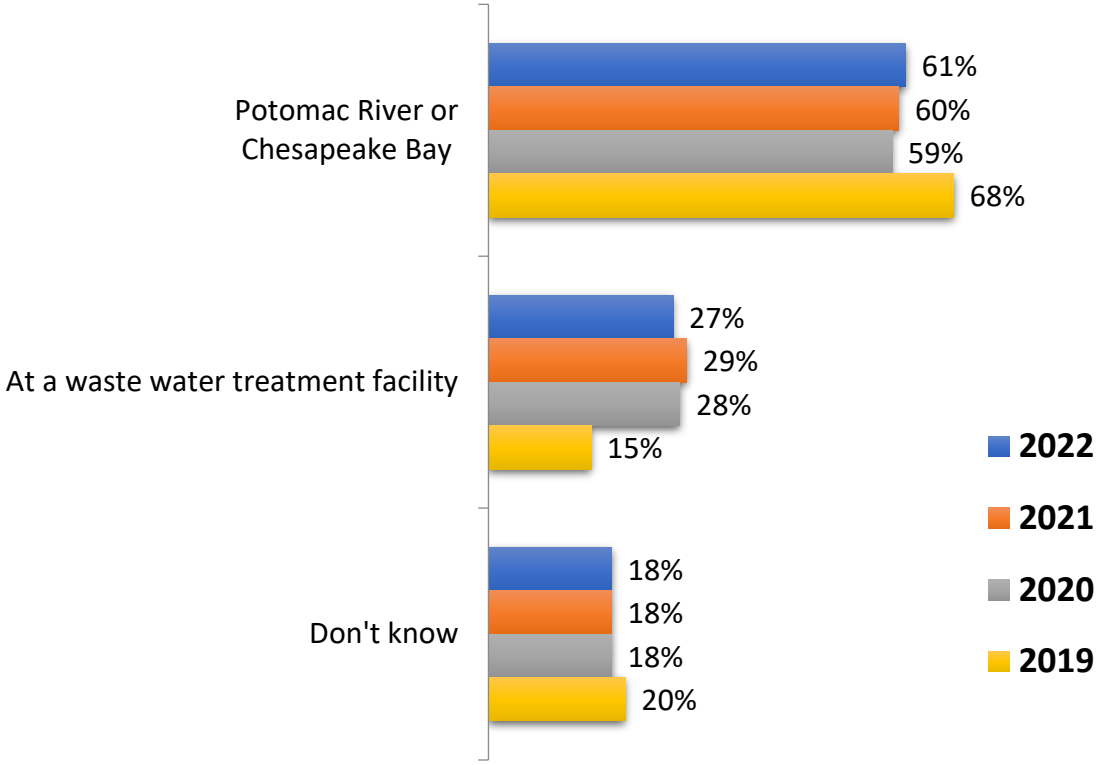
- The proportion believing that they live within the Potomac River Watershed was significantly higher among those age 65 or older.

Live Within Potomac River Watershed	**Age**				
	21 to 34	**35 to 44**	**45 to 54**	**55 to 64**	**65 +**
Yes	33%	35%	30%	36%	50%
No	34%	35%	28%	28%	14%
Not sure	24%	24%	32%	32%	28%
Don't know what a watershed is	9%	6%	10%	4%	8%
N = number of respondents	*104*	*118*	*102*	*84*	*92*

- When examining the results by other subgroups, males were more likely than females, and homeowners were more likely than renters to believe that they live within the Potomac River Watershed.

Live Within Potomac River Watershed	**Male**	**Female**	**Homeowners**	**Renters**	**Hispanic Respondents**
Yes	44%	29%	39%	26%	29%
No	30%	27%	26%	38%	39%
Not sure	22%	34%	29%	23%	25%
Don't know what a watershed is	4%	10%	6%	13%	7%
N = number of respondents	*245*	*255*	*389*	*111*	*41*

"Storm water" runoff is rain or other water that flows into the street, along the gutter and into the storm drain. To the best of your knowledge, where do you believe storm water eventually ends up?



- More than half (61%) in 2022, similar to 2021 (60%), felt that storm water runoff eventually ends up in the Potomac River or Chesapeake Bay. The results are shown for four years only because of a change to the questionnaire in 2019.

- Results by various subgroups are shown on the next page. For example, the proportion selecting Potomac River or Chesapeake Bay was significantly higher among respondents living in the Fairfax Inclusive area (65%), compared to Prince William Inclusive (50%).

Believed Destination of Storm Water	**Alexandria**	**Arlington**	**Fairfax Inclusive**	**Leesburg / Loudoun**	**Prince William Inclusive**
Potomac River or Chesapeake Bay	62%	65%	65%	57%	50%
At a wastewater treatment facility	40%	28%	22%	26%	31%
Don't know	13%	13%	18%	17%	26%
N = number of respondents	*52*	*46*	*258*	*58*	*86*

Believed Destination of Storm Water	**Have Lived in Current Residence**			
	< 4 Years	**4 to 9 Years**	**10 to 19 Years**	**20 or More Years**
Potomac River or Chesapeake Bay	61%	54%	71%	60%
At a waste water treatment facility	26%	34%	22%	25%
Don't know	20%	22%	12%	19%
N = number of respondents	*132*	*125*	*117*	*126*

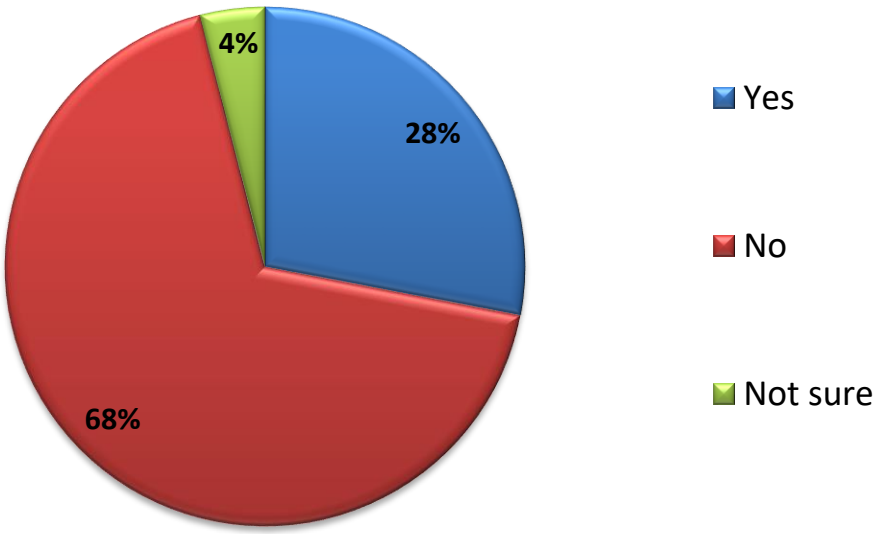
Believed Destination of Storm Water	**Age**				
	21 to 34	**35 to 44**	**45 to 54**	**55 to 64**	**65 +**
Potomac River or Chesapeake Bay	63%	58%	55%	68%	63%
At a wastewater treatment facility	30%	36%	30%	18%	15%
Don't know	14%	18%	22%	15%	22%
N = number of respondents	*104*	*118*	*102*	*84*	*92*

Believed Destination of Storm Water	**Male**	**Female**	**Homeowners**	**Renters**	**Hispanic**
Potomac River or Chesapeake Bay	64%	58%	61%	63%	59%
At a wastewater treatment facility	32%	22%	29%	19%	32%
Don't know	12%	24%	17%	23%	22%
N = number of respondents	*245*	*255*	*389*	*111*	*41*

Advertising / Information About Reducing Water Pollution

- In 2020, a new video of an advertisement featuring "rubber duckies" was presented in the survey, and respondents were asked if they had seen it on TV. The same video was shown again in the 2021 and 2022 surveys. As shown below, 28% recalled the video in 2022. This can be compared to 29% in 2021 and 22% in 2020 (not shown in chart). The 2022 and 2021 results were significantly higher than in 2020.
-

Please watch the video below. Before this survey, had you seen this ad, or a similar one on TV, Facebook, or Twitter about reducing water pollution?



- The proportion recalling the ad by area ranged from 25% to 38%. As shown on the next page, males were more likely than females to recall the ad.

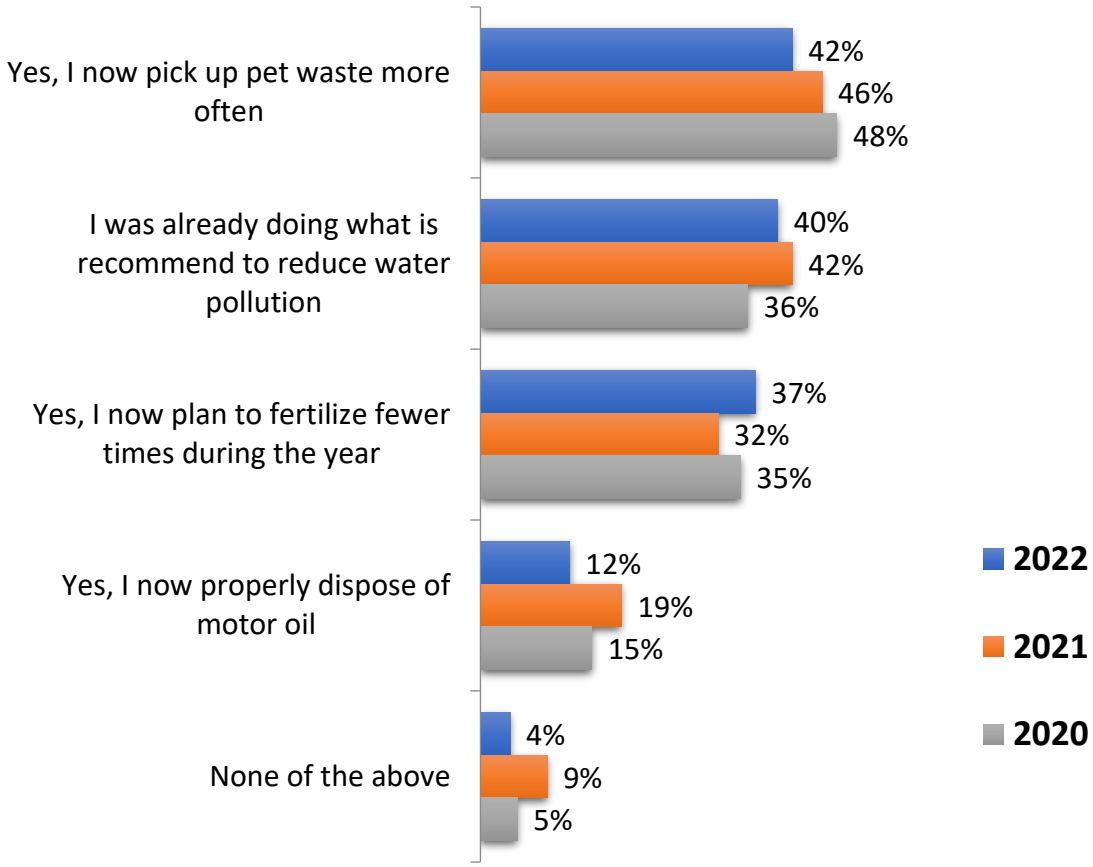
Saw TV Ads on Reducing Water Pollution	**Alexandria**	**Arlington**	**Fairfax Inclusive**	**Leesburg / Loudoun**	**Prince William Inclusive**
Yes	38%	30%	25%	29%	27%
No	56%	63%	71%	66%	70%
Not sure	6%	7%	4%	5%	3%
N = number of respondents	*52*	*46*	*258*	*58*	*86*

Saw TV Ads on Reducing Water Pollution	Have Lived in Current Residence			
	< 4 Years	4 to 9 Years	10 to 19 Years	20 or More Years
Yes	23%	25%	34%	30%
No	74%	70%	62%	66%
Not sure	3%	5%	4%	4%
N = number of respondents	*132*	*125*	*117*	*126*

Saw TV Ads on Reducing Water Pollution	Age				
	21 to 34	35 to 44	45 to 54	55 to 64	65 +
Yes	37%	36%	23%	19%	20%
No	61%	57%	69%	80%	78%
Not sure	2%	7%	8%	1%	2%
N = number of respondents	*104*	*118*	*102*	*84*	*92*

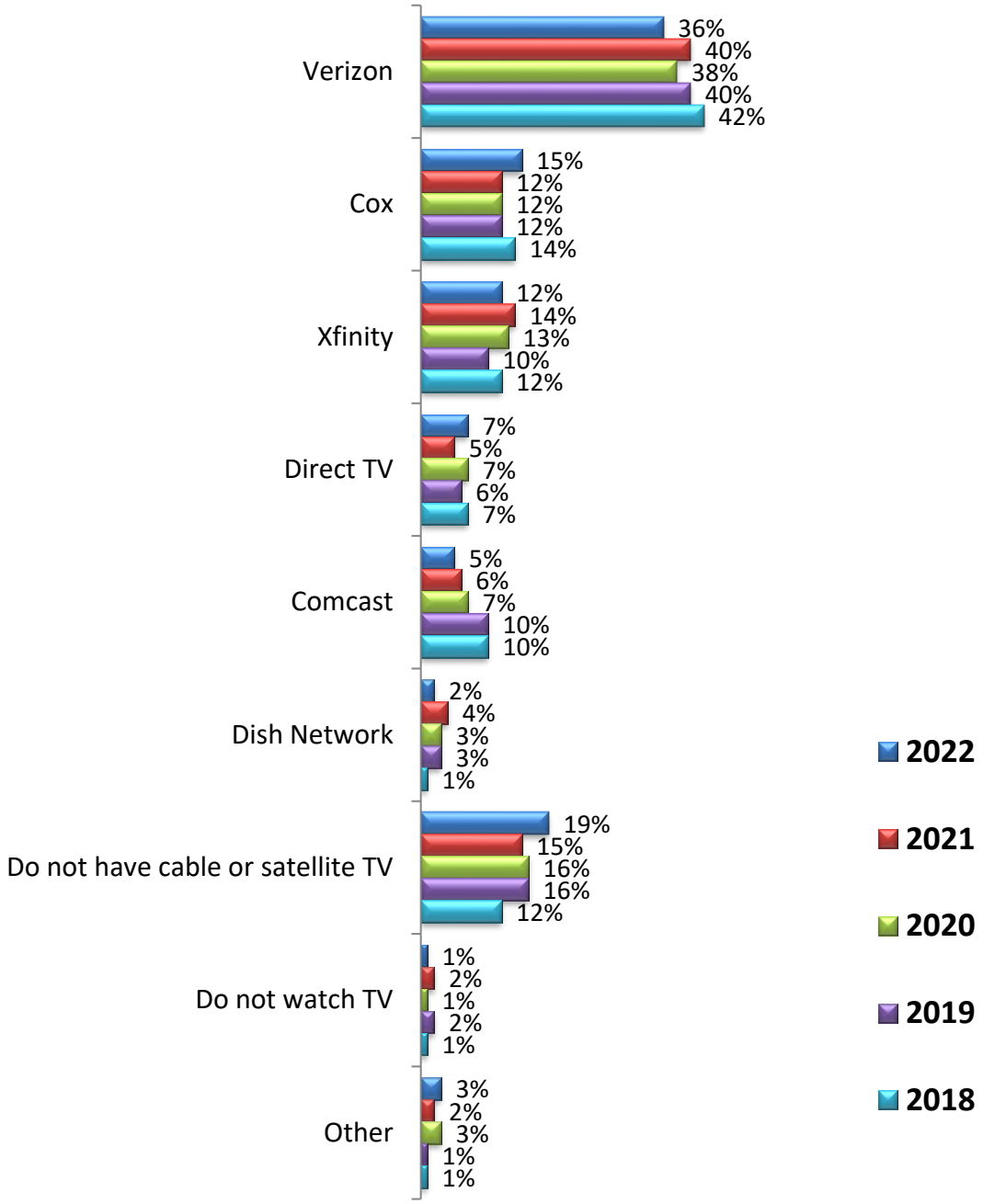
Saw TV Ads on Reducing Water Pollution	Male	Female	Homeowners	Renters	Hispanic Respondents
Yes	34%	22%	29%	22%	32%
No	61%	75%	66%	75%	63%
Not sure	5%	3%	5%	3%	5%
N = number of respondents	*245*	*255*	*389*	*111*	*41*

Did seeing the ad(s) about reducing water pollution make you change any of your behaviors related to fertilizing less often and/or reducing water pollution?



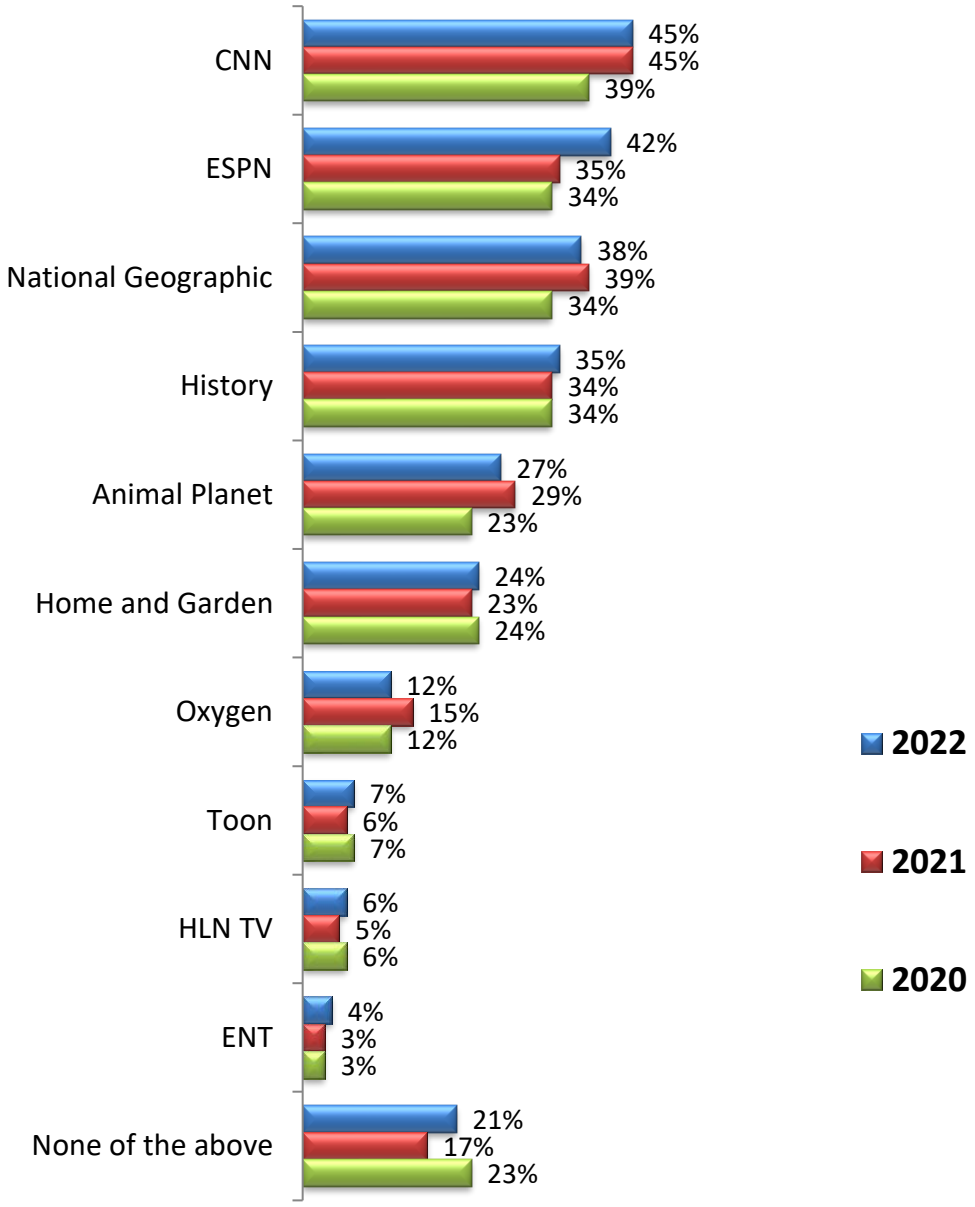
- Those who recalled the advertising where asked the question above, and noticeable proportions reported changing their behavior related to pet waste and fertilizing less often.

What TV service provider do you use?



- Verizon was selected most often (by 36% in 2022) as their TV service provider.
- One reason for asking the question above was to determine if recall of the advertising differed by TV provider. Based on a separate analysis (not shown in chart), when looking at the providers with at least 30 respondents using the provider, the proportion recalling the ad was 63% among DirectTV users, 37% among Cox users, 32% among Xfinity users, and 27% among Verizon users.

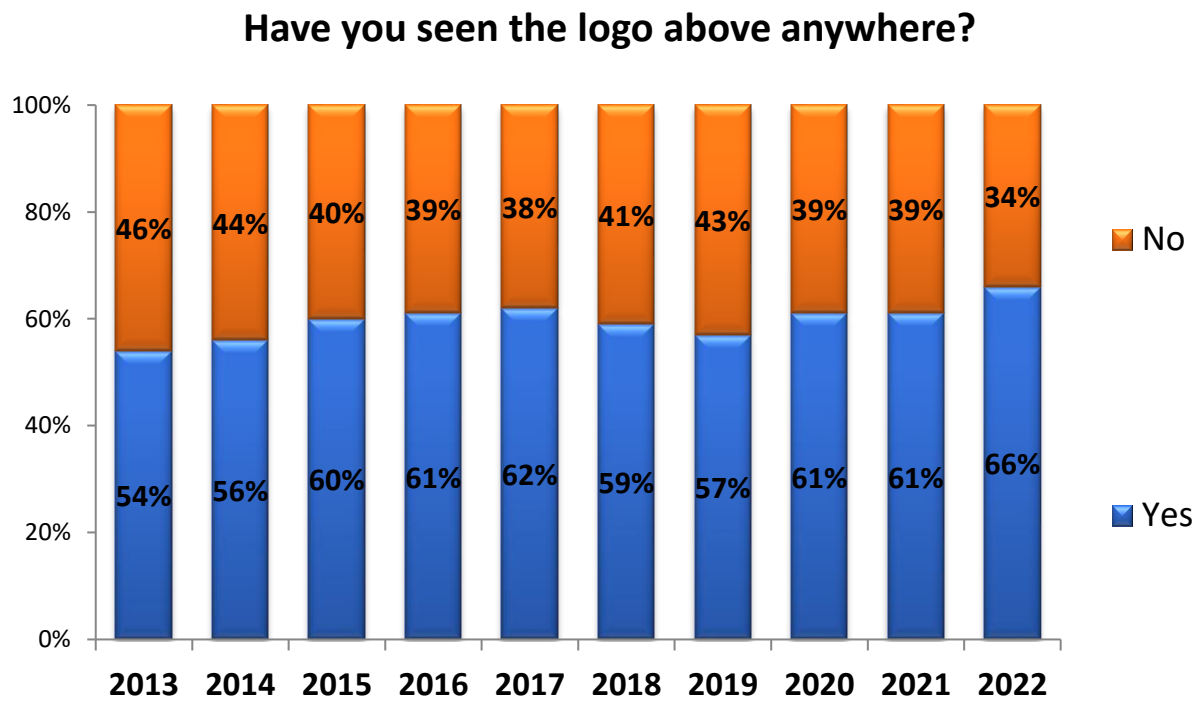
Which of the following channels, if any, do you watch?



- Of the channels covered in the survey, CNN had the highest proportion reporting that they watch the channel in 2022 (45%), followed by ESPN (42%).

- One reason for including the question above was to determine if recall of the advertising differed by channels watched. Based on a separate analysis (not shown in chart), viewers of the following channels (which had at least 30 respondents watching the channel) were significantly more likely than others to recall the advertising that was shown in the survey: Oxygen (45% of viewers recalled the ad), National Geographic (38%), and Animal Planet (37%). In contrast, among those who did not watch any of the channels above, only 11% recalled the ad.

- The logo below was shown to all respondents regardless of whether they had seen advertising or not, and more than half of the total sample recognized the logo each year since 2013. The 2022 result (66%) was the highest so far and significantly higher than previous years that had 60% or less.



- Awareness was significantly lower in the Prince William Inclusive area. At the same time, males were more likely than females to recall the logo.

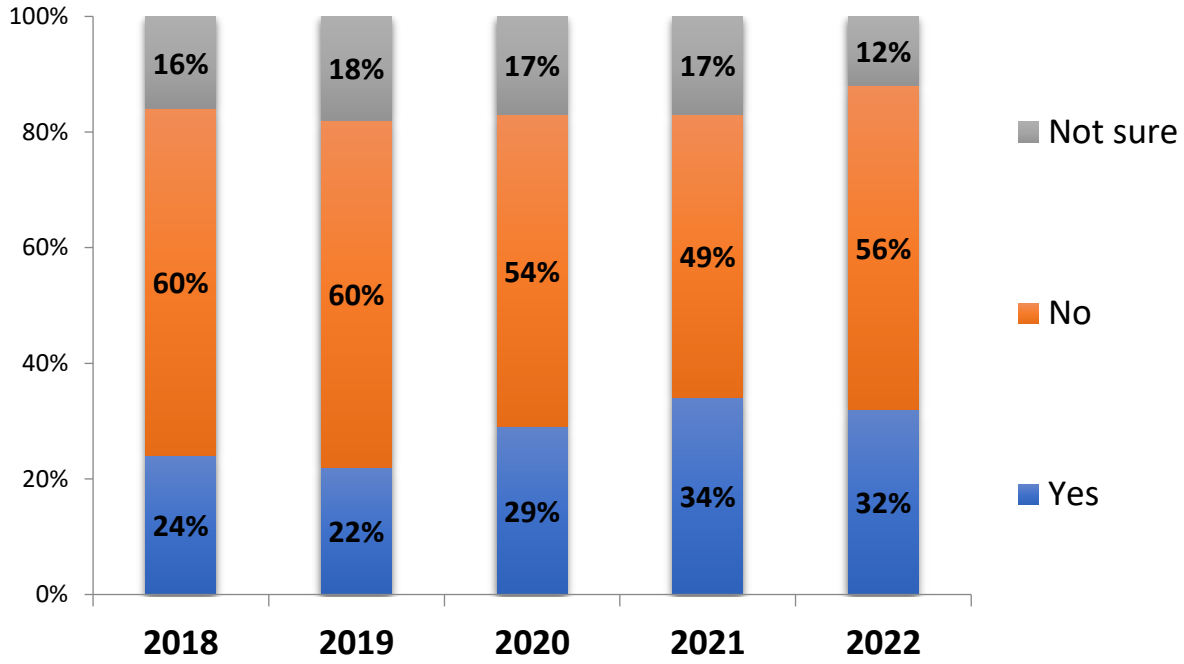
Have Seen Logo	Alexandria	Arlington	Fairfax Inclusive	Leesburg / Loudoun	Prince William Inclusive
Yes	73%	80%	68%	62%	49%
No	27%	20%	32%	38%	51%
N = number of respondents	*52*	*46*	*258*	*58*	*86*

Have Seen Logo	Have Lived in Current Residence < 4 Years	4 to 9 Years	10 to 19 Years	20 or More Years
Yes	65%	69%	74%	56%
No	35%	31%	26%	44%
N = number of respondents	*132*	*125*	*117*	*126*

Have Seen Logo	Age 21 to 34	35 to 44	45 to 54	55 to 64	65 +
Yes	68%	75%	70%	57%	55%
No	32%	25%	30%	43%	45%
N = number of respondents	*104*	*118*	*102*	*84*	*92*

Have Seen Logo	Male	Female	Homeowners	Renters	Hispanic Respondents
Yes	71%	61%	67%	62%	63%
No	29%	39%	33%	38%	37%
N = number of respondents	*245*	*255*	*389*	*111*	*41*

Regardless of whether you have seen that specific ad or logo, have you seen or received information about reducing water pollution from any source in the past 12 months?



- Slightly less than one-third (32%) in 2022 reported that they have seen or received information about reducing water pollution in the past 12 months.
- The proportion who received this information was significantly higher in Alexandria, compared to the Prince William Inclusive area.

Received Info. About Reducing Water Pollution	**Alexandria**	**Arlington**	**Fairfax Inclusive**	**Leesburg / Loudoun**	**Prince William Inclusive**
Yes	44%	30%	31%	31%	25%
No	50%	57%	55%	57%	63%
Not sure	6%	13%	14%	12%	12%
N = number of respondents	*52*	*46*	*258*	*58*	*86*

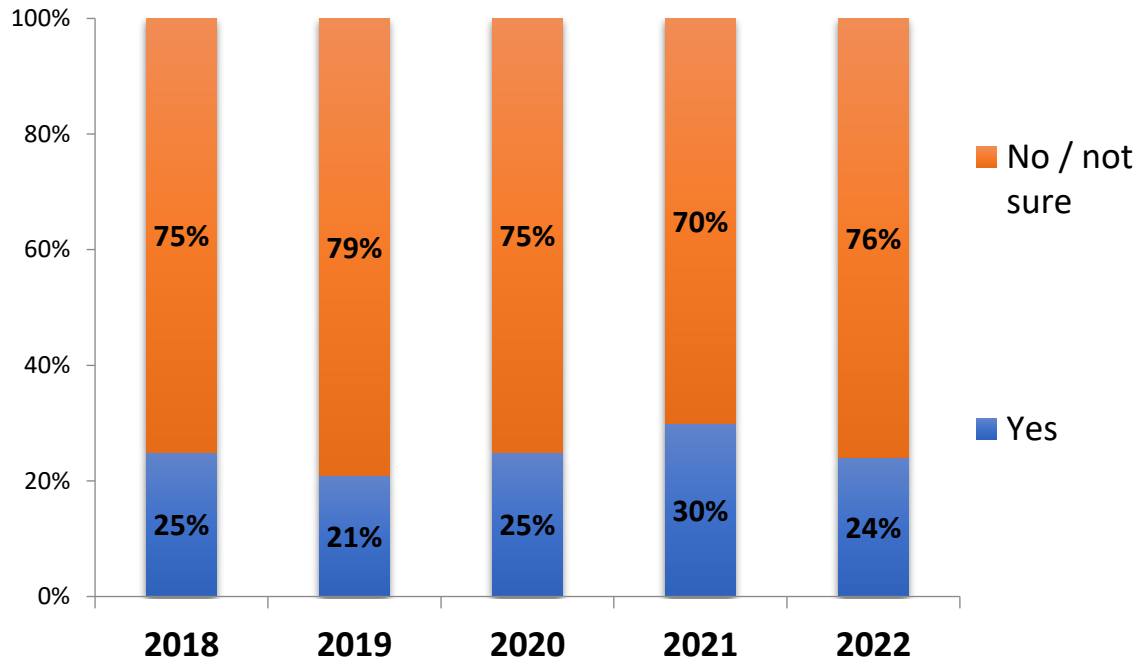
Received Info. About Reducing Water Pollution	Have Lived in Current Residence		10 to 19 Years	20 or More Years
	< 4 Years	4 to 9 Years		
Yes	26%	31%	39%	31%
No	65%	55%	50%	54%
Not sure	9%	14%	11%	15%
N = number of respondents	*132*	*125*	*117*	*126*

Received Info. About Reducing Water Pollution	Age				
	21 to 34	35 to 44	45 to 54	55 to 64	65 +
Yes	37%	45%	31%	19%	20%
No	56%	46%	55%	71%	56%
Not sure	7%	9%	14%	10%	24%
N = number of respondents	*104*	*118*	*102*	*84*	*92*

Received Info. About Reducing Water Pollution	Male	Female	Homeowners	Renters	Hispanic Respondents
Yes	35%	28%	34%	24%	37%
No	53%	59%	53%	65%	56%
Not sure	12%	13%	13%	11%	7%
N = number of respondents	*245*	*255*	*389*	*111*	*41*

- Those age 35 to 44 were more likely than others to report receiving this information.

Thinking about the last 12 months, have you heard about any opportunities to participate in a water quality activity, such as a stream clean up, helping to install storm drain labels, etc.?



- Approximately one-fourth (24%) in 2022 reported hearing about opportunities to participate in a water quality activity in the past 12 months.

Heard of Water Quality Activities Past 12 Months	**Alexandria**	**Arlington**	**Fairfax Inclusive**	**Leesburg / Loudoun**	**Prince William Inclusive**
Yes	35%	24%	24%	16%	24%
No / not sure	65%	76%	76%	84%	76%
N = number of respondents	*52*	*46*	*258*	*58*	*86*

- Those age 55 or older were less likely to report hearing about opportunities to participate in a water quality activity in the past 12 months.

Heard of Water Quality Activities Past 12 Months	**Have Lived in Current Residence**			
	< 4 Years	**4 to 9 Years**	**10 to 19 Years**	**20 or More Years**
Yes	20%	22%	31%	25%
No / not sure	80%	78%	69%	75%
N = number of respondents	*132*	*125*	*117*	*126*

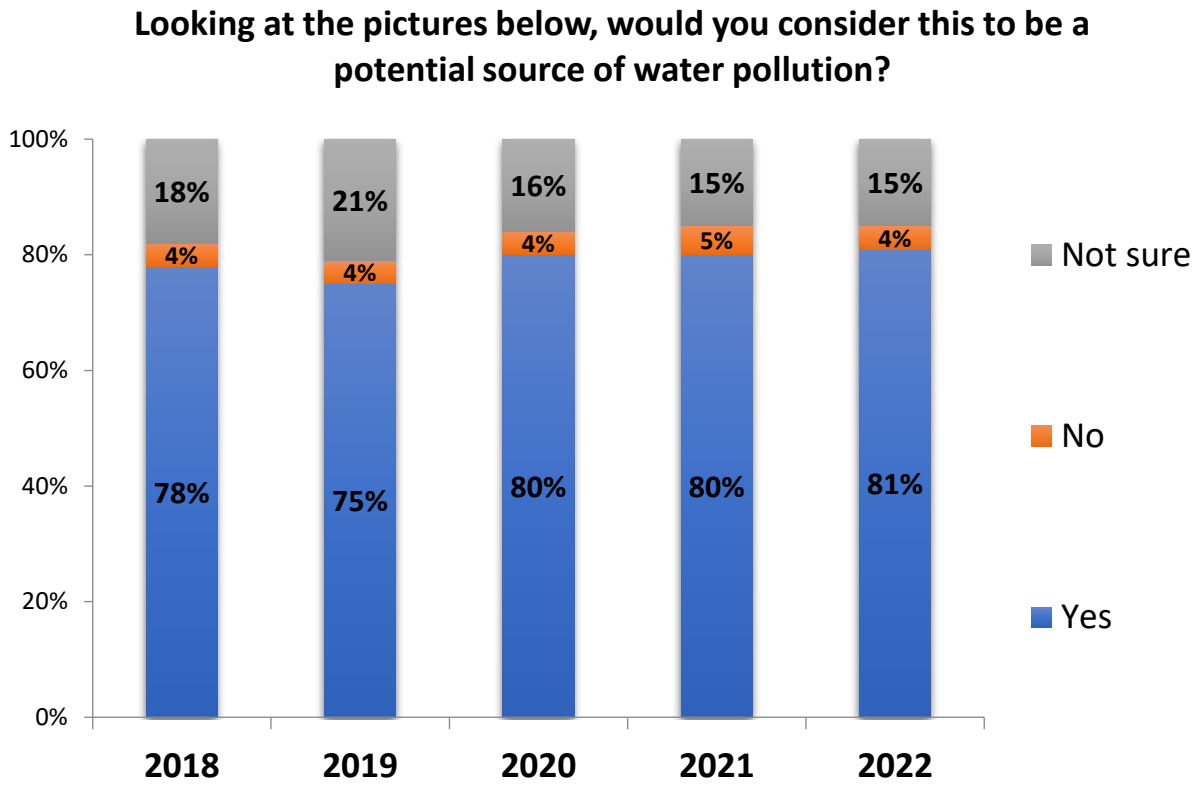
Heard of Water Quality Activities Past 12 Months	**Age**				
	21 to 34	**35 to 44**	**45 to 54**	**55 to 64**	**65 +**
Yes	32%	35%	26%	12%	12%
No / not sure	68%	65%	74%	88%	88%
N = number of respondents	*104*	*118*	*102*	*84*	*92*

Heard of Water Quality Activities Past 12 Months	**Male**	**Female**	**Homeowners**	**Renters**	**Hispanic Respondents**
Yes	27%	22%	26%	19%	17%
No / not sure	73%	78%	74%	81%	83%
N = number of respondents	*245*	*255*	*389*	*111*	*41*

- In a separate question asked only of those who answered "Yes" to the question on the previous page, 60% indicted that they *participated* in a water quality activity. Since this 60% applies to the 24% who answered "Yes" to the question on the previous page, it turns out that 15% (= 60% x 24%) of the total sample reported both hearing about *and* participating in a water quality activity in the past 12 months.

Potential Water Pollution Source

- Two pictures were shown to the survey respondents starting in 2018, and they were asked the question below. (The images used can be found in the questionnaire in the Appendix.)



- Eight-in-ten (81%) in 2022 felt that the pictures showed a potential source of water pollution. As shown in the table below and the tables on the next page, the proportion feeling this way was high in all of the subgroups examined.

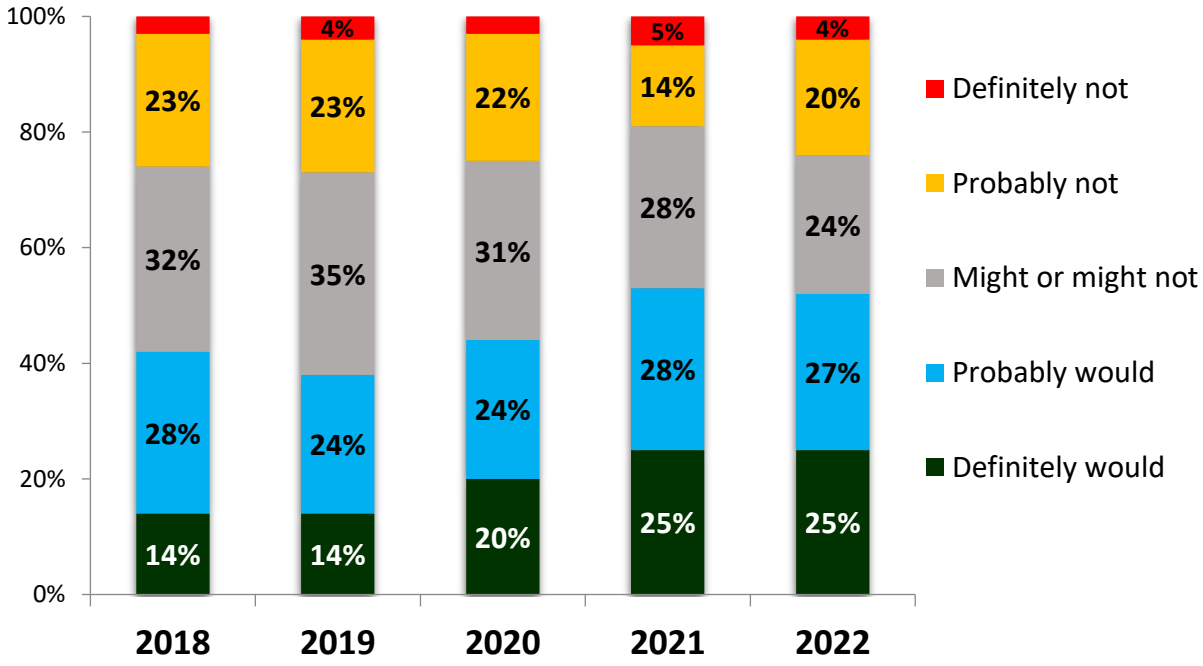
Consider it Potential Source of Water Pollution	**Alexandria**	**Arlington**	**Fairfax Inclusive**	**Leesburg / Loudoun**	**Prince William Inclusive**
Yes	85%	69%	81%	83%	84%
No	2%	9%	2%	5%	9%
Not sure	13%	22%	17%	12%	7%
N = number of respondents	*52*	*46*	*258*	*58*	*86*

Consider it Potential Source of Water Pollution	Have Lived in Current Residence		10 to 19 Years	20 or More Years
	< 4 Years	4 to 9 Years		
Yes	78%	81%	82%	83%
No	4%	9%	1%	4%
Not sure	18%	10%	17%	13%
N = number of respondents	*132*	*125*	*117*	*126*

Consider it Potential Source of Water Pollution	Age				
	21 to 34	35 to 44	45 to 54	55 to 64	65 +
Yes	84%	83%	79%	80%	77%
No	6%	7%	3%	5%	1%
Not sure	10%	10%	18%	15%	22%
N = number of respondents	*104*	*118*	*102*	*84*	*92*

Consider it Potential Source of Water Pollution	Male	Female	Homeowners	Renters	Hispanic Respondents
Yes	79%	82%	80%	84%	76%
No	4%	5%	5%	4%	7%
Not sure	17%	13%	15%	12%	17%
N = number of respondents	*245*	*255*	*389*	*111*	*41*

What is the likelihood that you would call county or town officials to report potential pollution so they could investigate the cause?



- One-fourth (25%) felt that they "Definitely would" report potential pollution to county or town officials, and this was significantly higher than the results in 2019 and 2018.

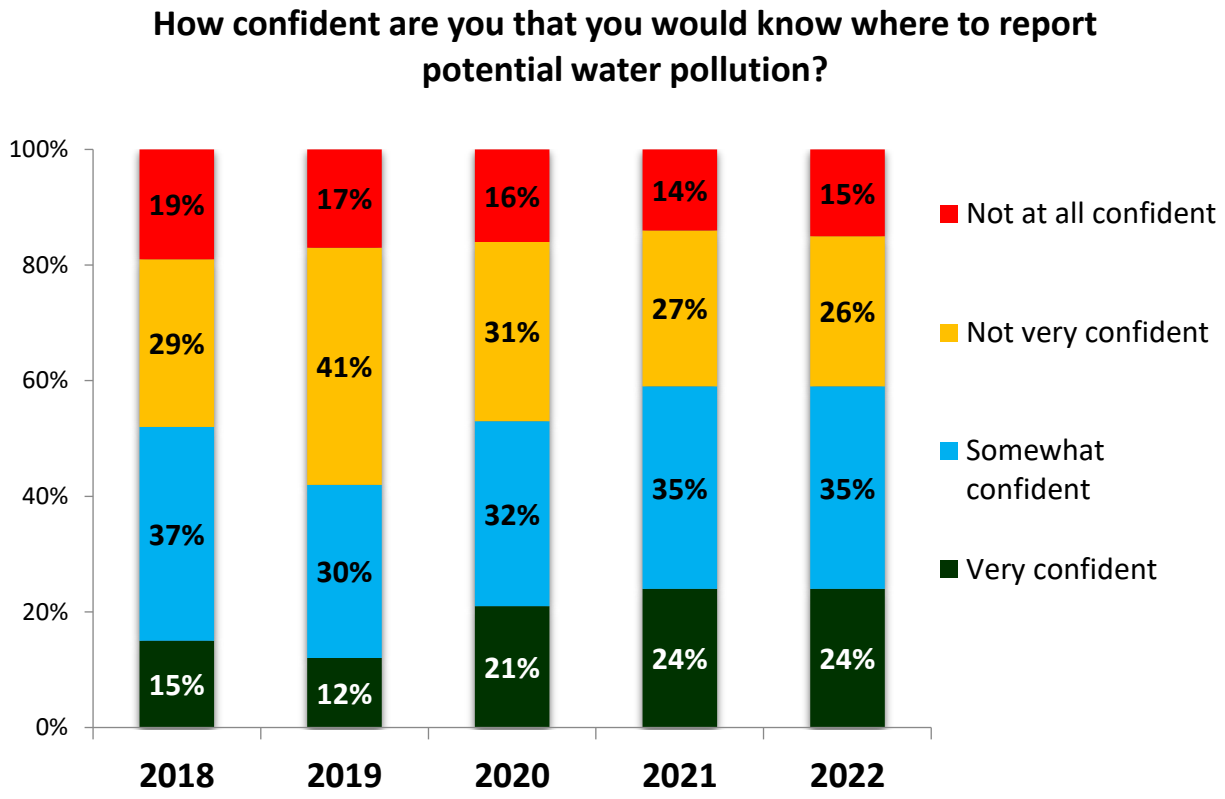
- Those age 35 to 44 were more likely than others to rate "Definitely would."

Likelihood Report Potential Pollution	**Alexandria**	**Arlington**	**Fairfax Inclusive**	**Leesburg / Loudoun**	**Prince William Inclusive**
Definitely would	29%	30%	24%	19%	27%
Probably would	33%	31%	30%	21%	19%
Might or might not	21%	20%	24%	29%	25%
Probably would	13%	17%	20%	21%	22%
Definitely not	4%	2%	2%	10%	7%
N = number of respondents	*52*	*46*	*258*	*58*	*86*

Likelihood Report Potential Pollution	Have Lived in Current Residence			
	< 4 Years	4 to 9 Years	10 to 19 Years	20 or More Years
Definitely would	22%	27%	32%	21%
Probably would	25%	29%	19%	36%
Might or might not	22%	25%	25%	24%
Probably would	25%	14%	21%	17%
Definitely not	6%	5%	3%	2%
N = number of respondents	*132*	*125*	*117*	*126*

Likelihood Report Potential Pollution	Age				
	21 to 34	35 to 44	45 to 54	55 to 64	65 +
Definitely would	23%	43%	20%	20%	16%
Probably would	31%	21%	23%	21%	40%
Might or might not	16%	21%	34%	28%	22%
Probably would	22%	10%	22%	24%	22%
Definitely not	8%	5%	1%	7%	0%
N = number of respondents	*104*	*118*	*102*	*84*	*92*

Likelihood Report Potential Pollution	Male	Female	Homeowners	Renters	Hispanic Respondents
Definitely would	25%	25%	27%	20%	29%
Probably would	32%	23%	28%	25%	24%
Might or might not	21%	27%	23%	28%	22%
Probably would	19%	20%	18%	23%	20%
Definitely not	3%	5%	4%	4%	5%
N = number of respondents	*245*	*255*	*389*	*111*	*41*



- Nearly one-fourth (24%) in 2022 were "Very confident" that they would know where to report potential water pollution. This 2022 result was significantly higher than in 2018 and 2019.

- Those age 35 to 44 and homeowners were more likely than others to rate "Very confident."

Confidence Know Where to Report	**Alexandria**	**Arlington**	**Fairfax Inclusive**	**Leesburg / Loudoun**	**Prince William Inclusive**
Very confident	38%	28%	21%	17%	24%
Somewhat confident	37%	33%	35%	40%	33%
Not very confident	12%	30%	30%	21%	24%
Not at all confident	13%	9%	14%	22%	19%
N = number of respondents	*52*	*46*	*258*	*58*	*86*

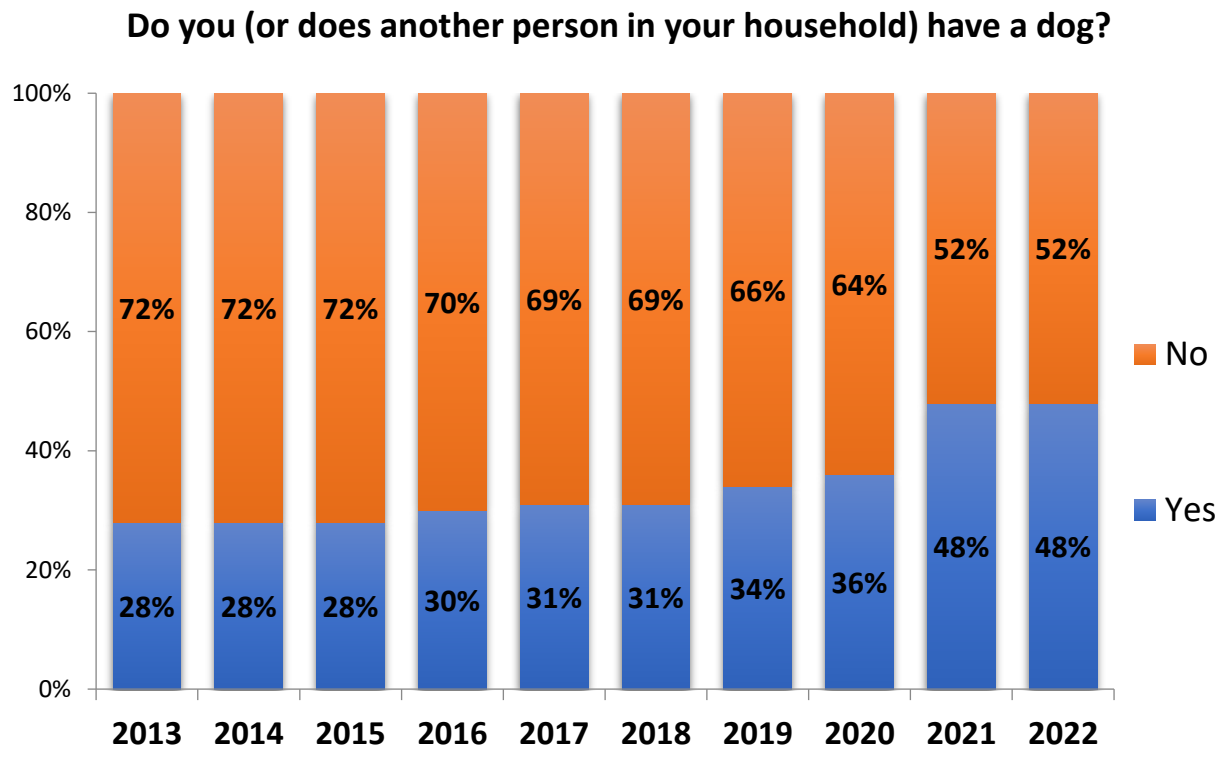
Confidence Know Where to Report	**Have Lived in Current Residence**			
	< 4 Years	**4 to 9 Years**	**10 to 19 Years**	**20 or More Years**
Very confident	22%	23%	24%	25%
Somewhat confident	28%	42%	34%	37%
Not very confident	29%	20%	27%	28%
Not at all confident	21%	15%	15%	10%
N = number of respondents	*132*	*125*	*117*	*126*

Confidence Know Where to Report	**Age**				
	21 to 34	**35 to 44**	**45 to 54**	**55 to 64**	**65 +**
Very confident	25%	40%	18%	17%	14%
Somewhat confident	33%	32%	34%	31%	47%
Not very confident	24%	15%	29%	32%	33%
Not at all confident	18%	13%	19%	20%	6%
N = number of respondents	*104*	*118*	*102*	*84*	*92*

Confidence Know Where to Report	**Male**	**Female**	**Homeowners**	**Renters**	**Hispanic Respondents**
Very confident	27%	20%	26%	16%	22%
Somewhat confident	38%	33%	35%	37%	39%
Not very confident	27%	25%	26%	26%	22%
Not at all confident	9%	22%	13%	21%	17%
N = number of respondents	*245*	*255*	*389*	*111*	*41*

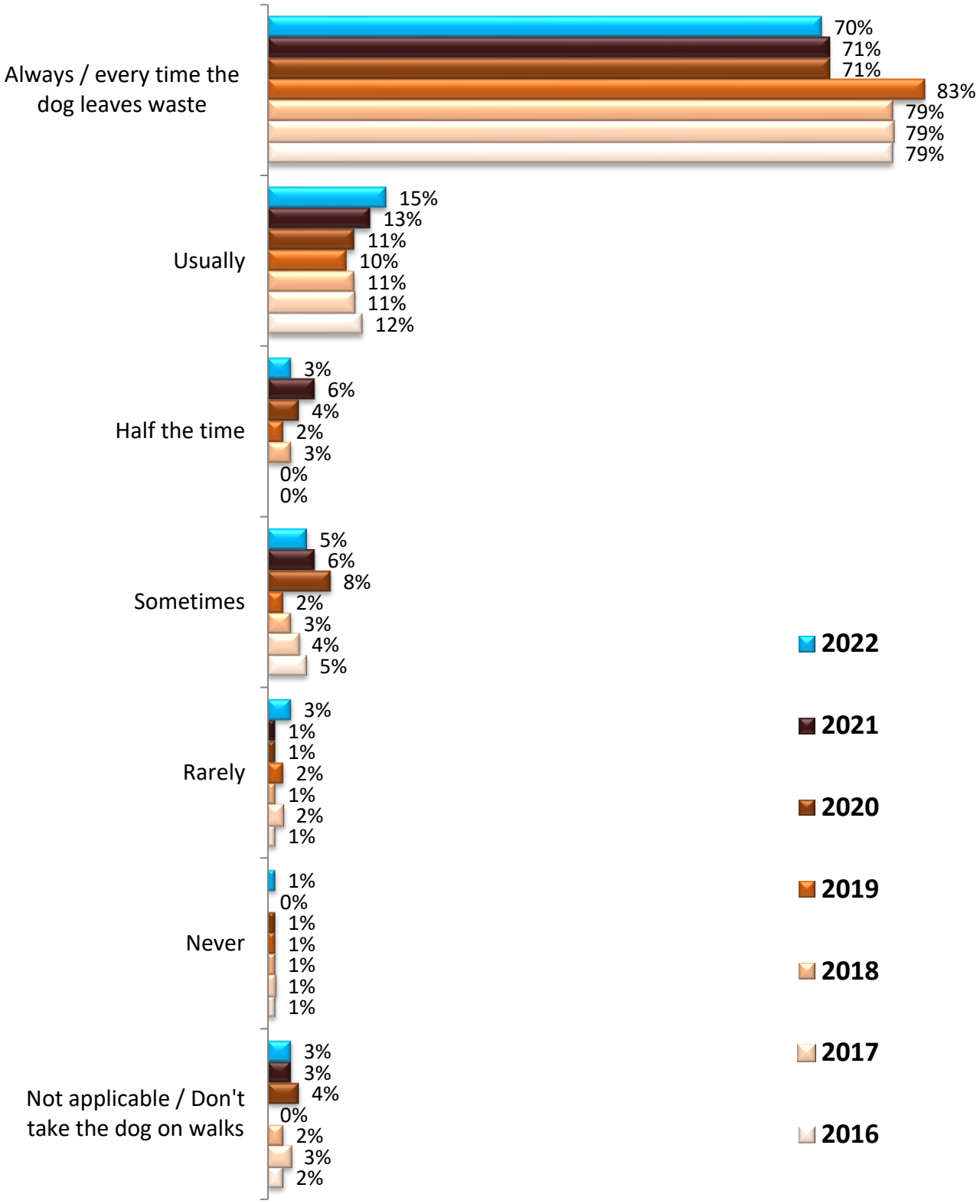
Behavior Among Dog Owners

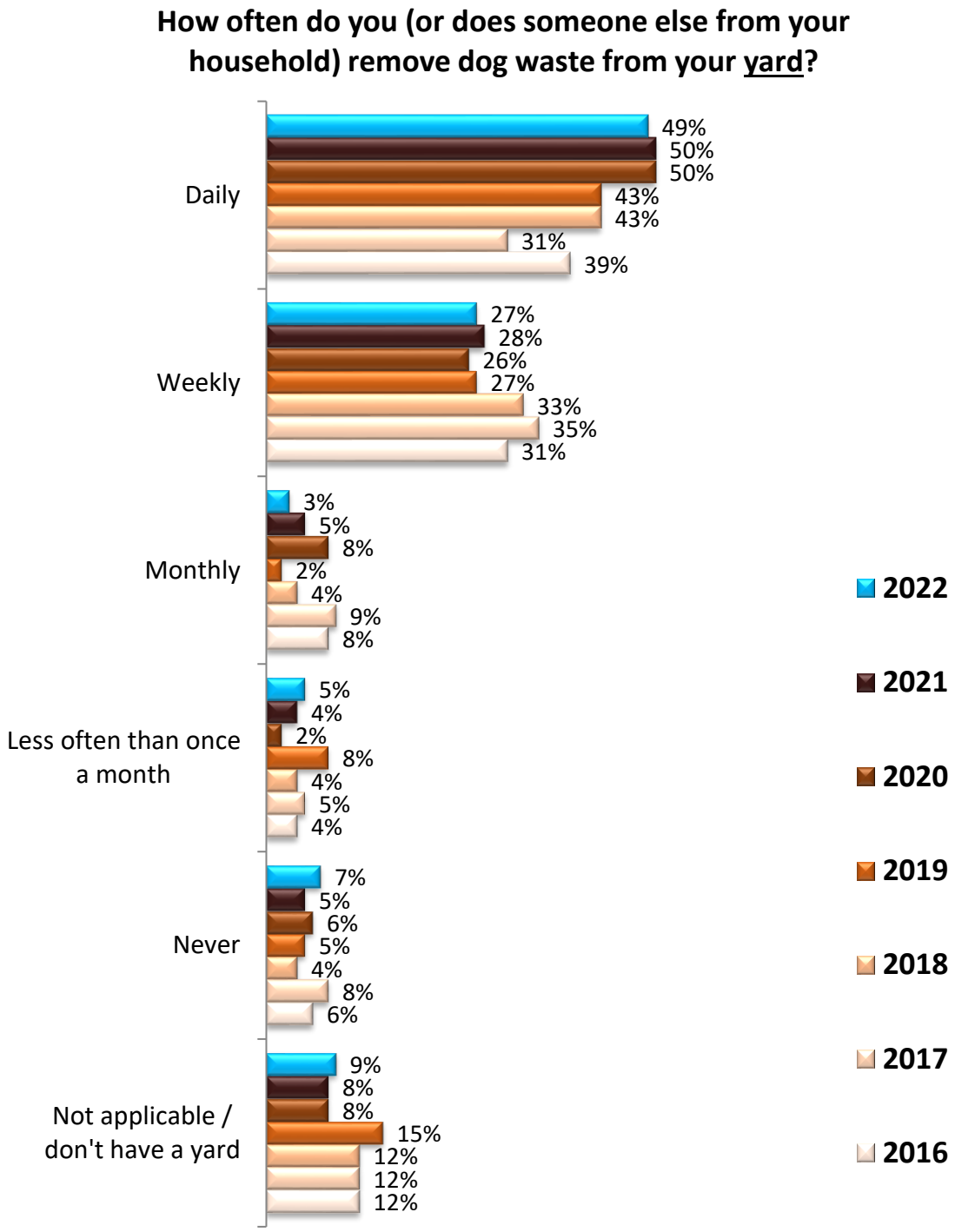
- Nearly half (48%) in 2022 indicated that they have a dog (or someone else in their household has a dog), and this result was significantly higher than in years prior to 2021.



- On the following pages, results are shown for questions about how often dog owners pick up after their dogs and what motivates them to do so. For example, more than two-thirds (70%) in 2022 indicated that they *always* pick up after their dog(s) when taking the dog(s) for a walk.

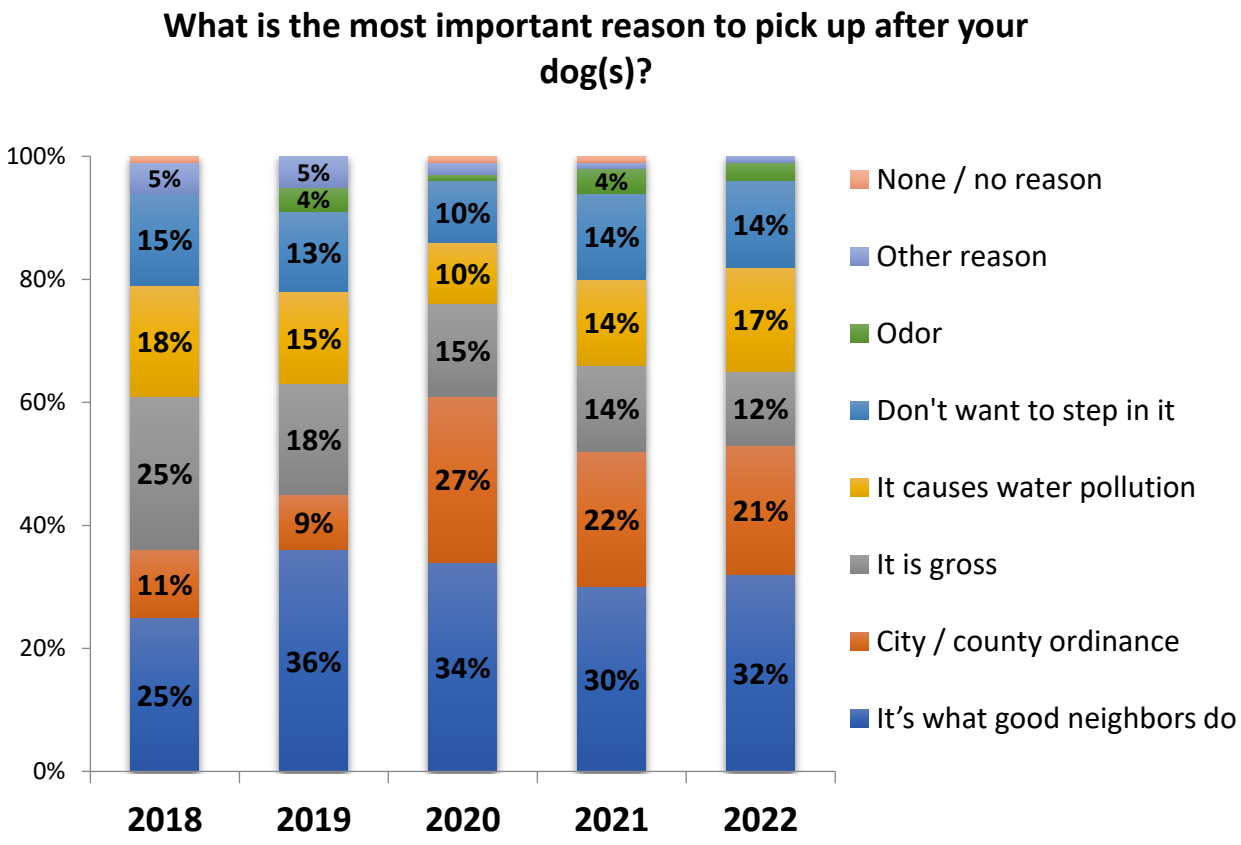
When taking your dog(s) for a walk, how often do you pick up after your dog(s)?





- In their own yard, the majority removed pet waste daily or weekly.

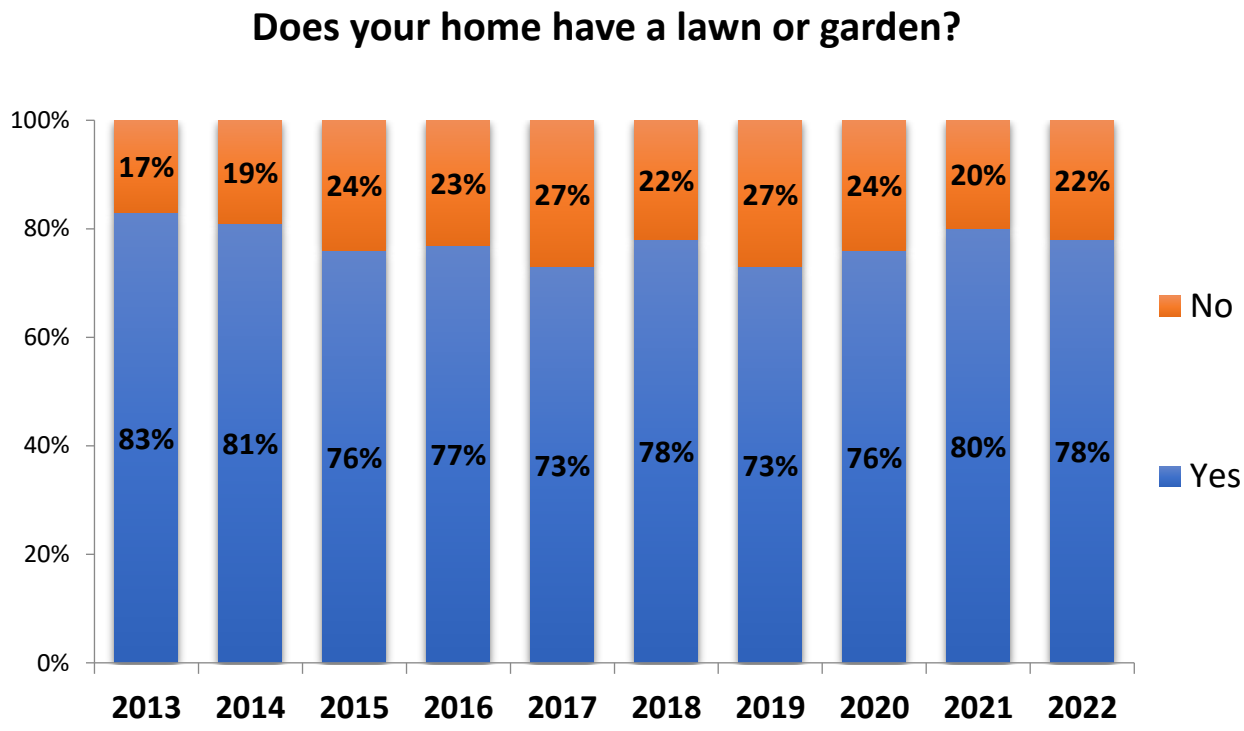
- There was some fluctuation from year to year in the proportions reporting daily and weekly removal of dog waste from their yard, but recall that this question was asked only of dog owners, and the sample size of dog owners is lower than the total sample size, while the margin of error is higher for a lower sample size.



- When asked about the "Most important reason" for picking up after their dog(s), the highest proportion (32%) in 2022 selected "It's what good neighbors do."

Behavior Related to Lawns & Gardens

- Slightly more than three-fourths (78%) in 2022 indicated that their current home has a lawn or garden. This result was the not the highest and also not the lowest over the past ten years.

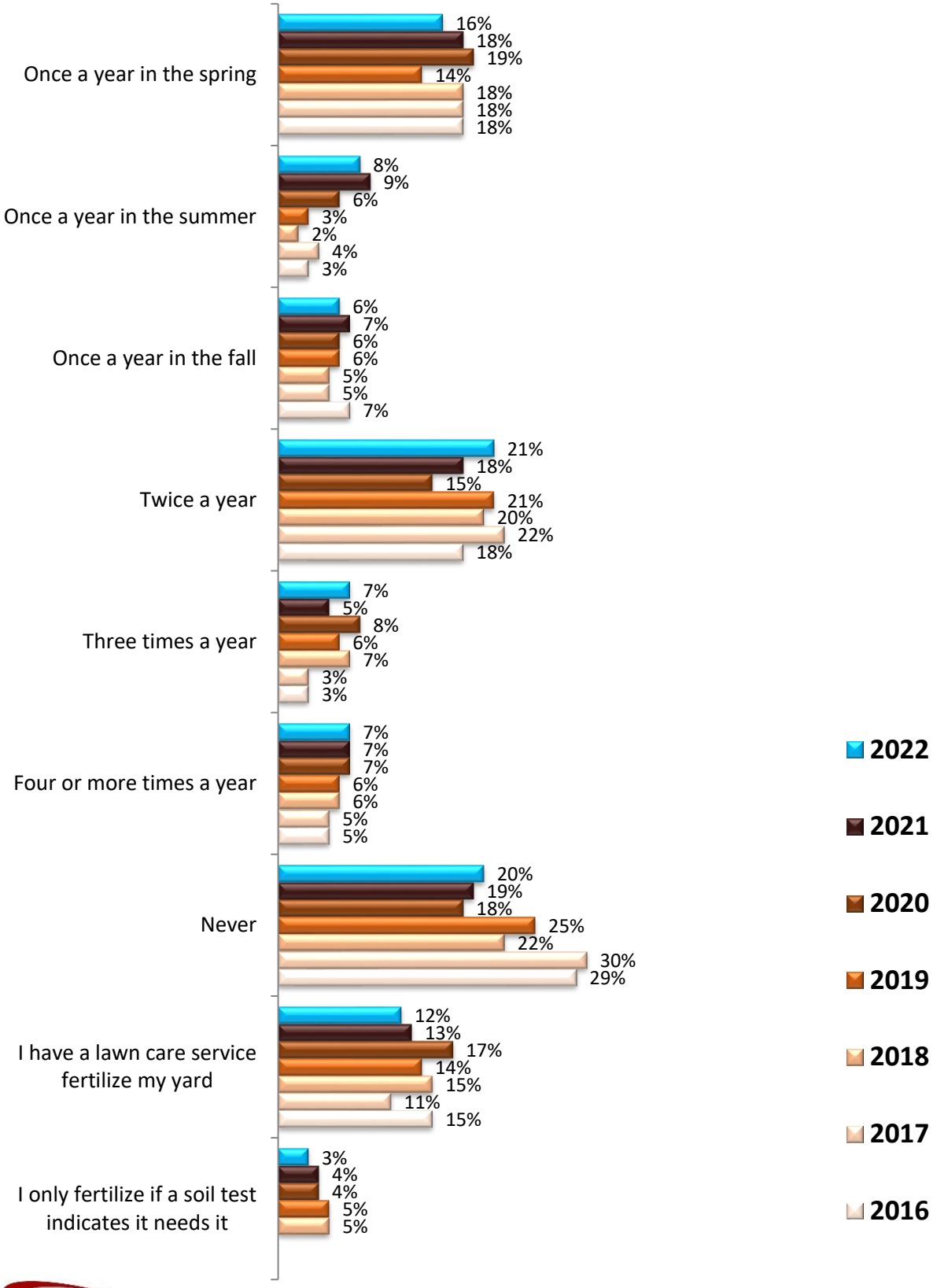


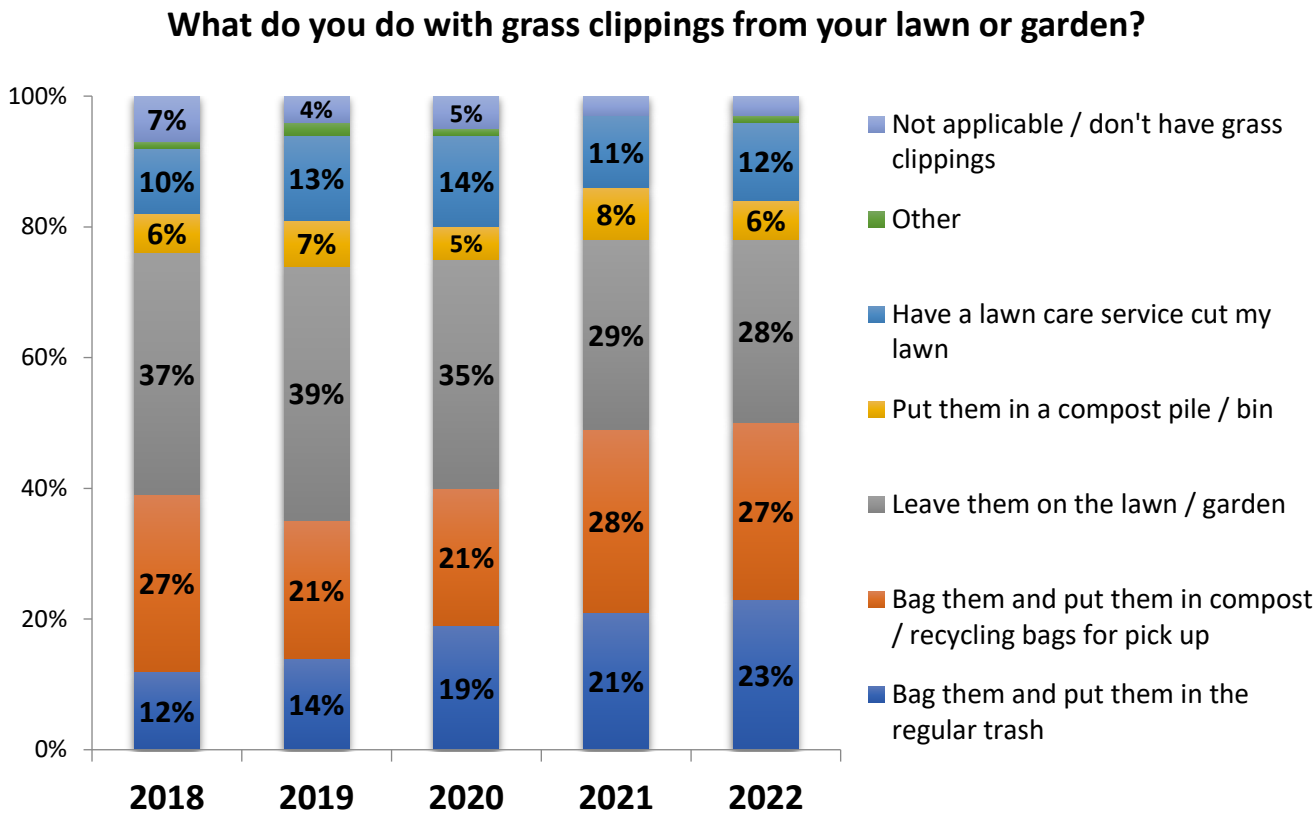
- In a separate question, of the respondents who have a lawn or garden, slightly more than eight-in-ten (83%) in 2022 identified themselves as the primary person taking care of the lawn or garden or as being familiar with the practices used for the garden or lawn. Several questions about lawns and gardens were then asked only of these respondents.

- As shown on the next page, the most common response when asked how frequently they fertilize in 2022 was twice a year (21%), followed by "Never" (20%), and "Once a year in the spring" (16%).

- The option "I only fertilize if a soil test indicates the grass needs fertilizer" was first introduced in the 2018 survey.

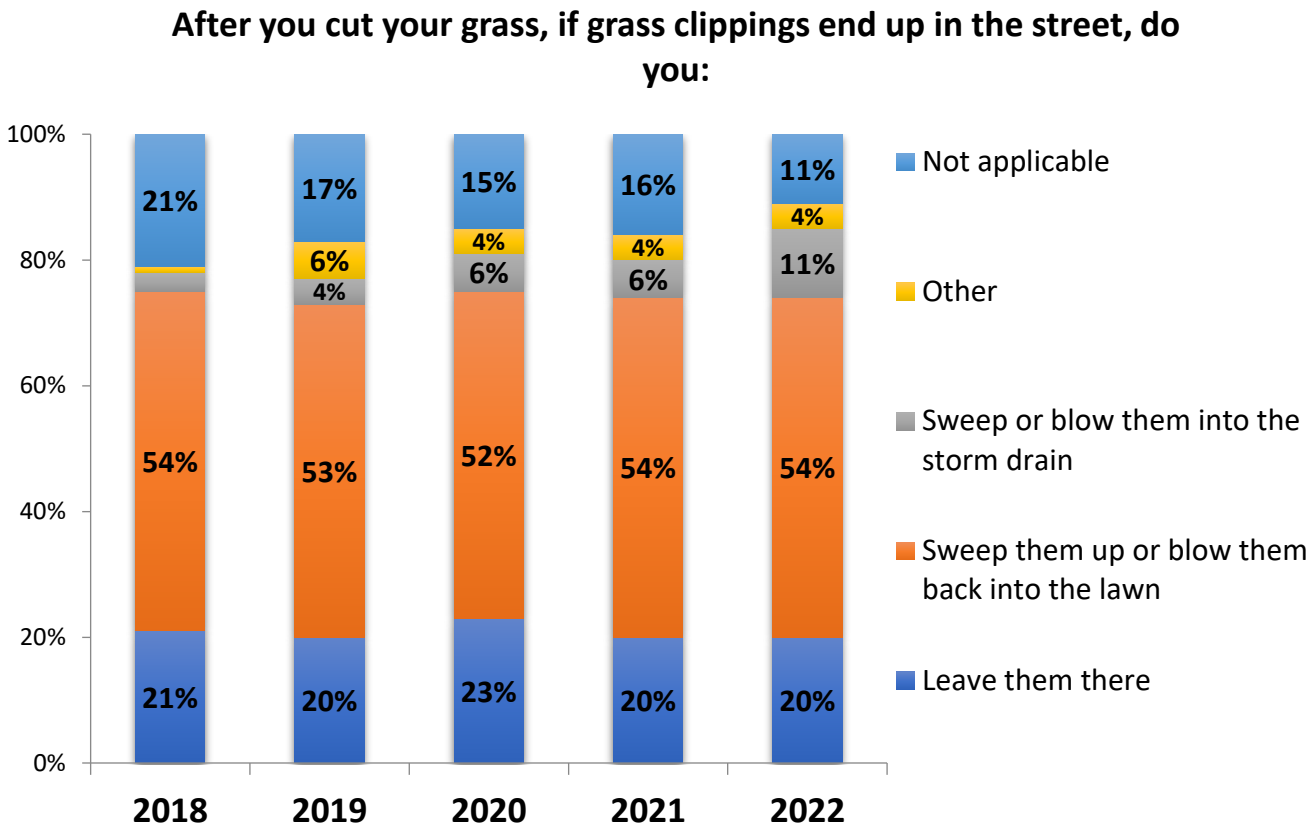
Which of the following best describes how often you fertilize your lawn?





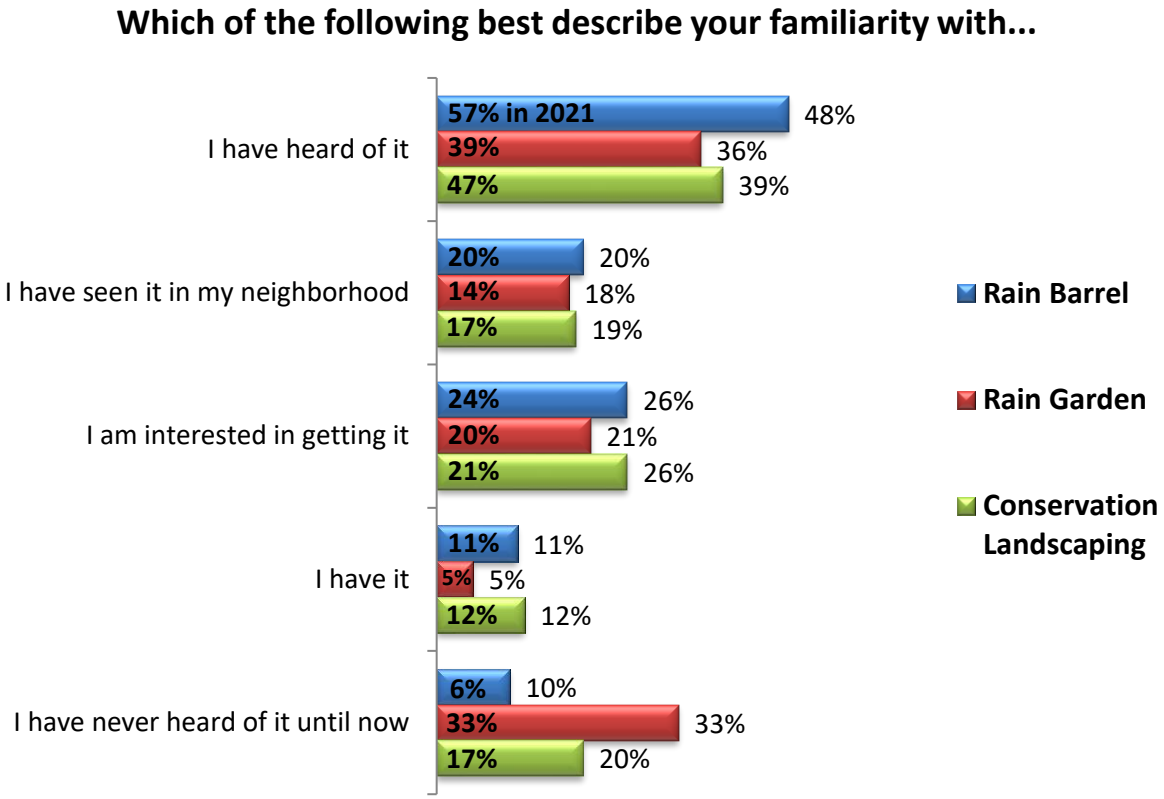
- Slightly more than one-fourth (28%) in 2022 leave their grass clippings on their lawn / garden, while a similar proportion (27%) bag grass clippings from their lawn / garden and put them in compost / recycling bags for pick up.

- Slightly less than one-fourth (23%) bag their grass clippings and put them in the regular trash, and this result was significantly higher than in 2019 and 2018.



- More than half (54%) in 2022 sweep them up or blow them back into the lawn if they have grass clippings end up in the street, and this result was similar to the corresponding results in previous years.

- Some (11%) in 2022 felt this question was not applicable to them. This is higher than the proportion selecting "Not applicable" for the question on the previous page, but there is more than one reason that the question above may not be applicable. One reason is that they might not have grass clippings. Another reason is that they might not have grass clippings end up in the street.



- After reading a description of a rain barrel, rain garden, and conservation landscaping, respondents were asked which of the categories in the chart above applied to them. For example, 11% in 2022 reported having a rain barrel, while 5% reported having a rain garden, and 12% reported having conservation landscapes in their yard. These 2022 results were the same as in 2021. Note that the numbers at the end of the bars show 2022 results, while 2021 results are shown to the left and inside the bar. This format was used to allow side-by-side comparisons between rain barrel, rain garden, and conservation landscaping, as well as allowing year-to-year comparisons. However, awareness was less likely in 2022 vs. 2021 for rain barrel and conservation landscaping.

- Those who indicated having the item typically did not also select "I have heard of it." For a few cases in which a respondent selected both "I have heard of it" and "I have it," the data was "cleaned" so that the respondent did not have "I have heard of it" selected. This means that these two response options do not overlap in the results shown above. In other words, the first response option in the chart above means that they do not have one but they have heard of it.

- As a technical note, in place of "it" that shows in the chart, the survey showed rain barrel, rain garden, or conservation landscaping (in three different questions). The reason for rewording the response options for the chart was to facilitate comparisons between the three items.

Behavior Related to Automobiles

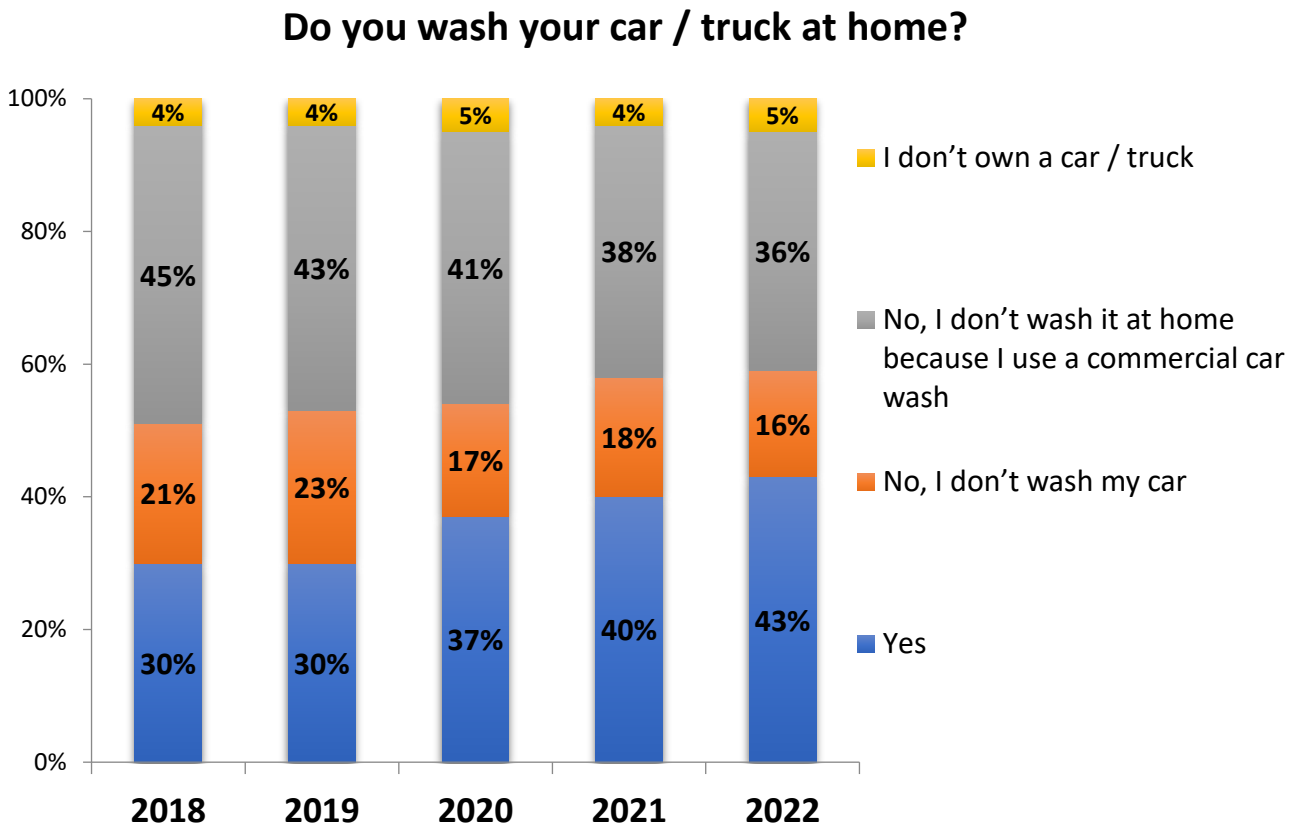
- When asked about changing the oil in their car or truck, a strong majority each year reported that they use an oil change service, while 10% in 2022 reported taking old motor oil to a gas station or hazmat facility for recycling. A small number of respondents selected other response options. Because the number selecting some response options was very small, the results are shown in the tables below, with the frequency (number of respondents selecting each response) and the percentage.

2022: When you need to change the oil in your car or truck, what do you do with the old motor oil?

	Frequency	*Percent*
I don't change the oil myself / I take it to a garage / oil change service	374	74.8%
Take the old motor oil to a gas station or hazmat facility for recycling	50	10.0%
Store it in my garage	19	3.8%
Put it in the trash	19	3.8%
Dump it in the gutter or down the storm sewer	7	1.4%
Dump it down the sink	3	.6%
I dump it on the ground	2	.4%
Don't own a car or truck	26	5.2%
Total	500	100.0%

2021: When you need to change the oil in your car or truck, what do you do with the old motor oil?

	Frequency	*Percent*
I don't change the oil myself / I take it to a garage / oil change service	355	71.0%
Take the old motor oil to a gas station or hazmat facility for recycling	77	15.4%
Store it in my garage	19	3.8%
Put it in the trash	20	4.0%
Dump it in the gutter or down the storm sewer	6	1.2%
Dump it down the sink	2	.4%
I dump it on the ground	1	.2%
Other	2	.4%
Don't own a car or truck	18	3.6%
Total	500	100.0%



- Slightly more than four-in-ten (43%) in 2022 reported washing their car / truck *at home*. This was significantly higher than in 2018 and 2019.

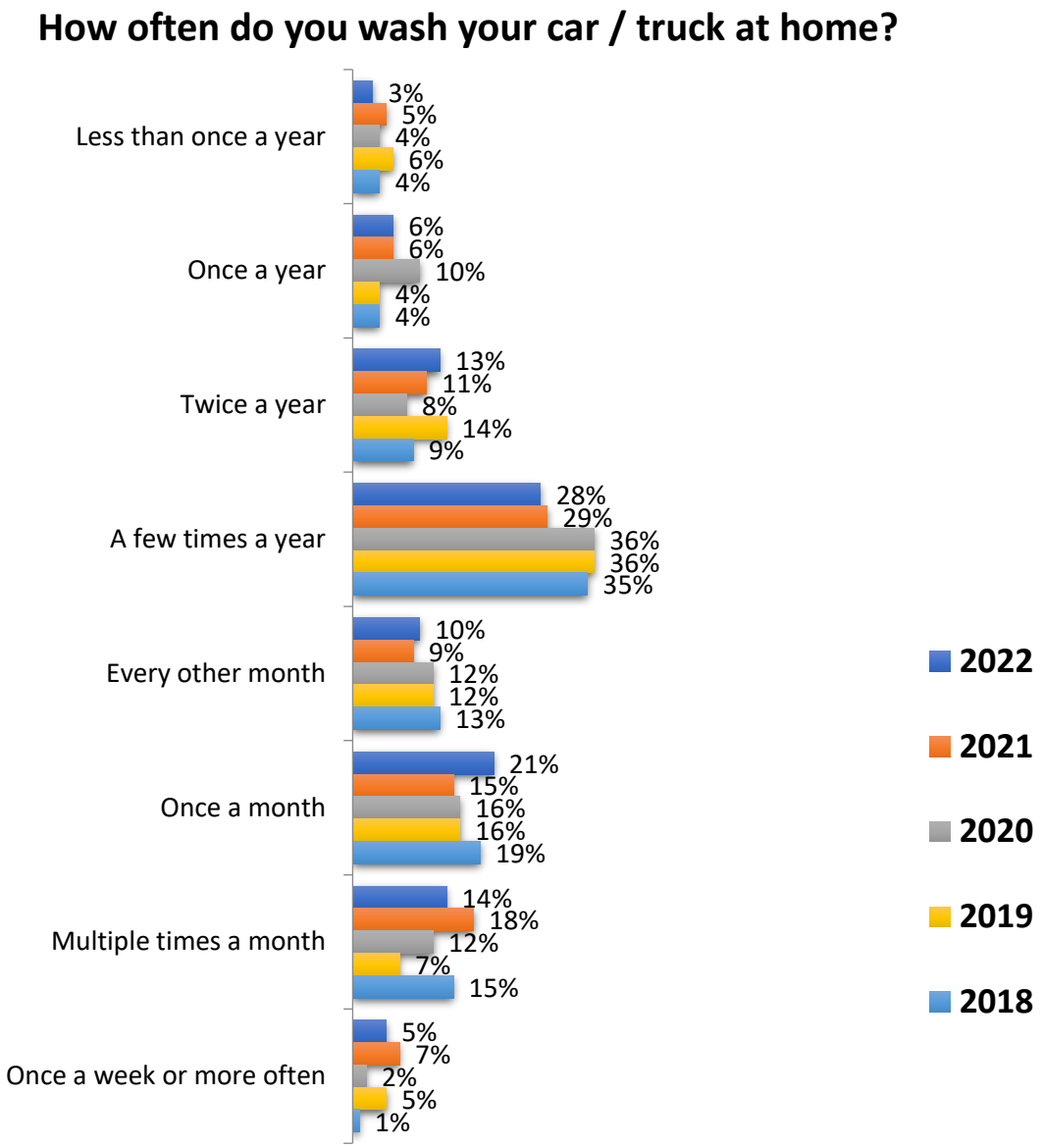
- When examining the results by subgroups, males and homeowners were more likely than others to report washing their vehicle at home. Also, the proportion washing their vehicle at home declined with age.

Wash Car / Truck At Home	**Alexandria**	**Arlington**	**Fairfax Inclusive**	**Leesburg / Loudoun**	**Prince William Inclusive**
Yes	38%	41%	40%	45%	50%
No, don't wash it	12%	20%	19%	15%	9%
No, use car wash	37%	28%	36%	40%	39%
Don't own a car / truck	13%	11%	5%	0%	2%
N = number of respondents	*52*	*46*	*258*	*58*	*86*

Wash Car / Truck At Home	**Have Lived in Current Residence**			
	< 4 Years	**4 to 9 Years**	**10 to 19 Years**	**20 or More Years**
Yes	32%	43%	48%	46%
No, don't wash it	15%	17%	13%	18%
No, use car wash	42%	34%	37%	33%
Don't own a car / truck	11%	6%	2%	3%
N = number of respondents	*132*	*125*	*117*	*126*

Wash Car / Truck At Home	**Age**				
	21 to 34	**35 to 44**	**45 to 54**	**55 to 64**	**65 +**
Yes	51%	59%	38%	32%	25%
No, don't wash it	12%	11%	16%	20%	23%
No, use car wash	28%	26%	44%	40%	47%
Don't own a car / truck	9%	4%	2%	8%	5%
N = number of respondents	*104*	*118*	*102*	*84*	*92*

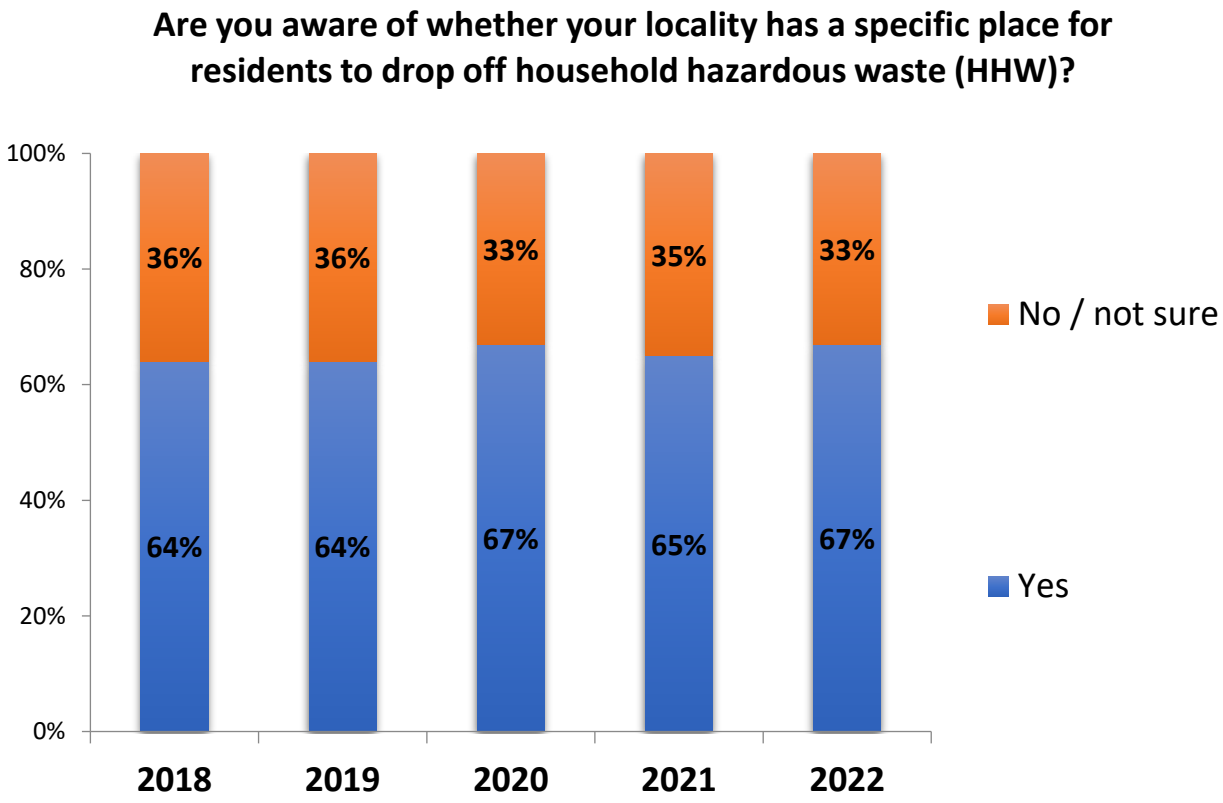
Wash Car / Truck At Home	**Male**	**Female**	**Homeowners**	**Renters**	**Hispanic Respondents**
Yes	48%	36%	45%	33%	34%
No, don't wash it	14%	18%	17%	14%	10%
No, use car wash	35%	37%	36%	37%	51%
Don't own a car / truck	3%	9%	2%	16%	5%
N = number of respondents	*245*	*255*	*389*	*111*	*41*



- Among those who wash their car / truck at home, the most common frequency of doing so was a few times a year (28% in 2022).

- For a separate question about what applied when washing their car / truck at home, the results are shown below.

  - 52% in 2022 selected "I used environmentally friendly detergent." (48% in 2021)
  - 36% selected "I try to wash on the grass or other surface that absorbs water." (41% in 2021)
  - 10% selected "I don't use any detergent – use water only." (8% in 2021)
  - 18% selected none of the above. (20% in 2021)



- Two-thirds (67%) in 2022 indicated that they were aware of whether their locality has a specific place to drop off household hazardous waste.

- As shown in the table below, this was true for the majority in each area. However, awareness increased with length of time living at their residence and age, and it was significantly higher among males and homeowners.

HHW Awareness

	Alexandria	Arlington	Fairfax Inclusive	Leesburg / Loudoun	Prince William Inclusive
Yes	67%	59%	66%	66%	72%
No / not sure	33%	41%	34%	34%	28%
N = number of respondents	*52*	*46*	*258*	*58*	*86*

HHW Awareness	**Have Lived in Current Residence**			
	< 4 Years	**4 to 9 Years**	**10 to 19 Years**	**20 or More Years**
Yes	58%	64%	68%	77%
No / not sure	42%	36%	32%	23%
N = number of respondents	*132*	*125*	*117*	*126*

HHW Awareness	**Age**				
	21 to 34	**35 to 44**	**45 to 54**	**55 to 64**	**65 +**
Yes	58%	65%	68%	69%	75%
No / not sure	42%	35%	32%	31%	25%
N = number of respondents	*104*	*118*	*102*	*84*	*92*

HHW Awareness	**Male**	**Female**	**Homeowners**	**Renters**	**Hispanic Respondents**
Yes	71%	62%	72%	47%	66%
No / not sure	29%	38%	28%	53%	34%
N = number of respondents	*245*	*255*	*389*	*111*	*41*

Appendix: Questionnaire

2022 Only Rain NVRC Survey

INTRODUCTION:

Welcome, and thank you for participating in this important research survey.

S1. Are you:

- Male
- Female

S2. Which of the following categories includes your age?

- Under 18 **[END SURVEY]**
- 18 to 20 **[END SURVEY]**
- 21 to 24
- 25 to 34
- 35 to 44
- 45 to 54
- 55 to 64
- 65 to 74
- 75 or older

S3. Which of the following best describes your residence?

- I own my home
- I rent my home
- Neither **[END SURVEY]**

S4. Do you live in the state of Virginia?

- Yes
- No **[END SURVEY]**

S5. Which of the following best describes where you live (county or city or town)?

- Alexandria
- Arlington
- Dumfries
- Fairfax (city of)
- Fairfax (county of)
- Falls Church
- Herndon
- Leesburg
- Loudoun County
- Manassas
- Manassas Park
- Prince William County
- Vienna
- None of the above **[END SURVEY]**

S6. Which of the following describes your ethnicity? (Please select all that apply)

- ☐ African American / Black
- ☐ American Indian / Alaska Native
- ☐ Asian
- ☐ Hispanic / Latino
- ☐ Native Hawaiian / Pacific Islander
- ☐ White / Caucasian
- ☐ Other: _____

Q1. For how many years have you lived in your current residence?

- Less than 1 year
- 1 to 3 years
- 4 to 9 years
- 10 to 19 years
- 20 or more years

Q2. Do you live within the Potomac River Watershed?

- Yes
- No
- Not Sure
- I do not know what a “watershed” is

Q3. "Storm water" is rain or other water that flows into the street, along the gutter and into the storm drain. To the best of your knowledge, where do you believe storm water eventually ends up?

- □ At a waste water treatment facility
- □ Potomac River or Chesapeake Bay
- □ Don’t know
- □ Other:_____

Q4. Do you (or does another person in your household) have a dog?

- Yes **[CONTINUE WITH Q5]**
- No **[SKIP TO Q8]**

Q5. When taking your dog(s) for a walk, how often do you pick up after your dog(s)?

- Always / every time the dog leaves waste
- Usually
- Half the time
- Sometimes
- Rarely
- Never
- Not applicable / I don't take the dog(s) on walks

Q6. How often do you (or does someone else from your household) remove dog waste from your yard?

- Daily
- Weekly
- Monthly
- Less often than once a month
- Never
- Not applicable / don't have a yard

[SKIP OVER Q7 IF NEVER OR NOT APPLICABLE IN BOTH Q5 and Q6]

Q7. What is the <u>most</u> important reason to pick up after your dog(s)? (Please select only one)

- City / County ordinance
- Don't want to step in it
- It causes water pollution
- It is gross
- It's what good neighbors do
- Odor
- Other reason
- None / no reason to

Q8. Does your home have a lawn or garden?

- Yes **[CONTINUE WITH Q9]**
- No **[SKIP TO Q16]**

Q9. Are you the primary person who takes care of the lawn or garden, or are you familiar with the practices used for your garden or lawn?

- Yes **[CONTINUE WITH Q10]**
- No **[SKIP TO Q16]**

Q10. What do you do with grass clippings from your lawn or garden?

- Bag them and put them in the regular trash
- Bag them and put them in compost / recycling bags for pick up
- Leave them on the lawn / garden
- Put them in a compost pile / bin
- Have a lawn care service cut my lawn
- Other
- Not applicable / don't have grass clippings

Q11. After you cut your grass, if grass clippings end up in the street, do you:

- Leave then there
- Sweep them up or blow them back into the lawn
- Sweep or blow them into the storm drain
- Not applicable / don't have grass clippings
- Other: _____

Q12. Which of the following best describes how often you fertilize your lawn?

- Once a year in the spring
- Once a year in the summer
- Once a year in the fall
- Twice a year
- Three times a year
- Four or more times a year
- Never
- I have a lawn care service fertilize my yard
- I only fertilize if a soil test indicates the grass needs fertilizer

Q13. A rain barrel is a barrel you put under your downspout to collect rain water that you can use around your yard. Which of the following best describe your level of familiarity with rain barrels? [Allow multi-select]

- ☐ I have heard of rain barrels
- ☐ I have seen rain barrels in my neighborhood
- ☐ I am interested in getting a rain barrel
- ☐ I have a rain barrel
- ☐ I have never heard of a rain barrel until now.

Q14. A rain garden is a bowl shaped garden area where runoff can collect and soak into the ground. Which of the following best describe your level of familiarity with rain gardens? [Allow multi-select]

- ☐ I have heard of rain gardens
- ☐ I have seen rain gardens in my neighborhood
- ☐ I am interested in installing a rain garden in my yard
- ☐ I have a rain garden
- ☐ I have never heard of a rain garden until now.

Q15. Conservation landscaping is replacing an area of lawn or bare soil in your yard with native plants. Which of the following best describe your level of familiarity with conservation landscaping? [Allow multi-select]

- ☐ I have heard of conservation landscaping
- ☐ I have seen conservation landscaping in my neighborhood
- ☐ I am interested in installing conservation landscaping in my yard
- ☐ I have conservation landscapes in my yard
- ☐ I have never heard of conservation landscaping until now.

Q16. When you need to change the oil in your car or truck, what do you do with the old motor oil?

- o I don't change the oil myself / I take it to a garage / oil change service
- o Take the old motor oil to a gas station or hazmat facility for recycling
- o Store it in my garage
- o Put it in the trash
- o Dump it in the gutter or down the storm sewer
- o Dump it down the sink
- o I dump it on the ground
- o I don't own a car or truck
- o Other: _____

Q17. Are you aware of whether your locality has a specific place for residents to drop off household hazardous waste (HHW)? HHW includes items like automobile fluids, pesticides and herbicides, oil-based paint and paint thinners, etc.

- Yes
- No / not sure

Q18. Do you wash your car / truck at home?

- Yes
- No, I don't wash my car
- No, I don't wash it at home because I use a commercial car wash
- I don't own a car

Q19. [If yes to Q18] How often do you wash your car / truck at home?

- Less than once a year
- Once a year
- Twice a year
- A few times a year
- Every other month
- Once a month
- Multiple times a month
- Once a week or more often

Q20. [If yes to Q18] When you wash your car / truck at home, which of the following apply?

- □ I try to wash on the grass or other surface that absorbs water
- □ I use environmentally friendly detergent
- □ I don't use any detergent – use water only
- □ None of the above

Q21. Looking at the pictures below, would you consider this to be a potential source of water pollution?

- Yes
- No
- Not sure

Q22. What is the likelihood that you would call county or town officials to report potential pollution so they could investigate the cause?

- Definitely would
- Probably would
- Might or might not
- Probably not
- Definitely not

Q23. How confident are you that you would know where to report potential water pollution?

- o Very confident
- o Somewhat confident
- o Not very confident
- o Not at all confident

Q24. What TV service provider do you use? [RANDOMIZE]

- o Verizon
- o Comcast
- o Cox
- o Direct TV
- o Dish Network
- o Xfinity
- o Do not have cable TV
- o Do not watch TV
- o Other: _____

Q25. Which of the following channels, if any, do you watch? [RANDOMIZE]

- ☐ HLN TV
- ☐ Oxygen
- ☐ Toon
- ☐ ENT
- ☐ Animal Planet
- ☐ CNN
- ☐ ESPN
- ☐ History
- ☐ National Geographic
- ☐ Home and Garden
- ☐ None of the above

Q26. Thinking about the last 12 months, have you heard about any opportunities to participate in a water quality activity, such as a stream clean up, helping to install storm drain labels, etc.?

- Yes
- No / not sure

Q27. [IF YES IN Q26] Thinking about the last 12 months, have you participated in a water quality activity, such as a stream clean up, helping to install storm drain labels, etc.?

- Yes
- No

Q28. Please watch the video below. Before this survey, had you seen this ad, or a similar one on TV, Facebook, or Twitter about reducing water pollution?

- Yes **[CONTINUE WITH Q29]**
- No **[SKIP TO Q30]**
- Not sure **[SKIP TO Q30]**

Q29. Did seeing the ad(s) about reducing water pollution make you change any of your behaviors related to fertilizing less often and/or reducing water pollution?

(Select all that apply)

- ☐ Yes, I now pick up pet waste more often
- ☐ Yes, I now plan to fertilize fewer times during the year
- ☐ Yes, I now properly dispose of motor oil
- ☐ I was already doing what is recommend to reduce water pollution
- ☐ None of the above applies to me

Q30. Have you seen the logo above anywhere? (Show Only Rain logo)

- Yes
- No

Q31. Regardless of whether you have seen that specific ad or logo, have you seen or received information about reducing water pollution from any source in the past 12 months?

- Yes
- No
- Not sure

Appendix B: Clean Water Partners Annual Summary of Results

View online CWP 2022 Annual Summary of Results online:

https://www.onlyrain.org/_files/ugd/200411_a35f9d590ecd406693c1d6730a387b7c.pdf