



WASHINGTON STATE UNIVERSITY
EXTENSION

Practices and challenges in stormwater behavior change programs:

A survey of U.S. professionals

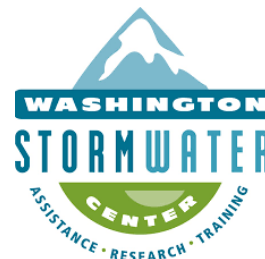
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FINAL REPORT

February 27, 2022



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Background and purpose of this report

We conducted a nationwide survey of staff at public agencies (cities, counties, conservation districts) who conduct behavior change campaigns in stormwater or water quality. This survey was part of a larger project on these campaigns funded by the [Stormwater Action Monitoring](#) (SAM) program (funded by permittees and administered by the WA Department of Ecology). By “behavior change”, we mean programs that seek to get people to change a concrete behavior, such as picking up pet waste or reducing fertilizer use, rather than other “education and outreach” programs that seek to communicate information or change attitudes or programs that provide stewardship and volunteer opportunities. The objective of the survey was to understand how staff chose behavior change programs, how they evaluated them, and the key constraints and opportunities in the increased use of these tools. It was also intended for staff who oversaw consultants who designed, implemented or evaluated behavior change programs.

This report details the procedures we used to collect survey responses and highlights key results. Additional information is provided in Appendix C to this report, which shows the exact questions asked and provides a comprehensive set of response statistics.

Survey elicitation

We know of no possible sample frame (i.e. a list of all behavior-change personnel nationwide) and it was out of our scope of work to construct one. Rather than randomly select participants from such a frame, we sought to solicit as many participants as possible using an open Qualtrics web survey. We disseminated the survey link through Ecology’s listserv, national stormwater associations, and key personnel. We also encouraged word-of-mouth spread of the survey link. We solicited contacts from the Washington State Municipal Stormwater Conference (MuniCon). It is likely that our survey responses suffer from a selection bias and may not be representative nationwide. We would note, however, that we received responses from a majority of regulated entities in western Washington, so our results are somewhat more likely to be representative of that population. The survey opened on October 20, 2021 and ended on November 20, 2021.

Responses and demographics

We collected 224 total responses; 31 of them were discarded because the respondents were not staff members who worked at a city, county, watershed district or conservation district on behavior change campaigns in stormwater runoff reduction or water quality improvement. Among those who reported being qualified to take the survey, 8 respondents did not grant research consent, ending the survey for them. Additionally, we had one test-run after the survey was publicly launched and the test-run response was also excluded from our analysis. Finally, we had 21 responses that reported being qualified and consented to participate in the survey, but no other questions were answered. We excluded the 21 responses from our analysis since they did not yield any information for the study. As a result, we were left with 163 responses that met qualification, consented, and provided information. Survey participants were able to skip questions at any time or submit an incomplete survey, which means the number of

responses varies by question. Our survey respondents came from 19 states. The U.S. map below portrays the number of survey respondents by state with the darker shades representing a greater number of participants. Almost half (78 of 160) were from Washington, with 48 districts or local government agencies represented (refer to Appendix B for the complete list).

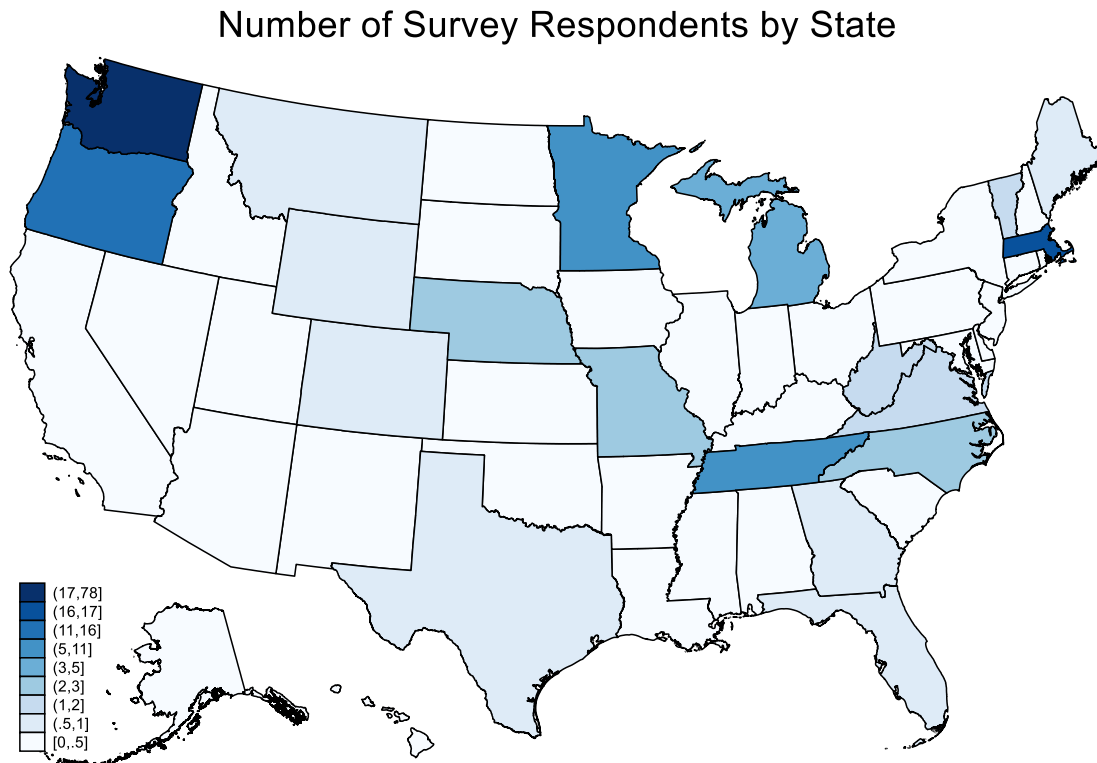


Figure 1: National Distribution of Survey Respondents by State

Half of respondents (56 of 111) had been working on behavior change campaigns in stormwater runoff reduction, water quality or any topic at their current employers for at least five years; 25% (28 of 111) had been working for at least ten years at their current employers. Forty-six percent (49 of 106) of respondents had been working on behavior change campaigns in stormwater runoff reduction, water quality or any topic over the course of their careers for at least ten years. Fourteen percent (15 of 106) had at least 20 years of experience. Over half of respondents (59 of 115) had a bachelor's degree, and 39% (45 of 115) had a master's degree. Twenty-four percent (27 of 112) studied *environmental science, ecology, biology*; 22% (25 of 112) had an *engineering* background; 21% (23 of 112) were in the *field of environmental studies, natural resources*.

Eight key findings

#1 Behavior change campaigns on stormwater reduction or water quality improvement involve multiple views on defining what a behavior change campaign is.

Our definition of behavior change (see above) was clearly stated in the survey preamble and had been reviewed by our expert stormwater colleagues on the Technical Advisory Committee. Nevertheless, we found that some respondents had a broader definition of what a behavior change campaign is than what we defined in the survey preamble. As one individual stated, “In our programming, we do not make a clear-cut distinction between awareness-raising and behavior change campaigns...”. Seven respondents also specifically mentioned *Adopt a Drain* programs, which we would consider a stewardship program that provides volunteer opportunities. A responder specifically wrote “I realize that you may not consider stormdrain adoption as a behavior change program since it does have an element of volunteerism in it; however, the goal of the program is really to get people to participate in the specific behavior of cleaning their storm drains regularly to prevent pollution and flooding...” It is also important to note, however, that we do not separate responses from people who may have defined a behavior change program more broadly.

#2 Combatting pollutants from pet waste and yard care behavior appear to be the priorities in recent behavior change campaigns.

We asked survey respondents to focus on the program that they evaluated most recently if they had evaluated more than one program in the past 5 years. Twenty-four percent (22 of 93) selected *pet waste management and disposal* program; 20% (19 of 93) chose *yard care techniques protective of water quality*. The third most popular evaluation was on *dumpster and trash compactor maintenance* with 8% (7 of 93). We asked stormwater managers which factors were most important in choosing what campaign to implement (Figure 2). Among 102 respondents who described the importance of targeting a specific pollutant or contaminant of concern, 62% (63 of 102) selected *very important* and 27% said *somewhat important*. The second most (57 of 104) *very important* consideration in choosing what campaign to implement was the targeted behavior was something that the responders and their colleagues noticed and believed to be a problem worth addressing. On the other hand, respondents were least likely to say that continuing an existing campaign was an important consideration.

Additionally, we asked a question on which pollutant or contaminant respondents focused on, and 135 participants responded. Thirty-two percent (43 of 135) chose *bacteria (e.g. coliforms)* and 29% (39 of 135) selected *nutrients (e.g. phosphorus)*. We found that fewer respondents, 14% (19 of 135), focused on *toxic chemical (pesticide, household cleaner, etc.)*, 9% (12 of 135) focused on *automotive-related pollutant (tire, oil leaks, cleaning products, etc.)*, and a few people (7 of 135) focused on *heavy metal*. Figure 2 shows survey responses on the most important reason for a pollutant or contaminant to be selected. The most important reason was because it was *listed in the TMDL of a receiving waterbody in their jurisdiction* - 35% (30 of 86). The second most important reason was based on *local water quality data indicating the pollutant was a concern* with 28% (24 of 86) respondents.

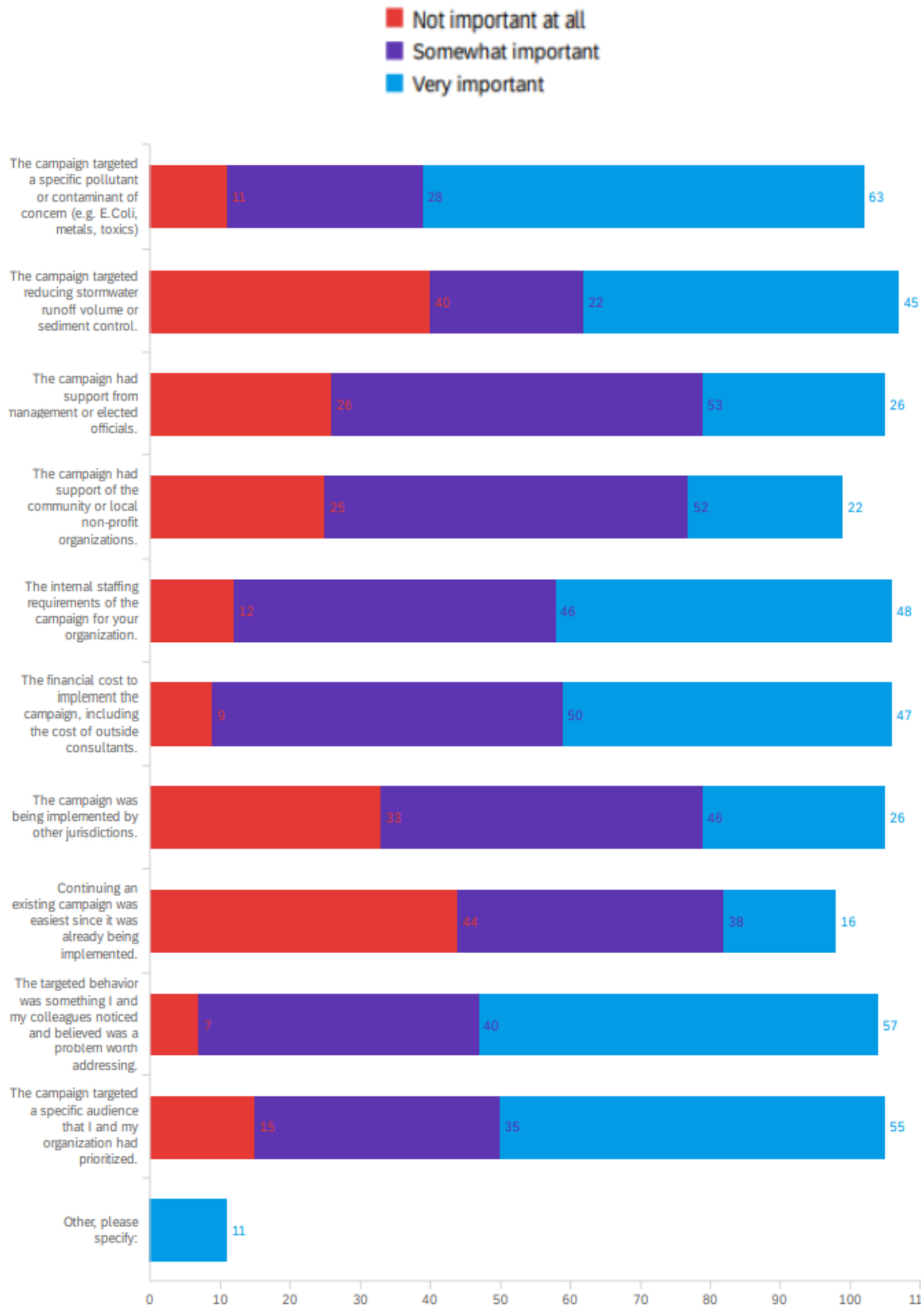


Figure 2: Level of importance of factors that respondents and their colleagues might have considered in choosing a campaign to implement.

Looking at Washington state respondents only, 41 people answered the focused pollutant or contaminant question. The most important reason was also because of TMDL listing which was selected by 24% (10 of 41) of respondents, followed by local water quality data which accounted for 22% (9 of 41) of respondents.

#3 Additional training on social marketing and program evaluation will be helpful in areas where NPDES permits require social marketing.

The majority of respondents, 75% (95 of 126), are required by their NPDES permit to conduct an evaluation of at least one of their behavior change campaigns. However, 38% (44 of 116) had not been trained in “social marketing or community-based social marketing (CBSM)”, 66% (77 of 116) had not had training in program evaluation, and 35% (41 of 116) had not been trained in either. We wanted to gauge respondents’ experience in program evaluation because stormwater professionals who might not have expertise in social marketing could be familiar with methods necessary to help conduct a high-quality impact evaluation, such as using counterfactuals, creating proper survey design, and conducting robust statistical analysis. Only 4% (3 of 69) and 3% (1 of 36) of respondents reported having *expert* skills in social marketing or CBSM and program evaluation, respectively. Twenty percent (14 of 69) and 25% (9 of 36) were *advanced* in social marketing or CBSM and program evaluation, respectively.

We also asked respondents what programs they would find most helpful if training programs were to be offered. Figure 3 reports distribution of respondents’ rankings of training programs. Training programs in *evaluation strategies and metrics* were thought to be the most helpful, as they were the most commonly ranked in the top three. The second most helpful training would be training in *communication strategies*, as one respondent stated “it is very hard to find current behavior change campaign trainings (i.e. have been updated to include the ever changing social media tools, online ads, and other new tools). The regulators are also often not current new methods, processes, and procedures which causes ineffective and/or costly permit requirements that hinder novel approaches.”

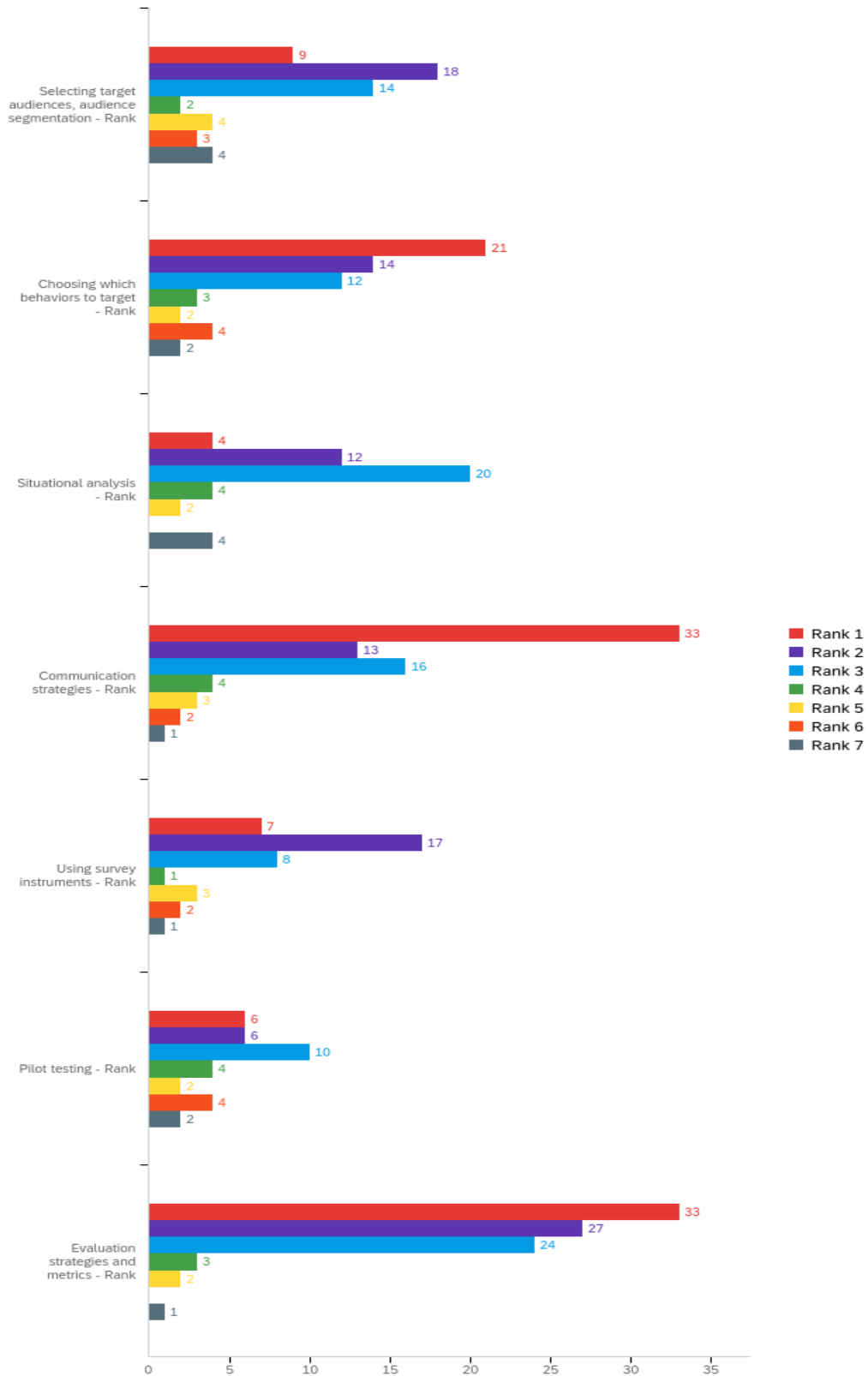


Figure 3: Ranking of preferred training programs

#4 Stormwater professionals feel supported by their organizations, but appear to be short-handed, have competing responsibilities, and need more resources.

Respondents generally felt supported by management in their organizations with 35% (40 of 114) reporting managers were *very supportive* and 33% (38 of 114) reporting *somewhat supportive*. Twenty-one percent (23 of 112) felt local officials were *very supportive* and 24% (27 of 112) felt they were *somewhat supportive*. Twenty-eight percent (31 of 112) felt regulators were *very supportive* and 31% (35 of 112) felt they were *somewhat supportive*. Overall, respondents felt that management in their organizations (35%) were relatively the most *very supportive*, followed by regulators at second (28%) and local officials at last (21%). The following Figure 4 reports the breakdowns in more details. We also asked respondents about obtaining additional funding for a current campaign or a new one, 66% (74 of 113) felt that it was difficult (18% *very difficult* and 48% *somewhat difficult*). One respondent noted, “Our storm water department is severely underfunded, and it is no secret that if the county mayor had a choice the department would not exist. The mindset needs to change beginning at the top in order for the program to receive proper funding and support to do what is needed to really make an impact in our community.”

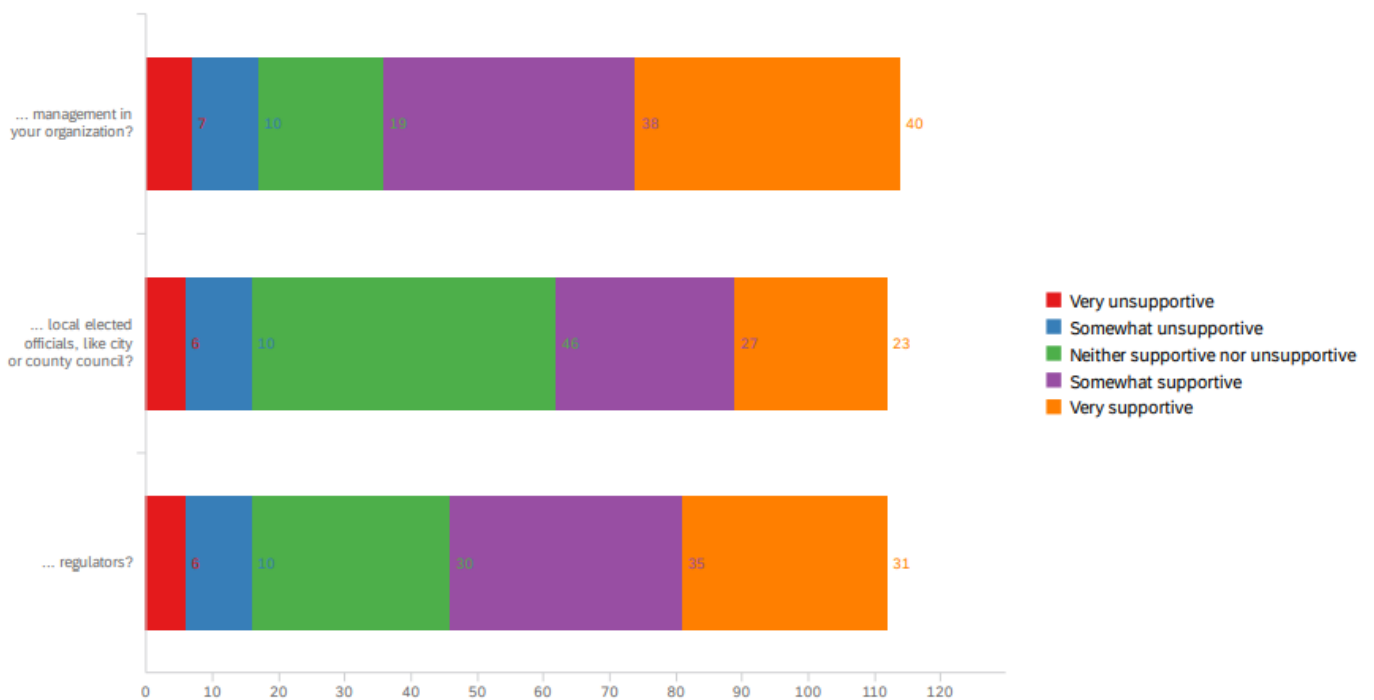


Figure 4: Level of support perceived by respondents

We also asked respondents how many full-time staff (expressed as “full-time equivalents” or FTEs) worked in their organizations on behavior change campaigns on stormwater runoff reduction or water quality improvement. Thirty-eight percent (61 of 160) reported working in organizations with less than one FTE, 33% (53 of 160) reported 1 FTE, and 13% (20 of 160) reported 2 FTE. Forty-five percent (52 of 115) spent less than 10% of their time on behavior change campaigns around stormwater runoff reduction or water quality improvement, and 30% (34 of 115) allocated 10-25%. Meanwhile, most respondents, 92% (105 of 114), also worked on building awareness, fostering stewardship, or both programs. Thirty-seven percent

(39 of 105) spent less than 10% of their time on awareness and stewardship programs, and 35% (37 of 105) used 10-25% of their time for awareness and stewardship programs. Additionally, there were multiple respondents that commented on the difficulties with having insufficient financial resources and personnel. One respondent stated “staffing and funding are our biggest challenge. We have lots of great ideas, but little money or staff to make it happen.” In addition, another respondent wrote “...We tend to do the bare minimum required to meet our MS4 permit requirements. Funding & staff capacity are our biggest restraints.”

#5 Program evaluations on behavior change campaigns could be improved.

We asked whether respondents collected baseline data and data on a comparison group as evaluation measures. Fifty-one percent (49 of 96) did not collect baseline data, and 80% (77 of 96) did not collect data on a comparison group that was not exposed to the campaign materials. A respondent stated “...One of the troubles we ran into in my opinion is a lack of baseline data, a lack of confidence in the with the team that there was value in the campaign and confidence that the behavior change mattered in the big picture...” Another respondent mentioned “my experience working with other professionals is that few understand social science statistics and how to interpret them or appropriate survey design. My other experience is that use of controls is very difficult and expensive. Also that stormwater “impact” in terms of pollution is impossible to measure...” These findings from the survey are consistent with the information that we collected from a review of the literature, where we found that 38% of 47 studies identified did not collect any baseline data, and 89% did not use a comparison group. While the use of baseline data was more common than control groups, both evaluation components could be applied more frequently to make behavior change campaign evaluations more robust.

#6 Staff face challenges with accessing external resources in behavior change campaign implementation

We were interested in learning whether and how stormwater behavior change professionals used external resources. Considering many staff members were untrained in social marketing or CBSM, program evaluation, or both (finding #3), one alternative is to hire external consultants. Fifty-six percent (61 of 110) of respondents had a list of qualified consultants that they could reach out to for help regarding campaign implementation or evaluation. However, jurisdictions might not have sufficient funding for hiring consultants. Most respondents, 79% (103 of 131), did not hire external consultants to help them choose which behavior change campaign to implement and 58% (57 of 98) did not hire any consultants to help with evaluation. While over half of respondents reported having a list of qualified consultants that they could reach out to for help, many respondents did not, with 44% (49 of 110) saying *no*. In addition to external consultants, online materials from the EPA’s Non-Point Source Toolbox are also available to help stormwater professionals in the development, implementation or evaluation of behavior change campaigns. However, 56% (62 of 111) had never used any materials from the online resource. One reason is because staff members might not be aware of the online materials, as one respondent stated “...I wasn’t aware of the EPA Outreach Toolbox...” Another possible explanation is that staff members did not have enough time to explore external resources. They were short-handed and had competing responsibilities (finding #4).

#7 Collaborations with other jurisdictions are common in stormwater runoff reduction or water quality improvement behavior change campaigns

Most organizations have collaborated with other jurisdictions in designing or implementing behavior change campaigns: 79% (88 of 112) of respondents reported coordinating with other jurisdictions in the past five years. As we can see on Figure 5, the most common reason for collaborations was to create consistent messaging across jurisdictions and increase the campaign’s impact by triggering regionally normative behavior (43% of respondents). The second most important reason was to share financial costs such as hiring a common consultant, 25% (22 of 87) of respondents, followed by 16% (14 of 87) said to share expertise. One respondent wrote “All of our campaigns have been through partnership. Small jurisdictions do not have the capacity to implement these campaigns alone. They are very time intensive and typically comprise only a small fraction of the staff’s workload.”

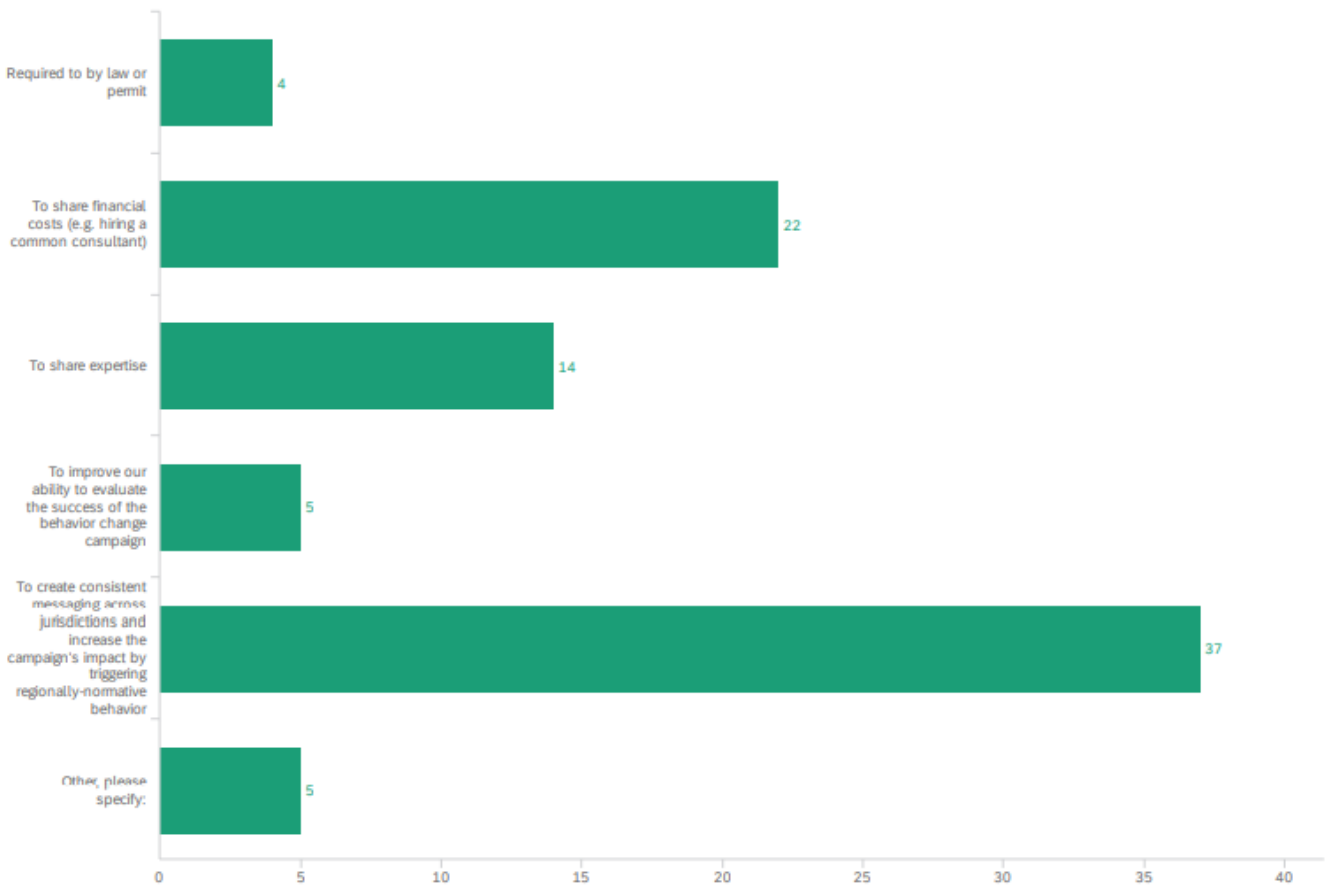


Figure 5: Reason for jurisdiction collaborations

#8 Permit requirements may need adjustments to account for different jurisdictions' sizes

We noticed some of the write-in comments were related to the need for differentiating the permit requirement between small- and large-size jurisdictions. For example, one respondent stated “Behavioral change campaigns are a challenge for small jurisdictions. There is limited staff and financial resources..., these campaigns should be handled at the regional level.” Another respondent wrote “This permit requirement is much better suited to large jurisdictions.” The comments prompted us to conduct some comparisons between large-size jurisdictions and the overall findings. While there were no specific survey questions on determining each jurisdiction’s size, we used the number of full-time equivalents (FTE) employed as a proxy for an organization’s size. We assumed that the respondents who reported working in organizations with 3 or more FTE were in large-size jurisdictions.

Focusing on the presumably large-size jurisdictions, we found 60% (9 of 15) felt that it was difficult (7% *very difficult* and 53% *somewhat difficult*) to obtain additional funding for an existing or a new campaign. The percentages are relatively low when compared to the overall findings, particularly the *very difficult* responses. Additionally, 24% (4 of 17) of respondents spent less than 10% of their time on behavior change campaigns around stormwater runoff reduction or water quality improvement. No respondent reported spending less than 10% of their time on awareness and stewardship programs. The preceding information suggest that organizations with 3 or more FTE also appear to have more resources than the overall findings. However, we needed to be cautious with the conclusion since our analysis was based on a small sample of 26 respondents.

Next steps

The results from the survey will inform future deliverables for this SAM project, including the development of an evaluation training manual and a web-based tool to help professionals select stormwater behavior change programs. For more information on the survey or to request access to de-identified survey data, please contact Prof. Joe Cook (joe.cook@wsu.edu).

Appendix A

Solicitation email

Subject line: University research on behavior change programs in water quality

Do you work on behavior change programs in water quality? We want to hear from you!

We are researchers at Washington State University conducting a survey of staff members who work at cities and counties throughout the U.S. on behavior change programs in stormwater or water quality. By “behavior change”, we mean programs that seek to get people to change a concrete behavior, such as picking up pet waste or reducing fertilizer use, rather than other “education and outreach” programs that seek to change information, attitudes or beliefs or programs that provide stewardship and volunteer opportunities. The **objective of this survey** is to understand how staff choose behavior change programs, how they evaluate them, and key constraints and opportunities in the increased use of these tools. It is also intended for staff who oversee consultants who design, implement or evaluate behavior change programs.

We expect the survey will take approximately 15 minutes to complete. Click **HERE** to take the survey. The link will close on **November 20th**.

If you know someone who you think would be interested in completing the survey, please feel free to forward this email.

Please let us know if you have any questions about the survey. Thank you in advance for your participation.

Sincerely,

Prof. Joe Cook and Wisnu Sugiarto (WSU School of Economics) (embedded links to our profile pages)

Appendix B: Identified districts or local government agencies in Washington

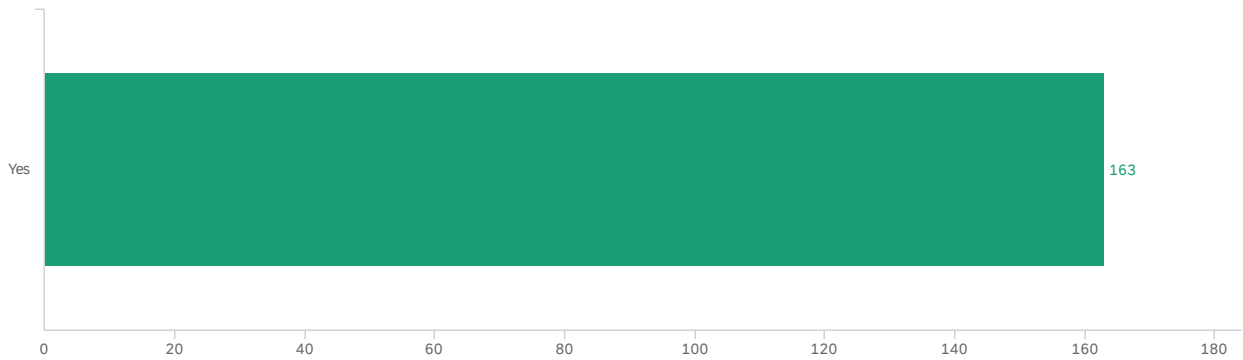
1. City of Auburn
2. City of Bellingham
3. City of Bothell
4. City of Bremerton
5. City of Covington
6. City of DuPont
7. City of Duvall
8. City of Fife
9. City of Issaquah
10. City of Kelso
11. City of Kent
12. City of Kirkland
13. City of Lacey
14. City of Lakewood
15. City of Maple Valley
16. City of Mill Creek
17. City of Mountlake Terrace
18. City of Mount Vernon
19. City of Newcastle
20. City of Normandy Park
21. City Olympia
22. City of Pacific
23. City of Poulsbo
24. City of Renton
25. City of Seattle
26. City of Sedro-Wooley
27. City of Sequim
28. City of Shelton
29. City of Shoreline
30. City of Sumner
31. City of Snoqualmie
32. City of Tacoma
33. City of Tukwila
34. City of Wenatchee
35. City of Woodinville
36. Clark County
37. Cowlitz County
38. King County
39. Kitsap County
40. Pierce County
41. Puget Sound Region, State Agency
42. Port of Bellingham
43. Seattle Public Utilities
44. Skagit County
45. Snohomish County
46. Spokane
47. Spokane County/Newman Lake
48. Thurston County

Appendix C: Full questionnaire and survey results

WSU Behavior Change Survey

December 23, 2021 5:55 PM MST

Qualification - Are you a staff member who works at a city, county, watershed district or conservation district on behavior change campaigns in stormwater runoff reduction or water quality improvements?

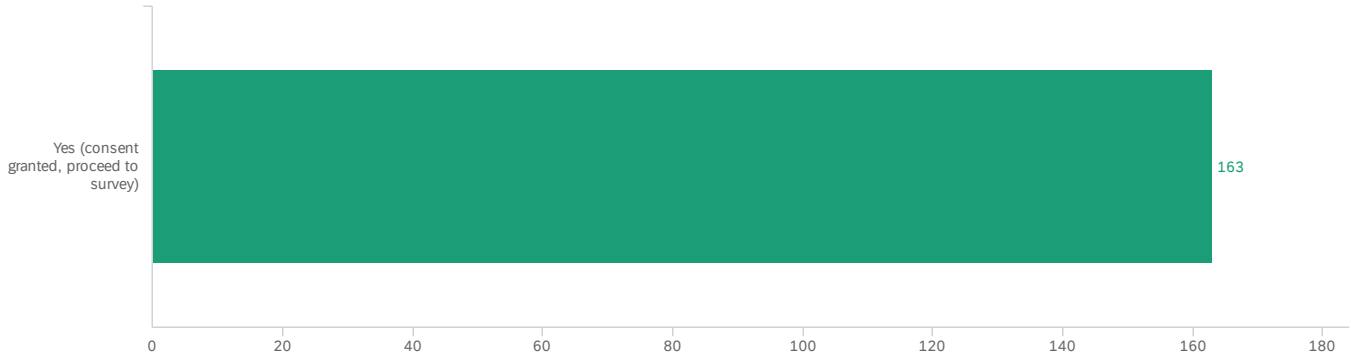


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Are you a staff member who works at a city, county, watershed district or conservation district on behavior change campaigns in stormwater runoff reduction or water quality improvements?	1.00	1.00	1.00	0.00	0.00	163

#	Field	Choice Count
1	Yes	100.00% 163

Showing rows 1 - 1 of 1

Consent - Great! Your responses will be very helpful to our research. Would you like to continue with the survey?

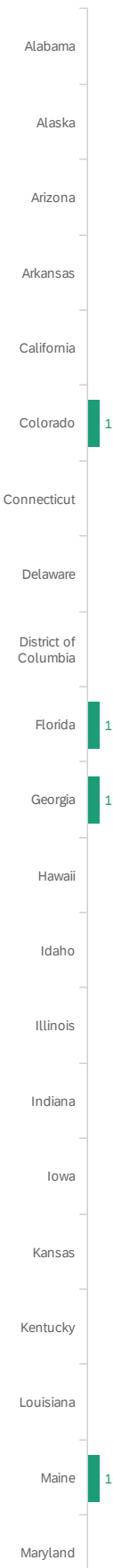


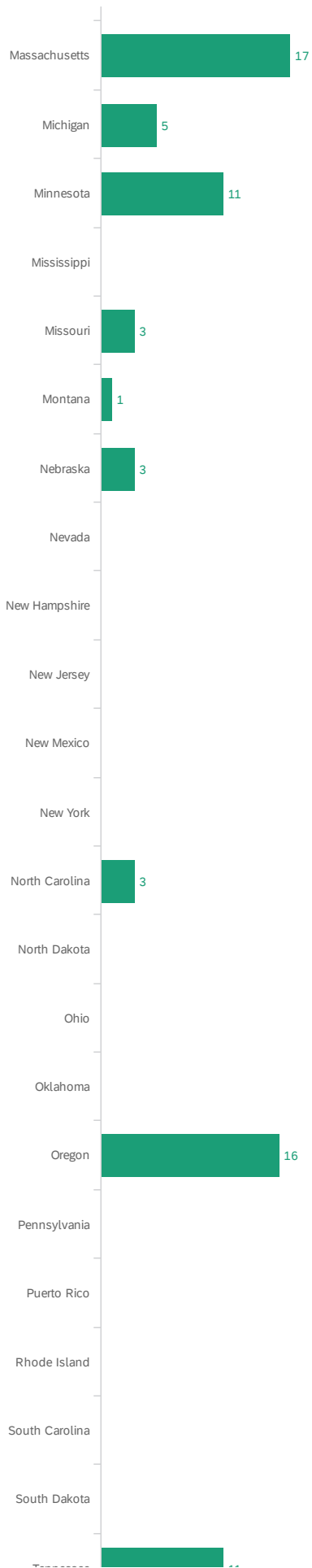
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Great! Your responses will be very helpful to our research. Would you like to continue with the survey?	1.00	1.00	1.00	0.00	0.00	163

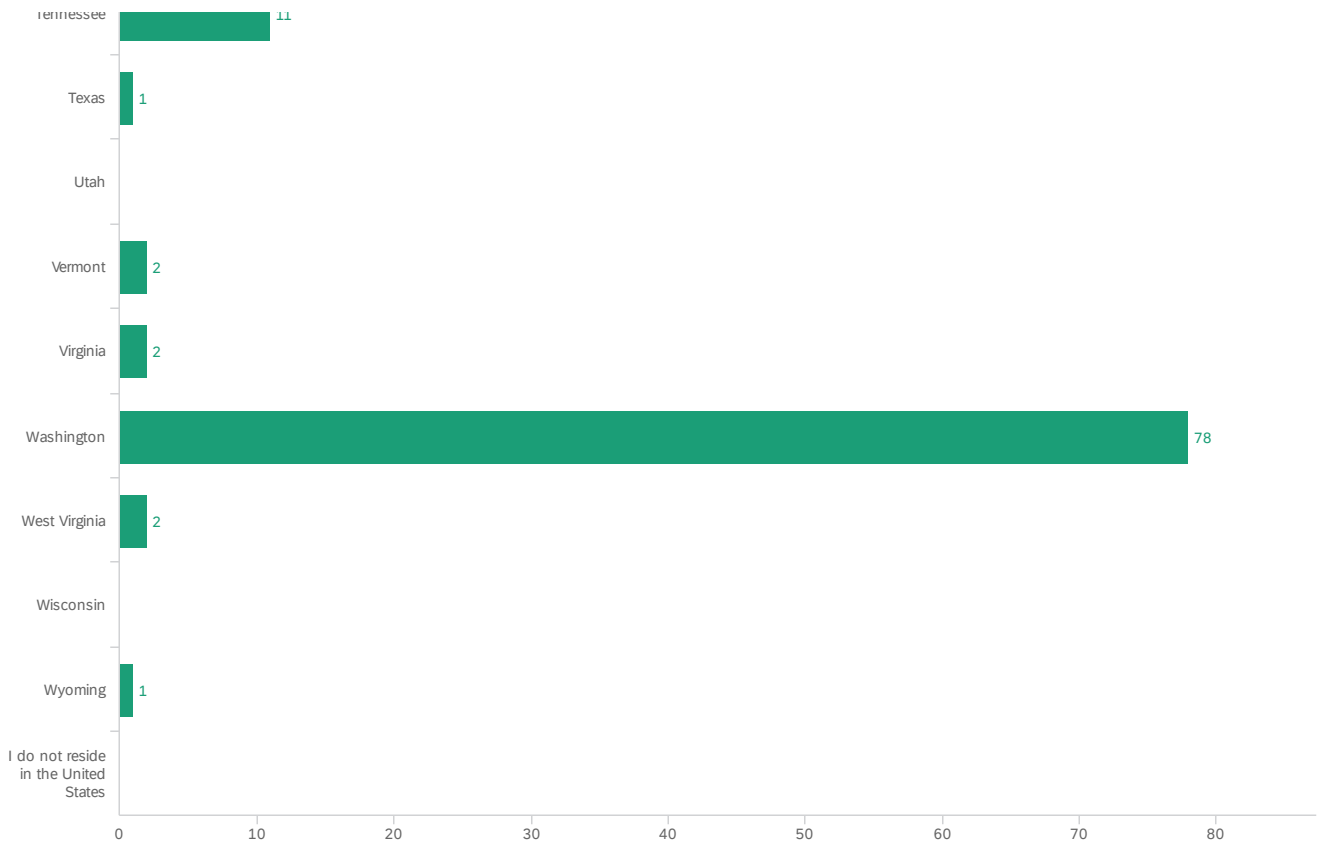
#	Field	Choice Count
1	Yes (consent granted, proceed to survey)	100.00% 163

Showing rows 1 - 1 of 1

Work State - 50 States, D.C. and Puerto Rico







#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	50 States, D.C. and Puerto Rico	6.00	52.00	39.95	11.60	134.47	160

#	Field	Choice Count
1	Alabama	0.00% 0
2	Alaska	0.00% 0
3	Arizona	0.00% 0
4	Arkansas	0.00% 0
5	California	0.00% 0
6	Colorado	0.63% 1
7	Connecticut	0.00% 0
8	Delaware	0.00% 0
9	District of Columbia	0.00% 0
10	Florida	0.63% 1

#	Field	Choice Count
11	Georgia	0.63% 1
12	Hawaii	0.00% 0
13	Idaho	0.00% 0
14	Illinois	0.00% 0
15	Indiana	0.00% 0
16	Iowa	0.00% 0
17	Kansas	0.00% 0
18	Kentucky	0.00% 0
19	Louisiana	0.00% 0
20	Maine	0.63% 1
21	Maryland	0.00% 0
22	Massachusetts	10.63% 17
23	Michigan	3.13% 5
24	Minnesota	6.88% 11
25	Mississippi	0.00% 0
26	Missouri	1.88% 3
27	Montana	0.63% 1
28	Nebraska	1.88% 3
29	Nevada	0.00% 0
30	New Hampshire	0.00% 0
31	New Jersey	0.00% 0
32	New Mexico	0.00% 0
33	New York	0.00% 0
34	North Carolina	1.88% 3
35	North Dakota	0.00% 0
36	Ohio	0.00% 0
37	Oklahoma	0.00% 0
38	Oregon	10.00% 16

#	Field	Choice Count
39	Pennsylvania	0.00% 0
40	Puerto Rico	0.00% 0
41	Rhode Island	0.00% 0
42	South Carolina	0.00% 0
43	South Dakota	0.00% 0
44	Tennessee	6.88% 11
45	Texas	0.63% 1
46	Utah	0.00% 0
47	Vermont	1.25% 2
48	Virginia	1.25% 2
49	Washington	48.75% 78
50	West Virginia	1.25% 2
51	Wisconsin	0.00% 0
52	Wyoming	0.63% 1
53	I do not reside in the United States	0.00% 0
		160

Showing rows 1 - 54 of 54

0.2 - What is the name of city, county, or district you work for? (If you would prefer not to say, just leave this blank)

What is the name of city, county, or district you work for? (If you would p...

Knox County

Springfield

Renton

City of Mt. Juliet

Sequim

City of Chattanooga

Metropolitan St. Louis Sewer District

Millington

Rutherford County

La Vergne

City of Clarksville

City of Issaquah

wilson county

Mill Creek

Kalispell

Clinton Conservation District

Merrimack Valley Planning Region - portion of Essex County

Pioneer Valley - facilitate education and outreach for Connecticut River Stormwater Committee (20 MS4s)

Kirkland

City of O'Fallon

City Of Albany, Oregon

What is the name of city, county, or district you work for? (If you would p...

Kent

King County

Fife

Town of Brookline

Clark County

Coastal NC Municipality

Port of Bellingham

DuPont

Carver County

Metropolitan St. Louis Sewer District

Braintree

Lexington

City of Rochester

City of Austin

Salem

City of Eugene

Klamath Falls

Fayetteville

Eaton Conservation District

Shelton

Lane County

Benton

City of South Burlington

Covington

What is the name of city, county, or district you work for? (If you would p...

Southwick

Clackamas Water Environment Services

City of Casper

Hutchinson

City of Central Point

City of Shelton

Westfield

Tri-County Regional Planning Commission (the Ingham, Clinton, Eaton County MPO)

Mecklenburg

City of Mount Vernon

Duvall

Kitsap County, WA

Puget Sound region, state agency

King County

Town of Dedham

Lincoln

Wellesley

Seattle Public Utilities

Bellingham

TJSWCD

City of Olympia

City of Fridley

Shoreline

Washington County and Lower St. Croix Watershed

What is the name of city, county, or district you work for? (If you would p...

Coon Creek Watershed District

City of Bloomington

City of Newcastle

Maple Valley

Spokane County/Newman Lake

Newton

Grand Valley Metro Council (Grand Rapids, MI)

Arapahoe County

Scottsbluff

Springfield

City of Mountlake Terrace

Gwinnett County

Cowlitz

Holden

Carnelian Marine St. Croix Watershed District

Pepperell

pierce

Chittenden County

City of Lacey

University of Nebraska Lincoln

City of Framingham

Wheeling

Gresham

Hennepin County

What is the name of city, county, or district you work for? (If you would p...

Pacific

City of Kirkland

City of Sedro-Woolley

Spokane

Kelso

City of Lakewood

Olympia

Snohomish County

Spokane

Sumner

Thurston County

Tukwila

Bremerton

Auburn

Pierce County

Seattle

Snohomish County

Kitsap County

Skagit

Tacoma

City of Poulsbo

Snoqualmie

Skagit

Normandy Park

What is the name of city, county, or district you work for? (If you would p...

Skagit County

Bothell

Kitsap

City of Woodinville

City of Wenatchee

Kitsap County

0.3 - What is the name of the division you work for?

What is the name of the division you work for?

Stormwater Compliance

Public Works

Utility Systems

Public Works - Stormwater

Public Works

Water Quality Program

Environmental Compliance

Storm water , P.E.D.

Engineering

Stormwater

Stormwater

Street Dept

Public Works

Public Works Engineering

Department of Public Works & Development Services

Public Works

Merrimack Valley Planning Commission

Land Use and Environment

Storm Water

Public Works

Storm and Surface Water Division - Public Works Department

Engineering

What is the name of the division you work for?

Stormwater Utility

PW-Environmental Services

Public Works, Environmental Engineering

Stormwater

Environmental

Public Works

DPW/Engineering Division

Public Works - Clean Water

Public Works Engineering

Stormwater

Environmental

Public Works

Planning & Water Management

Stormwater Division

Engineering

Public Works Environmental Services

Watershed Protection Department

Operations

Wastewater

Wastewater Division

Watershed Management

Town Hall

Administration

Facilities Management

What is the name of the division you work for?

DPW

Public Works

Public Works Engineering

Public House

Public Works - Engineering

Department of Public Works - Stormwater Services

Public Works

Public Works

Watershed Protection group, Environmental Services Division

Wastewater Colection

Public Works

Public Works

Community Development

Public Works

Public Works

DPW

Greater Lansing Regional Committee for Stormwater Management

Storm Water Services

Public Works, Surface Water Utility Division

Public Works

Public Works Stormwater Division

Science & Evaluation

Solid Waste

Wastewater/ Stormwater

What is the name of the division you work for?

Community Planning & Economic Development

Engineering Department

Conservation Dept.

Engineering

Maintenance Operations

Drainage and Wastewater, Source Control and Pollution Prevention

Lower Grand River Organization of Watersheds

Public Works

N/A

Environmental Services

Public Works Department

Public Works

East Metro Water Resource Education Program (a partnership of 30 local government entities)

Public and Government Relations

Engineering

Surface Water Program

Public Works

public works

Public Works / Newman Lake Flood Control Zone District

Dept. of Public Works, Utilities Division

Lower Grand River Organization of Watersheds

Public Works and Development

Wastewater

Stormwater Division

What is the name of the division you work for?

Environmental Services

Public Works

Department of Water Resources

DPW

Watershed District

DPW

swm

n/a

Public Works, Water Resources

Environmental Health and Safety

Department of Public Works

Water Pollution Control Division

Water Resources

Environment and Energy Department

Public Works

Storm & Surface Water Division

Public Works

Wastewater

Engineering

City of Kelso, Community Development-Engineering Department

Public Works / SWM Division

Environmental Services

Surface Water Management

Wastewater Management

What is the name of the division you work for?

Water Resources

Public Works

Community Planning

Public Works

Public Works

Public Works

Planning and Public Works Maintenance and Operations

University of Washington

Surface Water Management

Public Works, Stormwater Division

Skagit Conservation District

Environmental Services

Public Works

Parks and Public Works

Natural Resources

Public Works

Natural Resources Division

Surface Water

Stormwater

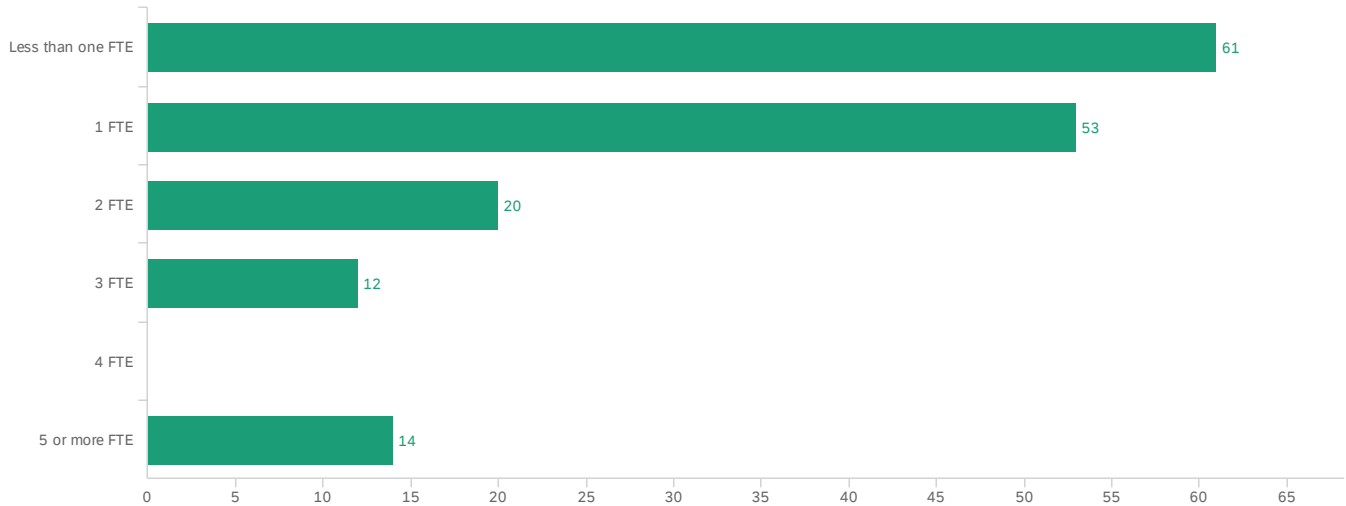
Stormwater

Public Works

Public Works

Stormwater

0.4 - How many full-time staff (expressed as "full-time equivalents" or FTEs) work in your organization on behavior change campaigns on stormwater runoff reduction or water quality improvements? Include yourself, but do not include FTEs devoted to general awareness or stewardship campaigns. Round to the nearest whole number.

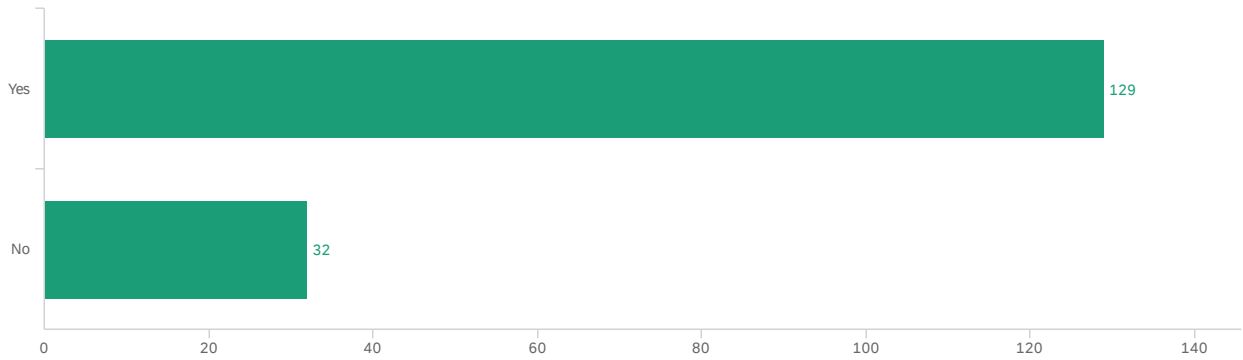


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How many full-time staff (expressed as "full-time equivalents" or FTEs) work in your organization on behavior change campaigns on stormwater runoff reduction or water quality improvements? Include yourself, but do not include FTEs devoted to general awareness or stewardship campaigns. Round to the nearest whole number.	1.00	6.00	2.24	1.47	2.15	160

#	Field	Choice Count
1	Less than one FTE	38.13% 61
2	1 FTE	33.13% 53
3	2 FTE	12.50% 20
4	3 FTE	7.50% 12
5	4 FTE	0.00% 0
6	5 or more FTE	8.75% 14

Showing rows 1 - 7 of 7

0.5 - Is your organization mandated to implement behavior change campaigns in stormwater runoff reduction or water quality improvements as part of its NPDES permit?



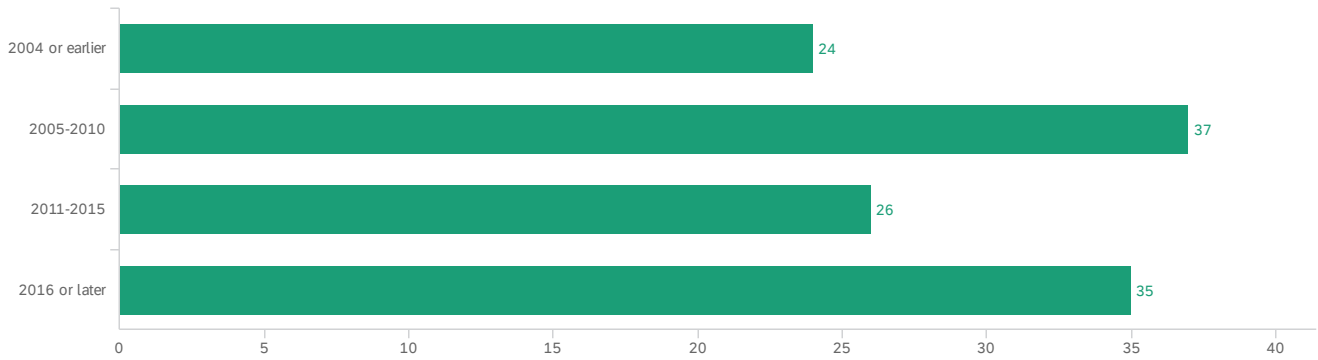
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Is your organization mandated to implement behavior change campaigns in stormwater runoff reduction or water quality improvements as part of its NPDES permit?	1.00	2.00	1.20	0.40	0.16	161

#	Field	Choice Count
1	Yes	80.12% 129
2	No	19.88% 32

161

Showing rows 1 - 3 of 3

0.6 - When did your organization begin implementing behavior change campaigns in stormwater runoff reduction or water quality improvement?



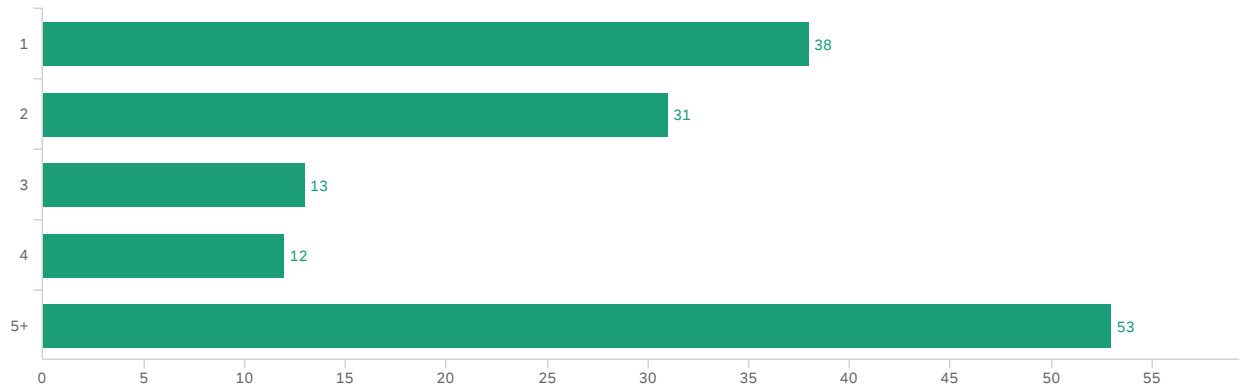
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	When did your organization begin implementing behavior change campaigns in stormwater runoff reduction or water quality improvement?	1.00	4.00	2.59	1.10	1.21	122

#	Field	Choice Count
1	2004 or earlier	19.67% 24
2	2005-2010	30.33% 37
3	2011-2015	21.31% 26
4	2016 or later	28.69% 35

122

Showing rows 1 - 5 of 5

1.1 - How many behavior change campaigns in stormwater runoff reduction or water quality improvement is your jurisdiction currently implementing?



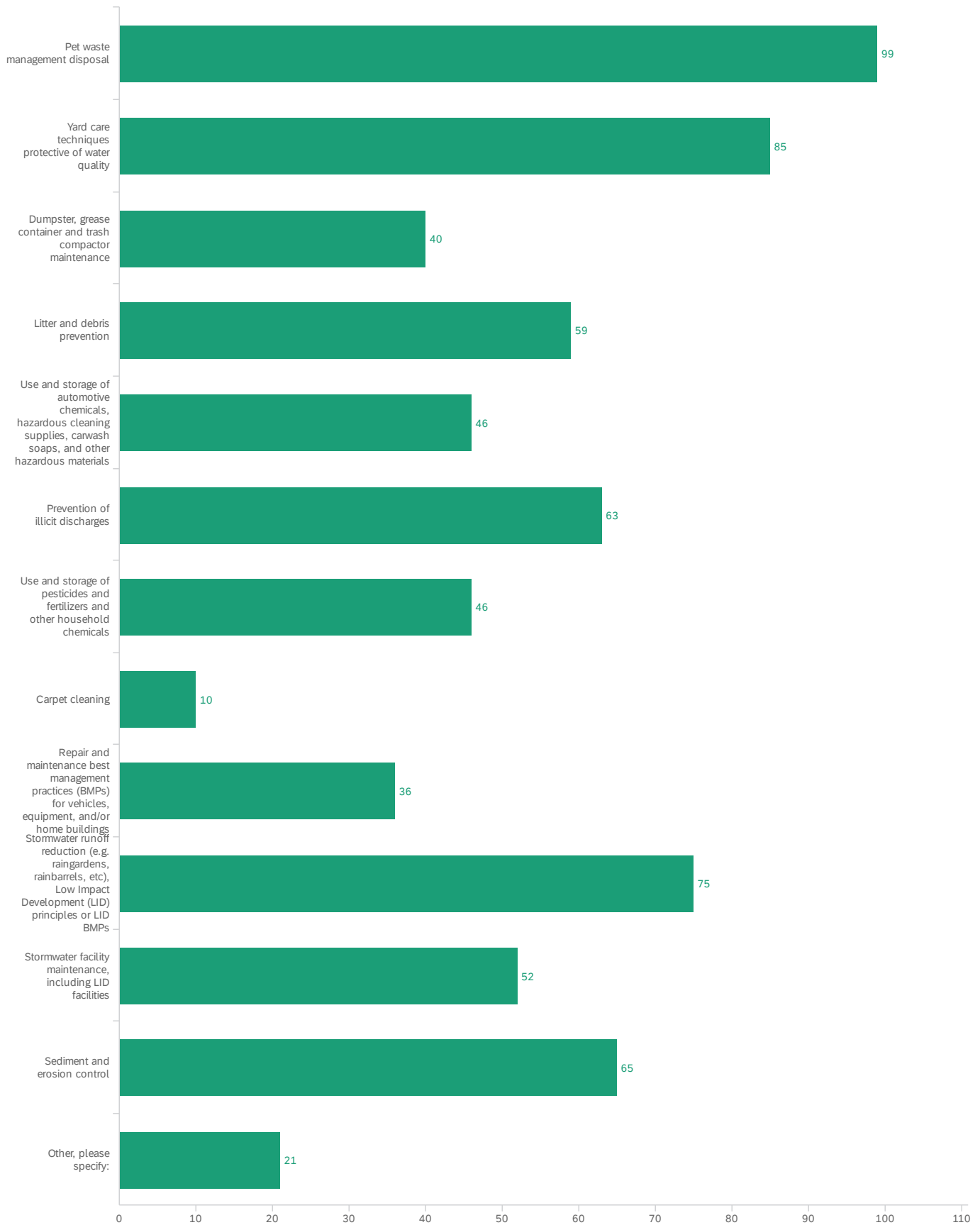
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How many behavior change campaigns in stormwater runoff reduction or water quality improvement is your jurisdiction currently implementing?	1.00	5.00	3.07	1.66	2.76	147

#	Field	Choice Count
1	1	25.85% 38
2	2	21.09% 31
3	3	8.84% 13
4	4	8.16% 12
5	5+	36.05% 53
		147

Showing rows 1 - 6 of 6

1.2 - What types of behavior change campaigns does your jurisdiction currently implement? This list is drawn from the Washington State NPDES Phase I Municipal Stormwater Permit; please try to match your campaigns to these categories if possible, though we provide an option to write in campaigns that don't fit into these categories.

(Choose all that apply)



Field

Choice Count

1 Pet waste management disposal

14.20% 99

#	Field	Choice Count
2	Yard care techniques protective of water quality	12.20% 85
3	Dumpster, grease container and trash compactor maintenance	5.74% 40
4	Litter and debris prevention	8.46% 59
5	Use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps, and other hazardous materials	6.60% 46
6	Prevention of illicit discharges	9.04% 63
7	Use and storage of pesticides and fertilizers and other household chemicals	6.60% 46
8	Carpet cleaning	1.43% 10
9	Repair and maintenance best management practices (BMPs) for vehicles, equipment, and/or home buildings	5.16% 36
10	Stormwater runoff reduction (e.g. raingardens, rainbarrels, etc), Low Impact Development (LID) principles or LID BMPs	10.76% 75
11	Stormwater facility maintenance, including LID facilities	7.46% 52
12	Sediment and erosion control	9.33% 65
13	Other, please specify:	3.01% 21
		697

Showing rows 1 - 14 of 14

1.2_13_TEXT - Other, please specify:

Other, please specify:

Salt/Winter De-Icing

Stream buffer related practices

reduce chloride use and pollution, and reduce watering of lawns to reduce runoff

winter deicer use (smart salting)

Industrial stormwater, industrial pretreatment

Cigarette butt receptacles

Chloride (Road Salt)

Adopt a Drain- cleaning and disposing of materials accumulating on and near stormdrains

Smart Salting Chloride Reduction

We do all of the above to a degree but focus on runoff reduction, shoreline/wetland buffer maintenance, Adopt a Drain (storm drain), and ag BMPs

Other, please specify:

Stormdrain adoption and maintenance

Adopt A Drain

Adopt a Drain - Keeping catch basins clear to prevent localized flooding from stormwater

septic system maintenance

Chloride impacts and SMART Salting, Operation and Maintenance of Stormwater Facilities, Highlighting local water quality improvements and concerns, focused engagement with landowners with high potential phosphorus pollutant hotspots based on landuse,

Septic maintenance

Aquatic invasive Species: Clean, Drain, Dry, Dispose & Adopt-a-Drain (clean litter and leaves from storm drains)

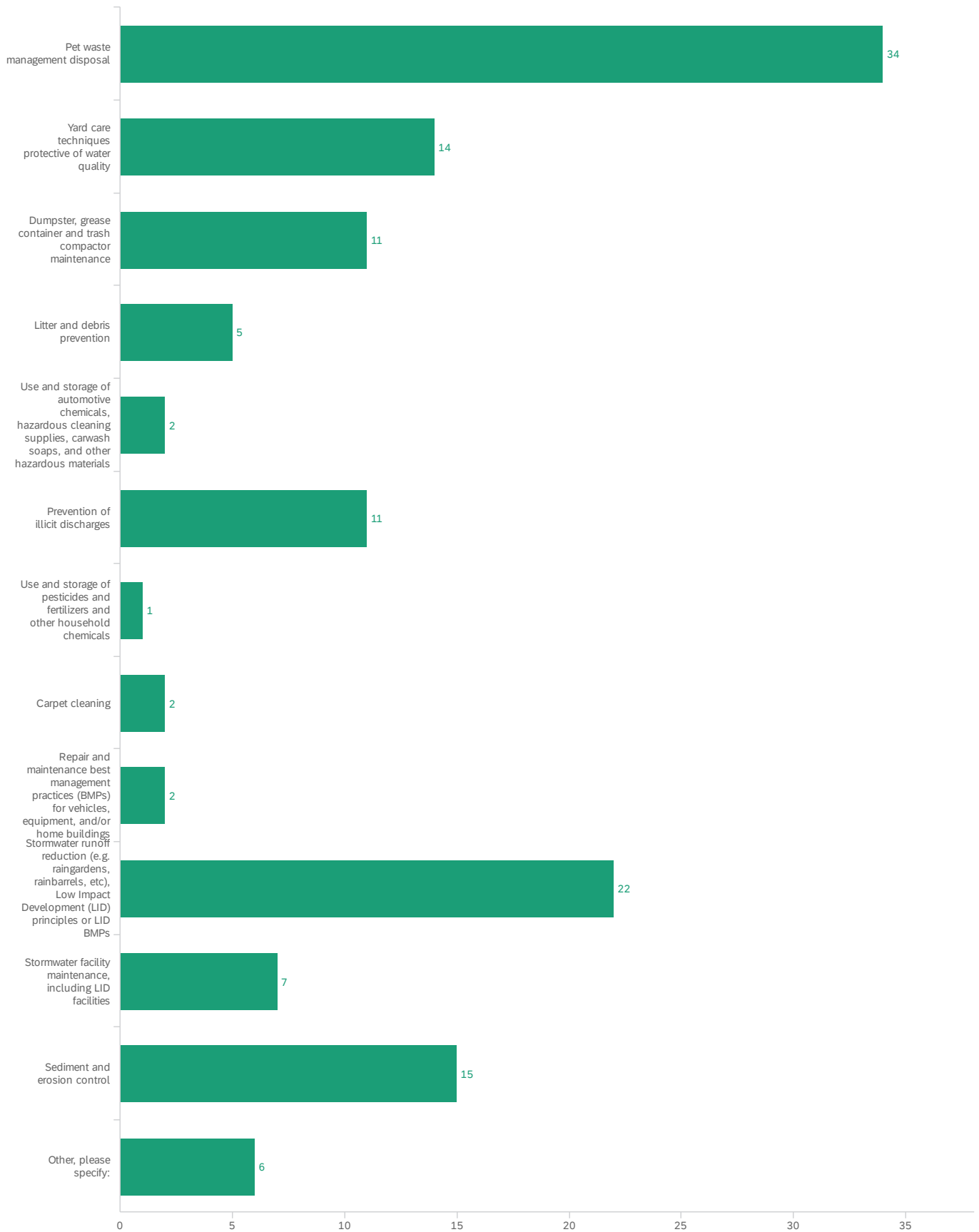
Phosphorus reduction from residential properties within lake watersheds

Adopt A Drain

Septic system management, farm management, recreationalist poop management

Mobile Contractors

2.1 - What best describes the type of campaign that you will answer the questions on this screen about?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
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#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What best describes the type of campaign that you will answer the questions on this screen about? - Selected Choice	1.00	13.00	5.96	4.42	19.57	132

#	Field	Choice Count
1	Pet waste management disposal	25.76% 34
2	Yard care techniques protective of water quality	10.61% 14
3	Dumpster, grease container and trash compactor maintenance	8.33% 11
4	Litter and debris prevention	3.79% 5
5	Use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps, and other hazardous materials	1.52% 2
6	Prevention of illicit discharges	8.33% 11
7	Use and storage of pesticides and fertilizers and other household chemicals	0.76% 1
8	Carpet cleaning	1.52% 2
9	Repair and maintenance best management practices (BMPs) for vehicles, equipment, and/or home buildings	1.52% 2
10	Stormwater runoff reduction (e.g. raingardens, rainbarrels, etc), Low Impact Development (LID) principles or LID BMPs	16.67% 22
11	Stormwater facility maintenance, including LID facilities	5.30% 7
12	Sediment and erosion control	11.36% 15
13	Other, please specify:	4.55% 6
		132

Showing rows 1 - 14 of 14

2.1_13_TEXT - Other, please specify:

Other, please specify:

Adopt a Drain- cleaning up and disposing of debris on or near stormdrains

Smart Salting - Chloride Reduction

Stormdrain adoption

Adopt A Drain

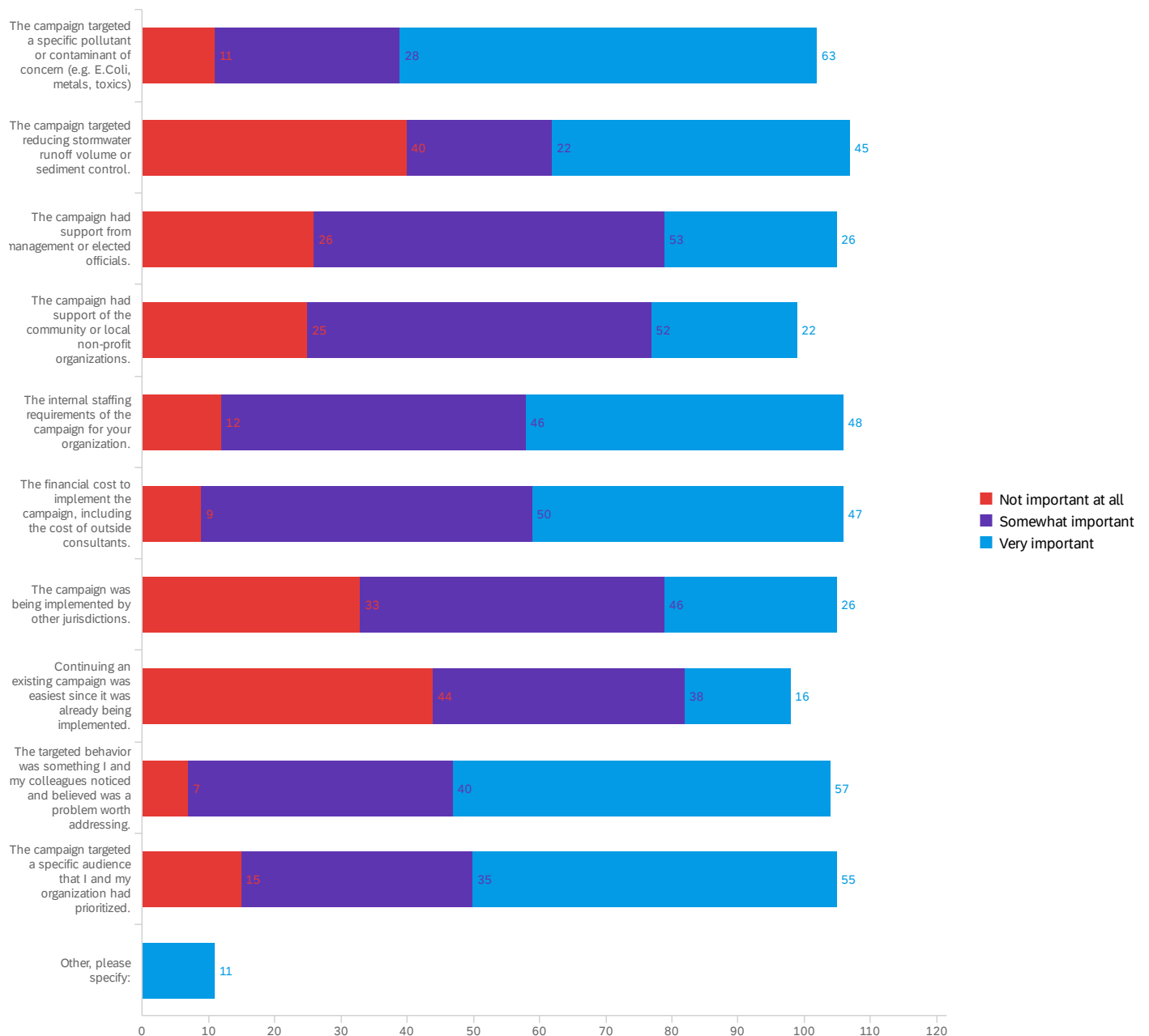
Adopt-a-Drain

Other, please specify:

Septic system management

2.2 - The table below lists several factors that you and your colleagues might have considered in choosing to implement that campaign rather than some other type of behavior change campaign. For each reason on the left, drag it into the box that best describes how important it was in your decision making. Within the "very important" box, please order them with the most important reason on the top.

QID71 - Groups



2.2_11_TEXT - Other, please specify:

Other, please specify:

survey data indicated opportunity

Required by NPDES MS4 permit

The campaign helped existing infrastructure function

Campaign aligned with other NPDES Permit Requirements

The program both reduces stormwater flow and pollution (LID) and serves an educational feature for the community. It also helps us build relationships with community members - LID has multiple benefits, beautifying yards and solving drainage issues and which supports relationship building with residents

The campaign was started by another agency and they do part of the oversight which reduces staffing burden for implementation

Required by our NPDES MS4 Permit

We received feedback from residents via focus groups that this was something they were interested in more information about

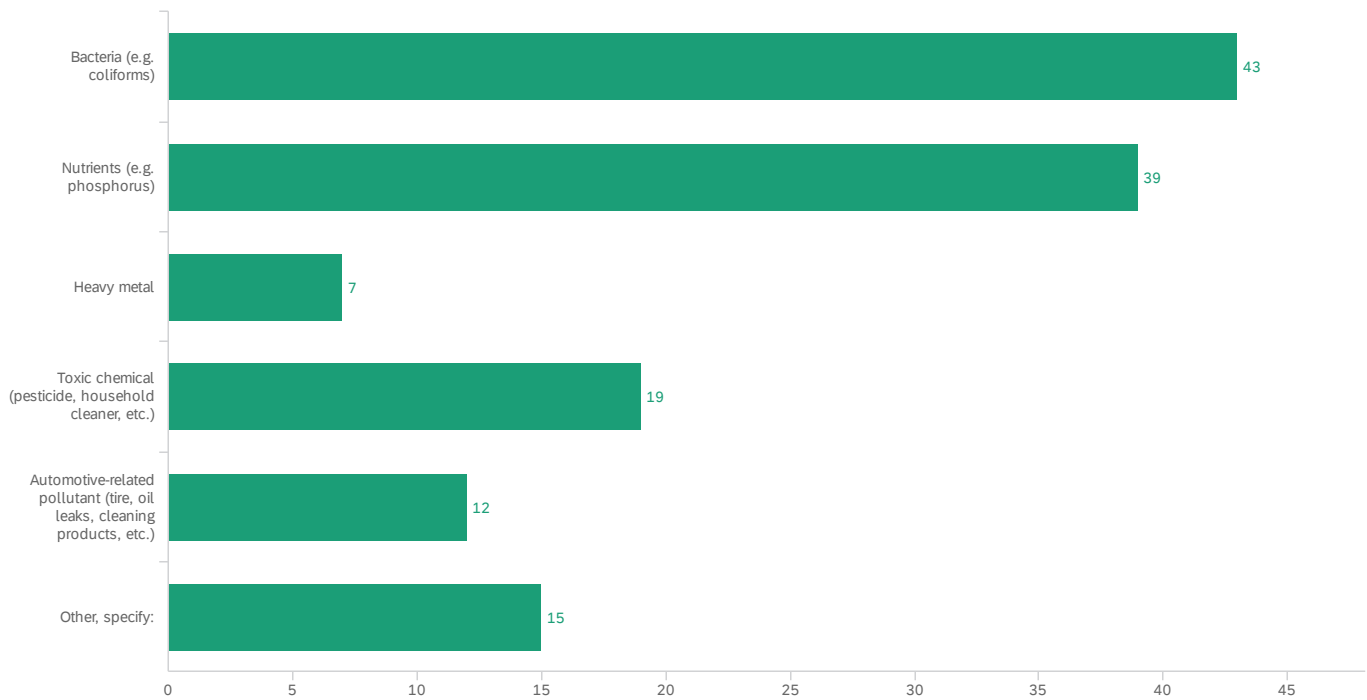
Required by NPDES

Campaign was easy to get across to community

Resources available to support reporting the work (statewide reporting website <https://adopt-a-drain.org/>)

Regional group partnership choice

2.3 - Which pollutant or contaminant did you focus on? (choose all that apply)



#	Field	Choice Count
1	Bacteria (e.g. coliforms)	31.85% 43
2	Nutrients (e.g. phosphorus)	28.89% 39
3	Heavy metal	5.19% 7
4	Toxic chemical (pesticide, household cleaner, etc.)	14.07% 19
5	Automotive-related pollutant (tire, oil leaks, cleaning products, etc.)	8.89% 12
6	Other, specify:	11.11% 15

135

Showing rows 1 - 7 of 7

2.3_6_TEXT - Other, specify:

Other, specify:

Sediment

dumpster juice/ organics

Depended on Community but primarily bacteria and nutrients

Other, specify:

Pollutants found in a dumpster, which could include all above

SEDIMENT

vegetation debris

microplastics

All of these can be found in leaking dumpster juice

Chlorides

Dumpster materials - hazardous wastes, solvents, etc.

sediment

litter

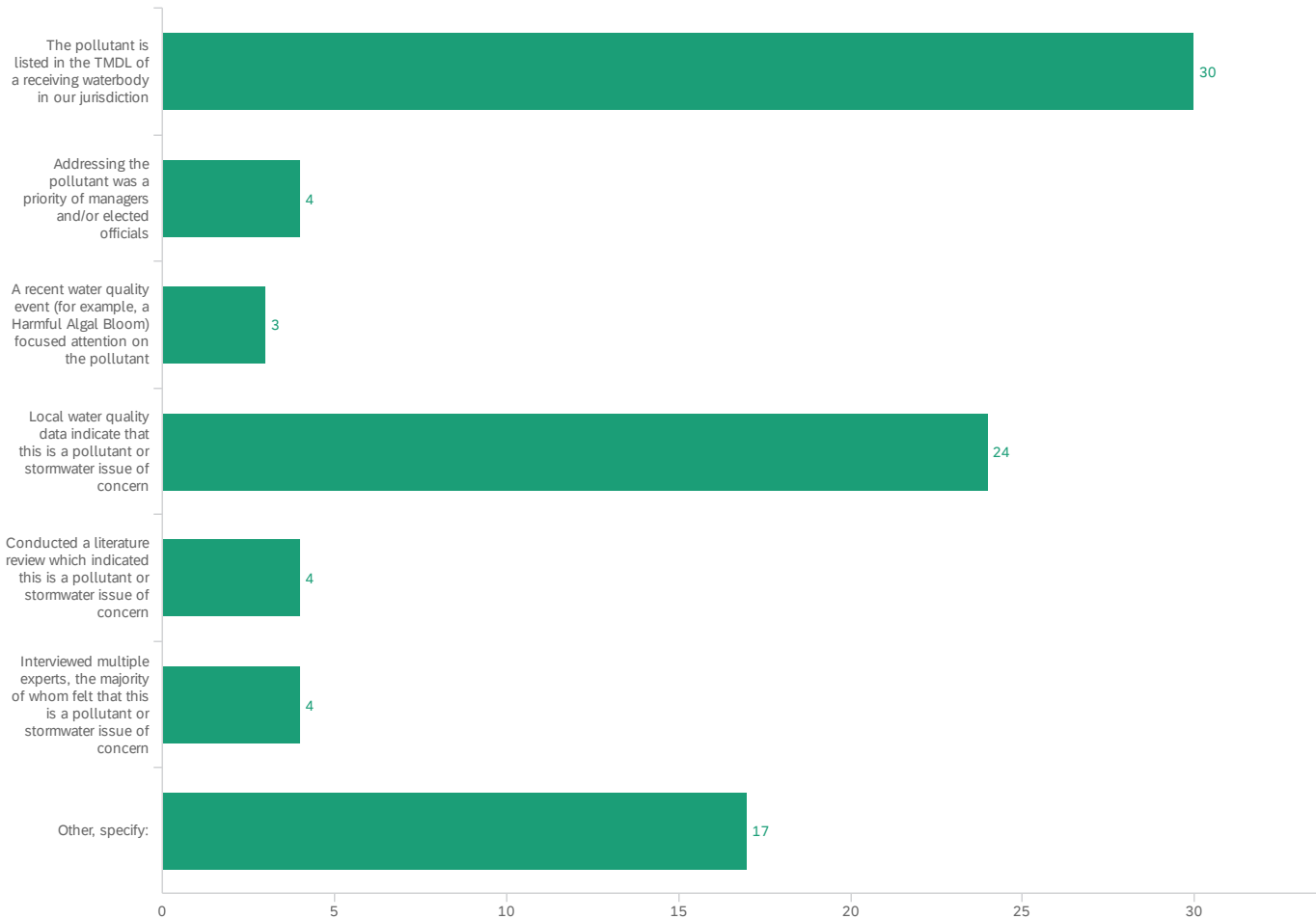
sediment

Various pollutants from dumpsters, FOGs

Runoff in general (carries all the pollutants; Sediments

2.4 - What was the most important reason you chose that specific pollutant or

contaminant to focus on? (choose one)



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What was the most important reason you chose that specific pollutant or contaminant to focus on? (choose one) - Selected Choice	1.00	7.00	3.56	2.28	5.18	86

#	Field	Choice Count
1	The pollutant is listed in the TMDL of a receiving waterbody in our jurisdiction	34.88% 30
2	Addressing the pollutant was a priority of managers and/or elected officials	4.65% 4
3	A recent water quality event (for example, a Harmful Algal Bloom) focused attention on the pollutant	3.49% 3
4	Local water quality data indicate that this is a pollutant or stormwater issue of concern	27.91% 24

#	Field	Choice Count
5	Conducted a literature review which indicated this is a pollutant or stormwater issue of concern	4.65% 4
6	Interviewed multiple experts, the majority of whom felt that this is a pollutant or stormwater issue of concern	4.65% 4
7	Other, specify:	19.77% 17
		86

Showing rows 1 - 8 of 8

2.4_7_TEXT - Other, specify:

Other, specify:

Pollutants are easiest to stop at their source, so preventing any contamination into the storm drain system is the focus of our program.

Group Consensus during development of the campaign

Required in MS4 permits within our region given water quality issues

Local source control program, IDDE indicated this was an issue

incidental to data

Omni presence

We didn't choose a specific pollutant

We are part of CRC which is focusing on pesticides. It's also called out in our MS4 permit.

NA

on the 303(d) list (does not have a TMDL yet)

Wanted to experiment with phytoremediation

Required messaging in our MS4 permit for "discharges to certain impaired waters"

sediment in water

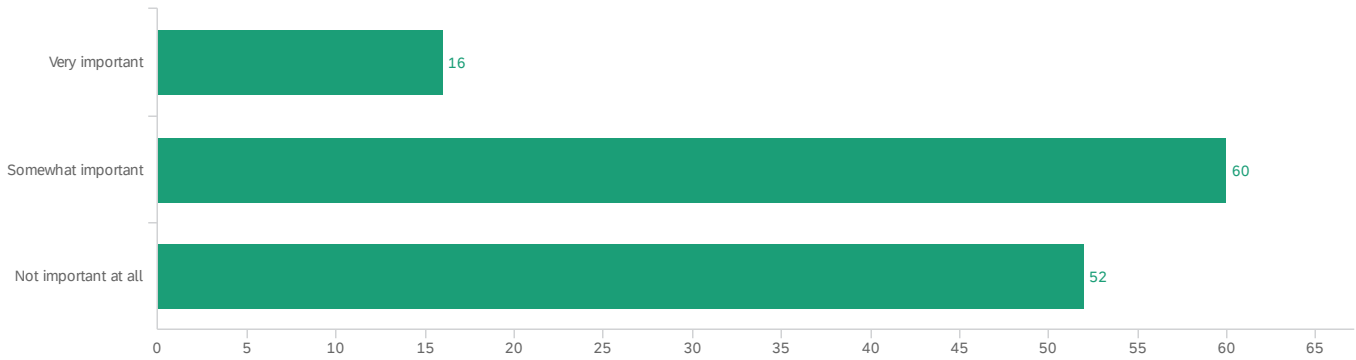
With 17 years of inspection data in the City of Lakewood, we felt like this was one area/sector to focus on, along side many others that we are working on, ie: Dumpster Campaign (that is still in the works)

Pesticide control is called out in the NPDES permit

It seemed one of the most feasible for a behavior change program including evaluation

Observed illicit discharges

2.5 - In deciding which audience to target for the behavior change campaign, how important was it for the campaign to target marginalized and/or overburdened communities (e.g. by income, race, or non-native English speakers)?

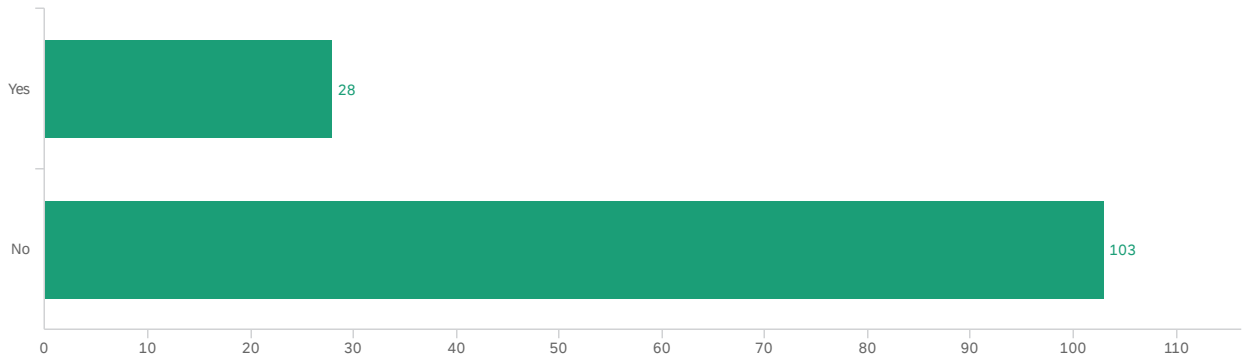


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	In deciding which audience to target for the behavior change campaign, how important was it for the campaign to target marginalized and/or overburdened communities (e.g. by income, race, or non-native English speakers)?	1.00	3.00	2.28	0.67	0.45	128

#	Field	Choice Count
1	Very important	12.50% 16
2	Somewhat important	46.88% 60
3	Not important at all	40.63% 52
		128

Showing rows 1 - 4 of 4

2.6 - Did you or your organization hire an external consultant to help you choose this behavior change campaign to implement?

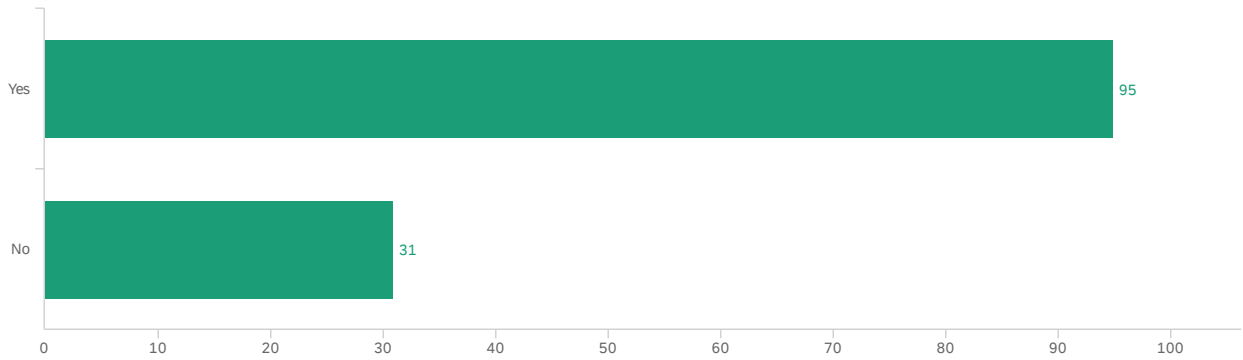


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Did you or your organization hire an external consultant to help you choose this behavior change campaign to implement?	1.00	2.00	1.79	0.41	0.17	131

#	Field	Choice Count
1	Yes	21.37% 28
2	No	78.63% 103
		131

Showing rows 1 - 3 of 3

3.1 - Are you required by NPDES permit to conduct an evaluation of at least one of your behavior change campaigns?



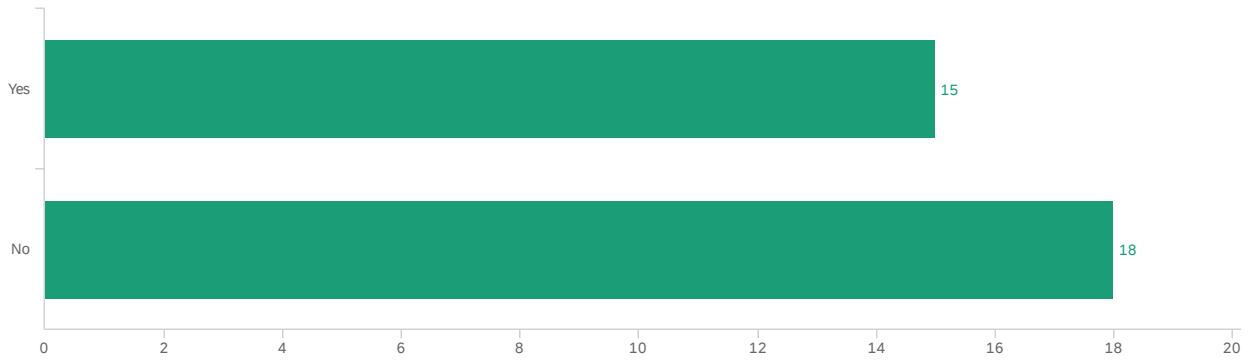
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Are you required by NPDES permit to conduct an evaluation of at least one of your behavior change campaigns?	1.00	2.00	1.25	0.43	0.19	126

#	Field	Choice Count
1	Yes	75.40% 95
2	No	24.60% 31

126

Showing rows 1 - 3 of 3

3.2 - Have you evaluated a behavior change campaign on stormwater runoff reduction or water quality improvement?



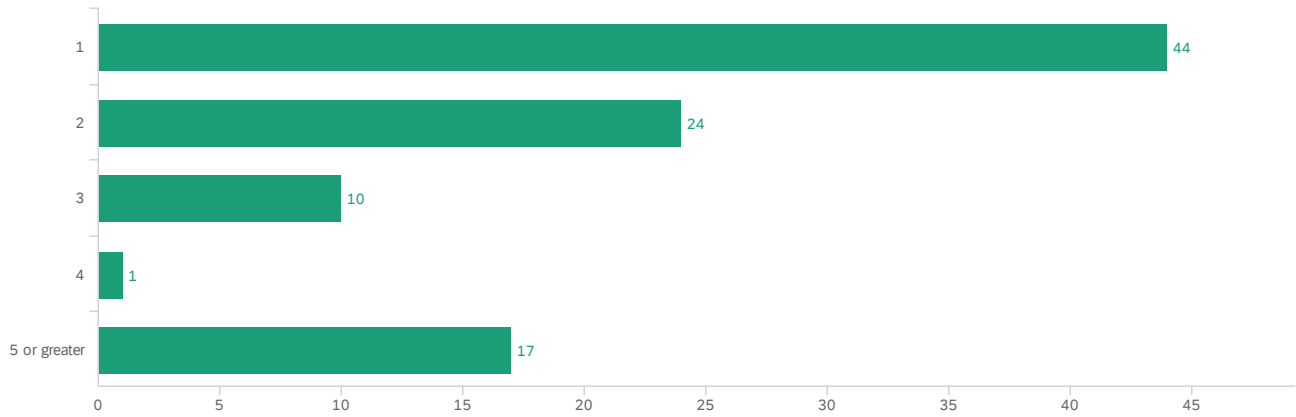
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Have you evaluated a behavior change campaign on stormwater runoff reduction or water quality improvement?	1.00	2.00	1.55	0.50	0.25	33

#	Field	Choice Count
1	Yes	45.45% 15
2	No	54.55% 18

33

Showing rows 1 - 3 of 3

3.3 - How many behavior change campaigns on stormwater runoff reduction or water quality improvement have you or your organization evaluated in the past five years?



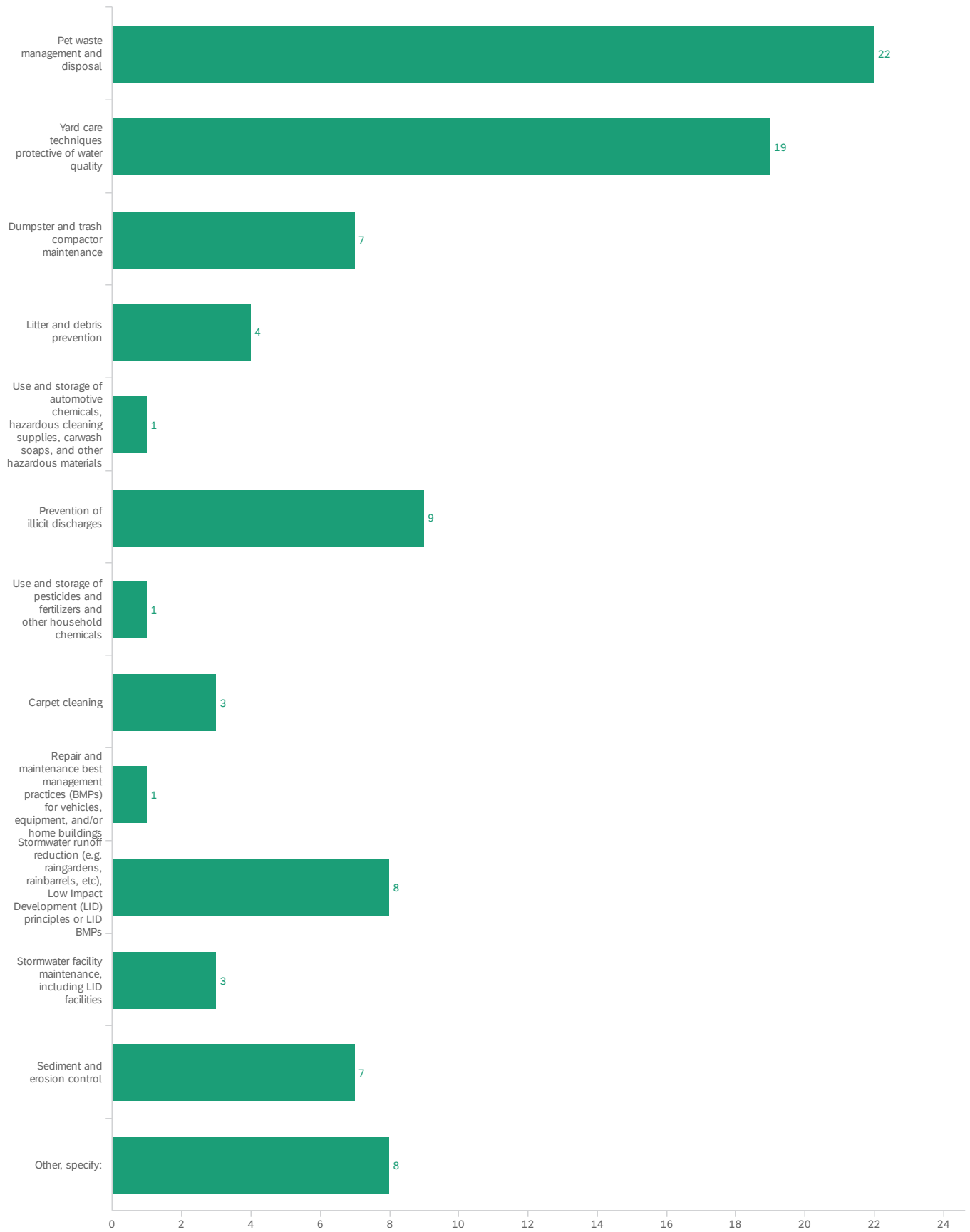
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How many behavior change campaigns on stormwater runoff reduction or water quality improvement have you or your organization evaluated in the past five years?	1.00	5.00	2.20	1.47	2.16	96

#	Field	Choice Count
1	1	45.83% 44
2	2	25.00% 24
3	3	10.42% 10
4	4	1.04% 1
5	5 or greater	17.71% 17
		96

Showing rows 1 - 6 of 6

3.4 - If you evaluated more than one in the past five years, please focus on the program you evaluated most recently in answering the remainder of the questions on this page.

What best describes the type of campaign that you will answer the questions on this screen about?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
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#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	If you evaluated more than one in the past five years, please focus on the program you evaluated most recently in answering the remainder of the questions on this page. What best describes the type of campaign that you will answer the questions on this screen about? - Selected Choice	1.00	13.00	5.34	4.35	18.96	93

#	Field	Choice Count
1	Pet waste management and disposal	23.66% 22
2	Yard care techniques protective of water quality	20.43% 19
3	Dumpster and trash compactor maintenance	7.53% 7
4	Litter and debris prevention	4.30% 4
5	Use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps, and other hazardous materials	1.08% 1
6	Prevention of illicit discharges	9.68% 9
7	Use and storage of pesticides and fertilizers and other household chemicals	1.08% 1
8	Carpet cleaning	3.23% 3
9	Repair and maintenance best management practices (BMPs) for vehicles, equipment, and/or home buildings	1.08% 1
10	Stormwater runoff reduction (e.g. raingardens, rainbarrels, etc), Low Impact Development (LID) principles or LID BMPs	8.60% 8
11	Stormwater facility maintenance, including LID facilities	3.23% 3
12	Sediment and erosion control	7.53% 7
13	Other, specify:	8.60% 8
		93

Showing rows 1 - 14 of 14

3.4_13_TEXT - Other, specify:

Other, specify:

Proper Restaurant Practices

Adopt a Drain

stewardship, tree planting

Stormdrain adoptions

Other, specify:

In 2013 the MS4 Permit group conducted an evaluation.

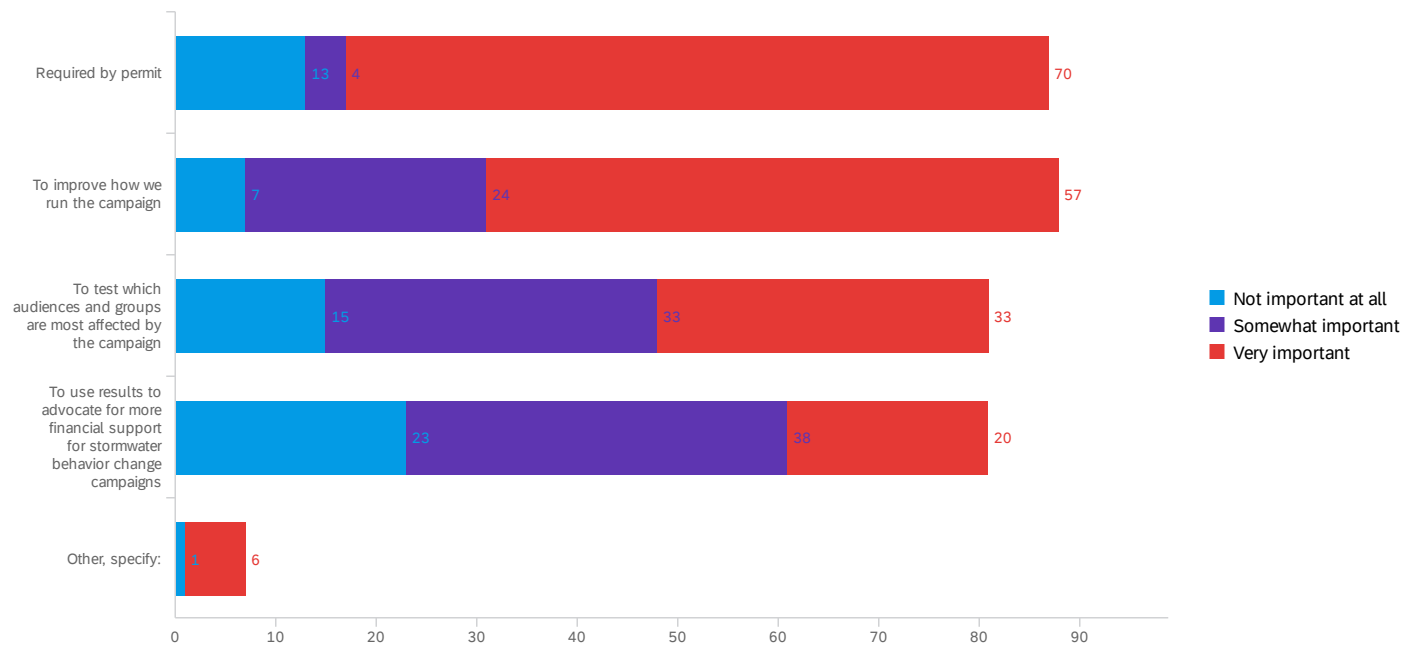
Adopt-a-Drain

Pet waste, septic system inspection, farm management, and recreational poop management, all in one campaign

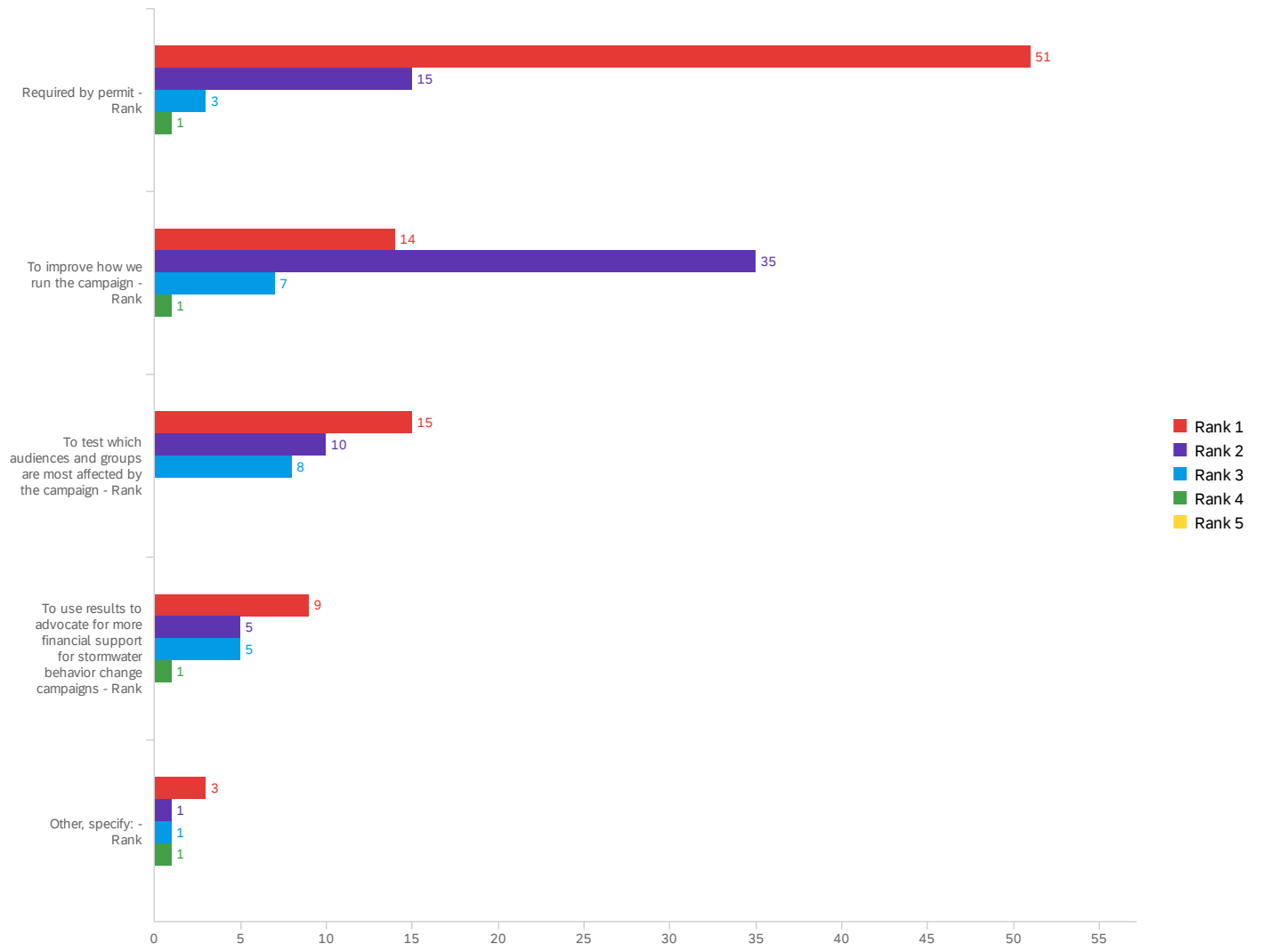
Pool and hot tub water disposal

3.5 - Organizations conduct evaluations for many reasons. For each reason on the left, drag it into the box that best describes how important it was in your decision to evaluate the campaign. Within the "very important" box, please order them with the most important reason on the top.

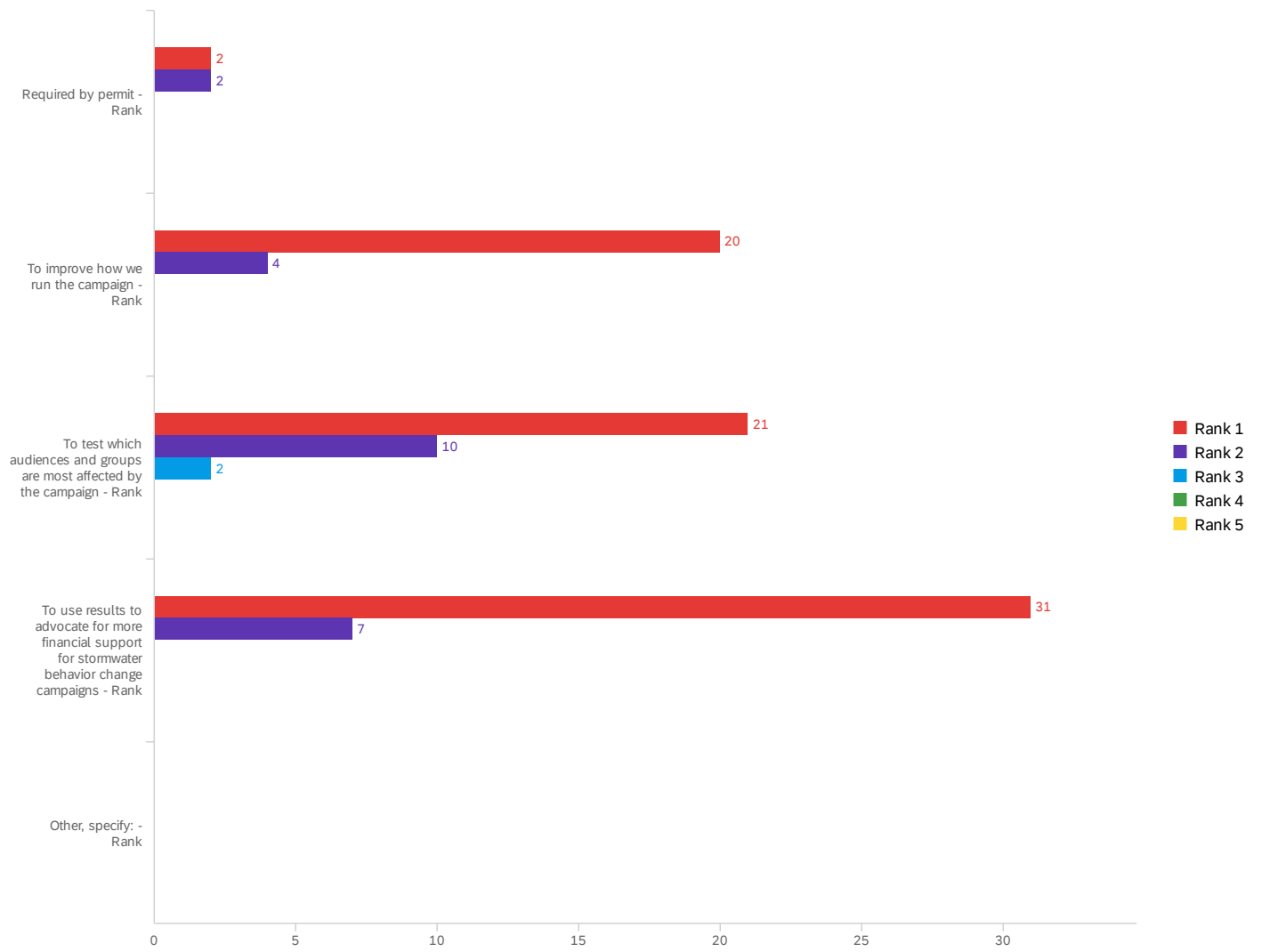
QID73 - Groups



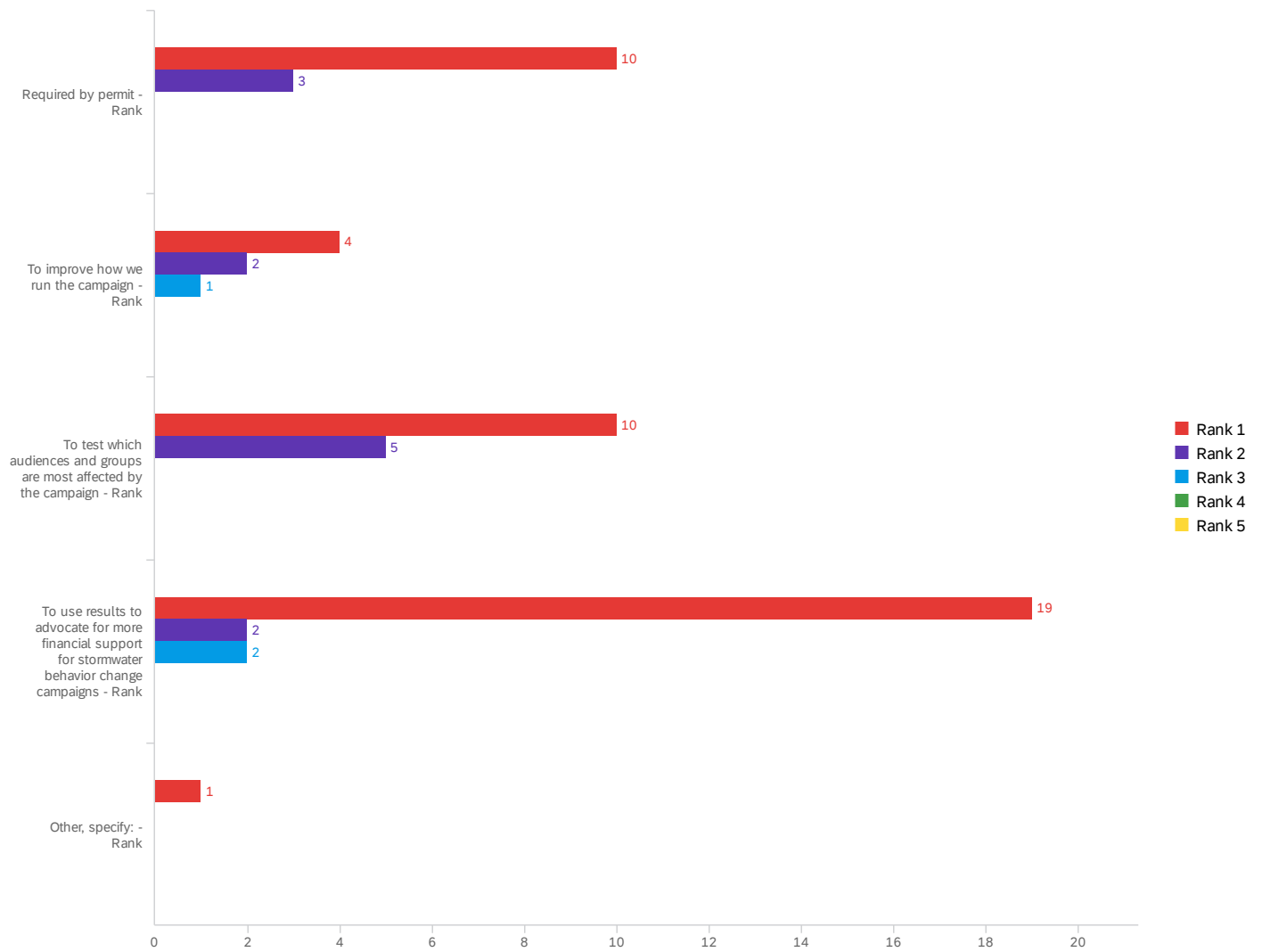
QID73 - Very important



QID73 - Somewhat important



QID73 - Not important at all



3.5_5_TEXT - Other, specify:

Other, specify:

To ascertain potential adoption rates of incentivized raingardens in a pilot to decide whether to expand citywide

To understand if the program is effective and the money invested into the program is being effectively spent

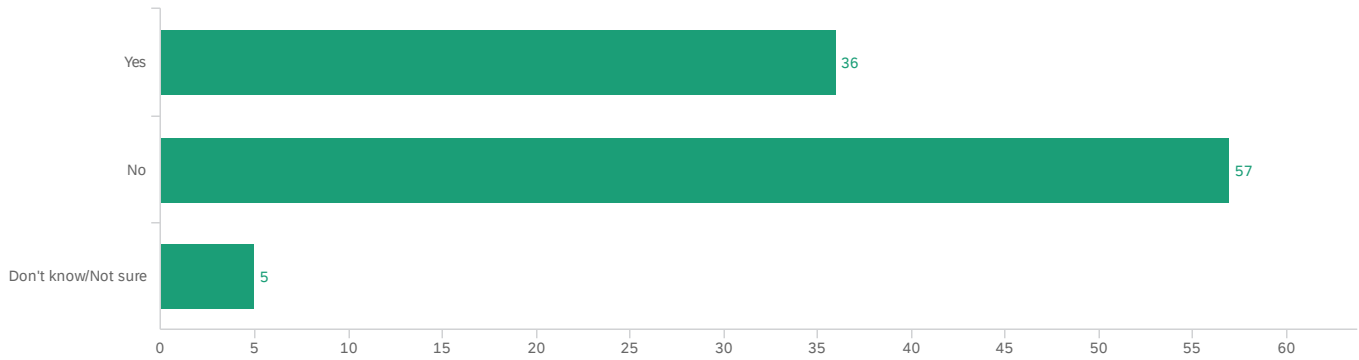
To understand our audience better

To test which methods were most effective with our audience

To show good use of funds

Better use resources.

3.6 - Did you or your organization hire an external consultant help you evaluate this behavior change campaign?

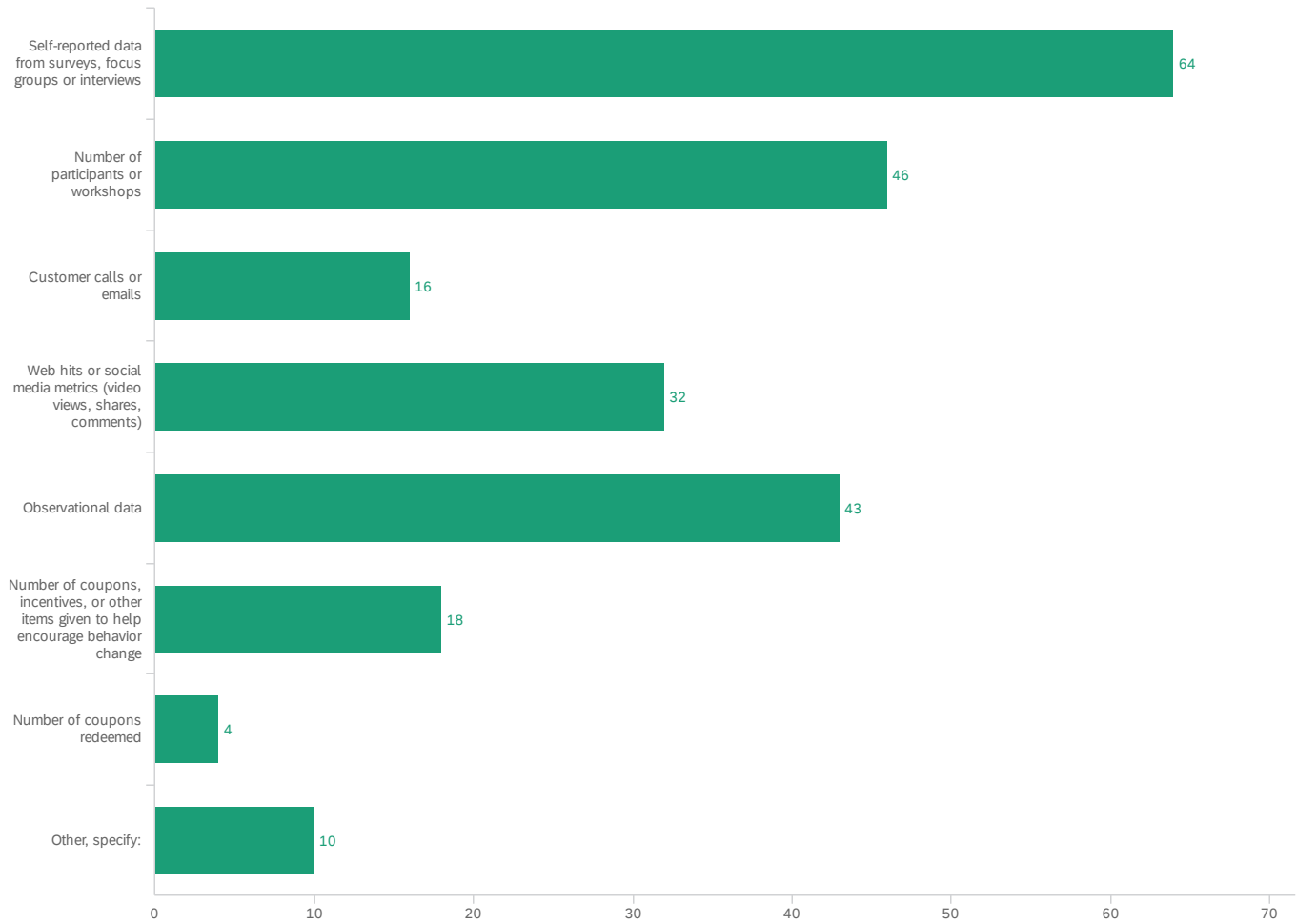


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Did you or your organization hire an external consultant help you evaluate this behavior change campaign?	1.00	3.00	1.68	0.56	0.32	98

#	Field	Choice Count
1	Yes	36.73% 36
2	No	58.16% 57
3	Don't know/Not sure	5.10% 5
		98

Showing rows 1 - 4 of 4

3.7 - What measures did you or the consultant collect to evaluate the effectiveness of this behavior change campaign? (Select all that apply)



#	Field	Choice Count
1	Self-reported data from surveys, focus groups or interviews	27.47% 64
2	Number of participants or workshops	19.74% 46
3	Customer calls or emails	6.87% 16
4	Web hits or social media metrics (video views, shares, comments)	13.73% 32
5	Observational data	18.45% 43
6	Number of coupons, incentives, or other items given to help encourage behavior change	7.73% 18
7	Number of coupons redeemed	1.72% 4
8	Other, specify:	4.29% 10

3.7_8_TEXT - Other, specify:

Other, specify:

Number of rain gardens created, amount of runoff treated

Number of pledges to pick up pet waste

Monitored whether the dumpster lids at several businesses were closed or left open.

Survey results from proenvironmental behavior models

Dumpsters in Shelton have good lids that are rarely left open.

Professionally administered public survey. Statistically valid, 600+ responses throughout the watershed

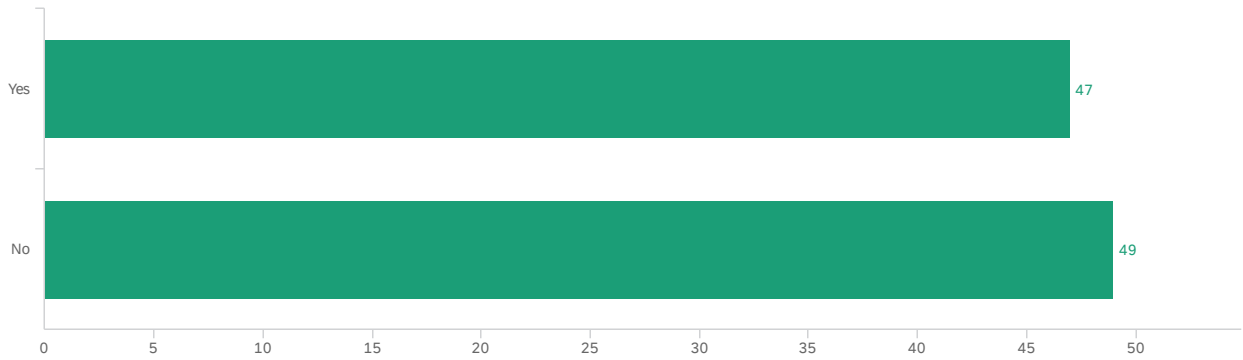
Benefit/barrier analysis (self-report survey). Some knowledge and attitude data, as well.

We had a Pet Waste Pledge people could take and recorded results on a GIS map

Total number of mailings and feedback from mailing.

Amount of waste and leaves removed from storm drains

3.8 - Did you collect data on any of these measures before the campaign started (i.e. baseline data)?



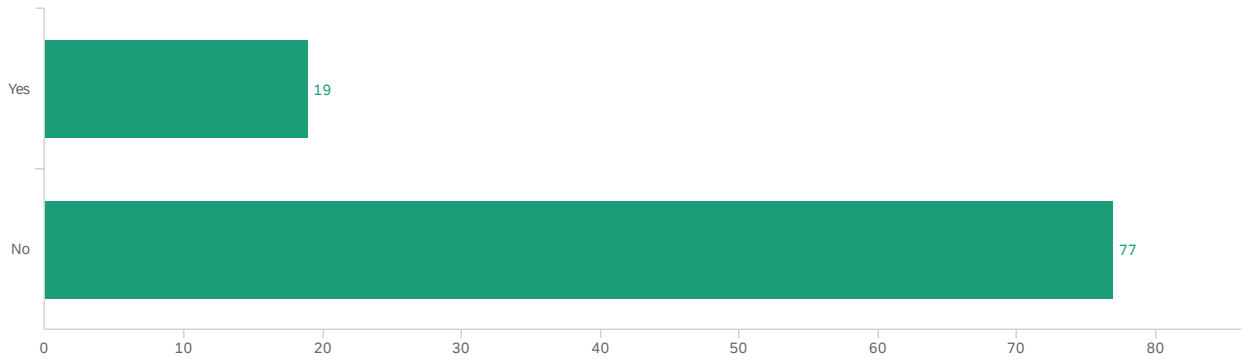
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Did you collect data on any of these measures before the campaign started (i.e. baseline data)?	1.00	2.00	1.51	0.50	0.25	96

#	Field	Choice Count
1	Yes	48.96% 47
2	No	51.04% 49

96

Showing rows 1 - 3 of 3

3.9 - Did your evaluation include collecting data on a comparison group (or “control” group) that was the same target audience but was not exposed to the behavior change campaign materials?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Did your evaluation include collecting data on a comparison group (or "control" group) that was the same target audience but was not exposed to the behavior change campaign materials?	1.00	2.00	1.80	0.40	0.16	96

#	Field	Choice Count
1	Yes	19.79% 19
2	No	80.21% 77
		96

Showing rows 1 - 3 of 3

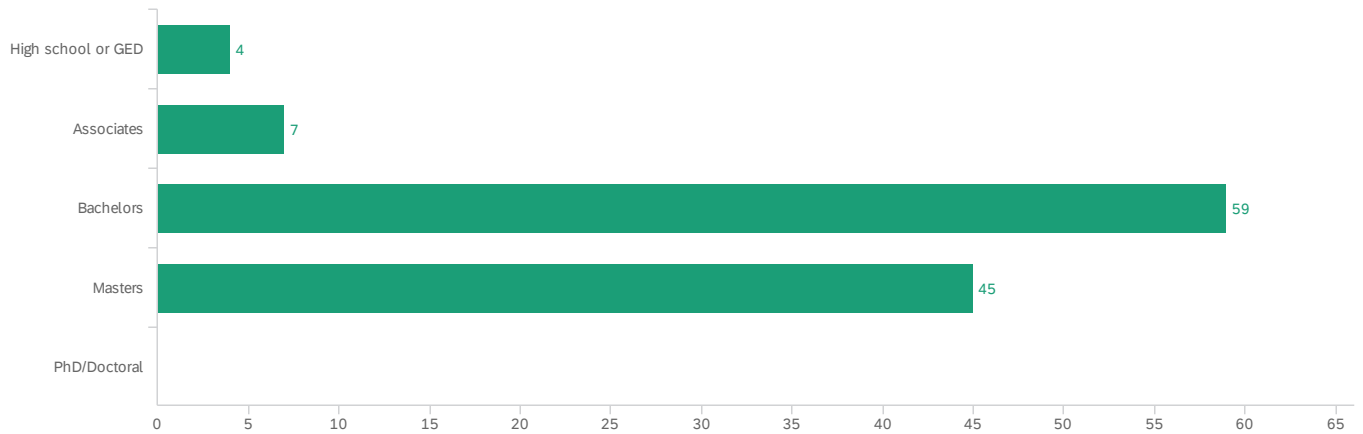
4.1A - How many years have you been working on behavior change campaigns in stormwater runoff reduction, water quality or any topic...

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	at your current employer?	0.00	25.00	6.37	5.56	30.86	111
2	over the course of your career?	0.00	40.00	9.77	7.78	60.53	106

Q4.1B - How many years have you been working on stormwater or water quality issues, even if not involving behavior change...

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	at your current employer?	0.00	31.00	8.50	6.58	43.30	114
2	over the course of your career?	1.00	35.00	13.55	8.46	71.65	110

4.2 - Please select the highest level of education you have completed

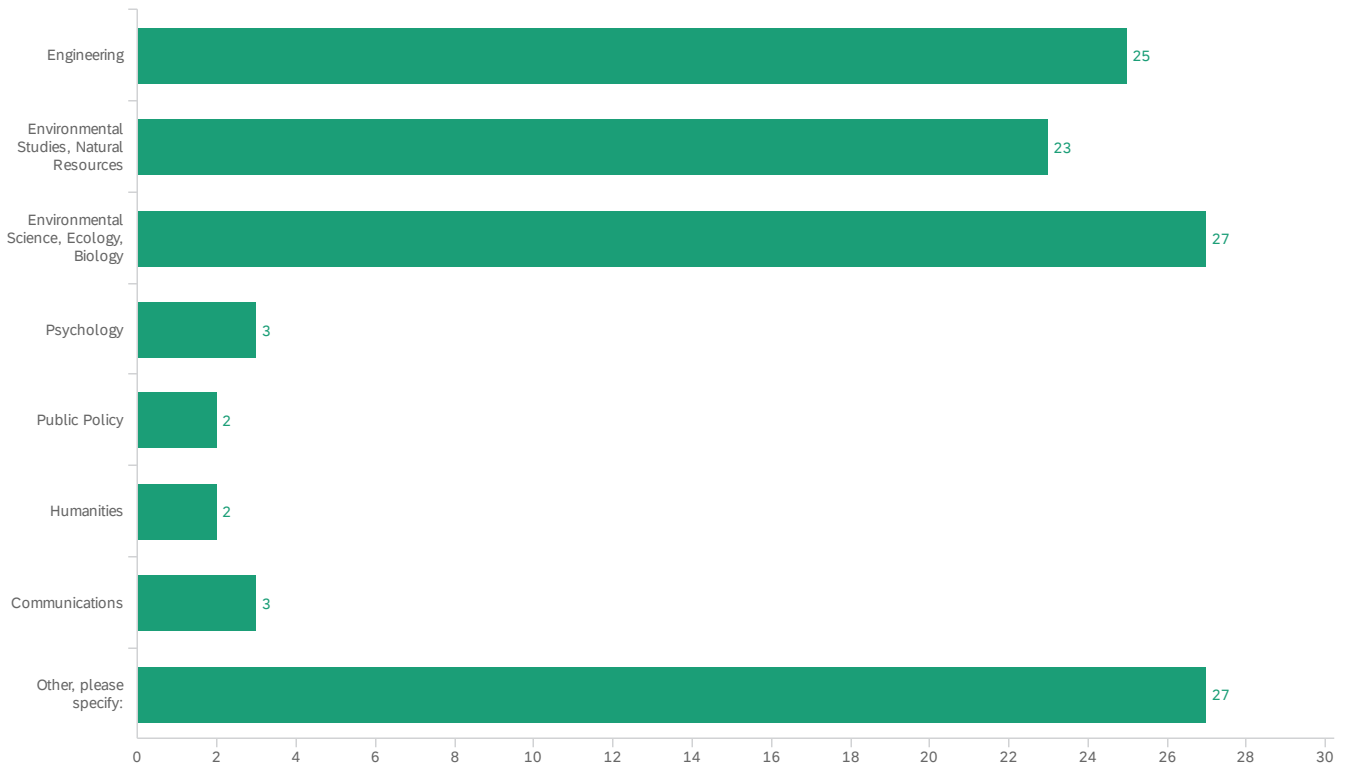


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Please select the highest level of education you have completed	1.00	4.00	3.26	0.72	0.52	115

#	Field	Choice Count
1	High school or GED	3.48% 4
2	Associates	6.09% 7
3	Bachelors	51.30% 59
4	Masters	39.13% 45
5	PhD/Doctoral	0.00% 0
		115

Showing rows 1 - 6 of 6

4.3 - What was the field or major of the highest degree you obtained?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What was the field or major of the highest degree you obtained? - Selected Choice	1.00	8.00	3.78	2.68	7.21	112

#	Field	Choice Count
1	Engineering	22.32% 25
2	Environmental Studies, Natural Resources	20.54% 23
3	Environmental Science, Ecology, Biology	24.11% 27
4	Psychology	2.68% 3
5	Public Policy	1.79% 2
6	Humanities	1.79% 2
7	Communications	2.68% 3
8	Other, please specify:	24.11% 27

Showing rows 1 - 9 of 9

4.3_8_TEXT - Other, please specify:

Other, please specify:

Water Policy and Env Science together

Business Management

Geophysics and Geophysical Engineering

education

Sociology

Teacher Education, Parks Mgt, State EE Certification

Environmental Education

Business Management

Natural Resource Management

Planning

Water Resources Science

Sustainable Urban Development - Urban Planning

Education

Environmental Studies and Sciences

Masters of Education

Business and Economics

law

Business

BA Accounting

Management

Other, please specify:

business

Sustainable Systems

Horticulture

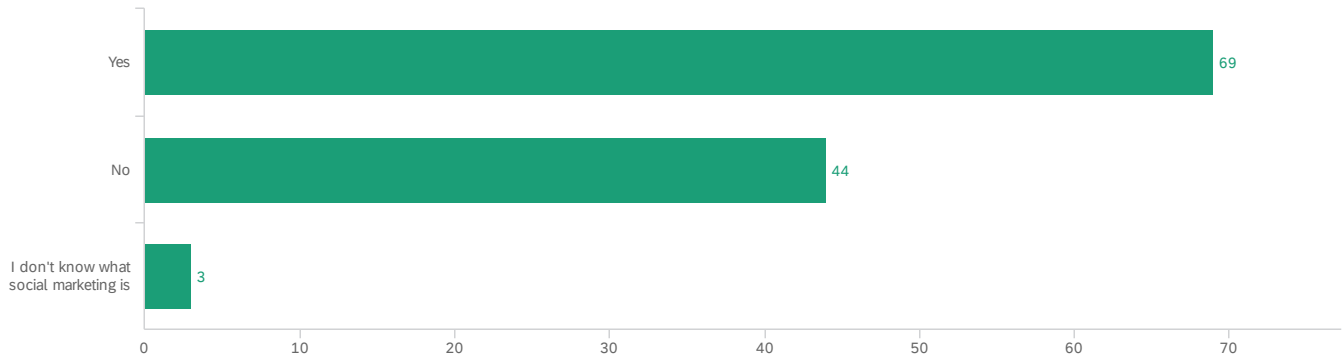
Business Administration

Water Resource Policy & Management (Interdisciplinary: public policy plus water science and communications)

Planning/Historic Preservation,

Chemistry

4.4 - Have you completed a course, training or workshop on social marketing or community-based social marketing during your education or as part of your job?

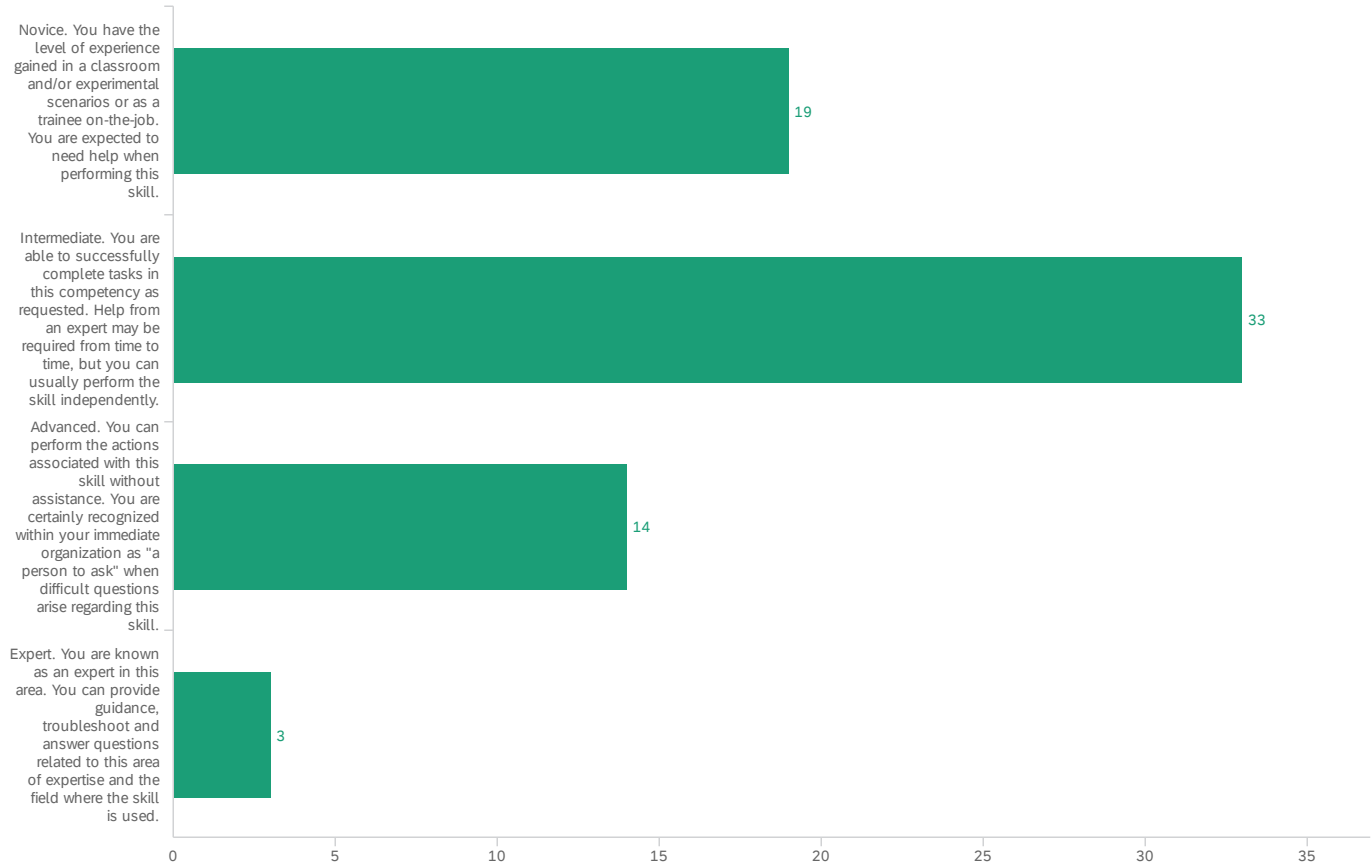


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Have you completed a course, training or workshop on social marketing or community-based social marketing during your education or as part of your job?	1.00	3.00	1.43	0.54	0.30	116

#	Field	Choice Count
1	Yes	59.48% 69
2	No	37.93% 44
3	I don't know what social marketing is	2.59% 3
		116

Showing rows 1 - 4 of 4

4.5 - How would you describe your expertise with social marketing or community-based social marketing approaches?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How would you describe your expertise with social marketing or community-based social marketing approaches?	1.00	4.00	2.01	0.81	0.65	69

#	Field	Choice Count
1	Novice. You have the level of experience gained in a classroom and/or experimental scenarios or as a trainee on-the-job. You are expected to need help when performing this skill.	27.54% 19
2	Intermediate. You are able to successfully complete tasks in this competency as requested. Help from an expert may be required from time to time, but you can usually perform the skill independently.	47.83% 33
3	Advanced. You can perform the actions associated with this skill without assistance. You are certainly recognized within your immediate organization as "a person to ask" when difficult questions arise regarding this skill.	20.29% 14

Field

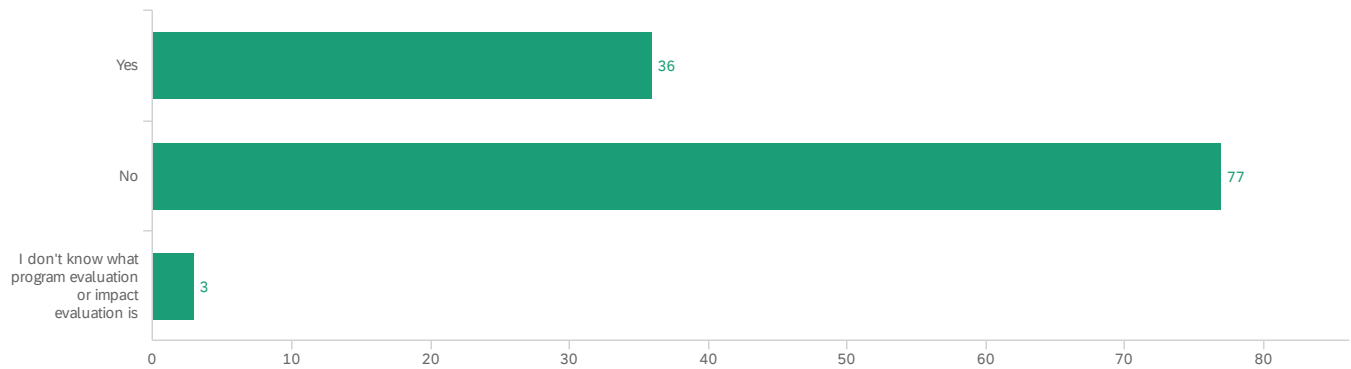
Choice
Count

4	Expert. You are known as an expert in this area. You can provide guidance, troubleshoot and answer questions related to this area of expertise and the field where the skill is used.	4.35%	3
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69

Showing rows 1 - 5 of 5

4.6 - Have you completed a course, training or workshop on program evaluation or impact evaluation methods (not including any training in social marketing) during your education as part of your job?



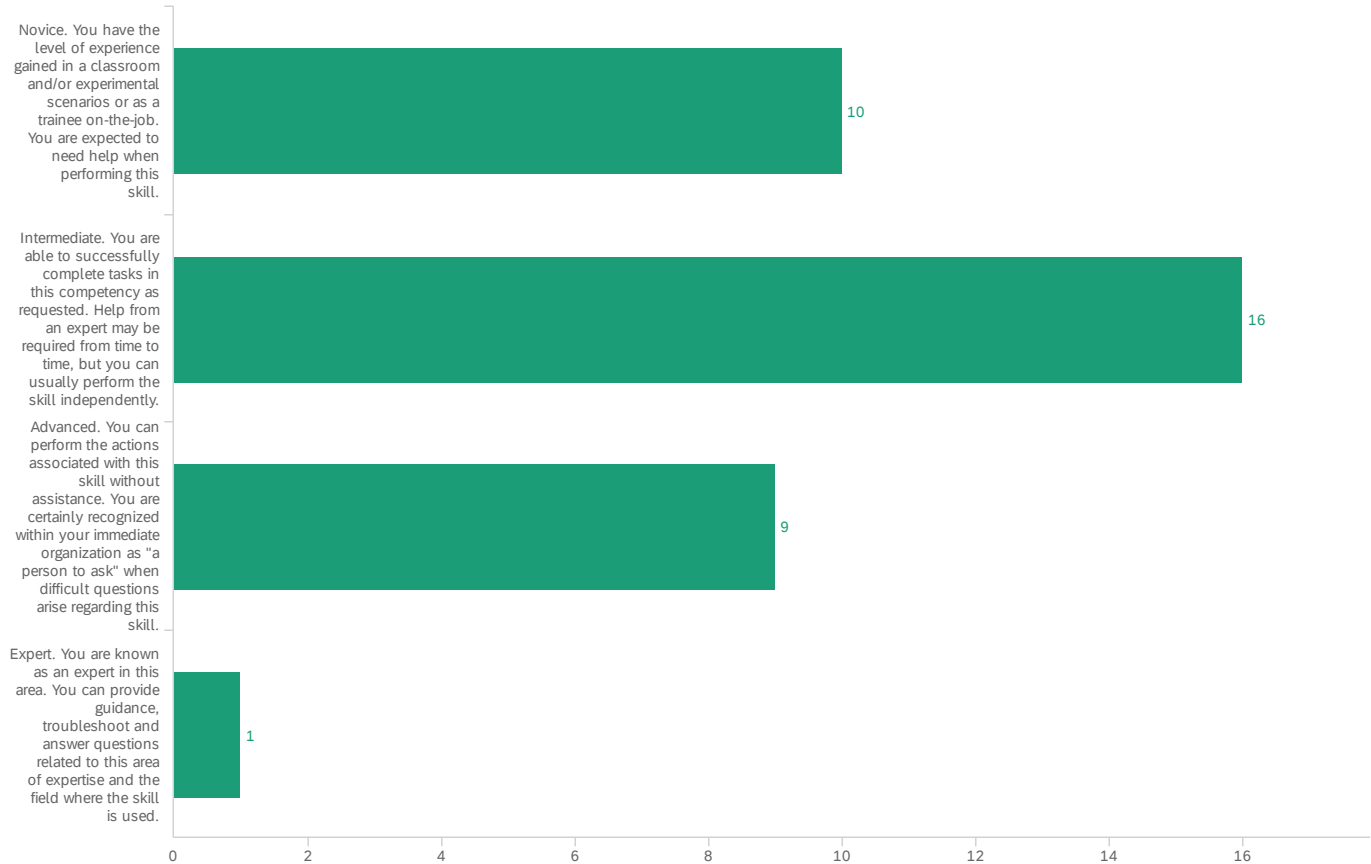
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Have you completed a course, training or workshop on program evaluation or impact evaluation methods (not including any training in social marketing) during your education as part of your job?	1.00	3.00	1.72	0.51	0.26	116

#	Field	Choice Count
1	Yes	31.03% 36
2	No	66.38% 77
3	I don't know what program evaluation or impact evaluation is	2.59% 3
		116

Showing rows 1 - 4 of 4

4.7 - How would you describe your expertise with program evaluation or impact

evaluation methods?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How would you describe your expertise with program evaluation or impact evaluation methods?	1.00	4.00	2.03	0.80	0.64	36

#	Field	Choice Count
1	Novice. You have the level of experience gained in a classroom and/or experimental scenarios or as a trainee on-the-job. You are expected to need help when performing this skill.	27.78% 10
2	Intermediate. You are able to successfully complete tasks in this competency as requested. Help from an expert may be required from time to time, but you can usually perform the skill independently.	44.44% 16
3	Advanced. You can perform the actions associated with this skill without assistance. You are certainly recognized within your immediate organization as "a person to ask" when difficult questions arise regarding this skill.	25.00% 9

Field

Choice
Count

4 Expert. You are known as an expert in this area. You can provide guidance, troubleshoot and answer questions related to this area of expertise and the field where the skill is used.

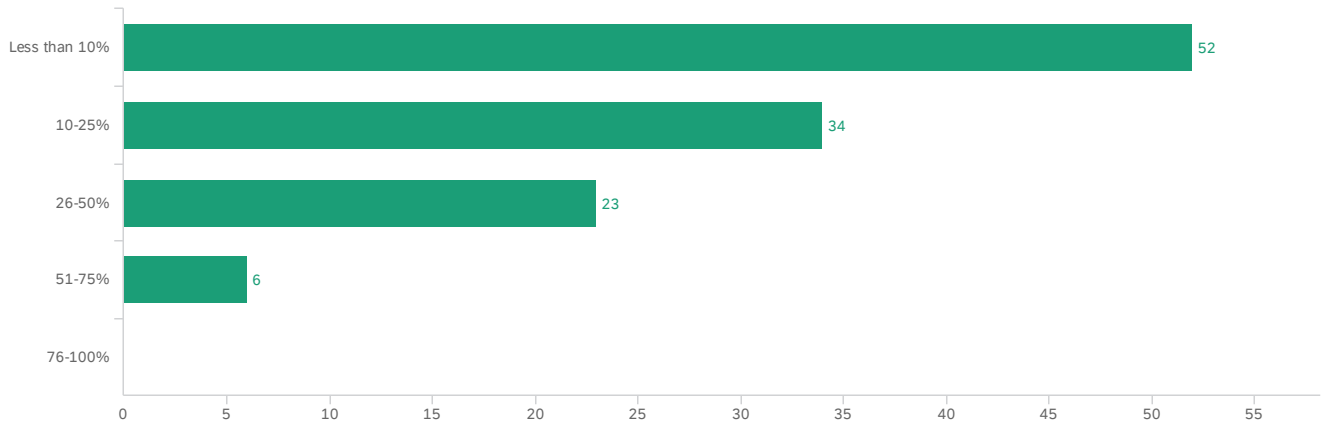
2.78% 1

36

Showing rows 1 - 5 of 5

4.8 - Staff like you are often asked to accomplish several objectives as part of their jobs.

What percentage of your time would you estimate is spent on behavior change campaigns around stormwater runoff reduction or water quality improvement?

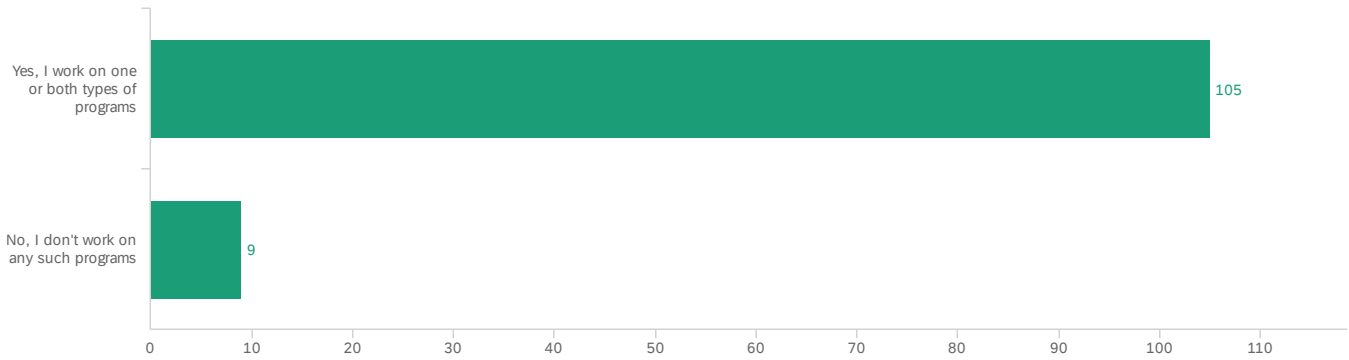


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Staff like you are often asked to accomplish several objectives as part of their jobs. What percentage of your time would you estimate is spent on behavior change campaigns around stormwater runoff reduction or water quality improvement?	1.00	4.00	1.85	0.92	0.84	115

#	Field	Choice Count
1	Less than 10%	45.22% 52
2	10-25%	29.57% 34
3	26-50%	20.00% 23
4	51-75%	5.22% 6
5	76-100%	0.00% 0
		115

Showing rows 1 - 6 of 6

4.9 - Do you also work on programs to build general awareness about methods to address stormwater runoff reduction or water quality improvement, or stewardship programs that provide opportunities for volunteers?



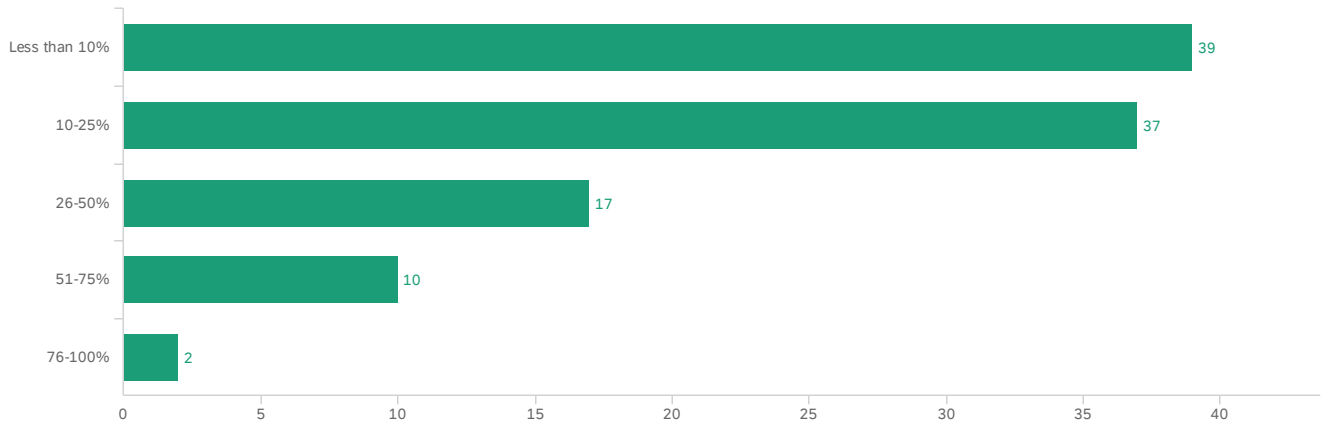
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you also work on programs to build general awareness about methods to address stormwater runoff reduction or water quality improvement, or stewardship programs that provide opportunities for volunteers?	1.00	2.00	1.08	0.27	0.07	114

#	Field	Choice Count
1	Yes, I work on one or both types of programs	92.11% 105
2	No, I don't work on any such programs	7.89% 9

114

Showing rows 1 - 3 of 3

4.10 - What percentage of your job would you estimate is devoted to awareness and stewardship programs around stormwater runoff reduction or water quality improvements?



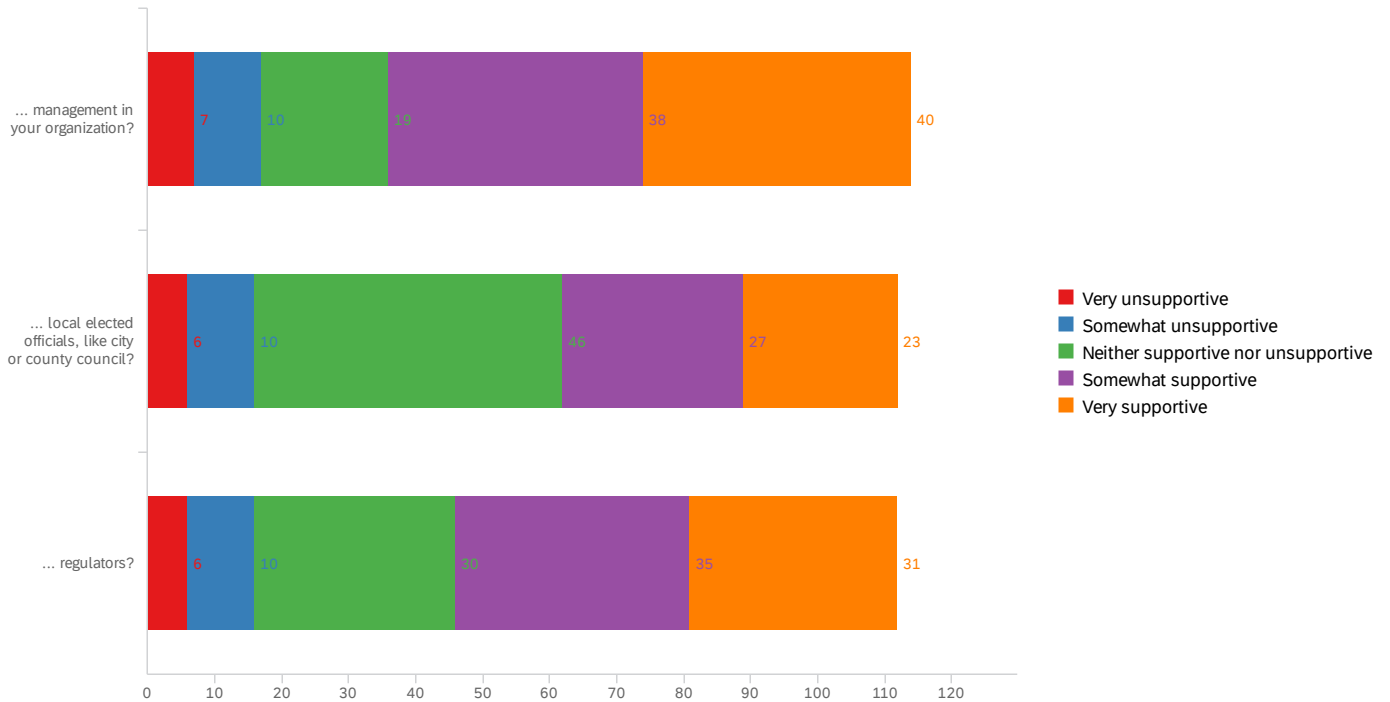
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What percentage of your job would you estimate is devoted to awareness and stewardship programs around stormwater runoff reduction or water quality improvements?	1.00	5.00	2.04	1.04	1.08	105

#	Field	Choice Count
1	Less than 10%	37.14% 39
2	10-25%	35.24% 37
3	26-50%	16.19% 17
4	51-75%	9.52% 10
5	76-100%	1.90% 2
		105

Showing rows 1 - 6 of 6

5.1 - How would you characterize the level of overall support you and your colleagues

receive to implement behavior change campaigns from...

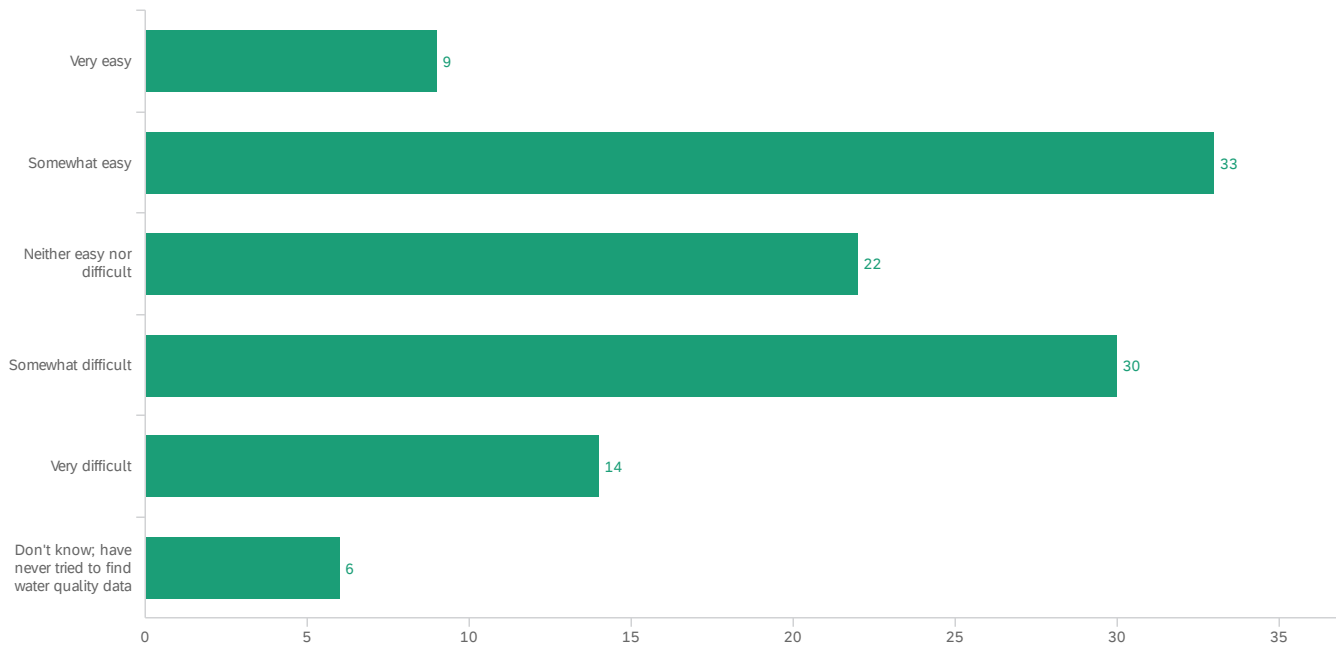


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	... management in your organization?	1.00	5.00	3.82	1.18	1.39	114
2	... local elected officials, like city or county council?	1.00	5.00	3.46	1.08	1.16	112
3	... regulators?	1.00	5.00	3.67	1.13	1.27	112

#	Field	Very unsupportive	Somewhat unsupportive	Neither supportive nor unsupportive	Somewhat supportive	Very supportive	Total
1	... management in your organization?	6.14% 7	8.77% 10	16.67% 19	33.33% 38	35.09% 40	114
2	... local elected officials, like city or county council?	5.36% 6	8.93% 10	41.07% 46	24.11% 27	20.54% 23	112
3	... regulators?	5.36% 6	8.93% 10	26.79% 30	31.25% 35	27.68% 31	112

Showing rows 1 - 3 of 3

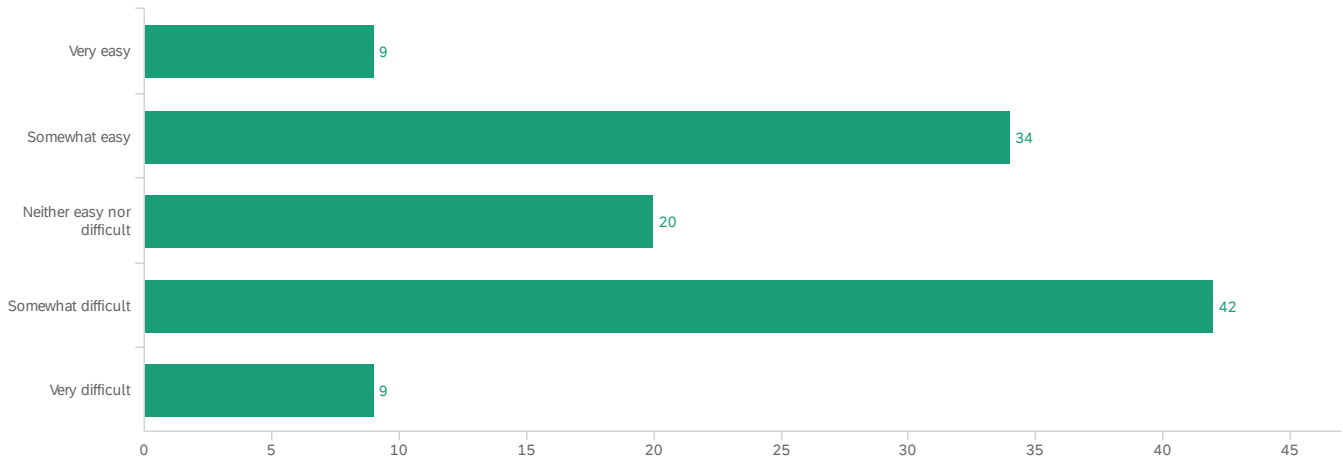
5.2 - How easy or difficult is it to find water quality data that you could use to inform your campaigns?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How easy or difficult is it to find water quality data that you could use to inform your campaigns?	1.00	6.00	3.22	1.34	1.79	114

#	Field	Choice Count
1	Very easy	7.89% 9
2	Somewhat easy	28.95% 33
3	Neither easy nor difficult	19.30% 22
4	Somewhat difficult	26.32% 30
5	Very difficult	12.28% 14
6	Don't know; have never tried to find water quality data	5.26% 6

5.3 - How easy or difficult is it to find the demographic data for your location, query it and use it to design or evaluate your campaign?

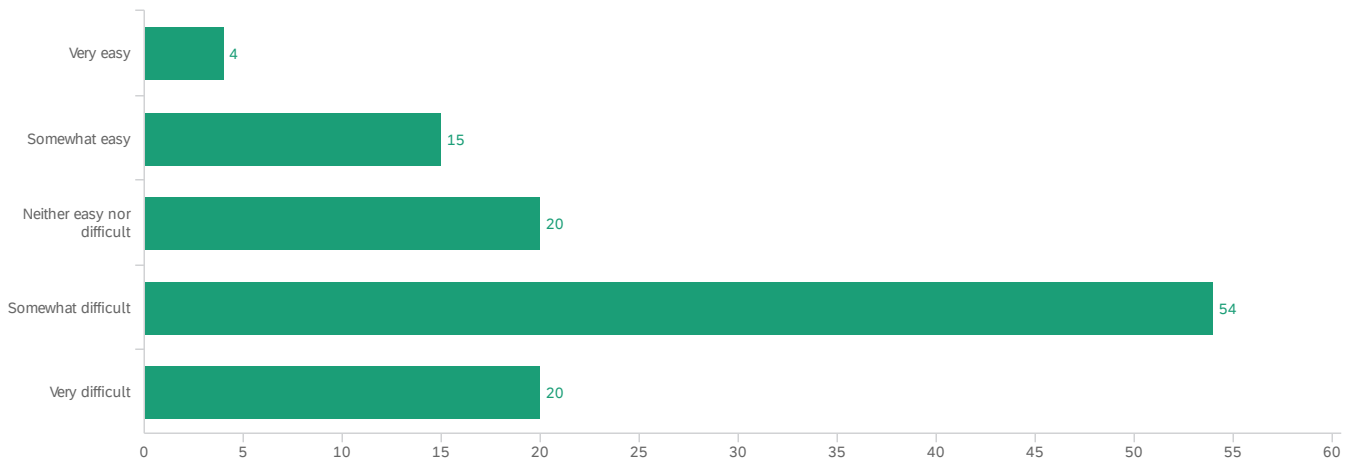


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How easy or difficult is it to find the demographic data for your location, query it and use it to design or evaluate your campaign?	1.00	5.00	3.07	1.14	1.29	114

#	Field	Choice Count
1	Very easy	7.89% 9
2	Somewhat easy	29.82% 34
3	Neither easy nor difficult	17.54% 20
4	Somewhat difficult	36.84% 42
5	Very difficult	7.89% 9
		114

Showing rows 1 - 6 of 6

5.4 - Suppose you wanted to change some elements of a current campaign or implement a new campaign and those changes would require additional funding. How easy or difficult is it for you to find that financial support?

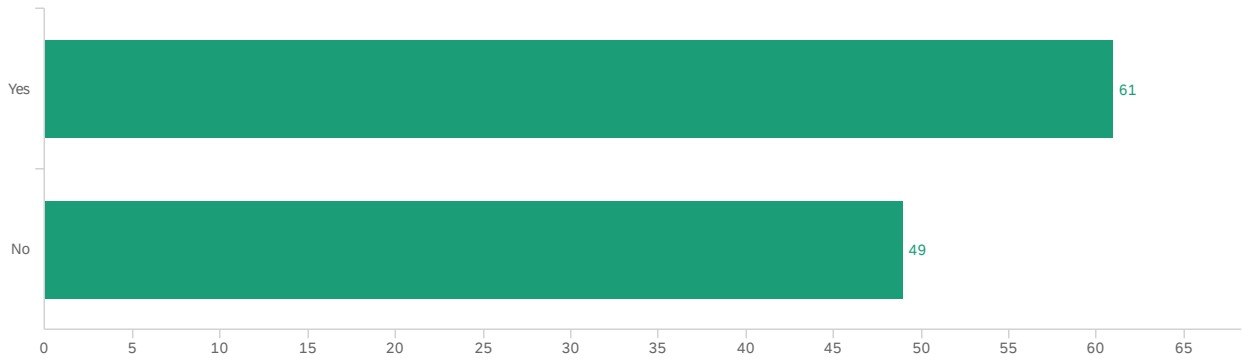


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Suppose you wanted to change some elements of a current campaign or implement a new campaign and those changes would require additional funding. How easy or difficult is it for you to find that financial support?	1.00	5.00	3.63	1.03	1.07	113

#	Field	Choice Count
1	Very easy	3.54% 4
2	Somewhat easy	13.27% 15
3	Neither easy nor difficult	17.70% 20
4	Somewhat difficult	47.79% 54
5	Very difficult	17.70% 20
		113

Showing rows 1 - 6 of 6

5.5 - Do you have a list of qualified consultants you can reach out to for help regarding campaign implementation or evaluation?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you have a list of qualified consultants you can reach out to for help regarding campaign implementation or evaluation?	1.00	2.00	1.45	0.50	0.25	110

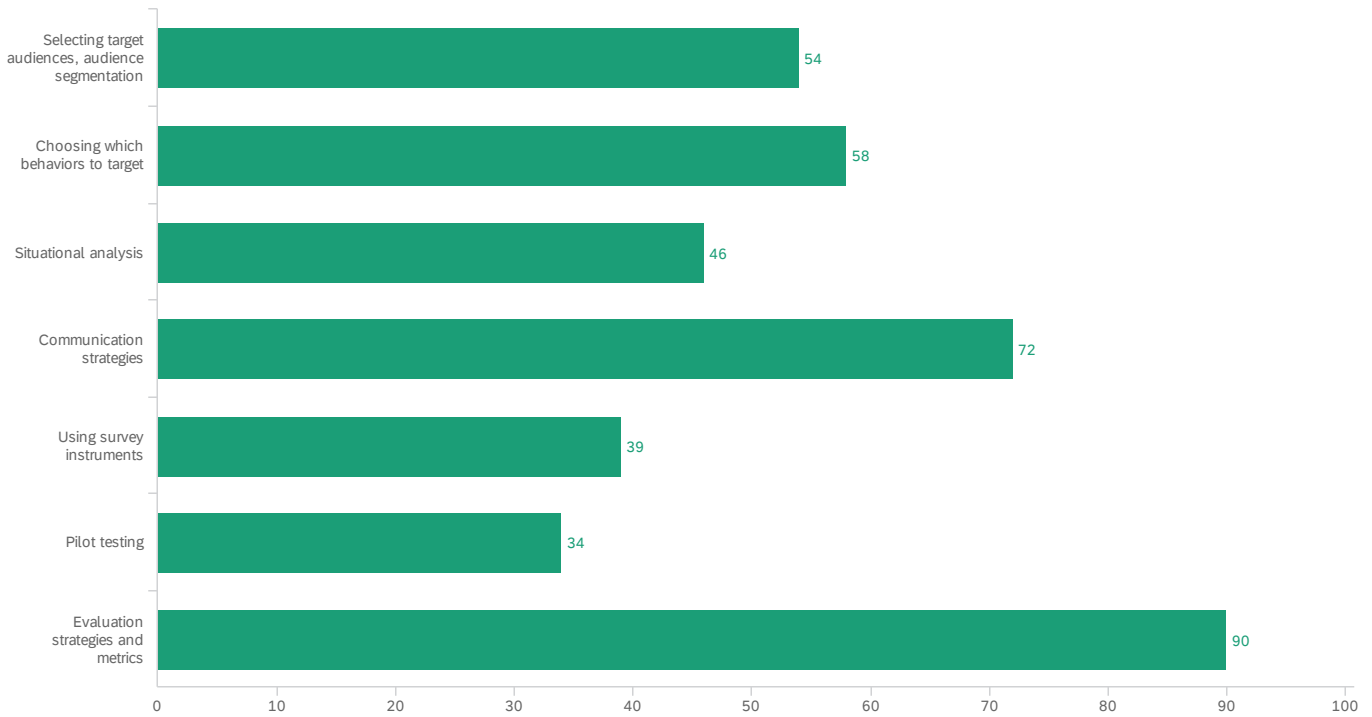
#	Field	Choice Count
1	Yes	55.45% 61
2	No	44.55% 49

110

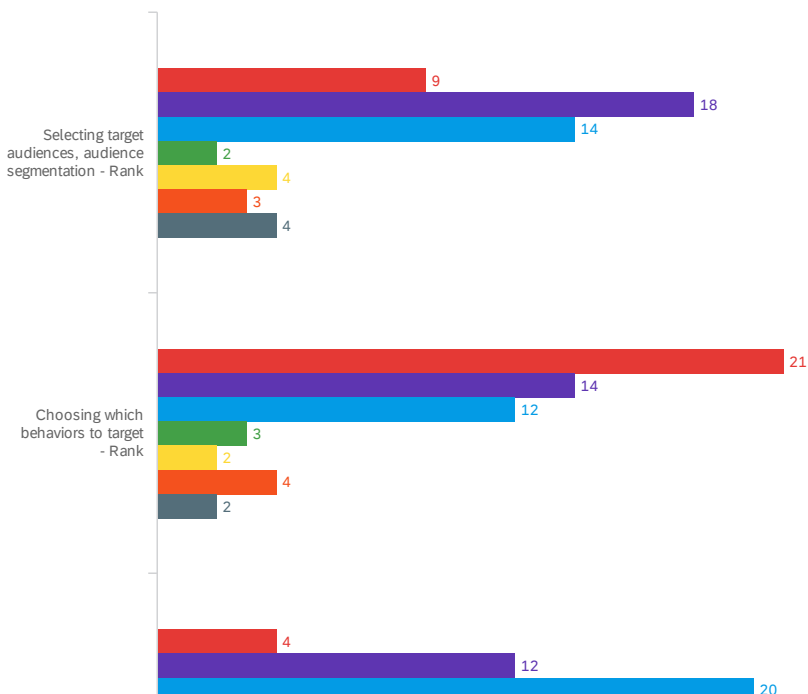
Showing rows 1 - 3 of 3

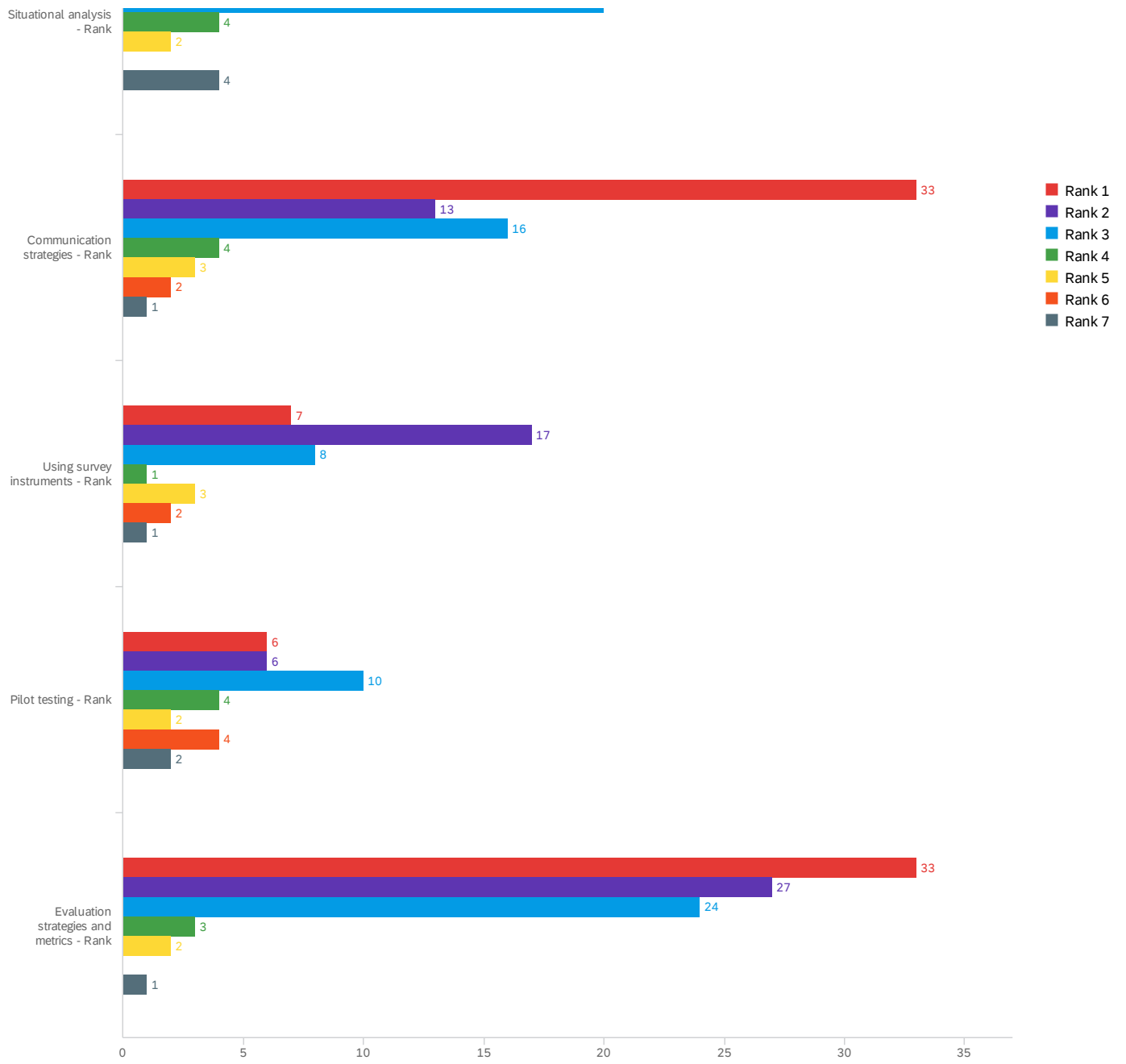
5.6A - Suppose training programs were made available for various components of social marketing approaches, like those listed below. Which would you find most helpful for you or your staff? (Drag to rank your top three)

QID64 - Groups



QID64 - Rankings





5.6B - Which components of evaluating programs would you be most interested in receiving additional training or guidance on?

Which components of evaluating programs would you be most interested in rec...

Determine if the behavior change positively impacts the downstream water quality or quantity.

Most used programs and easiest to implement/ analyze

ALL

No preference; staff availability is the real problem

How to best measure the effectiveness of hard to evaluate campaigns.

How to choose evaluation metrics when no great options seem to exist. Sometimes, the behavior change program is chosen because it can be evaluated, even though other topics may be more pressing.

Surveys, Developing survey questions/rubrics, etc.

quantitative data collection to be used for TMDLs

Survey design and data analysis

confirming that intended messaging was received

One Page Guides to distribute to better educate employees and citizens

How to get started in evaluating what's effective and what's not

much of our education/outreach is passive - press releases, trailhead signage, town-wide mailings. I'm not sure how to assess whether our messaging is making a difference.

Realtime dashboards of social science magic. Science part of comparison is not needed.

Building an evaluation plan from the start, not as an after thought

Case Studies

Implementation of recommendations that come out of evaluation

Next steps and program promotion

more of a capacity issue for small jurisdictions; even with lots of training, the programs are intensive for limited staff time

Evaluation strategies and communication of outcomes

Which components of evaluating programs would you be most interested in rec...

Messaging that resonates and produces tangible results

Developing a behavior change program with evaluation in mind

What constitutes an effective change, how to read the data

Low cost, easy methods for evaluating behavior change

survey administration on the cheap

Statistical analysis

Measurable metrics for behavior change

Methods that actually mean something

Choosing audience

Alternatives to self-reporting surveys (in-person, online, or by phone) since these tend to self-select and respondents lie

Identifying program improvements. If a campaign doesn't work and is ineffective, how do you identify which changes (if any) will make it effective?

Ways to measure behavioral change (metrics)

any

preplanning data collection and evaluation metrics

Evaluation

results, are the programs making an impact.

How to recognize the level of success in a campaign.

the evaluation components

meeting objectives, comparing which media strategy works best (google ads, tiktok/instagram marketing, etc.)

behavior change assessment

Preventing bad behaviors managing stormwater

The required components.

Evaluation strategies and metrics . . . and Pilot

How to find participants for my evaluation efforts and how to do so within my budget. How to design for statistically significant evaluation. How to proceed when statistically significant evaluation is not an option.

Which components of evaluating programs would you be most interested in rec...

Survey instruments

Finding a target audience, including overburdened communities

program evaluation

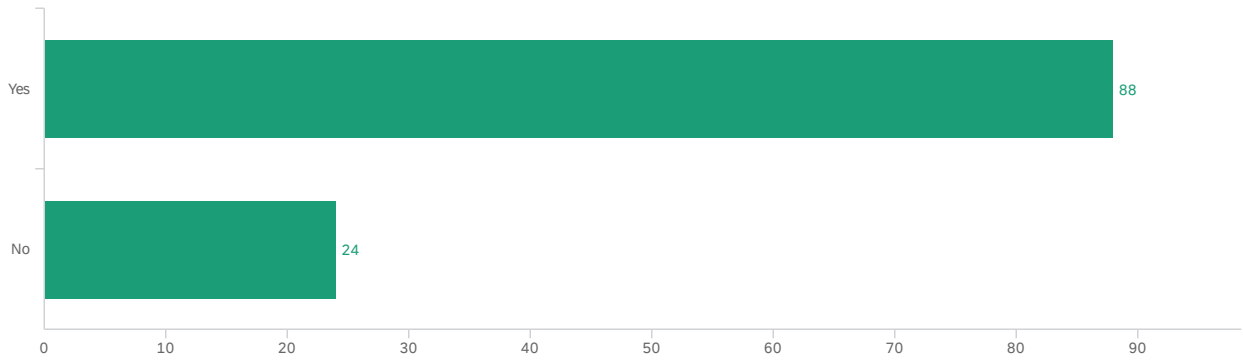
How to obtain data we can be confident in. How to accomplish an effective, thorough as possible evaluation, inhouse, with limited resources.

Pilot testing and how to conduct an evaluation in-house

Evaluation

Statistical Analysis of Survey Data

5.7 - Has your organization coordinated with other jurisdictions to design or implement behavior change campaigns within the past five years?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Has your organization coordinated with other jurisdictions to design or implement behavior change campaigns within the past five years?	1.00	2.00	1.21	0.41	0.17	112

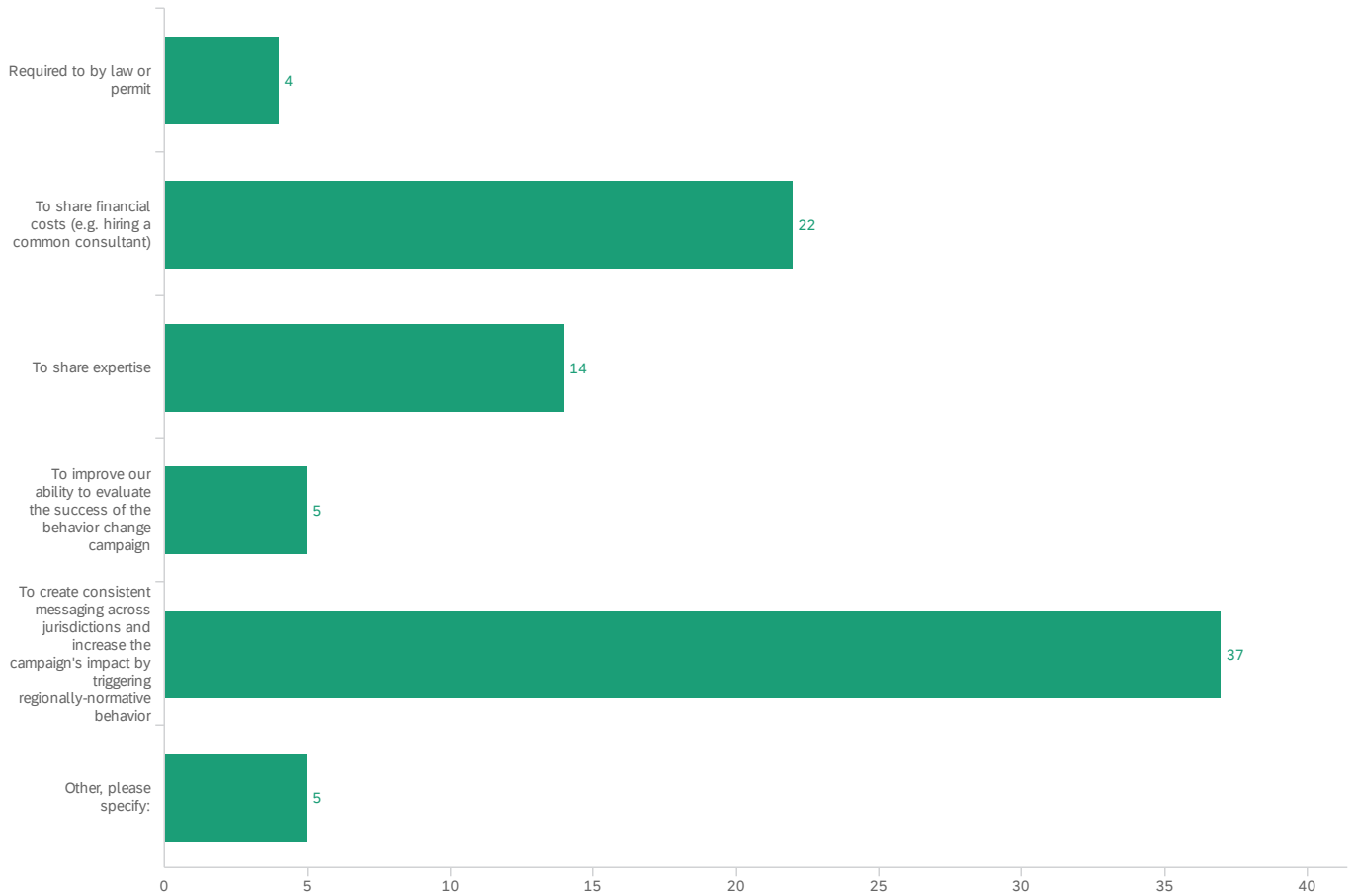
#	Field	Choice Count
1	Yes	78.57% 88
2	No	21.43% 24

112

Showing rows 1 - 3 of 3

5.8 - What is the most important reason your organization coordinated with other

jurisdictions?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What is the most important reason your organization coordinated with other jurisdictions? - Selected Choice	1.00	6.00	3.74	1.47	2.17	87

#	Field	Choice Count
1	Required to by law or permit	4.60% 4
2	To share financial costs (e.g. hiring a common consultant)	25.29% 22
3	To share expertise	16.09% 14
4	To improve our ability to evaluate the success of the behavior change campaign	5.75% 5
5	To create consistent messaging across jurisdictions and increase the campaign's impact by triggering regionally-normative behavior	42.53% 37

#	Field	Choice Count
6	Other, please specify:	5.75% 5

87

Showing rows 1 - 7 of 7

5.8_6_TEXT - Other, please specify:

Other, please specify:

All of the above

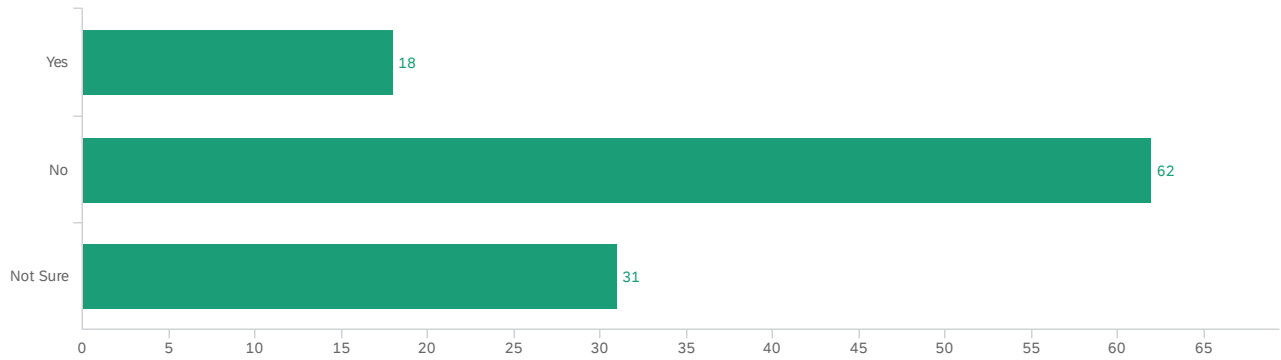
Target a specific audience

Public Health and to address a hazardous condition

To share workload and reach a broader audience

collaborative and learning from each other

5.9 - Have you used materials provided in the EPA's Non-Point Source Toolbox in the development, implementation or evaluation of your behavior change campaign? This link will take you to the website.

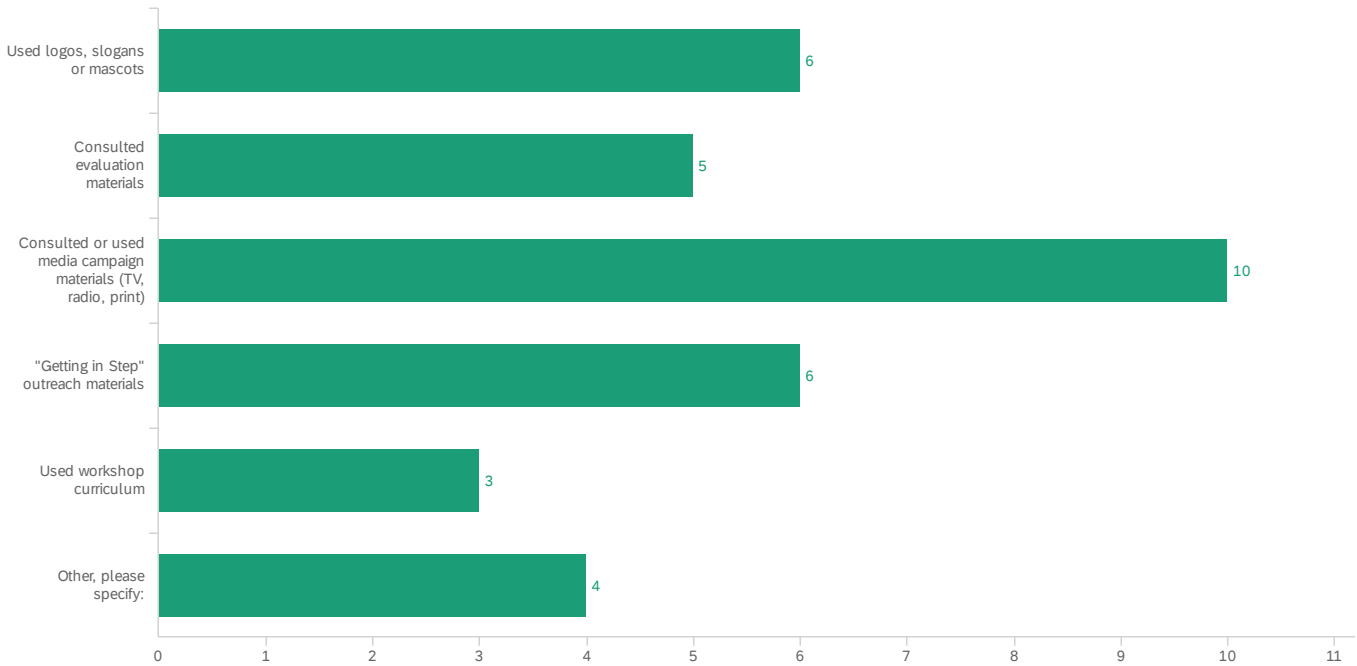


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Have you used materials provided in the EPA's Non-Point Source Toolbox in the development, implementation or evaluation of your behavior change campaign? This link will take you to the website.	1.00	3.00	2.12	0.65	0.43	111

#	Field	Choice Count
1	Yes	16.22% 18
2	No	55.86% 62
3	Not Sure	27.93% 31
		111

Showing rows 1 - 4 of 4

5.10 - How did you use materials from the EPA's Non-Point Source Toolbox? (Check all that apply)



#	Field	Choice Count
1	Used logos, slogans or mascots	17.65% 6
2	Consulted evaluation materials	14.71% 5
3	Consulted or used media campaign materials (TV, radio, print)	29.41% 10
4	"Getting in Step" outreach materials	17.65% 6
5	Used workshop curriculum	8.82% 3
6	Other, please specify:	11.76% 4

34

Showing rows 1 - 7 of 7

5.10_6_TEXT - Other, please specify:

Other, please specify:

NPS Outreach products, like posters and the bookmarks w/ 10 things you can do to prevent pollution

Used to inform campaigns that we tailored to fit with our existing style and messaging

Other, please specify:

Some of these materials in the NPS toolbox are from my program (so obviously being used), but also check out other resources being developed on other topics and in other states.

obtain ideas on messaging

5.11 - Please use the space below to tell us anything else about behavior change

campaigns or this survey.

Please use the space below to tell us anything else about behavior change c...

Behavior change programs are difficult to implement without the time, money or support of management. These programs are implemented with the minimum effort to meet the permit requirements and would be more effective if their results could be directly linked to water quality and/or quantity improvement. I wasn't aware of the EPA Outreach Toolbox. Thanks for the info!

Our storm water department is severely underfunded, and it is no secret that if the county mayor had a choice the department would not exist. The mindset needs to change beginning at the top in order for the program to receive proper funding and support to do what is needed to really make an impact in our community.

As mentioned earlier, sometimes the campaign is selected based on ability to evaluate, even though other topics are more important/pressing. Does this mean a campaign without great evaluation isn't worth doing?

It would be great to obtain surveys and results from other similar coastal communities, instead of reinventing the wheel.

In 2018, the Minnesota Pollution Control Agency offered grants to LGUs to start behavior change campaigns. This provided me with the funds to implement this approach which was new to my organization.

We have been piloting a raingarden/cistern incentive program for several years and have used a survey and structural equation modeling to evaluate the factors that lead to participation in the program. We are in the process of a market study including further behavioral modeling to guide increasing voluntary non-structural water quality controls.

This survey is timely as we are in the process of identifying outreach efficiency metrics.

We do more communication in general, aimed at behavior change than actual community-based social marketing. I have taken one training on it and don't consider myself knowledgeable enough to do on my own. In Oregon, a group called Clean Rivers Coalition is working on a pesticide campaign, so the easiest thing seemed to be to join that group.

Thank you for the opportunity to comment.

In our programming, we do not make a clear-cut distinction between awareness-raising and behavior change campaigns. We have several desired behaviors that we have been working actively to promote over the past 15 years. For example, we want more people to convert lawns to native plantings and install raingardens - particularly people who live in high priority locations that directly drain to lakes/rivers/streams. We recognize that a wide-array of education, outreach, and technical support is required for that to happen. Some of the many strategies we implement for that objective in particular include: awareness-raising articles in newspapers and city newsletters; info and tools shared on websites, via social media, and via print materials distributed at events; participating in a regional partnership with other LGU, native plant retailers, and non-profits working toward the same objective; conducting direct outreach to homeowners in priority locations via mailings and door-knocking; training workshops; cost-share grants; free site visits; free design assistance; training and engaging community volunteers (MN Water Stewards, Master Gardeners, etc.) and more. Everything we do leads toward the eventual goal of widespread behavior change.

I realize that you may not consider stormdrain adoption as a behavior change program since it does have an element of volunteerism in it; however, the goal of the program is really to get people to participate in the specific behavior of cleaning their storm drains regularly to prevent pollution and flooding. The program has used a number of behavior change techniques, included targeted messaging and signage to increase the social norming of the behavior. You can visit the overall website for the program at www.adopt-a-drain.org.

All of our campaigns have been through partnership. Small jurisdictions do not have capacity to implement these campaigns alone. They are very time intensive and typically comprise only a small fraction of the staff's workload.

I work primarily in engineering and touch only on the periphery of behavior change campaigns.

Please use the space below to tell us anything else about behavior change c...

City officials rarely receive training on this topic, at least we haven't in our region.

We are a member of the Central Mass Regional SW Coalition and Statewide SW Coalition and we used the "Think Blue Massachusetts" campaign.

Our ten year watershed management plan includes a presurvey in 2022, and midpoint survey in 2025 and and final survey in 2030 to evaluate the success of our outreach and engagement. We are working with the local jurisdiction through a partnership agreement to utilize their staff (MS Environmental Education and 20 years experience) to develop surveys and collaboratively design and implement our programs.

It is very hard to find current behavior change campaign trainings (i.e. have been updated to include the ever changing social media tools, online ads, and other new tools). The regulators are also often not current on new methods, processes, and procedures which causes ineffective and/or costly permit requirements that hinder novel approaches.

I answered that we as Chittenden County RPC are not required to do this work. That is true but we manage as Lead Agency the MM-1 and MM-2 requirements on behalf of 9 municipal MS4s and three non-traditional MS4s, see www.rethinkrunoff.org

We rely on the statewide Think Blue Massachusetts campaign for behavior change data & analysis. At the city level, we do a lot of public awareness but don't have the tools or capacity to evaluate behavior change. We tend to do the bare minimum required to meet our MS4 permit requirements. Funding & staff capacity are our biggest restraints.

It is hard for our City as we are continuing to build our storm water program. I am the Storm water Coordinator and was just brought on 6 months ago. funding is a big issues. as we do not have a storm water fee.

My experience working with other professionals is that few understand social science statistics and how to interpret them or appropriate survey design. My other experience is that use of controls is very difficult and expensive. Also that stormwater "impact" in terms of pollution is impossible to measure because there are so many sources, even if your program works, you may still not be able to measure an improvement in the water itself.

You can't always go from zero to behavior change, often awareness raising and social norming is needed before people start trying or are motivated to change their behaviors.

Behavioral change campaigns are a challenge for small jurisdictions. There is limited staff and financial resources. Since the Puget Sound region has a limited amount of unincorporated area, these campaigns should be handled at the regional level.

In 2013, we created a Quantifying Behavior Change binder, based on all the NPDES Inspections I had done since 2005 through 2013. We compared first inspection to last inspection to quantify if the behaviors of businesses changed based on the inspections. That is where our initial behavior change campaign began. We presented this at a few NPDES Outreach meetings with other jurisdictions. Our data was broken down by business sector, quantity of inspections, and rate of improvement or lack of improvement.

We have a separate group that concentrates on the permit required behavior change campaign that I am not directly associated with. I am a source control inspector and so my behavior change objectives involve specific actions that must be performed, but its a "go/no go" type of evaluation, where the effectiveness has been established and it is now part of code to implement these BMPs. As such it was a little hard for me to answer these questions directly. I am part of STORM and as a subgroup did help with regional program development and brainstorming on dumpster lid programs, but when it came to implementation and evaluating the success I was not a part of that process because while those groups were using it as their behavior change requirement our requirements were met otherwise. It is my understanding that our behavior change responsible group will also be filling out this survey and may have more specific answers.

The most difficult part is reaching the audience. Also, we have little bandwidth to evaluate, select strategies and implement. Coordination with neighboring cities of similar size and makeup would be a benefit. Expertise on web based outreach is needed (ad games, google ads, etc.)

No matter how knowledgeable we become on behavior change programming this will still compete with all other required permit elements for implementation.

Please use the space below to tell us anything else about behavior change c...

Well crafted survey; Thank you! It would be good to know which types of evaluations have been done for various programs beyond baseline and immediate participation. For instance: medium-term (12-18 months post-participation) and long-term (18 months to 5 years post-participation). We've done the former for most of our programs. And within the last 2 years seized opportunity to complete a long-term evaluation of a program that we'd rigorously evaluated including a control. We learned a lot. And I would never undertake this without the help of an experienced and skilled evaluation specialist.

The cost and time commitment involved in developing a social marketing plan is very expensive and with limited staff time/funding available.

I like the idea of a regional campaign but the campaign should be based off of empirical data to inform which pollutant to focus on eg. Tire ware particles, that have the greatest impact on water quality.

We have no staff to do the work. City has limited funds and does not consider this a priority in need of funding.

Staffing and funding are our biggest challenge. We have lots of great ideas, but little money or staff to make it happen.

The lack of oversight from DOE is challenging. We've been implementing and evaluating what we thought to be a strong behavior change campaign only to find out it may or may not meet permit requirements.

We are doing a yard care campaign, with a focus on residents of a specific lake, who fertilize their lawns. The sought behavior change was to ask those who typically fertilize twice a year (spring and fall) to either fertilize just in the spring or not at all. One of the troubles we ran into in my opinion is a lack of baseline data, a lack of confidence in the with the team that there was value in the campaign and confidence that the behavior change mattered in the big picture, and limitations due to resources, that were only compounded by COVID>

Our behavior change program BMP is usually determined by what behavior we feel we'll be able to track over time to test the program's effectiveness. This includes a baseline survey of participants, baseline survey of non-participants, a specific target audience, and a number of follow-up surveys with participants over time to find out whether they are implementing the behavior change. One challenge is when we don't get as many participants as we hoped, so the evaluation doesn't feel as representative as it would with a larger pool of responses.

This permit requirement is much better suited to large jurisdictions.

End of Report