

2020 Watershed Perception Survey

For the Municipality of Anchorage,
Watershed Management Services
APDES Permit AKS-052558

By Anchorage Waterways Council



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I. Executive Summary

The “2020 Stormwater Education Public Perception Survey” was developed and completed to satisfy a requirement for the APDES Permit No. AKS-052558 held by the Municipality of Anchorage (MOA) and the Alaska Department of Transportation and Public Facilities (AKDOT&PF). This is the third watershed perception survey completed by the Anchorage Waterways Council (AWC) and will wrap up the permit period from 2015 to 2020.

In some areas, improvements have occurred:

- Overall, there is a decrease in citizens’ perceptions that Anchorage’s water quality is better than they believed it was over the 2010 and 2014 surveys.
- Some of the categories of threats to water quality are better articulated, the top three being pet waste, yard chemicals and humans-directly (homeless camps).
- There was a 6% increase by the respondents between 2014 and 2020 in their acknowledgement that they live in a watershed.
- Fifty-five percent of the 2020 respondents think that stormwater is treated before it enters local creeks and lakes which is very close to the 57% from 2014. This remains an important area of focus.
- Residents are increasing acknowledgement of their role in helping to improve water quality. In 2014, it was 60.9% and in 2020 it went up to 74%.
- A large percentage (65.8%) of the respondents say that they always pick up animal waste (despite what we see on the ground).
- Consciousness has increased dramatically concerning the impact of yard chemicals on local creeks and lakes.
- There is a good deal of composting and mulching of green waste.
- Residents can well articulate why “runoff” is bad and the need to reduce chemicals and pollutants in runoff.
- Automatic car washes are well preferred to hand washing which uses a lot more water and puts soap, grime, and other pollutants down storm drains.
- The amount of vehicle repair in driveways and on the streets has decreased over time.
- The visibility (not necessarily membership) of environmental organizations is good.
- And, there is a healthy increase in volunteerism.

Places where there are shortcomings or areas to focus on include:

- Anchorage residents still need to understand the importance and concept of a watershed.
- Users and suppliers of chemical ice melt need to be clearer about how it works, the impacts it has on water, fish, and wildlife, the ingredients, and how much is necessary as well as alternatives to chemicals.
- People are still doing some car washing in their driveway or on the street, however they are endeavoring to use environmentally friendly detergents. Regardless, this still can put a variety of unwanted pollutants into local creeks.

- The value of “heard of” in regard to environmental terminology remains somewhat questionable as to whether or not that’s a useful measure. It would be of a lot more value if we knew that the term was truly understood. That’s a conundrum to be resolved.

It would be good to review the existing survey over the next few years and compare it with surveys from other parts of the country to see where Anchorage fits in the “big picture”, and it might also be beneficial to have some smaller focus groups.

II. Introduction

On August 1, 2015, the Municipality of Anchorage (MOA) and the Alaska Department of Transportation and Public Facilities (AKDOT&PF) became co-permittees (known as the “permittee”) with authorization to discharge, under the National Pollutant Discharge Elimination System (NPDES), from all separate storm sewer system (MS4) outfalls to the MOA’s receiving waters as listed in the permit no. AKS-052558. As part of the permit compliance for Public Education and Outreach, the MOA’s Watershed Management Services (WMS) contracted with the AWC for certain services.

Part of the AWC agreement is based on Parts 3.6.1 of the permit and specifies that an ongoing education and public involvement program aimed at residents, businesses, and industries shall be implemented within the first year. Over the five-year permit, the goal of the education program has been to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts. Changes in behavior and awareness are to be measured through various means including a watershed perception survey that has been completed roughly every 4-5 years.

There are several stipulations and suggestions in the permit on the types of information that each group should be provided with. Some of these include the impacts of stormwater runoff, impervious surfaces and best management practices (BMPs) for residents, property managers, landscapers, and businesses (particularly home-based and mobile), and a reduction in polluting agents such as fertilizers, animal waste, and vehicle fluids.

The education program that has been created was carried out through the following components:

1. design and conduct a survey and tabulate the results
2. develop a matrix of target audiences and messages based on survey results and permit requirements
3. develop outreach materials aimed at the target audiences and messages,
4. deliver the educational materials
5. evaluate the success of the educational program through a follow-up survey

This report describes the last component of the educational and outreach plan.

III. Survey Design

The 2020 survey encompasses residents within the entire 1,961 m² Municipality that is comprised of 28 watersheds, however, most of the survey respondents are from the urban area known as the Anchorage “bowl”. The 450 respondents represent a good demographic cross-section of the population

of Anchorage, including gender¹, age, length of residency, and education. The primary goal then and now has been to use the information to enhance our comprehensive public education and involvement plan to focus on those problem areas and to continue to meet the permit requirements.

To meet the standard of a 95% confidence level with a $\pm 5\%$ error, 384 responses were needed, and the 2020 survey responses tallied 450 respondents. The current population estimate (State of Alaska, Dept. of Labor and Workforce Development Research and Analysis) for the Municipality on January 5, 2020, was 291,845 and all the responses are based on an estimated population of 232,078 of those residents 18 and older.

Not every survey was completely answered as a few respondents left some questions blank. In the “open-ended” questions, some respondents would place answers that were not useful, i.e. N/A or some “clever” or sarcastic remark. Accordingly, there is some variation in the respondent numbers for each question. Regardless, AWC is confident that the threshold of 384 respondents was met or exceeded.

IV. Methodology

AWC used much of the methodology that was employed in the 2010 and 2014 surveys and also made some minor alterations and additions. The goal was to prepare a survey that was as similar as possible to previous surveys in order to measure the effectiveness of past education and outreach on Anchorage watersheds and to make recommendations on how best to reach “audiences” to improve their knowledge of and practices in the future. There are a few questions that needed some updating due to changes in technology, e.g. the popularity of social media, as well as the relatively recent proliferation of homeless encampments along local creeks.

The respondents to the 2020 survey represent a broad and, we think, indicative cross-section of Anchorage citizens’ understanding of water quality and watershed issues within the MOA. The 2020 survey again used the Survey Monkey web-based program. Survey Monkey tabulates all of the answers, but a few questions that allow multiple or open-ended choices had to be hand tabulated. A major effort was expended to get the surveys to as broad a section of the Municipality as possible through a variety of social media outlets.

Following are 36 questions from the 2020 survey, and in many cases, there is a comparison of them to previous surveys.

¹ It is noteworthy that the number of female respondents has been in the majority beginning with the 2010 survey with a significant increase of over 12% from 56.9% in 2014 to 69.2% this year.

V. Questions and Responses

Question 1. To participate in this survey, you must be a resident or have a business within the Municipality of Anchorage. This is determined by your property's zip code (not a P.O. Box). Please select your zip code to proceed.

All 450 respondents were required to answer this question. Using zip codes streamlined the responses as well as allowed a GIS analyses of the data to see the distribution of the respondents. Figure 1 shows the geographic distribution of respondents by zip codes. The geographic distribution included respondents from the entire Municipality (Eklutna to Girdwood, including Joint Base Elemendorf and Richardson). The highest number of respondents were in the Midtown area (99504, 99507, and 99508). Respondents were generally proportional to the population of citizens in the zip code. Table 1 shows the actual number of responses by zip code. As in the 2014 survey, no responses were received from the Indian zip code, 99540. However, the zip code response patterns and relative numbers are not much different than the 2014 survey.

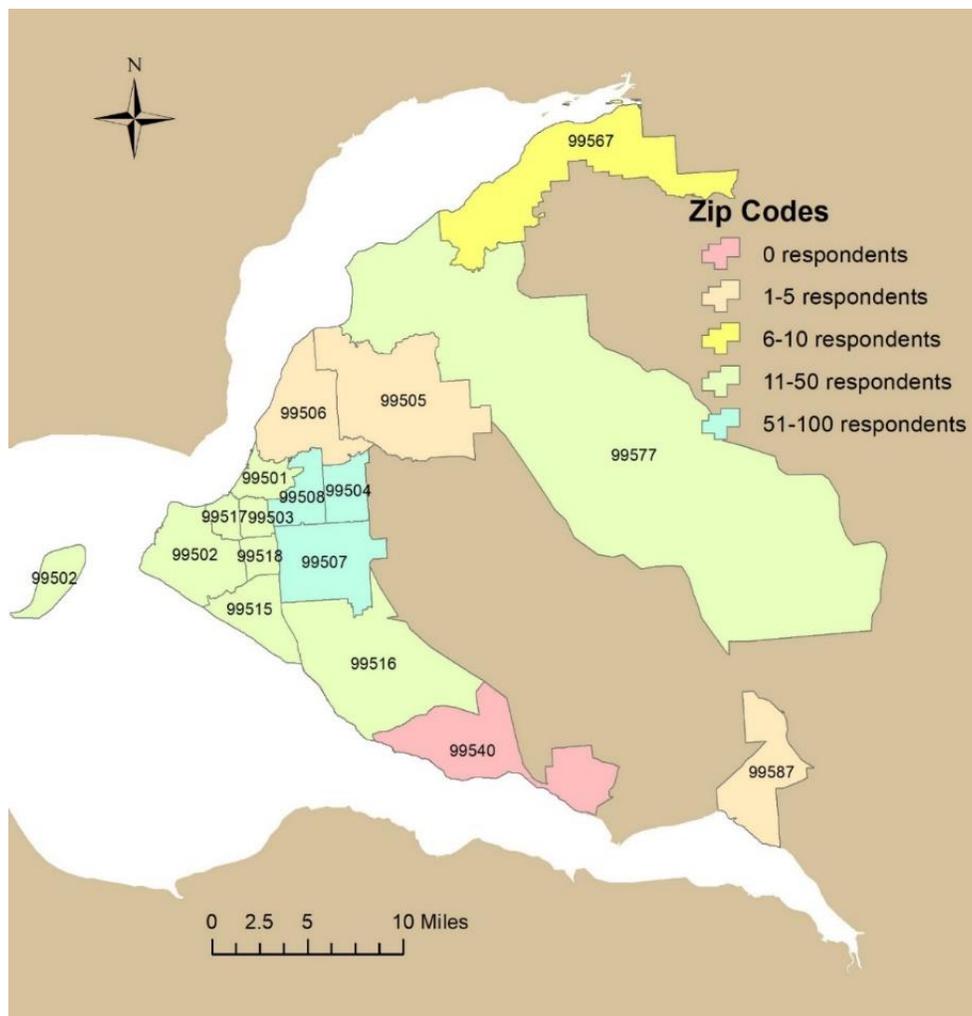


Figure 1 MOA zip codes and numbers of respondents by zip code, 2020.

Zip Code	Responses	Percentages
99501	31	6.9%
99502	35	7.8%
99503	15	3.3%
99504	52	11.6%
99505	1	0.2%
99506	4	0.9%
99507	96	21.3%
99508	74	16.4%
99513	0	0.0%
99515	30	6.7%
99516	34	7.6%
99517	40	8.9%
99518	11	2.4%
99540	0	0.0%
99567	6	1.4%
99577	19	4.2%
99587	2	0.4%
TOTAL RESPONSES	450	100%

Table 1 Responses by zip code, 2020.

Question 2. Do you live in a watershed?

Over half of the 450 respondents (53.8%) recognize that they live in a watershed while 14.7% answered “No”, and 31.6% were not sure of whether they lived in a watershed or not. These findings are compared to the 2014 and 2010 responses (Figure 2). The percentage of “Yes” respondents has bounced around over time, but it still remains the dominant answer. The number of respondents answering “Don’t know” has declined between 2014 and 2020 by about 8%. Unfortunately, this choice was not used in the 2010 survey which may have skewed the responses as people had to answer one way or the other. If taking into account only the 2014 and 2020 surveys with the exact three answers (Yes, No, and Don’t know)—there is an increase in “Yes” by 6% and a decrease in “Don’t know”.

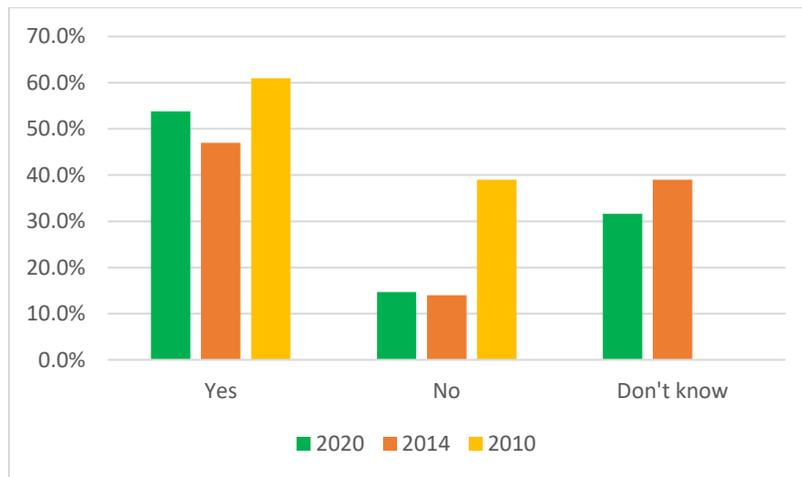


Figure 2 Do you live in a watershed? 2010, 2014, and 2020.

Question 3: Are you interested in hearing more about watersheds?

Education on watersheds has been one of the major focuses of AWC and its Creeks-as-Classroom outreach. In the 2020 survey, about 50% of the respondents wanted to learn more about watersheds while 50% declined (Figure 3). Hopefully, the “No” group has already been educated on watersheds either by AWC, in school classes, or some other venue. The 2020 numbers are not significantly different than 2014 and 2010 for this question.

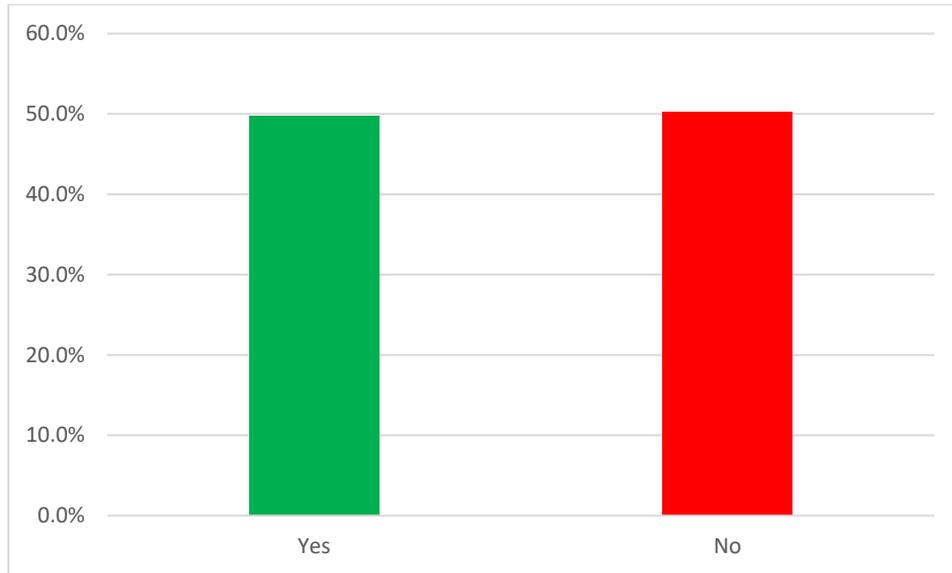


Figure 3 Interest in learning more about watersheds, 2020.

Responses	Number	Percent
Yes	224	49.8%
No	226	50.2%
TOTAL RESPONSES	450	100%

Table 2 Responses to learning more about watersheds, 2020.

Question 4. Do you think the water quality of creeks and streams in Anchorage is generally...?

The 450 respondents had mixed feelings about the water quality of local creeks (Figure 4) and the responses by category are shown in Table 3. The “Very good” rating has gone down significantly from previous years (Table 4), while the “Somewhat good” and “Moderate” have remained relatively the same. The “Somewhat poor” and “Very poor” ratings have increased steadily from 2010 to 2014 and into 2020 (Table 4).

Many Anchorage residents are concerned about the impacts of homeless campers, many of whom are living along local creeks. The impacts from homeless camps include human wastes deposited directly into the creeks or dumped from “honey buckets,” mounds of trash in the greenbelts and creeks, and drug paraphernalia, e.g. syringes. Local creek banks in some areas are well-littered with homeless

debris which has resulted in raising the ire of Anchorage residents. This was extremely evident during AWC’s Campbell Creek Watershed Survey completed in 2019².

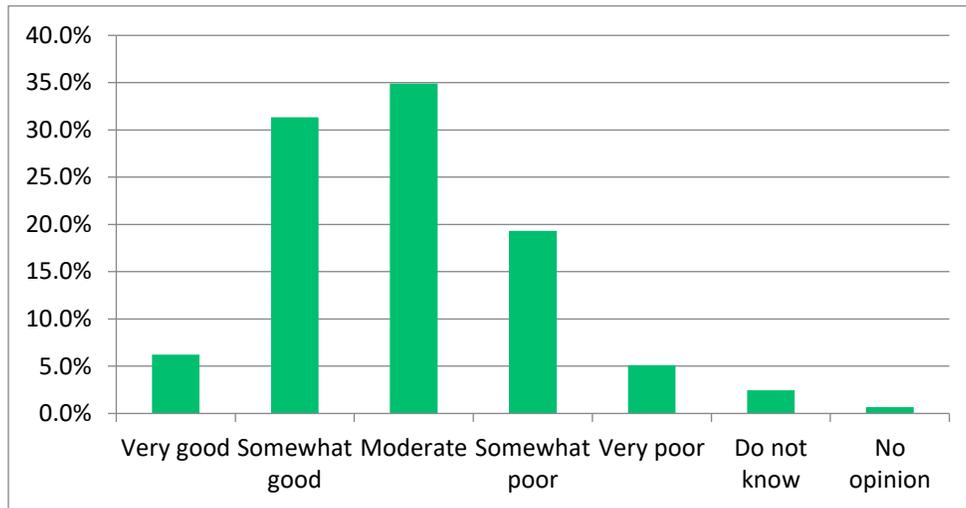


Figure 4 Responses on the water quality of Anchorage creeks and stream in general, 2020.

Responses	Number	Percent
Very good	28	6.2%
Somewhat good	141	31.3%
Moderate	157	34.9%
Somewhat poor	87	19.3%
Very poor	23	5.2%
Do not know	11	2.4%
No opinion	3	0.7%
TOTAL RESPONSES	450	100%

Table 3 Responses concerning water quality of creeks and streams in Anchorage, 2020.

² AWC completed a Campbell Creek Watershed Scoping for the APDES Permit during year 4 which incorporated a Campbell Creek Watershed Survey. The document is available upon request.

Answer Options	2020		2014		2010	
	Response %	Response Count	Response %	Response Count	Response %	Response Count
Very good	6.2%	28	14.1%	96	11.2%	59
Somewhat good	31.3%	141	31.6%	215	33.2%	175
Moderate	34.9%	157	27.9%	190	33.2%	175
Somewhat poor	19.3%	87	15.7%	107	10.4%	55
Very poor	5.1%	23	4.8%	33	3.2%	17
Do not know	2.4%	11	5.3%	36	4.9%	26
No opinion	0.7%	3	0.6%	4	3.8%	20
Total		450		681		527

Table 4 Respondents’ assessment of the quality of creeks and streams, 2010, 2014 and 2020.

Question 5. Over the last 10 years, do you think that the water quality of our creeks and streams has: improved, gone downhill, or remained the same?

Of the 450 respondents, only 96 (21.3%) said that our streams have “Improved” since 2010, while 354 (78.6%) respondents think that our creeks and streams have “Remained about the same” or “Gone downhill” in the last 10 years (Figure 5). One thing to keep in mind is that 10 years ago we did not have such a massive homeless population which is evident as a concern in the 2020 survey. This question was not asked in 2014.

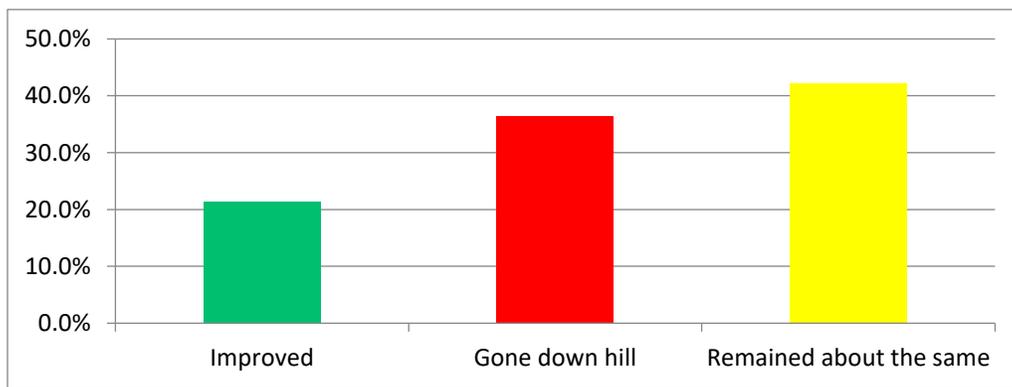


Figure 5 How have Anchorage creeks and streams changed over the last 10 years? 2020.

Question 6. What do you think is the biggest threat to water quality in creeks? Please rank the following.

Pet wastes (dogs and horses), yard chemicals, and humans directly were considered by the respondents to be the biggest threats to water quality of creeks (Figure 6 and Table 5). From 2010 to 2020, some of the survey terminology has changed to reflect current conditions or more refined answers. For example, traction products have been added to include sand, salt, and gravel additives during winter, and “animal waste” is now divided into “pet” and wildlife”. Yard chemicals are moving up in recognition of their impacts on waterways, and issues with septic systems are becoming more widely understood.

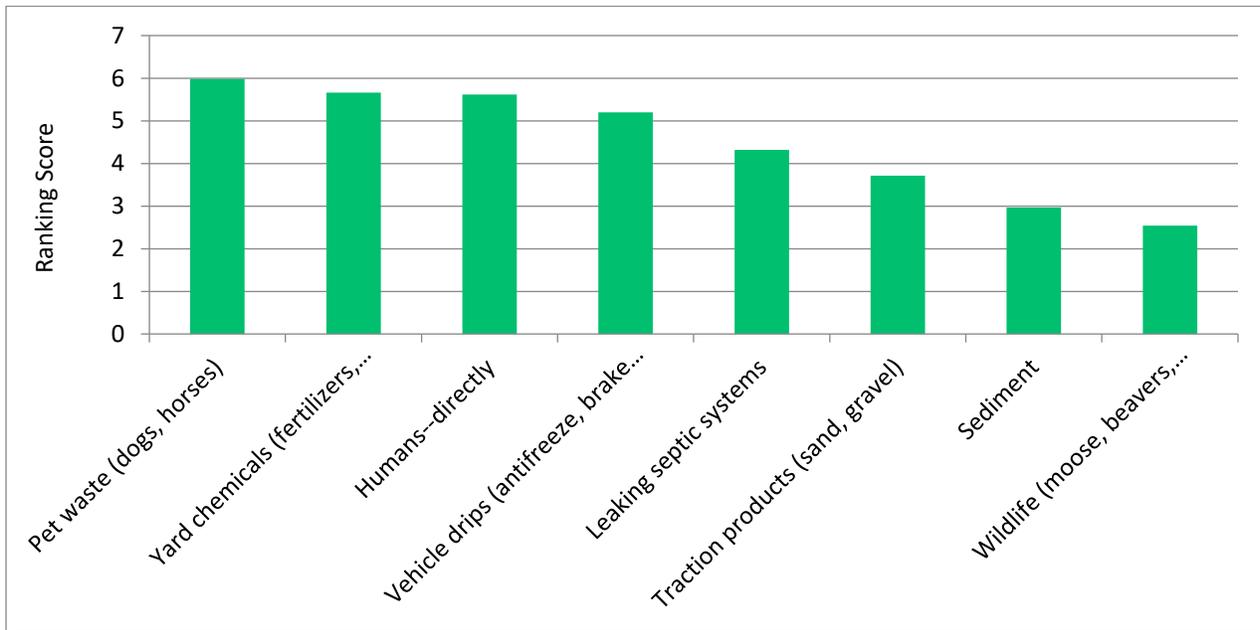


Figure 6 What are the biggest threats to water quality in creeks by rank? 2020.

Threat	1		2		3		4		5		6		7		8		Total	Score
Pet waste (dogs, horses)	31.56%	142	22.89%	103	10.44%	47	9.33%	42	10.44%	47	6.44%	29	6.22%	28	2.67%	12	450	5.98
Yard chemicals (fertilizers, pesticides, ice melt)	12.00%	54	23.11%	104	24.44%	110	18.00%	81	10.89%	49	6.89%	31	2.89%	13	1.78%	8	450	5.66
Humans--directly	33.11%	149	11.11%	50	11.78%	53	11.33%	51	9.78%	44	10.67%	48	8.44%	38	3.78%	17	450	5.62
Vehicle drips (antifreeze, brake fluid, oil, gasoline)	6.44%	29	16.22%	73	25.33%	114	20.22%	91	15.11%	68	9.78%	44	4.89%	22	2.00%	9	450	5.2
Leaking septic systems	2.89%	13	13.11%	59	10.22%	46	18.00%	81	20.44%	92	17.33%	78	13.56%	61	4.44%	20	450	4.32
Traction products (sand, gravel)	2.67%	12	4.89%	22	9.11%	41	12.89%	58	17.11%	77	25.78%	116	22.67%	102	4.89%	22	450	3.71
Sediment	6.00%	27	5.11%	23	4.89%	22	6.22%	28	7.56%	34	13.11%	59	26.44%	119	30.67%	138	450	2.97
Wildlife (moose, beavers, waterfowl, etc.)	5.33%	24	3.56%	16	3.78%	17	4.00%	18	8.67%	39	10.00%	45	14.89%	67	49.78%	224	450	2.54

Table 5 - Ranked responses to eight water quality concerns, 2020.

Rank	2020	2014	2010
1	Pet waste	Runoff	Runoff
2	Yard Chemicals	Animal Waste	Animal Waste
3	Humans-directly	Lawn & Household Chemicals	Human Trash
4	Vehicle Drips	Sewage/Leaking Septic Systems	Pollution
5	Septic systems	Urban Development	Vehicle Fluid
6	Traction products	Human Trash	Urban Development
7	Sediment	Pollution	Lawn Care Products
8	Wildlife		

Table 6 Biggest threats to water quality in creeks by rank: 2010, 2014, and 2020.

Question 7. What do you think is the most important action you could take on your property to improve water quality in our local creeks, rivers, or lakes?

This was a good question for thoughtful responses especially because it addressed actions on the respondent's property. As it is open-ended and allowed more than one answer, the responses have been calculated individually by topic. A handful of respondents live in condos where the yards are maintained by others, but a few of them still suggested some actions they would take if it was their own yard. All in all, the answers were quite heartening.

The largest response was 186 (36%) which focused on reduction, changing to non-chemical, or complete abandonment of yard chemicals (fertilizers, herbicides, and pesticides) (Table 7). There were 25 (4.8%) specific responses about not using ice melt products on their property. The second highest response was 116 (22.4%) who said to clean up dog poop. Fifty-six (10.8%) stated that eliminating vehicle drips and good washing practices (mostly going to the car wash) were important as well as 22 (4.2%) who suggested proper disposal of chemicals. Lastly, 36 (6.9%) said it was important to pick up trash and litter.

Fifty-four (10.4%) respondents said that onsite control of stormwater runoff was important, and some specifics suggested were to use vegetation and soils to help water percolate down. Another 7 (1.4%) said that keeping storm drains open and clean was important. Sixteen (3.1%) addressed the value of keeping septic systems in good working order with regular maintenance checks.

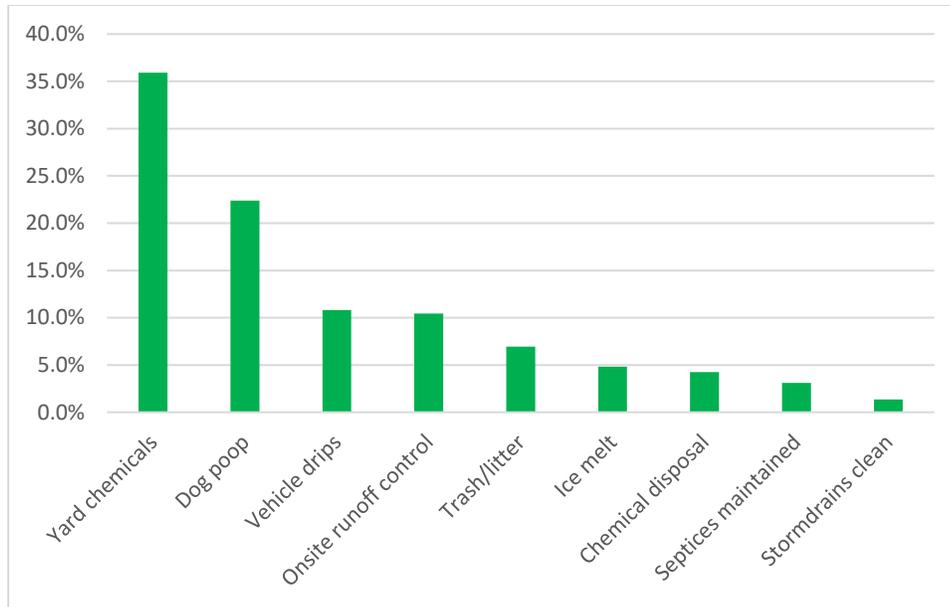


Figure 7 What do you think are the most important actions you could take on your property to improve water quality?

Response	Number	Percent
Yard chemicals	186	36.0%
Dog poop	116	22.4%
Vehicle drips	56	10.8%
Onsite runoff control	54	10.4%
Trash/litter	36	6.9%
Ice melt	25	4.8%
Chemical disposal	22	4.2%
Septics maintained	16	3.1%
Keep storm drains clean	7	1.4%
	518	100%

Table 7 Respondents' suggestions for important things to be done on their property to improve water quality, 2020.

Question 8. What could be done to improve overall quality of Anchorage creeks and streams?

While question 7 referred to respondents taking action on their own property, question 8 looks at the broader impact on waterways and how respondents think that they should be cared for. Categorizing the answers proved challenging sometimes because statements, such as “Enforce scoop the poop!” or “Get people to pick up after their animals”, are both a call to action as well as acknowledgement of a problem. The 465 responses have been divided into 2 graphs. The first graph (Figure 8) depicts the problems affecting water quality that had been identified. The largest category

was pet waste at 101 (44.5%) followed by homeless impacts by 66 (29.1%). A number commented that littering needed to be stopped—it’s unclear if this is viewed as separate from homeless camps which are constantly filled with trash and debris or litter on the trails by users. There were also comments about making sure that septic systems were maintained (4.9%) as well as concern about vehicle drips (2.6%), feeding waterfowl (2.6%) and invasive plants (.9%).

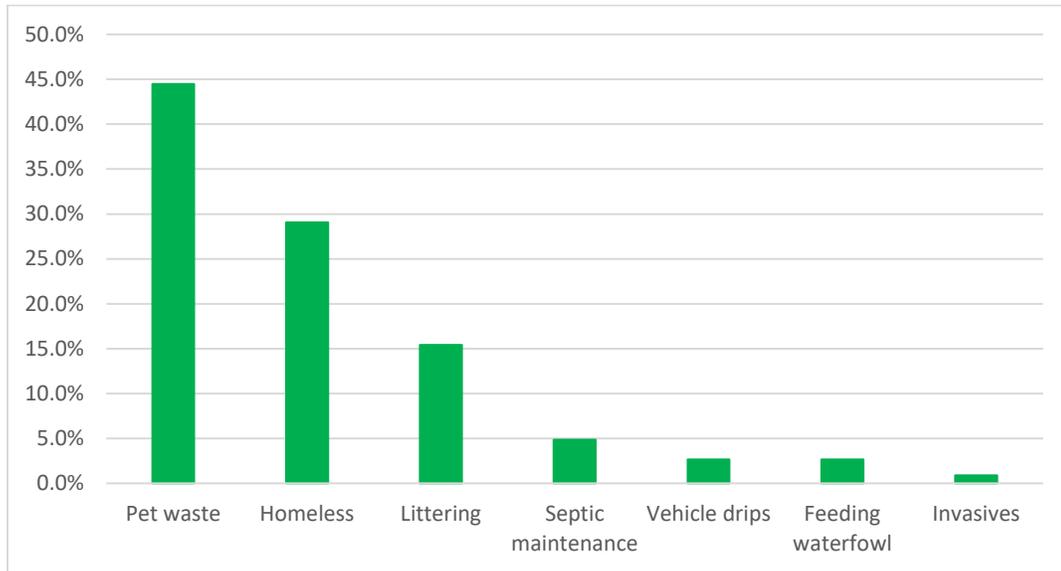


Figure 8 Major problems for water quality identified by respondents, (n=227).

Response	Number	Percent
Pet waste	101	44.5%
Homeless	66	29.1%
Littering	35	15.4%
Septic maintenance	11	4.9%
Vehicle drips	6	2.6%
Feeding waterfowl	6	2.6%
Invasives	2	.9%
	227	100%

Table 8 Responses for major water quality problems on creeks, 2020.

The other responses to this question have been categorized as solutions. Overwhelmingly, respondents felt that outreach with 65 (27.3%) and additional creek cleanups by 56 (23.5%) were viewed as major ways to improve water quality (Figure 9 and Table 9). Creek cleanups were suggested as both volunteer-driven, just as AWC now does, or by paid staff. Many recommended adding a fall cleanup, although the funding for these events is always based on other sources, e.g. grants and donations, so this could be problematic. In response to this suggestion, AWC did host 2 fall cleanups in September 2020. The turnout was remarkably high, and it will be repeated in the future.

Some of the other comments are indicative of a good understanding of stormwater issues in watersheds. The retention or replacement of vegetation buffers by 25 (10.6%), reducing yard chemicals

by 23 (9.96%) and deicing chemicals by 11 (4.62%), and more green infrastructure and LID 22 (9.24%) are some of the concepts mentioned. Water testing was proposed by 15 (6.3%) as a means of determining types of impairment with the goal of reducing them. And, additional street sweepings points to a familiarity with the gravel and sand that do run off into creeks during breakup. Some individuals believe that more trash cans and pet waste stations could improve pet waste pickup, but much of what AWC has learned over time is that this doesn't always work.

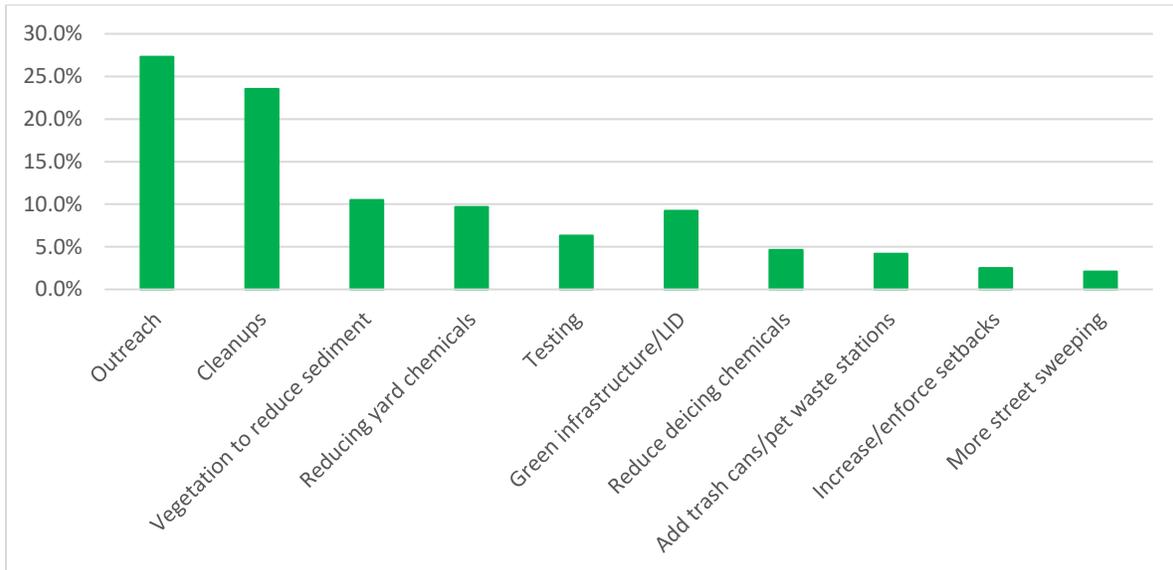


Figure 9 Suggested solutions for improved water quality identified by respondents, (n=238).

Response	Number	Percent
Outreach	65	27.3%
Cleanups	56	23.5%
Vegetation buffers to reduce sediment	25	10.6%
Reducing yard chemicals	23	9.7%
Green infrastructure/LID	22	9.2%
Testing	15	6.3%
Reduce deicing chemicals	11	4.6%
Add trash cans/pet waste stations	10	4.2%
Increase/enforce setbacks	6	2.5%
More street sweeping	5	2.1%
	238	100%

Table 9 Suggestions for improving water quality in Anchorage creeks, 2020.

Question 9. How much responsibility for water quality of Anchorage waterways does each of the following entities have?

The MOA was the first choice and the State of Alaska was second in regard to level of responsibility for water quality of Anchorage waterways (Figure 10 and Table 10), with Anchorage Waterways Council as third. This rating order has remained constant in all surveys from 2010 to 2020 (Table 11).

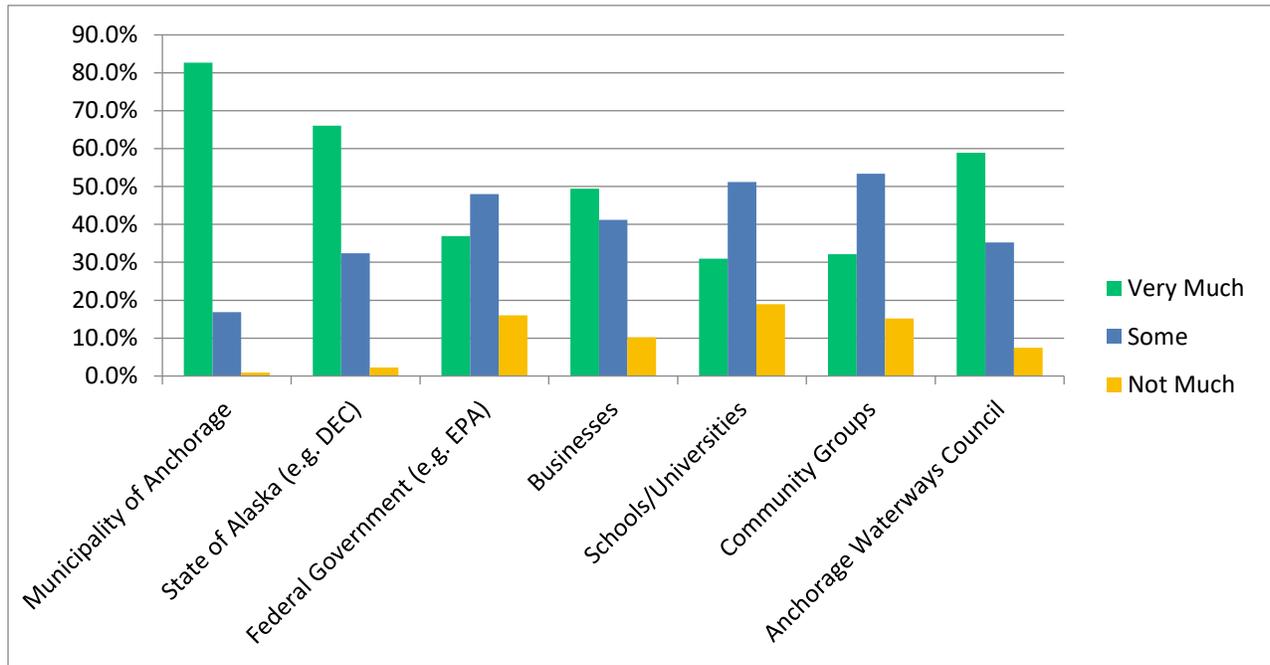


Figure 10 Responsibility for water quality in Anchorage's waterways, 2020.

Responsible Agency	Very Much		Some		Not Much		Total Responses
	Percent	Respondents	Percent	Respondents	Percent	Respondents	
Municipality of Anchorage	82.4%	371	16.7%	75	0.9%	4	450
State of Alaska (e.g. DEC)	65.8%	296	32.0%	144	2.2%	10	450
Federal Government (e.g. EPA)	36.4%	164	47.6%	214	16.0%	72	450
Businesses	48.9%	220	40.9%	184	10.2%	46	450
Schools/Universities	30.9%	139	50.4%	227	18.7%	84	450
Community Groups	32.0%	144	52.9%	238	15.1%	68	450
Anchorage Waterways Council	58.0%	261	34.7%	156	7.3%	33	450
Other (please specify)							42
TOTAL RESPONDENTS							450

Table 10 Responses on responsibility for water quality in Anchorage waterways, 2020.

Responsible Agency	Very Much			Some			Not Much		
	2020	2014	2010	2020	2014	2010	2020	2014	2010
Municipality of Anchorage	372 (82.7%)	540 (81.2%)	358 (69.5%)	76 (16.9%)	122 (18.4%)	137 (26.6%)	4 (0.9%)	5 (0.8%)	21 (4.1%)
State of Alaska (e.g. DEC)	296 (66.1%)	378 (57.3%)	281 (54.9%)	145 (32.4%)	264 (40.0%)	207 (40.4%)	10 (2.2%)	19 (2.9%)	29 (5.7%)
Federal Government (e.g. EPA)	166 (36.9%)	212 (32.2%)	166 (32.5%)	216 (48.0%)	320 (48.6%)	244 (47.8%)	72 (16.0%)	130 (19.8%)	104 (20.4%)
Businesses	222 (49.4%)	235 (36.0%)	156 (30.8%)	185 (41.2%)	281 (43.0%)	213 (42.0%)	46 (10.2%)	138 (21.1%)	141 (27.8%)
Schools/Universities	139 (31.0%)	182 (27.8%)	134 (26.5%)	230 (51.2%)	284 (43.4%)	205 (40.5%)	85 (18.9%)	191 (29.2%)	169 (33.4%)
Community Groups	144 (32.2%)	153 (23.4%)	104 (20.6%)	239 (53.4%)	292 (44.6%)	236 (46.7%)	68 (15.2%)	211 (32.2%)	169 (33.5%)
Anchorage Waterways Council	261 (58.9%)	268 (41.6%)	201 (41.0%)	156 (35.2%)	274 (42.5%)	217 (43.6%)	33 (7.5%)	107 (16.6%)	83 (16.7%)
Other	Unk	73 (44.8%)	Unk	Unk	463 (28.2%)	Unk	Unk	46 (22.2%)	Unk

Table 11 Comparison of 2010, 2014, and 2020 Answers for Water Quality Responsibility.

Question 10. How much responsibility for water quality of Anchorage waterways do residents have?

The responses for 2020 and 2014 about a resident’s responsibility for water quality of local waterways is shown in Figure 11. In both years, respondents overwhelmingly felt that residents do have an important role in water quality management. The responses for “Not Much” have declined by almost half from 2014 to 2020.

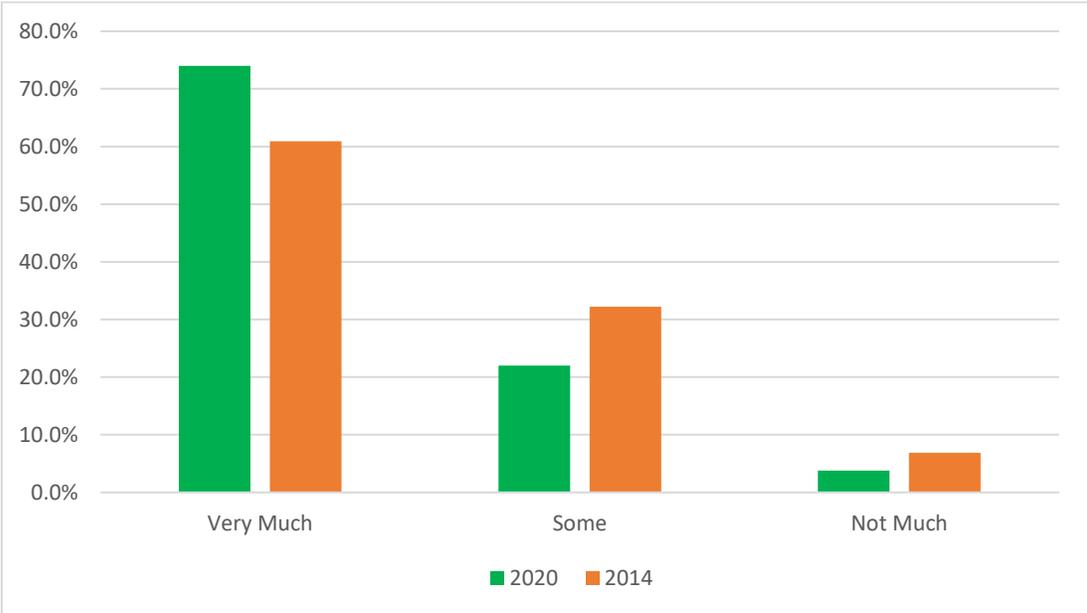


Figure 11 How much responsibility for water quality in Anchorage waterways do residents have? 2014 and 2020.

Question 11. Sewage from your house flows where?

Of the 450 responses (Figure 12 and Table 12), 428 (95.1%) knew whether their household sewage either went into the sanitary sewer system or a septic system, while 22 (4.9%) individuals had no idea where their sewage goes. The percentages from the 2014 survey are not significantly different although the question was split into two parts then.

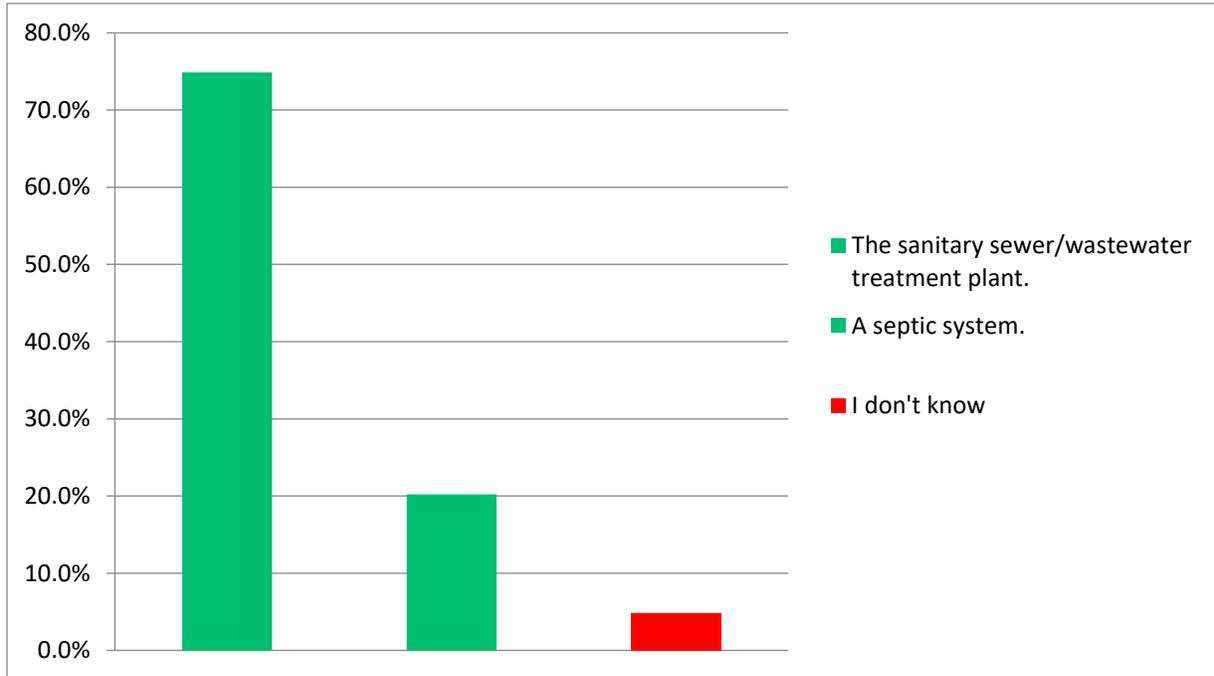


Figure 12 Where does the sewage from your house go? 2020.

Responses	Number	Percent
The sanitary sewers and then through the wastewater treatment plant	337	74.8%
A septic system	91	20.3%
I do not know	22	4.9%
TOTAL RESPONSES	450	100%

Table 12 Responses on where the sewage from your house goes, 2020.

Question 12. Surface water runoff and snowmelt from your neighborhood are treated AFTER they enter a storm drain and BEFORE they flow into a creek.

The stormwater system continues to remain a mystery to many residents. Of 450 respondents, 248 (55.1%) individuals recognized that stormwater and snowmelt runoff were not treated before entering creeks and streets, while 29 (6.5%) assumed runoff was treated in the stormwater system (Figure 13 and Table 13). An amazing 173 (38.4%) had no idea what happened to stormwater. Our conclusion is that this continues to need further work, although there is an assumption that many people really don't pay attention to where stormwater goes. It's similar to one's trash—it is taken away in a truck.

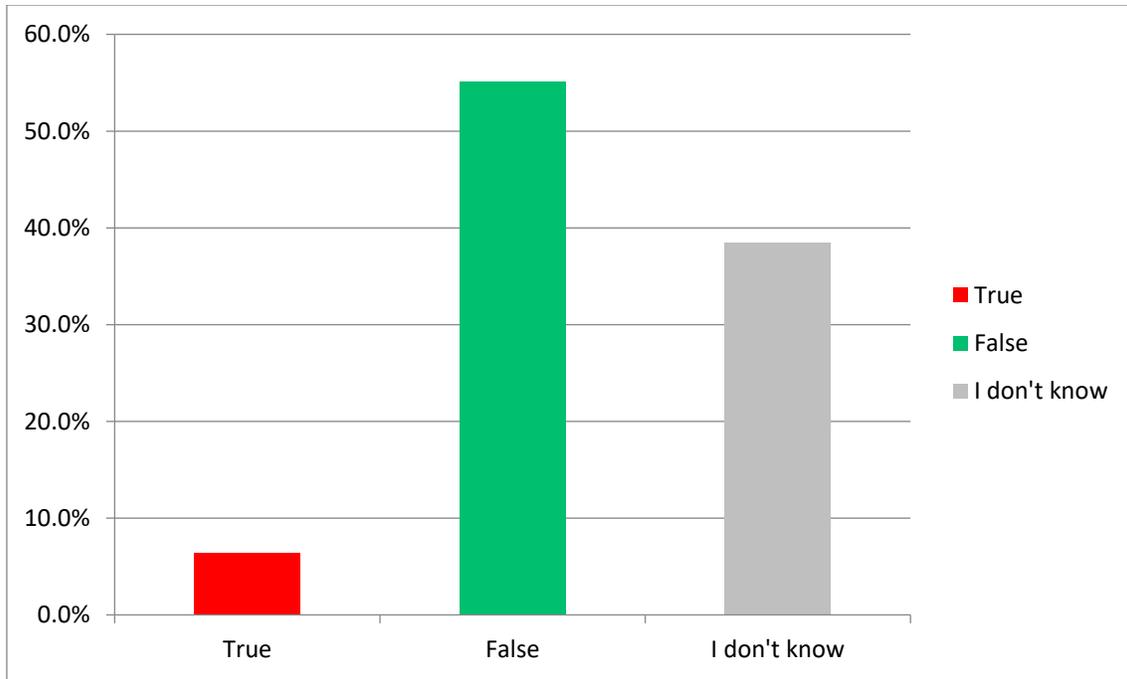


Figure 13 Surface water runoff and snowmelt are treated after they enter the storm drain and before they flow into a creek, 2020.

Responses	Number	Percent
True	29	6.5%
False	248	55.1%
I do not know	173	38.4%
TOTAL RESPONSES	450	100%

Table 13 Responses on whether surface runoff and snowmelt are treated before they enter a creek, 2020.

In a comparison of this question’s response from 2014 to 2020 (Figure 14), interestingly, there are no significant differences between the 2014 and 2020 results.

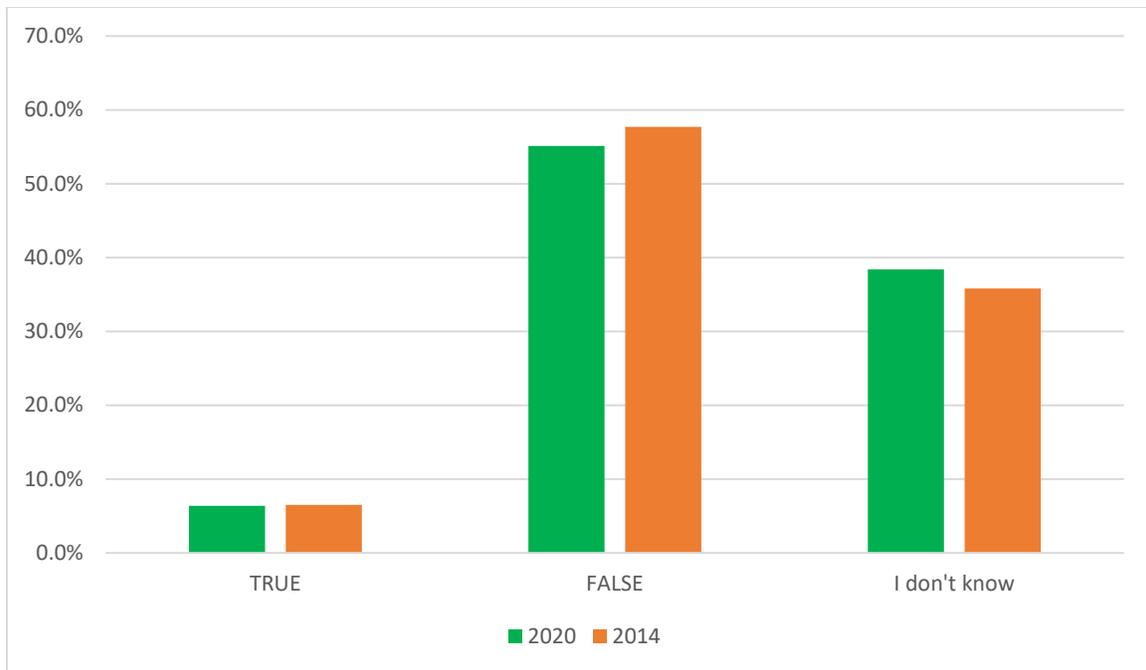


Figure 14 Surface water runoff and snowmelt are treated after they enter the storm drain and before they flow into a creek, 2014 and 2020.

Question 13. Do you own a dog(s)?

Four hundred forty-four persons answered Question 13 (Table 14) which shows that 262 (59%) of respondents had dogs while 182 (41.0%) were dog-less. The fact that there were .79 dogs/owner suggests that there were households with more than one respondent.

Responses	Number	Percent
Yes	262	59%
No	182	41%
If yes, how many?	206	0.79 dogs/owner
TOTAL RESPONSES	444	100%

Table 14 Responses about dog ownership, 2020.

Question 14. If you own a dog or dogs, do you pick up your pet waste at your residence or adjacent area?

According to the survey, nearly 72% of the 274 dog owners who responded “Always” pick up after their pets at their residence, 56 (20.4%) do “Most of the time” and a small number, 15 (5.5%) do “Sometimes” with 6 (2.1%) who “Never” do (Figure 15). These numbers are essentially duplicates of 2014 (Figure 16). Cleaning up around your home is always a great idea which does not need much of an explanation.

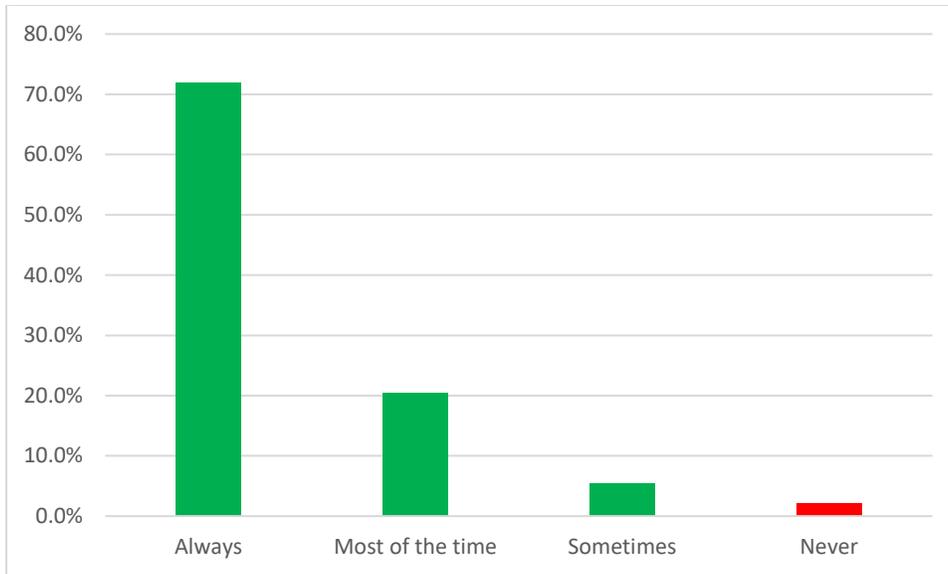


Figure 15 How often respondents pick up pet waste at their residence or adjacent areas, 2020.

Responses	Number	Percent
Always	197	71.9%
Most of the time	56	20.4%
Sometimes	15	5.5%
Never	6	2.2%
TOTAL RESPONSES	274	100%

Table 15 Responses for picking up pet waste around their residence, 2020.

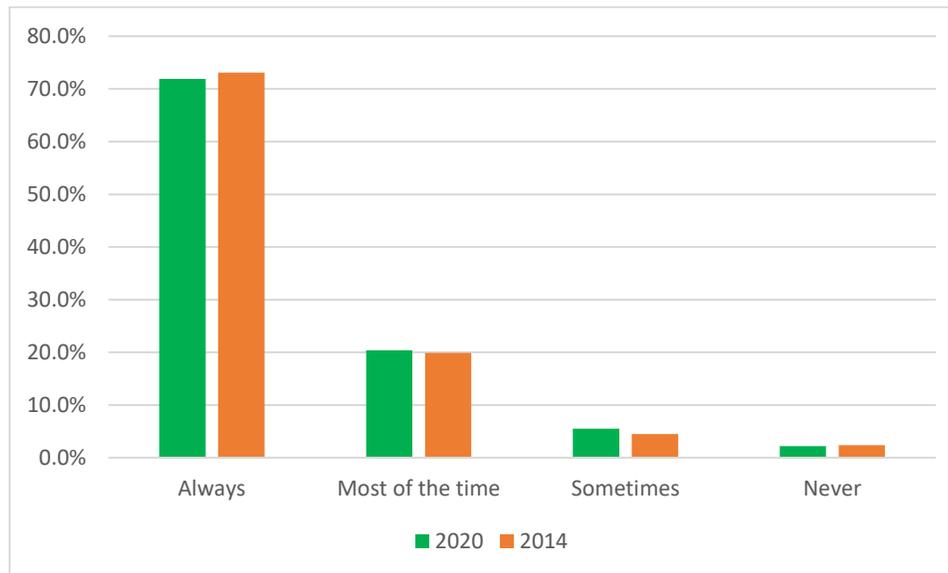


Figure 16 Comparison about cleaning up pet wastes around their residences, 2014 and 2020.

Question 15. If you own a dog or dogs, do you pick up after your pet when out?

In the 2020 survey, of the 271³ people with dogs who responded to this question, 178 (65.7%) reported that they pick up their pet waste “Always” and 77 (28.4%) said “Most of the time” when out, which leaves 16 (5.9%) “Never” or “Sometimes” picking up after their dogs (Figure 17 and Table 16). Some of the reasons given for not picking up wastes are: “it’s the Municipality’s job,” “it’s in the woods and will just decompose,” and “I don’t want to carry a poop bag while I’m jogging”. Many residents run or bike with their dogs off leash and are not paying attention to their pet and don’t see it when poops. Although the Municipality has designated official dog parks, you will find off leash dogs in most parks and on trails.

The 2014 numbers for this question essentially mirror the 2020 (Figure 18).

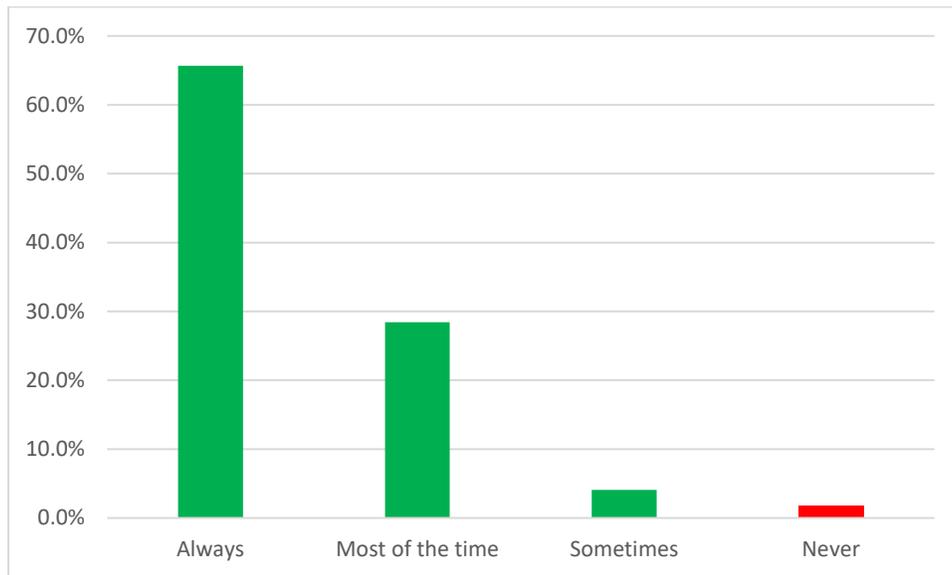


Figure 17 Do owners pick up after their pets when out? 2020

Responses	Number	Percent
Always	178	65.7%
Most of the time	77	28.4%
Sometimes	11	4.0%
Never	5	1.9%
TOTAL	271	100%

Table 16 Responses to how often owners pick up after their pets when out, 2020.

³ There is a small difference in the number of dog owner respondents between questions 13, 14 and 15 for some reason.

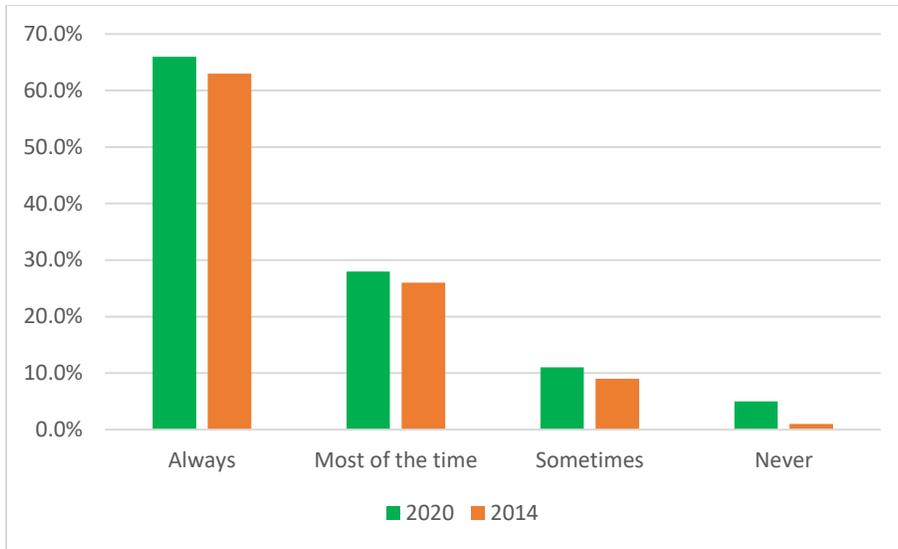


Figure 18 Comparison of dog owners cleaning up after their pets when they are out, 2014 and 2020.

Question 16. How and where do you deal with pet waste? (check all that apply)

This question had 320 responses from pet owners (Figure 19 and Table 17). An interesting and common phenomenon related to wastes is people dutifully bagging their dog’s waste yet leaving the bag along the trail or in the park. And, equally interesting are those who clean up after others.

The differences between 2020 and 2014 are minimal (Figure 20). The percentage of people who place dog wastes in the garbage has increased by about 9 %, while composting wastes declined slightly.

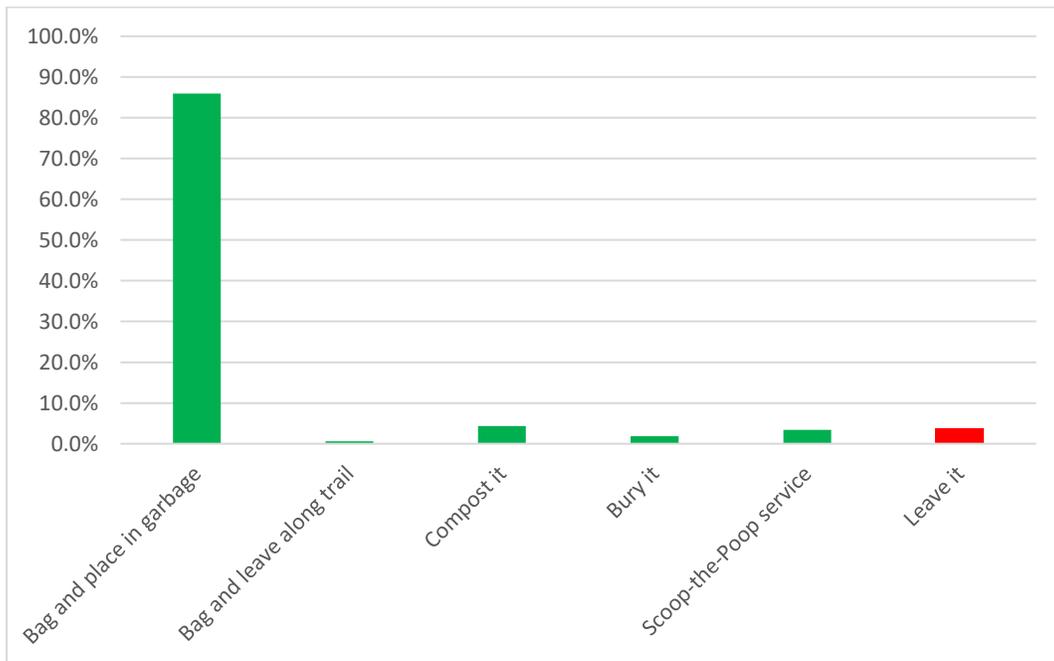


Figure 19 How do you deal with your pet’s waste? 2020.

Choices	Number	Percent
Bag and place in garbage	275	85.9%
Bag and leave along trail	2	.6%
Compost it	14	4.4%
Bury it	6	1.9%
Scoop-the-Poop service	11	3.4%
Leave it	12	3.8%
TOTAL RESPONSES	320	100%

Table 17 Responses on how pet owners deal with their pet’s waste, 2020.

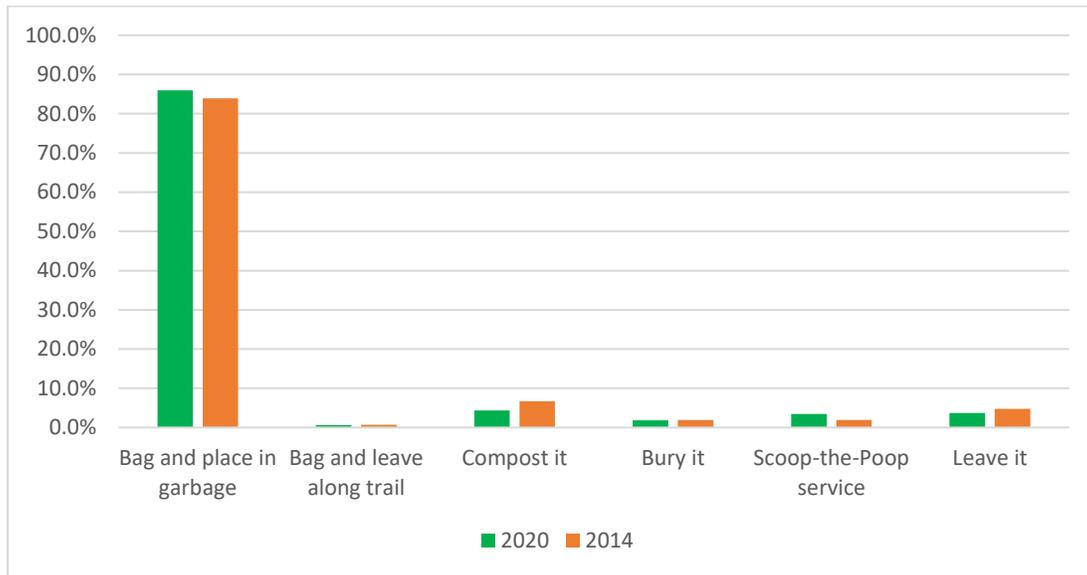


Figure 20 How are pet wastes dealt with, 2014 and 2020.

Question 17. Do you let your dog swim in our lakes and streams?

Some concern has been expressed by veterinarians and others about having dogs swim in Anchorage’s lakes and streams due to susceptibility to giardia and other infections. Of the pet owners, 44 (22.8%) respondents let their dogs swim in lakes and streams, while 77.2% do not allow their dogs to swim (Figure 21 and Table 18). Lakes seem to be the greatest concern particularly with the high levels of *E. coli* in the bottom sediments, the potential interactions with aggressive animals, scaring nesting water birds, and leaving dog feces on the banks and *E. coli* in the water. In University Lake, aggressive beavers (*Castor canadensis*) have injured several dogs, and recently there are reports of river otters. Several owners contend that the beavers were trying to pull the dogs down and drown them. These beavers were probably just protecting their young and their bank lodges. This question was not asked in 2014 survey.

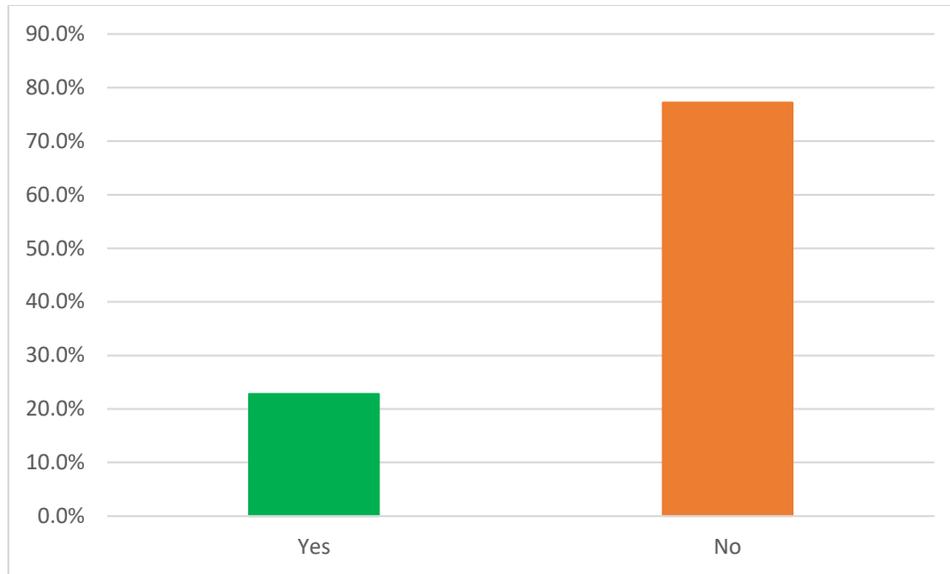


Figure 21 Do you allow your dogs to swim in creeks or lakes? 2020.

Choices	Number	Percent
Yes	44	22.8%
No	149	77.2%
TOTAL RESPONSES	193	100%

Table 18 Responses on allowing dogs to swim in creeks or lakes, 2020.

In reviewing where pet owners allow their dogs to swim, these lucky pets get to go just about everywhere in the Municipality according to responses.

Question 18. Do you have suggestions for how we can get dog owners to pick up their pet wastes?

There were 451 suggestions from the survey as this was an open-ended question. The majority were suitable although there were 59 (13.08%) who just didn't have any ideas whatsoever (Figure 22 and Table 19). Quite a few felt that despite all the signage, education, and pet waste stations/trash receptacles available, they just weren't working to promote better cleanups. As one respondent noted, "God only knows! It's one of my biggest pet peeves about Anchorage. Pun intended!" Another stated, "Seriously, there are nice bag dispensers, trash cans available, and they still are too lazy to take responsibility for their pet waste". Another stated, "Ugh. This is the million dollar question. I feel like the resources are there...The poop bags and trash cans. It's just getting folks to be more conscious and less selfish". And finally, "I'm now sure that this is ever going to be successful. They won't put masks on to protect themselves and others from the Corona virus".

Regardless, there were many responses that you would call logical and which AWC has considered over the years. These include fines/enforcement of regulations, more pet waste stations/trash cans, and outreach/education. There are problems with these as AWC has found. In trying to get Anchorage Animal Care and Control (AACC) more involved with enforcement, there are roadblocks that mostly have to do with not enough staff and only being able to cover the most urgent issues, e.g. injured animals, animal bites and attacks, noise complaints, animal abuse, and loose animals. Additionally, AACC staff are in charge of visiting and reviewing boarding kennel applications and inspections which run about 150

annually. The solution is more funding for more officers to enforce regulations on the books along with their other duties, but that's beyond the scope of this project. Pet owners who violate the laws know there is no enforcement so there's little incentive to clean up pet waste or obey leash laws. Fortunately, many more do because they are responsible and care.

As for more pet waste stations and trash cans, there is a similar problem. Pet waste bags are not inexpensive, and earlier this summer there was actually a shortage due to Covid-19 issues with companies switching to other types of manufacturing. Anchorage's Parks and Rec staff do a good job of keeping the stations filled and trash receptacles emptied, but it is impossible to always predict usage. Many pet owners would like to have them stationed about every 50' along a trail for convenience—but that's not practical. Eighteen respondents specifically mentioned trailheads in need of pet waste stations, but there are lots of stations at trailheads and it still doesn't seem to work for everyone. Campbell Airstrip Trailhead in Far North Bicentennial Park has a couple of pet waste stations by the parking lot entrance, and it is one of places that gets the most complaints about pet waste not being picked up. Another issue is making sure that they are in a location that can be reached by staff with a vehicle for cleanup and maintenance. This is something that we at AWC try and convey to the public when they ask about more waste stations and trash. There has to be some personal responsibility here, and money for this convenience is not unlimited.

Another popular complaint is about people bagging their pet's waste and leaving it on trails. To some, it is obvious that having trash cans closely placed would solve this problem. From personal experience on Campbell Creek Trail, I frequently see full pet waste bags left about 50' from a prominent trash can. It's in one direction and I assume the pet owner was diverting across the Tudor School bridge and didn't "want" to go the other direction to dispose of it. There are many explanations for left bags—AWC has heard them all, yet they persist and according to comments in the survey it really bothers many people.

Outreach and education are one of the most important aspects of helping to reduce pet waste. This was proposed by 83 respondents (18.4%) and is a good strategy. Some even made suggestions on formats such as social media and PSAs. AWC does use social media and will expand to PSAs in 2020. A good number, 40 (8.9%) thought peer pressure, setting an example by doing, and so forth is worthwhile and I wouldn't argue with that. Carrying an extra bag to offer to people whose dog takes a poop is always a good idea. Some of us do forget bags and sometimes we use one up and don't have a spare. Those who don't regularly pick up might then learn something without being chastised.

Signage is another suggestion. There are many signs about pet waste on the trails and other locations. How good they are in converting people is unknown although some of the respondents feel they are useful.

Finally, there were a few interesting suggestions for dealing with offenders. Three called for public shaming, one suggested using a cattle prod, one was for putting stocks in Town Square which held the offender's head above a pile of their pet's waste, another thought drone attacks would be useful, and one person suggested tossing flaming bags of dog poop on their porch.

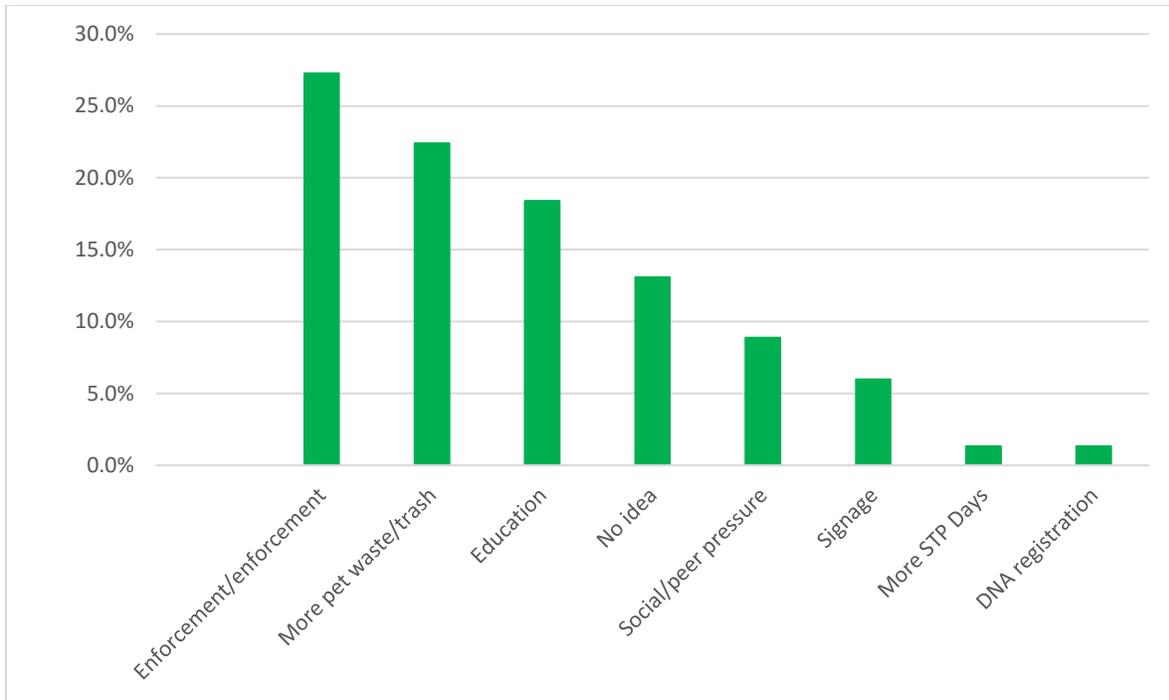


Figure 22 Respondent suggestions for encouraging pet waste pickup, 2020

Answer	Number	Percent
Enforcement/enforcement	123	27.3%
More pet waste/trash	101	22.4%
Education	83	18.4%
No idea	59	13.1%
Social/peer pressure	40	8.9%
Signage	27	6.0%
More STP Days	6	1.3%
DNA registration	6	1.3%
Other	6	1.3%
TOTAL RESPONSES	451	100%

Table 19 Respondent suggestions for encouraging pet waste pickup, 2020.

Question 19. If you are a jogger, cyclist, skijorer, or skier on trails with your dog, do you clean up after them? If not, please explain why.

Of the 196 pet owner respondents answering this question, 167 (85.2%) always clean up their pet waste (Figure 23 and Table 19). Six (3.1%) said they did not always clean up, and 23 (11.7%) left comments. Of the useful ones, 5 stated that if the dog went off into the woods, they didn't go looking for it. One person admitted to going too fast on their bike and not being aware of the dog pooping. Forgetting the poop bag at home was another explanation. And finally, one person proclaimed that their dogs poop at home.

This question was not asked in 2014 so it is impossible to determine if any changes in behavior have occurred.

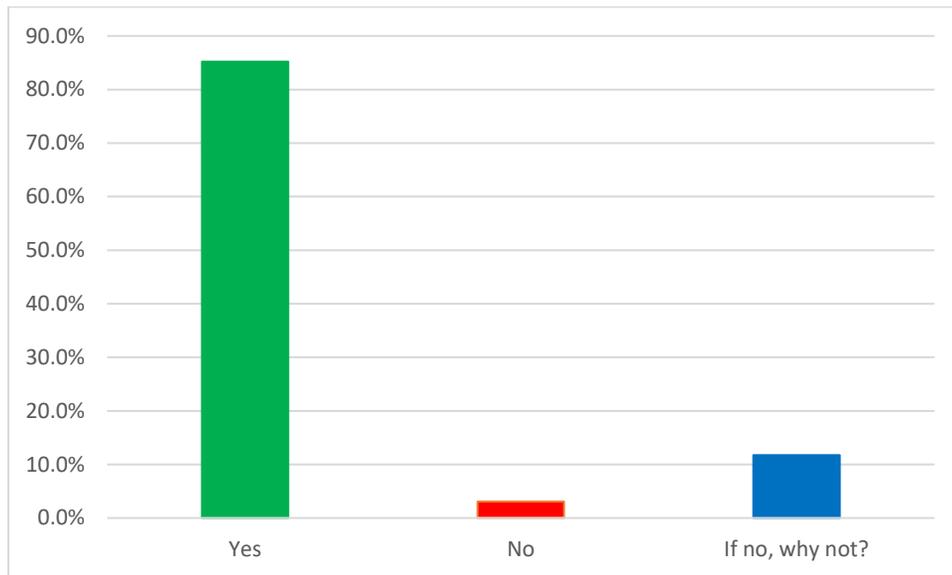


Figure 23 Do you clean up after your dog on the trails when you are jogging, cycling, skijoring or skiing with it? 2020.

Choices	Number	Percent
Yes	167	85.2%
No	6	3.1%
If no, why not?	23	11.7%
TOTAL RESPONSES	196	100%

Table 20 Responses about cleaning up your dog's waste when participating in vigorous outdoor activities, such as skiing, skijoring, cycling, jogging, 2020.

Question 20. Do you do any of your own vehicle repairs at your residence?

Of 433 respondents who answered and have vehicles, two-thirds (66.9%) contend that they do not repair vehicles at their residence while the remaining one-third (33.1%) say they do some repair work on vehicles at their residences (Figure 24 and Table 21). There were 71 responses to "If yes, please describe" where 40 said they do change oil and fluids at their residence. Several added that it's done in

the garage or that they are careful about capturing and disposing of it. Figure 25 shows minimal changes between 2014 and 2020.

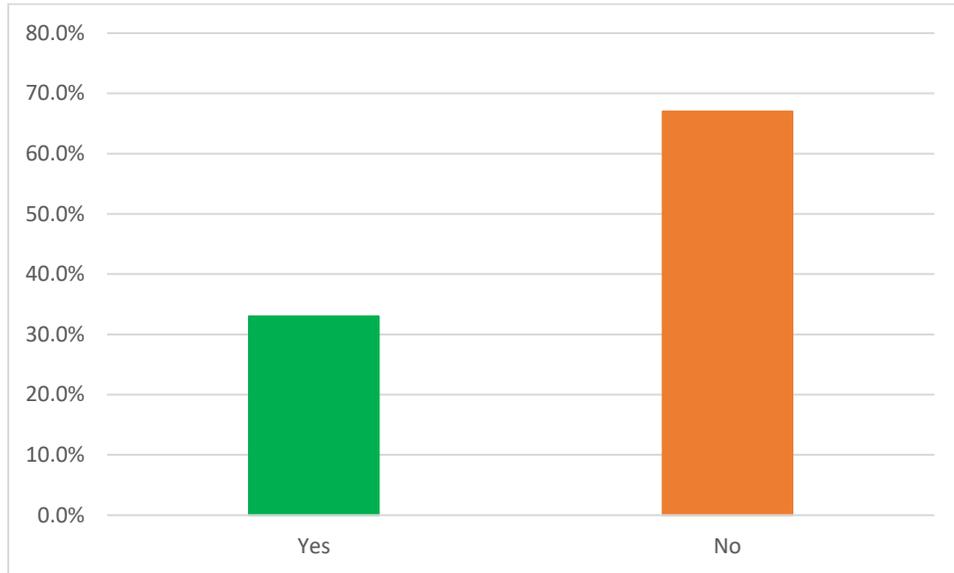


Figure 24 Do you do vehicle repairs at your residence? 2020.

Choices	Number	Percent
Yes	143	33.1%
No	290	66.9%
TOTAL RESPONSES	433	100%

Table 21 Responses concerning whether vehicle repair occurs at your residence.

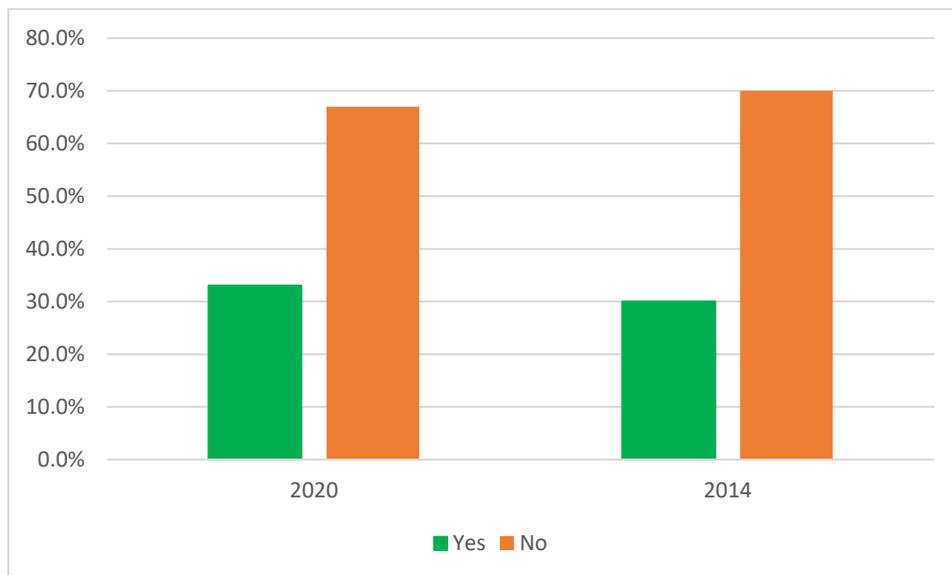


Figure 25 Vehicle repairs at residences, 2014 and 2020.

Question 21. Do you wash your vehicle at: (check all that apply)?

There were 588 responses (more than one answer allowed) from 428 respondents who have vehicles with 376 (63.9%) saying that they use a car wash (Figure 26 and Table 22). The 2014 and 2020 data shows the same trend and minimal changes.

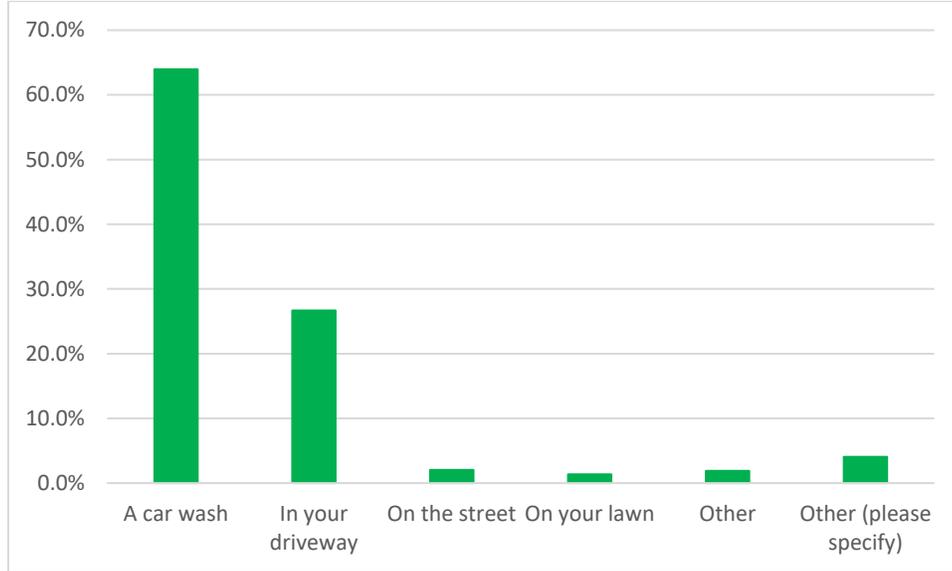


Figure 26 Where respondents wash their vehicles, 2020.

Response	Number	Percent
A car wash	376	63.9%
In your driveway	157	26.7%
On the street	12	2.0%
On your lawn	8	1.4%
Other	11	1.9%
Other (please specify)	24	4.1%
TOTAL RESPONSES	588	100%

Table 22 Responses about where vehicles are washed, 2020.

Question 22. How do you dispose of hazardous materials, such as used motor oil, old paints, thinners, or other similar items?

Of the 440 people who responded to the 2020 survey question about disposal of hazardous materials, 293 (66.6%) of them fortunately use “Recycle at available drop-off sites” (Figure 27 and Table 23). The response “Dump it in landfill or waste transfer station” chosen by 88 (20%) may have been confusing since it implies that it could be “dumped” into the landfill rather than left at the hazardous waste collection area. This answer choice will be changed for the next survey. Another 28 (6.4%) place it in the household garbage as well as another 28 (6.4%) who have “Other ways” of disposing of it. In looking at comments, there weren’t any left that suggested where. It appears that most people are knowledgeable about where to dispose of these items.

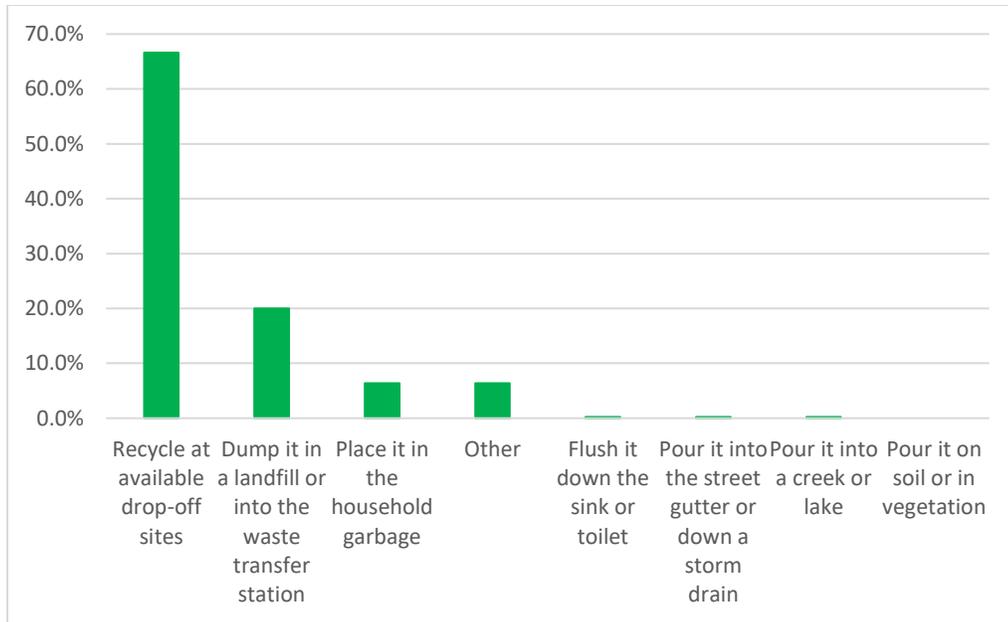


Figure 27 Methods of disposal of hazardous materials, 2020.

Recycle at available drop-off sites	293	66.6%
Dump it in a landfill or into the waste transfer station	88	20.0%
Place it in the household garbage	28	6.36%
Other	28	6.4%
Flush it down the sink or toilet	1	.2%
Pour it into the street gutter or down a storm drain	1	.2%
Pour it into a creek or lake	1	.2%
Pour it on soil or in vegetation	0	0%

Table 23 Responses on methods of disposal of hazardous materials, 2020.

In the 2014 survey (Figure 28), the dominant answers were similar to 2020, with “Recycle at available drop-off sites” and “Dump in landfill or into the waste transfer station” having the most responses. “Place in garage or shed” were disposal methods in 2014 but not 2020.

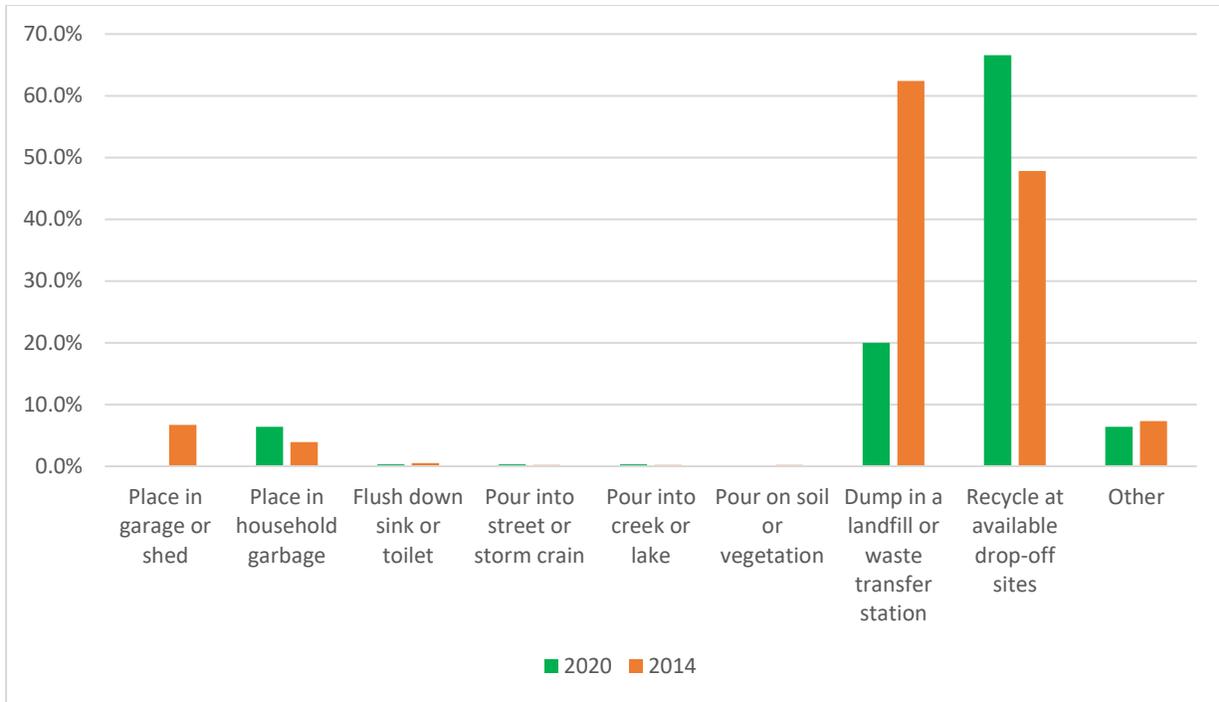


Figure 28 Methods of disposal of hazardous materials, 2014 and 2020.

Question 23. Which of the following statements represent(s) your gardening preferences (you can answer more than one)?

Question 23 asks what represents the respondent’s gardening preference (more than one choice) and was answered by 440 individuals (Figure 29 and Table 24). “Preferring a yard with natural or native vegetation” was the dominant choice by 236 (32.9%) followed by “Vegetable garden, berries and fruit trees” at 223 (31.1%). Several sources contend that yard gardens are on the increase in the United States and as many as 50% residences are now growing food gardens. Between 2014 and 2020, the most significant change is a reduction in “I prefer a manicured yard with lawn and flowers” by nearly 5% (Figure 30). The other categories did not change significantly.

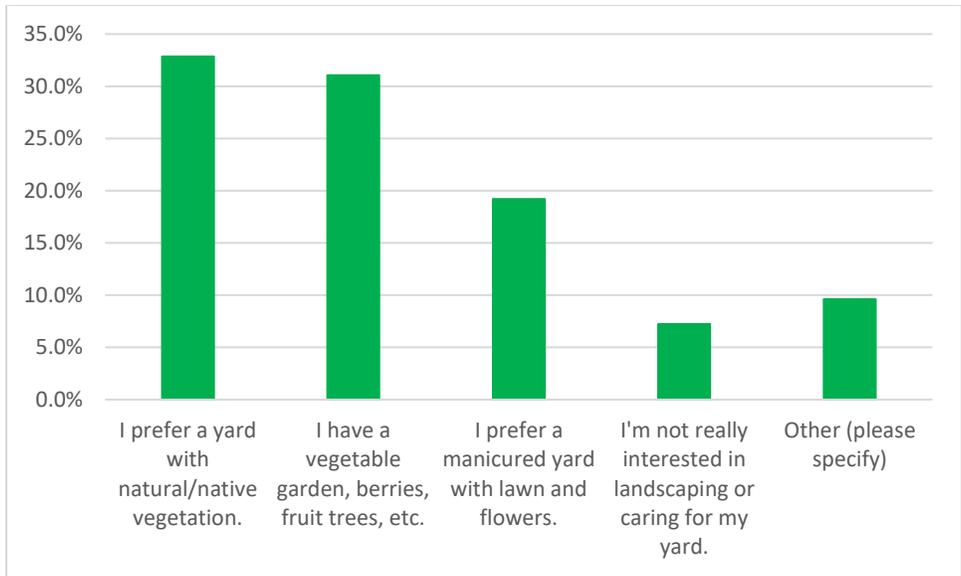


Figure 29 Gardening preferences, 2020.

Choices		Percent
I prefer a yard with natural/native vegetation.	236	32.9%
I have a vegetable garden, berries, fruit trees, etc.	223	31.1%
I prefer a manicured yard with lawn and flowers.	138	19.2%
I'm not really interested in landscaping or caring for my yard.	52	7.2%
Other (please specify)	69	9.6%
Total answers	718	100%

Table 24 Responses of gardening preferences, 2020.

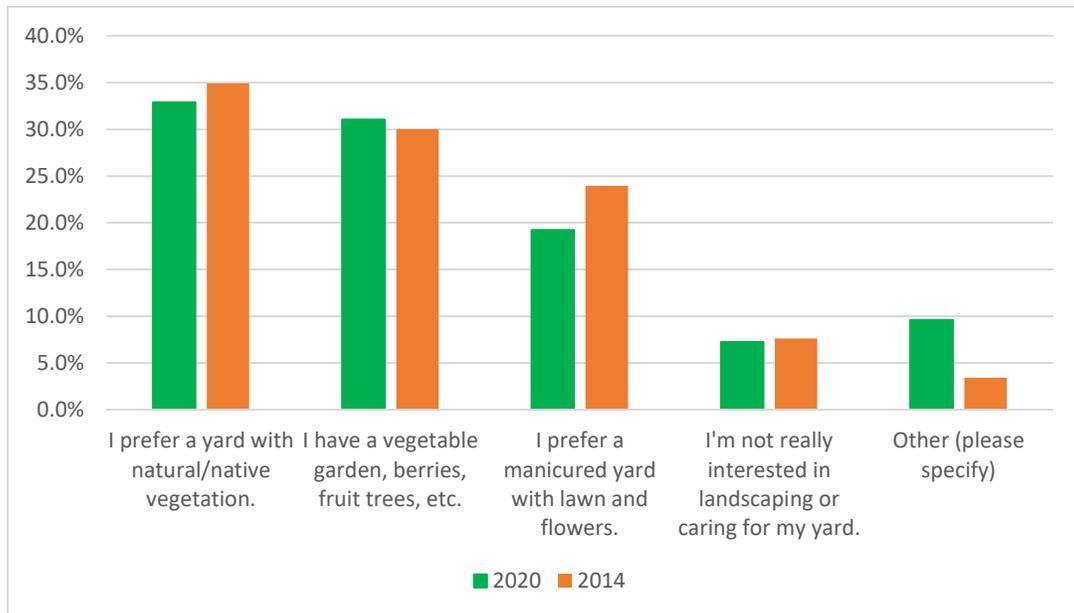


Figure 30 Gardening preferences, 2014 and 2020.

Question 24. At your residence, do you or a gardening service apply any of the following lawn or garden products? (Please check ALL that apply.)

Of the 440 responding to this question, the overwhelming answer for all three categories for garden additives was “None” (Figure 31 and Table 25). Of the fertilizers used, “Organic fertilizer” at 132 (30.4%) was used nearly 3 times more than “Conventional fertilizer” for 48 (11.1%). There is minimal use of “Weed killers/herbicides” by all, which is very positive. In reviewing some of the other questions in this survey about people’s thoughts on caring for waterways, a significant number addressed yard chemicals as a problem—which is heartening.

As for the 2014 – 2020 comparison (Figure 32), there is another positive with the “None” category increasing in all three yard additives while the 2020 “Conventional” shows a decrease from 2014, an increase in “Organic”, and a decrease in “Both”.

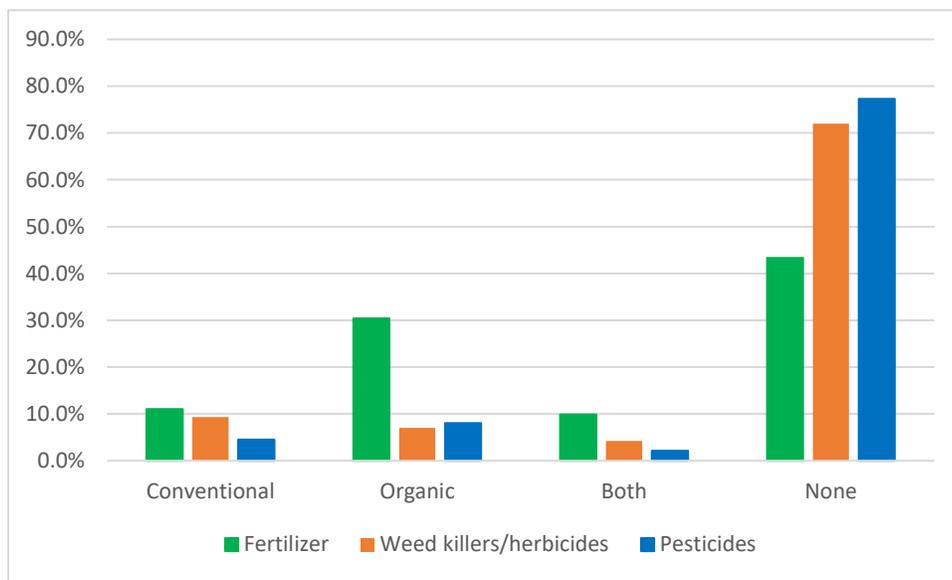


Figure 31 Use of lawn chemicals in gardens and on yards, 2020.

	Conventional		Organic		Both		None	
Fertilizer	48	11.1%	132	30.4%	43	9.9%	188	43.3%
Weed killers/herbicides	40	9.4%	30	7.0%	18	4.2%	308	72.0%
Pesticides	19	4.5%	34	8.0%	9	2.1%	327	77.3%

Table 25 Respondent’s use of yard chemicals, 2020.

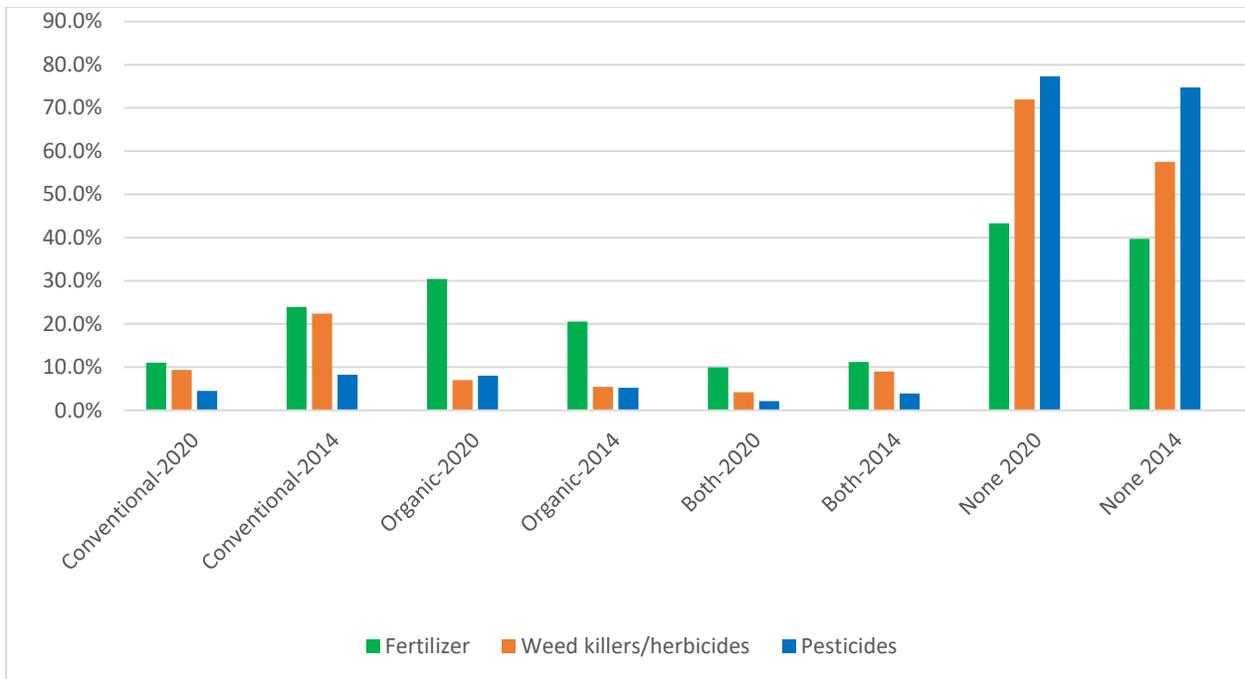


Figure 32 Comparison of yard chemical use, 2014 to 2020.

Question 25. How do you typically dispose of green waste (lawn clippings, leaves, etc.)? Please answer all that apply.

A total of 440 answered the question on green waste disposal with 219 (34.1%) “Composting it in the yard”, 210 (32.7%) “Mulching onto the lawn”, and “Bagging it with the garbage” was chosen by 132 (20.5%) (Figure 33 and Table 26). The popularity of the other methods in the question was considerably less. Responses to “Other” were 41 (6.4%). Some were reiterations of composting, mulching, or placing it in the garbage. Twenty-two mentioned the Muni’s “pink compost bin”, so this will need to be added to the choice for the next survey. A couple of folks fed green waste to their chickens and a cow. A comparison between 2014 and 2020 (Table 27) found that the two years were basically mirror images of each other. The good news is that no one tosses the green waste into a creek, but disposing of it along a creek bank or edge by a few is not.

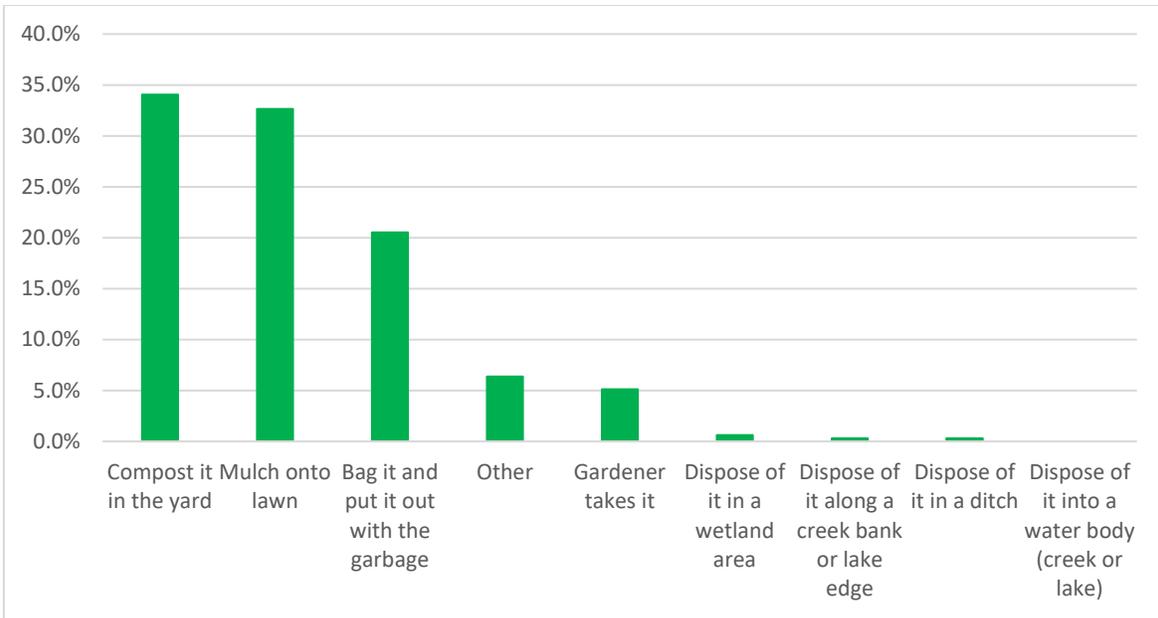


Figure 33 How is green waste disposed? 2020.

Choices	Responses	
	Count	Percentage
Compost it in the yard	219	34.1%
Mulch onto lawn	210	32.7%
Bag it and put it out with the garbage	132	20.5%
Other	41	6.4%
Gardener takes it	33	5.1%
Dispose of it in a wetland area	4	.6%
Dispose of it along a creek bank or lake edge	2	.3%
Dispose of it in a ditch	2	.3%
Dispose of it into a water body (creek or lake)	0	0%

Table 26 Responses on disposal of green wastes, 2020.

Choices	2020 Responses	2014 Responses
Bag it and put it out with the garbage	20.55%	19.9%
Compost it in the yard	34.1%	34.2%
Mulch onto lawn	32.7%	32.8%
Dispose of it in a wetland area	0.6%	.3%
Dispose of it into a water body (creek or lake)	0%	0%
Dispose of it along a creek bank or lake edge	0.3%	.3%
Dispose of it in a ditch	0.3%	.9%
Gardener takes it	5.1%	6.4%
Other	6.4%	5.2%

Table 27 Responses on disposal of green wastes, 2020 and 2014.

Question 26. How do you usually dispose of snow?

The most popular method of snow disposal for 440 respondents (Figure 34 and Table 28) was into their yards (78.6%) followed by a plow service pushing it into their yards. The comparison of the 2014 data and the 2020 data shows that they are not significantly different (Table 29). Letting residents know that it is NOT legal to plow snow into waterways is and has been one of AWC’s areas of focus.

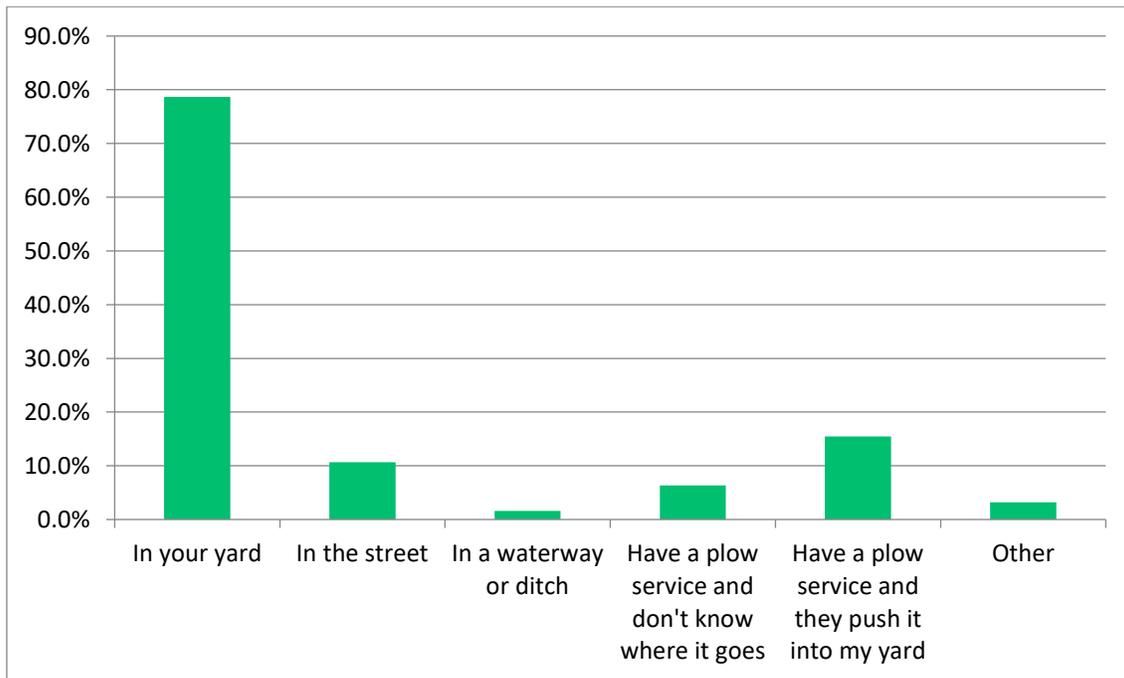


Figure 34 Usual methods for disposing of snow, 2020.

Choices	Responses	
	In your yard	346
In the street	47	10.7%
In a waterway or ditch	7	1.6%
Have a plow service and do not know where it goes	28	6.4%
Have a plow service and they push it into my yard	68	15.5%
Other	14	3.2%
Other (please specify)	21	

Table 28 Responses on snow disposal, 2020.

Choices	2020 Responses	2014 Responses
In your yard	78.6%	75.7%
In the street	10.7%	11.2%
In a waterway or ditch	1.6%	1.6%
Have a plow service and do not know where it goes	6.4%	8.0%
Have a plow service and they push it into my yard	15.5%	18.5%
Other	3.2%	2.9%

Table 29 Snow removal responses, 2020 and 2014.

Question 27. Do you use any chemicals to melt ice in your yard, on walkways, or your driveway?

Ice melt (de-icer) generally consists of salts in various chemical combinations, and it is used extensively during the Anchorage winter. These salts can be particularly harmful to freshwater lakes, streams, and creeks. Salt is also toxic to plants and animals that live in these freshwater bodies. Question 27 explores the use of ice melt by the respondents to the 2020 survey. Figure 35 shows that 65.9% of the respondents do not use deicers, while 34.1% use them (Table 30). For some of these “users,” ice melt may be mandated by insurance companies or property owners to ensure safety and access purposes for customers, employees, and residents. The 2014 and 2020 results (Table 31) are essentially the same but with the use dropping by 4%. AWC continues to focus on providing information on the use of chemicals vs. traction products.

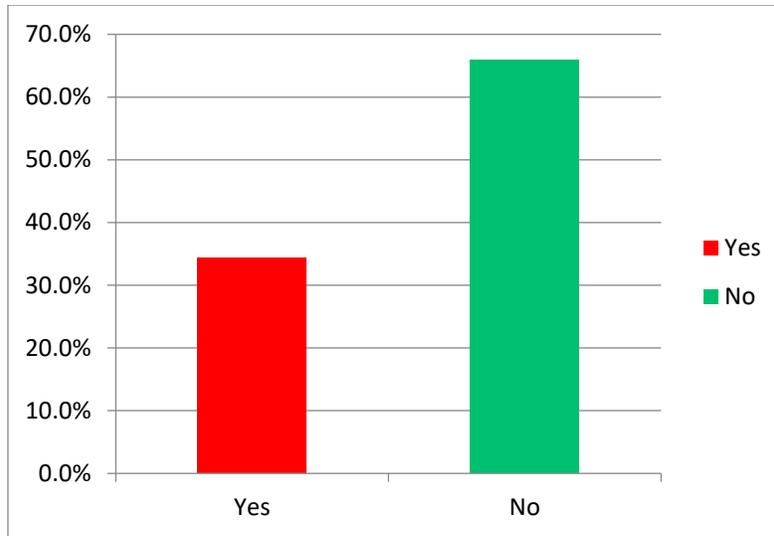


Figure 35 Use of ice melt chemical in yards, walkways, or driveways, 2020.

Choices	Responses	
Yes	151	34.1%
No	290	65.9%
If yes, do you know what it is?	137	

Table 30 Responses on the use of ice melt chemicals, 2020.

Choices	2020	2014
Yes	34.1%	38 %
No	65.9%	62%

Table 31 Responses on the use of ice melt chemicals, 2020 and 2014.

Question 28. Which of the following activities on or near the Municipality's waterways (between Eklutna and Girdwood) do you do? (Check all that apply.)

Anchorage's waterways and adjacent park lands are important recreation areas for citizens and are used heavily during all seasons. Figure 36 and Table 32 show the diversity of activities and percent of the 439 respondents. Walking and enjoying nature are the most popular. Comparing the 2014 and 2020 responses shows very little difference (Table 33), with every activity showing increased numbers except for x-country skiing, canoeing, and skijoring, mushing, riding a horse, and keeping a float plane. Cleaning up waterways has increased dramatically from 25.9% in 2014 to 40.8% in 2020 which is a great sign.

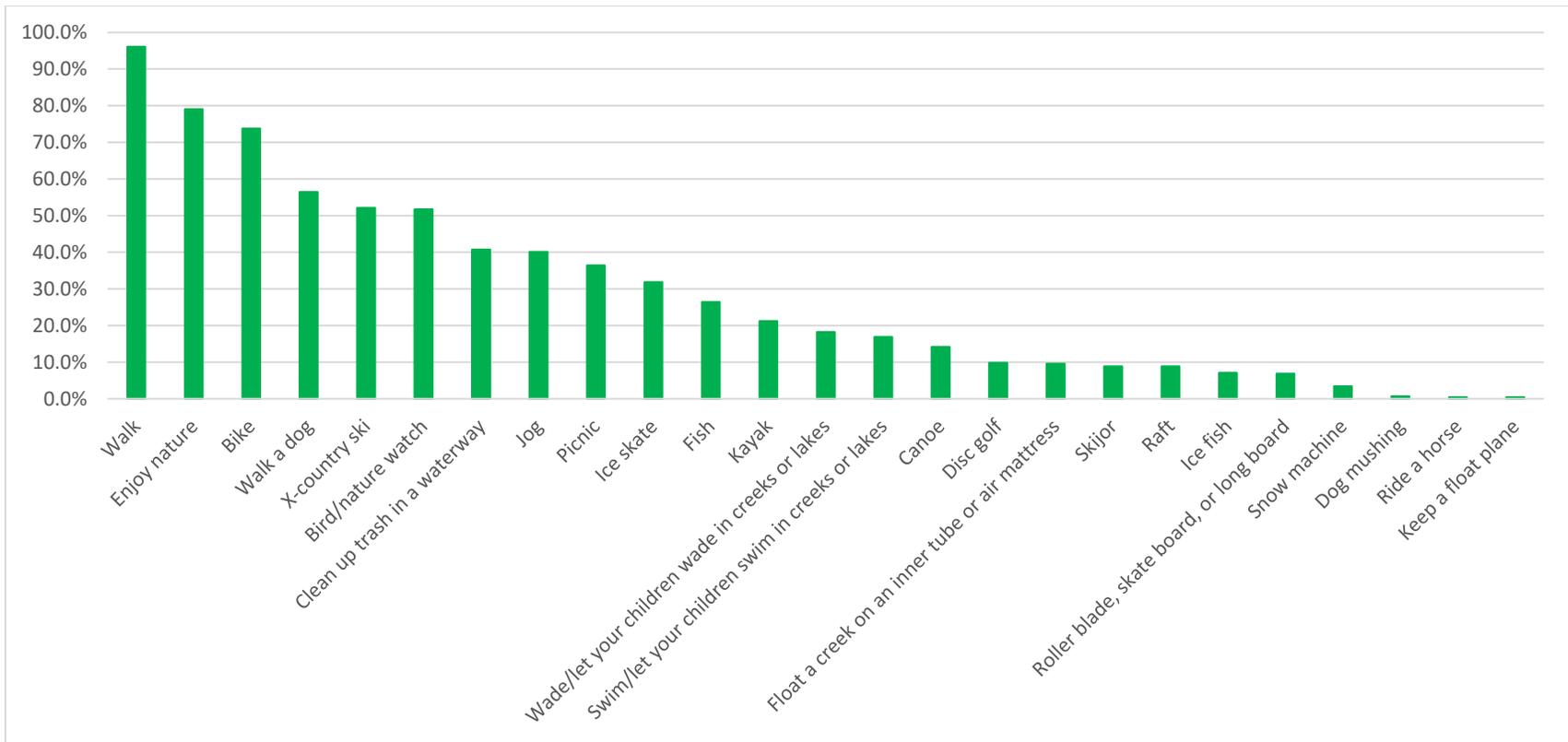


Figure 36 Favorite activities along waterways in the Municipality, 2020.

Choices	Number	Percent
Walk	422	96.1%
Enjoy nature	347	79.0%
Bike	324	73.8%
Walk a dog	248	56.5%
X-country ski	229	52.2%
Bird/nature watch	227	51.7%
Clean up trash in a waterway	179	40.8%
Jog	176	40.1%
Picnic	160	36.5%
Ice skate	140	31.9%
Fish	116	26.4%
Kayak	93	21.2%
Wade/let your children wade in creeks or lakes	80	18.2%
Swim/let your children swim in creeks or lakes	74	16.9%
Canoe	62	14.1%
Disc golf	43	9.8%
Float a creek on an inner tube or air mattress	42	9.6%
Skijor	39	8.9%
Raft	39	8.9%
Ice fish	31	7.1%
Roller blade, skateboard, or long board	30	6.8%
Snow machine	15	3.4%
Dog mushing	3	.7%
Ride a horse	2	.5%
Keep a float plane	2	.5%

Table 32 List of activities along waterways in the Municipality, 2020

Choices	2020	2014
Walk	96.1%	92.8%
Enjoy nature	79.0%	67.5%
Bike	73.8%	66.0%
Walk a dog	56.5%	45.2%
X-country ski	52.2%	54.2%
Bird/nature watch	51.7%	44.6%
Clean up trash in a waterway	40.8%	25.9%
Jog	40.1%	31.7%
Picnic	36.5%	31.7%
Ice skate	31.9%	22.7%
Fish	26.4%	24.5%
Kayak	21.2%	15.0%
Wade/let your children wade in creeks or lakes	18.2%	16.7%
Swim/let your children swim in creeks or lakes	16.9%	12.4%
Canoe	14.1%	16.1%
Disc golf	9.8%	8.6%
Float a creek on an inner tube or air mattress	9.6%	5.7%
Skijor	8.9%	9.2%
Raft	8.9%	8.7%
Ice fish	7.1%	5.5%
Roller blade, skateboard, or long board	6.8%	4.9%
Snow machine	3.4%	2.3%
Dog mushing	.7%	1.1%
Ride a horse	.5%	1.5%
Keep a float plane	.5%	1.7%

Table 33 List of activities along waterways in the Municipality, 2020 and 2014

Question 29. Have you heard of any of the following programs or activities and do you participate in them?

Respondents have heard of a significant number of environmental programs (Figure 37 and Table 34), and participation in Creek Cleanup and the Citywide Spring Cleanup is good. There does not seem to be a big promoter for the “Adopt A” program in Anchorage which may be why it’s not well known. In looking back between 2010 and now (Figure 38 and Table 35), participation in Spring Cleanup, Creek Cleanup, and Scoop the Poop continues to grow.

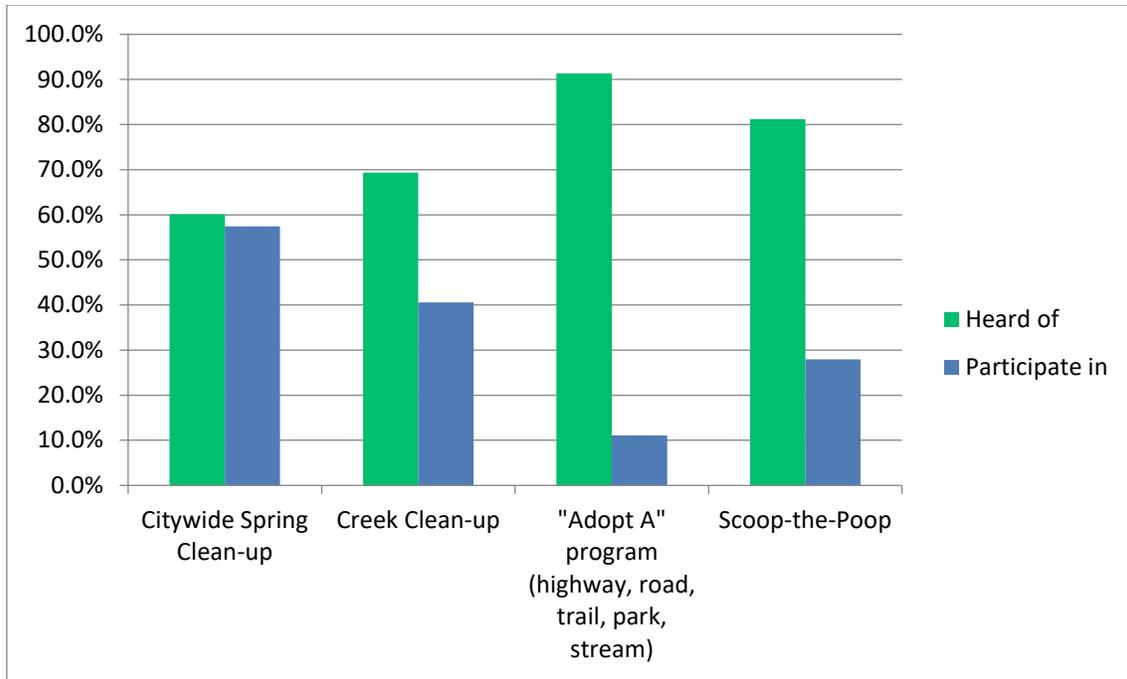


Figure 37 Programs or activities that have been heard of and whether the respondents have participated in them, 2020.

Choices	Heard of		Participate in		Respondents
	Count	Percentage	Count	Percentage	
Citywide Spring Clean-up	250	60.1%	239	57.5%	416
Creek Clean-up	258	69.4%	151	40.6%	372
"Adopt A" program (highway, road, trail, park, stream)	380	91.4%	46	11.1%	416
Scoop-the-Poop	302	81.2%	104	28.0%	372

Table 34 Responses to whether respondent has heard of and participated in activities, 2020.

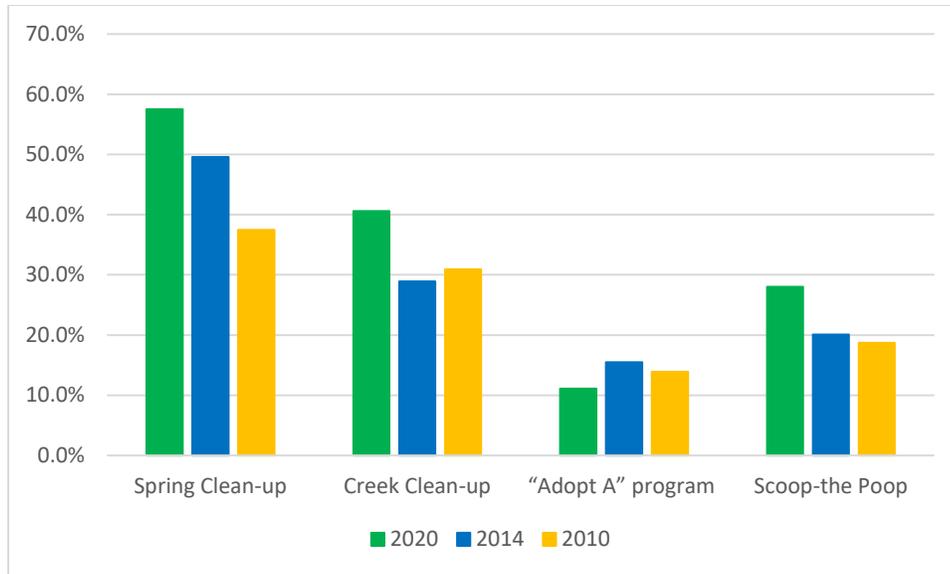


Figure 38 Participants in Spring Cleanup, Creek Cleanup, Adopt A program, and Scoop the Poop. 2010, 2014, and 2020.

Answer Options	2020		2014		2010	
	Heard of	Participated in	Heard of	Participated in	Heard of	Participated in
Spring Cleanup	60.1%	57.5%	67.5%	49.6%	62.5%	37.5%
Creek Cleanup	69.4%	40.6%	79.5%	28.9%	69.1%	30.9%
"Adopt A" program (creek, highway, roads, trail, park)	91.4%	11.1%	90.4%	15.5%	86.1%	13.9%
Scoop-the Poop	81.2%	28.0%	20.1%	20.1%	81.3%	18.7%

Table 35 Responses to whether respondents have heard of and/or participated in environmental activities, 2010, 2014, and 2020.

Question 30 Have you heard of any of these organizations and/or are you a member of them?

The range of the 437 overall respondents who had "Heard of" the listed environmental organizations was 88.9% to 99.6% (Figure 39 and Table 36), which is a noteworthy number. To the contrary, membership in these organizations only ran from 0.8% to 15.6%. Participation (Question 29) is just as important, as both contribute to environmental stewardship.

Analyses of the 2010 and 2014 data with 2020 (Table 37) show that there has been a continual increase in the numbers of respondents who have heard of these organizations, which is positive. The high number for Anchorage Soil and Water Conservation District is, however, a conundrum. Anchorage

Soil and Water Conservation District is not a high-profile organization in Anchorage, and AWC is surprised that 260 (99.6%) respondents would have heard of it.

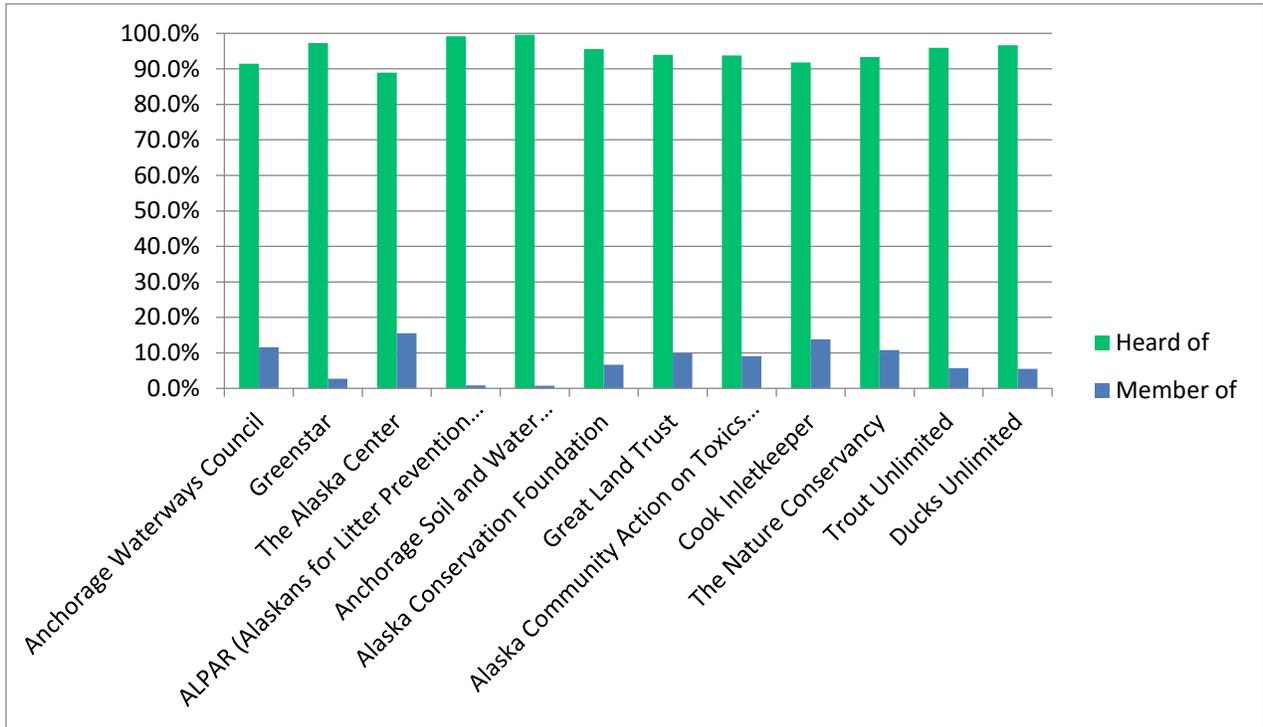


Figure 39 Organizations that respondents have heard of and/or are members of, 2020.

Organization	Heard of		Member of		Respondents
Anchorage Waterways Council	355	91.5%	45	12.7%	388
Greenstar	291	97.3%	8	2.7%	299
The Alaska Center	257	88.9%	45	17.5%	289
ALPAR (Alaskans for Litter Prevention and Recycling)	238	99.2%	2	0.8%	240
Anchorage Soil and Water Conservation District	260	99.6%	2	0.8%	261
Alaska Conservation Foundation	258	95.6%	18	7.0%	270
Great Land Trust	313	93.9%	33	10.5%	333
Alaska Community Action on Toxics (ACAT)	196	93.8%	19	9.7%	209
Cook Inletkeeper	293	91.9%	44	15.0%	319
The Nature Conservancy	336	93.3%	39	11.6%	360
Trout Unlimited	286	96.0%	17	5.9%	298
Ducks Unlimited	350	96.7%	20	5.7%	362

Table 36 Responses for environmental organizations that respondents heard of and/or are members of, 2020.

Organization	2020		2014		2010	
	Heard of	Member of	Heard of	Member of	Heard of	Member of
Anchorage Waterways Council	91.5%	12.7%	77.8%	9.1%	89.1%	14.1%
Greenstar	97.3%	2.7%	68.7%	5.1%	75.9%	6.0%
The Alaska Center	88.9%	17.5%	67.4%	26.6%	69.1%	24.1%
ALPAR (Alaskans for Litter Prevention and Recycling)	99.2%	0.8%	49.5%	5.6%	58.7%	4.1%
Anchorage Soil and Water Conservation District	99.6%	0.8%	62.1%	1.7%	64.4%	2.2%
Alaska Conservation Foundation	95.6%	7.0%	55.0%	7.8%	61.0%	8.1%
Great Land Trust	93.9%	10.5%	62.7%	11.5%	67.6%	9.7%
Alaska Community Action on Toxics (ACAT)	93.8%	9.7%	41.7%	10.6%	50.5%	4.3%
Cook Inletkeeper	91.9%	15.0%	57.2%	14.4%	61.4%	8.4%
The Nature Conservancy	93.3%	11.6%	71.5%	13.6%	73.4%	13.0%
Trout Unlimited	96.0%	5.9%	61.2%	6.7%	61.2%	4.0%
Ducks Unlimited	96.7%	5.7%	76.1%	4.1%	76.1%	4.9%

Table 37 Comparison of environmental organizations familiar with or members of, 2010, 2014, and 2020.

Question 31. Which of the following terms are you familiar with and understand their meaning?

The 437 respondents contend that they are familiar with and have broad understanding of the terminology presented in Figure 40 and Table 38. The most recognized term was “Invasive plants” with 410 (93.8%) followed closely by “Wetlands” with 403 (92.2%), “Storm drain” with 401 (91.7%), and “Stormwater runoff” with 390 (89.2%). “Bioinfiltration” was the least known term with only 141 (32.3%) claiming recognition. Eleven (2.5%) respondents had never heard of any of these terms.

Figure 41 and Table 39 compare knowledge of the terminology in the 24 years between 1996 and 2020. The list of terms has been stable since 2010, while the 1996 list was more abbreviated with 7 terms, which is explicable. Understanding and familiarity with the terminology have vacillated over the 24-years, with some remaining relatively constant, while others have decreased. Some important terms have made significant increases between 1996 and 2020, particularly fecal coliform, invasive plants and animals, and non-point source pollution. Bioinfiltration has remained the lowest knowledge level from the surveys.

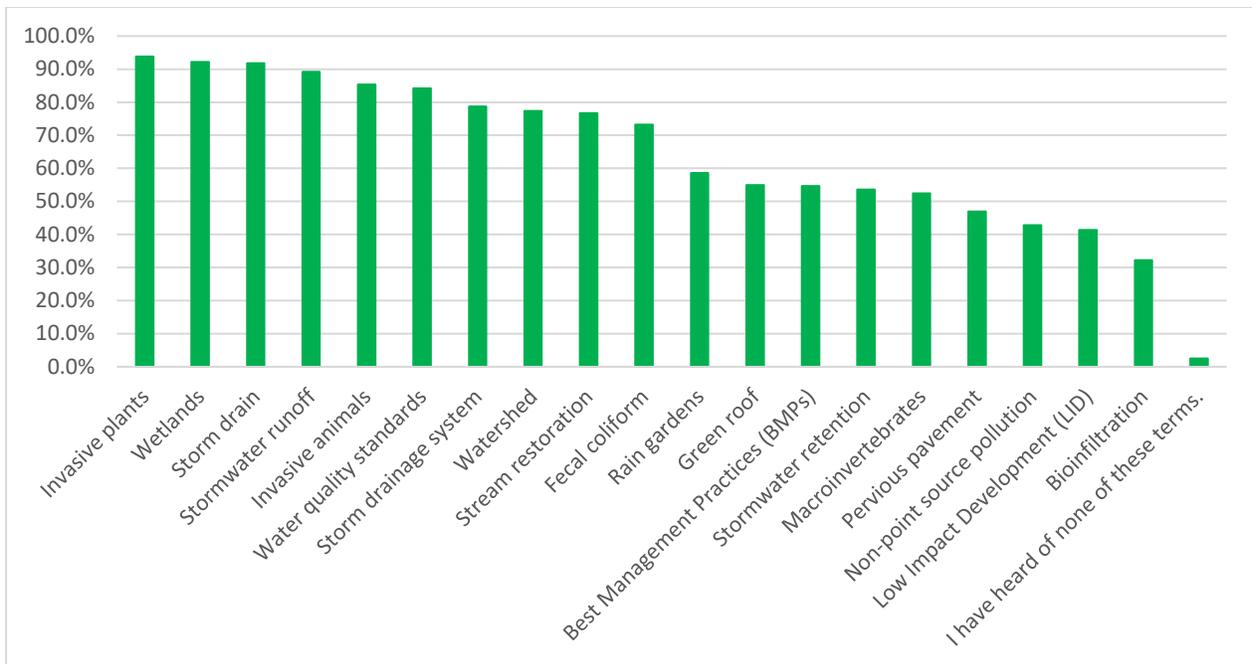


Figure 40 Understanding and familiarity with ecological terminology, 2020.

Terminology	Number	Percent
Invasive plants	410	93.8%
Wetlands	403	92.2%
Storm drain	401	91.7%
Stormwater runoff	390	89.2%
Invasive animals	373	85.3%
Water quality standards	368	84.2%
Storm drainage system	344	78.7%
Watershed	338	77.3%
Stream restoration	335	76.6%
Fecal coliform	320	73.2%
Rain gardens	256	58.5%
Green roof	240	54.9%
Best Management Practices (BMPs)	239	54.6%
Stormwater retention	234	53.5%
Macroinvertebrates	229	52.4%
Pervious pavement	205	46.9%
Non-point source pollution	187	42.7%
Low Impact Development (LID)	181	41.4%
Bioinfiltration	141	32.2%
I have heard of none of these terms.	11	2.5%

Table 38 Responses to the terminology list, 2020.

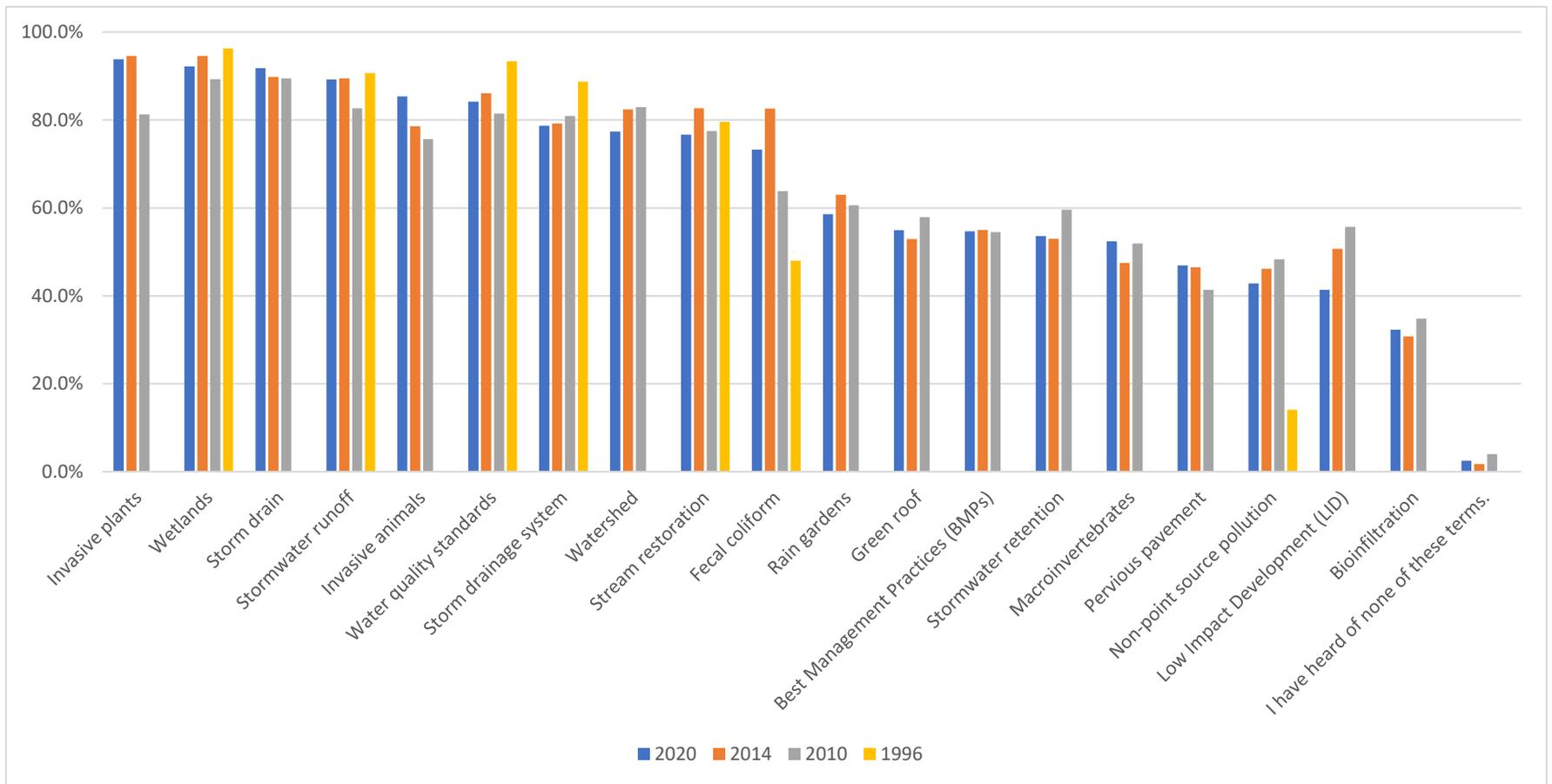


Figure 41 Comparison of awareness of environmental terminology between 1996 and 2020.

Terminology	2020	2014	2010	1996
Invasive plants	93.8%	94.6%	81.3%	-
Wetlands	92.2%	94.6%	89.3%	96.3%
Storm drain	91.8%	89.8%	89.5%	-
Stormwater runoff	89.2%	89.5%	82.7%	90.7%
Invasive animals	85.4%	78.6%	75.7%	-
Water quality standards	84.2%	86.1%	81.5%	93.4%
Storm drainage system	78.7%	79.2%	80.9%	88.7%
Watershed	77.4%	82.4%	82.9%	-
Stream restoration	76.7%	82.7%	77.5%	79.6%
Fecal coliform	73.3%	82.6%	63.8%	48.0%
Rain gardens	58.6%	63.0%	60.6%	-
Green roof	54.9%	52.9%	57.9%	-
Best Management Practices (BMPs)	54.7%	55.0%	54.5%	-
Stormwater retention	53.6%	53.0%	59.6%	-
Macroinvertebrates	52.4%	47.5%	51.9%	-
Pervious pavement	46.9%	46.5%	41.4%	-
Non-point source pollution	42.8%	46.2%	48.3%	14.1%
Low Impact Development (LID)	41.4%	50.7%	55.7%	-
Bioinfiltration	32.3%	30.8%	34.8%	-
I have heard of none of these terms.	2.5%	1.7%	4.0%	-

Table 39 Awareness of environmental terminology, 1996, 2010, 2014, and 2020

Question 32. Which are your preferred means of receiving information? (More than one answer)

There were 417 respondents to this question with 1,428 useful answers (Figure 42 and Table 40). The preferred methods to receive information remain “Email”, “Internet/websites”, “Social media”, and “Radio”, which is considerably similar to 2014 (Figure 43). The one exception is that “Newspapers” have slid down to 6th place in 2020 from 3rd place in 2014. While it is likely that newspapers are still being read, online newspapers appear to be much more popular than print. This data indicates important societal changes in the way information has been communicated over the past decade.

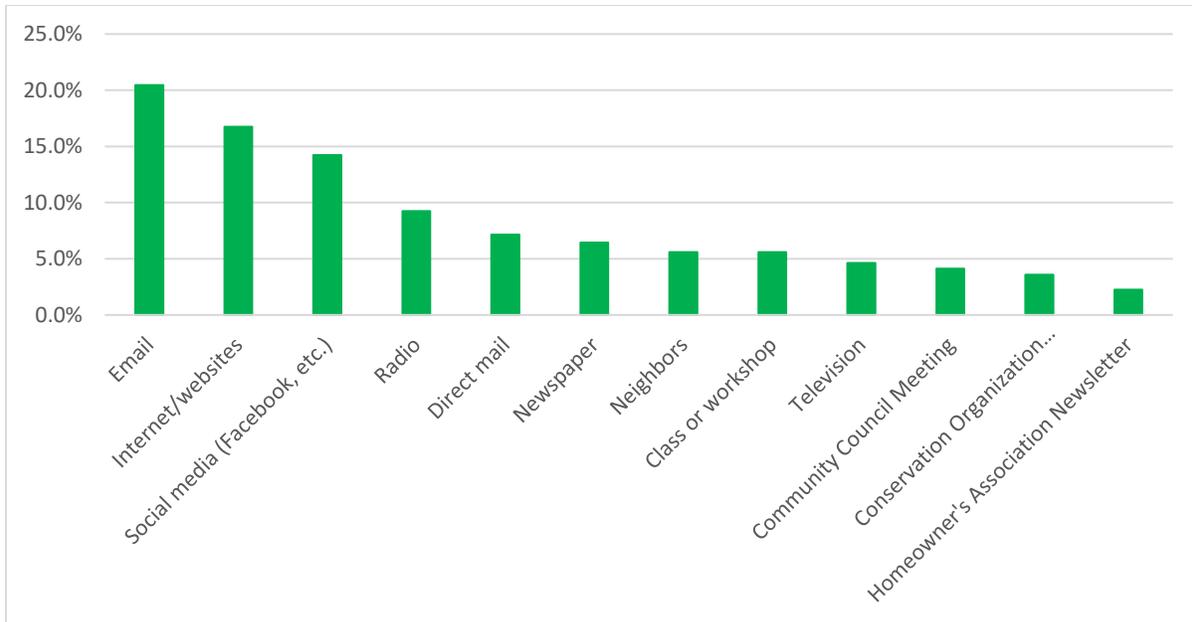


Figure 42 Percentages of preferred means of receiving information, 2020.

Choices	Responses	
Email	292	20.5%
Internet/websites	239	16.8%
Social media (Facebook, etc.)	203	14.3%
Radio	132	9.3%
Direct mail	102	7.2%
Newspaper	92	6.5%
Neighbors	80	5.7%
Class or workshop	80	5.7%
Television	66	4.1%
Community Council Meeting	59	4.1%
Conservation Organization Newsletter	51	3.6%
Homeowner's Association Newsletter	32	2.2%
	1428	100.0%

Table 40 Responses on how respondents prefer to receive information, 2020.

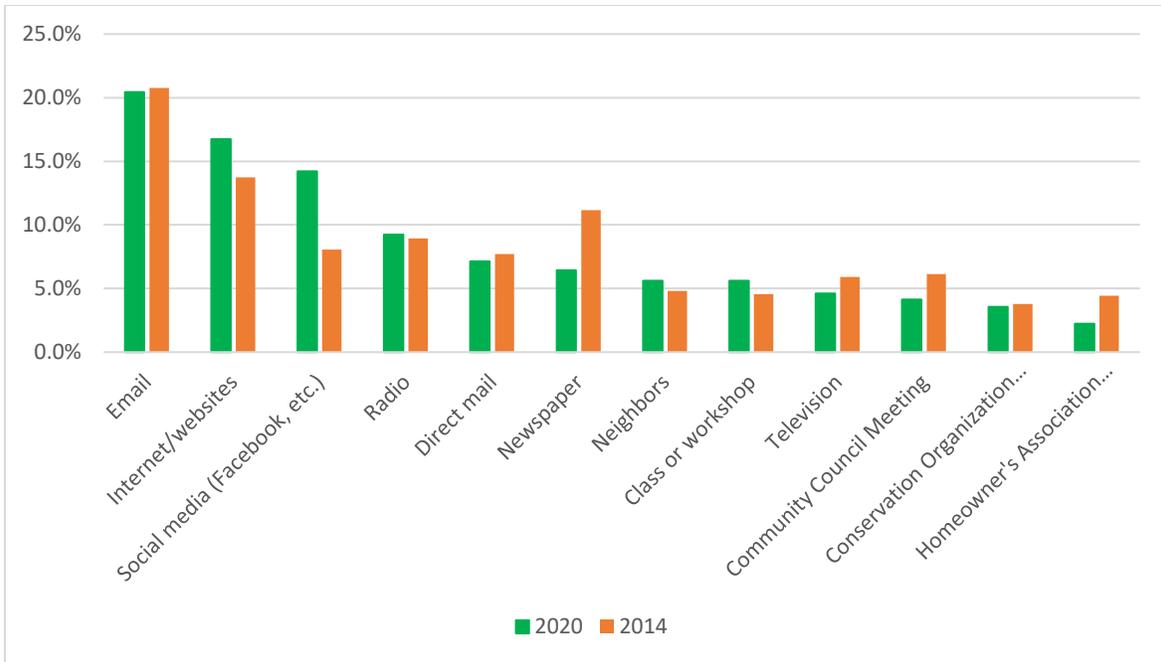


Figure 43 Comparison of how respondents prefer to receive information, 2014 and 2020.

Question 33. How many years have you lived in Anchorage?

Of the 435 respondents to this question, the majority (62.7%) have lived in Anchorage over 20 years, while 129 (29.6%) have lived here 6-20 years (Figure 44 and Table 41). Thus, we have a group of respondents that have lived in Anchorage long enough to have seen changes in local creeks and the city. The responses from previous surveys used their exact number of years here, so it's not easy to correlate.

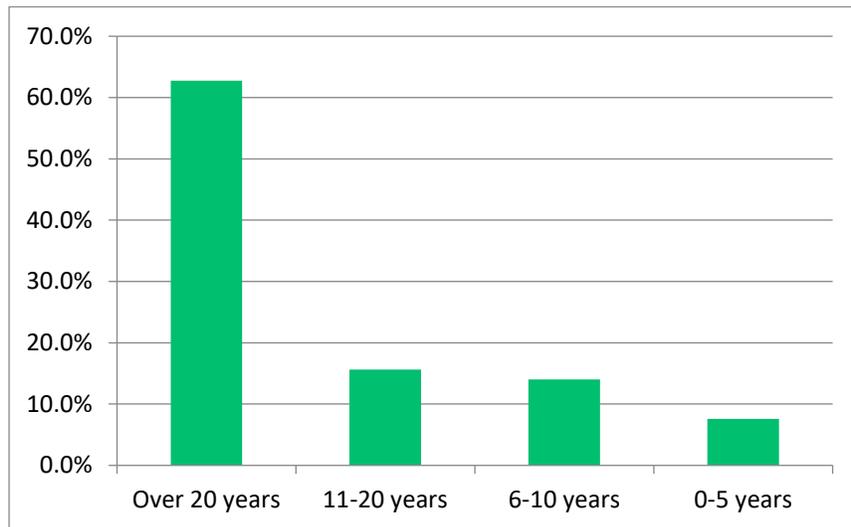


Figure 44 Responses for how long the respondent has lived in Anchorage by year groupings, 2020.

Responses	Number	Percent
Over 20 years	273	62.8%
11-20 years	68	15.6%
6-10 years	61	14.0%
0-5 years	33	7.6%
TOTAL RESPONSES	435	100.0%

Table 41 Years lived in Anchorage individual responses, 2020.

Question 34. What is your age?

There were 435 respondents to this question of which 15 (3.3%) choose not to answer rather than skip the question. Amazingly, the “35-54” and “55+” age groups constituted about 75% of the respondents (Figure 45 and Table 42). The largest age group to respond was the “35-54” with 164 (37.7%) which was almost the same as the “55+” with 162 (37.2%) respondents. When comparing the age distribution between 2010, 2014, and 2020 (Figure 45 and Table 43), the “35-54” group remained about the same. There has been, however, a noticeable decrease in the “under 18” responses since 2010.

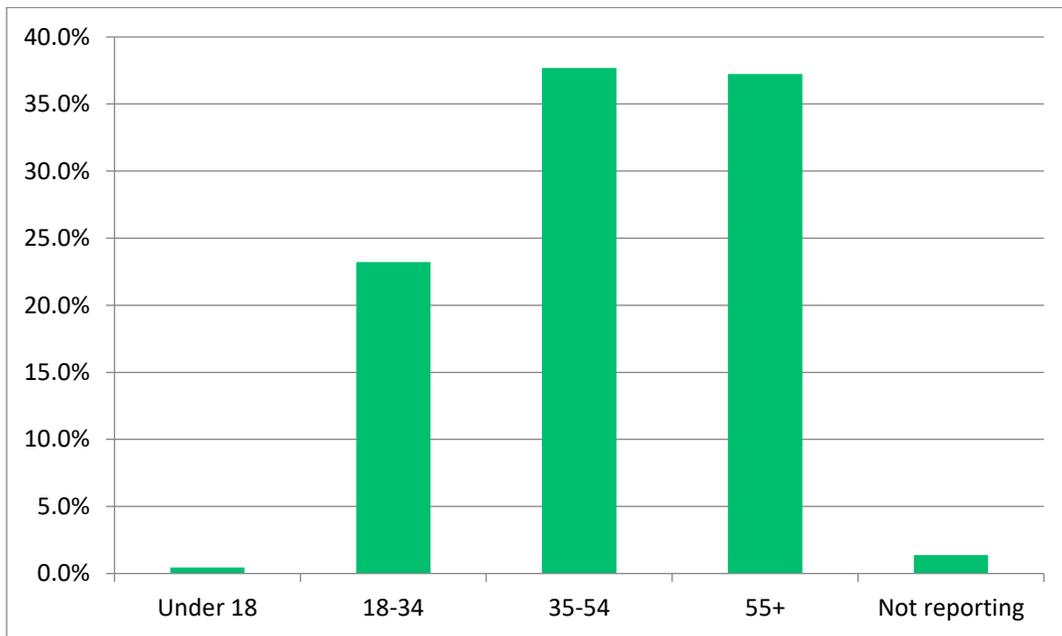


Figure 45 Age distribution of 2020 survey respondents.

Responses	Number	Percent
Under 18	2	0.5%
18-34	101	23.2%
35-54	164	37.7%
55+	162	37.2%
Not reported	6	1.3%

Table 42 Age responses by cohort, 2020.

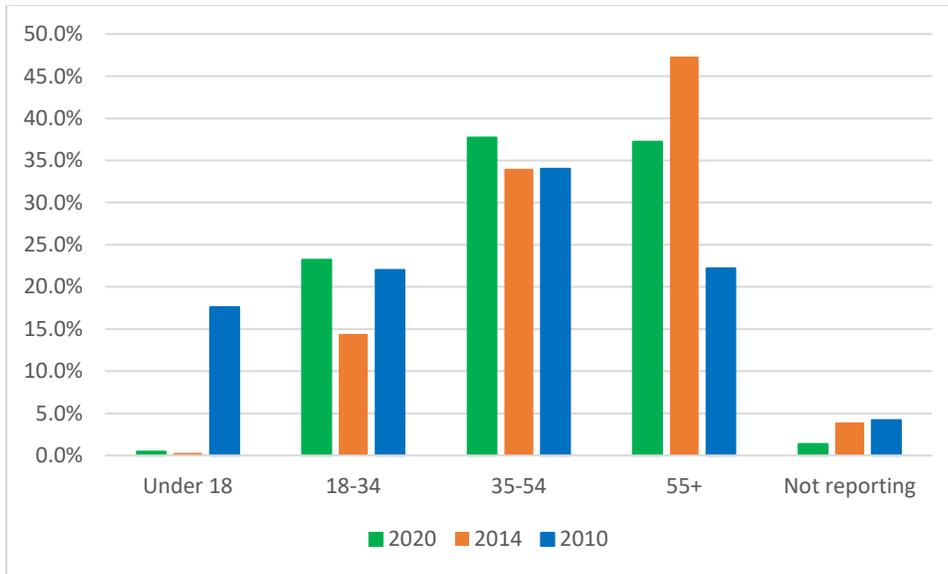


Figure 46 Respondents' ages, 2010, 2014 and 2020.

Age	2020	2014	2010
Under 18	0.4%	0.3%	17.6%
18-34	23.2%	14.4%	22.0%
35-54	37.7%	34.0%	34.0%
55+	37.2%	47.4%	22.2%
Not reporting	1.38%	3.92%	4.20%

Table 43 Comparison of respondent's ages, 2010, 2014, and 2020.

Question 35. What is your education level?

The 435 respondents are generally a highly educated group with 191 (43.9%) of them having post-graduate degrees and another 173 (39.8%) had 2-year or 4-year degrees (Figure 48 and Table 44). These data pretty much mirror the 2014 survey.

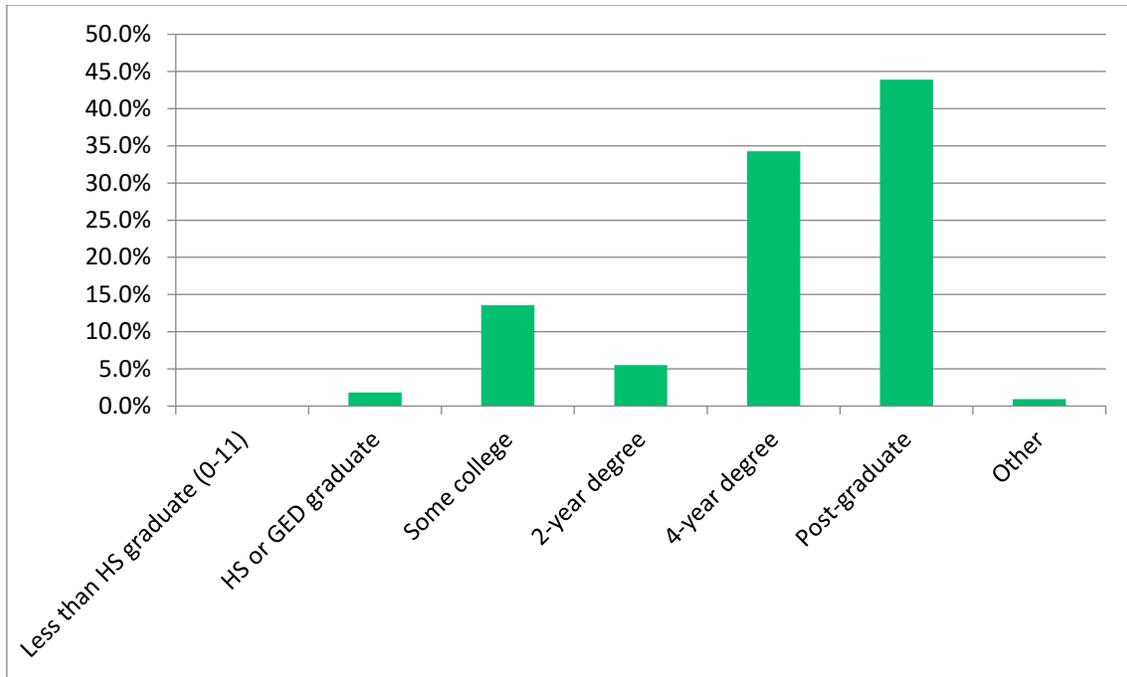


Figure 47 Distribution of respondents' education levels, 2020.

Responses	Number	Percent
Less than HS graduate (K-11)	0	0%
HS or GED graduate	8	1.8%
Some college	59	13.6%
2-year degree	24	5.5%
4-year degree	149	34.3%
Post-graduate	191	43.9%
Other	4	.9
TOTAL RESPONSES	435	100.0%

Table 44 Education levels of respondents, 2020.

Question 36. What is your gender?

In the current survey, 435 respondents answered the gender question, which yielded 301 (69.2%) females, 130 (29.8%) males, and 4 (0.9%) other (Figure 49 and Table 45). In 2014, 301 (56.9%) of the respondents were female while the remaining 130 (43.1%) were male. In the 2010 survey 280 56% of the respondents were female and 220 44% male. In the 1996 survey, there was almost gender equality, with 50.9% (196) males as opposed to 49.1% (189) females (Table 46). Over time, there has been an increase in the number of female respondents so that they are the larger group currently.

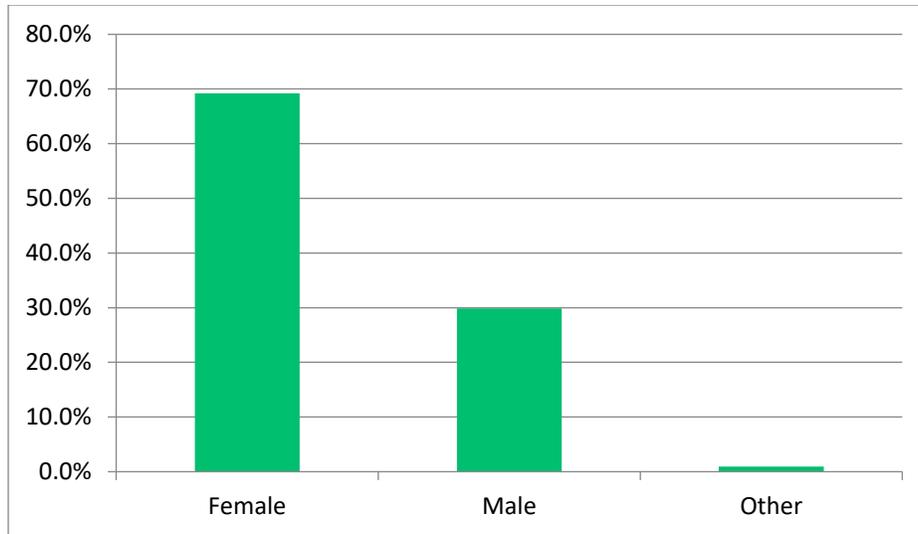


Figure 48 Gender of respondents by cohort, 2020.

Responses	Number	Percent
Female	301	69.2%
Male	130	29.9%
Other	4	0.9%
TOTAL RESPONSES	435	100.0%

Table 45 Gender identification for 435 respondents, 2020.

Gender	2020	2014	2010	1996
Female	69.2%	56.9%	56.00%	50.9%
Male	29.9%	43.1%	44.00%	49.1%
Other	.91%			
TOTAL	100%	100%	100%	100%

Table 46 Gender identification 1996, 2010, 2014, and 2020.

VI. Conclusion

This is the third watershed perception survey that AWC has completed since 2010, and it has been an interesting journey over the past decade. There have been many technological changes in a variety of areas that are conducive to improving the understanding of how human actions impact our freshwater creeks and lakes. With a broader and more immediate way to impart information through social media, we will continue to capitalize on it. A similar tack will to be our long-term focus on educating youth, e.g. through AWC’s “Creeks as Classrooms”, who are known to be more open to ideas and embracing of a stewardship ethos. Change is not always fast, but with a good foundation and time it can only improve.