



Austin Quinn-Davidson Acting Mayor

2020 Stormwater Outreach Public Education and Involvement APDES Permit No. AKS-052558

**MUNICIPALITY OF ANCHORAGE
WATERSHED MANAGEMENT PROGRAM**

January 15, 2021



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January 15, 2021

Prepared for:

Municipality of Anchorage

Watershed Management Services

Authored and Prepared by

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Introduction

Anchorage Waterways Council (AWC) is responsible for the outreach and education sections of the APDES AKS-05258 2015-2020 permit for the Municipality of Anchorage (MOA) and Alaska Department of Transportation and Public Facilities (AKDOT). These sections are: Part 3.6.1 —“Public Education and Involvement” and Part 3.6.3 —“APDES Annual Meeting”. This is Year Five and the final report for the 2015 to 2020 permit.

Public education and outreach are accomplished through a variety of avenues: tabling opportunities and events, social media, e-newsletters, mailings, lectures/presentations, publications, and regular TV/radio/news media.

To say that most of Year Five (August 1, 2019 to July 30, 2020) was a challenge for outreach is an understatement. Most of AWC’s outreach programs wind down after summer as we move into fall. The only big event then is our annual fundraiser, Beer and Bites, which was held in the Alaska Zoo’s Gateway Hall on October 12, 2019. It was well attended as usual and allowed people who care for their creeks to gather and celebrate protecting them. Early in 2020, we begin the new season with Scoop the Poop events, our annual Creek Cleanup, and Annual Meeting.

The Anchorage “Hunker Down” orders for the Covid-19 pandemic were given on March 22, 2020, with residents told to stay home with the allowance for grocery shopping and a few other exemptions¹. Ten days prior on March 12, we had sent a newsletter with AWC’s Annual Meeting to be held on May 17. There were 4 excellent speakers lined up to present on the effects of homeless camps on Anchorage’s waterways: UAA Microbiology Professor Brandon Briggs, APU Professor Joe Sarcone on environmental public health, Retired District Court Judge Stephanie Rhodes, and Anchorage Assembly Member Meg Zalatel. On March 13, the AWC board chose to cancel it.

The “Hunker Down” orders also jeopardized AWC’s April Scoop the Poop Day and May Creek Cleanup events. As there was a relaxing of some outdoor restrictions in early April, AWC was comfortable in morphing these 2 activities so that they conformed to the emergency orders while still going forward. They will be described in detail below.

The following tabling events that AWC regularly participates in were canceled in 2020:

- Midtown Mall Garden Show (April)
- Migratory Bird Day (May)
- Potter Marsh Day (June)
- Friends of Pets’ Dog Jog (July)
- South Anchorage Farmers Market (July/August)
- Beluga’s Count (September)

¹ <https://www.muni.org/Departments/Mayor/PressReleases/Documents/EO-03.pdf>

As an alternative, AWC focused on posting more information on Facebook. Anchorage Waterways Council's regular Facebook posts reached 68,043 during Year Five.

Year Five was also when the Watershed Perception Survey is always completed at the end of the 5-year APDES contract, and this was accomplished. The summary of the survey is included below. TV news stories effectively ceased with the exception of one that Cherie Northon did for Creek Cleanup with KTVA on May 8, 2020², where she described the protocols that had been put in place to keep participants safe. These included:

1. Mask wearing
2. Social distancing
3. Keeping cleanup groups to family units and small numbers

All in all, about $\frac{3}{4}$ of the regular as well as some new groups signed up to clean up local creeks and lakes. The overall number of participants was reduced, but our 36th Annual Creek Cleanup went forward. In September, AWC held two smaller cleanups on Campbell Creek.



Figure 1 Lauren Maxwell interviewing Cherie Northon for AWC's 36th Annual Creek Cleanup (V. Wight)

Public Education and Involvement

AWC promotes public education on stormwater by focusing on a variety of topics that affect water quality. The primary ones have been, and continue to be, on pet waste; waterfowl feeding; invasive plants; the application of fertilizers, herbicides, and pesticides; disposal of green waste; snow melt

² Unfortunately, KTVA's news stories are no longer accessible because of the station being subsumed by KTUU. This was the link: www.ktva.com/story/42109385/wood-lots-and-creek-cleanup-time-to-spruce-up-anchorage

chemical applications and snow removal; residential vehicle repairs and car washing; hazardous waste and materials; and illegal dumping into storm drains. Dealing with the camps of people experiencing homelessness is now taking a larger role along with the effects of climate change.

Scoop the Poop Campaign

AWC's Scoop the Poop (STP) Campaign typically provides information and STP-related items (brochures, stickers, pet waste bags, etc.) at Scoop the Poop Day in April, Dog Jog in July, and other outreach events. This year, Scoop the Poop Day was held as a DIY event. Through Facebook and the AWC newsletter, participants were asked to go out and clean up areas on their own. Some supplies were available if needed, but no one requested any. Participants were asked to send photos of their cleanups, which elicited several (see Figure 2).

This following posted on the AWC "Scoop the Poop Anchorage" Facebook page in April:

Dog owners and creek lovers. Don't you want to do something good while getting some fresh air?

HERE'S SOMETHING TO OCCUPY YOU WHEN OUT WITH YOUR DOG THAT BENEFITS OUR CREEKS!

DIY Scoop the Poop Contest

Anchorage Waterways Council's annual Scoop the Poop day was cancelled to avoid conflicts with social distancing. The poop is not going away on its own, so AWC is offering some great prizes for pet owners and volunteers to get out and show just how dedicated they are to cleaning up dog poop. Between now and April 15, 2020, take photos of yourself, your family, and your dog (yep, they can help) cleaning up pet waste and submit to AWC.

The event was also advertised by Friends of the Anchorage Coastal Wildlife Refuge (FAR).

Want to help make things a little brighter in Anchorage? Consider picking up dog poo and throwing it in the trash on your mindful outings to get fresh air while keeping your distance from others. FAR helps the Anchorage Waterways Council (AWC) with their Scoop-the-Poop campaign at the Campbell Creek Estuary Natural Area, but, honestly, anywhere you can help pick up poo as it melts out of the snow (before it gets soupy) would be great!

Pet owners cleaned up in a variety of places that are not typically part of the cleanups held in dog parks, which was a great way to focus on other areas. Volunteers took to regular on-leash trails that tend to accumulate dog poop. We are considering putting more of our focus onto locations other than dog parks for the 2021 Scoop the Poop Day as well as dog parks.

Scoop the Poop Anchorage Facebook posts reached 45,458 people between August 1, 2019 and July 30, 2020.




Figure 2 Collage of some of the participants in the DIY Scoop the Poop Day 2020


Yard Chemicals (Ice melt, fertilizers, pesticides, herbicides)

AWC participated in the February 22, 2020, Alaska Botanical Spring Garden Conference. Cherie Northon gave a 45-minute presentation titled, "Great Gardens and Healthy Creeks". (see Appendix B). There were 40-50 people in the audience, and the AWC information table in the hall had many people stop by for handouts and to take a short survey quiz (Figure 3). The majority of takers got all 5 questions correct.

ANCHORAGE WATERWAYS COUNCIL'S FIVE QUESTION SURVEY



Alaska Botanical Garden
Spring Garden Conference February 2020



True or False? Circle Correct Answer

1. Runoff from chemically-treated lawns into storm drains when watering helps prevent the buildup of sludge in the drains and pipes, and is a good practice to follow.
True False
2. Anything entering into storm drains in Anchorage runs through a treatment plant before being emptied into our creeks and eventually into the ocean. Therefore, it is safe to dispose all chemicals into them.
True False
3. Rain gardens, permeable pavements, green roofs, infiltration planters and rainwater harvesting are all options for reducing harmful chemicals from entering local waterways and compromising our creeks.
True False
4. Pet waste is a natural fertilizer and does not need to be picked up. Anchorage has approximately 65,000 dogs so our trails and parks are well fertilized. Dogs always relieve themselves in appropriate locations so humans won't step in it.
True False
5. Ice melt is most often made from salt and is safe for pets, creeks, and healthy lawns. The more you use the better it works.
True False

Enter Your Contact Info: Name and Phone #, Email and/or Mailing Address

Figure 3 Survey from Alaska Botanical Garden Spring Show, Feb. 22, 2020

In March, the Rotary 5010 eClub requested a presentation by AWC through Zoom on threats to creeks. The presentation for the Spring Garden Show was adapted for this presentation (see Appendix B) and given on March 14.

Annual Creek Cleanup

This year, AWC was AWC's 36th organized creek cleanup. Typically, cleanups draw between 750 and 1,000 participants, but in 2020 it was closer to 300-400 due to the "Hunker Down" orders. After careful consideration and discussion with some groups, it was decided to proceed with safety protocols.



Figure 4 Team ECC (Environmental Compliance Consultants) socially distanced at Ship Creek

One team, Anchorage Adventurers Meetup, provided locations and information on homeless camps, human waste, and large objects and piles of trash to AWC, which was acted upon by reporting to Anchorage Assembly Member Meg Zalatel (see Appendix A). There was also a report by a volunteer that green waste was being dumped along Furrow Creek in Johns Park. AWC responded with a letter to the neighbors (see Appendix A) about the problems caused by plant material in waterways. Another neighbor's concern resulted in letters to neighbors in the Windsong Park/S. Fork Chester Creek area (see Appendix A) in regard to bank trampling.

Media

As reported above, video news stories by AWC were limited to the interview given to Lauren Maxwell of KTVA on creek cleanup in May 2020 and one that was done before the pandemic in fall 2019 on orange flows in local creeks.

- KTUU news story 10/24/19 “And then the creeks turned orange: What’s behind Anchorage creeks’ periodic color changes?” (Appendix A).
- KTVA news story 5/8/20: “37th Annual Creek Cleanup” (not available).
- Anchorage Daily News (ADN) Letter to the Editor 4/24/20: “Keep Waterways Healthy” (Appendix A).

AWC submitted 3 other letters to the ADN for publication, but they were not printed. One was during fall 2019 on keeping green waste out of the creeks, and 2 in spring were on scoop the poop.

Newsletters

AWC sent out 4 newsletters, 1 in fall 2019 and 3 in spring 2020, which can be found in Appendix C. The readership on the newsletters is about 200, mostly AWC members. These newsletters are also placed on Facebook and boosted to reach up to 5,000 in the Anchorage area each post.

APDES Annual Meeting

AWC gave a presentation on February 26, 2020, at the APDES Annual Meeting which was titled, “Campbell Creek Watershed Survey Analysis” (see Appendix B). This was a report on the watershed scoping survey completed by AWC to ascertain concerns and thoughts on the Campbell Creek watershed plan scoping. The Campbell Creek Watershed Survey, part of a watershed scoping task for AWC, can be found in Appendix D.

Watershed Perception Survey

The largest project in Year Five was the Watershed Perception Survey that is required at the end of every 5-year contract period. The survey was open from February 24, 2020, to April 27, 2020, and had 450 respondents. The report is in Appendix E.

Summary

Year Five of the APDES permit was a time of adaptation. AWC considers it still to be successful despite the limitations that were imposed. Notably, the largest loss was the inability to table at events. Overall, this probably amounts to losing contact with about 2500 people. On the other hand, adding the Alaska Botanical Garden Spring Show with 250 attendees helped reduce this loss along with increased social media.

Much of AWC’s focus has been and remains on fecal coliform reduction, however there appears to be a growing awareness, understanding, and concern about chemical additives to yards that impact local creeks and lakes. AWC will continue to capitalize on this. In addition, we are now putting more emphasis on the effects of climate change—which can exacerbate pollutants—and will continue this strongly in the upcoming outreach and education programs. Additionally, the outreach venues of social media and video conferencing, which were already being favored for how people receive their information (see the 2020 Watershed Perception Survey in Appendix E) will be pursued to the fullest. But, there’s still nothing like getting outdoors and being in nature for people to appreciate what they have and need.

APPENDIX A



Anchorage Waterways Council

P.O. Box 241774 • Anchorage, Alaska 99524-1774 • 907 272-7335 • www.anchoragereeks.org
Facebook (Anchorage Waterways Council)

August 1 2020

Dear Chester Creek Neighbor,

What a great area you live in! Close to Chester Creek and live salmon! At the Anchorage Waterways Council, we work to protect and enhance local creeks and streams. We even have a water quality monitor that is taking samples right up near the military boundary. The results from these samplings are critical when it comes to managing our waterways' health. One thing that is measured is turbidity. This is important because water with sediment in it reduces the amount of light coming in. Also, silt can get into fish gills and cause damage in addition to smothering the fertilized eggs in their nests which are known as redds.

Unfortunately, we have been getting reports that youngsters are doing some damage to Chester Creek. It's likely not intentional, but by playing roughly in the water and along the banks there can be damage that impacts the fish in it as well as areas downstream. Streambanks can break down and erode which deposits more silt in the creek.

I have enclosed a flier on how to live with a creek that provides some pointers to help keep your creek healthy. It would be great if you could share this with other family members and speak with your children about being good stewards to Chester Creek. Thank you for your help.

Sincerely,

A handwritten signature in blue ink, appearing to read "Cherie", is written below the word "Sincerely".

Cherie Northon, Ph.D.
Executive Director



Anchorage Waterways Council

P.O. Box 241774 • Anchorage, Alaska 99524-1774 • 907 272-7335 • www.anchoragecreeks.org
Facebook (Anchorage Waterways Council)

August 1 2020

Dear Furrow Creek Neighbor,

What a great area you live in with lovely Furrow Creek winding through the woods in Johns Park. At the Anchorage Waterways Council, we work to protect and enhance local creeks and streams. During our May Creek Cleanup, volunteers found a lot of residential yard clippings, grass, and leaves in Furrow Creek. While green waste kind of looks like it fits right into the natural environment—it actually is harmful.

Green waste, especially lawn clippings, is high in nitrogen and can actually act like a fertilizer which is why mulching grass while mowing is very beneficial to lawns. To the contrary, disposal of grass and green waste into waterways can stimulate the growth of algae. Eventually when the algae dies, the bacteria that break it down consume dissolved oxygen from the water. Dissolved oxygen is what the plants and water critters need to survive, so when it's depleted, they suffer.

Please consider your local creek when mowing, trimming, or raking your yard. Lawns can be mulched with clippings by leaving the bag off your mower. As an alternative, you can place clippings in a compost pile where you layer grass, leaves, and fruit/vegetable waste. Bagged clippings can be disposed of in your trash or taken to the central transfer station or Eagle River landfill. American Landscaping accepts bagged clippings to go into a community compost in Seward. The cost is \$5/bag or \$60 for a pickup truck load. Please check with them for more details at [\(907\) 563-3804](tel:9075633804). The Anchorage Woodlot at 100th Ave. and C is now open for loads of woody debris.

There are many alternatives for green waste disposal which help keep our creeks healthy. Thank you for your help.

Sincerely,

A handwritten signature in blue ink, appearing to read "Cherie".

Cherie Northon, Ph.D.
Executive Director

Anchorage Waterways Council is a non-profit, 501(c)(3) organization. Our tax ID # is 92-0111510.



Incident Reporting Form AWC CREEK CLEANUP 2020

Team ANCHORAGE ADVENTURERS MEETUP

Creek MAP # 31 - CAMPBELL CREEK

Contact NORM JOHNSON

Date MAY 15, 16 2020

This form is for any reported injuries, discoveries of large items or polluted areas, homeless camps, or volunteer problems or concerns.

Please take a photo when you can and e-mail to awc@anchoragecreeks.org.

Specific Location and other information (if possible):

We found:

- Homeless Camp
- Large amount of trash
- Large Item
- Other HUMAN WASTE/HONEY BUCKETS

① VARIOUS HOMELESS CAMPS +
ABANDONED SITES w/ HUMAN WASTE.
(SEE REVERSE SIDE)

Please describe any problems or incidents

(All injuries, conflicts or unusual occurrences should be recorded on this sheet.)

*sent to
my 5-26-20*

Someone needed First Aid

If supplies from the AWC First Aid Kit were used, please specify here

Tell us what happened in general terms. Use the back of the page if necessary.

① Homeless Camps

① { LAT 61.17739
LONG 149.83429 }

⑤ { 61.178205
149.832125 }

② { 61.17845
149.83198 }

⑥ { 61.178309
149.831283 }

③ { 61.177488
149.834523 }

④ { 61.178052
149.832371 }

② Human Waste / Honey Buckets

① { 61.177506
149.832007 }

③ { 61.177612
149.831757 }

② { 61.177612
149.831787 }

④ { 61.178418
149.827279 }

③ LARGE PILES of TRASH / LARGE objects

① (multiple metal/automotive parts)

{ 61.178424
149.825226 }

② (park bench in creek)

{ 61.178229
149.834636 }

And then the creeks turned orange: What's behind Anchorage creeks' periodic color changes?



Fish Creek spews orange water at a culvert at Old Hermit Park (Viewer-Submitted Photo)

By Lex Treinen | Posted: Thu 4:22 PM, Oct 24, 2019 | Updated: Thu 5:10 PM, Oct 24, 2019

ANCHORAGE (KTUU) - Metal-eating bacteria breeding inside of city culverts and spewing out into a rust-colored tide that sweeps through local creeks, only to disappear again without a trace thirty minutes later -- sounds like science fiction, right?

In fact, it's a pretty regular - but hard to predict - phenomenon in a couple of Anchorage's creeks. A cloud of rusty water ejects from a culvert, turning the normally clear water into a milky orange with an oily sheen on top, emitting a sulfurous odor.

"It's very noticeable, it's bright rust red, it may have a little foam on the top, it may have some bubbles on the top, and it may smell a little weird - not particularly offensive, but just a little weird, and people get alarmed about it," said Thom Eley, a researcher at the Anchorage Waterways Council.

The council has been tracking these episodic flushes of orange water for almost a decade, and only have photographic evidence for nine occurrences, eight of which were in Chester Creek beginning in 2010.

The only other one was at Fish Creek, a trickle of a creek that runs from Cuddy Park through Spenard and to its outflow in an estuary accessible from the Coastal Trail.

On Oct. 10, a viewer provided KTUU photos of a second flush of Fish Creek, adding one more data point to a sparse set of data that have yet to reveal a true pattern to how the events occur. ⊗

"I know the creek's not super pristine or anything, but it was pretty striking," said the caller, who didn't want to be named. "It didn't look necessarily that good for fish - not that there's any fish going up anyway."

He tracked the cloud as far back as he could, to a culvert at Old Hermit Park in Spenard.



Fish Creek at Old Hermit Park at 11 a.m. on Oct. 14 (Photo from anonymous viewer)



Fish Creek at Old Hermit Park on Oct. 23

Meanwhile, the phenomena have become a sort of true urban myth of Anchorage life, inspiring an article in local media every couple years, and even a song by local performer Orion Donicht.

So what causes these red tides to gush through Anchorage's waterways?

Turns out, Anchorage's soils and groundwater are rich in iron, making them a buffet for these microbial colonies. According to Eley, they are made up of 18 different species. Research has suggested that they could have been some of the first species on earth and might be the key to life on Mars. They're also eating up the wreckage of the Titanic sitting at the bottom of the Atlantic Ocean, shrouding it in stringy filaments of bacteria as the iron slowly disintegrates.

Eley suspects the problem is exacerbated by discharge of sidewalk salts and other chemicals by citizens who don't know that these things end up in Anchorage's storm drains - which eventually run into the creeks.

"Anything that goes in that causes the pipes to rust and corrode and whatnot. And then it gets trapped in the storm drains or the culverts that come from the storm drains, and then for a number of reasons it gets washed out all in one big fell swoop."

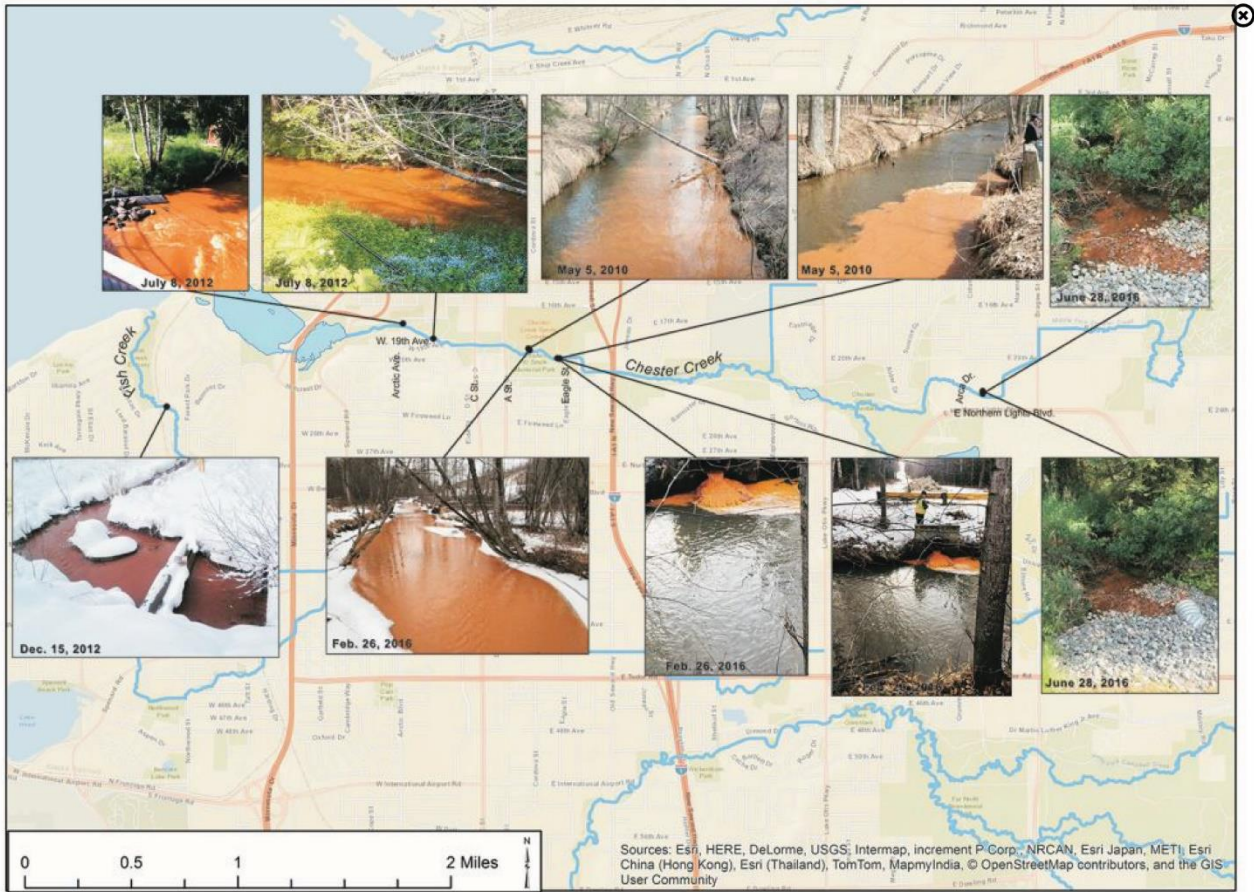


Photo Credits: Marcus Welker, Christine Tall, Cherie Northon, Ryan Astalos, Teresa Eckel, and David Clark

The Anchorage Waterways Council has been keeping track of orange water events in the Anchorage area since 2010. The Oct. 14 event in Fish Creek will bring the total count up to 10.

But the true number is obscured by the challenges of reporting the brief phenomenon.

“We don’t know how many times it occurs, how often it occurs. It depends on if people report it,” said Eley, “These things could go on in the night, they could go on in the day and people don’t see them.”

They are also short-lived. Usually, if someone calls the Waterways Council to report it, they don’t make it in time.

“It’s just dramatic, the water’s clear, you can see your boots, and then boom, you can’t see anything. And then you can see your boots again like nothing ever happened,” says Eley.

There are also times when Eley says the Municipality maintenance crew will be called in to clear a storm drain with a vacuum device on a truck. But managers at the municipality say that they haven’t ever seen evidence of that.

Kyle Cunningham, an environmental specialist with the municipality, says that they are trying to figure out more about the phenomenon themselves. He said he’s only aware of about three or four cases in the last 10 years.

While it seems to be most common at Chester Creek, it hasn’t ever been reported at Campbell Creek, which is of a similar size and also runs through the city. Other than that, there’s not much of a pattern to predict.



Iron eating bacteria form a slippery sheen on the bottom of a storm culvert feeding Chester Creek, a site of many orange creek events.

“We really don’t have anything we can correlate it with. I thought at first it was a summer phenomenon, but then we have February, December and January occurrences, so I don’t know,” says Eley.

Luckily, everyone seems to agree that these flushes don’t present any real harm to the health of the creeks, but most people seem to have the natural instinct to stay away from it.

“You think, oh, is this acid, or something bad. There’s no record of that, but I’m always on the safe side,” said Eley.

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LETTERS TO THE EDITOR

THANK YOU, ANCHORAGE VOTERS

Thank you for your support for fixing the leaky roof of the Anchorage Senior Activity Center (ASAC) and the other needed repairs there, as well as at the Chugiak/ Eagle River Senior Center and our libraries. In this time of trouble and uncertainty it takes uncommon courage and foresight to vote yes for a bond issue. Thank you to those to have the wisdom to know that this renovation bond will put Anchorage to work now, and to have the heart enough to care. You voted for an immediate investment to fix what we need to fix. You have our commitment to be good stewards of your funds and that we will move quickly to put local people to work.

I thank all those who wrote heartfelt letters, went to countless meetings, phoned, emailed and Facebooked your neighbors and friends in support of Proposition 7. Thank you in particular to the Rasmuson Foundation, which believed in the ASAC and believed in Anchorage. Thank you for the good work of the Friends of the Library, the Chugiak/Eagle River center, Compass North and Anchorage Tomorrow.

Until the present dark clouds of the pandemic lift. I invite our members to continue fitness classes by Zoom. If you need help on Medicare, contact us by phone. If you need help with SNAP or food boxes, contact our Benefits Enrollment Center by email or phone for delivery dates, and listen in to our registered dietician talks on making positive food choices.

One day, the storm will end. We will again have a time to laugh, to hug, to cry and dance together. Thank you, Anchorage voters, for having faith in yourselves and a better tomorrow. Thank you, I can now put my umbrella away.

— Gordon Glaser
President

DEFINE 'ESSENTIAL'

How is it that real estate sale are "essential" but medical and dental procedures are not?

— Frank Cahill
Anchorage

ATTACK ON JOBS

Once again, there is a full frontal attack by the Democrats on our for-profit colleges. These schools are putting skilled employees into jobs at lower cost than the public universities or other not-for-profit colleges. They are often better prepared than those in traditional learning.

Non-profit colleges and public institutions simply raise their prices. There is little if any competition to make sure the students and the taxpayers are getting reasonable services for their investment. However, there is no punishment if the students don't repay their loans and there is little concern if students in frivolous courses ever get employed.

For-profit colleges compete for their students. While it may cost more than \$2,000 in outreach and advertising to get students to actually come to their first class, those students are getting a less expensive education that they would at other locations. They are typically trained in standard software programs, so they enter the market with strong computer skills. Their education is career focused. They aren't taking many courses in areas not associated with their focused education. Get in, focus the education, build the skills and get into the job market.

For-profit colleges are required to have their students repay their loans. They are required to get their students employed. They are required to produce results in a competitive market that benefit the students.

When the Democrats attack for-profit colleges, ask them

why the same standards don't apply to the University of Alaska.

— Arthur Solvang
A graduate from three for-profit colleges
Willow

NO COMMENT

I was so impressed by the way you were allowing nonsubscribers to read all coronavirus-related articles that I was going to subscribe as a way of thanking the newspaper.

However, now that you have shut off comments, I've changed my mind. I really enjoy hearing what people have to say about the various articles. I know it's temporary, but it's also a display of "authority" that I don't enjoy witnessing. I realize you're busy, but the more people comment, the more engaged they are. Shutting them off just strikes me as wrong.

— Cydney Terhune
Anchorage

KEEP WATERWAYS HEALTHY

Spring is here and dog poop is popping out of the snow joining all that has not been recently picked up. Our "hunker down" appears to have been a boon for dogs, who are getting lots of extra time outdoors, but it has also resulted in an excessive amount of pet waste on trails, in dog parks and elsewhere. It's most likely that pet owners know they should pick up after their dogs, but for many reasons they don't. Ricki Lebman's April 8 Letter "Pick it up," suggests a few common explanations for this.

So, why should we bother? Did you know that pet waste left on the ground is picked up by rain and snow melt where it is carried into our creeks and lakes? These are the waterways where children and adults recreate (fishing, wading, swimming, and boating). Every creek in the Anchorage

bowl except Rabbit Creek is considered "impaired" by fecal coliform bacteria (hint: it's caused by poop) which means that humans and pets can get sick if they ingest the water. Maladies include giardia and worse.

Due to "social distancing," Anchorage Waterways Council had to alter our annual Scoop the Poop Day this year, so we are asking people to clean up on their own during breakup. Take Ricki's suggestion to "Strive for Five," and if everyone just picked up after their own pet, we wouldn't have to clean up after others! Do your doodie!

After all, if we can rapidly change human behavior for social distancing, there's a hope that pet owners will do a much better job of cleaning up after their dogs year-round. Let's keep our great waterways healthy for all users.

— Cherie Northon
Anchorage

PREJUDICE IN THE LEGISLATURE

Prejudice is alive and well in the Alaska Legislature. I call for Rep. Jennifer Johnston, R-Anchorage, to be censured in the Legislature and issue an apology to Alaskans. I live in the largest village in Alaska, Anchorage. The Permanent Fund dividend is just that — permanent. The Legislature should and must follow the Alaska Constitution; it's the law. People can decide if they don't want a dividend simply by not filling out an application. This man lives in Alaska; I'm Alaska Native. If you live here and claim your residence here, act like it. Rep. Johnston should read why, where and how the PFD came about. If she doesn't want to be an Alaskan, perhaps another state will have her.

— Peter Stephen Frost
Anchorage



ANCHORAGE DAILY NEWS

Ryan Binkley

Andy Pennington

David Hulén

Tom Hewitt

JOIN THE
To submit a
Send letters

APPENDIX B

Presentations

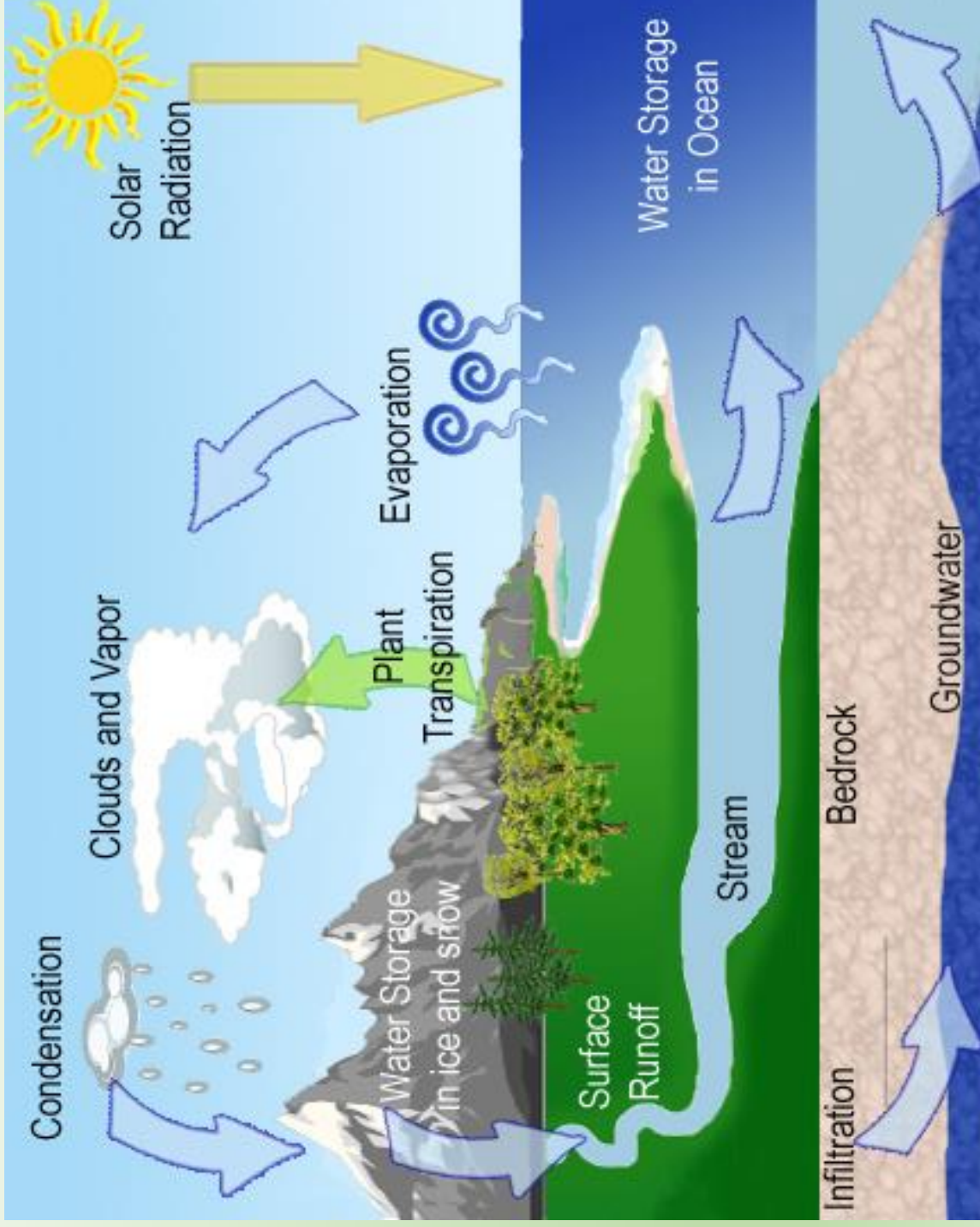
1. Alaska Botanical Garden Spring Show Presentation
2. Rotary eClub Presentation
3. APDES Annual Meeting Presentation

Great Gardens and Healthy Creeks

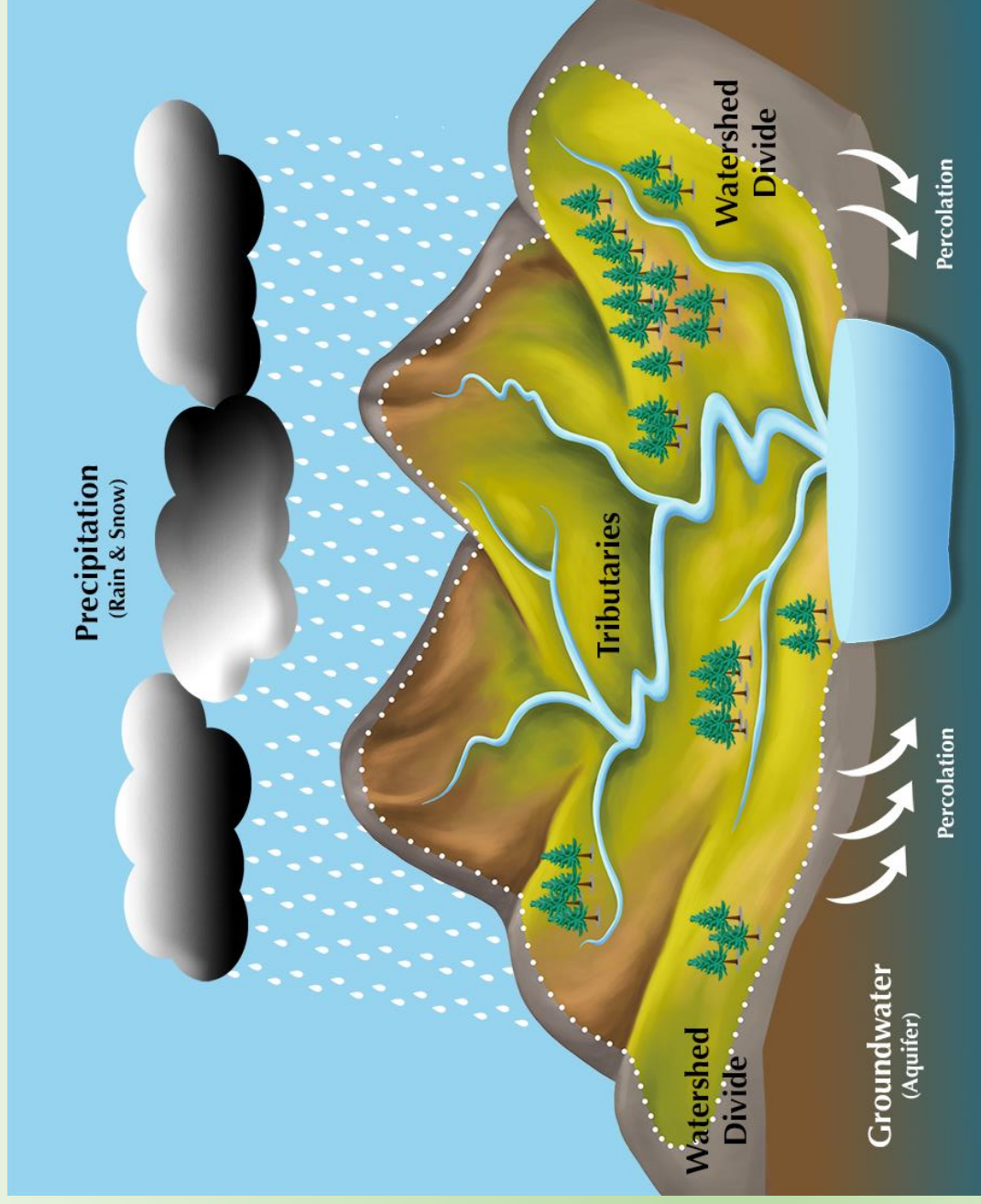
- Cherie Northon, Ph.D.
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- February 22, 2020

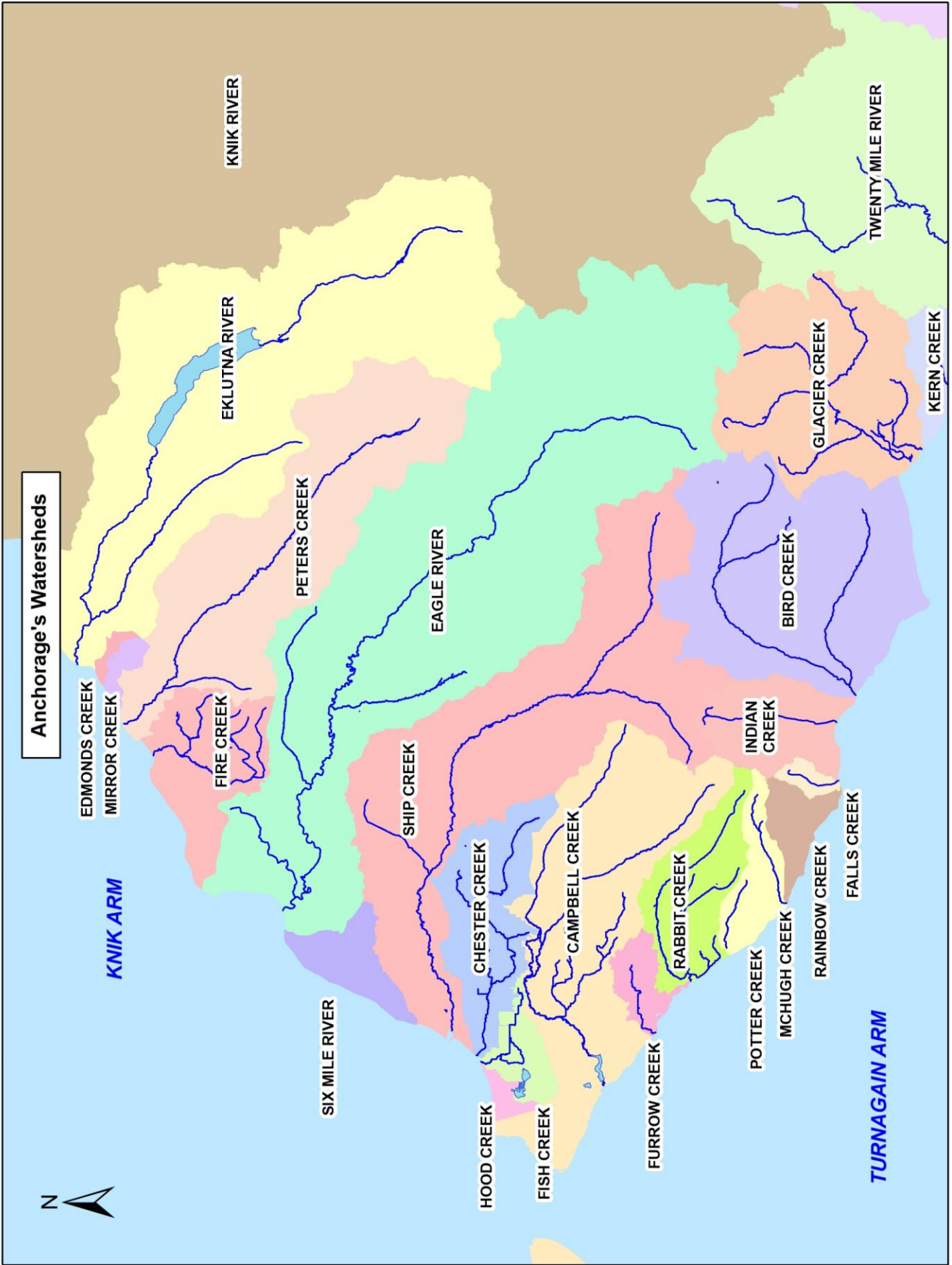


The Hydrologic Cycle



A Watershed





What's on the ground, washes down!

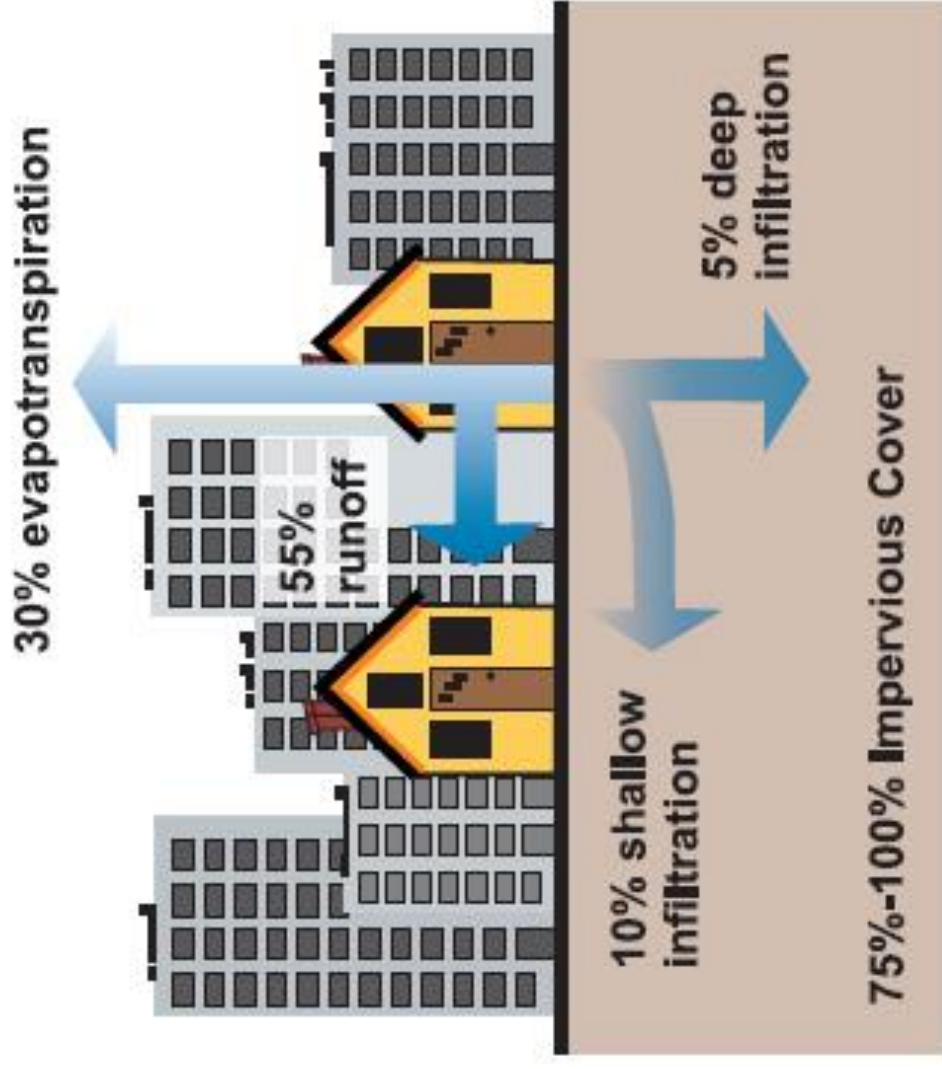
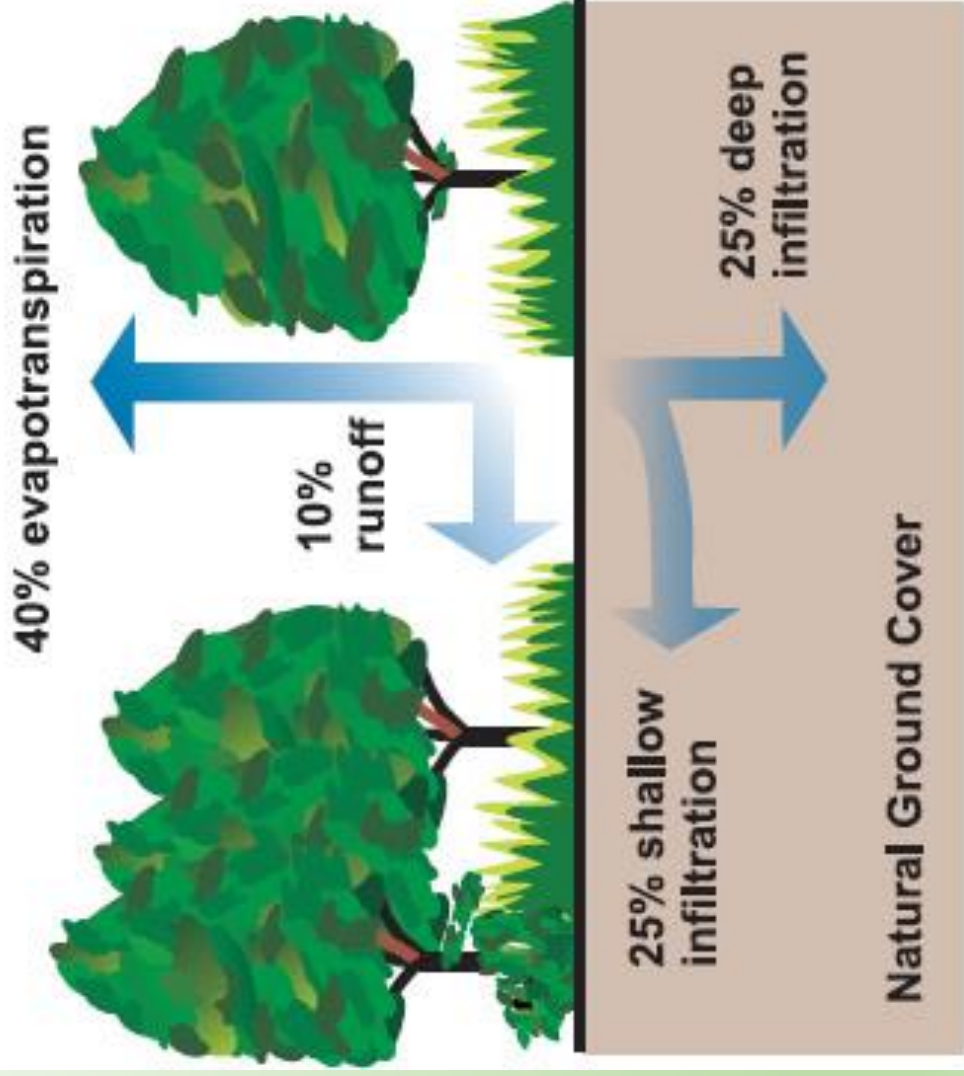


Campbell Creek

Furrow Creek

Rabbit Creek

Pervious vs. Impervious Surfaces



10% runoff – 50% infiltration

55% runoff – 15% infiltration

Why are we concerned with runoff?

Stormwater runoff is the number one cause of stream impairment in urban areas



All this and more is in runoff!



Feeds Plants AND Prevents Weeds up to 3 Months!
(Previene hierbas y comidas hasta 3 Meses!)

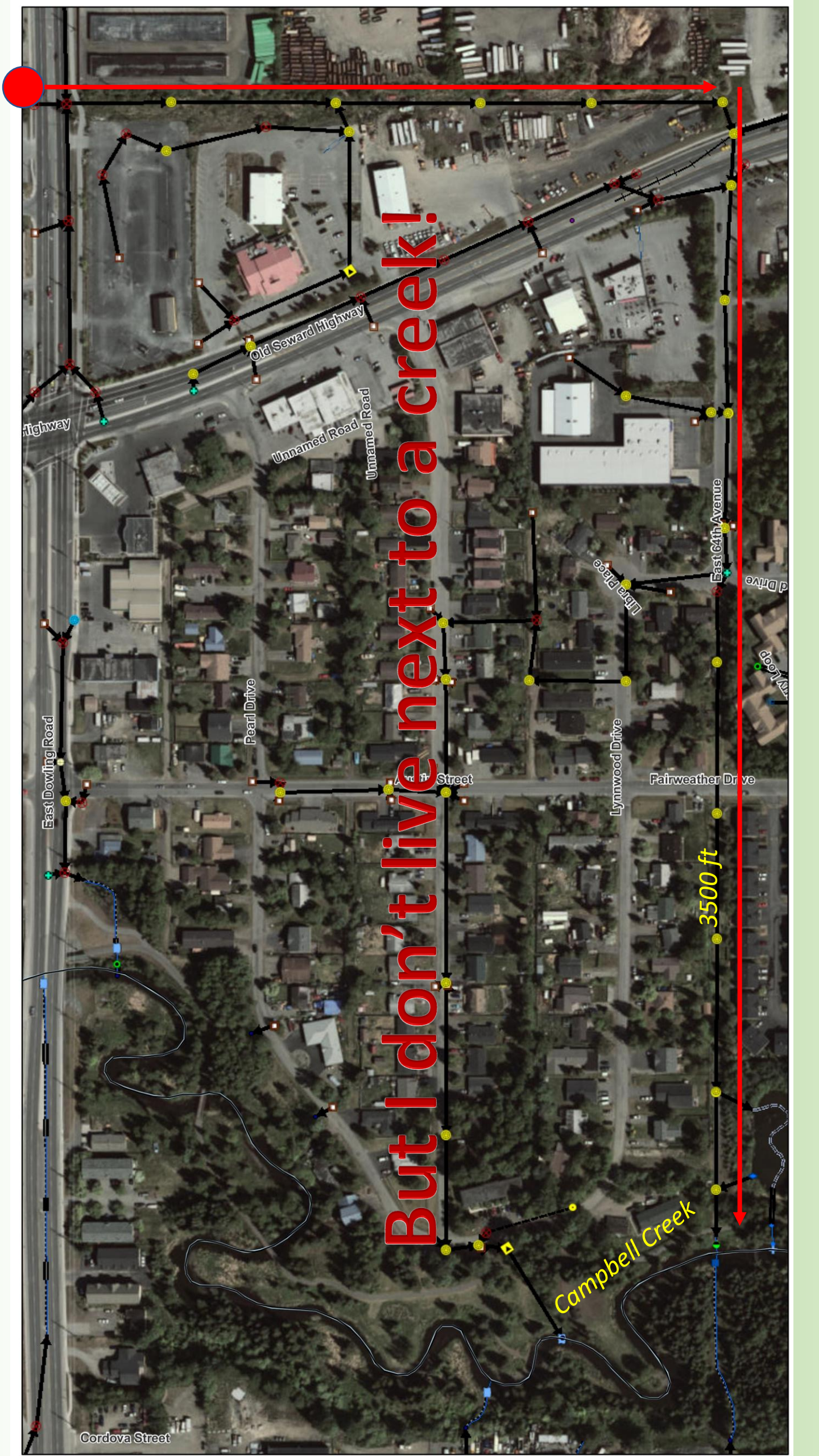
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Stormwater discharge in Anchorage







But I don't live next to a creek!

3500 ft

Campbell Creek

Highway

Old Seward Highway

Unnamed Road

Unnamed Road

East Dowling Road

Pearl Drive

Street

Lynnwood Drive

Fairweather Drive

Litra Place

East 64th Avenue

Drive

Loop

Cordova Street

“Disposal” has been the traditional way to deal with stormwater.

The consequences are:

- the loss of groundwater recharge,
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- increased flooding,
- and lower water quality.

Green Infrastructure/Low Impact Development

Small scale:

- Rain gardens
- Permeable pavements
- Green roofs
- Infiltration planters
- Rainwater harvesting

Large scale:

- Preserve and restore forests, floodplains, and wetlands

Birds, butterflies, and insects find food and shelter in rain gardens. Frogs and lizards may live there, too.



Plants absorb water, trap sediments, and remove pollutants.

A layer of mulch, such as woodchips suppresses weeds, protects soil, and nourishes plants.

An overflow channel any excess water to a safe place.

Collected water nourishes plants and replenishes go-roundwater as it soaks into soil beneath the rain garden.

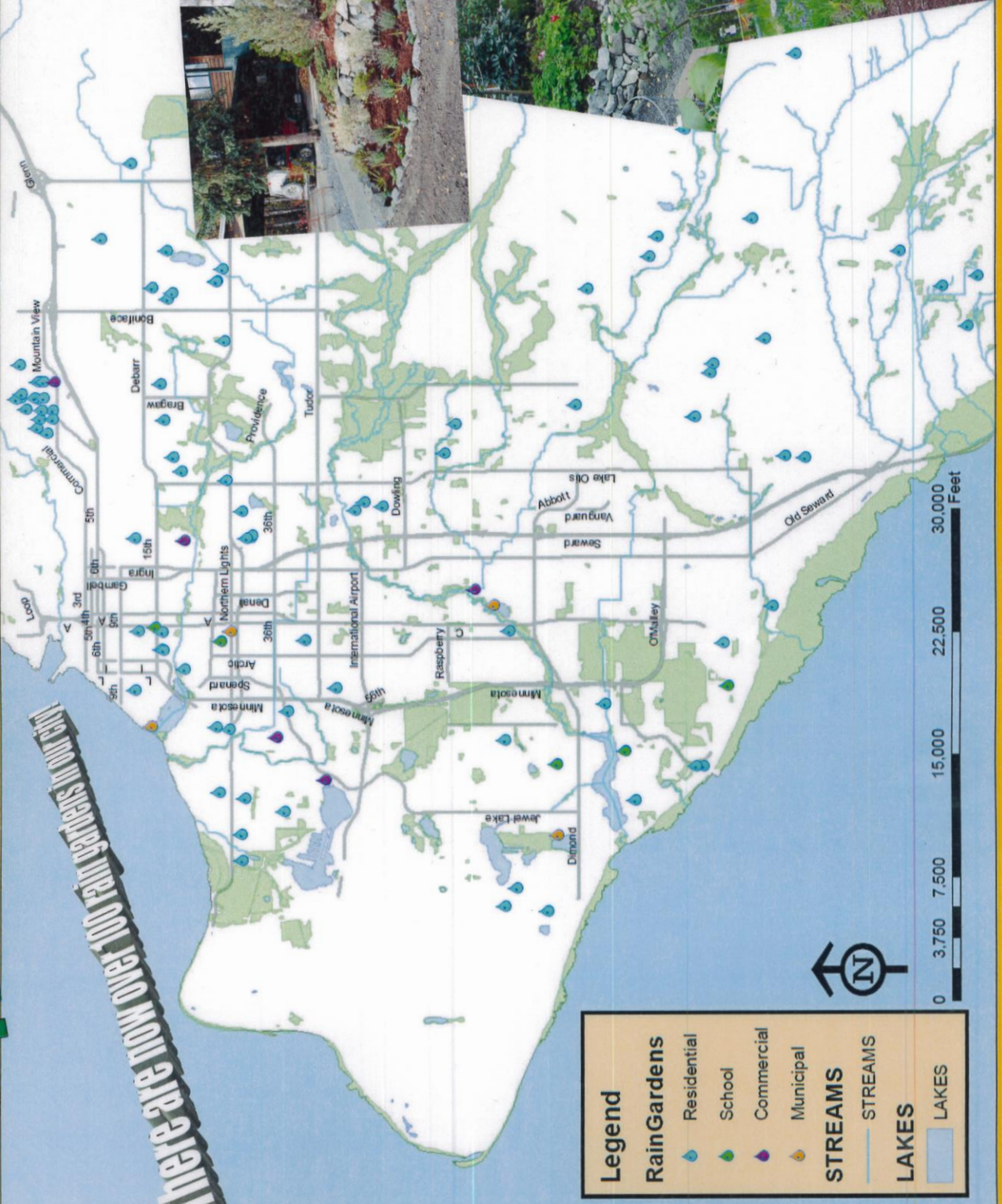
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Rain Gardens in Anchorage

There are now over 100 rain gardens in Anchorage



APPENDIX B

Presentations

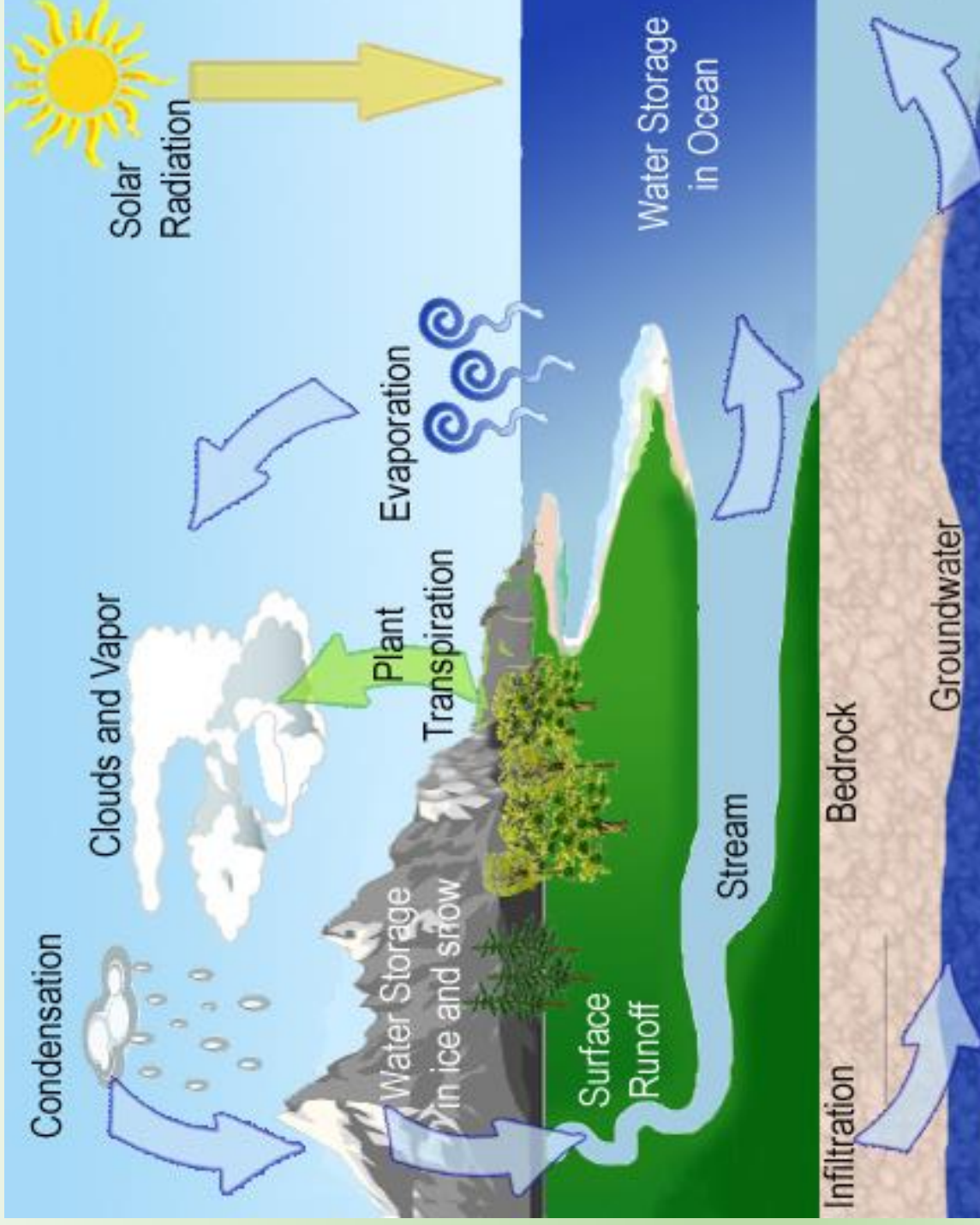
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2. Rotary eClub Presentation
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Great Gardens and Healthy Creeks

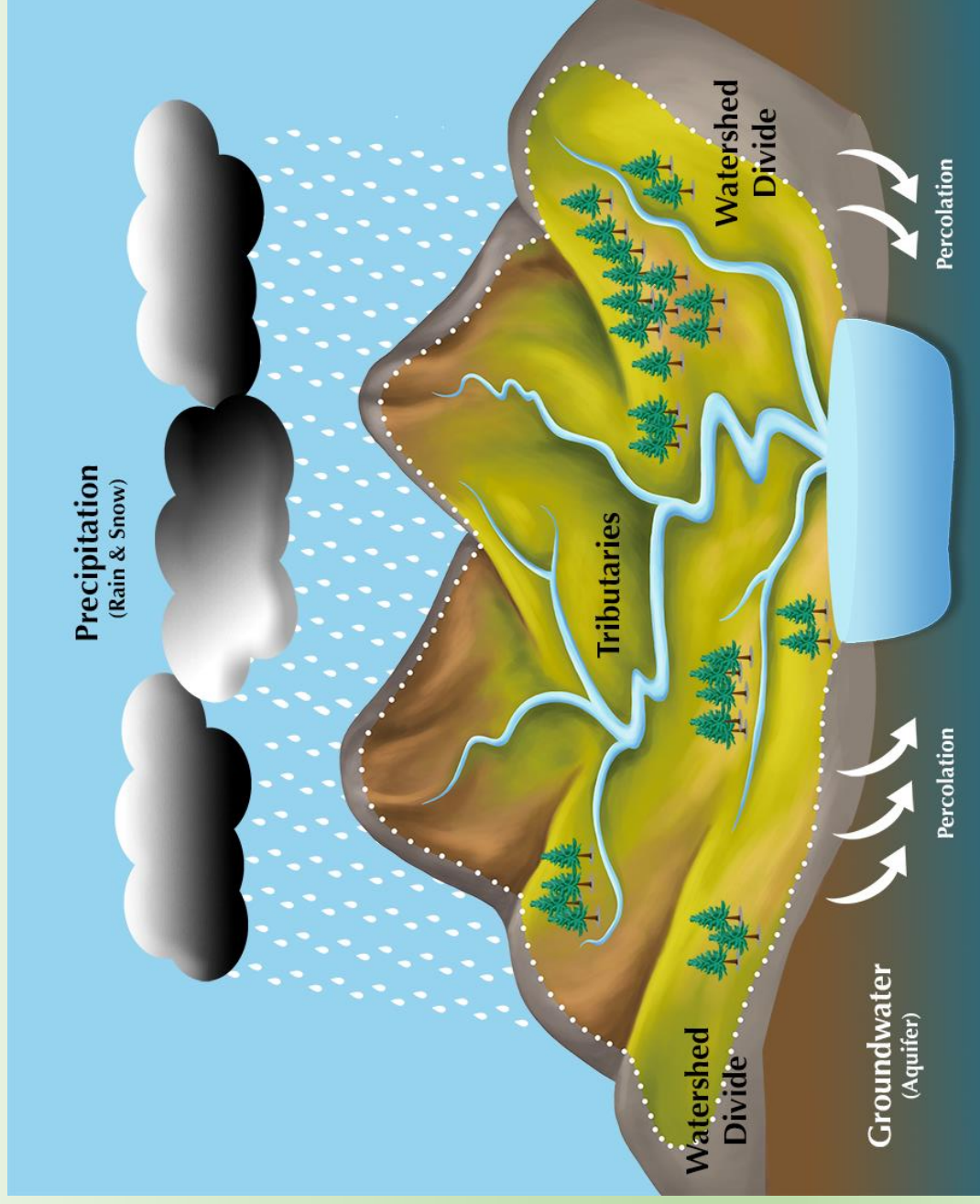
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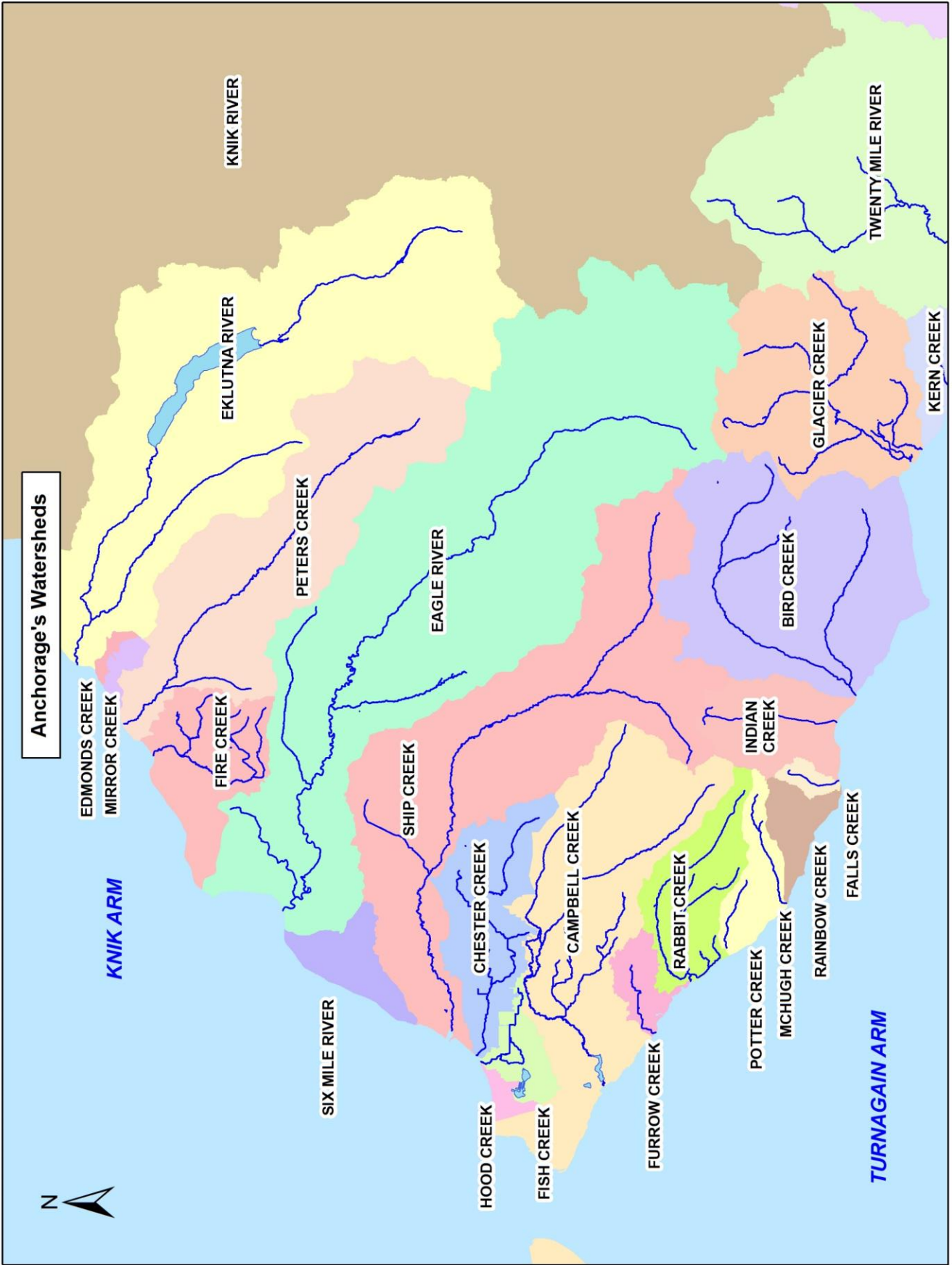


The Hydrologic Cycle



A Watershed

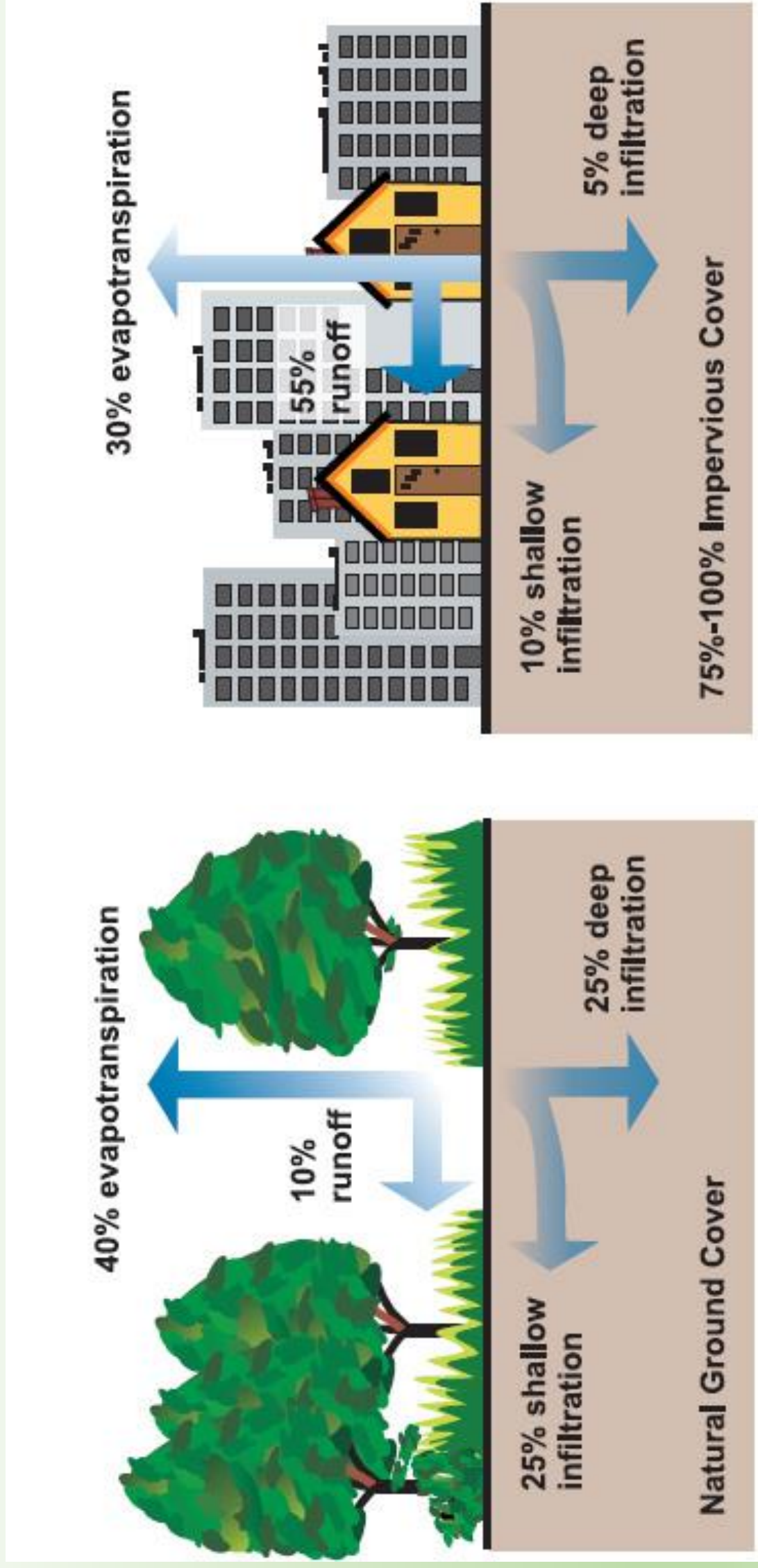




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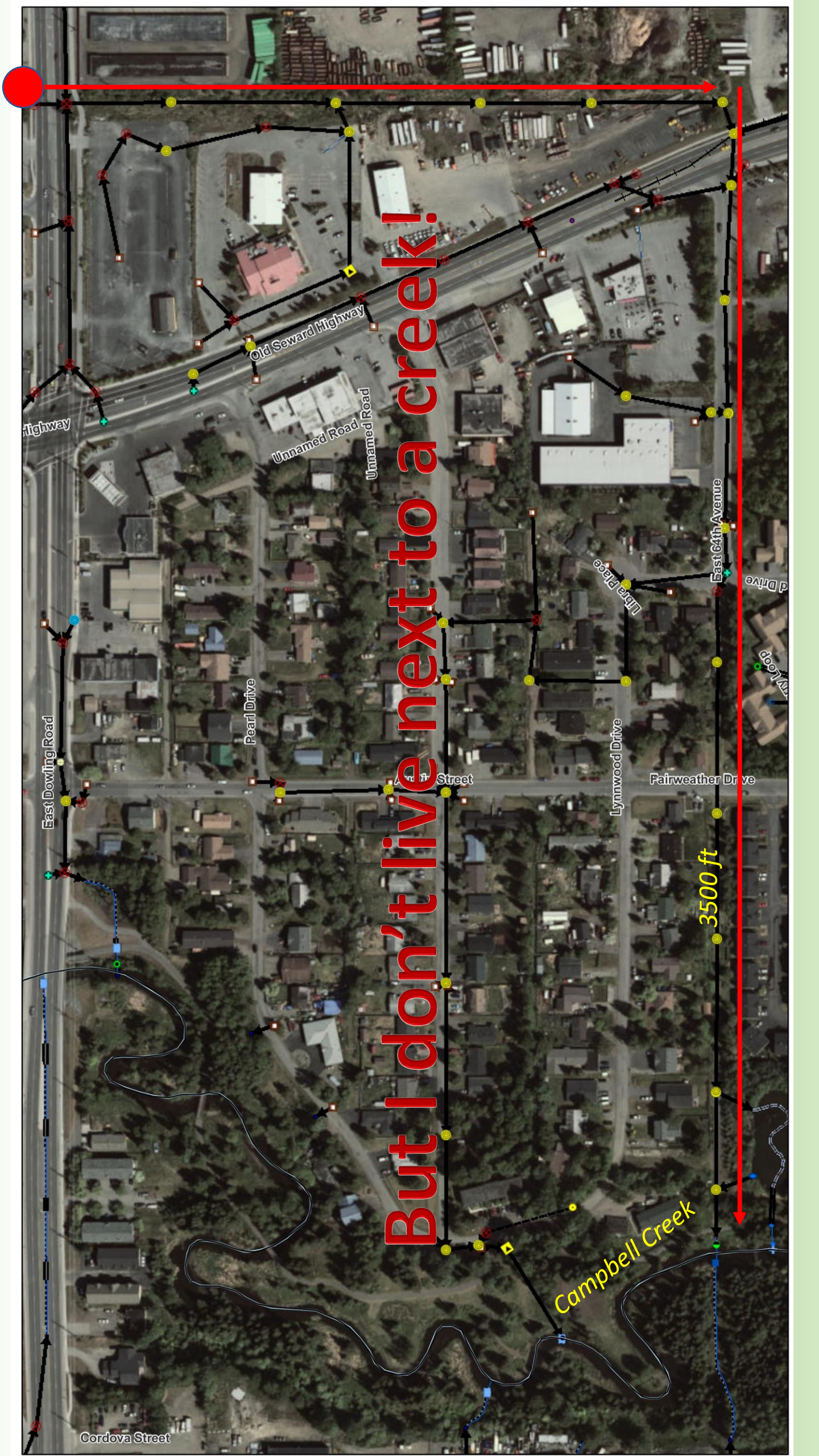
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Bioswale or Infiltration Planter Sisters, OR



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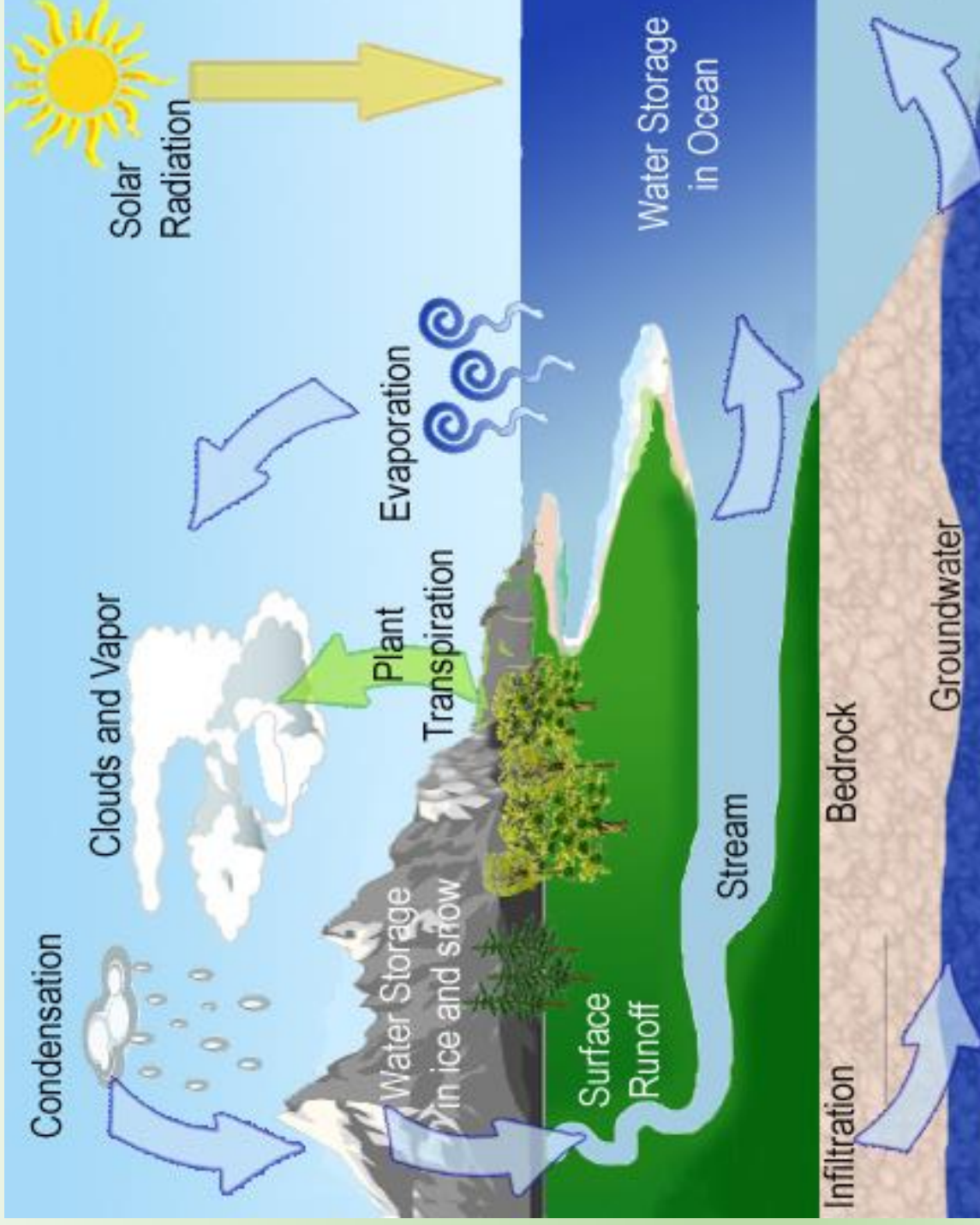
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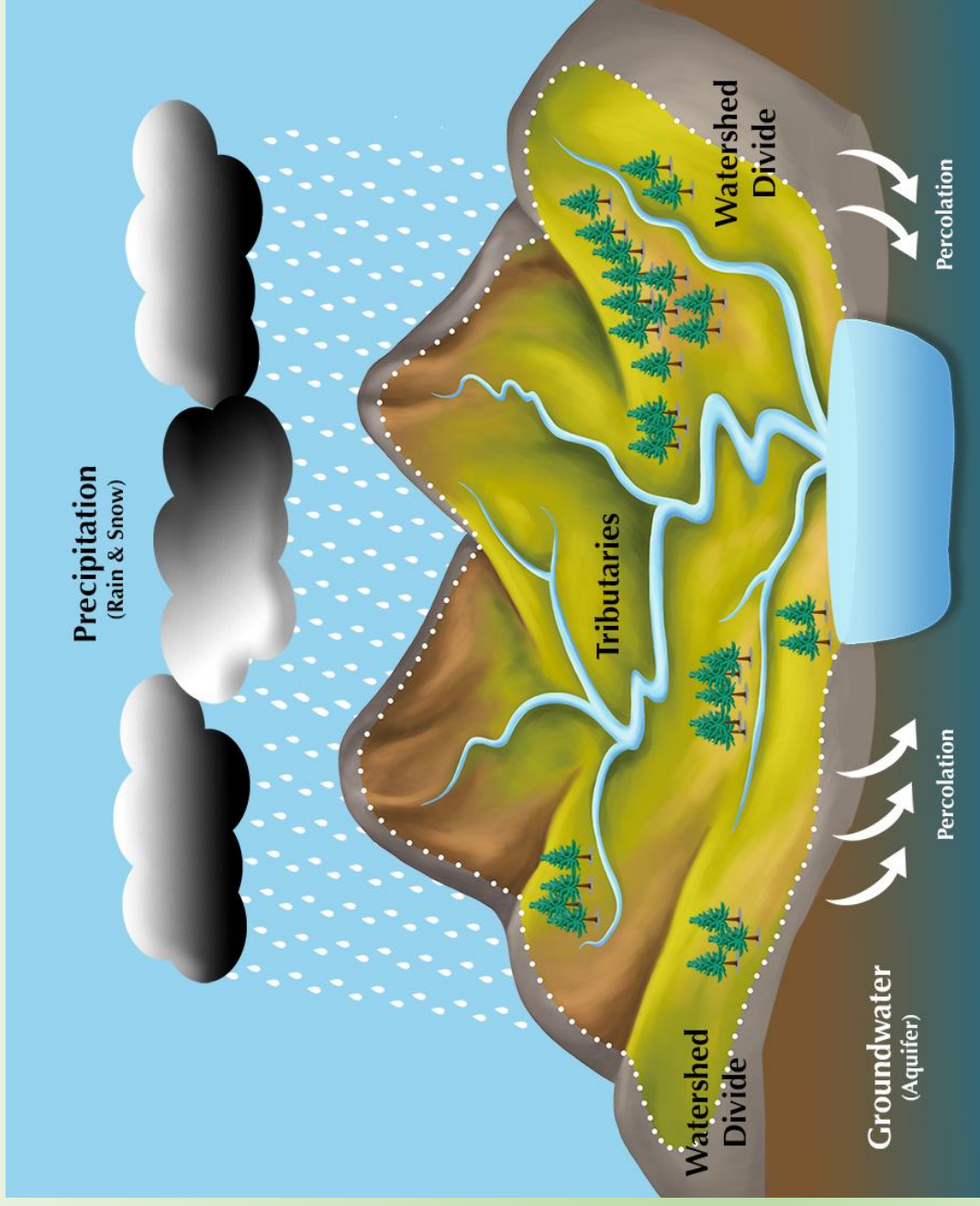
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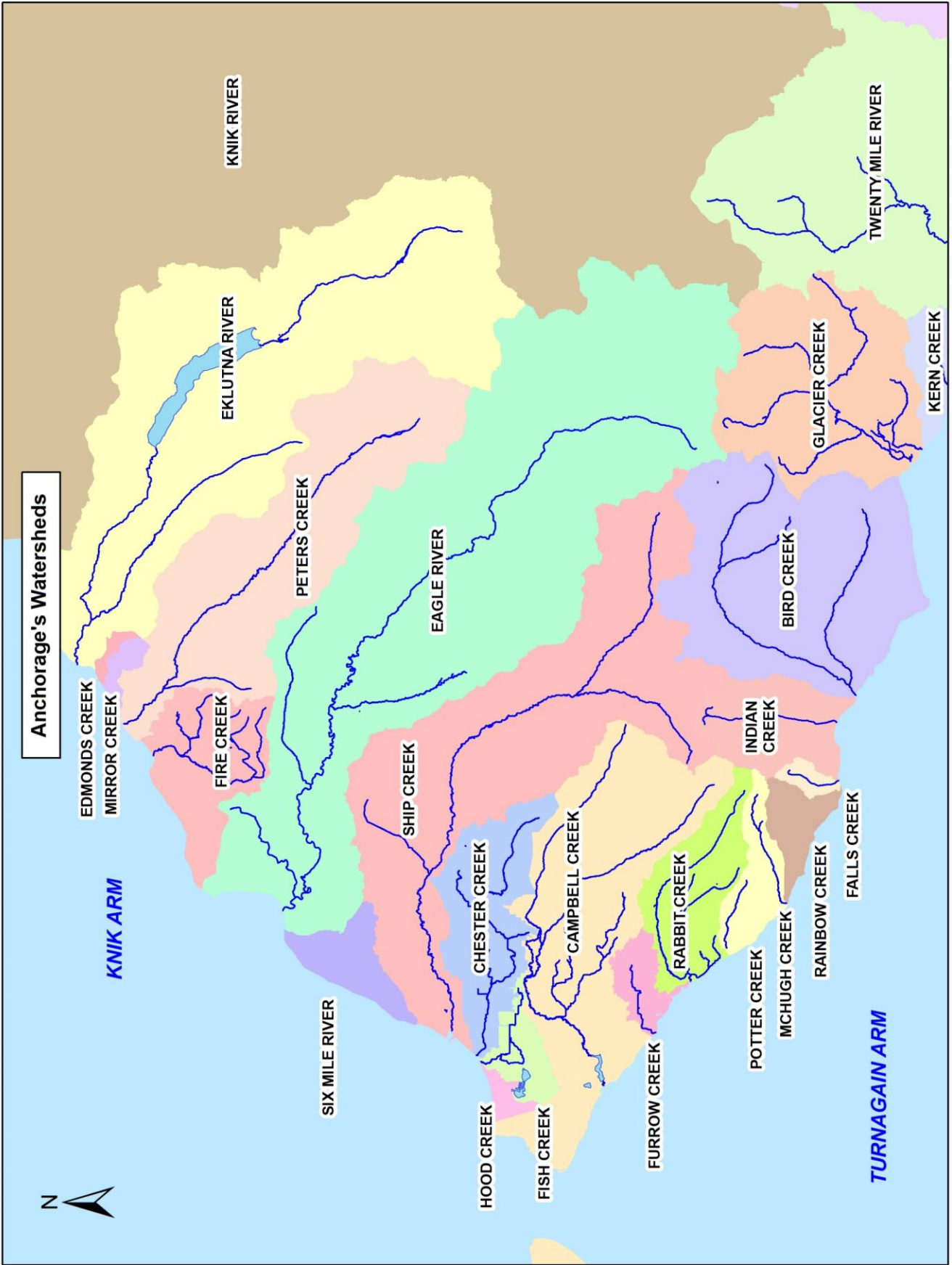


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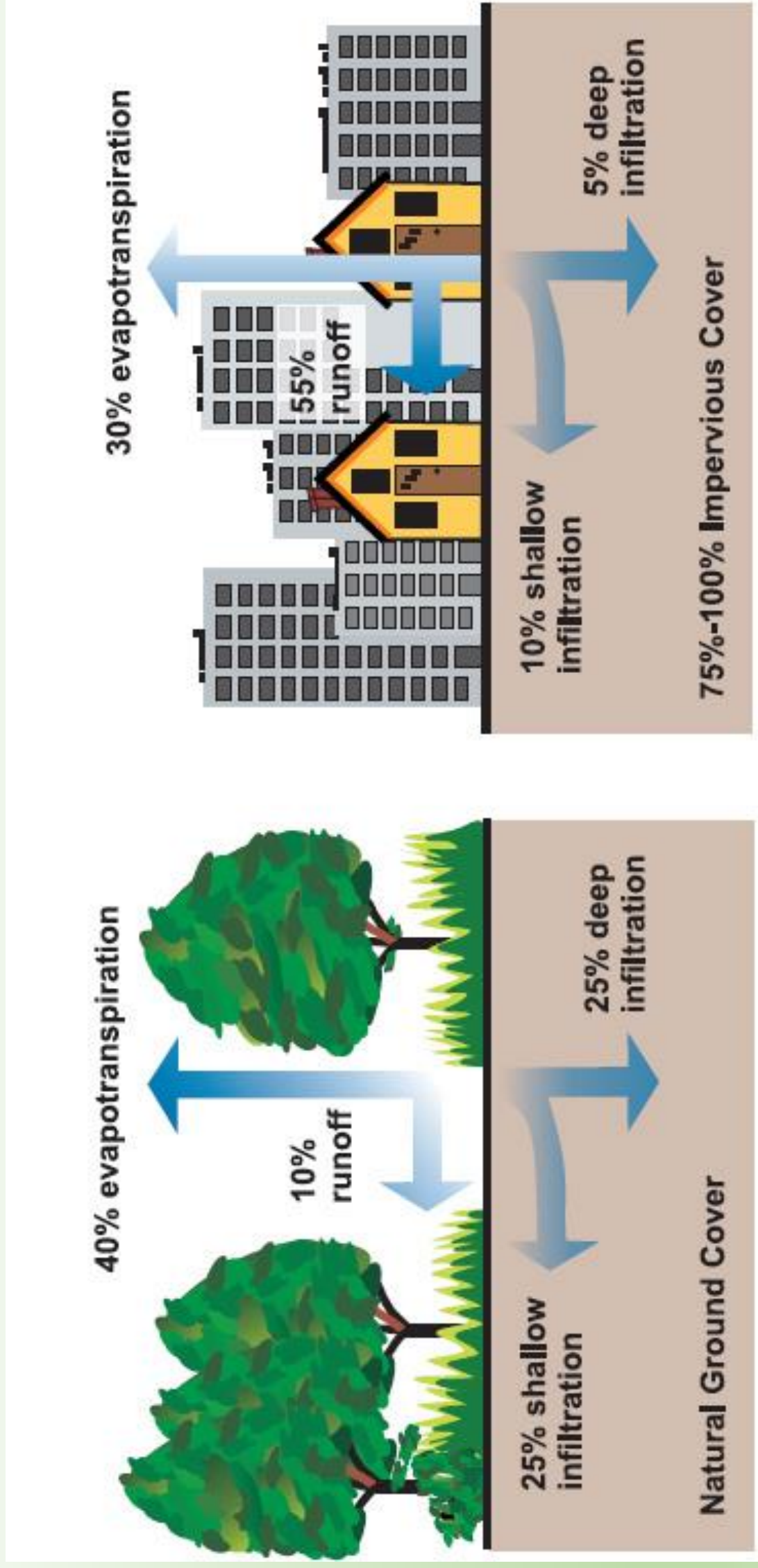




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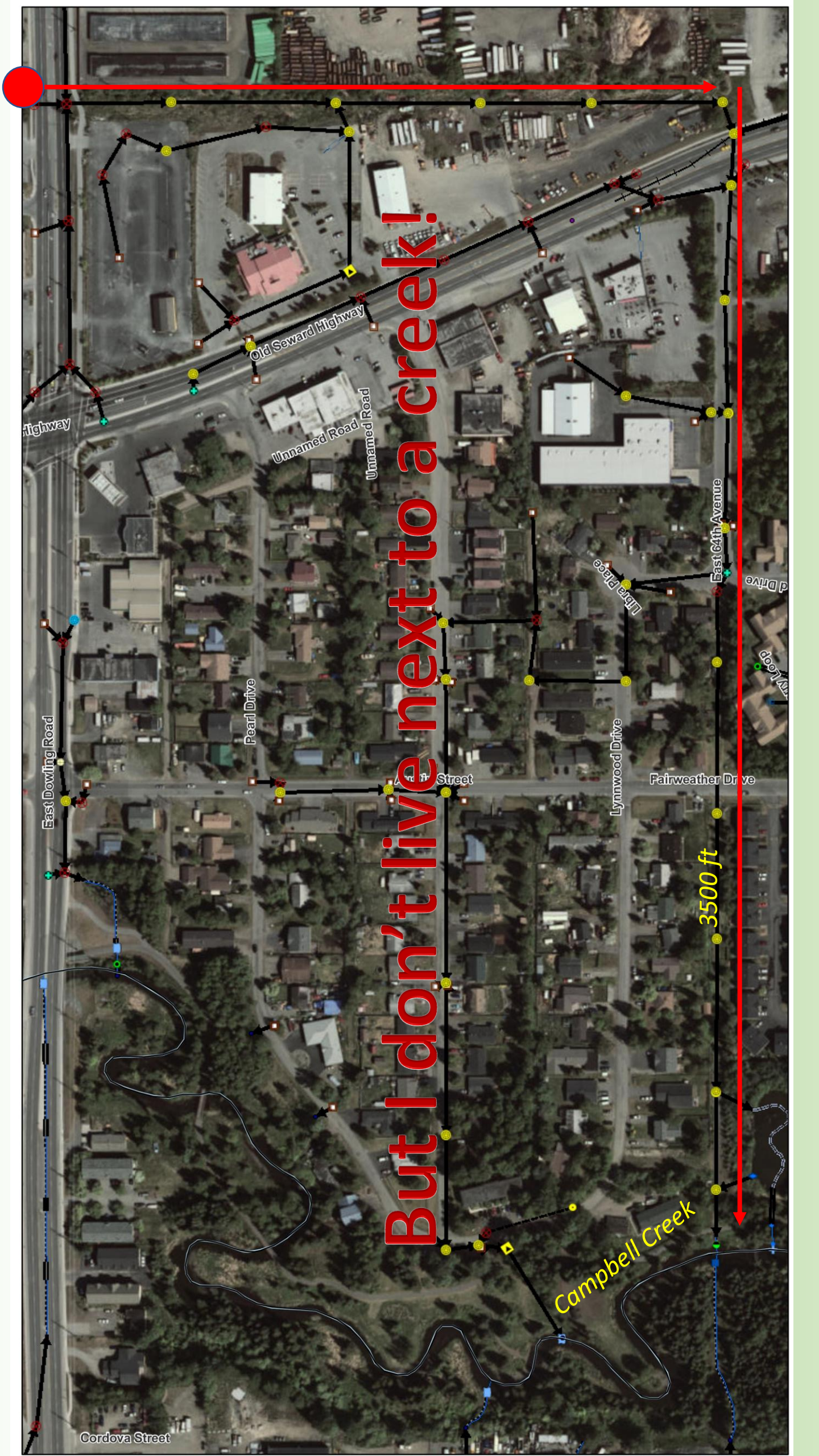
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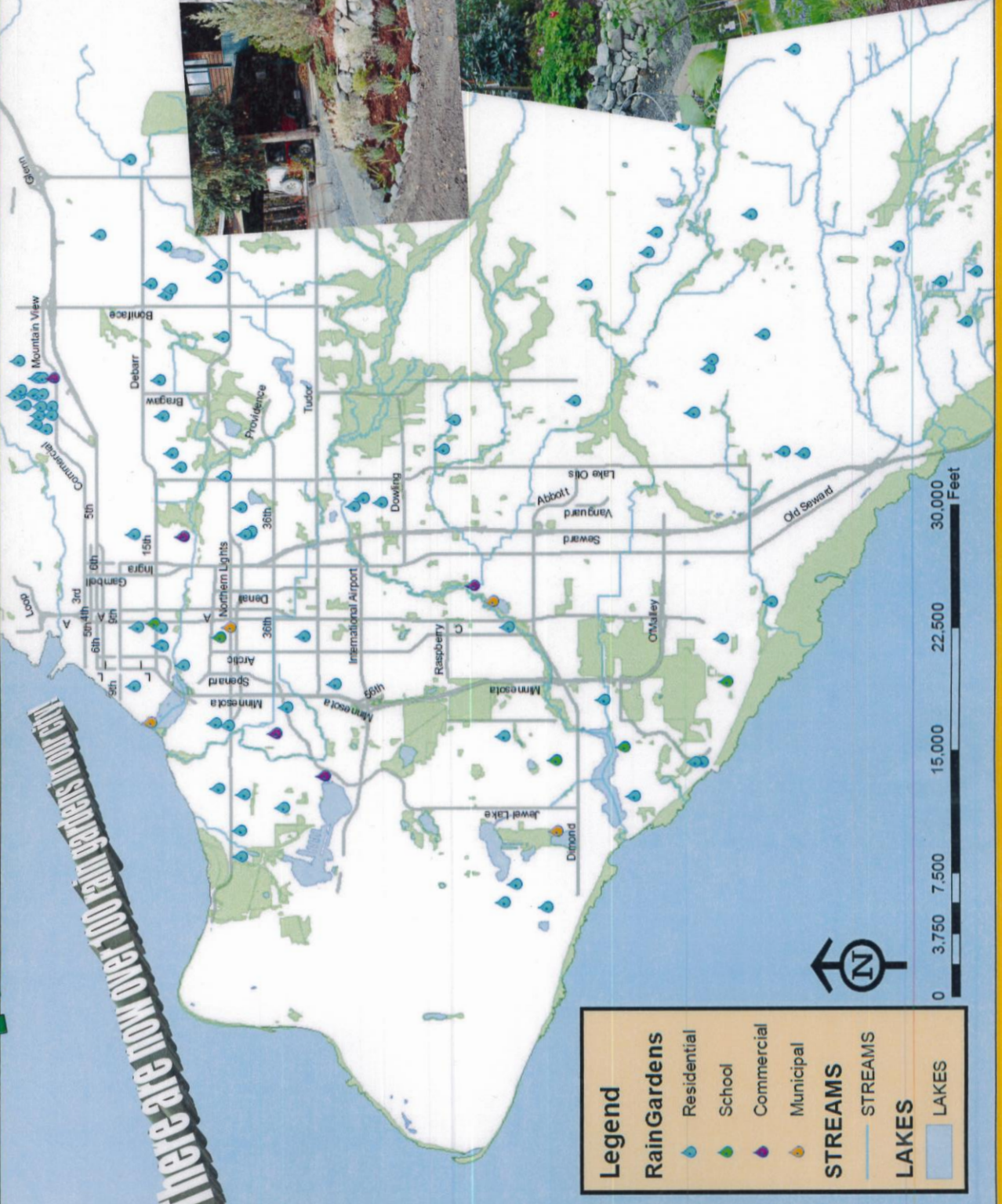
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Legend

Rain Gardens

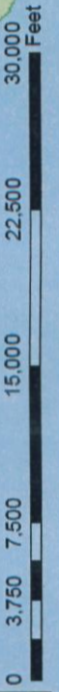
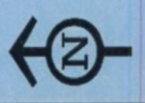
- Residential
- School
- Commercial
- Municipal

STREAMS

- STREAMS

LAKES

- LAKES





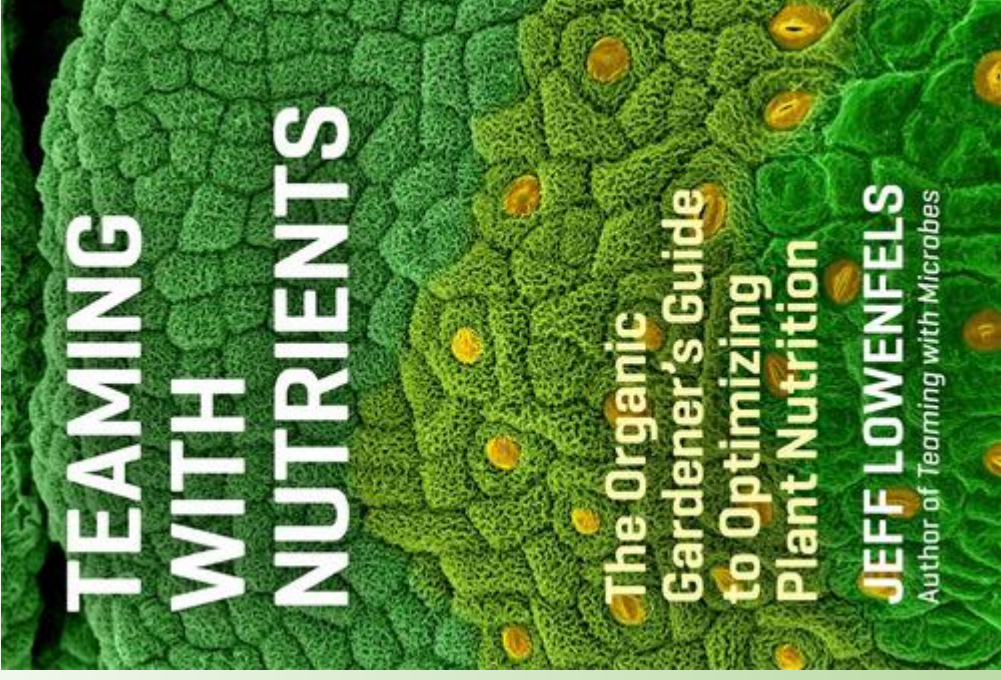
Bioswale or Infiltration Planter Sisters, OR



How do gardens affect our waterways?

Seventeen nutrients (elements) needed for plant growth and development

7	15	19	12	16	20
N Nitrogen	P Phosphorus	K Potassium	Mg Magnesium	S Sulfur	Ca Calcium
MACRONUTRIENTS			SECONDARY NUTRIENTS		
5	17	25	26		
B Boron	Cl Chlorine	Mn Manganese	Fe Iron		
28	29	30	42	1	6
Ni Nickel	Cu Copper	Zn Zinc	Mo Molybdenum	H Hydrogen	C Carbon
					8
					O Oxygen
MICRONUTRIENTS			NON-FERTILIZER ELEMENTS		



Listen to Gardener Jeff! TEST YOUR SOIL!

Grass clippings, leaves, and plants add nutrients such as **nitrogen** and **phosphorus** which affect water quality.



Listen to what Gardener Jeff says (again):

- Mulch your grass and leaves - save your back!
- Remember they break down and put nutrients (**nitrogen, potassium and phosphorous**) back into the ground—building soil structure and increasing your soil's ability to hold moisture.
- Beneficial organisms love them.
- Keep them **OUT** of the landfill! Missouri banned disposing of green waste in 1992.



**Clean up your dog waste.
It could be worse.**



Pet Waste

- Pathogens live in dog poop (bacteria, protozoa, worms, and nutrients).
- It has been estimated that a single gram (1/3 oz) of dog waste can contain 23 million fecal coliform bacteria.
- Besides pathogens, runoff into waterways carries nutrients—**nitrogen** and **phosphorous**.
- The addition of **nitrogen** and **phosphorous** uses up dissolved oxygen which affects the living critters (fish, water insects, etc.).

Be the Solution to POO-llution

University Lake Connor's Bog

Estuary
the POOP Day!



Scoop the POOP
April 11, 11 - 3!
Saturday

WHY? Because we all want clean parks and healthy waterways.

All equipment will be provided

Free Thank you gifts.

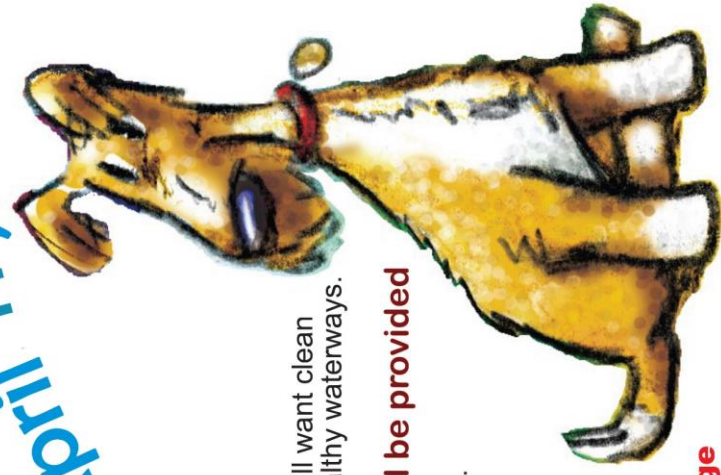


Details at:

anchoragecreeks.org

or  at

Scoop the Poop Anchorage



Eutrophication

Nutrients (**nitrogen** and **phosphorous**) from chemical fertilizers, yard waste, and pet waste:

- Feed the algae in waterways
- Algae blooms block sunlight
- Plants and algae die and decay
- Bacteria eat it up and use up oxygen--leaving carbon dioxide
- Fish and other critters die

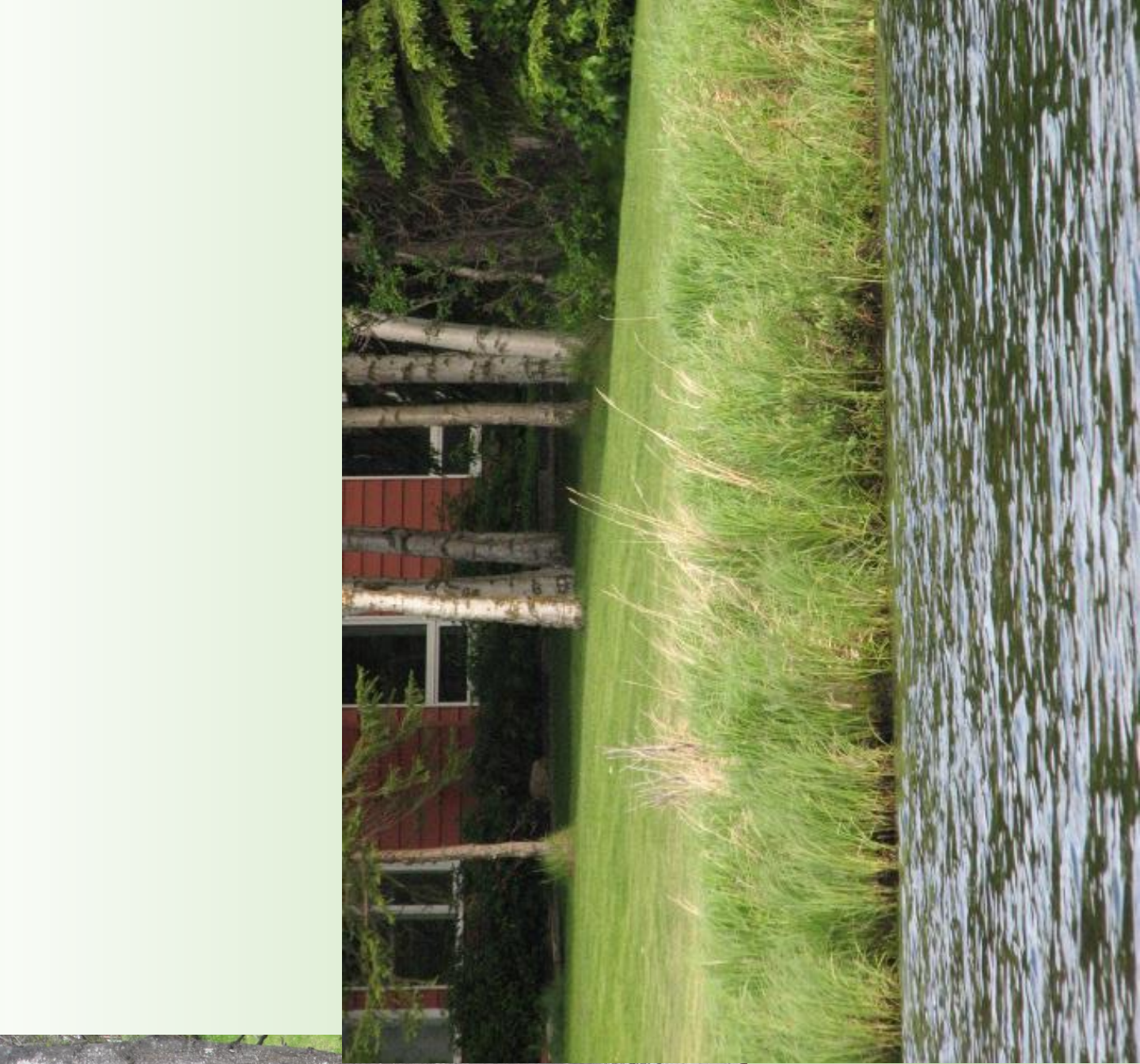


Campbell Lake 2007



If you do use synthetic fertilizers, try to keep them from running off into stormwater or directly into ponds, rivers, lakes and streams

- Know what your garden needs
- Follow the directions – more is NOT better
- Watch the weather when you fertilize to avoid heavy rains
- Don't over water when using additives
- Plant buffers if you are along a waterway



Watering

- Earlier or later in the day--reduces evaporation.
- Don't overwater and don't water pavement.





Pesticides: Herbicides, Insecticides, and Fungicides

- Excessive use of these products could lead to their deposition in lakes and streams if they are carried with sediments.
- Impacts will be on aquatic plants, benthic insects, fish, and birds.
- Water-soluble pesticides may leach in sandy soils and move to ground or surface water.
- Cornell University Cooperative Extension states, “*cleanup of groundwater contaminated by pesticides is usually impossible. The slow movement of groundwater means that it may take decades for the contaminated water to flow beyond the affected wells.*”

Pesticide properties:

- **Active ingredients:** a substance that has action against pests
- **Contaminants:** exist as impurities in the active ingredients
- **Additives:** wetting agents, preservatives, emulsifiers, etc.
- **Degradate:** is formed during chemical, microbial or photochemical degradation of the active ingredient(s) (what do they turn into?)
- **Pesticide half-life:** the longer it takes to break down, the higher its persistence



Growsmartgrowsafe.org

- Home
- About ▾
- Integrated Pest Management
- Natural Yard Care ▾
- Pests ▾
- Good Bugs
- Resources
- Glossary

Grow Smart Grow Safe[®]

Research the products you use!

Animal Pests

Diseases

Insects

Moss

Slugs & Snails

Weeds

A gardener's guide to choosing safer pesticides and garden products



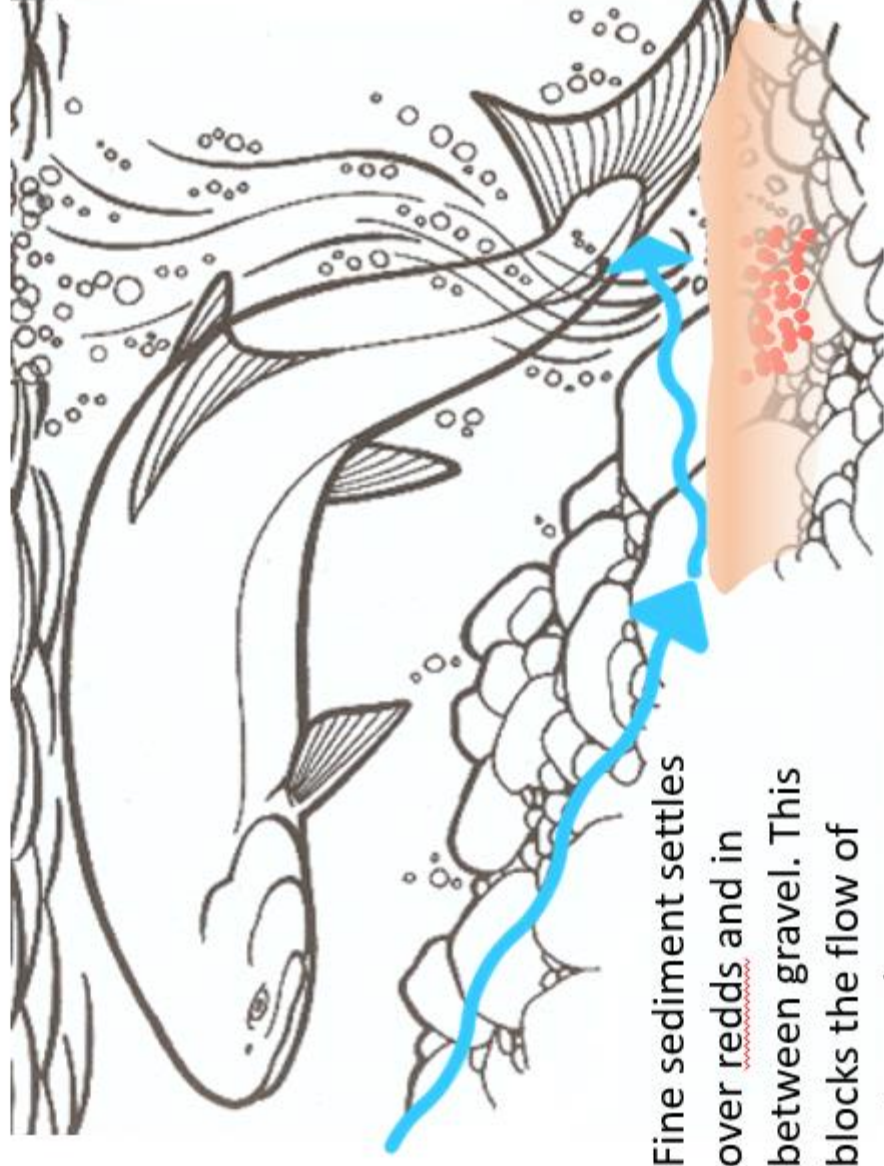
Sediment

- Sediment (sand, soil, clay, etc.) in streams is the **MOST COMMON** pollutant according to the EPA.
- Natural erosion is the geological process in which earthen materials are worn away and **TRANSPORTED** by natural forces such as wind or water.
- Natural erosion produces about 30% and accelerated erosion about 70%.
- Accelerated erosion usually includes humans in the process.
 - Agriculture/farming
 - Grazing
 - Construction of roads, buildings, etc.
 - Logging and mining
 - Recreational activities, e.g. 4 wheelers

What are sediment's impacts?

- It reduces the amount of light penetrating the water, depriving the plants of light needed for photosynthesis.
- Particles absorb warmth from the sun and thus increase water temperature.
- It can smother aquatic insects that feed fish and other critters.
- It can settle on “redds” (salmon nests).
- Various pollutants such as bacteria (*E. coli*), nutrients and heavy metals may also attach (bind to) to these sediments.

Fine sediment is **not** suitable spawning habitat



Less oxygen reduces hatching success.

Fine sediment settles over redds and in between gravel. This blocks the flow of water and oxygen.



Juvenile salmon that died due to gills impacted with sediment.



Benthic organisms that are fish food can be greatly impacted by sediment.

American Dipper



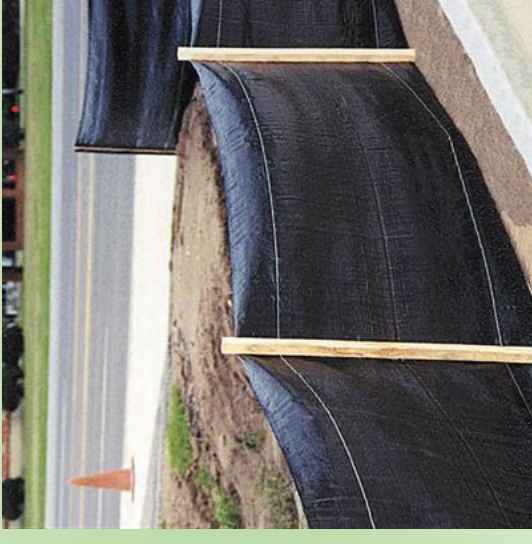






How to reduce or eliminate erosion

- Keep bare ground covered with planting of perennials, mulch, rocks, etc.
- Reduce watering or water introduction
- Avoid soil compaction, aerate lawns
- For slopes, use matting or fiber logs (silt fence in construction)



Snow melt chemicals



- They are used for safety.
- Impacts:
 - Humans – children getting it on their hands/eating it, higher sodium levels in drinking water
 - Pets – injury from licking their feet and ingesting it, drying out of foot pads
 - Wildlife – birds mistake the crystals as road grit, attraction to roads where they are hit by vehicles, animals can drink snow melt which is toxic
 - Aquatic life – salt concentrations can be toxic to fish, macroinvertebrates, insects and amphibians
 - Vegetation – salts can disrupt nutrient uptake and injure the plants/seeds/etc., and can create a favorable environment for non-native invasive species

So, here's what you can do-

- Use gravel, sand, or non-clumping kitty litter
- Shovel more – the more you remove means less chemical is needed
- Watch the temperature – most salts stop working at 15° and below, instead use sand or gravel for traction (Calcium chloride works to -20)
- Apply to clear surfaces as it is supposed to break the surface tension
- More salt does not mean more melt
- Spread evenly
- Sweep up extra

Invasives

- They crowd out native plants,
- are becoming much more opportunistic now with climate change and stressors on natives,
- love disturbed soil and wet areas,
- and have been in Alaska since at least 1974.



European Bird Cherry, Mayday Tree, *Prunus padus*

Municipality is banning sales of 2 species (2017)

- Chapter 15.90 - INVASIVE SPECIES
- 15.90.010 - Sale of invasive species unlawful.
 - A. It is unlawful for any person to sell any of the following species:
 - 1. Bird Cherry or Mayday Trees (*Prunus padus*); or
 - 2. Reed Canary Grass (*Phalaris arundinacea*).
- 15.90.020 - Penalties.
- Violation of - section 15.90.010 shall be punishable by a fine of \$250.00.

Lowe's – April 2019



GROW TOGETHER
3
U.S. PAT. PEND.

Full Sun / Pleno sol
6+ Hours Direct Sun
6+ horas de sol directo

MAY DAY TREE
Árbol De Primero De Mayo
Prunus padus var. commutata

1 YEAR GUARANTEE

BLOOM SEASON ● Spring ● Summer ● Fall ● Winter

Shade Tree
Lower Energy Costs

KN
Mt. Angel, OR 97362

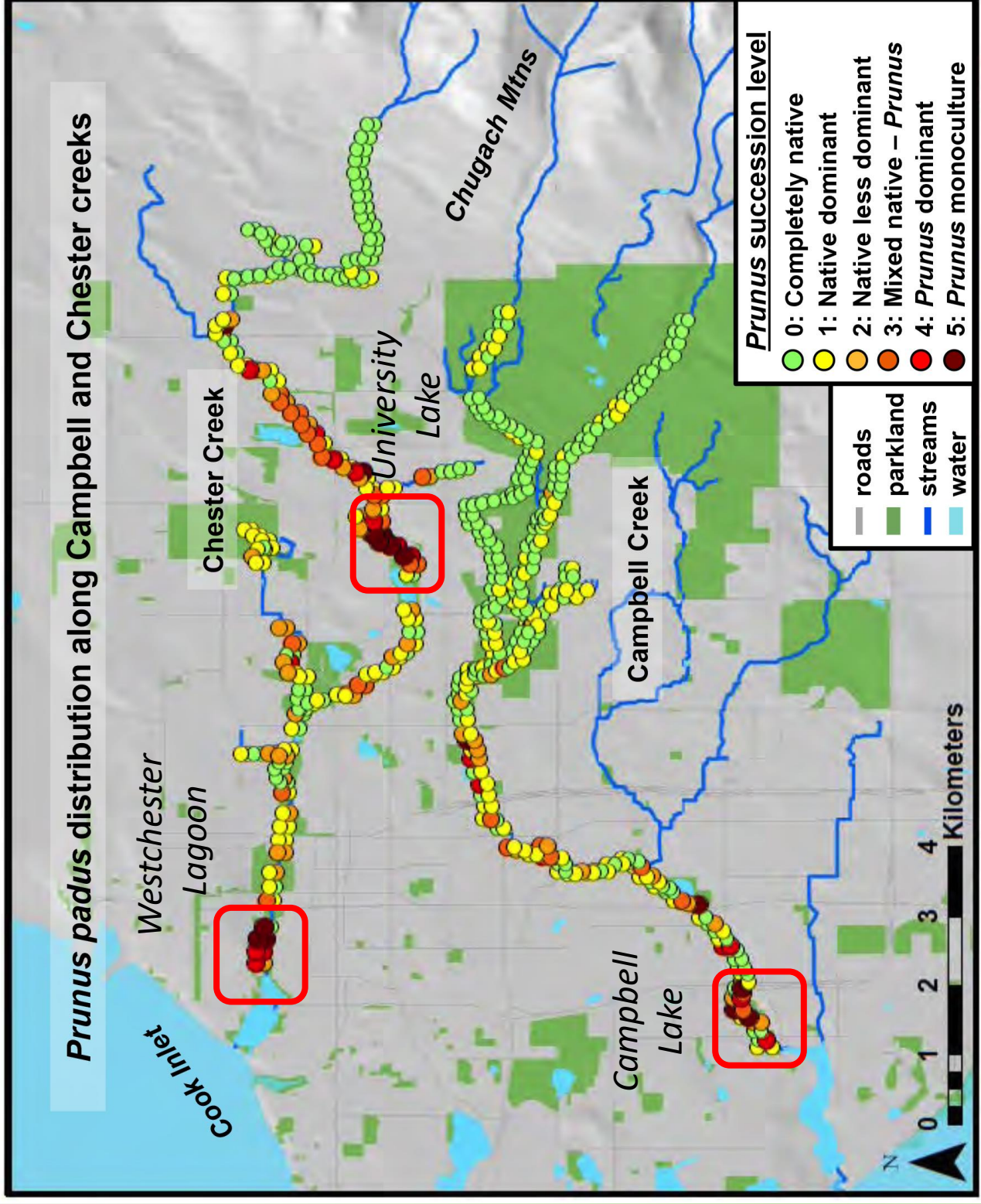
7 68968 52013 7 3.58 GAL/15.77 L

\$38.98

#386291

2010

Birds,
Streams,
Residential
areas



Reed Canary Grass (*Phalaris arundinacea*)



Invasive Removal Project 2013 to 2017







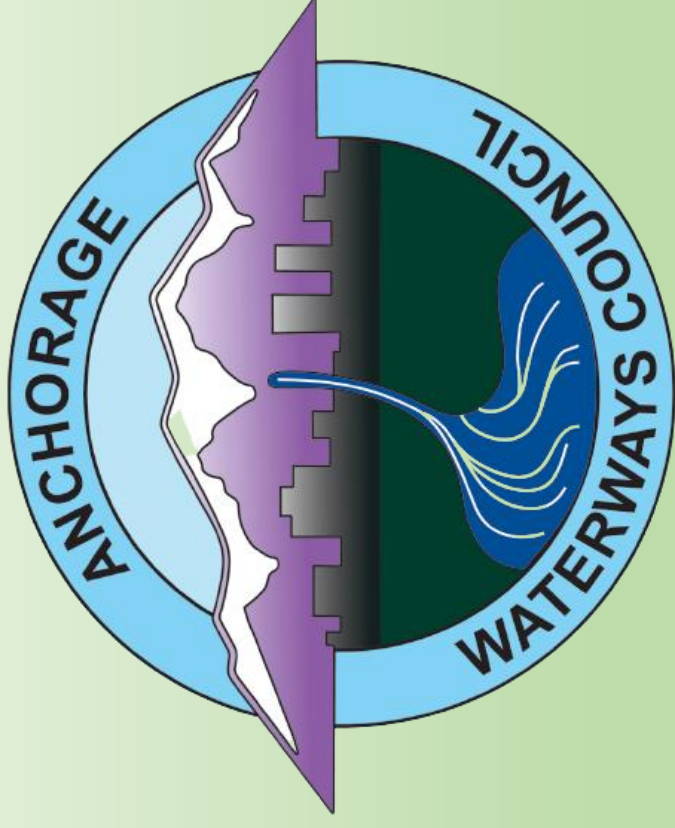


08/27/2017 11:08

In conclusion:

- Please avoid using synthetic chemicals – fertilizers and pesticides
- Be mindful of runoff from your property and what it carries
- Scoop the Poop
- Keep good groundcovers and buffers
- Consider raingardens, rain barrels, and other green infrastructure
- Avoid invasives, plant natives
- Use ice melt products carefully and consider alternatives

Thank you!





Anchorage Waterways Council

• Cherie Northon, Ph.D.
Anchorage Waterways Council

Rotary 5010

March 14, 2020

Mission

To promote the prevention of further environmental degradation; and the protection, restoration, and enhancement of waterways, wetlands, and associated uplands within the Municipality of Anchorage.

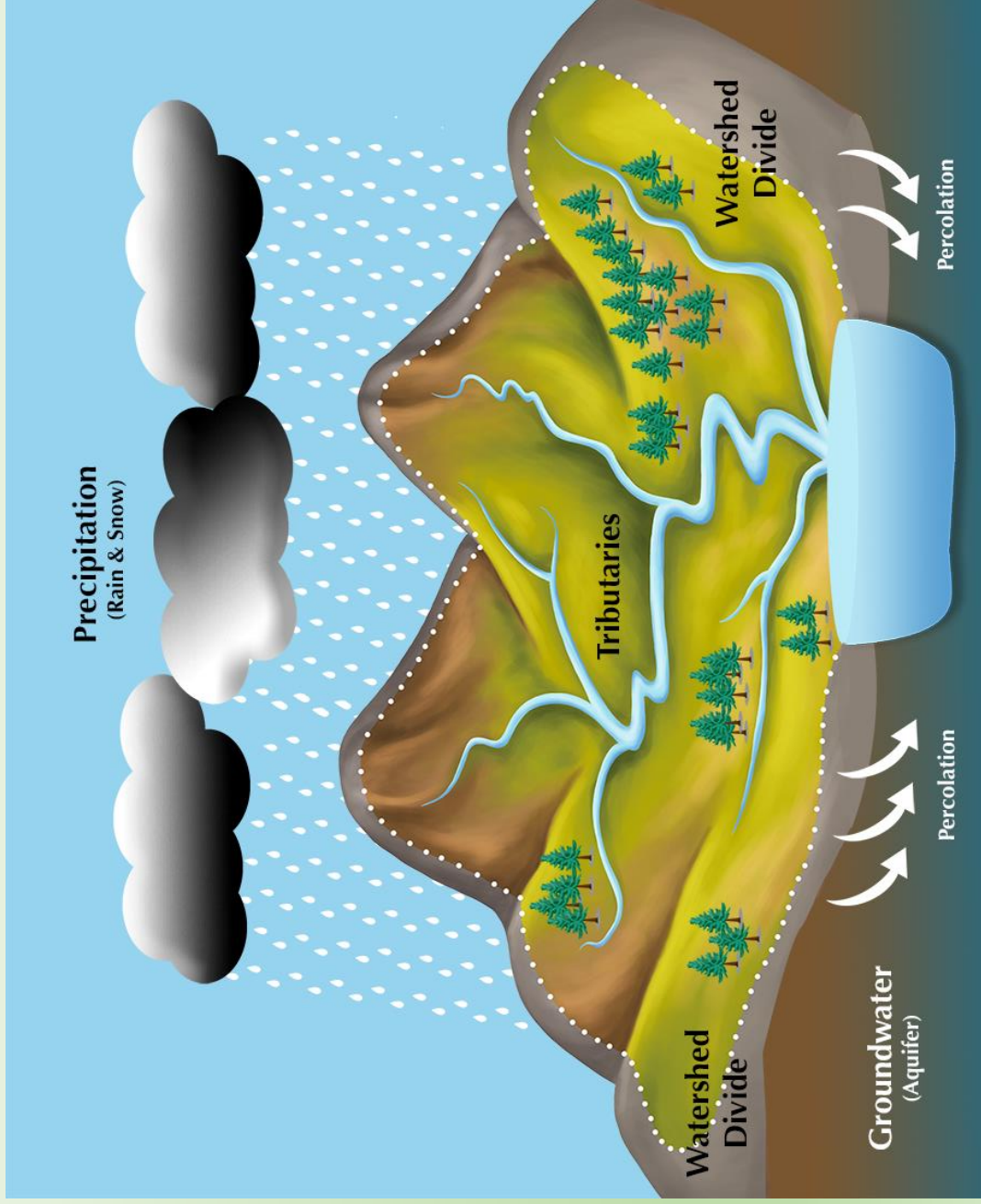
Founded in 1984 as a 501 (c) (3).

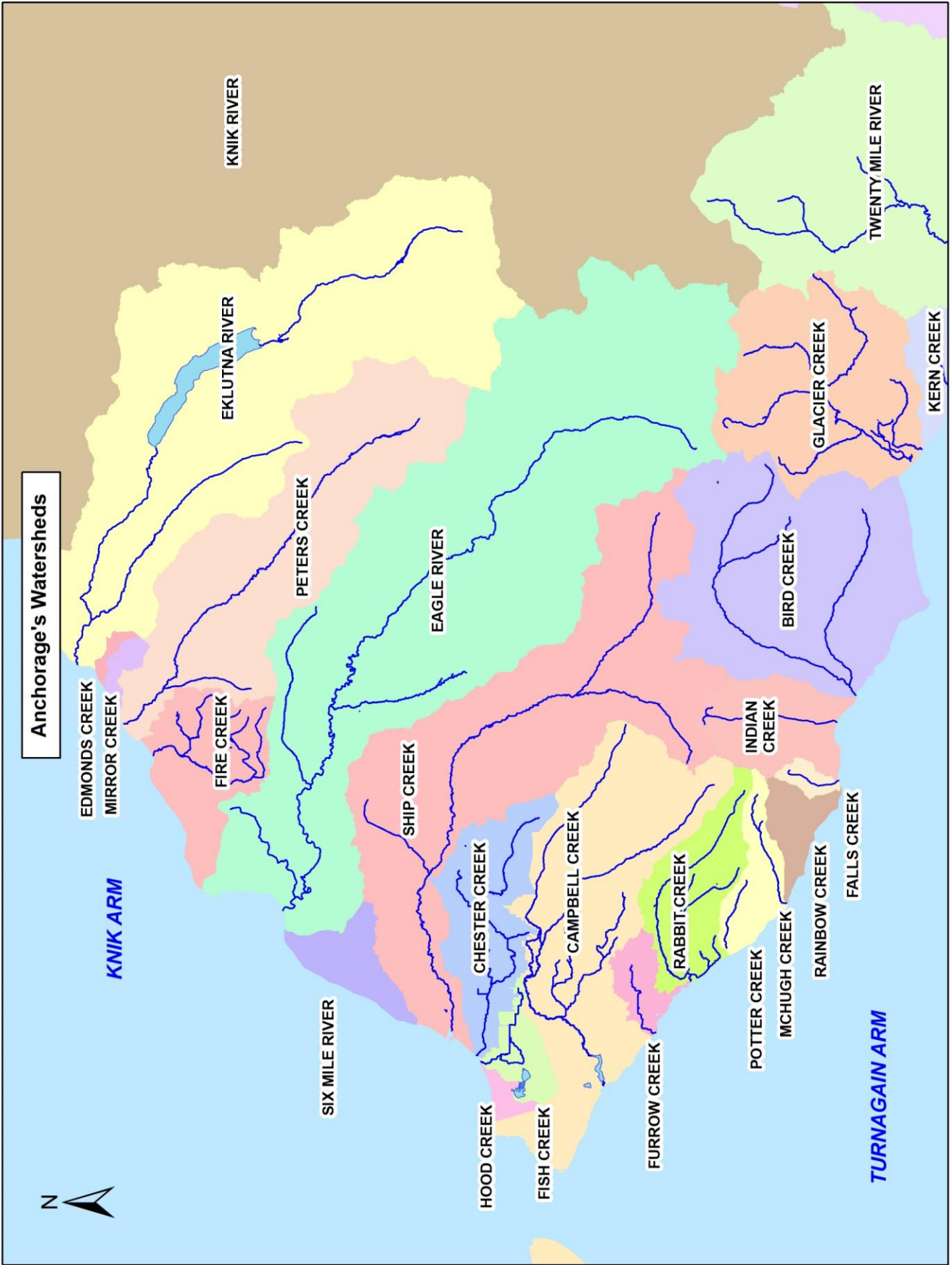
HOW?

Outreach and education

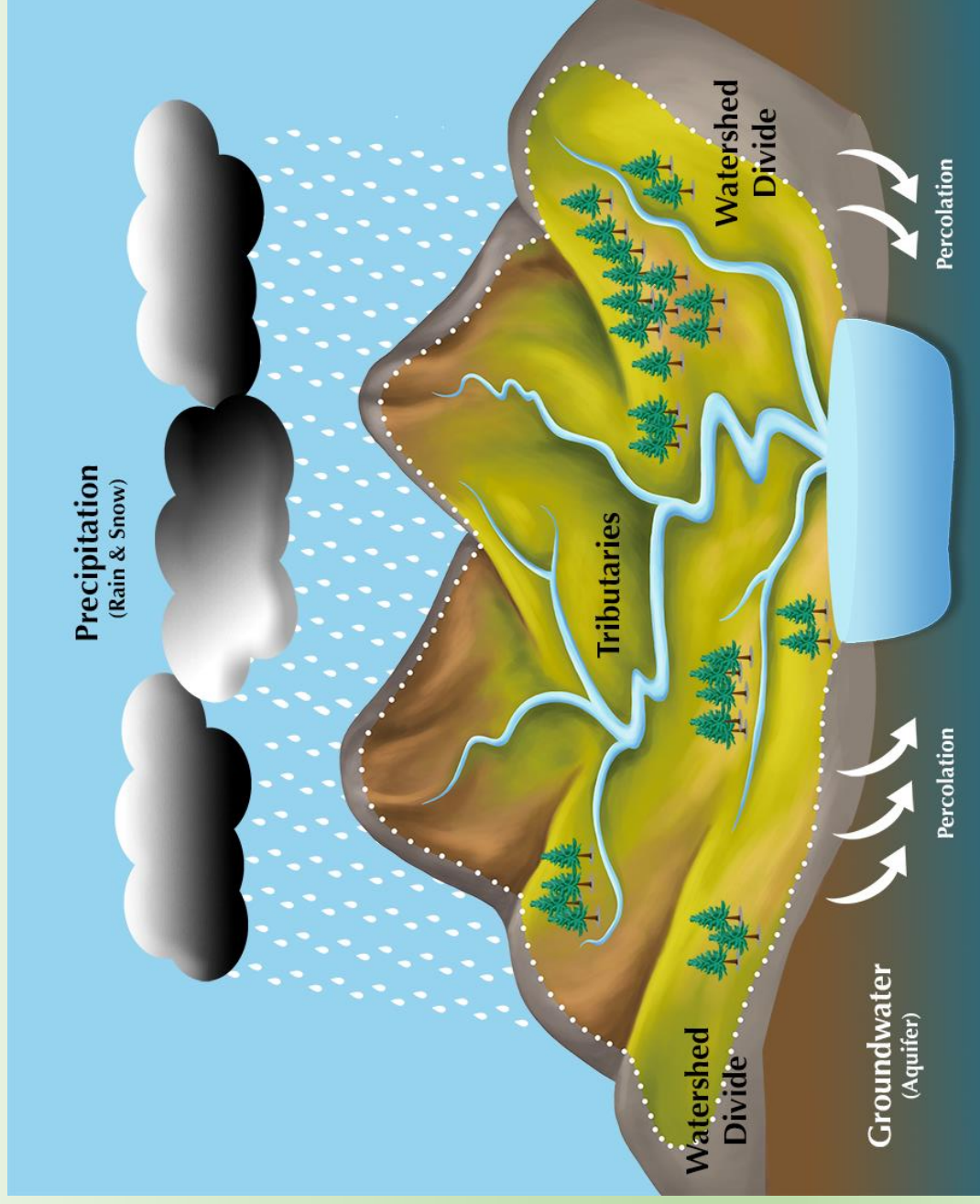
- Events:
 - Annual creek cleanup
 - Scoop the poop day
 - Potter Marsh Day
- Programs:
 - Creeks as Classrooms
 - Adopt-a-stream (suspended for funding)
 - Water quality monitoring
- Projects:
 - Non-point source pollution (NSP) and watershed education for the Municipality (MOA)
 - Analyzing water quality monitoring data for the Department of Environmental Conservation (ADEC)

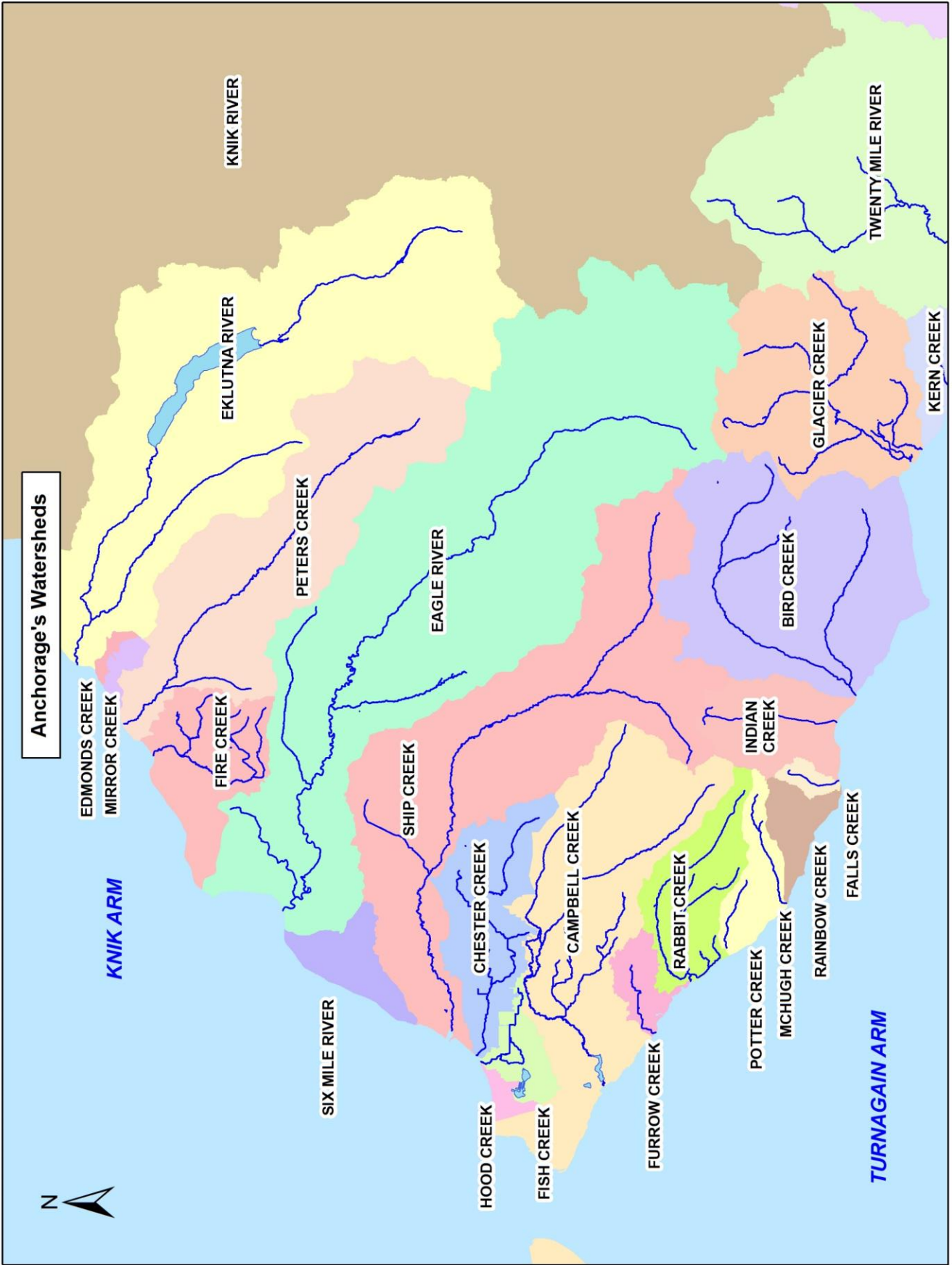
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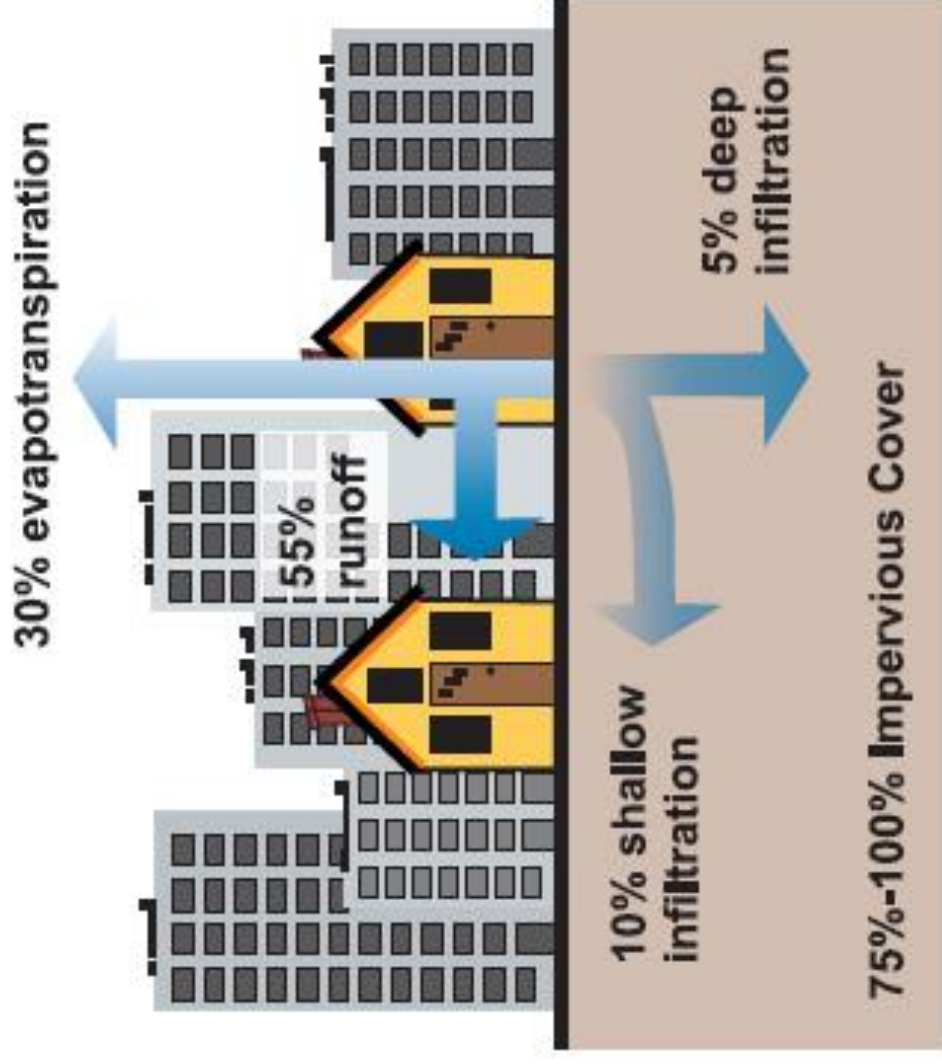
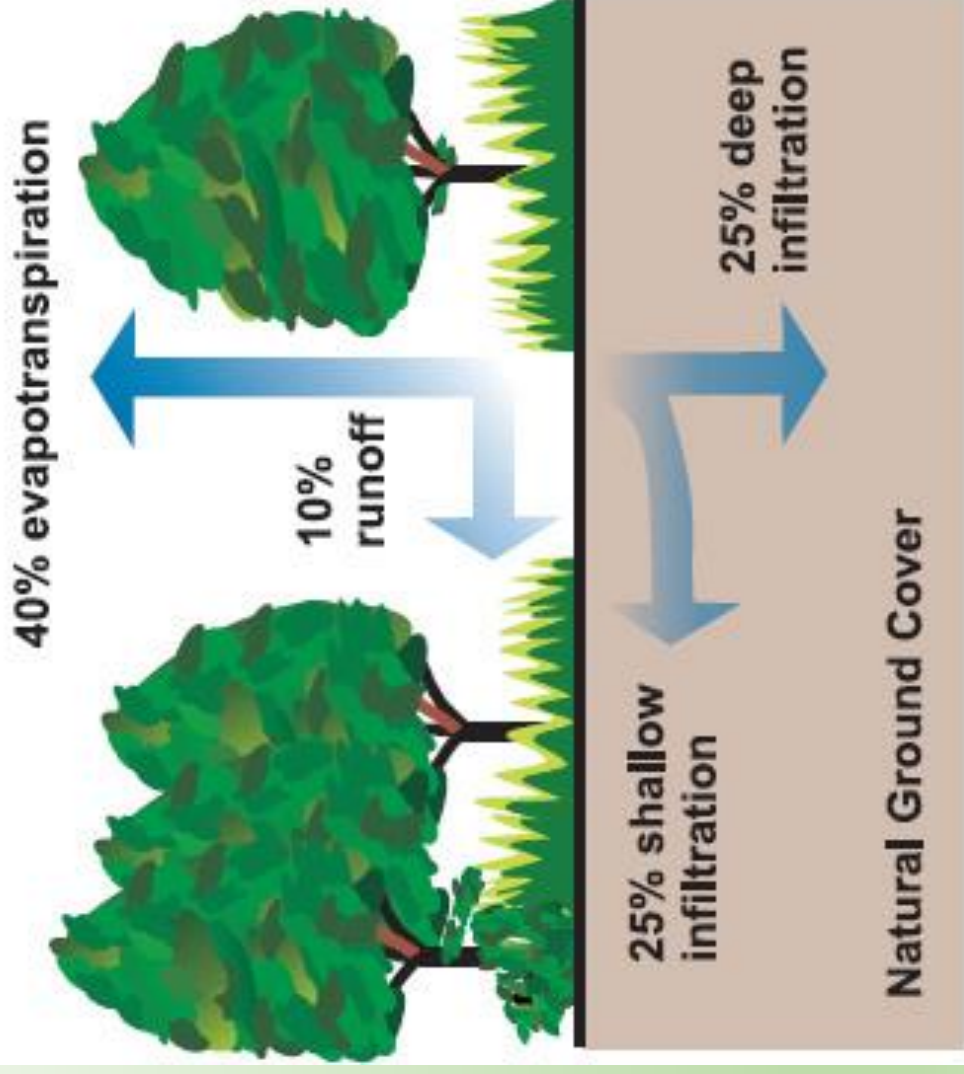


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Stormwater discharge in Anchorage





What can you do?

- Scoop the Poop!
- Reduce or eliminate garden and yard chemicals
- Prevent erosion
- Keep your vehicles in good working order to reduce drips
- Use a car wash or wash your car on the grass using a shut off nozzle on your hose

**Clean up your dog waste.
It could be worse.**



Pet Waste

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 - Recreational activities, e.g. 4 wheelers

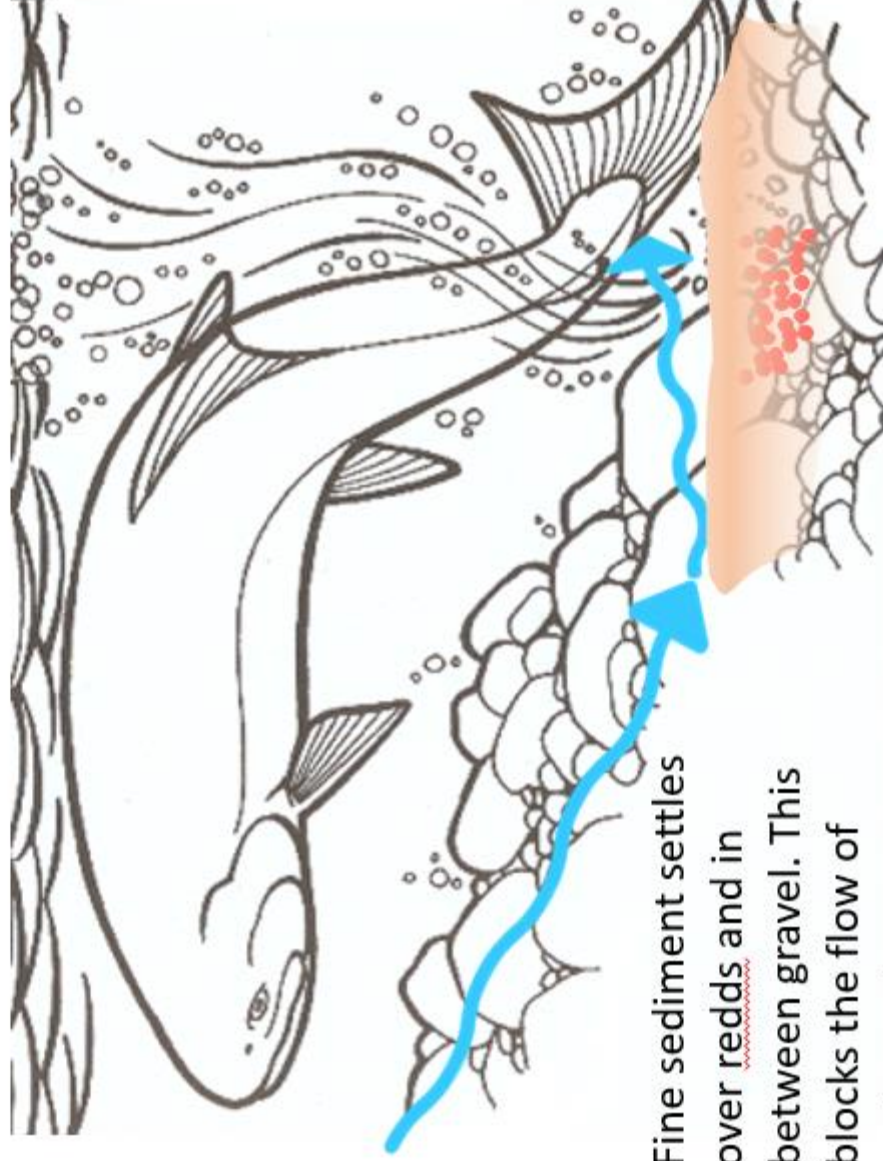




What are sediment's impacts?

- It reduces the amount of light penetrating the water, depriving the plants of light needed for photosynthesis.
- Particles absorb warmth from the sun and thus increase water temperature.
- It can smother aquatic insects that feed fish and other critters.
- It can settle on “redds” (salmon nests).

Fine sediment is **not** suitable spawning habitat



Fine sediment settles over redds and in between gravel. This blocks the flow of water and oxygen.

Less oxygen reduces hatching success.



American Dipper



“Disposal” has been the traditional way to deal with stormwater.

The consequences are:

- the loss of groundwater recharge,
- reduced base flows in streams,
- increased flooding,
- and lower water quality.

Green Infrastructure/Low Impact Development (LID)

Small scale:

- Rain gardens
- Permeable pavements
- Green roofs
- Infiltration planters
- Rainwater harvesting

Large scale:

- Preserve and restore forests, floodplains, and wetlands

Birds, butterflies, and insects find food and shelter in rain gardens. Frogs and lizards may live there, too.

Plants absorb water, trap sediments, and remove pollutants.

A layer of mulch, such as woodchips suppresses weeds, protects soil, and nourishes plants.

An overflow channels any excess water to a safe place.

Collected water nourishes plants and replenishes groundwater as it soaks into soil beneath the rain garden.

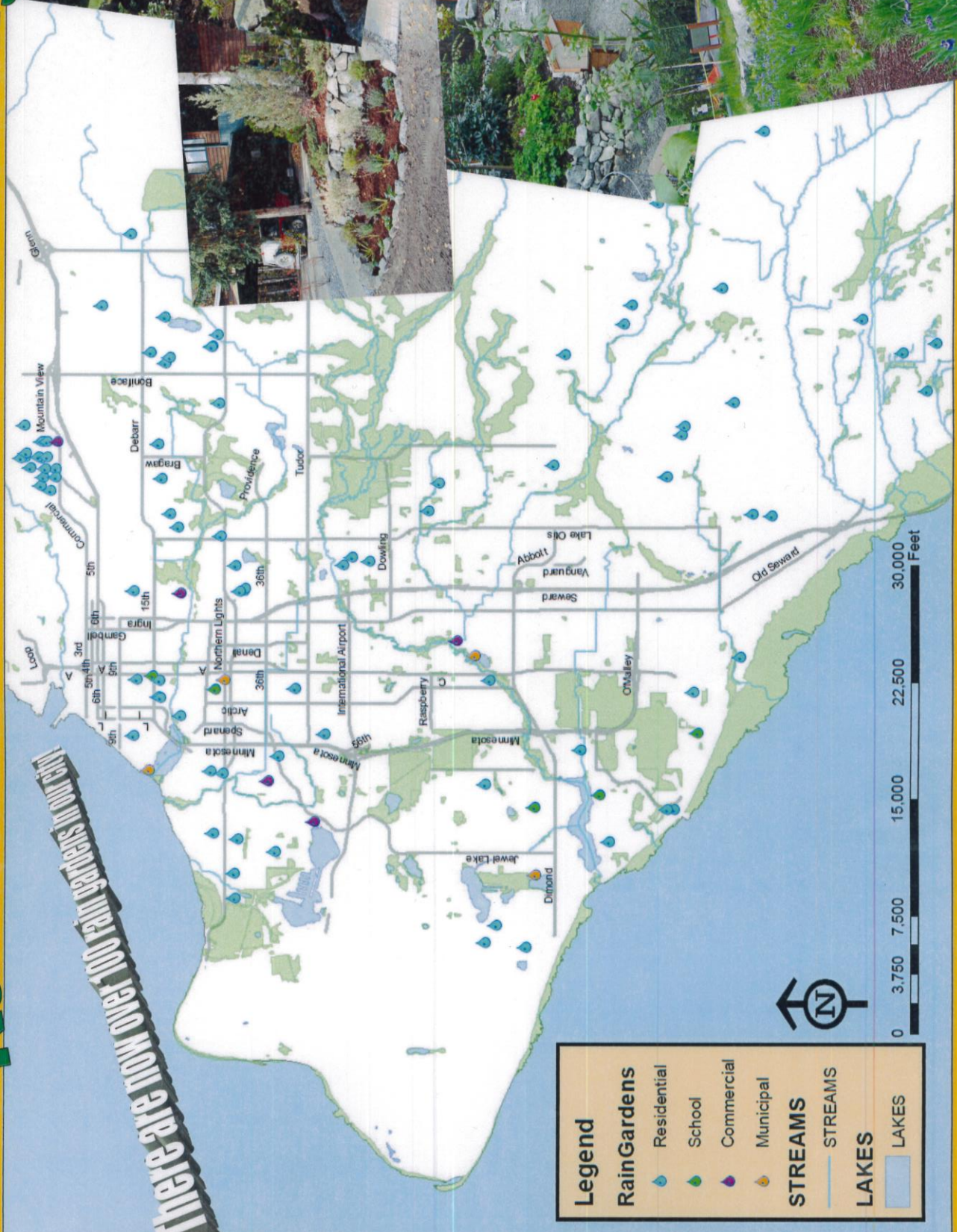
Rainwater and stormwater runoff from roofs, roads, driveways, and sidewalks is directed into the rain garden.

Microbes in the soil convert some contaminants into water and harmless gases.

A well-draining soil mix filters water.

Rain Gardens in Anchorage

There are now over 100 rain gardens in our city



Legend

RainGardens

- Residential
- School
- Commercial
- Municipal

STREAMS

— STREAMS

LAKES

LAKES





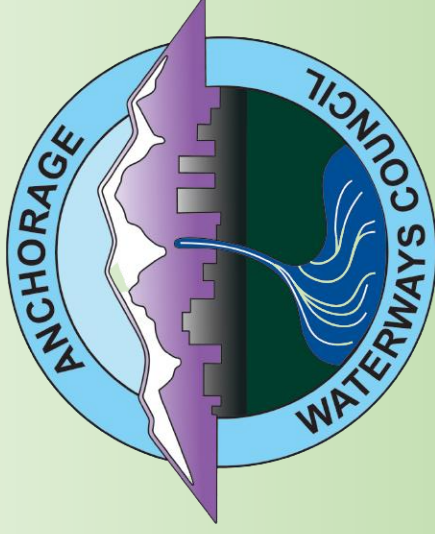
Bioswale or Infiltration Planter Sisters, Oregon



In conclusion:

- Please avoid using synthetic chemicals – fertilizers and pesticides
- Scoop the Poop
- Be mindful of runoff from your property and what it carries
- Keep good groundcovers and buffers
- Consider raingardens, rain barrels, and other green infrastructure

Thank you!



Anchoragecreeks.org

Campbell Creek Watershed Survey Analysis

Cherie Northon, Ph.D.
Anchorage Waterways Council
APDES Annual Meeting
February 26, 2020

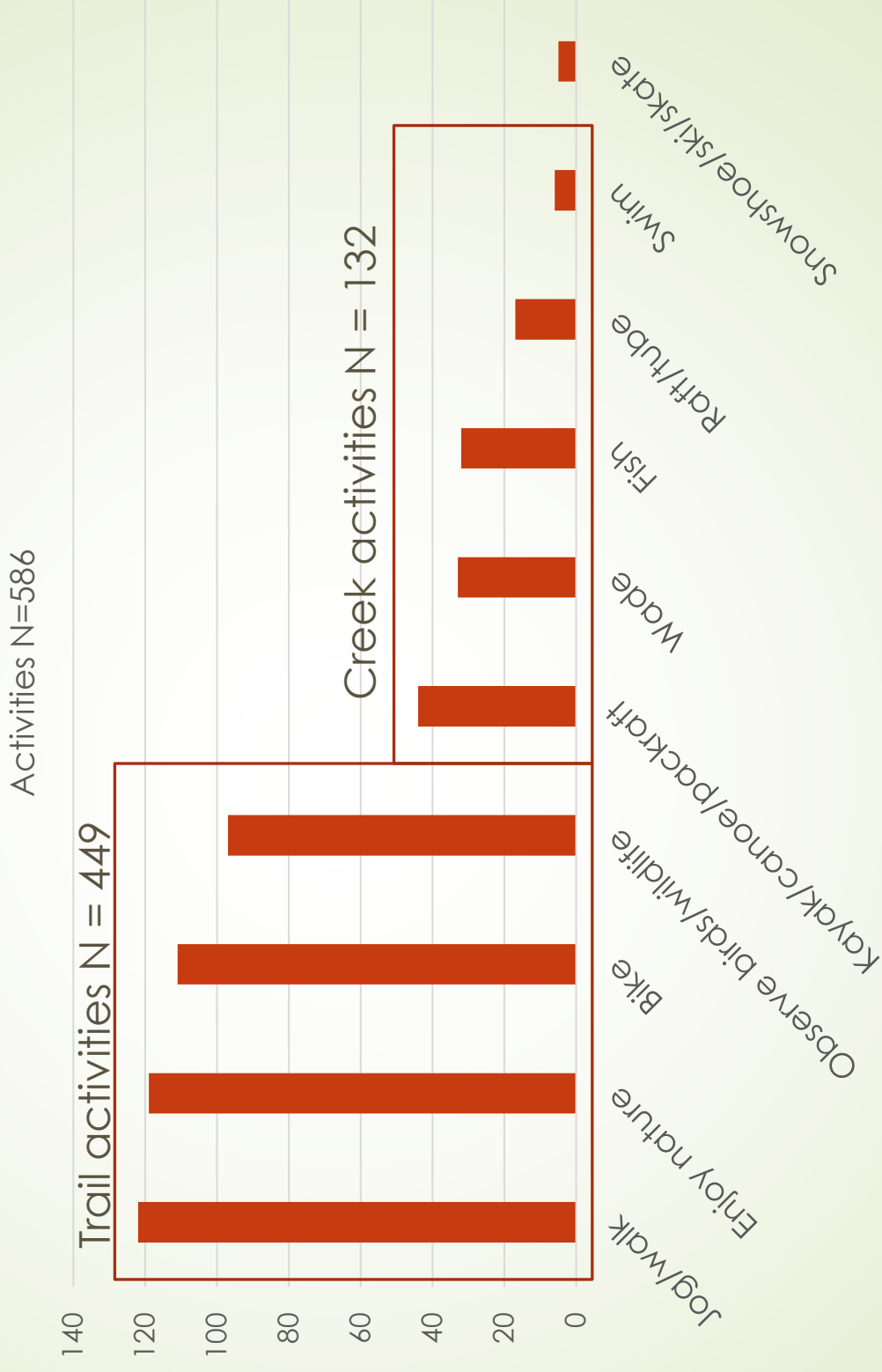
Purpose

- ▶ APDES Permit section 2.7.3 “Complete Watershed Scoping Document” by 2020
- ▶ Beginning in 2016, AWC held meetings with ADF&G, USFWS, DEC, and MOA WMS to determine whether to do a plan, and, if so, which watershed
- ▶ Campbell Creek was chosen:
 - ▶ The Little Campbell Creek watershed plan was done in 2007 so this completes the entire watershed
 - ▶ It’s popular a recreational creek
 - ▶ Minimal culverts – 3 total (radio station, N. Fork on Campbell Airstrip, west of Campbell Lake)
 - ▶ Important to the city’s residents and businesses
- ▶ Solicit input from users
 - ▶ Survey with 13 questions in July and August 2019
 - ▶ 160 respondents

Demographics

- ▶ 57% have lived in Anchorage for over 20 years
- ▶ 48% live in the Campbell Creek watershed
- ▶ 24% live in the Chester Creek watershed
- ▶ 96% (153) said they spend time along Campbell Creek

What activities do you do along Campbell Creek? (Multiple answers)

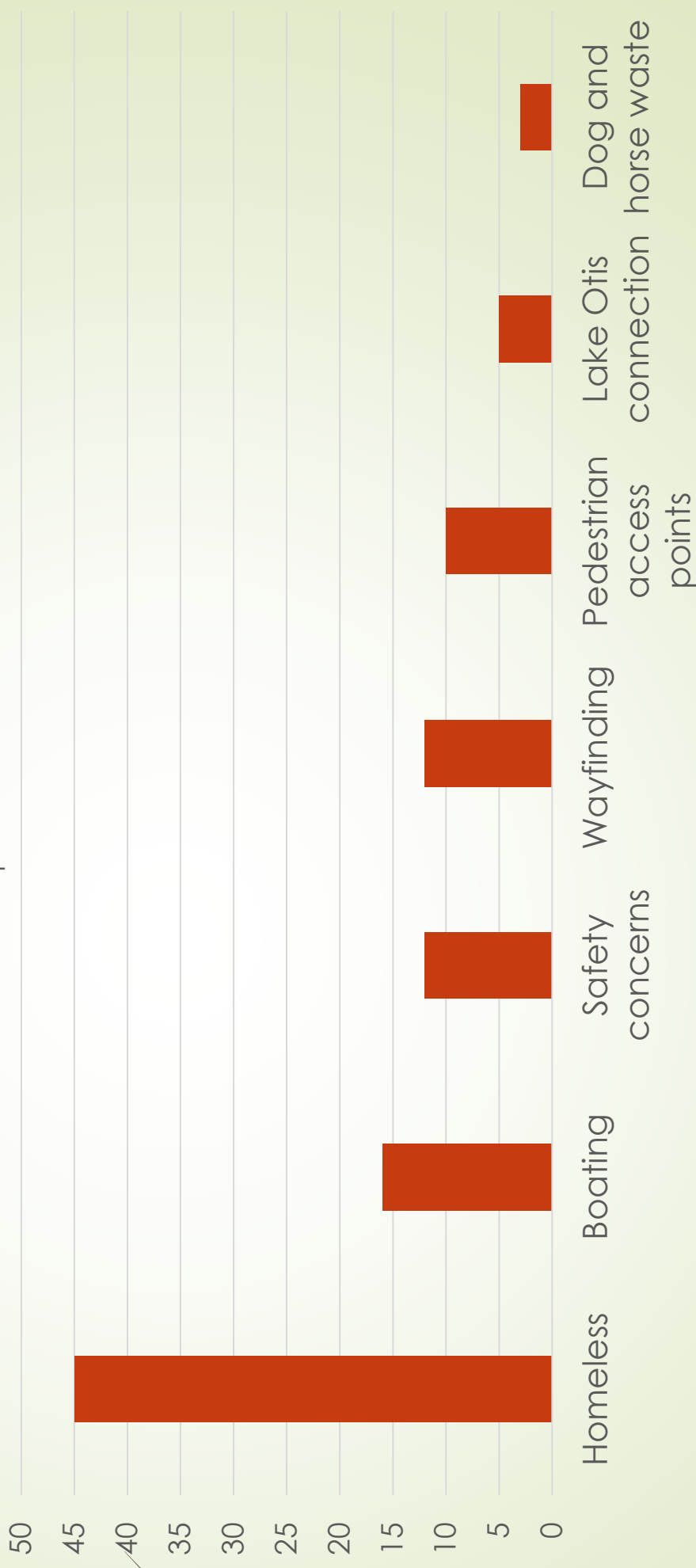


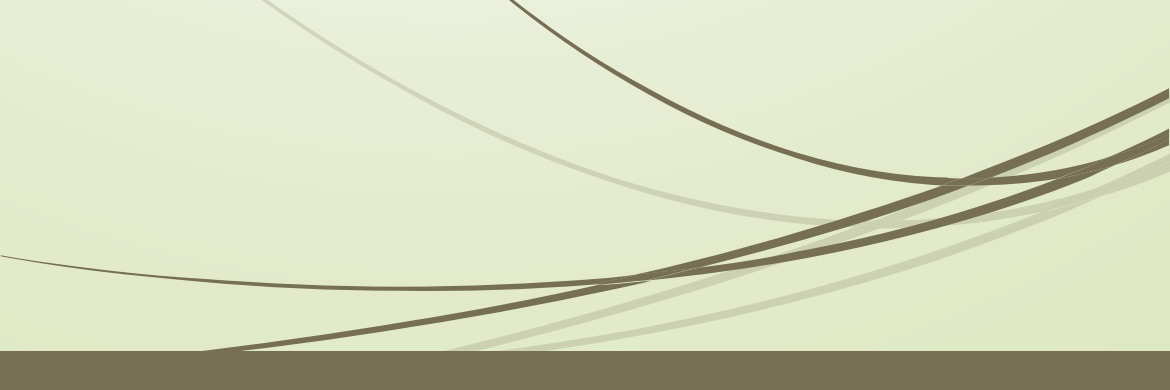
Swimming in Campbell Creek and Alaska Water Quality Standards (WQS)

- ▶ 6 of the 132 said they swim in Campbell Creek
- ▶ Kayaking, canoeing, rafting, tubing, wading, and fishing are “SECONDARY Contact Recreation”.
- ▶ Reduced exposure, generally only limbs are in contact with water.
- ▶ WQS – in a 30 day period, the geometric mean of samples may not exceed 200 fecal coliform/100 ml, and not more than 10% of the total samples may exceed 400 fecal coliform/100 ml.
- ▶ Swimming is considered “Contact” recreation.
- ▶ WQS – in a 30 day period, the geometric mean of samples may not exceed 126 *E. coli* colony forming units (CFU)/100 ml, and not more than 10% may exceed a statistical threshold value (STV) of 410 *E. coli* CFU/100 ml.

Where can recreational opportunities along Campbell Creek be improved? (Multiple answers)

Areas for Improvement N = 103





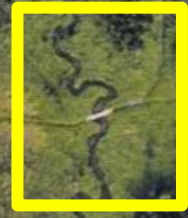
MLK Fire Ground Zero

Write a description for your map.

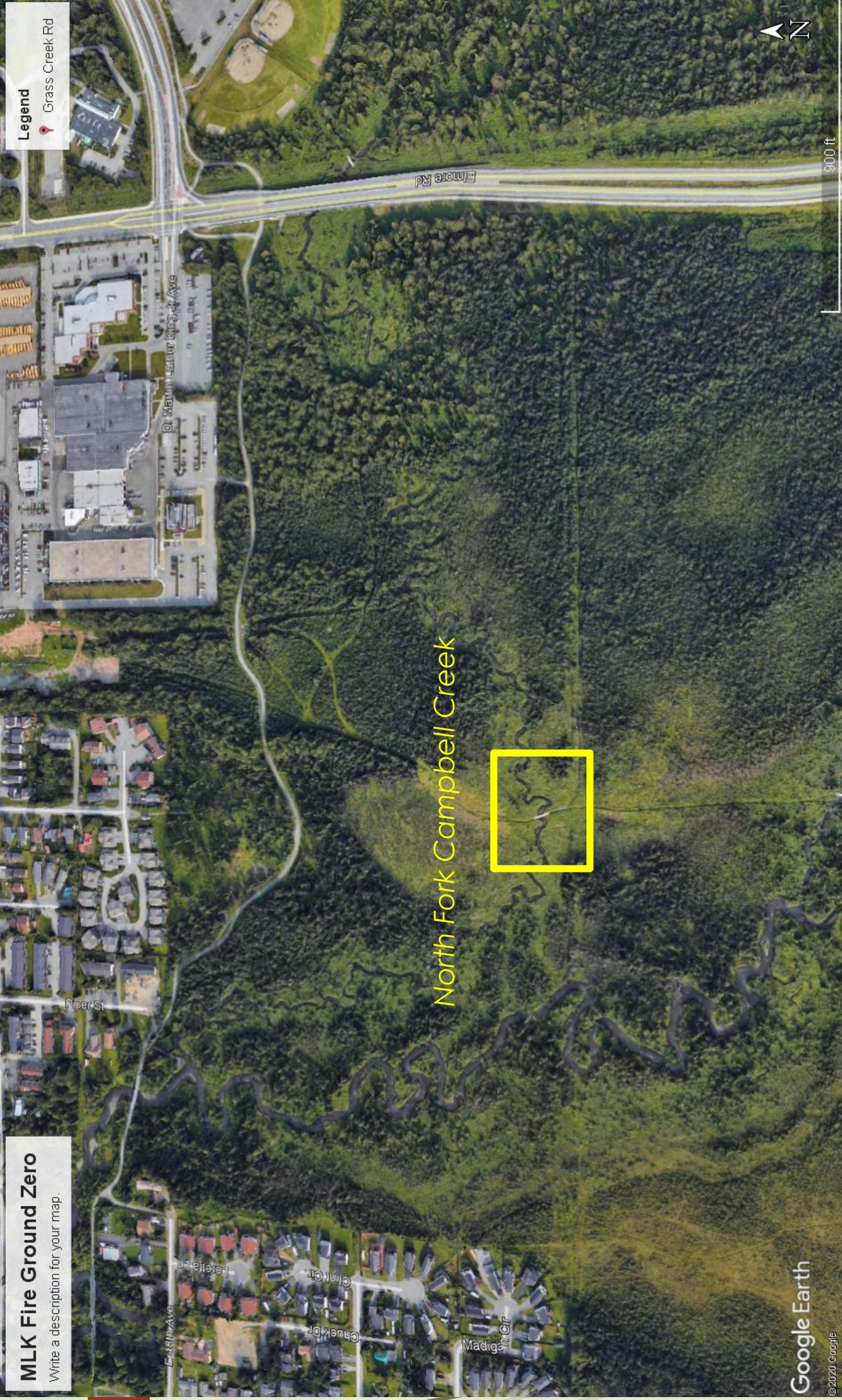
Legend

Grass Creek Rd

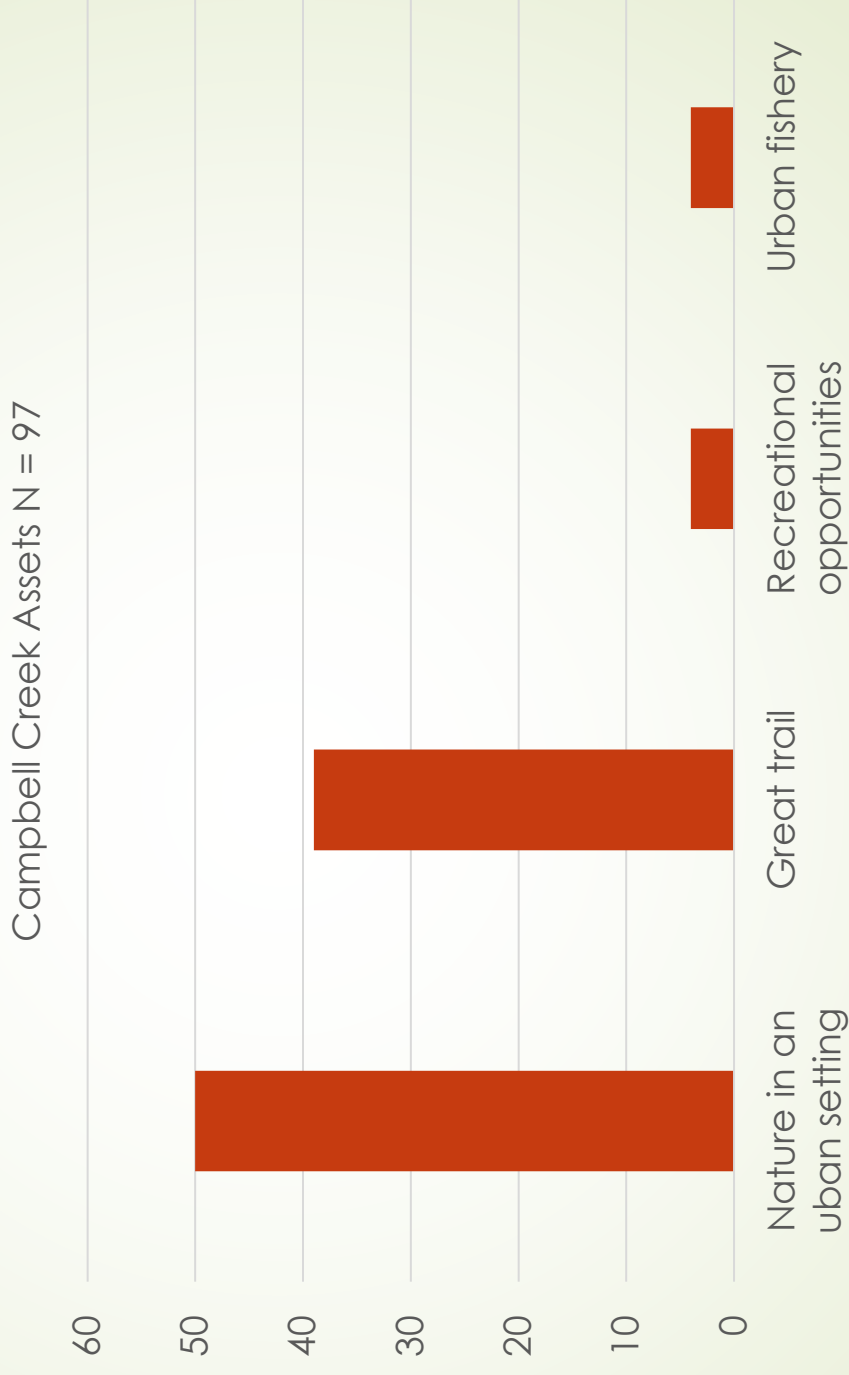
North Fork Campbell Creek



900 ft



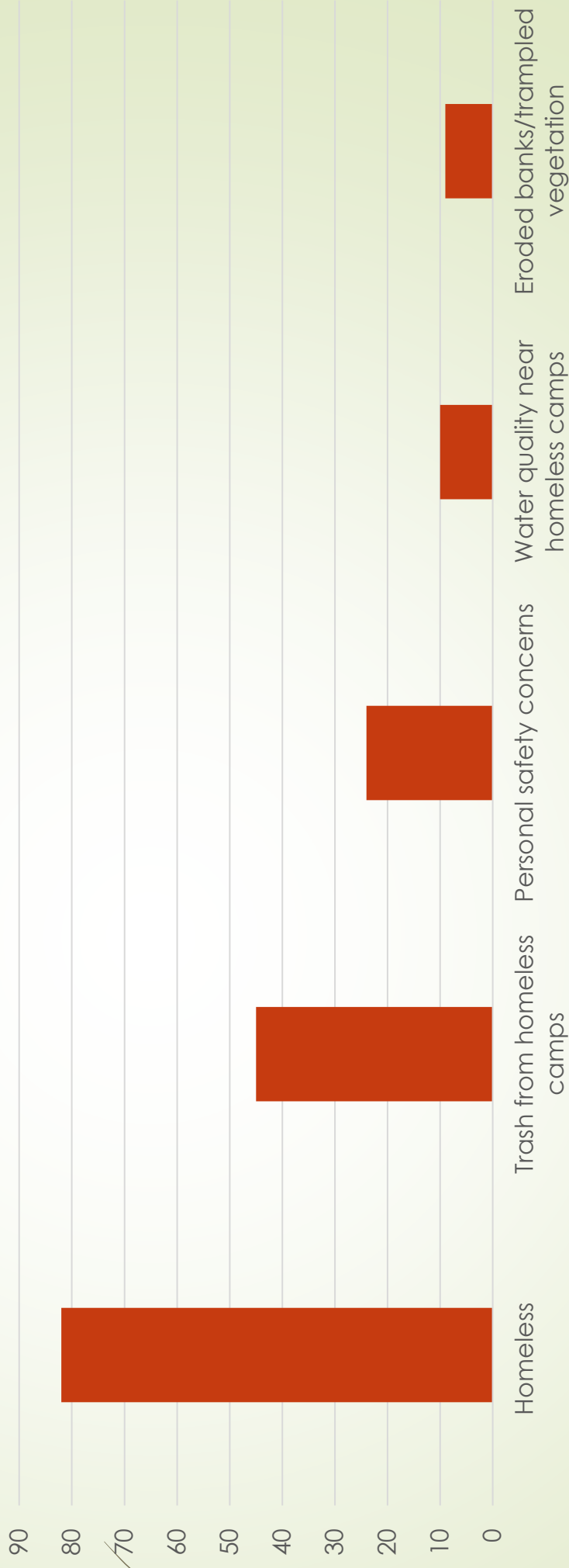
What do you see as assets along Campbell Creek? (Multiple Answers)

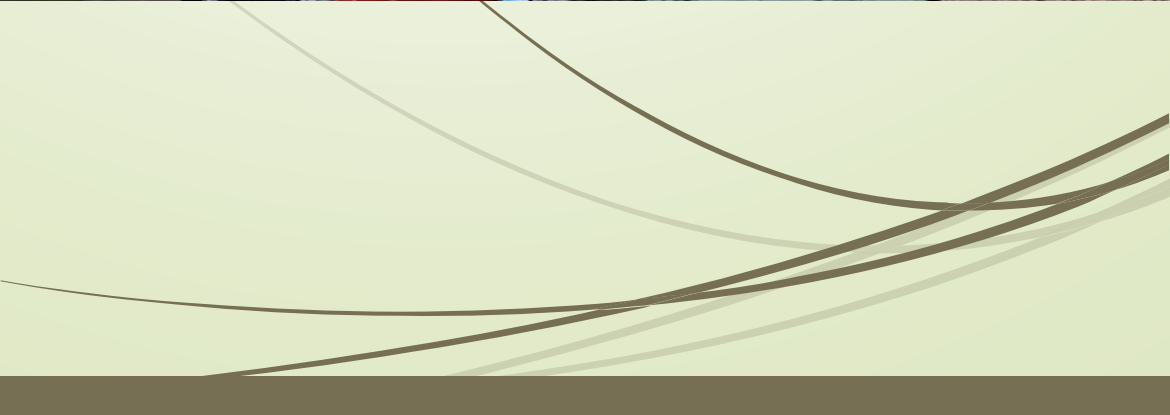




What do you see as detractors along Campbell Creek? (Multiple answers)

Campbell Creek Detractors (N = 185)







These photos are of Campbell Creek, which one do you think has better water quality?



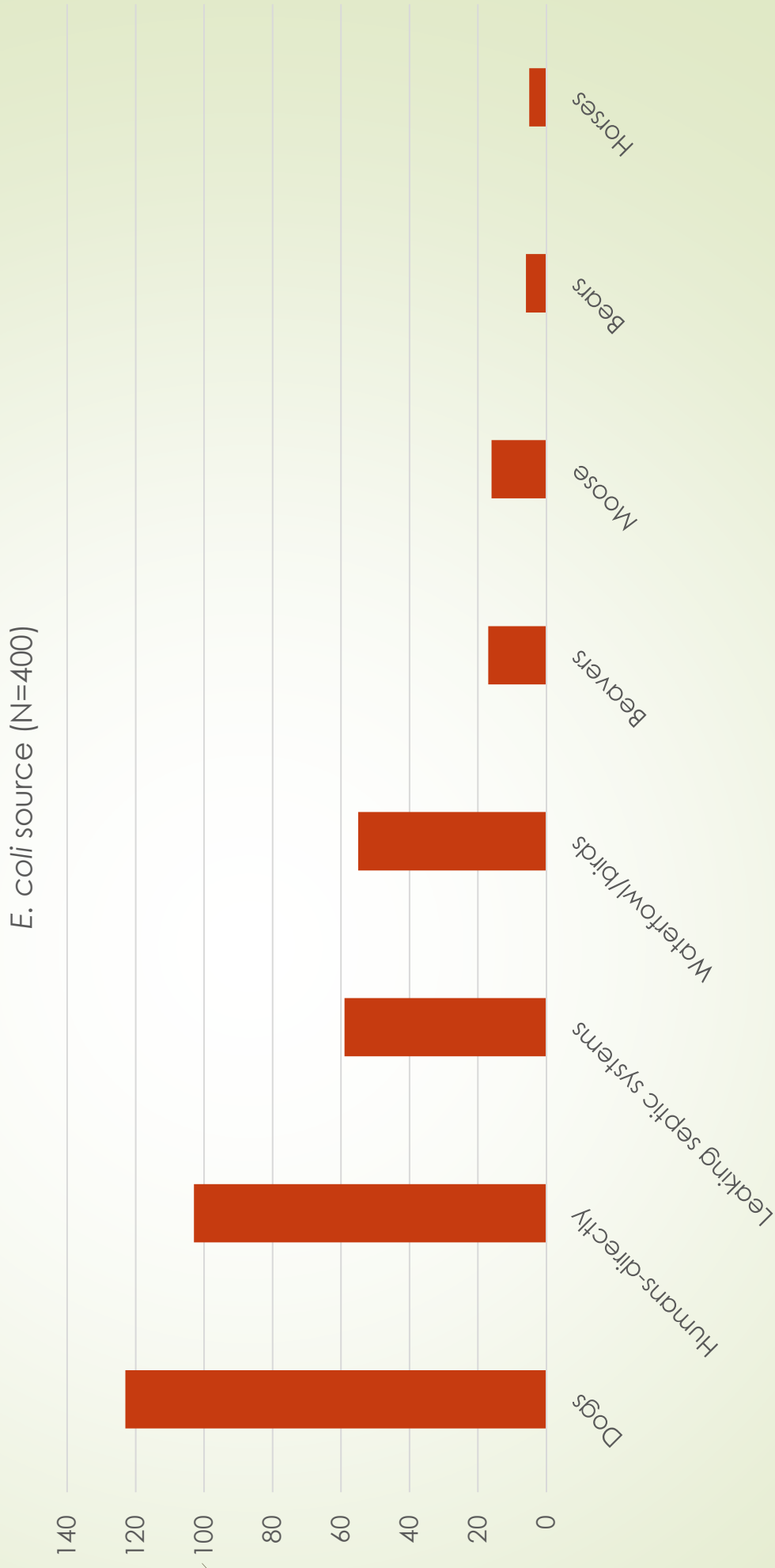
A. 4%

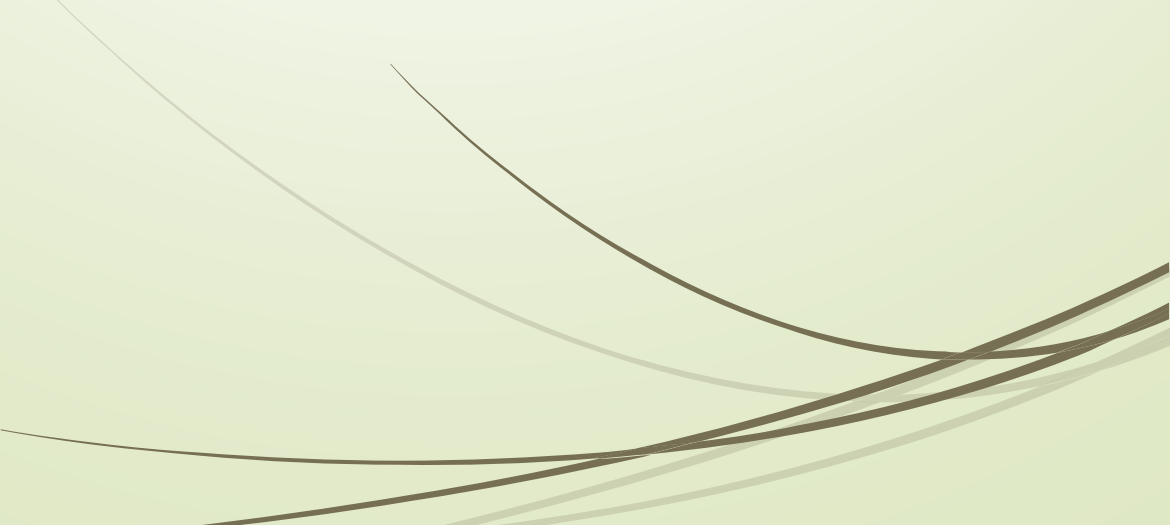


B. 69%

C. NEITHER 27%

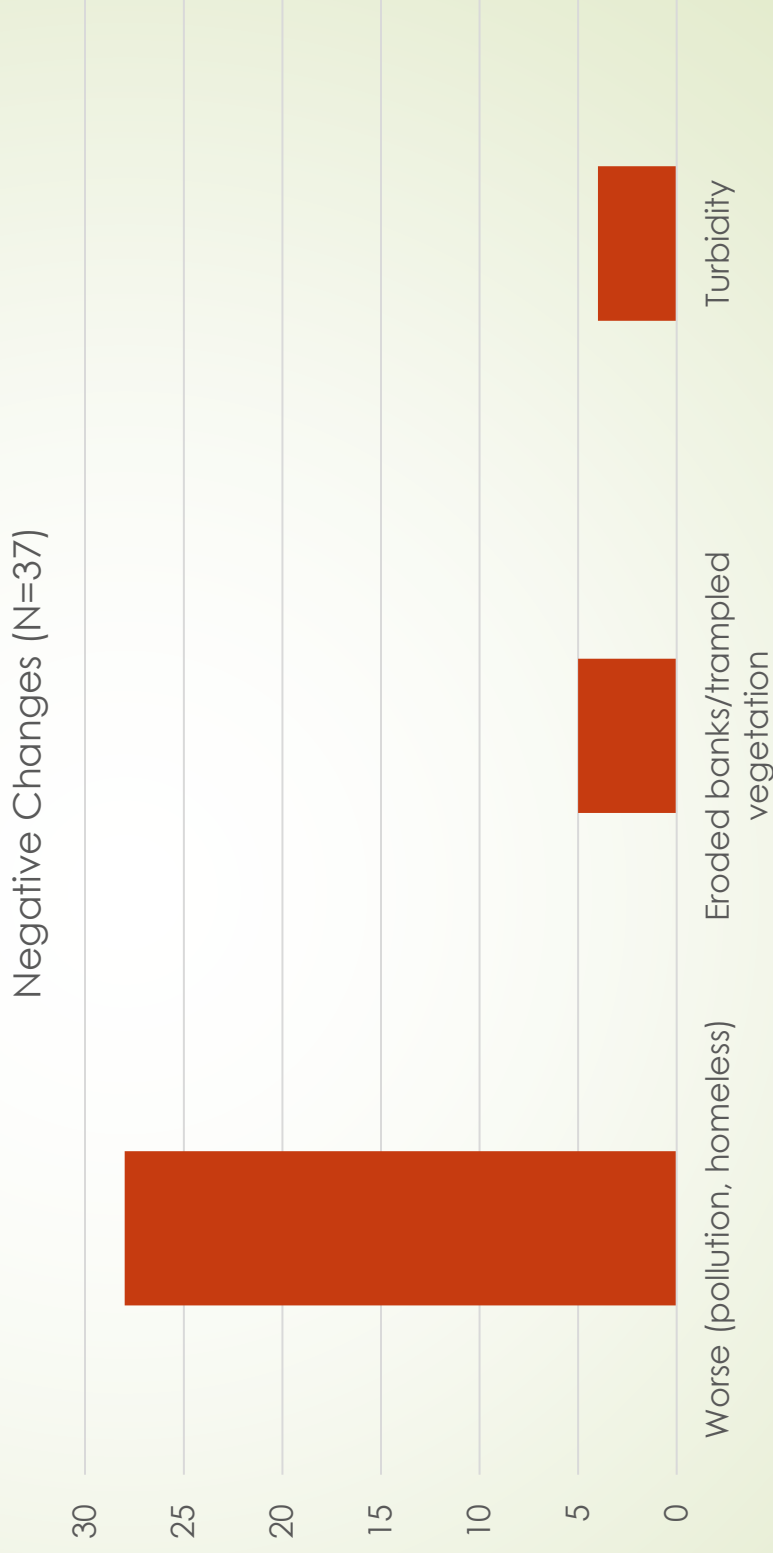
Campbell Creek is on the state's "Impaired Waters List" for fecal coliform bacteria. What do you think are the primary sources? (Multiple answers)

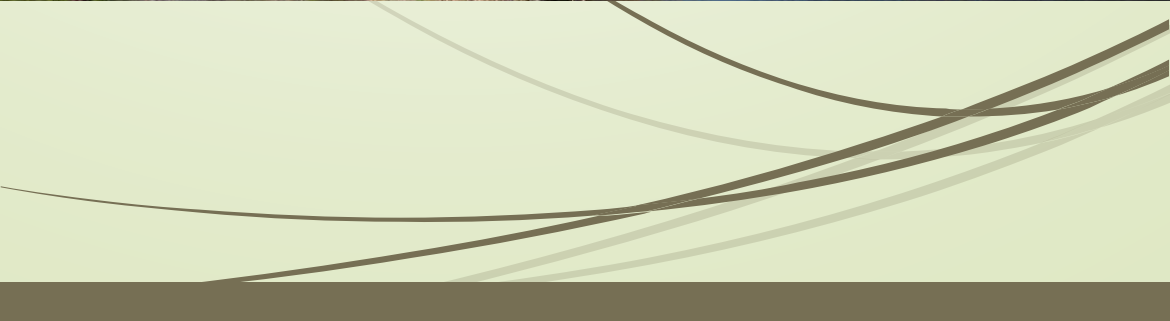




Have you noticed changes in the water quality of Campbell Creek over time?

- 101 (63%) said "no"
- 59 (37%) said "yes"





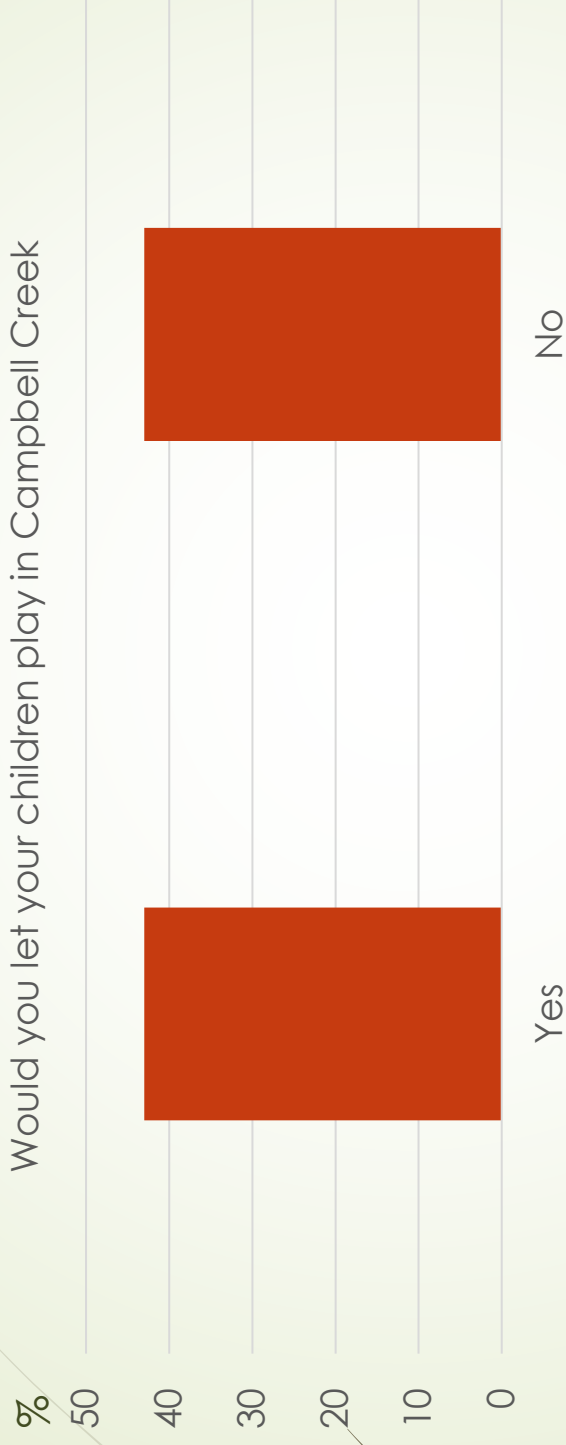
Would you drink water from Campbell Creek?

 **NO!** 145 (91%)

 14 said yes, if filtered

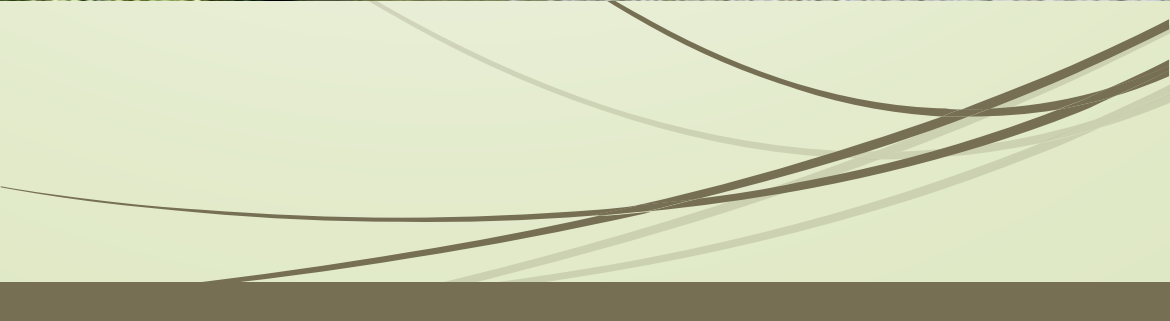
 One said he/she would as they drink the water in S. America and China

Would you let your children play in Campbell Creek?



- ▶ Even number of yes and no
- ▶ Caveats:
 - ▶ Length of time (short),
 - ▶ Limited contact only up to the knees,
 - ▶ If no warning signs were posted,
 - ▶ And, if they were bathed right after.
- ▶ "I even bathe the dog after he's been in the creek!"





Notice of Zone Campsite Abuse

This is not a legal area for storage or shelter. Any personal property placed in this area shall be removed and disposed of as of the end of 10 days.

Lake Otis



For outreach and housing

Personal property placed in this area is not eligible for storage (including identification, shoes, etc.) (907) 343-4137. Materials that are spoiled, mildew, or damaged will not be stored and will be disposed of.

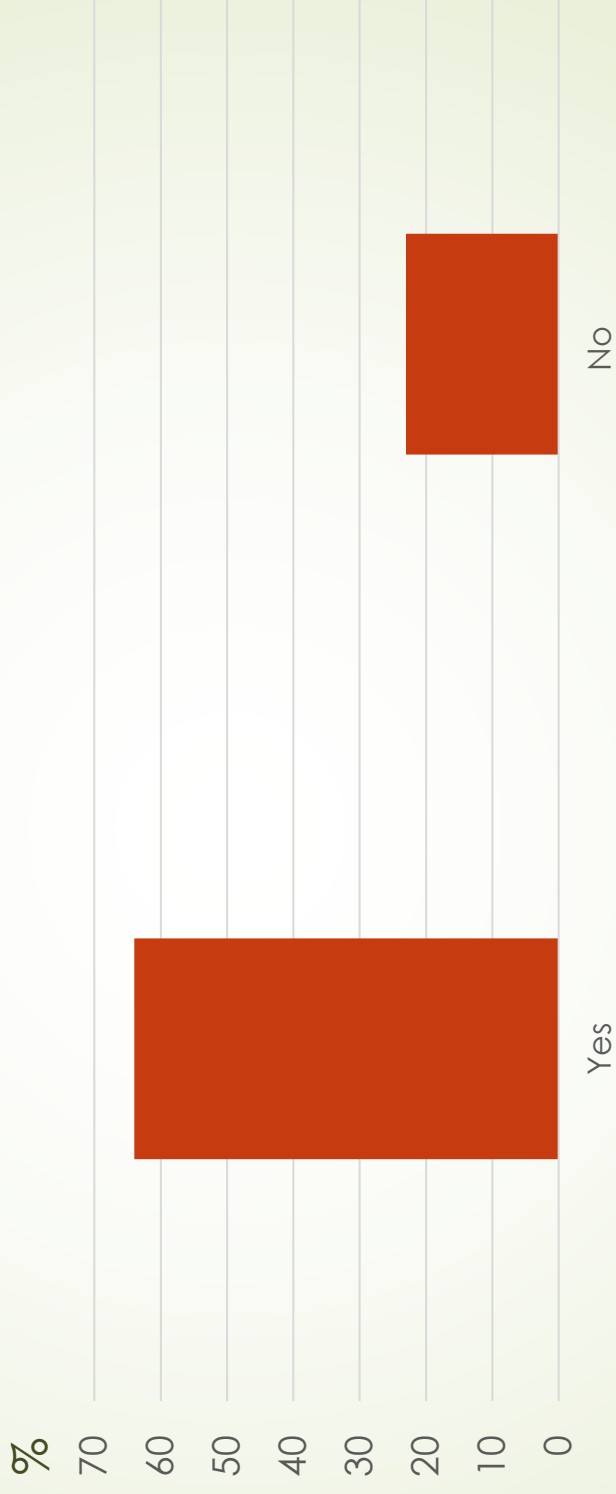
This notice serves as a final warning. Any property placed in this area is subject to removal by the Court within 30 days of this notice. An intent to appeal is also required. An appeal or intent was filed above.

Alaska Superior Court
825 West 4th Avenue
Anchorage, AK

Posting Date:

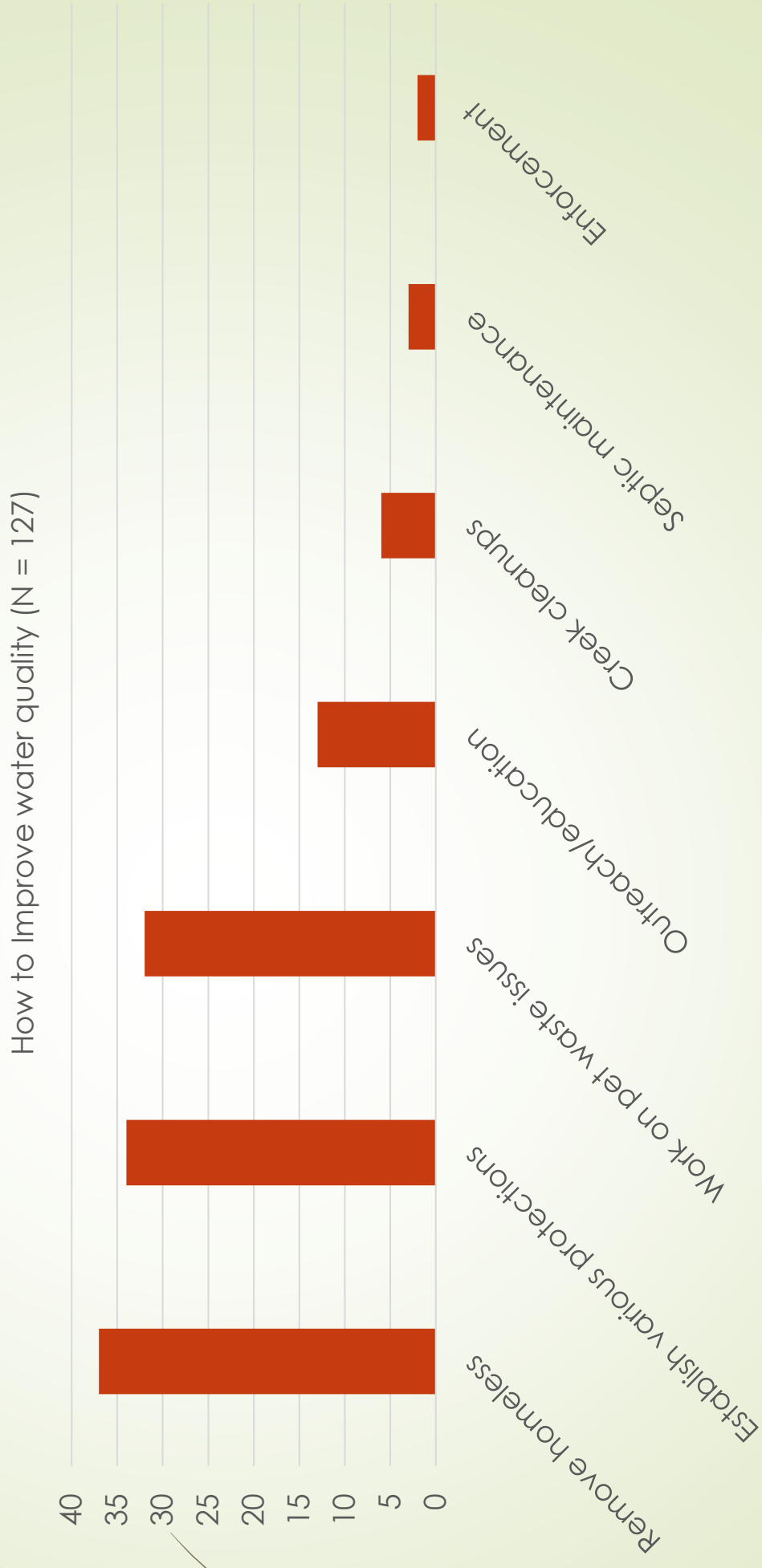
6/11/19

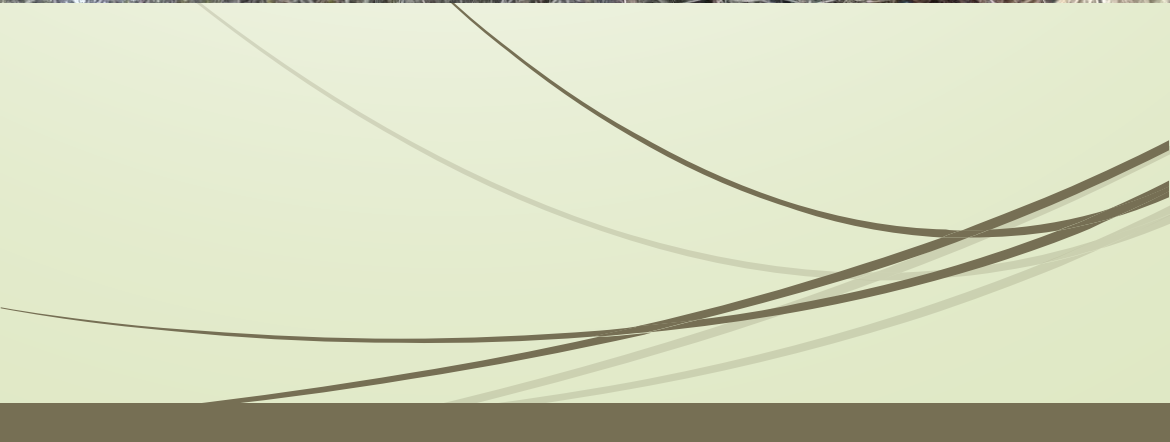
Would you let your dog swim in Campbell Creek?



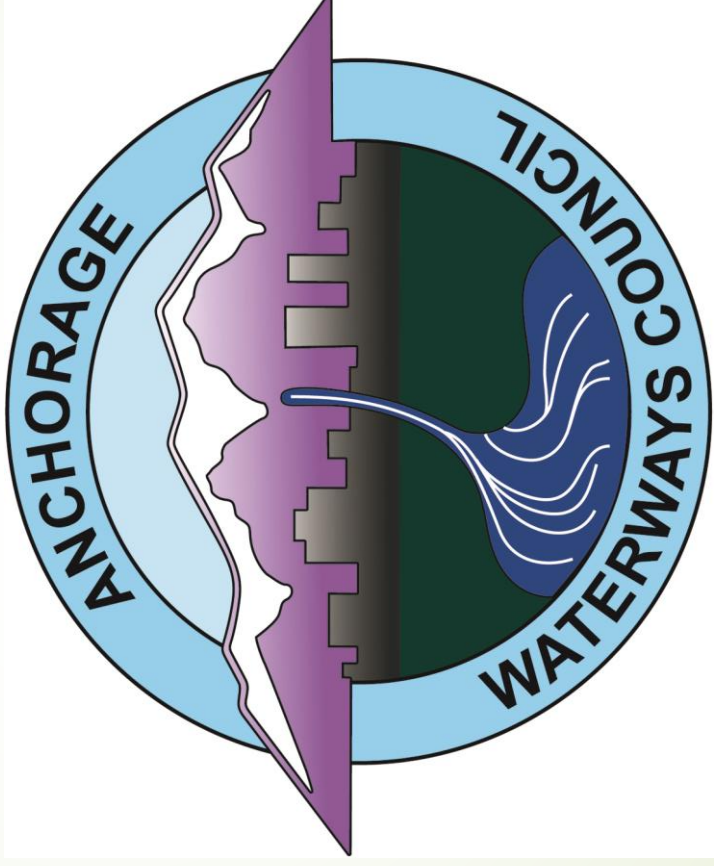
20 of the 160 did not have dogs

If you had one thought on how to improve the WATER QUALITY, what is it? (Multiple answers)





Thoughts? Suggestions? Concerns?



Appendix C



[JOIN](#) or [RENEW NOW](#)

AWC UPDATE 11-26-19:

A message from the Executive Director, Cherie Northon

We all know that there are good people in the world, and there are some "not so good" people. AWC is grateful for all those who are working with us to fulfill our mission of preventing environmental degradation of Anchorage's waterways while also protecting and improving them.

Unfortunately, this spring we found a business that was capitalizing on our efforts by using AWC's name to solicit funds while keeping the profits for themselves. In 2015, this downtown business had a very successful fundraiser which provided us with a nice donation. After that, we heard nothing from them until this spring when we were alerted to the fact that between 2017 and 2019, they resumed fundraising on our behalf. They not only didn't let us know about the various fundraisers they held, but they also kept the proceeds. Despite bringing this to their attention recently, they issued denials as well as claiming that they didn't take money in for their raffles.

While this is the exception, it is still very sad that an Alaska licensed business corporation apparently found it okay to use a non-profit for soliciting contributions that they in turn kept. We have had other businesses raise funds the same way, and they have always provided them to us--and we are thankful for that.

What we would offer for this experience is to ask that donations for AWC be either sent directly to us or you can go to our website and use the "[Join Now](#)" button to donate funds. And, if there is a fundraiser that you have concerns about, please contact us.

Fortunately, there are still good people out there. Over the past several years, AWC has received free lab analysis for fecal coliform samples from another Anchorage business--SGS Laboratories. This translates into thousands of dollars on behalf of local waterways, and is in sharp contrast to the other business capitalizing on our name. We are humbled and very grateful for their generosity.

Monitoring Update

Our August newsletter covered AWC's long-term volunteer monitoring program, and shortly thereafter we gained 5 new monitors! We now have coverage on Chester Creek at 5 sites, 2 on Campbell Creek, one on Rabbit Creek at Potter Marsh, and one at Eagle River Nature Center.

Chester Creek is also part of a new study from an NSF grant at UAA. AWC board member, Birgit Hagedorn, Ph.D., is looking at the environmental impacts of winter road deicing treatments on our waterways. Along with our standard tests (pH, dissolved oxygen, turbidity, temperature, and fecal coliform), monitors will now be checking for specific conductivity. Testing for conductivity in water will provide data on the presence of sodium, chloride, and magnesium which can be in stormwater runoff. Water samples will also be provided to Dr. Hagedorn who will analyze for anions and cations, organic acids, and total organic carbon. The 4 year study began this fall.

We are exceptionally grateful for our volunteer monitors as well as the funding that is provided for this program from members and business donations. Despite the desirability of our data by agencies

and other entities, AWC's monitoring program is NOT funded by grants or other programs.



Matt and Ellen taking a sample on a VERY rainy day on Chester Creek by Arctic



Matt, Kelly, and Ellen testing for turbidity on Chester Creek by Arctic



Shannon taking the temperature of a Campbell Creek sample near Piper

AWC's 7th Annual Beer and Bites

On October 12, AWC held its seventh annual Beer and Bites at the Alaska Zoo's Gateway Hall. This has been such a fun event over the years especially as it has evolved. Initially it was held in Midnight Sun's brewing area among the tanks of their great beer--which they have generously donated every year. Last year we moved into MSB's warehouse area where we were allowed to have "live" entertainment for the first time because it was offsite of the brewery.

Most of you are probably aware of the tussle between microbreweries and the Alcohol and Marijuana Control Board's recent move to adopt stricter regulations in regard to "entertainment" on the premises of breweries. Fortunately, citizens protested loudly and the new regulations were not approved in November, however our event happens in October so we decided to hold it at the zoo this year. MSB still graciously provided us with 4 beers on tap, and our board members soon became quite proficient servers.



Board member Adam McCullough at the tap

Did you know that almost all of the food is provided by AWC's board and staff? Yes, we pull out our favorite recipes for this event. Some of the great things this year were vegan yellow curry, meatballs, elk smokies in a blanket, bacon-wrapped dates, stuffed

mushrooms, mozzarella balls and tomatoes on a stick, smoked salmon dip, pimento dip, and more. There were several varieties of cheese, bread, and most of the vegetables were Alaska-grown from Anchorage's farmer's markets.



The staff and board also work hard to find interesting and coveted silent auction items. This year we had round-trip tickets to Denali on the Alaska Railroad; framed imagery of Denali and early Anchorage; a "Woody the Frog" print by V Rae; yoga, Qigong, and massage packages; 3 dog baskets; wine; children's music lessons; raft rentals; a ShuzyQ party; and much more.

One of the main highlights of the evening was the [Tanana Rafter](#) group, a local bluesy-rock band. Check them out!



One table of the silent auction



Food, friendship, and music!

If you want to know be notified about Beer and Bites in fall 2020, drop us an [email](#) and we'll put you on our list.

How can you help AWC maintain healthier creeks?

Pick, Click, Give - our largest single annual donation comes from [Pick, Click, Give](#). And, this year was no exception despite the on and off again debates about the PFD amount. So, a HUGE thank you to those who continue to support us and other non-profits through their generosity.

Fred Meyer - link your rewards card link to Anchorage Waterways Council. This is a win-win situation for everyone. To renew or sign up, go to [Fred Meyer Rewards](#) and follow the directions. Our Fred Meyer organization number is 88984.

Amazon Smile also donates a portion of Amazon purchases to various charities. [This link](#) will give you information on what they do and how to sign up.

AWC Membership--Renew or Join!

Being a member of AWC means that you care passionately about the well-being of your own environment. We work to keep the waterways clean, clear, and of value to all. From clean water and recreation to creating a general feeling of well-being, our waterways need protecting for our own benefit, as well as for the countless other species that rely on them. Adding your name to our membership means we can make a stronger stand when it comes to the issues that can affect us all--so please

consider becoming a member today! AWC is a 501 (c) 3 non-profit and memberships and donations are tax deductible.

It's easy, you can go online at www.anchoragecreeks.org and click the "**JOIN NOW**" button, to join, renew or donate, or click the "**Join or Renew Now**" button at the top of this email. We are now set up to do recurring payments as well! This can be as simple as \$5 or \$10 a month, but it adds up BIG for us. If you have a question about your membership and when it expires, please contact us at awc@anchoragecreeks.org. If you know someone who wants to help support our great waterways, please forward this email to them, or if you want to provide a gift membership--contact us. Does your employer have a volunteer match program? Thanks to all for your continuing support and especially to our sponsors and volunteers who watch the waterways, monitor the creeks, and help this great organization--the ONLY one in Anchorage dedicated to protecting our creeks, wetlands, and watersheds.

Reminder: Like and Follow us on **Facebook** at "Anchorage Waterways Council" and "Scoop the Poop Anchorage".

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Anchorage Waterways Council

awc@anchoragecreeks.org
<http://www.anchoragecreeks.org>
(907) 272-7335



Anchorage Waterways Council, P.O. Box 241774, Anchorage, AK 99524-1774

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JOIN or RENEW NOW

AWC UPDATE March 12, 2020:

A message from the Executive Director, Cherie Northon

More daylight hours and lots of sun! Spring is almost here, and with that comes breakup which means clean up. AWC has set dates for April's Scoop the Poop Day and May's 36th Annual Creek Cleanup. We also have planned a very informative Annual Meeting on April 9: Impacts of the homelessness crisis on Anchorage's waterways--issues, concerns, and responses. Lastly, World Migratory Bird Day will be held on May 17. Details follow. Hope to see you out there! It's time to shake off winter!

SAVE THE DATES!

ANNUAL MEETING

Impacts of the homelessness crisis on Anchorage's waterways--issues, concerns, and responses

Thursday, April 9, 5:30 pm - 8:30 pm
BP Energy Center
900 E. Benson

Please join us for our 2020 Annual Meeting. We have 4 great speakers who will discuss public health issues involving our local waters that could be harmful, how the Municipal Assembly is

responding to homelessness, and what the legal processes are that must be adhered to when addressing this crisis. After the speakers, there will be a panel for your questions.

Professor Brandon Briggs - UAA Microbiology

Professor Joe Sarcone - APU Director Environmental Public Health

Retired District Court Judge Stephanie Rhoades

Anchorage Midtown Assembly Member Meg Zalatel

Light refreshments will be provided.



Homeless camp from summer 2019 along Campbell Creek

"Scoop the Poop" Day

Saturday, April 11, 11 am to 3* pm

For the past several years, dedicated volunteers have devoted part of a Saturday during April's "Earth Month" to show their care and appreciation for the privilege of having great dog parks in Anchorage. It is also a time to remind pet owners about what happens when dog poop isn't cleaned up. Every day approximately 20 TONS of pet waste are deposited in Anchorage! When not cleaned up, it eventually washes down into our creeks and lakes and pollutes them with fecal coliform bacteria. This impairs water quality and can make pets and humans ill.

This year, Scoop the Poop Day will be held on April 11 at University Lake and Connors Bog dog parks. There will also be a cleanup at the Campbell Creek Estuary Natural Area (CCENA) from 11-1:30*. In the case of CCENA where dogs are actually prohibited by [ordinance](#) due to the fragile nature of the area, it is to bring awareness to the users. Sadly, there continues to be those who do not respect the ban and not only still allow their dogs in the area, but they often don't clean up after their pets!

Buckets, bags, gloves, and gardening tools will be provided, but feel free to bring your own. Show your support and come on out and demonstrate that you care for your creeks!



Mo and Jasper doing their part!

36th Annual AWC Creek Cleanup

Thursday, May 14 through Monday, May 18

Since our first Creek Cleanup in 1984, thousands of Anchorageites--both young and old and multi-generational--have participated and removed tons and tons of trash from local waterways. It is so incredibly important for our creeks to start off each spring with this May event which also serves as a reminder about keeping trash out of our creeks. This year Creek Cleanup coincides with World Fish Migration Day on May 16 where thousands of others will be participating in events that focus on migratory fish and cleanups.

Now is the time to start making your cleanup plans. Our 36th Annual Cleanup will run for 5 days again this year. Individuals, families and teams are urged to sign up beginning April 1. First, check the list of available locations. Next, sign up here so we know

when and where you will be cleaning and how much you will need for supplies. Bags, gloves, first aid kits, hand wipes, directions, maps, etc. will be ready for pick up by May 9. Check our [website](#) for current information.

Your creeks thank you!



2020 World Migratory Bird Day - Alaska

Sunday, May 17, 11 am - 4 pm
The Alaska Zoo

Join us at the Alaska Zoo for Alaska's celebration of World Migratory Bird Day--"Birds Connect Our World". Protecting birds from the perils of plastic and uncertainties of climate change are important tasks. See what we and others are doing to help our feathered friends.



THANK YOU!

AWC is especially grateful for its members, volunteers, and the many sponsors who provide support for Creek Cleanup and other events as well as our grants and contract partners. All this great work would not happen without you.

A FEW THINGS YOU CAN DO TO HELP AWC

Our largest single annual donation comes from [Pick, Click, Give](#). People choosing to donate a part of their Permanent Fund dividend can help a variety of non-profits out. **Anchorage Waterways Council** has been a recipient for the past 5 years, and we are very appreciative of Alaskans' generosity.

The deadline to file for your PFD and to Pick, Click, Give is coming up--March 31! But remember you can add or adjust your donations through August 31. Thank you for your donations to make our creeks healthy!



Many of you have linked your **Fred Meyer** rewards card to Anchorage Waterways Council and it means that we receive quarterly donations from your shopping. If you haven't linked to AWC, we would love to have you. These donations help us fund our programs. Our Fred Meyer number is 88984. This is a win-win situation for everyone. To renew or sign up, go to [Fred Meyer Rewards](#) and follow the directions. On that page you can click on their link to sign up. Thank you to all who have in the past, who renew, and who will sign up for the first time.

Amazon Smile also donates a portion of Amazon purchases to various charities. [This link](#) will give you information on what they do and how to sign up.

How can you help AWC maintain healthier creeks?

Volunteer

There are many ways to help AWC as a volunteer. We have fantastic volunteers who donate hundreds of hours annually to monitor our creeks each month, hundreds of participants take to the creeks every May to pull tons of trash out during our Annual Creek Cleanup, and many of you are "eyes on the creek"--reporting things that are disturbing--and we do our best to respond or help people find the right place to get the problem addressed. Consider becoming an AWC board member!

AWC Membership--Renew or Join!

Being a member of AWC means that you care passionately about the well-being of your own environment. We work to keep the waterways clean, clear, and of value to all. From clean water and recreation to creating a general feeling of well-being, our waterways need protecting for our own benefit, as well as for the countless other species that rely on them. Adding your name to our membership means we can make a stronger stand when it comes to the issues that can affect us all--so please consider becoming a member today! AWC is a 501 (c) 3 non-profit and memberships and donations are tax deductible.

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Reminder: Like and Follow us on **Facebook** at "Anchorage Waterways Council" and "Scoop the Poop Anchorage".

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Anchorage Waterways Council

awc@anchoragecreeks.org
http://www.anchoragecreeks.org
(907) 272-7335



Anchorage Waterways Council, P.O. Box 241774, Anchorage, AK 99524-1774

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JOIN or RENEW NOW

AWC UPDATE March 13, 2020:

A message from the Executive Director, Cherie Northon

Due to the recent actions to cancel events with large numbers of people, we have decided to postpone our Annual Meeting until such time that we feel comfortable to reinstate it. We do plan on having it as the topic is important and timely.

Our other events are outdoors, so at this point we do not see any reason to cancel or postpone them. Please check our website at anchoragecreeks.org for updates.

Thank you.

SAVE THE DATES!

ANNUAL MEETING

POSTPONED

**Impacts of the homelessness crisis on Anchorage's
waterways--issues, concerns, and responses**

"Scoop the Poop" Day

Saturday, April 11, 11 am to 3* pm

For the past several years, dedicated volunteers have devoted part of a Saturday during April's "Earth Month" to show their care and appreciation for the privilege of having great dog parks in Anchorage. It is also a time to remind pet owners about what happens when dog poop isn't cleaned up. Every day approximately 20 TONS of pet waste are deposited in Anchorage! When not cleaned up, it eventually washes down into our creeks and lakes and pollutes them with fecal coliform bacteria. This impairs water quality and can make pets and humans ill.

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36th Annual AWC Creek Cleanup

Thursday, May 14 through Monday, May 18

Since our first Creek Cleanup in 1984, thousands of Anchorageites--both young and old and multi-generational--have participated and removed tons and tons of trash from local waterways. It is so incredibly important for our creeks to start off each spring with this May event which also serves as a reminder about keeping trash out of our creeks. This year Creek Cleanup coincides with World Fish Migration Day on May 16 where thousands of others will be participating in events that focus on migratory fish and cleanups.

Now is the time to start making your cleanup plans. Our 36th Annual Cleanup will run for 5 days again this year. Individuals, families and teams are urged to sign up beginning April 1. First, check the list of available locations. Next, sign up here so we know

when and where you will be cleaning and how much you will need for supplies. Bags, gloves, first aid kits, hand wipes, directions, maps, etc. will be ready for pick up by May 9. Check our [website](#) for current information.

Your creeks thank you!



2020 World Migratory Bird Day - Alaska

Sunday, May 17, 11 am - 4 pm
The Alaska Zoo

Join us at the Alaska Zoo for Alaska's celebration of World Migratory Bird Day--"Birds Connect Our World". Protecting birds from the perils of plastic and uncertainties of climate change are important tasks. See what we and others are doing to help our feathered friends.



THANK YOU!

AWC is especially grateful for its members, volunteers, and the many sponsors who provide support for Creek Cleanup and other events as well as our grants and contract partners. All this great work would not happen without you.

A FEW THINGS YOU CAN DO TO HELP AWC

Our largest single annual donation comes from [Pick, Click, Give](#). People choosing to donate a part of their Permanent Fund dividend can help a variety of non-profits out. **Anchorage Waterways Council** has been a recipient for the past 5 years, and we are very appreciative of Alaskans' generosity.

The deadline to file for your PFD and to Pick, Click, Give is coming up--March 31! But remember you can add or adjust your donations through August 31. Thank you for your donations to make our creeks healthy!



Many of you have linked your **Fred Meyer** rewards card to Anchorage Waterways Council and it means that we receive quarterly donations from your shopping. If you haven't linked to AWC, we would love to have you. These donations help us fund our programs. Our Fred Meyer number is 88984. This is a win-win situation for everyone. To renew or sign up, go to [Fred Meyer Rewards](#) and follow the directions. On that page you can click on their link to sign up. Thank you to all who have in the past, who renew, and who will sign up for the first time.

Amazon Smile also donates a portion of Amazon purchases to various charities. [This link](#) will give you information on what they do and how to sign up.

How can you help AWC maintain healthier creeks?

Volunteer

There are many ways to help AWC as a volunteer. We have fantastic volunteers who donate hundreds of hours annually to monitor our creeks each month, hundreds of participants take to the creeks every May to pull tons of trash out during our Annual Creek Cleanup, and many of you are "eyes on the creek"--reporting things that are disturbing--and we do our best to respond or help people find the right place to get the problem addressed. Consider becoming an AWC board member!

AWC Membership--Renew or Join!

Being a member of AWC means that you care passionately about the well-being of your own environment. We work to keep the waterways clean, clear, and of value to all. From clean water and recreation to creating a general feeling of well-being, our waterways need protecting for our own benefit, as well as for the countless other species that rely on them. Adding your name to our membership means we can make a stronger stand when it comes to the issues that can affect us all--so please consider becoming a member today! AWC is a 501 (c) 3 non-profit and memberships and donations are tax deductible.

It's easy, you can go online at www.anchoragecreeks.org and click the "**JOIN NOW**" button, to join, renew or donate, or click the "**Join or Renew Now**" button at the top of this email. We are now set up to do recurring payments as well! This can be as simple as \$5 or \$10 a month, but it adds up BIG for us. If you have a question about your membership and when it expires, please contact us at awc@anchoragecreeks.org. If you know someone who wants to help support our great waterways, please forward this email to them, or if you want to provide a gift membership--contact us. Does your employer have a volunteer match program? Thanks to all for your continuing support and especially to our sponsors and volunteers who watch the waterways, monitor the creeks, and help this great organization--the ONLY one in Anchorage dedicated to protecting our creeks, wetlands, and watersheds.

Reminder: Like and Follow us on **Facebook** at "Anchorage Waterways Council" and "Scoop the Poop Anchorage".

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Anchorage Waterways Council

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JOIN or RENEW NOW

AWC UPDATE March 26, 2020:

A message from the Executive Director, Cherie Northon

Exactly 2 weeks ago, I sent our annual spring event newsletter, and here's an update on events. We are all aware of the dramatically unfolding events with Covid-19 and the changes we need to make in all aspects of our lives.

We have postponed our April 9 annual meeting and have changed Scoop the Poop day to a DIY contest. See details below.

Our 36th Annual Creek Cleanup is also on the horizon. For now, we are going to continue with family/team [signups](#) opening on April 1. This is with the caveat that it could be postponed until later in the summer and all would be notified.

Please stay safe and adhere to the measures that have been put into place in Anchorage and in the state. Also, you can really help us by taking our 2020 Watershed Survey.

Thank you!

**SOMETHING TO OCCUPY YOU WHILE AT HOME &
TO HELP AWC AT THE SAME TIME!**

2020 Watershed Survey

Every 5 years, AWC conducts a survey for Anchorage's citizens to assess the state of understanding about our watersheds and the health of our creeks.

This link: <https://www.surveymonkey.com/r/ZD8LBG2> will take you to the survey. It takes about 10 minutes and helps us a lot as we plan our education and outreach programs. Please take the survey and pass the link on to others through Facebook or other social media.

Thank you!



**SOMETHING TO OCCUPY YOU WHEN OUT WITH
YOUR DOG & TO HELP OUR CREEKS!**

DIY Scoop the Poop Contest



Our annual Scoop the Poop day was cancelled to avoid conflicts with social distancing. The poop is not going away on its own, so AWC is offering some great prizes for pet owners to get out and show just how dedicated they are to cleaning up dog poop.

Between now and April 15, 2020, take photos of you, your family, and your dog cleaning up pet waste. Email them to awc@anchoragecreeks.org, subject: DIY STP, and include a description of who is in the photo and when and where it was taken (and anything else you'd like to say). We will select 4 winners! Prizes are: 3 poop scoopers and 2-\$25 Alaska Mill and Feed gift cards.

Time to get scooping!

Thank you!



Uh oh! Who didn't clean up after their dog?
()&(^%&)(*()



Lastly, [Pick, Click, Give](#) on your PFD filing ends March 31, although you can change your donations until August. Please consider making a small pledge to help us maintain healthy waterways.

Thank you!

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Anchorage Waterways Council

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Appendix D



Campbell Creek Watershed Survey Analysis

By Cherie Northon, Ph.D.
Executive Director
Anchorage Waterways Council
February 1, 2020



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Introduction

The Campbell Creek Watershed Survey was created to gather information from local residents who are familiar with the creek. The goal was to get a popular view of creek and trail users in order to understand their concerns and recommendations for development of a Campbell Creek Watershed Plan by the Municipality of Anchorage’s Watershed Management Services. One hundred and sixty people took part in the survey in July and August 2019. Following are the results from the 13 questions along with a breakdown of answers.

1. How long have you lived in Anchorage?

The majority of the respondents have lived in Anchorage for over 20 years which allows for some “historical” perspective on Campbell Creek, and was definitely evident in some of the responses. All in all, 94% have lived in Anchorage 6 years or longer.

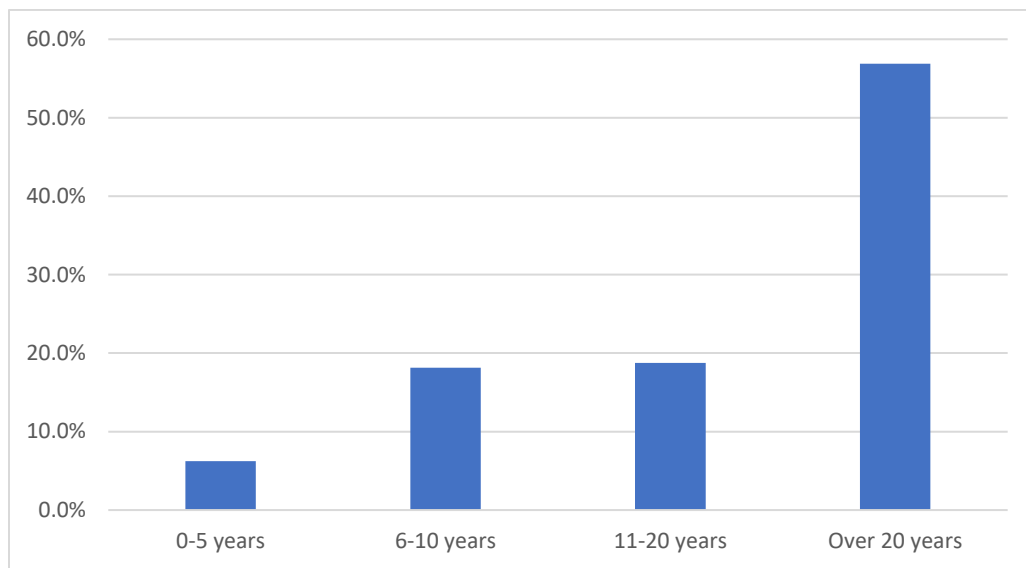


Figure 1 Respondents’ years in Anchorage

Years in Anchorage	N=160	Percentage
Over 20 years	91	56.9%
11-20 years	30	18.8%
6-10 years	29	18.1%
0-5 years	10	6.3%

Table 1 Respondents’ years in Anchorage

2. In which watershed do you live?

Seventy-six (48%) of the respondents live in the Campbell Creek/Little Campbell Creek watershed. Chester Creek watershed sported the second most with 39 (24%), and there was a relatively even smattering from Fish Creek, Eagle River, Ship Creek, and Furrow Creek watersheds, with one respondent each from Hood, Glacier, Little Rabbit, and Potter creek watersheds.

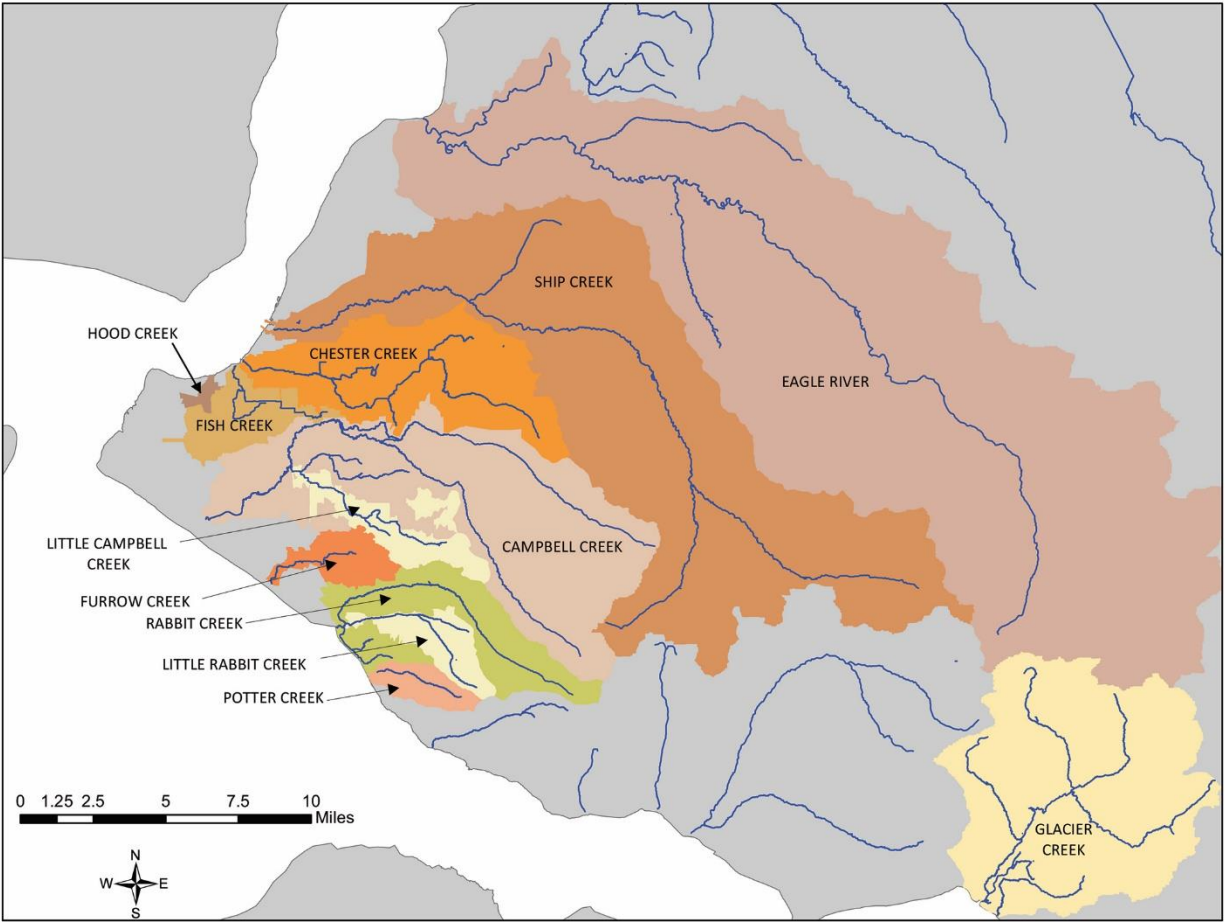


Figure 2 Watersheds where respondents live

Watershed	N=160	Percentage
Campbell Creek/Little Campbell Creek	76	48%
Chester Creek	39	24%
Fish Creek	12	8%
Eagle River	9	6%
Rabbit Creek	9	5%
Ship Creek	6	4%
Furrow Creek	5	3%
Hood Creek	1	.5%
Glacier Creek	1	.5%
Little Rabbit Creek	1	.5%
Potter Creek	1	.5%

Table 2 Watersheds where respondents live

3. Do you spend time along Campbell Creek?

All of the respondents, 153 (96%), except for 7 (4%) said that they did. Those answering “no”, however, still continued on through the survey.

4. If you answered yes to question 3, what do you do there? Check all that apply.

The top four activities, biking, jogging/walking, observing birds/wildlife, and enjoying nature, involve traveling along the trail and enjoying the amenities associated with it. The number of responses is significant which suggests that the trail is both a good transportation corridor for commuting and exercise as well as a place to get back to nature in the midst of a highly urbanized area. In later responses, many likened the Campbell Creek greenbelt to a wild oasis in the middle of a city.

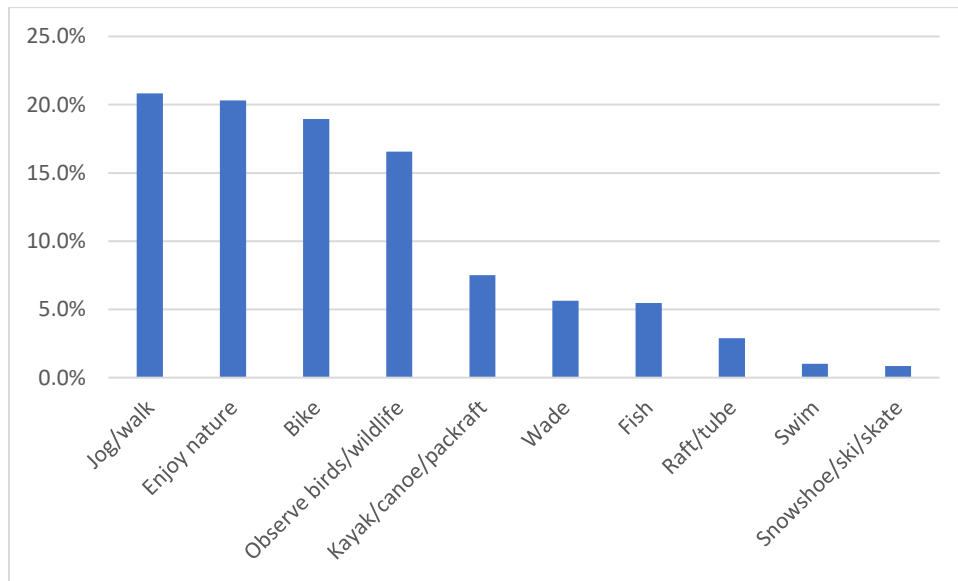


Figure 3 How respondents spend their time along Campbell Creek

Activity	N=586	Percentage
Jog/walk	122	20.8%
Enjoy nature	119	20.3%
Bike	111	18.9%
Observe birds/wildlife	97	16.6%
Kayak/canoe/packraft	44	7.5%
Wade	33	5.6%
Fish	32	5.5%
Raft/tube	17	2.9%
Swim	6	1.0%
Snowshoe/ski/skate	5	0.9%

Table 3 Respondents’ activities along Campbell Creek (n=586)

The responses also show that the creek itself is a popular place for water activities, such as kayaking/canoeing, rafting/tubing, wading, and fishing. These four activities are known as “secondary

contact recreation” because of reduced exposure where only the limbs (arms and legs) are in contact with the water¹. Swimming is considered “contact” recreation, and six respondents said that they swim in Campbell Creek. The designation of primary and secondary contact is important from the standpoint of the Alaska Water Quality Standards² (AWQS) which are overseen by the Alaska Department of Environmental Conservation (ADEC). The AWQS for contact recreation in regard to *E. coli* are as follows:

(B) Water Recreation (i) contact recreation	In a 30-day period, the geometric mean of samples may not exceed 126 <i>Escherichia coli</i> (<i>E. coli</i>) colony forming units (CFU)/100ml, and not more than 10% of the samples may exceed a statistical threshold value (STV) of 410 <i>E. coli</i> CFU/100 ml.
(B) Water Recreation (ii) secondary recreation	In a 30-day period, the geometric mean of samples may not exceed 200 fecal coliform/100 ml, and not more than 10% of the total samples may exceed 400 fecal coliform/100 ml.

Table 4 Fecal coliform limits for Water Recreation

This is important because Campbell Creek is on the state’s impaired water list. It has a TMDL³ from 2006 that states the creek does not meet the fecal coliform bacteria standard “for drinking, culinary, and food processing water supply that states that in a 30-day period, the geometric mean may not exceed 20 FC/100 mL, and not more than 10 percent of the samples may exceed 40 FC/100 mL.”⁴

Lastly, there were a few interesting responses under “Other” which include: eat/picnic (1), geocache (1), pick berries (1), ride horses (1), do photography/sketch/paint (2), bushcraft (1), creek cleanup (1), and “homeless watching” (1).

5. Do you think recreational opportunities along Campbell Creek could be improved?

Fifty-one (32%) said no and 109 (68%) said yes. There were 103 useful responses as to what was needed to improve recreational opportunities of which the overwhelming one was in regard to homeless camps and their associated trash. The “impact of homeless campers” and “personal safety” categories total fifty-seven (55%) respondents who feel that these issues impinge on their recreational activities (Figure 4 and Table 5).

There were comments by 16 (16%) kayakers and canoers who would like to see some of the sweepers and obstacles removed as well as better infrastructure for put-in and takeout which would reduce bank damage.

“Access” was used often throughout the survey and tends to relate to a variety of situations. In some cases, it means knowing points where one can enter or leave the trail, and in other comments it seems to relate to the ease of access for recreating along the creek. Five cyclists (5%) wanted to have a better trail connection at Lake Otis and one mentioned joining the Campbell Creek Trail to the Coastal Trail. Other comments by cyclists include better signage warning them of large zigs and zags in the trail and the addition of bike stations similar to those on the Coastal Trail. “Foot” trail users and those biking

¹ theswimguide.org/2016/10/20/secondary-contact-recreational-water-activities/

² dec.alaska.gov/water/water-quality/standards/

³ Total Daily Maximum Load is a calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant.

⁴ <https://dec.alaska.gov/water/water-quality/impaired-waters/#impaired-water-tabs>

and skiing have some issues with each other in terms of speed and approach warnings, ruts left by one activity or another, e.g. fat tire bikes messing up the groomed trails and dog interactions. Only 3 (3%) people voiced any concerns about animal waste (dogs and horses).

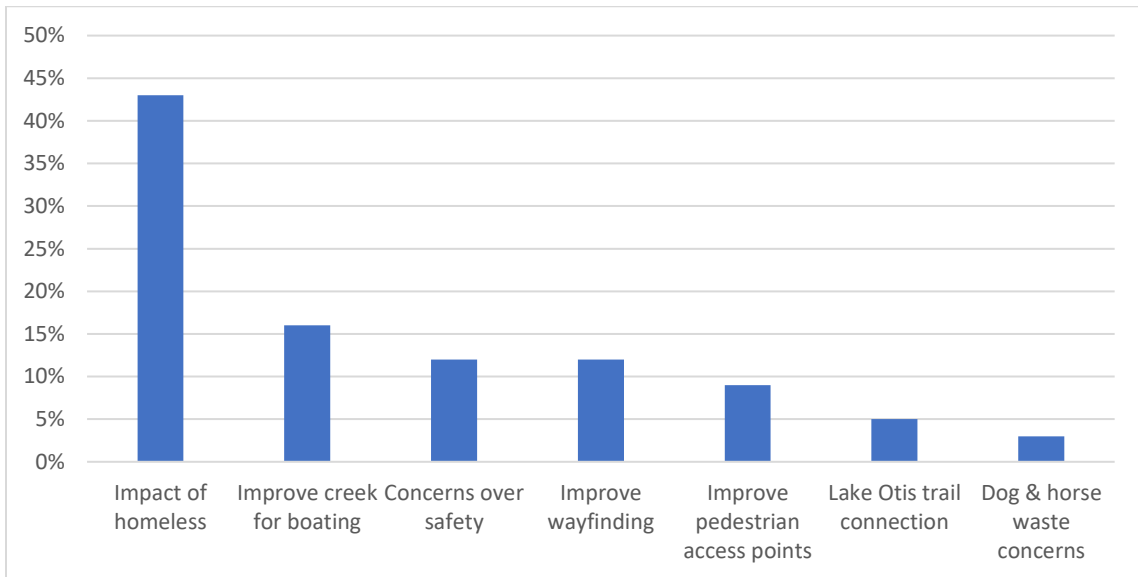


Figure 4 Areas needing improvement of recreational opportunities along Campbell Creek

Areas for Improvement	N=103	Percentage
Impact of homeless	45	43%
Improve creek for boating	16	16%
Concerns over safety	12	12%
Improve wayfinding	12	12%
Improve pedestrian access points	10	9%
Lake Otis trail connection	5	5%
Dog and horse waste concerns	3	3%

Table 5 Responses for areas needing improvement for recreational activities along Campbell Creek

6. What do you see as assets or detractors along Campbell Creek? (multiple answers allowed).

Assets: It is apparent that Campbell Creek and its trail system are highly favored by users. Having access to nature in the middle of a city was the favorite followed by a great appreciation for the wonderful trail system (especially those parts that have been improved). This combination allows access to wildlife, fish, greenspace, beauty, water, wilderness, and peace and quiet. There were 100 comments on assets (Figure 5 and Table 6).

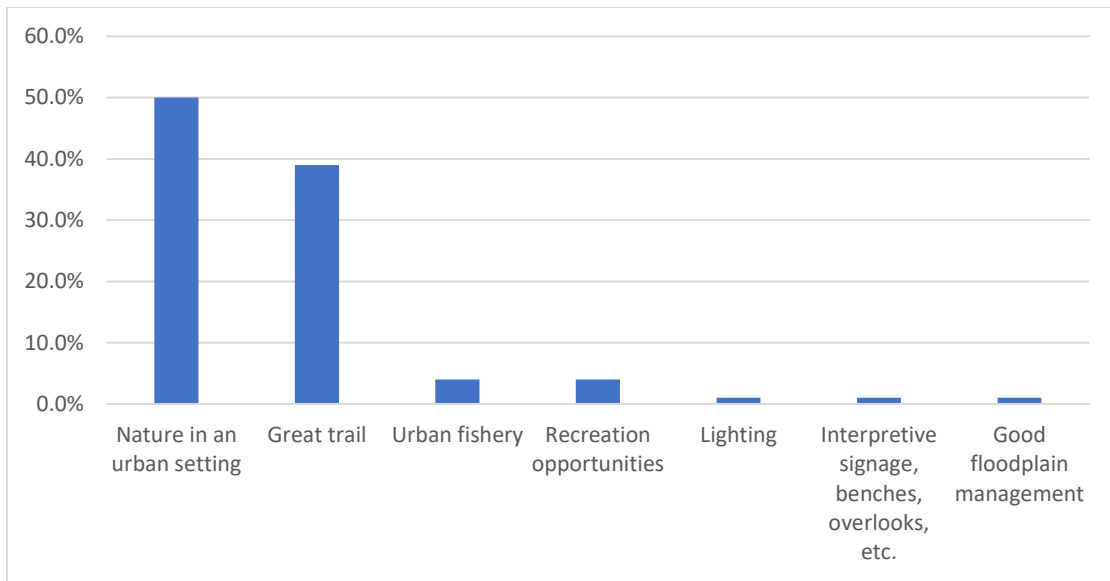


Figure 5 Assets along Campbell Creek

Campbell Creek Assets	N=100	Percentage
Nature in an urban setting	50	50.0%
Great trail	39	39.0%
Urban fishery	4	4.0%
Recreation opportunities	4	4.0%
Lighting	1	1.0%
Interpretive signage, benches, overlooks, etc.	1	1.0%
Good floodplain management	1	1.0%

Table 6 Assets along Campbell Creek

Detractors: Homeless and the associated problems of trash, water quality, and personal safety still outrank other concerns with a total of 161 (62%) comments on these issues. Their comments have to do with criminal activity, intimidation, drug use, and the lack of a police presence.

In regard to environmental concerns, there were far fewer. These comments were primarily about eroded banks and trampled vegetation (10 or 4.9%), animal waste (5 or 2.5%), water pollution from street runoff (4 or 2%), and invasives (3 or 1.5%). It is likely that mentioning trimming back trees along the trails (4 or 2%) has to do with trail safety. Kayakers and rafters are concerned about trees and branches in the creeks (6 or 3%) which is similar to cyclists (3 or 1.5%) who complained about roots pushing the pavement up.

These are eight “various” single responses that are worth noting: fast moving cyclists (2), trail maintenance (1), off leash dogs (1), need for Lake Otis connection (1), condition of docks and viewing platforms (1), mushroom gatherers that leave holes (1), and lack of access to Campbell Lake (1)⁵.

⁵ On December 6, 2019, the Alaska Department of Natural Resources and the Municipality of Anchorage issued a joint statement (dnr.alaska.gov/mlw/nav/pdfs/joint-statement.pdf) clarifying access to Campbell Lake. The survey was completed before this date.

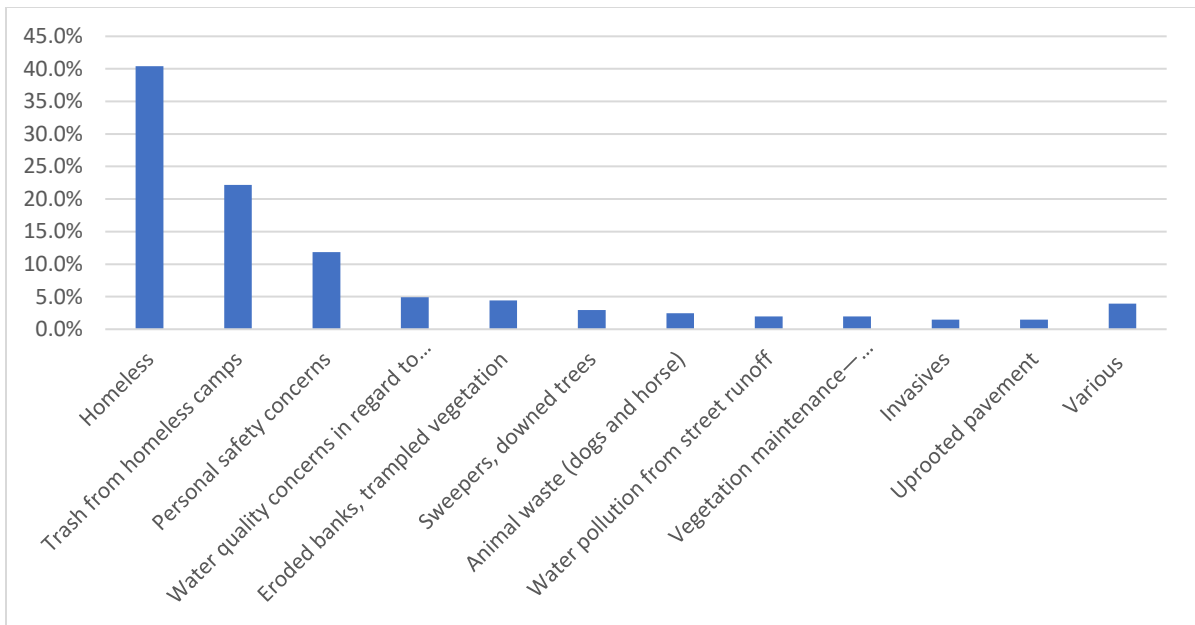


Figure 6 Detractors along Campbell Creek

Campbell Creek Detractors	N=203	Percentage
Homeless	82	40.4%
Trash from homeless camps	45	22.2%
Personal safety concerns	24	11.8%
Water quality concerns in regard to homeless	10	4.9%
Eroded banks, trampled vegetation	9	4.4%
Sweepers, downed trees	6	3.0%
Animal waste (dogs and horse)	5	2.5%
Water pollution from street runoff	4	2.0%
Vegetation maintenance—trimming back trees	4	2.0%
Invasives	3	1.5%
Uprooted pavement	3	1.5%
Various (see comments in text)	8	3.9%

Table 7 Detractors along Campbell Creek

7. Which of these photos of Campbell Creek do you think has better water quality? You can select one, both, or neither.

Photo 1



Photo 2



Figure 7 Photo comparison question

Overwhelmingly 67.5% chose the second photo as representing better water quality. Almost 7% percent selected the first photo, and 26% concluded “Neither”. The correct answer was “Neither” as it’s the same location on Campbell Creek with one photo from May and the other from June. The appearance of green vegetation as opposed to that of post-breakup most likely influenced the respondents.

Campbell Creek photo 1	11	6.9%
Campbell Creek photo 2	114	67.5%
Neither	44	26.0%

Table 8 Photo comparison responses⁶

8. Campbell Creek is on the Alaska Impaired Waters list because of high levels of *E. coli* (fecal coliform bacteria). *E. coli* are found in the feces of warm-blooded animals—birds and mammals, including humans. *E. coli* by themselves are not necessarily a problem, but they indicate that the water is contaminated with feces which may contain harmful bacteria. What do you think are the primary sources for *E. coli* contamination of Campbell Creek? (multiple answers allowed).

Dogs (123 or 30.8%) are the highest category and are most likely the primary *E. coli* source in many Anchorage creeks. With an estimated 65,000 dogs in the Municipality that relieve themselves daily an average of ¾ lb. of waste per dog—this translates to 48,000 lbs. or about 24 tons of dog waste each and every day⁷.

The second highest response (103 or 25.8%) was for “humans-directly”. Because “leaking septic systems” was also a choice and several respondents specifically mentioned human waste, the supposition is that respondents differentiated between the two, and the “humans-directly” is probably

⁶ Apparently, some of the respondents answered more than once as the total is 169 vs. 160.

⁷ muni.org/Departments/health/Admin/animal_control/Pages/scoop.aspx

aimed at the homeless camps. “Leaking septic systems” will most likely be recognized by those who have them. Proper use and maintenance (including pumping every 2 years) are important for them to function properly or they may need replacing⁸. Maintenance and replacement are not inexpensive, so it’s quite possible that these steps are neglected which can lead to contamination of ground water.

Wildlife (waterfowl, beavers, moose, and bears) accounted for 94 (23.5%), and for “Other” there were 16 (1.3%) responses. Six said they did not know, 3 said a combination of them, 2 said street runoff/stormwater, 2 thought it might be horses, 1 suggested cats, and 1 said stormwater runoff with waste from pets and homeless camps.

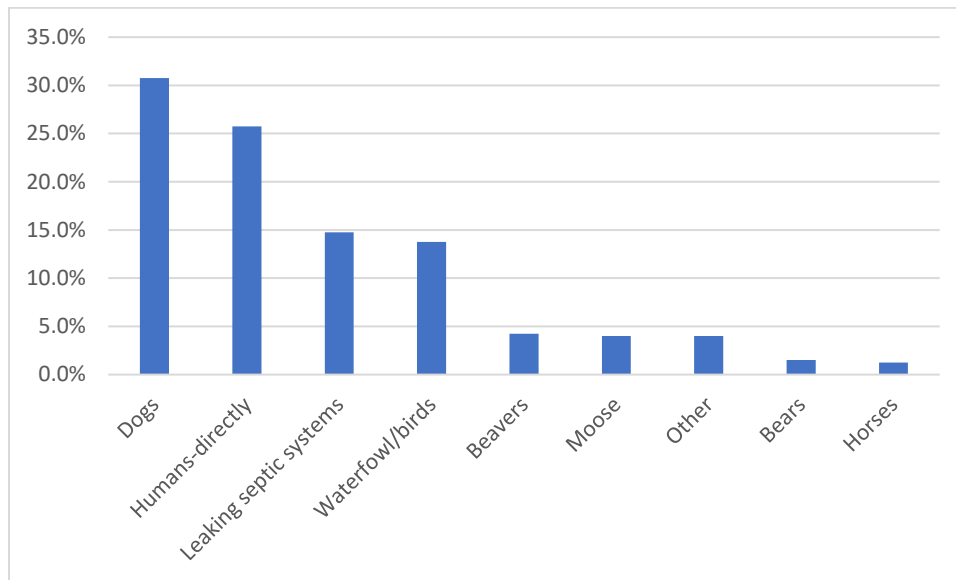


Figure 8 Sources of fecal coliform according to respondents

Source	N=400	Percentage
Dogs	123	30.8%
Humans-directly	103	25.8%
Leaking septic systems	59	14.8%
Waterfowl/birds	55	13.8%
Beavers	17	4.3%
Moose	16	4.0%
Bears	6	4.0%
Horses	5	1.5%
Other	16	1.3%

Table 9 Sources of fecal coliform according to respondents

⁸ dec.alaska.gov/water/wastewater/engineering/maintain-septic

9. Have you noticed changes in the water quality of Campbell Creek over time?

One hundred and one (63%) said they have noticed no changes, and 59 (37%) said yes, and most provided an explanation of why they chose this. There were 44 useful responses. Of the 38 respondents for negative changes, 28 (63.7%) stated water quality was worse due to “pollution”; eroded banks and trampled vegetation were mentioned by 5 (11.5%), turbidity by 4 (9.1%), and dogs by 1 (2.1%). Only 6 thought it had improved with 3 (6.9%) being non-specific, 2 (4.6%) citing less trash, and 1 (2.1%) for habitat restoration—which is definitely a positive.

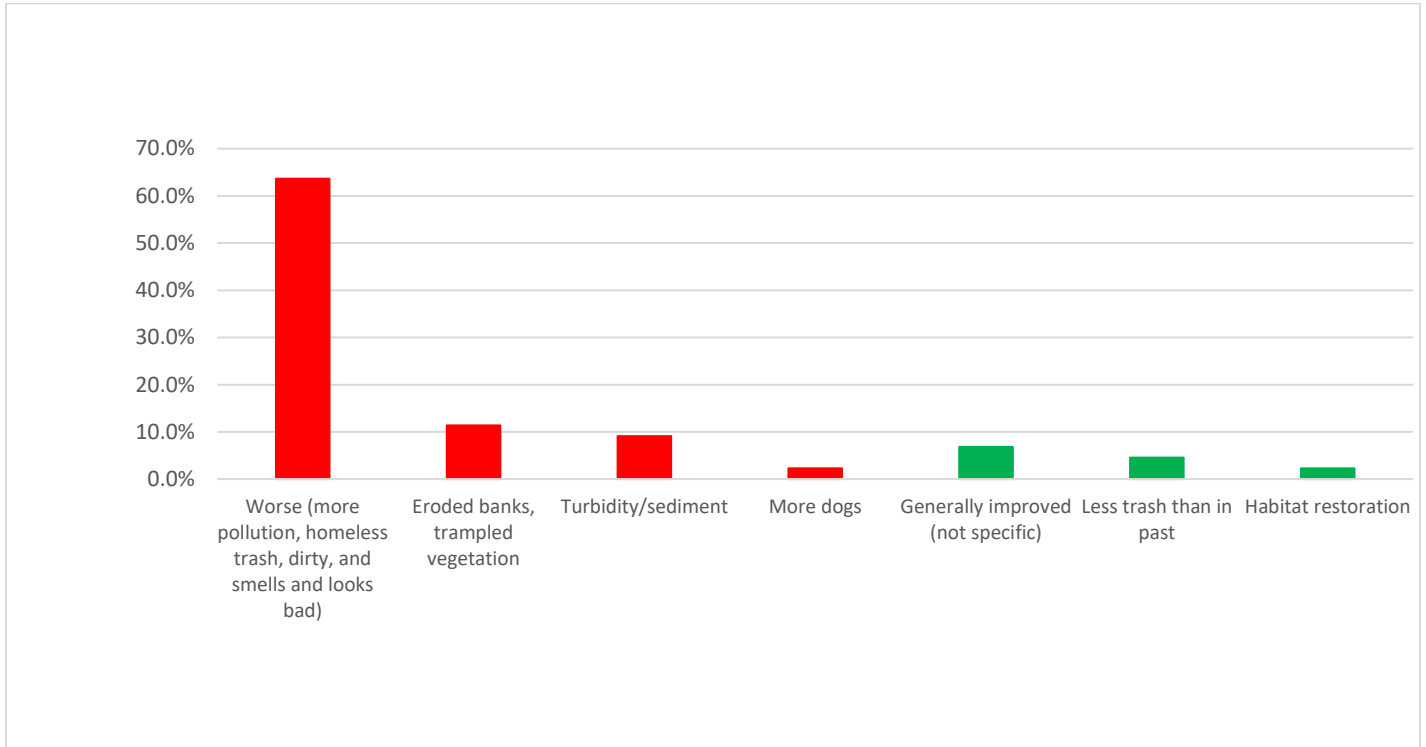


Figure 9 Comments on negative (red) and positive (green) changes, n=44

Negative Changes in Campbell Creek	N=44	Percentage
Worse (more pollution, homeless trash, dirty, and smells and looks bad)	28	63.7%
Eroded banks, trampled vegetation	5	11.5%
Turbidity/sediment	4	9.1%
More dogs	1	2.1%
Positive Changes in Campbell Creek		
Generally improved (not specific)	3	6.9%
Less trash than in past	2	4.6%
Habitat restoration	1	2.1%

Table 10 Comments on negative and positive changes in Campbell Creek

Since this is a question that involves change over time, it is worth bringing up some of the history in regard to water quality that was mentioned by a few respondents. The Campbell Creek Classic⁹ was an annual boat race that began in the late 60s and was ended in 1986 because of raw sewage in the creek. In their minds, Campbell Creek has improved relatively speaking. Another brought up a former trailer park on Tudor that dumped raw sewage into the creek, but I have not located it. There was one on Tudor Rd. down in Spenard which may be the one referenced.

10. Would you drink water from Campbell Creek?

There was a resounding “NO” from 91% (145) of the respondents, and 15 (9%) answered yes. Eight added the caveat that they would only if it was filtered. Only one respondent said yes as they “drink the local water in China and S. America”, and two said they would if far enough upstream. (See Figure 10)

11. Would you let your children play in Campbell Creek?

Sixty-eight (43%) said “NO”, the same percentage said “YES”, and the balance answered under “Other” 24 at 15%. These were conditional, and had to do with the length of time (short), the location (east of the New Seward or Lake Otis), limited contact to feet up to knees, if no warning signs are posted, and if they were washed or bathed afterwards. One person said, “I even bathe the dog after being in the creek”. (See Figure 10)

12. Would you let your dog swim in Campbell Creek?

One hundred and three (64%) said yes, while 37 or 23% said no. Twenty answered “Other”, of which seven didn’t have dogs. Of the remainder, some said they wouldn’t due to the potential of damaging salmon redds or introducing pet waste into the creek. A few commented that while they wouldn’t encourage it, dogs can sometimes find their way in (assuming they’re off leash). (See Figure 10)

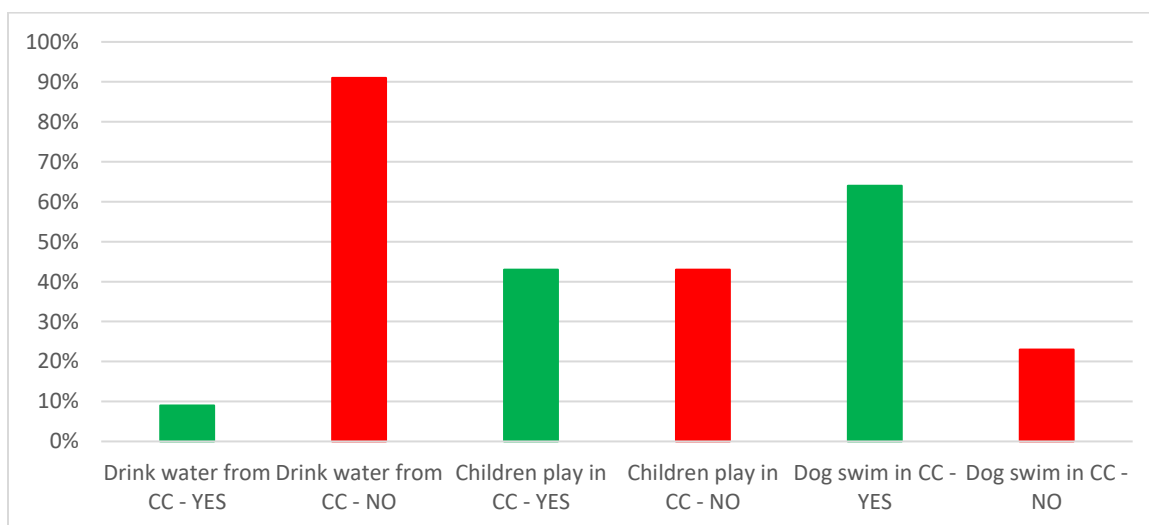


Figure 10 Combined answers from questions 10, 11, and 12 for drinking water from, allowing children to play in, or dogs to swim in Campbell

⁹ <https://www.latimes.com/archives/la-xpm-1985-01-18-mn-8760-story.html>

Question 10	Responses	Percentage
Drink water from CC - YES	15	9%
Drink water from CC - NO	145	91%
Total responses	160	100%
Question 11		
Children play in CC - YES	68	50%
Children play in CC - NO	68	50%
Total responses	136	100%
Question 12		
Dog swim in CC - YES	103	74%
Dog swim in CC - NO	37	36%
Total responses	140	100%

Table 11 Combined answers from questions 10, 11, and 12 for drinking water from, allowing children to play in, or dogs to swim in Campbell

13. If you had one thought on how to improve the WATER QUALITY of Campbell Creek, what is it?

There were 130 valid responses to the question. Again, the impact of homeless on Campbell Creek maintains first place with 37 (28.5%) responses. A promising second suggestion with 34 (26.2%) responses is summarized as a variety of ways to protect the creek. Seventeen of these 34 responses specifically mentioned maintaining, improving, or adding stream buffers. Other comments for this response include decreasing impervious surfaces, adding more institutional controls, and improving stormwater runoff treatment.

Although pet waste issues were rarely mentioned in the earlier survey questions except for question 8 where dogs were cited as the major culprit for decreased water quality, 32 (24.6%) now said that there was a need for more pet waste stations, enforcement of leash and pet waste ordinances, and signage. It is gratifying that 13 (10%) thought that public awareness through outreach and education can help improve water quality, and additional creek cleanups was another welcome suggestion by 6 (4.6%).

The three (2.3%) responding to septic made the following suggestions:

1. Make connecting to municipal sewer system more cost effective
2. Mandatory monitoring and inspections of septic systems with fines
3. Better management of septic systems

Two (1.5%) proposed enforcement of protective ordinances, and 1 (.8%) suggested draining Campbell Creek to allow it to return to its natural creek landscape, 1 (.8%) said add more signage, and 1 (.8%) wanted strainers removed.

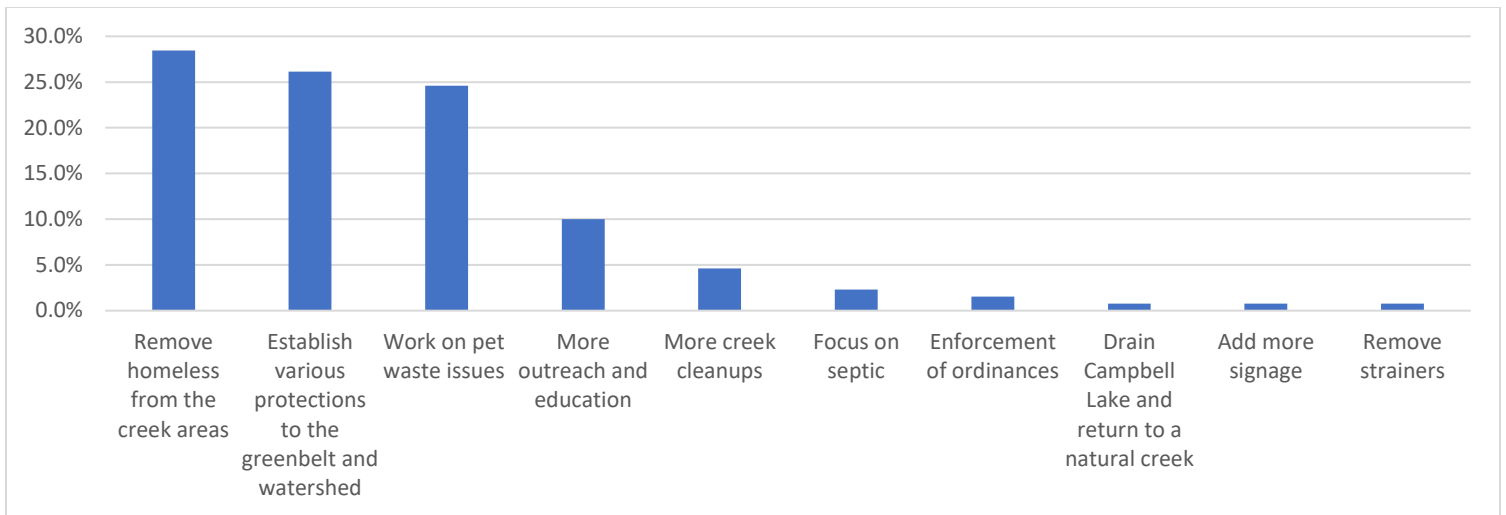


Figure 11 Suggestions for improvements along Campbell Creek (n=130)

How to Improve Water Quality Suggestions	N=130	Percentage
Remove homeless from the creek areas	37	28.5%
Establish various protections to the greenbelt and watershed	34	26.2%
Work on pet waste issues	32	24.6%
More outreach and education	13	10.0%
More creek cleanups	6	4.6%
Focus on septic	3	2.3%
Enforcement of ordinances	2	1.5%
Drain Campbell Lake and return to a natural creek	1	0.8%
Add more signage	1	0.8%
Remove strainers	1	0.8%

Table 12 Suggestions for improvements along Campbell Creek

Conclusion

The majority of the responses in this survey were thoughtful and showed that the respondents have a good grasp of the issues in regard to Campbell Creek’s water quality. Those responding were primarily long-time residents, lived in the Campbell Creek or neighboring Chester Creek watersheds and all except 7 have spent time on Campbell Creek.

Their activities along the creek are largely recreational and quite varied, and many participated in some type of water activity in the creek. In regard to improving recreational opportunities, the majority commented on how the homeless situation affected them. This includes the unsightliness of camps and associated trash along with personal safety concerns.

The assets and detractors provided some important insight into how special Campbell Creek is to users. Overall, Campbell Creek is a haven in urban Anchorage for connecting to nature, and it is truly appreciated for that. People’s enjoyment is also hindered, again, by the homeless and their trash along

with concerns about personal safety and impacts on water quality. Of the overall 203 comments for detractors (multiple comments allowed) 161 focused on homeless issues.

In eliciting responses to the primary sources of *E. coli*, dogs topped the list with humans-directly and leaking septic systems following closely. There is certainly a good understanding of the principal culprits.

For the question about changes over time, those who thought it was worse cited more pollution, homeless trash, smells, and just general “looking bad”, although the majority (63%) said they did not see any changes.

The three questions about drinking from Campbell Creek and allowing children and dogs into the creek provided fairly predictable responses. As to drinking out of the creek, an overwhelming number said “no”, a few added caveats, and one said they’d drink anywhere in the creek without filtering as they aren’t concerned about drinking local water in China and South America. Respondents loosened up somewhat with allowing children to play in the creek, and by the time it focused on dogs they were much more comfortable with creek interactions.

The most significant responses are from the final question which asks for suggestions about improving water quality. The top one is removing homeless from the creek areas and is no surprise as this has been a recurring theme throughout the entire survey. Even though homeless campers have been in the greenbelts and along the creeks for the past 10-15 years, their presence has been very limited. If this survey was done 10 years ago, it would be very surprising if there were any comments about them at all. Now that the homeless population has grown to what the Municipality of Anchorage Homeless Coalition estimates in 2019 as 1,272¹⁰ (this includes those sheltered and unsheltered) it has become much more visible as well as leaving a very large and highly visible impact. A summer 2019 point-in-time (PIT) of 246 unsheltered and panhandling homeless means that they are becoming more visible in the favored camping locations along our waterways.

Almost an equal amount of people who pointed out homeless campers also had some very important and relevant comments that suggest a good understanding of riparian areas. These include protecting and restoring stream buffers and seeking ways to limit impermeable surfaces while establishing more limits to stormwater runoff. The comments show that information that is important to watershed protection is getting out to the public, and that awareness is good news.

¹⁰

muni.org/Departments/Assembly/SiteAssets/Pages/Committee%20on%20Homelessness/20191015_Summary_Summer%20Community%20Count_final.pdf

Welcome to My Survey

Thank you for participating in our survey. Your feedback is important as we work on a watershed plan for Campbell Creek. This involves looking at all aspects of the watershed from the environment to how the area is used. The survey is short and should not take more than 5-10 minutes. It's your way to participate in the planning process. Responses will be compiled and become part of public comment. Survey respondents who leave their email address, will be entered into a drawing for Moose's Tooth gift certificates. Thank you for your help!

* 1. How long have you lived in Anchorage?

- 0-5 years
- 6-10 years
- 11-20 years
- Over 20 years

* 2. In which watershed do you live?

- | | |
|--|------------------------------------|
| <input type="radio"/> Ship Creek | <input type="radio"/> Fish Creek |
| <input type="radio"/> Chester Creek | <input type="radio"/> Furrow Creek |
| <input type="radio"/> Campbell Creek | <input type="radio"/> Rabbit Creek |
| <input type="radio"/> Little Campbell Creek | <input type="radio"/> Eagle River |
| <input type="radio"/> Other (please specify) | |

* 3. Do you spend time along Campbell Creek?

- Yes
- No

4. If you answered yes to question 3, what do you do there? Check all that apply.

- | | |
|---|---|
| <input type="checkbox"/> Fish | <input type="checkbox"/> Observe birds/wildlife |
| <input type="checkbox"/> Swim | <input type="checkbox"/> Jog/walk |
| <input type="checkbox"/> Wade | <input type="checkbox"/> Bike |
| <input type="checkbox"/> Kayak/canoe | <input type="checkbox"/> Enjoy nature |
| <input type="checkbox"/> Raft/tube | |
| <input type="checkbox"/> Other (please specify) | |

* 5. Do you think recreational opportunities along Campbell Creek could be improved?

- No
- Yes. Comments:

* 6. What do you see as assets or detractors along Campbell Creek?

7. These photos are of Campbell Creek. Which do you think has better water quality? You can select one, both, or neither.



Campbell Creek



Campbell Creek



Neither

* 8. Campbell Creek is on the Alaska Impaired Waters list because of high levels of E. coli (fecal coliform bacteria). E. coli are found in the feces of warm-blooded animals--birds and mammals, including humans. E. coli by themselves are not necessarily a problem, but they indicate that the water is contaminated with feces which may contain harmful bacteria.

What do you think are the primary sources for E. coli contamination of Campbell Creek?

- | | |
|---|---|
| <input type="checkbox"/> Moose | <input type="checkbox"/> Bears |
| <input type="checkbox"/> Waterfowl/birds | <input type="checkbox"/> Horses |
| <input type="checkbox"/> Dogs | <input type="checkbox"/> Humans-directly |
| <input type="checkbox"/> Beavers | <input type="checkbox"/> Leaking septic systems |
| <input type="checkbox"/> Other (please specify) | |

* 9. Have you noticed changes in the WATER QUALITY of Campbell Creek over time?

- No
- Yes. Comments:

* 10. Would you drink water from Campbell Creek?

- No
- Yes. Comments:

* 11. Would you let your children play in Campbell Creek?

- Yes
- No
- Other (please specify)

* 12. Would you let your dog swim in Campbell Creek?

- Yes
- No
- Other (please specify)

13. If you had one thought on how to improve the water QUALITY of Campbell Creek, what is it?

14. Thank you for your input as it is very helpful to us in working to improve the Campbell Creek watershed. If you would like to be entered into a drawing for a Moose's Tooth gift card, please provide your contact information.

Email Address

Appendix E



2020 Watershed Perception Survey

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

By Anchorage Waterways Council



October 15, 2020

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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.

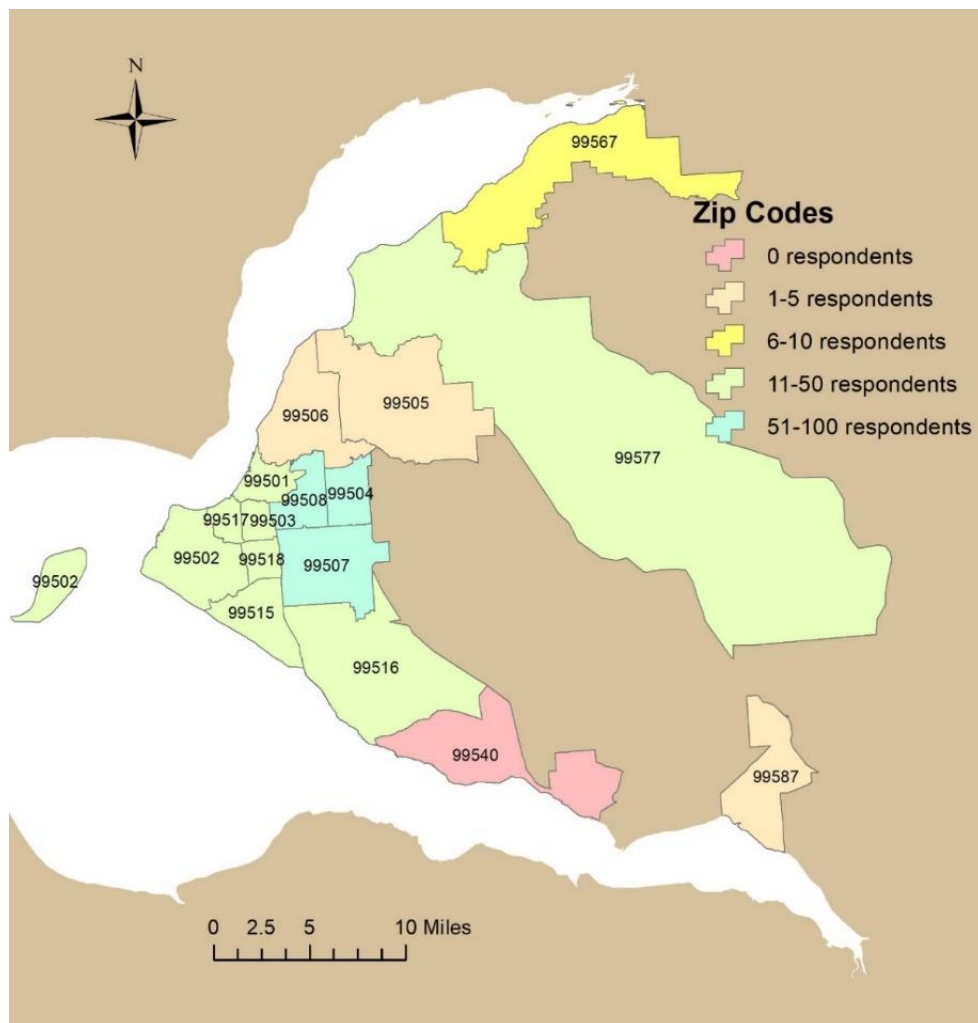


Figure 1 MOA zip codes and numbers of respondents by zip code, 2020.

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”.

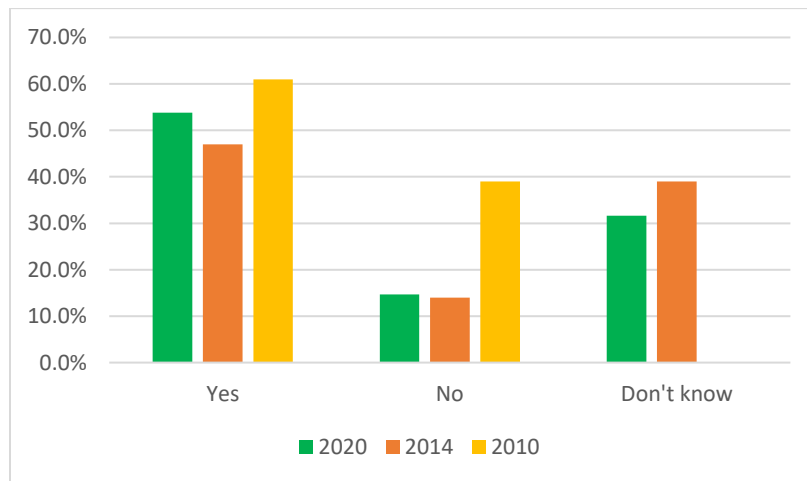


Figure 2 Do you live in a watershed? 2010, 2014, and 2020.

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.

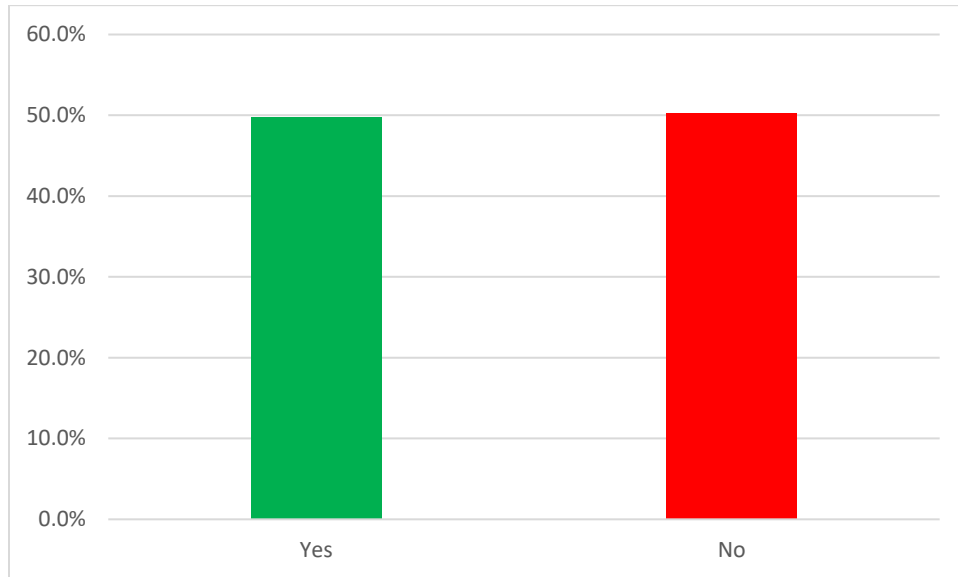


Figure 3 Interest in learning more about watersheds, 2020.

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.

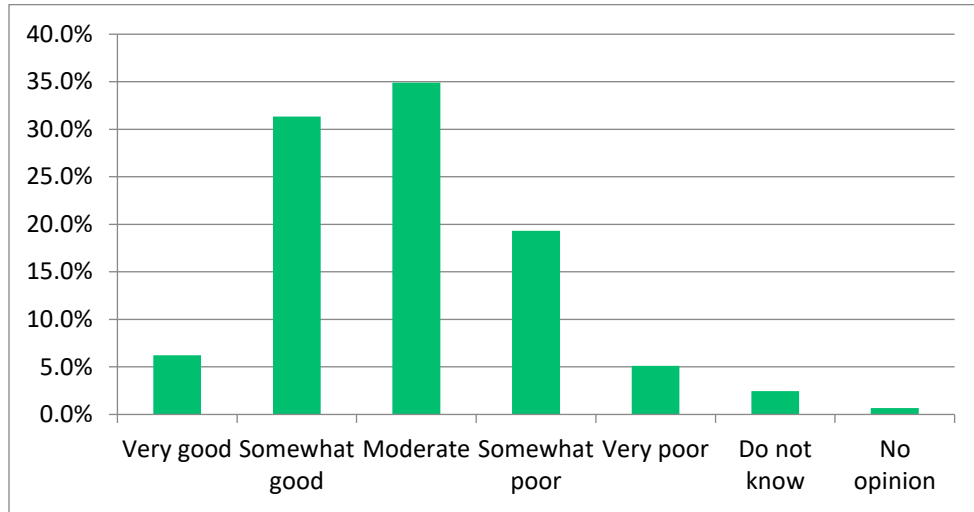


Figure 4 Responses on the water quality of Anchorage creeks and stream in general, 2020.

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.

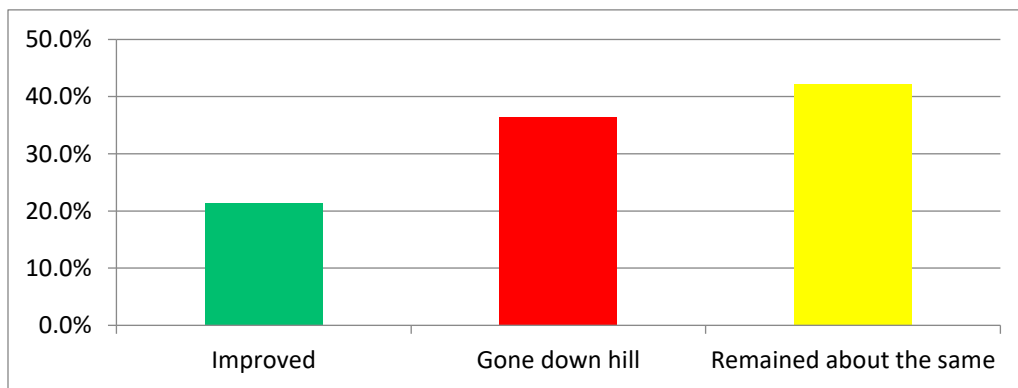


Figure 5 How have Anchorage creeks and streams changed over the last 10 years? 2020.

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.

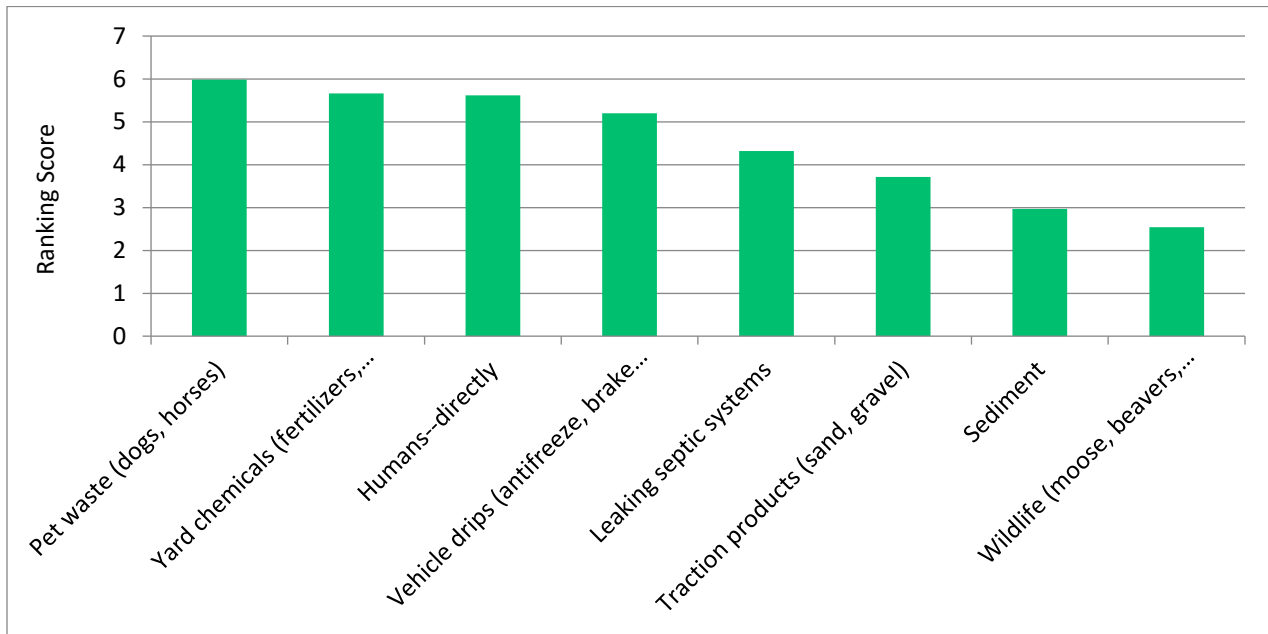


Figure 6 What are the biggest threats to water quality in creeks by rank? 2020.

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.

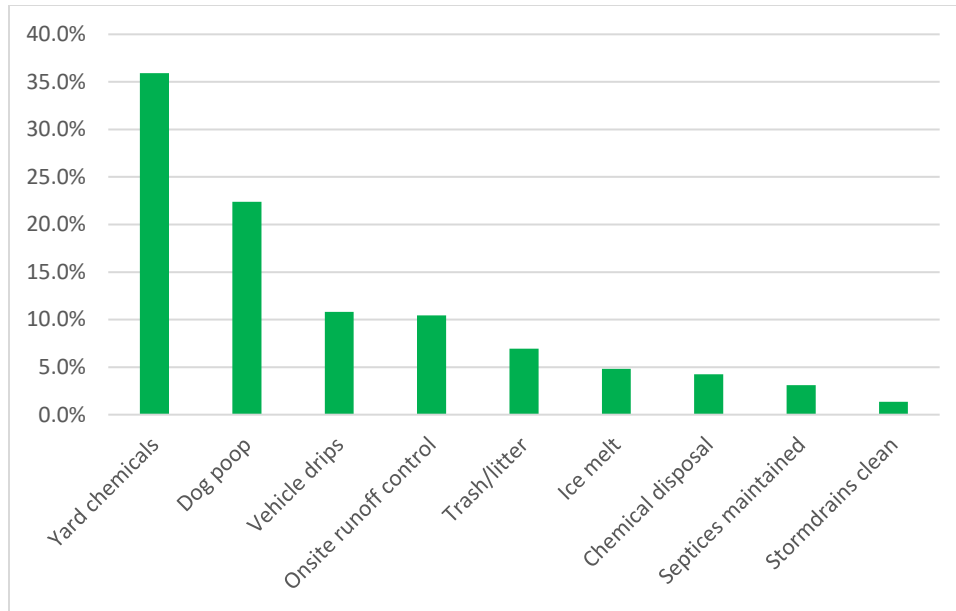


Figure 7 What do you think are the most important actions you could take on your property to improve water quality?

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%).

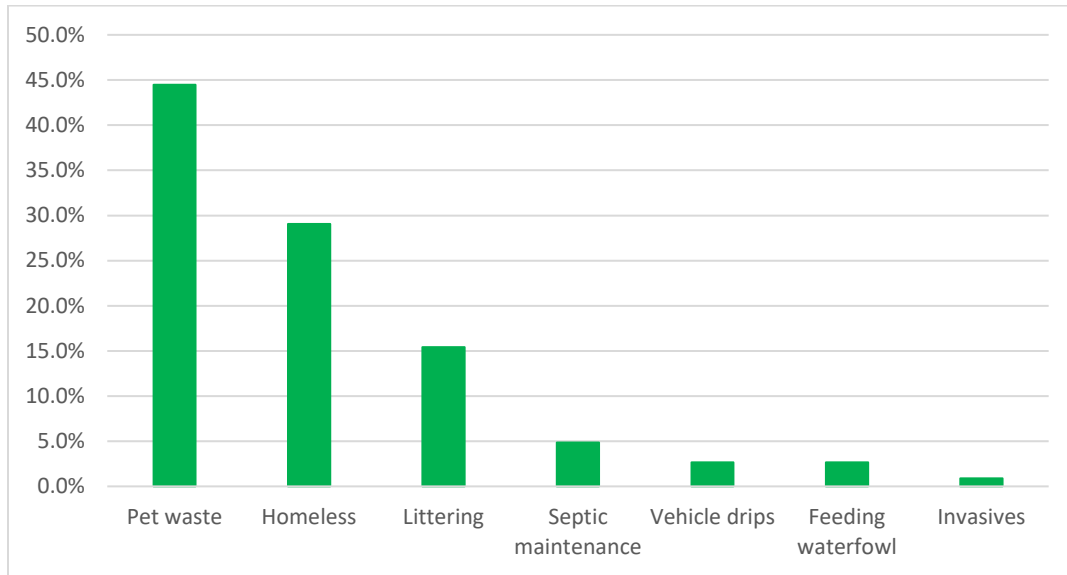


Figure 8 Major problems for water quality identified by respondents, (n=227).

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.

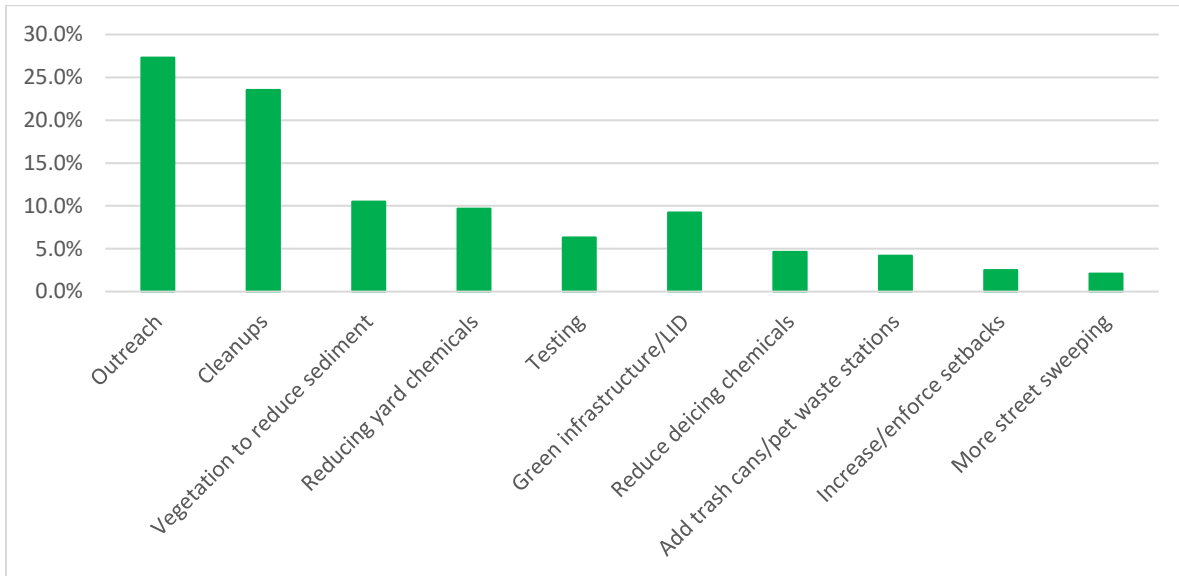


Figure 9 Suggested solutions for improved water quality identified by respondents, (n=238).

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).

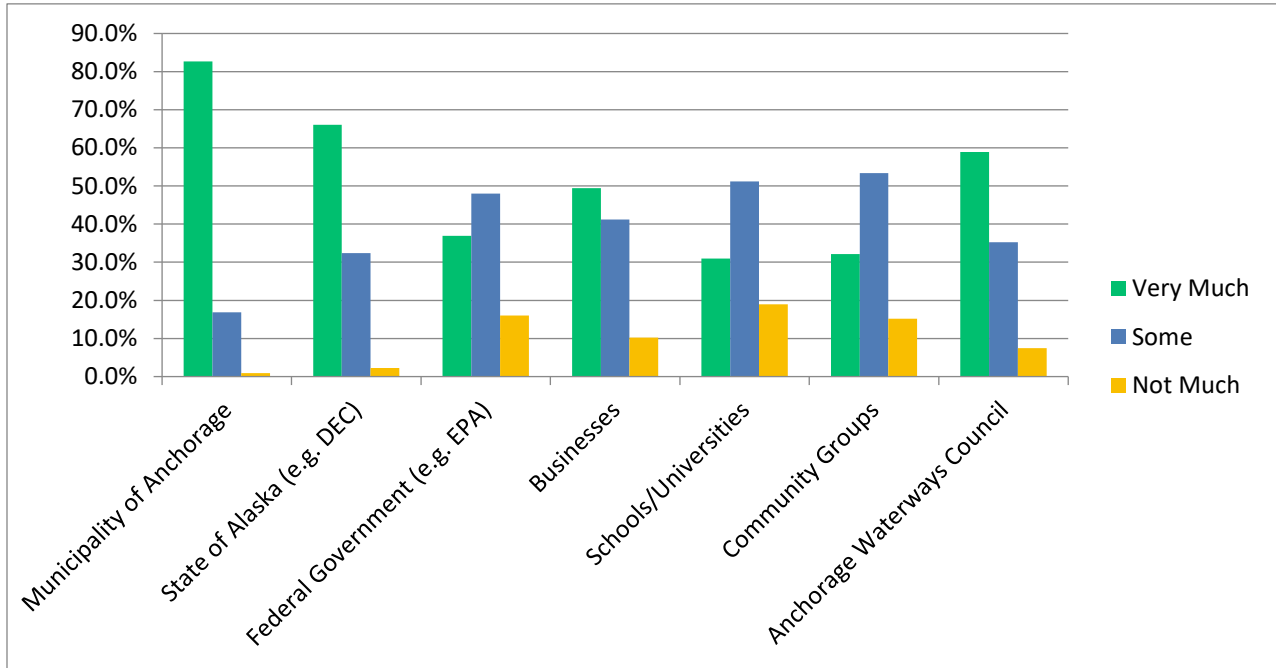


Figure 10 Responsibility for water quality in Anchorage's waterways, 2020.

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.

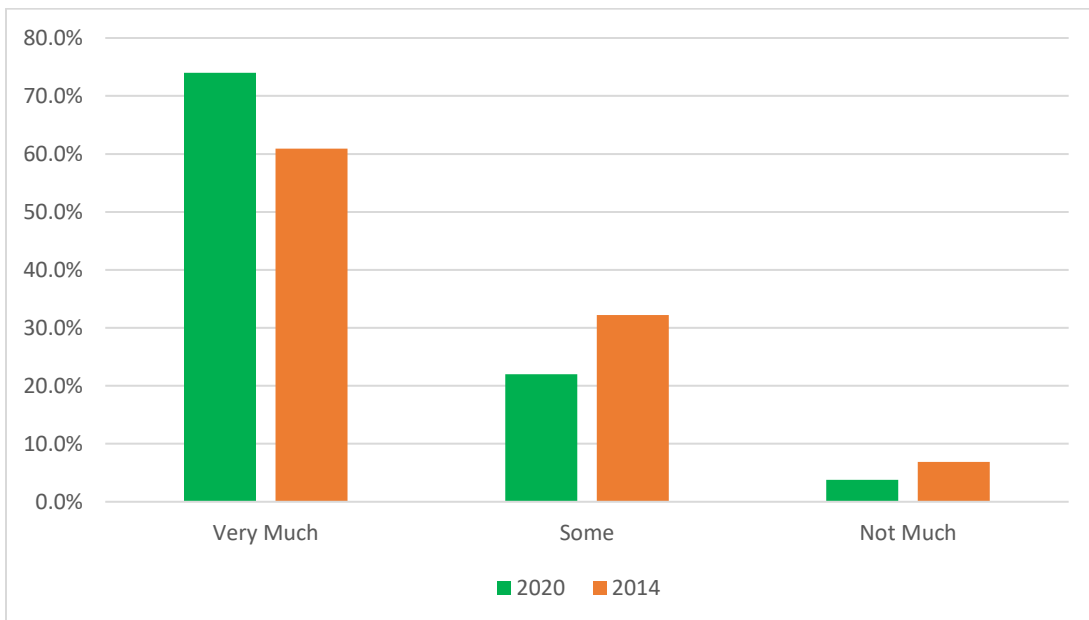


Figure 11 How much responsibility for water quality in Anchorage waterways do residents have? 2014 and 2020.

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.

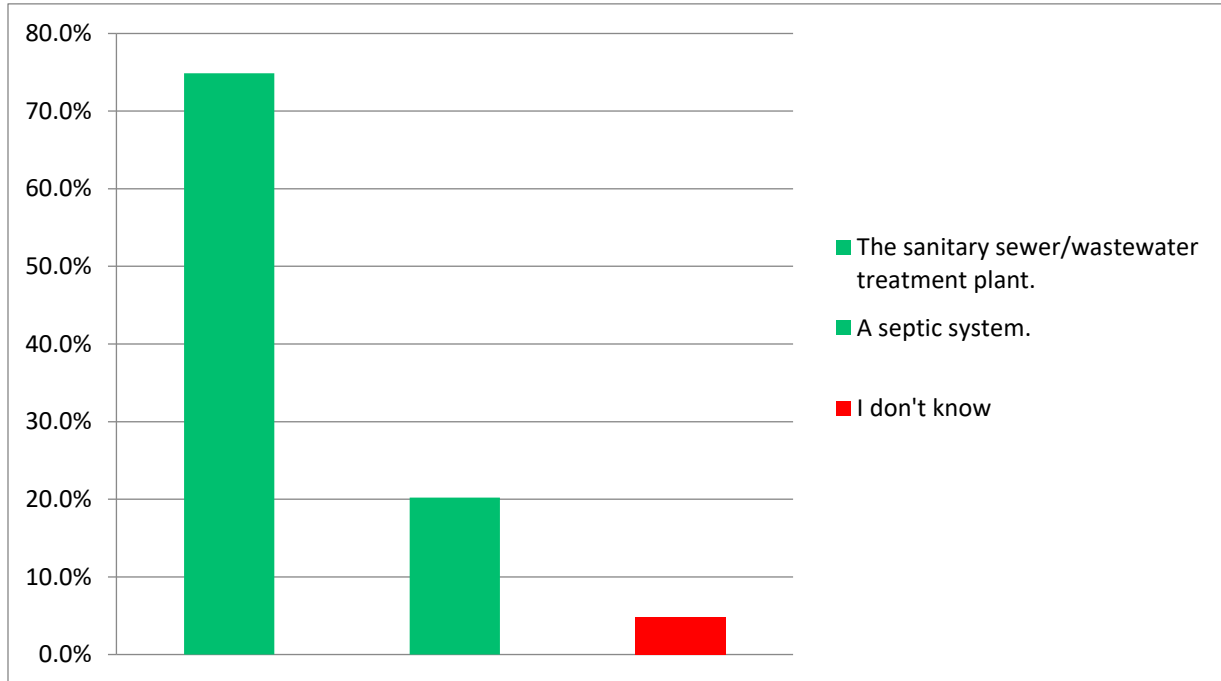


Figure 12 Where does the sewage from your house go? 2020.

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.

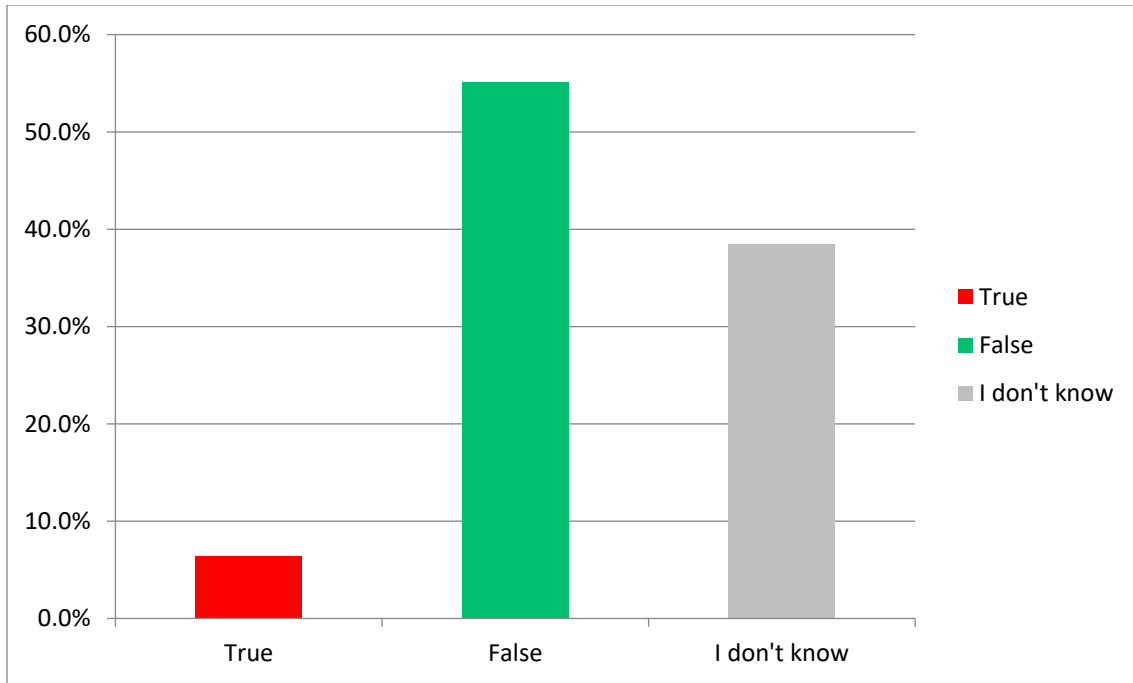


Figure 13 Surface water runoff and snowmelt are treated after they enter the storm drain and before they flow into a creek, 2020.

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.

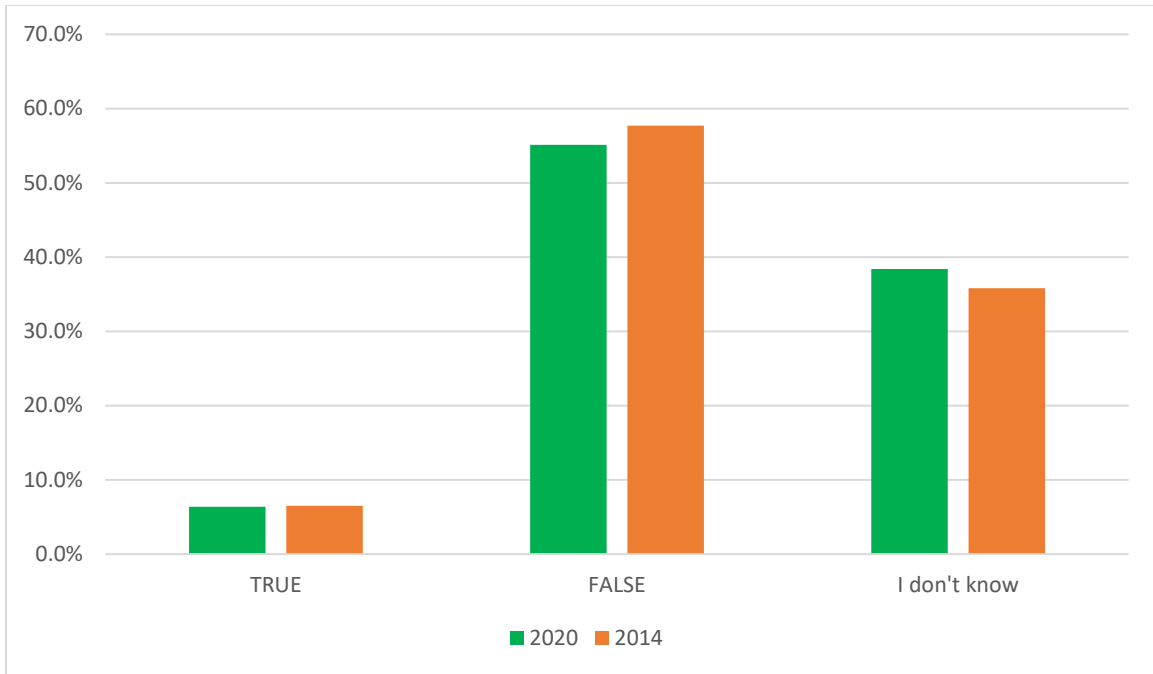


Figure 14 Surface water runoff and snowmelt are treated after they enter the storm drain and before they flow into a creek, 2014 and 2020.

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.

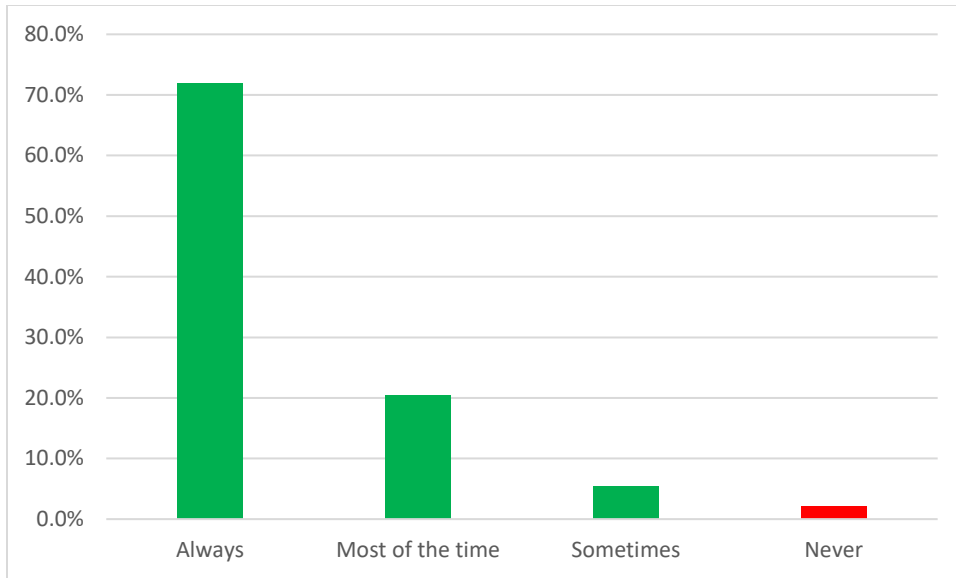


Figure 15 How often respondents pick up pet waste at their residence or adjacent areas, 2020.

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.

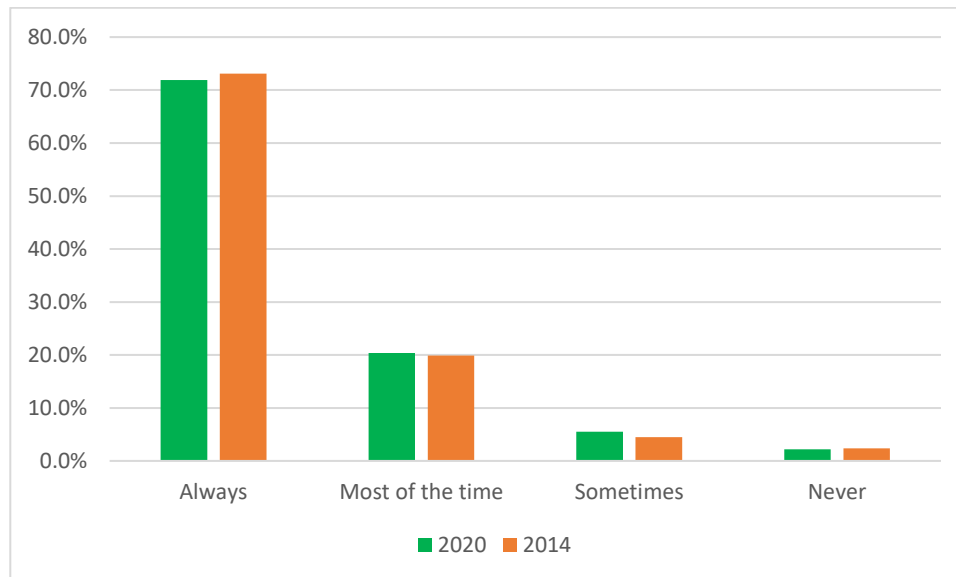


Figure 16 Comparison about cleaning up pet wastes around their residences, 2014 and 2020.

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).

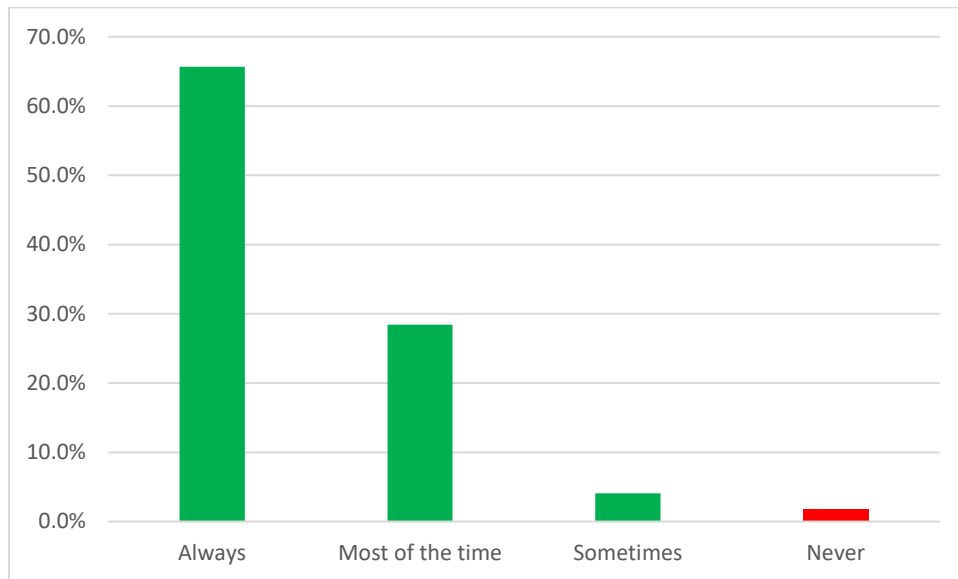


Figure 17 Do owners pick up after their pets when out? 2020

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.

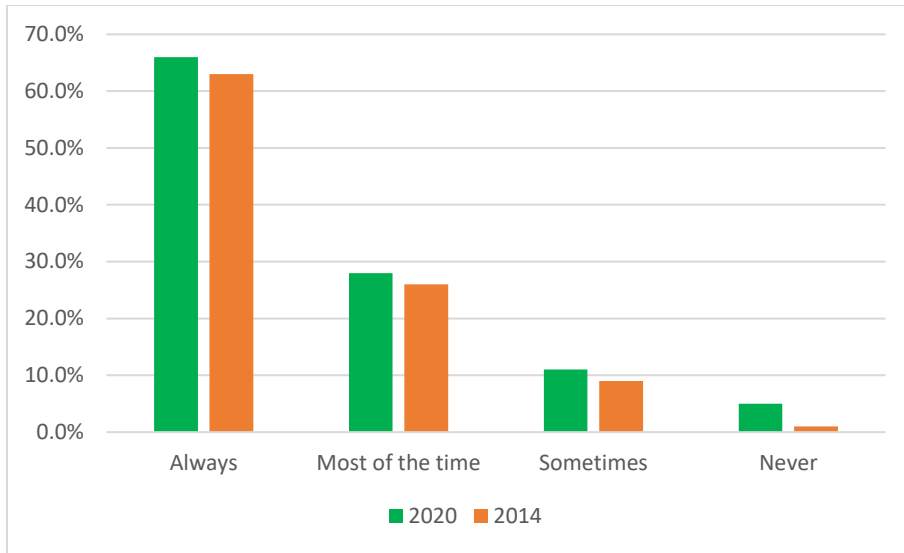


Figure 18 Comparison of dog owners cleaning up after their pets when they are out, 2014 and 2020.

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.

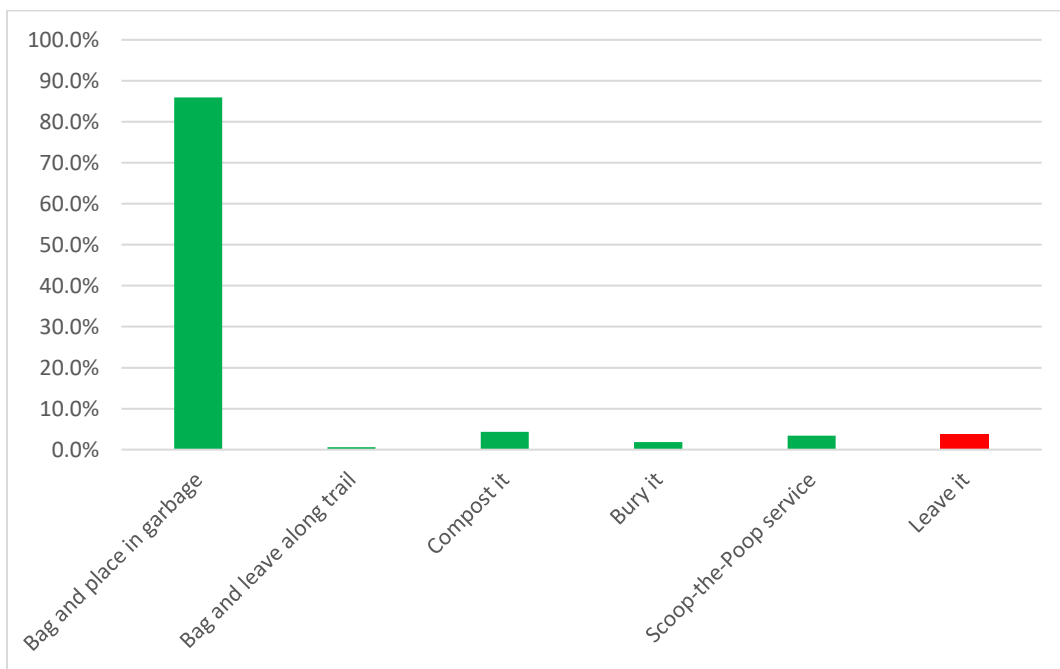


Figure 19 How do you deal with your pet’s waste? 2020.

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.

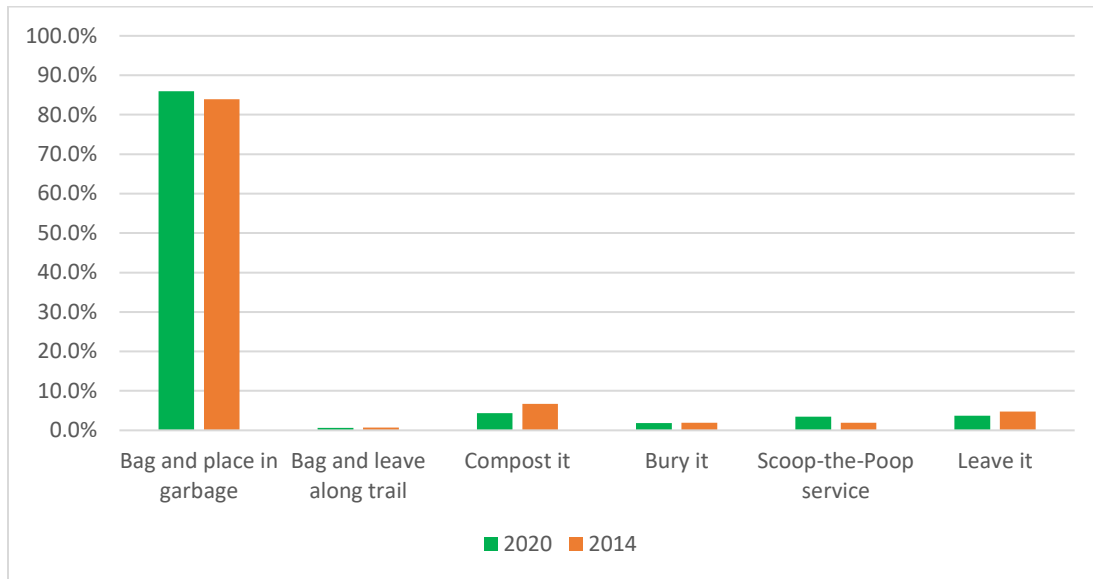


Figure 20 How are pet wastes dealt with, 2014 and 2020.

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.

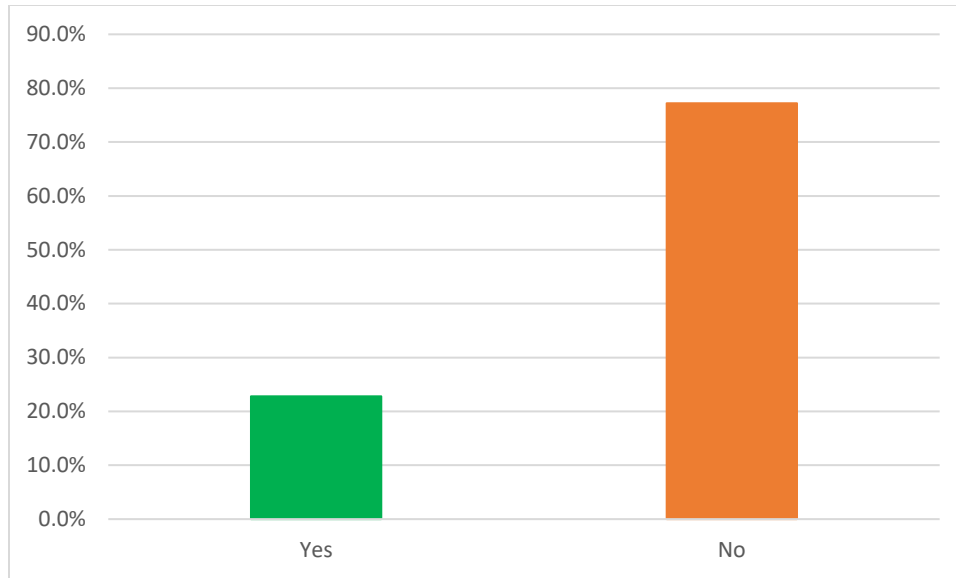


Figure 21 Do you allow your dogs to swim in creeks or lakes? 2020.

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.

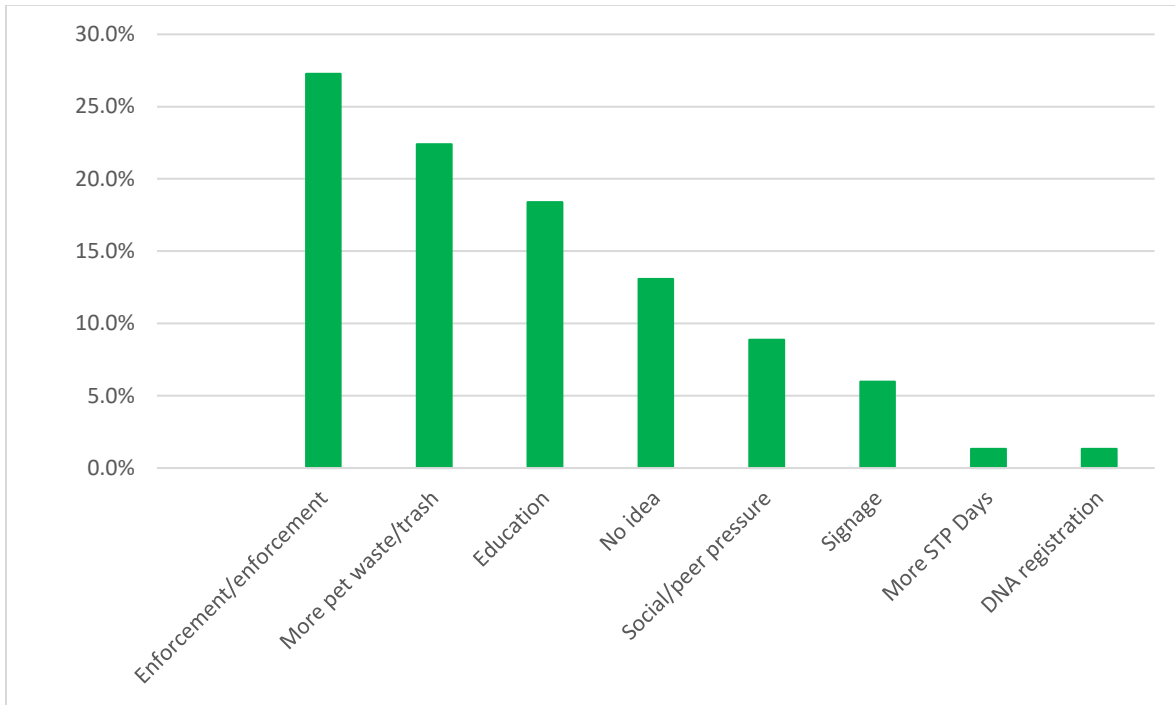


Figure 22 Respondent suggestions for encouraging pet waste pickup, 2020

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.

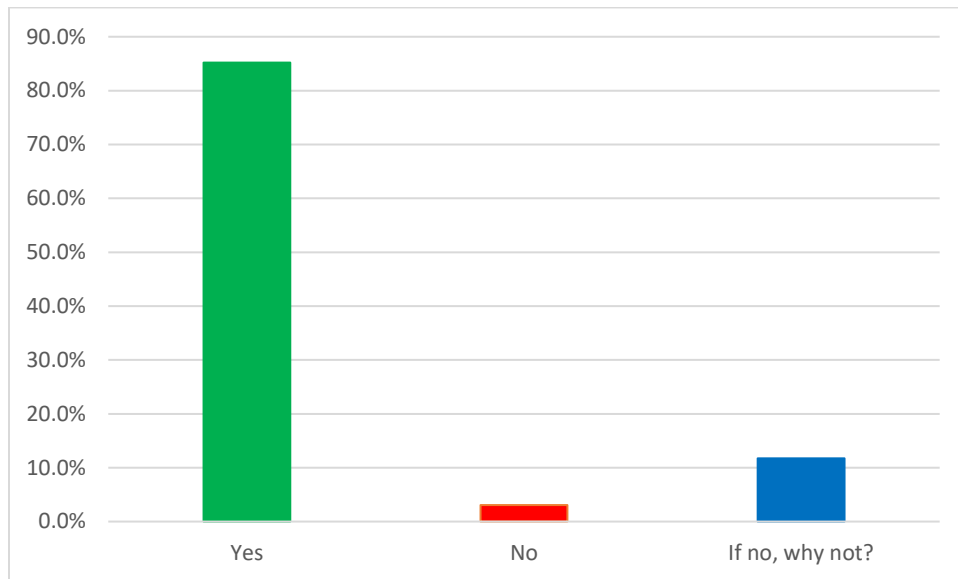


Figure 23 Do you clean up after your dog on the trails when you are jogging, cycling, skijoring or skiing with it? 2020.

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.

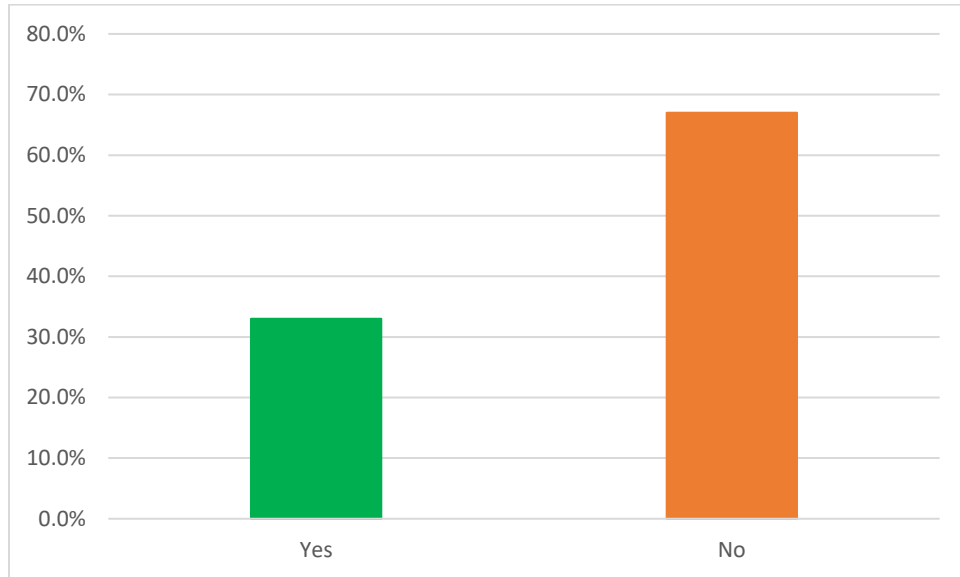


Figure 24 Do you do vehicle repairs at your residence? 2020.

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.

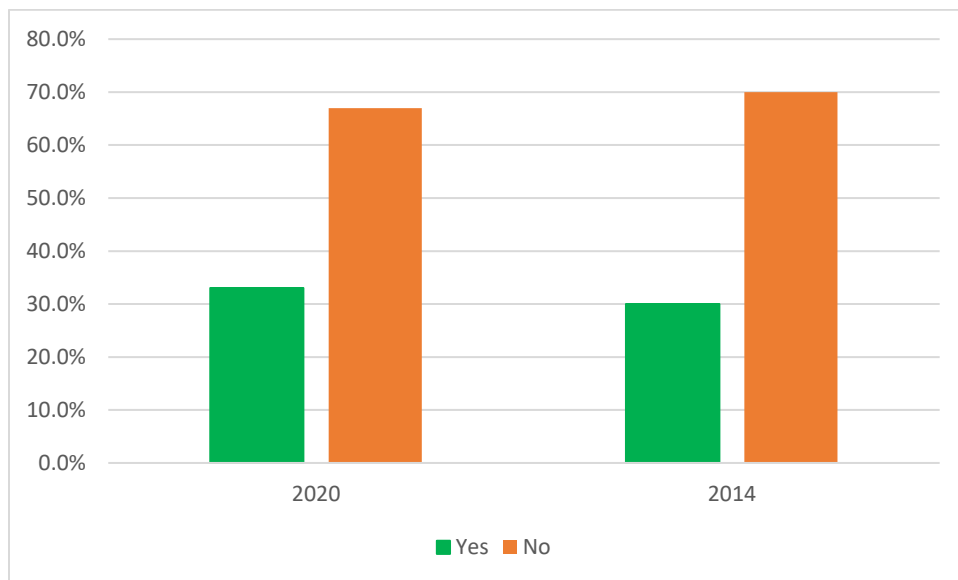


Figure 25 Vehicle repairs at residences, 2014 and 2020.

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.

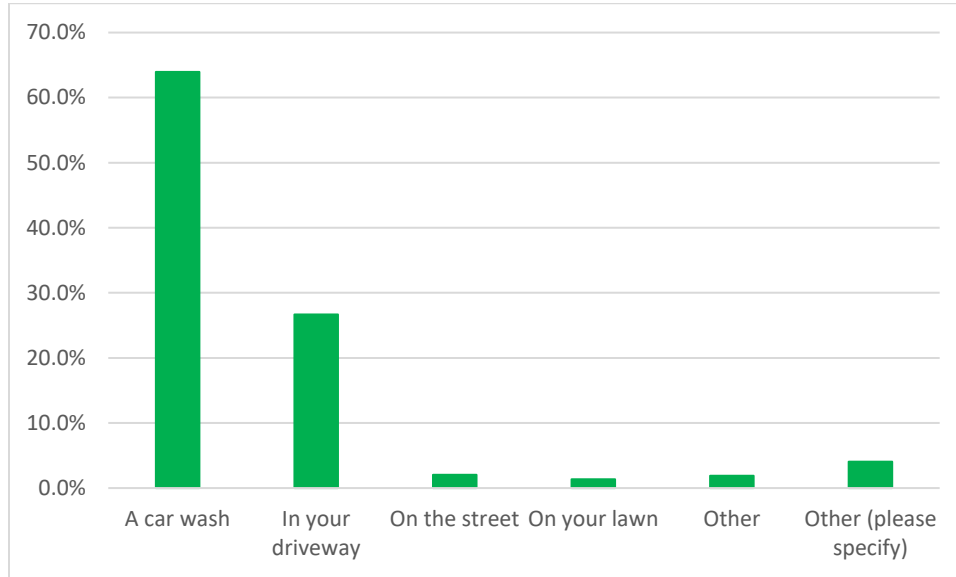


Figure 26 Where respondents wash their vehicles, 2020.

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.

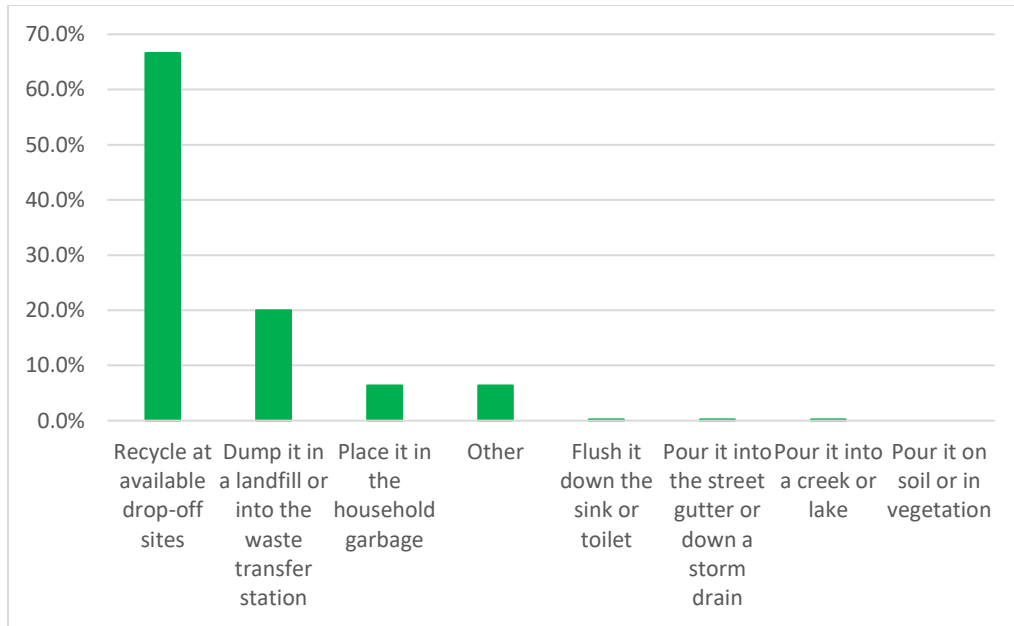


Figure 27 Methods of disposal of hazardous materials, 2020.

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.

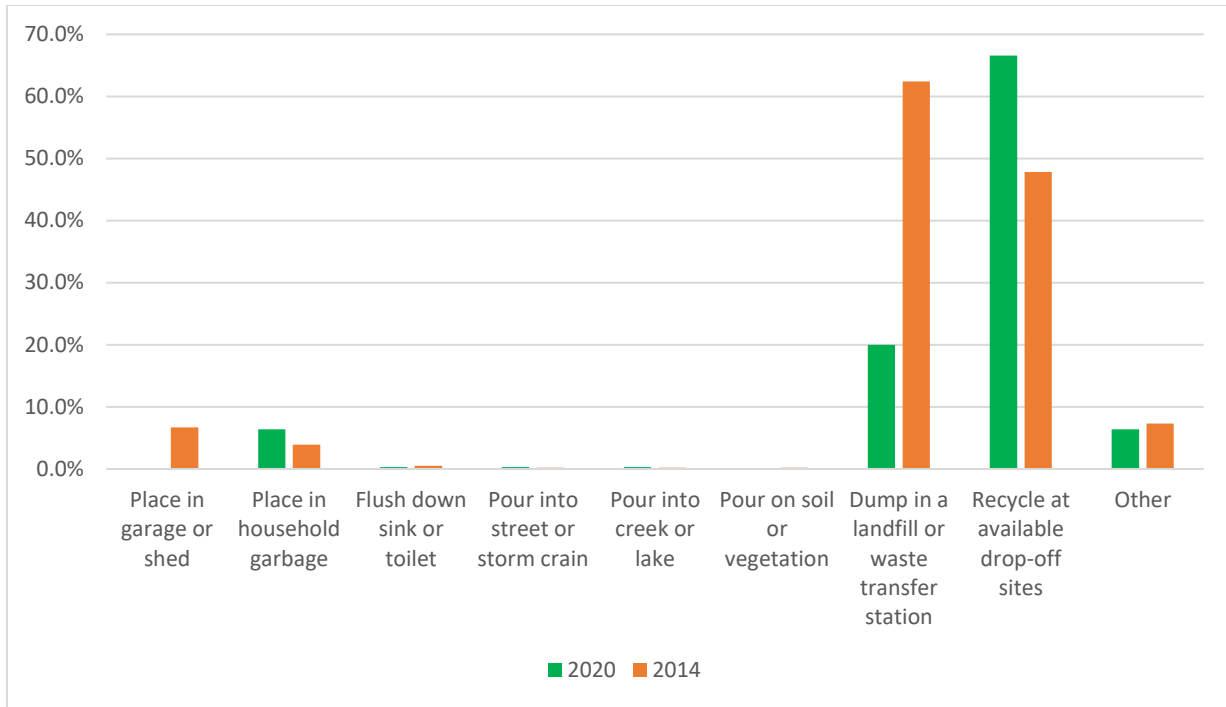


Figure 28 Methods of disposal of hazardous materials, 2014 and 2020.

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.

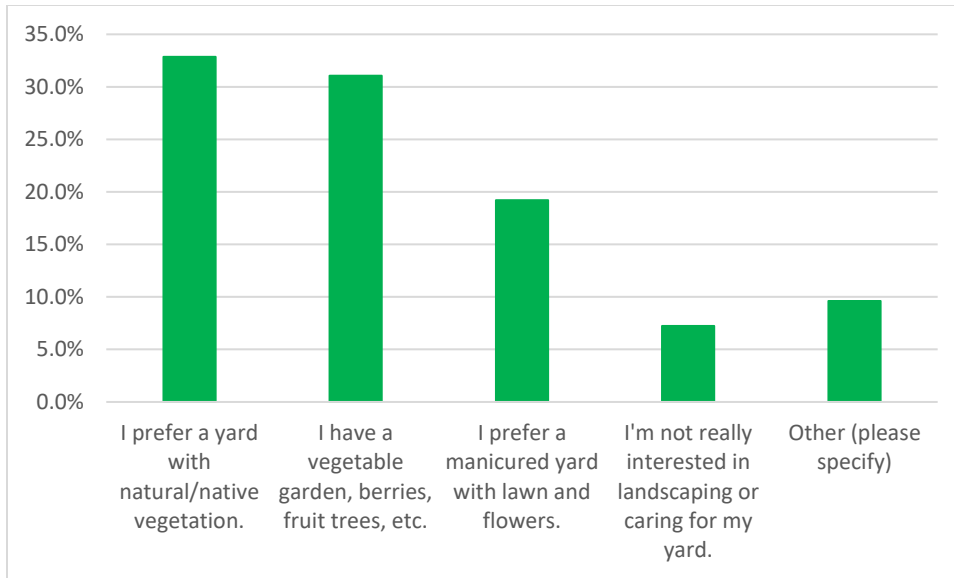


Figure 29 Gardening preferences, 2020.

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.

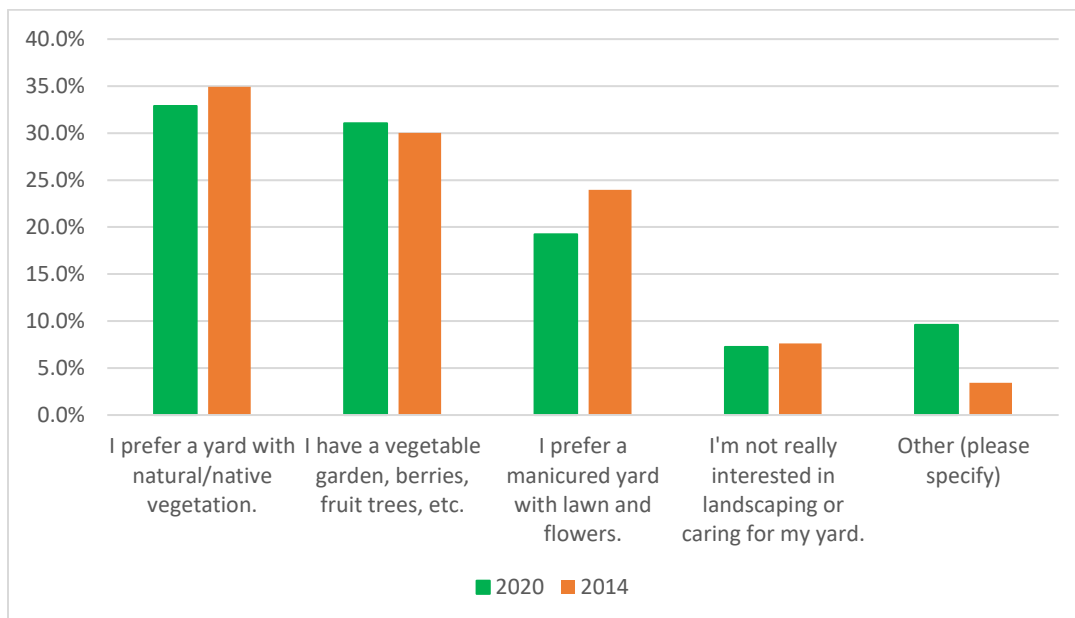


Figure 30 Gardening preferences, 2014 and 2020.

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”.

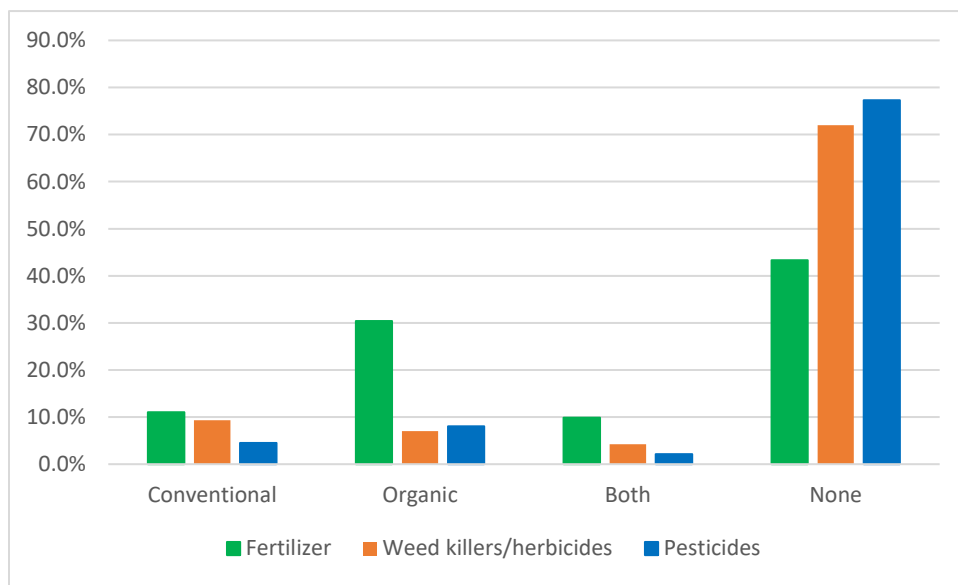


Figure 31 Use of lawn chemicals in gardens and on yards, 2020.

	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.

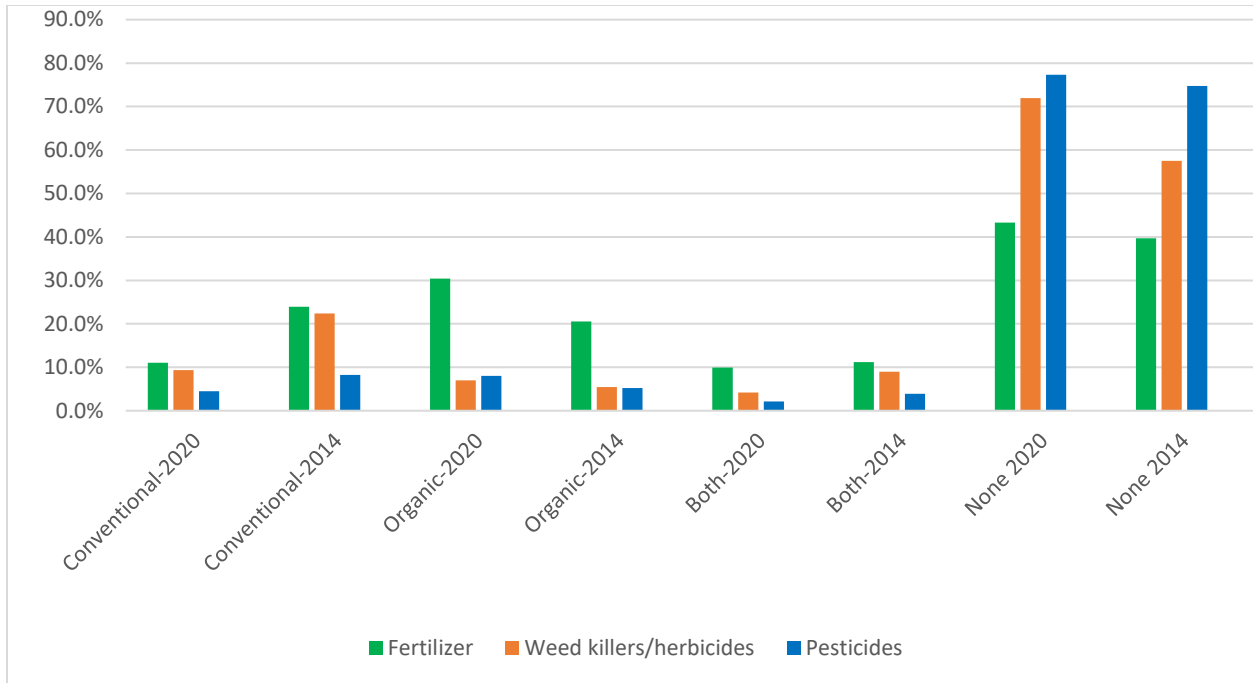


Figure 32 Comparison of yard chemical use, 2014 to 2020.

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.

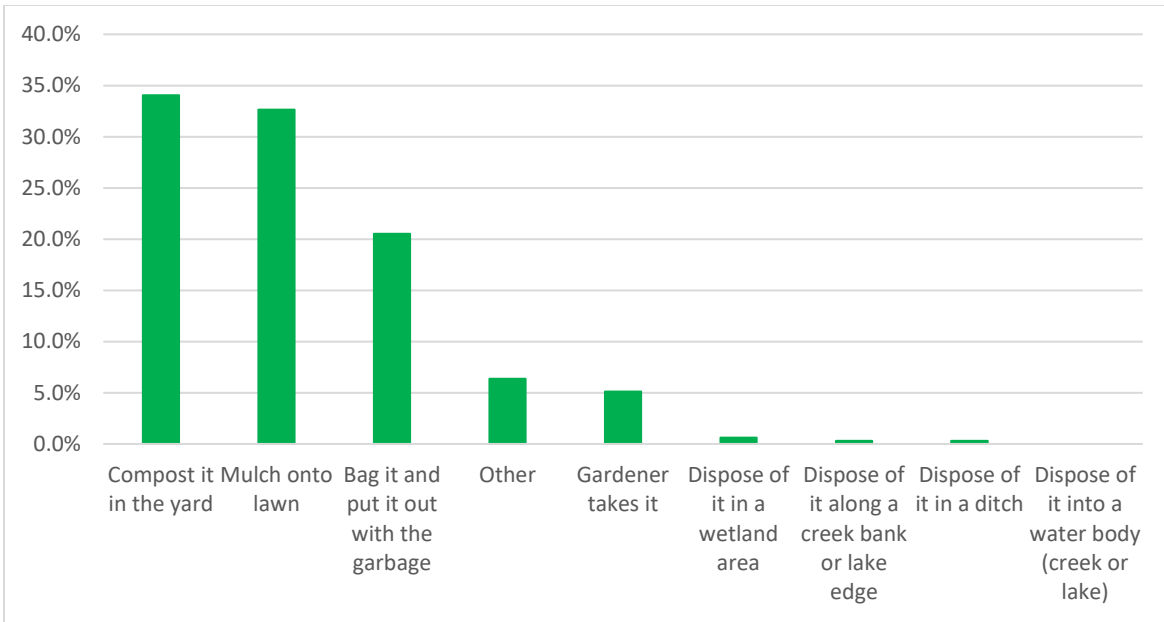


Figure 33 How is green waste disposed? 2020.

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.

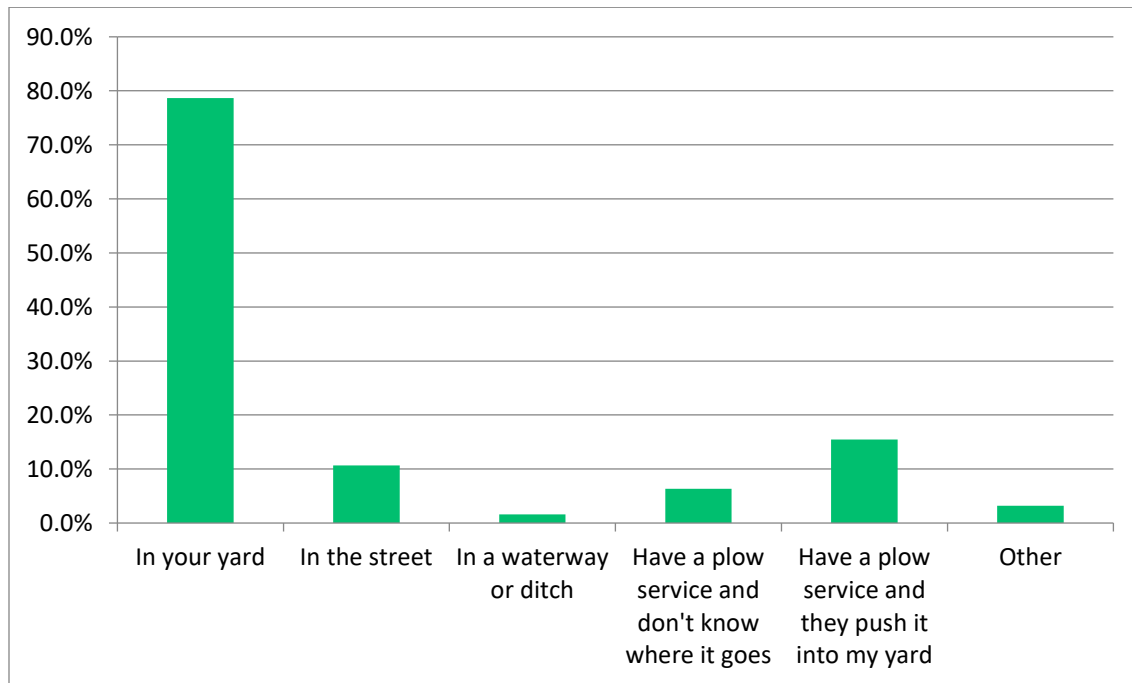


Figure 34 Usual methods for disposing of snow, 2020.

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.

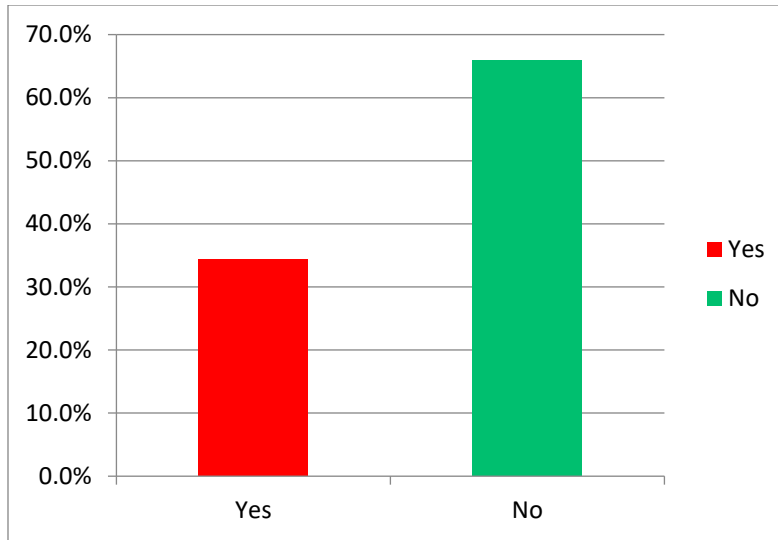


Figure 35 Use of ice melt chemical in yards, walkways, or driveways, 2020.

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.

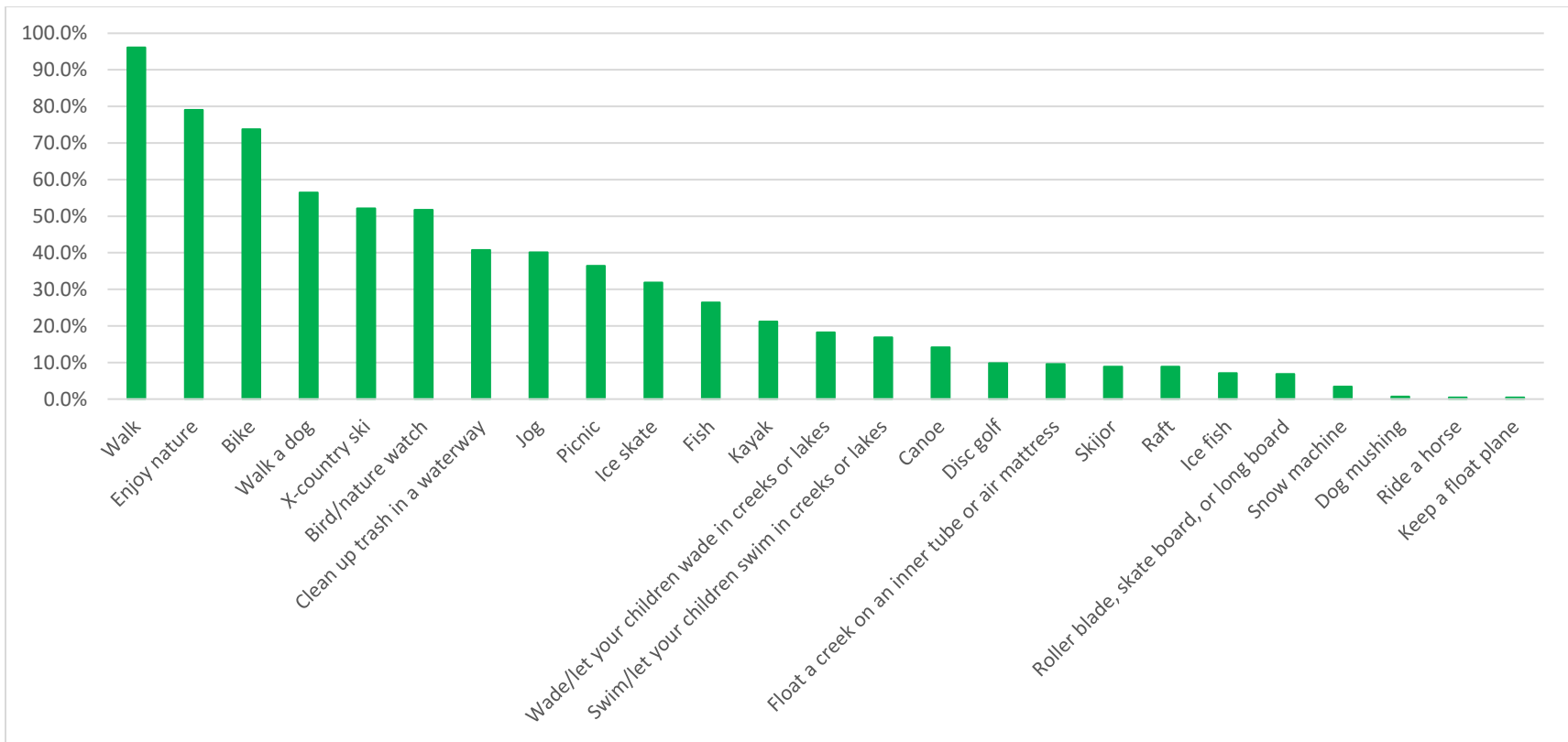


Figure 36 Favorite activities along waterways in the Municipality, 2020.

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.

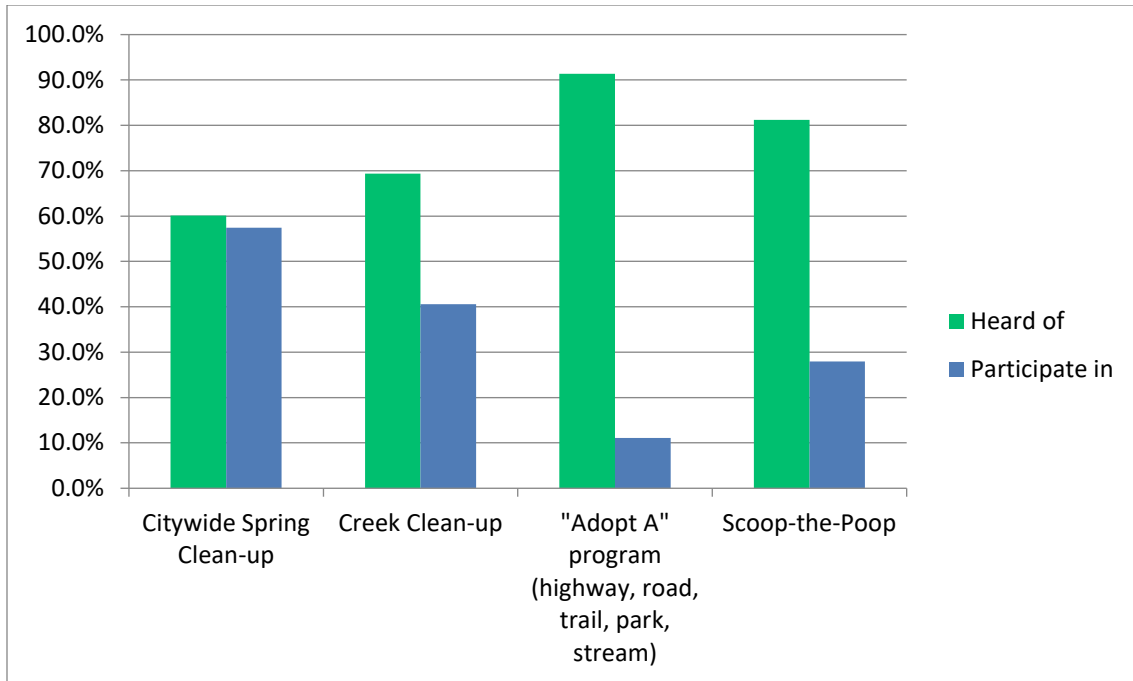


Figure 37 Programs or activities that have been heard of and whether the respondents have participated in them, 2020.

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.

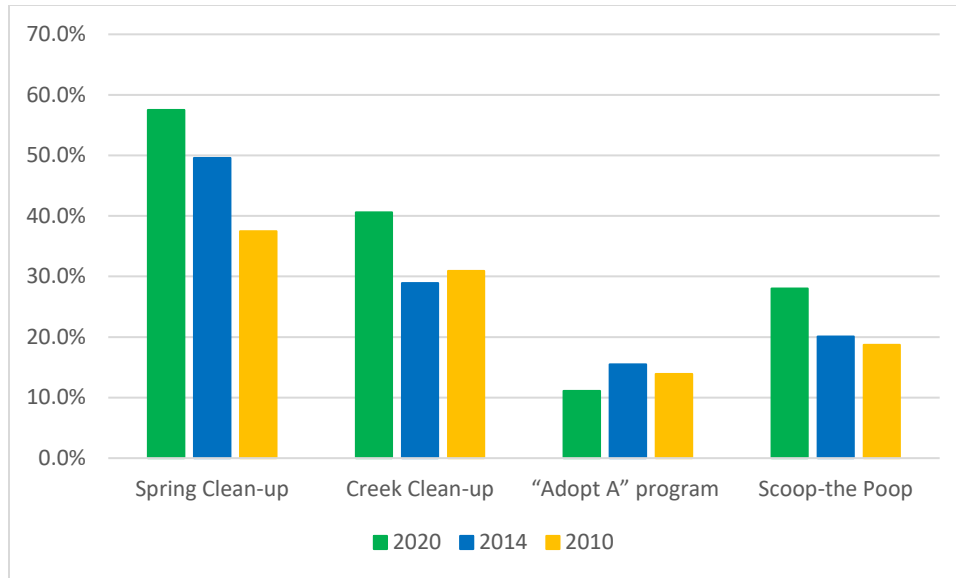


Figure 38 Participants in Spring Cleanup, Creek Cleanup, Adopt A program, and Scoop the Poop. 2010, 2014, and 2020.

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.

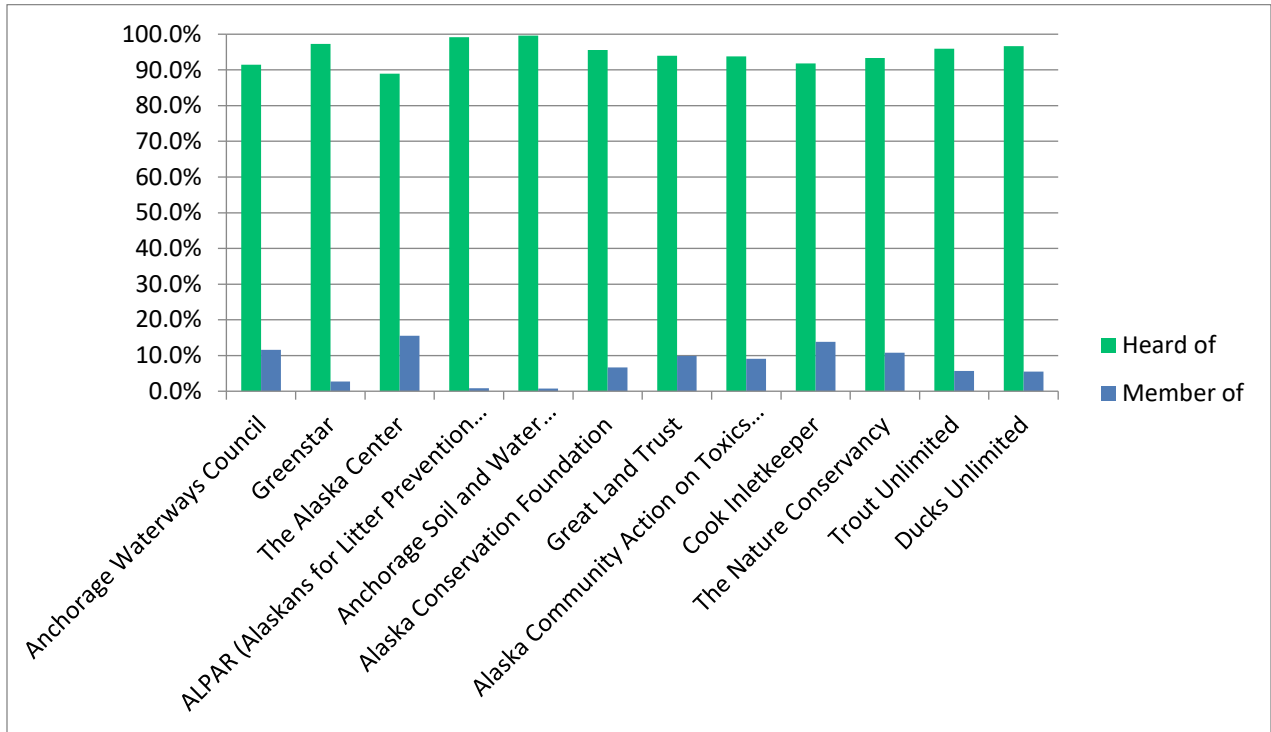


Figure 39 Organizations that respondents have heard of and/or are members of, 2020.

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.

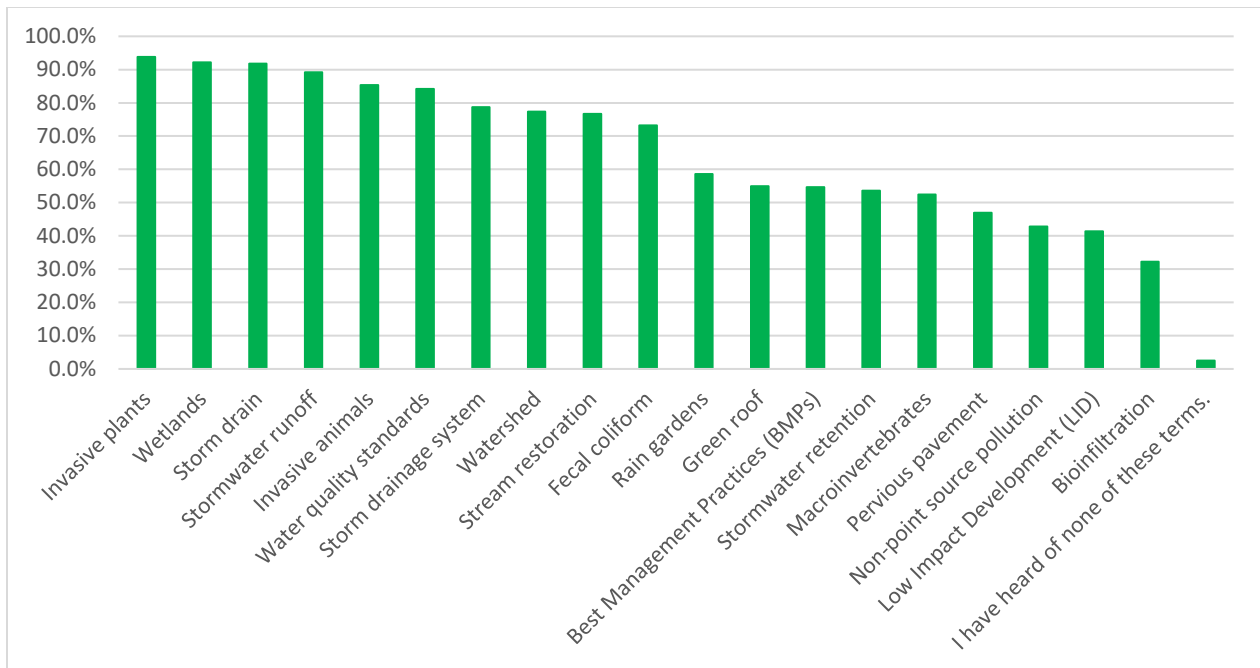


Figure 40 Understanding and familiarity with ecological terminology, 2020.

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.

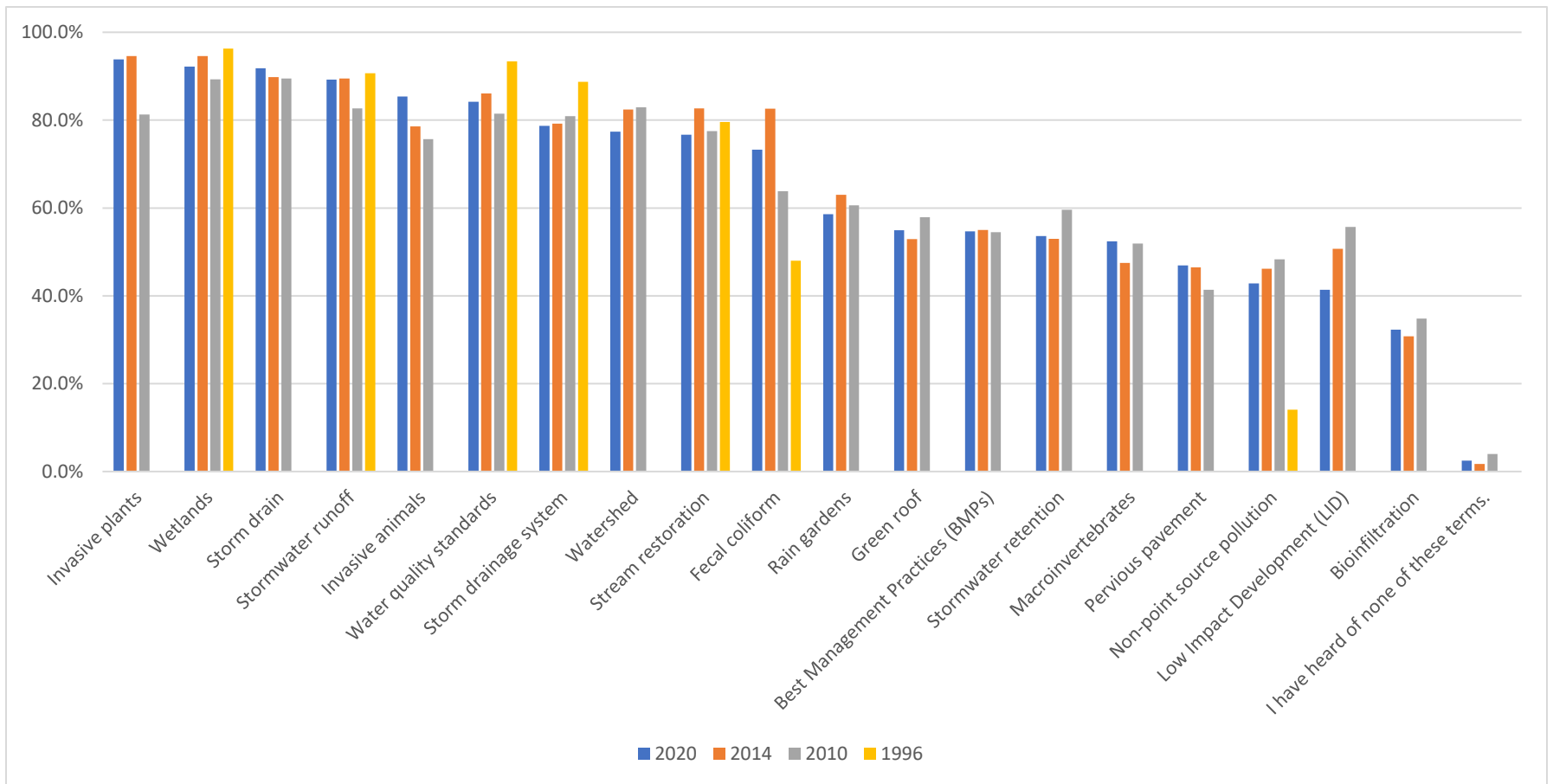


Figure 41 Comparison of awareness of environmental terminology between 1996 and 2020.

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.

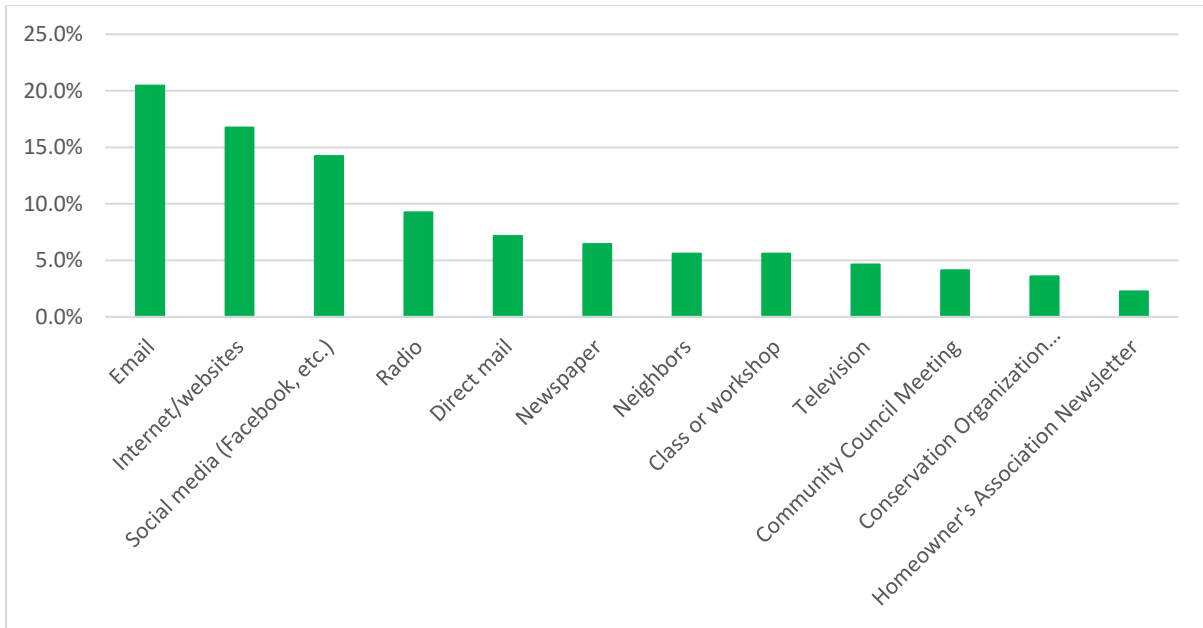


Figure 42 Percentages of preferred means of receiving information, 2020.

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.

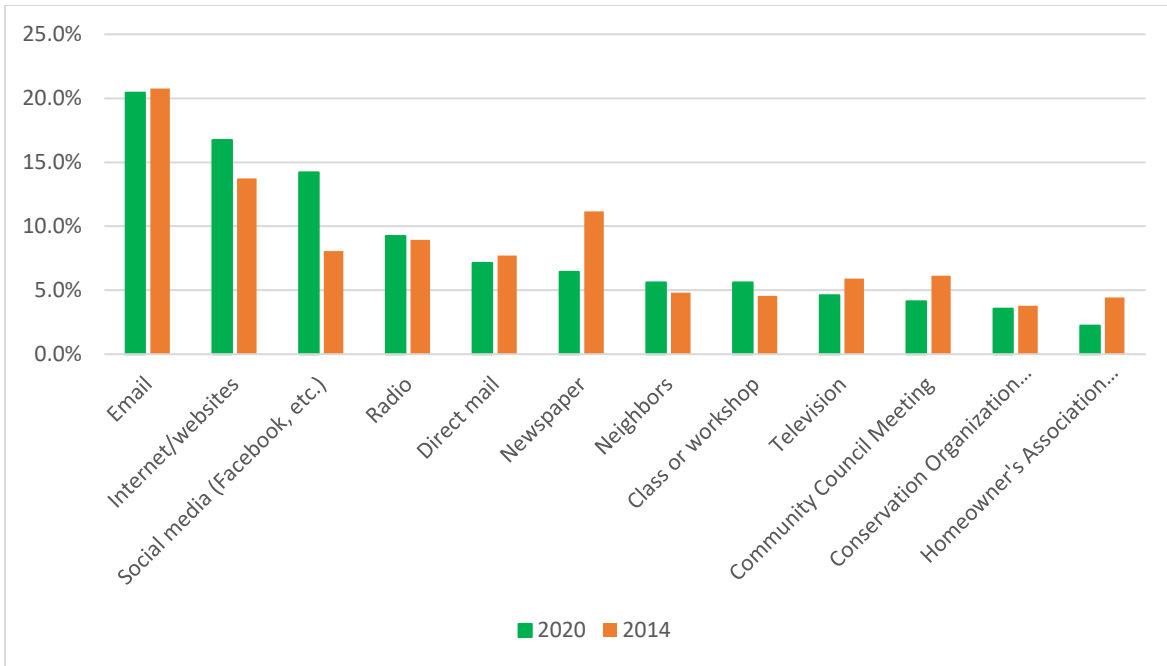


Figure 43 Comparison of how respondents prefer to receive information, 2014 and 2020.

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.

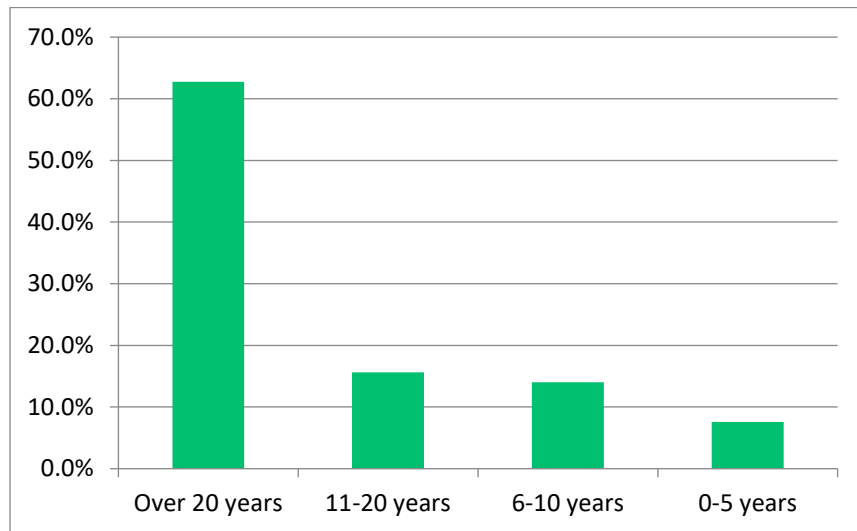


Figure 44 Responses for how long the respondent has lived in Anchorage by year groupings, 2020.

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.

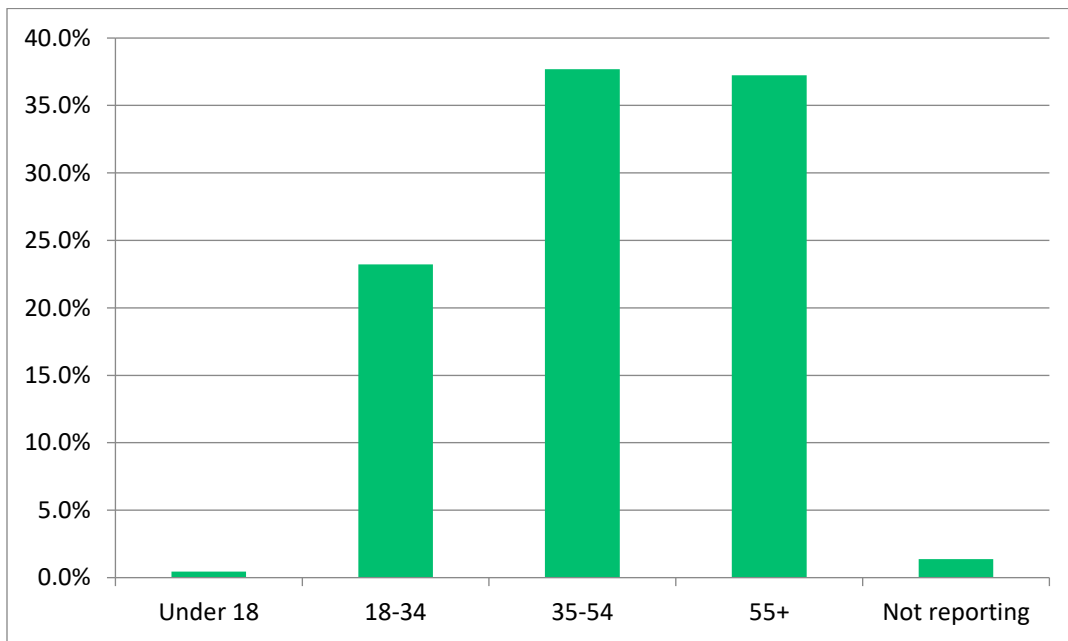


Figure 45 Age distribution of 2020 survey respondents.

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.

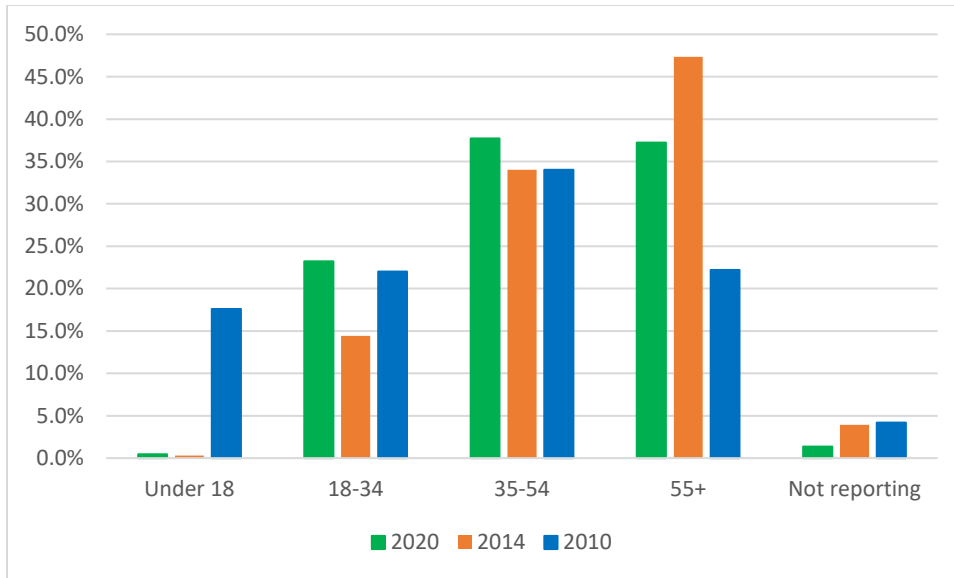


Figure 46 Respondents' ages, 2010, 2014 and 2020.

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.

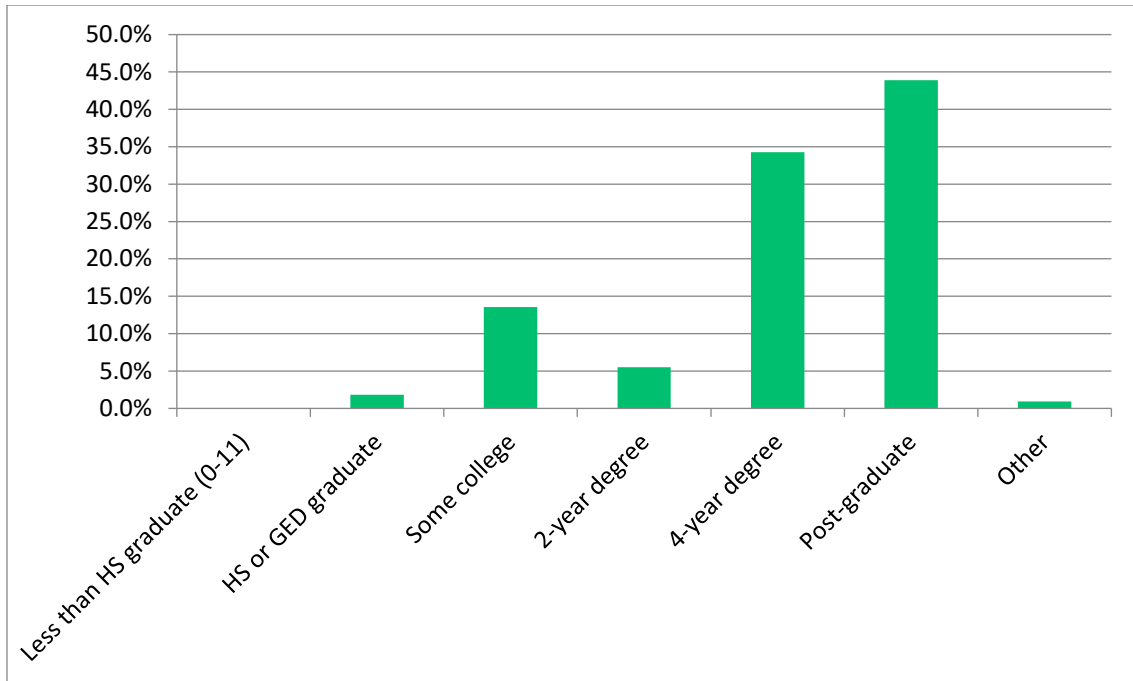


Figure 47 Distribution of respondents' education levels, 2020.

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.

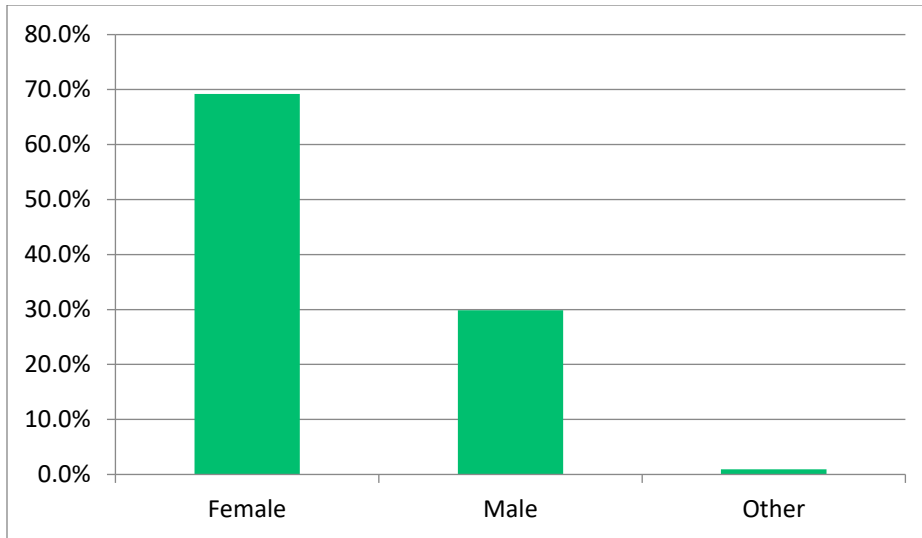


Figure 48 Gender of respondents by cohort, 2020.

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.

1. AWC 2020 Watershed Perception Survey

Thank you for helping us with this survey. It will give us an idea of where we can focus outreach and education to help residents and businesses work to keep Anchorage's creeks healthy. Please leave your contact info at the end so you can be entered into a drawing for \$20-\$25 gift cards Four each \$25 cards from Alaska Mill and Feed and Winestyles and five \$20 gift cards from Moose's Tooth.

* 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 in order to proceed. If your zip code is not listed, then please exit the survey. And, please only take the survey once. Thank you.

- 99501
- 99502
- 99503
- 99504
- 99505
- 99506
- 99507
- 99508
- 99513
- 99515
- 99516
- 99517
- 99518
- 99540
- 99567
- 99577
- 99587

* 2. Do you live in a watershed?

- Yes
- No
- Not sure

If "yes", which one?

* 3. Are you interested in hearing more about watersheds? If so, please leave a contact email at the end of this question.

Yes

No

Email

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

Very good

Somewhat good

Moderate

Somewhat poor

Very poor

Do not know

No opinion

Comments:

* 5. Over the last 10 years, do you think that the water quality of our creeks and streams has:

Improved

Gone down hill

Remained about the same

* 6. What do you think is the BIGGEST threat to WATER QUALITY in Anchorage's creeks? Please rank the following.

Pet waste (dogs, horses)

Wildlife (moose, beavers, waterfowl, etc.)

Leaking septic systems

Humans--directly

Vehicle drips (antifreeze, brake fluid, oil, gasoline)

Yard chemicals (fertilizers, pesticides, ice melt)

Traction products (sand, gravel)

Sediment

* 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?

* 8. What could be done to improve the overall quality of Anchorage's streams and creeks?

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

	Very Much	Some	Not Much
Municipality of Anchorage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
State of Alaska (e.g. Dept. of Environmental Conservation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Federal Government (e.g. EPA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Businesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Schools/Universities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Community Groups	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchorage Waterways Council	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other (please specify)

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

- Very much Some Not much

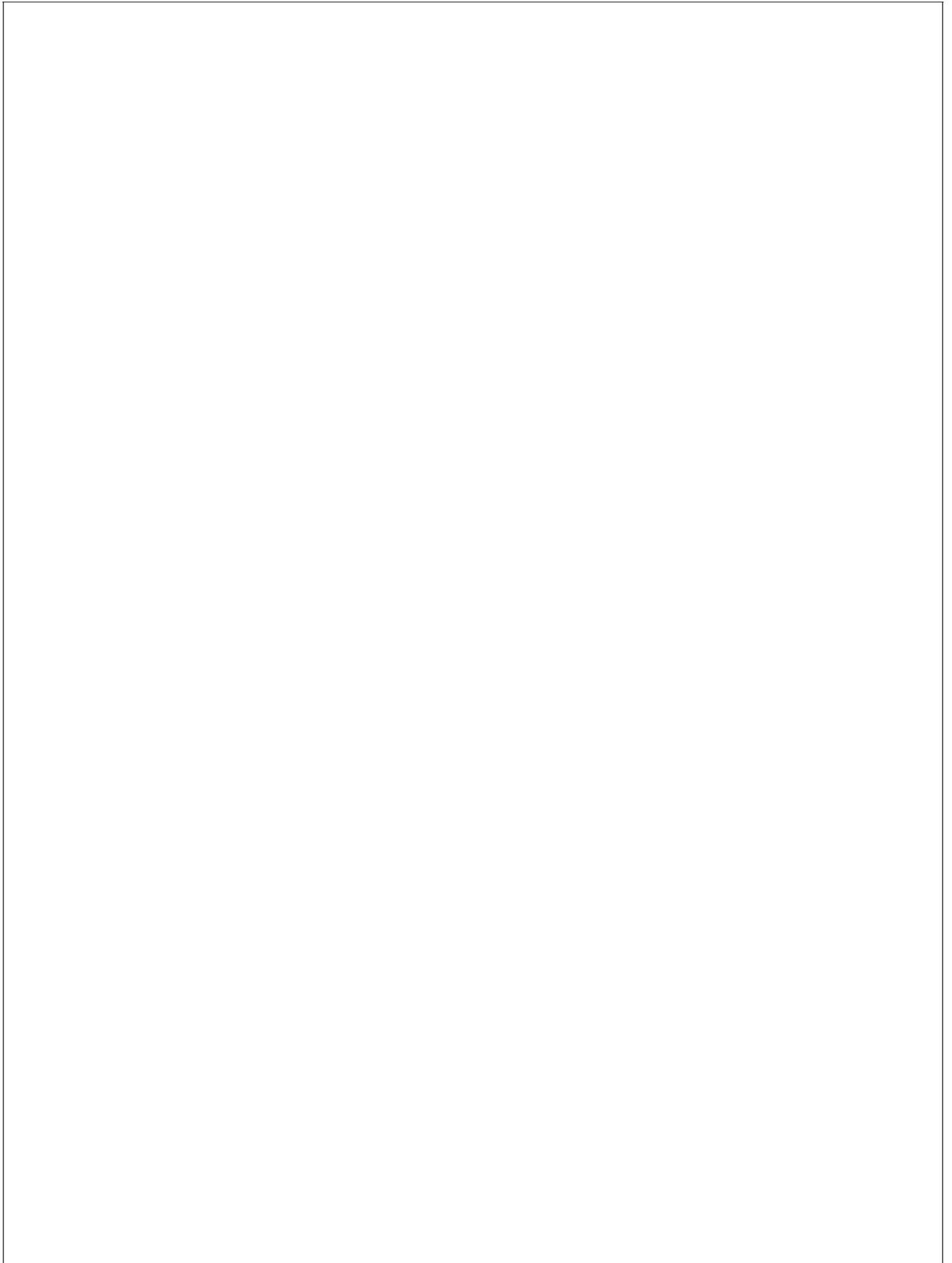
* 11. Sewage from you house flows into:

- the sanitary sewer and then through the wastewater treatment plant.
 a septic system.
 I don't know

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

- True
 False
 I don't know

If you answered "True", please describe how this water is treated.



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

Yes

No

If "Yes", how many?

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

Always

Most of the time

Sometimes

Never

I do not own a dog

Other (please specify)

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

Always

Most of the time

Sometimes

Never

I do not own a dog

Other:

Other (please specify)

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

- Bag and place in garbage
- Bag and leave along trail
- Compost it
- Bury it
- Scoop-the-Poop service
- Leave it
- I do not own a dog
- Other

Other (please specify)

* 17. Do you let your dogs swim our in lakes and streams?

- Yes
- No
- I do not own a dog.
- If yes, which lakes or creeks does your dog swim in?

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

* 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.

- I do not have a dog or I do not do these activities
- Yes
- No
- If no, why not?

* 20. Do you do ANY of your own vehicle repairs at your residence?

- Yes
- No
- I do not own a vehicle.

If "yes", please describe:

* 21. Do you wash your vehicle at: (check all that applies)

- A car wash
- In your driveway
- On the street
- On your lawn
- I do not own a car
- Other

Other (please specify)

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

- Place it in the household garbage
- Flush it down the sink or toilet
- Pour it into the street gutter or down a storm drain
- Pour it into a creek or lake
- Pour it on soil or in vegetation
- Dump it in a landfill or into the waste transfer station
- Recycle at available drop-off sites
- Other

Other (please specify)

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

- I prefer a manicured yard with lawn and flowers.
- I prefer a yard with natural/native vegetation.
- I have a vegetable garden, berries, fruit trees, etc.
- I'm not really interested in landscaping or caring for my yard.
- Other

Other (please specify)

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

	Conventional	Organic	Both	None	N/A
Fertilizer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weed killers/herbicides	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pesticides	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other (please specify)

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

- Bag it and put it out with the garbage
- Compost it in the yard
- Mulch onto lawn
- Dispose of it in a wetland area
- Dispose of it into a water body (creek or lake)
- Dispose of it along a creek bank or lake edge
- Dispose of it in a ditch
- Gardener takes it
- Other

Other (please specify)

* 26. How do you usually dispose of snow?

- In your yard
- In the street
- In a waterway or ditch
- Have a plow service and don't know where it goes
- Have a plow service and they push it into my yard
- Other

Other (please specify)

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

- Yes
- No

If yes, do you know what it is?

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

- Walk
- Jog
- Bike
- Roller blade, skate board, or long board
- X-country ski
- Picnic
- Fish
- Ice fish
- Ice skate
- Disc golf
- Bird/nature watch
- Enjoy nature
- Walk a dog
- Skijor
- Ride a horse
- Dog mushing
- Snow machine
- Wade/let your children wade in creeks or lakes
- Swim/let your children swim in creeks or lakes
- Float a creek on an inner tube or air mattress
- Raft
- Canoe
- Kayak
- Clean up trash in a waterway
- Keep a float plane

List places:

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

	Heard of	Participate in
Citywide Spring Clean-up	<input type="checkbox"/>	<input type="checkbox"/>
Creek Clean-up	<input type="checkbox"/>	<input type="checkbox"/>
"Adopt A" program (highway, road, trail, park, stream)	<input type="checkbox"/>	<input type="checkbox"/>
Scoop-the-Poop	<input type="checkbox"/>	<input type="checkbox"/>

* 30. Have you heard of the following organizations and/or are you a member of them?

	Heard of	Member of
Anchorage Waterways Council	<input type="checkbox"/>	<input type="checkbox"/>
Greenstar	<input type="checkbox"/>	<input type="checkbox"/>
The Alaska Center	<input type="checkbox"/>	<input type="checkbox"/>
ALPAR (Alaskans for Litter Prevention and Recycling)	<input type="checkbox"/>	<input type="checkbox"/>
Anchorage Soil and Water Conservation District	<input type="checkbox"/>	<input type="checkbox"/>
Alaska Conservation Foundation	<input type="checkbox"/>	<input type="checkbox"/>
Great Land Trust	<input type="checkbox"/>	<input type="checkbox"/>
Alaska Community Action on Toxics (ACAT)	<input type="checkbox"/>	<input type="checkbox"/>
Cook Inletkeeper	<input type="checkbox"/>	<input type="checkbox"/>
The Nature Conservancy	<input type="checkbox"/>	<input type="checkbox"/>
Trout Unlimited	<input type="checkbox"/>	<input type="checkbox"/>
Ducks Unlimited	<input type="checkbox"/>	<input type="checkbox"/>

* 31. Which of the following terms are you familiar with and have an understanding of their meaning?

- Watershed
- Wetlands
- Stormwater runoff
- Water quality standards
- Storm drain
- Storm drainage system
- Stream restoration
- Fecal coliform
- Non-point source pollution
- Macroinvertebrates
- Invasive plants
- Invasive animals
- Low Impact Development (LID)
- Rain gardens
- Pervious pavement
- Best Management Practices (BMPs)
- Bioinfiltration
- Stormwater retention
- Green roof
- I have heard of none of these terms.

* 32. Which are your preferred means of receiving information?

- Direct mail
- Newspaper
- Television
- DVD
- Radio
- Community Council Meeting
- Internet/websites
- Email
- Social media (Facebook, etc.)
- Neighbors
- Homeowner's Association Newsletter
- Conservation Organization Newsletter
- Class or workshop
- Not sure
- Not interested
- Other

Other (please specify)

The following questions are for statistical purposes only.

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

- Over 20 years
- 11-20 years
- 6-10 years
- 0-5 years

* 34. What is your age?

- Under 18
- 18-34
- 35-54
- 55+
- Not reporting

* 35. What is your education level?

- Less than HS graduate (0-11)
- HS or GED graduate
- Some college
- 2-year degree
- 4-year degree
- Post-graduate
- Other

Other (please specify)

* 36. What is your gender?

- Female
- Male
- Other

Other (please specify)

37. If you would like to participate in this same survey again in a few years, please provide your email in the box. These surveys are very valuable in determining changing attitudes over time. Thank you.

8. Page 9 Thank you

Anchorage Waterways Council would like to thank you for taking the time to fill out this very important survey. The results will be used to help us develop outreach and education programs for citizens in order to better understand the impacts of stormwater on our creeks, rivers, and lakes.

We would like to use answers from the same respondents over time. If you would like to participate again in a few years, please leave your contact information (email) below. You can also find more information on Anchorage Waterways Council at www.anchoragecreeks.org. And, all those leaving a contact will be entered into a drawing for one of twelve \$25 gift cards from Moose's Tooth, Alaska Mill and Feed, or Winestyles.

Thank you!

38. Your email