



David Bronson, Mayor

2021 Stormwater Outreach Public Education and Involvement APDES Permit No. AKS-052558

MUNICIPALITY OF ANCHORAGE
WATERSHED MANAGEMENT PROGRAM

Prepared for:

Municipality of Anchorage
Watershed Management Services

Authored and prepared by

Cherie Northon Ph.D.,

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

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Introduction

Anchorage Waterways Council (AWC) is responsible for the outreach and education sections of the APDES AKS-05258 2020-2025 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 the Year One report for this permit period.

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.

This permit period continued to be challenging due to Covid, but was easier to navigate in 2021. Our annual meeting was cancelled again and is currently being looked at in spring of 2022 when we hope to do a program concerning the 6PPE quinone study (see the Media section). The following tabling events that AWC regularly participates in were again canceled in 2021:

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

There was hesitation for the Midtown Mall Spring Garden Show to occur, and when they decided to hold it in May during our Creek Cleanup, we had to decline. AWC did participate in the Alaska Botanical Garden Spring Garden Conference with a short presentation.

AWC continued putting more messages out on Facebook. Anchorage Waterways Council’s regular Facebook posts reached 139,298 during Year 1.

There was a definite increase in news stories with five being shown on KTUU/Channel 2.

Creek Cleanup was a huge success this year with over 40 teams, and location that we provide on our website¹ was covered. Interestingly, most teams reported finding much less trash than usual which was truly good news.

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, pet waste; waterfowl feeding; invasive plants; the application of fertilizers, herbicides, and pesticides; disposal of green waste; snow melt 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.

¹ <https://www.anchoragereeks.org/copy-of-creek-cleanup>

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 returned to its original format with staff, AWC board members, and volunteers providing buckets, shovels, gloves, and bags to scoopers at Connors Bog and University Lake. DIY scoopers were also encouraged to clean up an area of their choice, and we received several reports of various areas cleaned—many of them were trailheads which are common places to see dog poop that has not been picked up.



Figure 1 Volunteers at University Lake Dog Park – April 24, 2021

There was a good turnout this year, as was the case for our May Creek Cleanup, with over 100 scoopers. The amount of pet waste left in yellow bags around University Lake trash cans and put into the dumpster at Connors Bog speaks to the success.



Figure 2 Bags of dog poop University Lake Dog Park – April 24, 2021



Figure 3 Bags of dog poop fill the dumpster at Connors Bog Dog Park – April 24, 2021



Figure 4 DIY Poop Scoopers encouraged by pet photographer David Jensen – April 24, 2021

The impact of Covid was still felt in other areas where AWC promotes Scoop the Poop. Several events, e.g. Friends of Pets' Dog Jog, Migratory Bird Day, and Potter Marsh Day, were cancelled this year which meant a loss of those venues. It is hoped that 2022 will be more like previous years when these events went forward.

Despite this setback, STP outreach continued full force in other areas. Multiple complaints by park and trail users about excessive amounts of dog poop before breakup prompted AWC to look at other ways to get the message out. One that seems particularly effective was the creation of six designs for temporary signage that was printed on 18 x 24 corrugated plastic (similar to political signs) and placed on wood stakes or pronged metal stands. A total of 100 signs were printed. Examples of the six signs are in Appendix A. Several of the trail enthusiasts who had contacted AWC agreed to take 3-6 signs and place them in areas of high pet use. They also kept an eye on the signs, fixed them when they were damaged, and replaced them if they were vandalized. Most signs survived and will be put out again in winter 2022.



Figure 5 AWC sign on a trail – April 2021

The other major accomplishment during this period was the creation of a 1- minute graphic animation video called “Let’s talk about poop” (Fig. 6). Local artist and videographer, Dan Redfield (<https://www.danredfield.com/>), worked for several months with Cherie Northon to hone the message. Besides the video which is on AWC’s website at <https://www.anchoragecreeks.org/projecto-2>, a 1-minute sound track was made. The video, on YouTube at <https://youtu.be/DhEckt3jSZk>, has been posted numerous times on AWC’s Facebook page <https://www.facebook.com/ScoopthePoopAnchorage>.



Figure 6 Opening graphic from AWC’S animation, “Let’s Talk About Poop”

Scoop the Poop Anchorage Facebook posts reached 45,458 people between December 1, 2020, and November 30, 2021. Other Scoop the Poop posts were made on non-AWC pages for which there are no response counts:

1. Friends of Connors Bog Dog Park (<https://www.facebook.com/groups/299305227210586>),
2. Arctic Benson Midtown Dog Park (<https://www.facebook.com/groups/336473023152288>),
3. Whisper Faith Kovach Playground and Dog Park (<https://www.facebook.com/WFKpark>),
4. University Lake Dog Park (<https://www.facebook.com/pages/University%20Lake%20Dog%20Park/157889250892596/>),

[Yard Chemicals \(Ice melt, fertilizers, pesticides, herbicides\)](#)

AWC participated in the February 21, 2021, Alaska Botanical Spring Garden Conference with a short video titled, Great Gardens and Healthy Creeks, that was played between longer presentations. It can be viewed on YouTube at <https://youtu.be/y8cdWZVQo10>.

Every 5 years at the end of a permit period, a watershed perception survey is completed to assess changes in how citizens in Anchorage view local waterways and their health. In 2020, AWC administered a follow-up watershed perception survey which was compared to the results from 2010 and 2014. Survey question 6² stated, “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), and Yard chemicals (fertilizers, pesticides, ice melt). As noted in AWC’s summary, “2020 Watershed Perception Survey”, there has been a steady rise in acknowledgement of the role that yard chemicals play in degrading water quality. The following table (Table 1) shows the changes over the past 10 years.

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

Table 1 Responses to Question 6 of the “2020 Watershed Perception Survey”, p. 17.

² “2020 Watershed Perception Survey” prepared for the Municipality of Anchorage Watershed Management Services, APDES Permit AKS-052558, by Anchorage Waterways Council, October 21, 2020, at <http://anchoragestormwater.com/Documents/2020AnnualReport/AppG22020AWCWatershedPerceptionSurvey.pdf>

In 2010, lawn care products were thought to be the least important, 4 years later they had moved up to third place, and they were second in 2020 right behind Pet waste. AWC is encouraged by this recognition, and from other indicators found in our outreach. Over the past 10 years, through gardening surveys and in talking with residents, there is also a switch to more garden-friendly products away from synthetic chemicals and towards more natural yards.

Annual Creek Cleanup

This year was AWC's 37th Creek Cleanup. Being an outdoor activity, the event went off as it had in the past with some Covid precautions. After a long season of "hunkering" down, Anchorage citizens were super eager to get out and take care of local waterways. Forty-four teams signed up this year, which was the largest number ever since a new format (spreading the cleanup over several days) was instituted in 2015. It is likely that this can be attributed to the desire to get out after a long "Covid" winter. Another smaller cleanup was held on September 11 along Campbell and Chester Creeks. AWC also added a new sponsor this year, Matson's "Caring for Alaska" program, which provided funding, equipment and publicity.



Figure 7 – PND Engineers on Campbell Creek



Figure 8 – Cleanup along Campbell Creek



Figure 9 “The Moomins” on Middle Fork Chester Creek



Figure 10 – Knik Canoers and Kayakers on Campbell Creek

Much less trash along the creeks and very few comments about homeless camps were noted by most of the teams during the May cleanup. We are speculating that this is the result of having several hundred of the unhoused population that camped along Anchorage’s creeks now sheltered at the Sullivan Arena. Over summer 2021, some camps have sprung up again, but not as many as are typically found. Clearly, this is good news, although how the entire situation with unhoused people will play out in the future is unknown. It is hoped that some resolution will be forthcoming that aims to house people and keep as many as possible from using greenbelt areas along creeks for camps.

Media

Five television news stories were shot by KTUU/Channel 2 during this permit period. The links to the news stories are listed below, and a PDF of each story is included in Appendix B. One was done in early

April at breakup to remind people about cleaning up after their pets, and to publicize our new signage (see Appendix A) and the upcoming Scoop the Poop Day on April 24. A second provided publicity for the May Creek Cleanup. The third was shot in September to remind people of the problems caused when spent monofilament line and hooks are not disposed of properly.

- Spring is here, it's time to Scoop the Poop, 4/6/21
<https://www.alaskasnewssource.com/2021/04/06/spring-is-here-its-time-to-scoop-the-poop/>
- Anchorage creek cleanup is underway, 5/21/21
<https://www.alaskasnewssource.com/2021/05/22/anchorage-creek-cleanup-is-underway/>
- Left behind fishing line can be deadly for birds 9/7/21
<https://www.alaskasnewssource.com/2021/09/07/left-behind-fishing-line-can-be-deadly-birds/>

The other two news stories, in May and September, focused on a new project that is being undertaken by AWC board member, Birgit Hagedorn. A geochemist, Dr. Hagedorn began following the reports of coho salmon deaths in the Puget Sound area purportedly from stormwater runoff carrying a chemical known as 6PPD quinone. It is produced from a chemical reaction between a preservative used in vehicle tires and ozone. The May news story discussed the sampling procedure before they were sent off for analysis, and the September story followed up on the results from the analyses. Currently, there is no funding for the tests which run \$500 each, so a GoFundMe campaign was set up with AWC being the recipient of the funds. Over \$5,000 was raised which allowed testing of 14 samples. The samples were taken from stormwater outfalls and the creek water receiving the runoff in high traffic areas near Ship Creek and Campbell Creek. The results are in Appendix D.

- Study of local creeks looks for toxic chemical that could be killing fish, 5/29/21
<https://www.alaskasnewssource.com/2021/05/29/study-of-local-creeks-looks-for-toxic-chemical-that-could-be-killing-fish/>
- Scientist samples Anchorage creeks for chemical that could be killing fish, 9/18/21
<https://www.alaskasnewssource.com/2021/09/18/scientist-samples-anchorage-creeks-chemical-that-could-be-killing-fish/>

It is AWC's plan to sample again in spring 2022 at breakup, and send them off for analysis if funding is secured.

In February 2021, AWC submitted one letter to the Anchorage Daily News for publication regarding pet waste pickup issues, and it is attached in Appendix B.

Newsletters

AWC sent out 6 newsletters during this period that announced upcoming events, discussed our various programs, and provided a wrapup of events. Readership of the newsletters (Appendix C) is around 200 from the direct email using Constant Contact. They are also boosted on Facebook for additional coverage.

Educational Presentations

AWC did a presentation for University of Alaska Anchorage's Opportunities for Lifelong Learning (Olé) on October 28, 2021, by way of Zoom. The presentation was to provide the audience with information on the AWC organization and how our work focuses on the health of creeks and lakes in Anchorage. The presentation is in Appendix E.

APDES Annual Meeting

AWC gave a virtual presentation on February 24, 2021, at the APDES Annual Meeting on Microsoft Teams which was titled, "2020 Watershed Perception Survey" (see Appendix F). This was a report on the 5-year watershed perception survey that was completed by AWC to ascertain a comparison to previous surveys completed in 2010 and 2014.

Summary

AWC is pleased about its ability to nearly maintain all of its programs over the past year despite the impacts from covid. It is regretful that some of our best outreach venues were compromised in 2021, but it makes for creativity in reaching out to Anchorage residents. There is optimism in our accomplishments, and we look forward to expanding opportunities in past ways as well as new. We will build on the successes in the garden community, and plan on producing one or two more videos.

APPENDIX A – Scoop the Poop Trail Signs

**KEEP OUR
WATERS CLEAN
*SCOOP THE POOP***



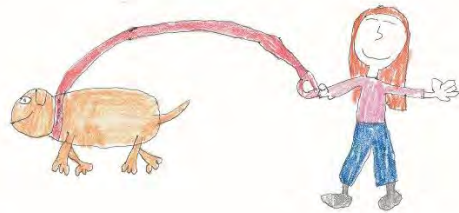
KIDS SWIM HERE

so please

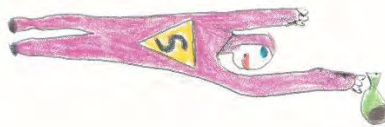
SCOOP THE POOP



Scoop your dog's
POOP! It's gross!!!
You have to do it because
you don't want other
people to do it for you!



BE A POOPER
SCOOPER TO
SAVE THE WORLD!




**KEEP
CALM
AND
SCOOP
THE
POOP**



PLEASE SCOOP THE POOP



APPENDIX B - Media

Spring is here; it's time to Scoop the Poop



Spring break-up means it's time to scoop the poop. (ktuu)

By Lauren Maxwell

Published: Apr. 5, 2021 at 5:54 PM AKDT | Updated: 20 hours ago



ANCHORAGE, Alaska (KTUU) - Emerging dog waste is a sign of spring and never a pleasant one at local dog parks. It's why the [Anchorage Waterways Council](#) is planning a community "[Scoop the Poop](#)" event to get a handle on the mess some dog owners leave behind.

"One of the problems that we are having now is that people are getting out more," said Cherie Northon, executive director of the Waterways Council. "Particularly with the COVID pandemic, they like to be outside, which is great, it's a healthy place to be. But they also need to be aware of the impacts their dogs are making on the waterways."

Many [Anchorage waterways have issues with high fecal coliform levels](#), which Northon suspects come mainly from waste that invariably ends up in the water system through storm drains and other run-off. Part of the problem, she said, is that Anchorage has a lot of dogs.

"They estimate 65,000 dogs are in the municipality," she said... "Which translates to 22 tons of pet waste on the ground every day. Not weeks, months, years — every day. So every piece that gets picked up contributes to cleaner water."

On Monday, Northon was putting up a sign at Goose Lake reminding people to pick up after their pets. The sign read "Children Swim Here".

The community Scoop the Poop event is scheduled for Saturday, April 17 at both Conner's Bog and University Lake Dog Parks from 11 a.m. to 3 p.m. Northon said supplies will be provided for anyone who wants to help in the clean-up.

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Anchorage creek cleanup is underway



Volunteers tackle cleanup in a portion of Campbell Creek. (ktuu)

By Lauren Maxwell

Published: May. 21, 2021 at 5:33 PM AKDT | Updated: 17 hours ago

ANCHORAGE, Alaska (KTUU) - For the next few days, hundreds of Anchorage residents will be donning boots and waders, not to fish, but to clean up the creeks that fish live in.

The Anchorage Creek Cleanup is in its 37th year, according to Anchorage Waterways Council Director Cherie Northon.

Northon said a record 40-plus teams have signed up to clean local creeks in an event that runs through next Tuesday. Sites are listed on the council's [website](#), but Northon said anyone is welcome to participate, even if they are not on a recognized team.

"People can always just pick up a bag and go along an area and pick up what they see," she said. "There are a lot of opportunities around Anchorage anyway to pick up trash, so we would encourage them, if you are not doing a creek cleanup, clean along the roadways or in your neighborhood even."

Northon said Anchorage creeks are a lot cleaner than they were in the mid-1980s when raw sewage prompted [then-Mayor Tony Knowles to call for citizens to come together](#) and work to improve water quality. Still, she said, bacteria like [fecal coliform remains a problem](#).

"Every urban creek in Anchorage and the bowl has fecal coliform impairment, which means it doesn't meet standards set by EPA and the State of Alaska for clean water," she said.

Northon said those standards are set for drinking water, and not necessarily recreational waters. She believes most of the problem can be attributed to people's pets.

"We still deal with a lot of pet and human waste," she said. "Human waste from homeless encampments and leaking septic systems. But the biggest culprit, I think, is pet waste that's not picked up."

Northon said people who volunteer to clean should avoid homeless camps, and they should also be careful in the water since local creeks may be running high.

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Left behind fishing line can be deadly for birds



By Lauren Maxwell

Published: Sep. 7, 2021 at 3:55 PM AKDT



ANCHORAGE, Alaska (KTUU) - It's a persistent problem where people like to fish and sometimes, the consequences can be deadly. Bird Treatment and Learning Center's Acting Director Maggie McConkey said birds die every year after getting tangled in fishing line that's left behind.

"We have about two to five patients a year that have this, but we get hundreds of calls, I'd say throughout the summer months, of birds entangled in fishing line," McConkey said.

"Some are able to be saved with very minimal injury and other times, unfortunately, the kindest option is to let them go," she said.



Rescuers were unable to save a mallard who swallowed a fishing hook (Courtesy: Bird TLC)

Recently, someone brought a mallard duck to Bird TLC that had a line and lure dangling from its mouth. An X-ray revealed the bird had swallowed a hook that was deeply embedded in its digestive tract. McConkey said, despite their best efforts, the staff were unable to remove the hook and the bird had to be euthanized. She's asking people to do a better job of cleaning up.

"Our message to the public is to dispose of your fishing line," she said. "If you snag on something, go ahead and pick it up. If you are walking along the bank of a river or a lake and you see fishing line, pick it up. Help out and do your part."

One convenient way to dispose of used line, hooks and lures is to place it in one of the designated recycling bins that are set up at more than a dozen local lakes and streams. The bins, made of white PVC pipe, can safely contain monofilament line, but, according to Anchorage Waterways Director Cherie Northon, there's an added bonus.

"We can take all the monofilament and send it back to a place on the East Coast where they recycle it," she said. "So it's not only cleaning it up, it's recycling it too."

McCorkey said people who do spot a bird that appears to be in trouble can call Bird TLC for advice at 907-562-4852 or go to the [website](#) to learn more.

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Study of local creeks looks for toxic chemical that could be killing fish



By Lauren Maxwell

Updated: May. 28, 2021 at 5:19 PM AKDT

ANCHORAGE, Alaska (KTUU) - Anchorage geochemist Birgit Hagedorn is on a mission to find out if a chemical found in tires could be killing fish in Anchorage streams. Since April, Hagedorn has been collecting water samples from local creeks and storing them in her freezer with the idea of sending the samples to an outside lab to be analyzed when she has enough money to do it.

Hagedorn's concern comes from a recently [published study](#) from the University of Washington where researchers found a chemical compound in tires was responsible for killing coho salmon in urban creeks in that state.



Hagedorn said it's possible the same thing could be happening here since untreated stormwater from Anchorage roads, which could contain the chemical, goes directly into local creeks.

Alaska Department of Fish and Game biologist Megan Marie said in an email the department has seen similar die-off behavior in Campbell Creek as recently as 2018, although staff aren't sure what is causing it.

"Biologists observed pre-spawn behavior adult Coho salmon becoming stunned, actively 'beaching' themselves on the creek shoreline and dying," the email said. "The observations and reports seemed to coincide with rain events, but no formal studies have been completed."

Hagedorn said a minute amount of the chemical can be toxic to salmon but she doesn't know how much, if any, she will find in her samples.

"This project is really just a pilot study to see if that is a problem for Anchorage," she said. "So we just want to collect a total of 10 samples in different storm water drainages in Anchorage where we know we have a lot of traffic, and then analyze those to just get initial values."

Analyzing the samples is pricey — \$500 apiece according to the Anchorage Waterways Council. It's why they started a [GoFundMe](#) account to pay for it. By Friday, the group had raised more than \$4,000 of the total \$5,500 price tag. Hagedorn said she planned to send the first samples in next week and hopefully, get some answers very soon.

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Scientist samples Anchorage creeks for chemical that could be killing fish



By Lauren Maxwell

Published: Sep. 17, 2021 at 4:20 PM AKDT

ANCHORAGE, Alaska (KTUU) - When Anchorage Geochemist Birgit Hagedorn [set out to sample Anchorage creeks for a chemical](#) that could be killing salmon, she wasn't sure what she'd find. Now Hagedorn has results, but perhaps not exactly what she expected.

The chemical, called 6PPD, is a compound found in tires. When it rains, the chemical leaches from roads untreated into storm drains, which empty into [Ilele Creek](#). [University of Washington study](#) found even tiny amounts of 6PPD can be deadly to coho salmon. Hagedorn was concerned that an unexplained die-off of cohos in Anchorage's Campbell Creek in 2017 and 2018 could be connected.

With help from a GoFundMe [set up by the Anchorage Waterways Council](#), Hagedorn collected a total of 10 samples from Chester Creek and Ship Creek in both April and July. At \$500 per sample, an outside lab analyzed and confirmed what Hagedorn called alarming levels of the chemical in storm drain water that runs into Chester Creek near the Seward Highway.

"We had concentrations above what we call the lethal limit for coho salmon," she said.

The chemical was also found in the creek itself, but not at levels that are considered dangerous to fish, according to Hagedorn. At Ship Creek, the levels were even lower. Hagedorn said even though levels were diluted in the creeks themselves, the presence of the chemical surprised her.

"I was surprised that I found so much," she said. "Because Anchorage doesn't have a lot of traffic ... so I was hoping we just don't find anything, and then we are good to go."

Hagedorn said her sampling was just a preliminary look. She thinks a lot more sampling needs to be done to determine if the chemical is really a problem in Anchorage creeks.




The Alaska Department of Environmental Conservation said via email it is also actively following the issue. A working group set up to discuss the problem plans to meet again this fall.

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ANCHORAGE DAILY NEWS

Letters to the Editor

Letter: Pet waste issues

 Author: **Cherie Northon** | **Opinion**  Updated: 21 hours ago  Published 21 hours ago

In Shawn O'Donnell's Feb. 17 letter to the editor, he stated that Tim Woody's op-ed "claimed streams are polluted and outdoor activities are thwarted by dog feces, yet no source was given for these anecdotal situations. How does a leash have anything to do with dog poop and polluted water...?"

This is not unsubstantiated by any means. A quick search for "pet waste and water pollution" clearly shows that this is a major problem in every urban area throughout the U.S., and Anchorage is no exception. Using national statistics for pet waste, Animal Care and Control estimates there are 65,000 dogs in the Municipality who produce (on average) three-quarters of a pound of waste per dog per day. That's 48,000 pounds of dog waste per day. Sadly, an awful lot of that is not picked up — which is why the Anchorage Waterways Council works hard on its "Scoop the Poop" campaign.

Another fact: Every creek in the Anchorage bowl has a fecal coliform impairment, with the major source being domestic pets. This means that our water quality does not meet EPA standards for clean water. How does that impact residents? Swimming, wading, kayaking, and other activities in local creeks and lakes can harm users if the water is ingested. Giardia, diarrhea, ear and eye infections and other ailments are the potential consequences. This is the primary reason for cleaning up pet waste.

How does this relate to unleashed dogs? Dogs that are trailing behind or forging ahead of skiers, cyclists and joggers often relieve themselves out of their owner's sight, so their poop is not picked up. Where are many of these activities? Along local trails that border our creeks where stormwater runoff handily carries pet waste down into waterways. Dog parks, where pets are off-leash, are another place where a lot pet waste is not picked up because dogs again are often out of sight. If you want substantiation, I can give you the names of people who dutifully go out to parks and trails and clean up pet waste from others' dogs. A leashed dog's owner is going to see when and where their dog poops, and, unless they are entirely dismissive of the perils of pet waste or they have forgotten a poop bag (which happens), they are more than likely to clean it up.

— **Cherie Northon**

Anchorage

Have something on your mind? Send to letters@adn.com or click here to submit via any web browser. Letters under 200 words have the best chance of being published. Writers should disclose any personal or professional connections with the subjects of their letters. Letters are edited for accuracy, clarity and length.

APPENDIX C – Newsletters³

³ Newsletter pages are not numbered.



Anchorage Waterways Council - *Streamline*



S. Fork of Chester Creek upstream of the bridge at the east end of University Lake -
(Oona Martin, March 17, 2021)

Happy Spring!

It's been a year out since the "Hunker Down", and we hope this finds you all doing well. AWC weathered the storm with only a few modifications. Last April's Scoop the Poop Day became a Do-it-Yourself (DIY) event, and our 36th Annual Creek Cleanup continued pretty much unchanged, although with a smaller turnout. We held a second Creek Cleanup in September that was quite well attended. Sadly, our annual fundraiser, Beer and Bites, was cancelled, but donations from our members continued to be very generous. Lastly, AWC was able to avail itself of a grant from CARES funding that the Muni received for non-profits, which helped make up for some shortfalls.

We are now turning to our 2021 spring activities which will go on as usual. Scoop the Poop Day will be held Saturday, April 17, and Creek Cleanup is scheduled for May 20 to 25. [Signups](#) for creek spots will be open on April 1.

I think many of us are ready for the snow to melt and for the weather to warm up. Ideally, warmer temps would "sublimate"

the snow (a solid) right into its gaseous state as water vapor. This dramatically reduces stormwater runoff that we associate with "Break Up". Hopefully, the recent warming trend will continue.

For now, it is especially important to make sure pet waste and other pollutants are picked up so that they're not carried into local creeks with the runoff. Please do your part!



Scoop the Poop Day - Saturday, April 17 11 am to 3 pm

For this year's event, AWC will be hosting tables at University Lake and Connors Bog dog parks. As always, gloves, bags, hand sanitizer, trowels/shovels, and buckets will be provided for park use.

A number of people have taken it upon themselves to clean up along local trails, which have been particularly impacted this year. For those who would like to clean up an area of their choosing, we can provide you with bags and gloves if you need them (unfortunately, we don't have enough tools and buckets as they are used at the dog parks). Please contact us at awc@anchoragecreeks.org in early April if you are interested. Additionally, if you decide to clean up on your own--you can do it when it suits your schedule.

For those "Doing It Yourself", we again ask for photos from the trail so we can share them on Facebook. Photos from

the dog park cleanups are also welcome. Please submit them to awc@anchoragecreeks.org no later than April 24 with "STP photos" as the subject.

Those attending the regular cleanup at University Lake and Connors Bog will be entered into drawings for six \$25 gift certificates from [Arctic Pups](#) for great dog gear. Those cleaning up on their own will be entered into a drawing for two additional Arctic Pups' gift certificates. All we ask is for a photo and contact information by April 24.

It's hard to beat this offer! Lots of poop gets picked up which helps keep our creeks cleaner, and you could also snag some great pet gear!

CEMP - Citizens' Environmental Monitoring Program

AWC's CEMP Program is going very well. Currently, we have 10 sites being sampled for pH, dissolved oxygen, turbidity, fecal coliform, and temperature. Seven of those sites, all on Chester Creek, are also being tested for their [electrical conductivity](#) (EC) which is a measure of the total salt concentration in the water. This test is part of a larger National Science Foundation (NSF) study to assess the impacts of climate change on Alaska's urban creeks due to infrastructure maintenance--especially on roads and highways. Even though it was not the case this winter, we have been experiencing more frequent melting events during winter over the last few years which result in frozen road surfaces and lead to increased salt applications. Road salts and other deicing agents that are dispersed during the winter will eventually find their way into local waterways, and this is a good way to evaluate just how much is running off into them.

In February, we added a new monitor, Oona Martin, who is sampling at the east end of University Lake on the South Fork of Chester Creek (see her site photo above). A landscape architect in Anchorage, she has a long-time interest in water, which is reflected in her March 6 blog called "[Water Awareness](#)". The essay details her journey into her profession and where she is now. It also gives a glimpse at a very interesting way of gathering qualitative observations on local waterways which is known as the "Blue Index". It's a great read. Welcome, Oona, and thanks!

Blue Market AK selects AWC for 1% Giving Back

We are excited to be selected by [Blue Market AK](#) as their 1% Giving Back recipient from April to June. Their mission is to provide a great shopping experience (much of it from local Alaskans) while eliminating all that wasteful and polluting plastic that is found in traditional stores. AWC has spent the last several years focusing on the impact of plastic pollution in our waterways, so this philosophy aligns perfectly with our goals. Check them out! It's a wonderful place to shop and you can help AWC as well!

Refill not Landfill!

In Memoriam

AWC lost long-time member and volunteer extraordinaire Bob Mitchell on March 4. Many of you knew Bob, and, undoubtedly, several of you were trained by him to become water monitors. He and his wife, Mary Ellen, were great hosts and often opened their home for thank you parties for AWC monitors. In addition, he frequently helped in our Creeks as Classrooms program where local youth learn about benthic insects, hydrology, and monitoring in local creeks. Lastly, Bob has captained the Yale Stream Team for years at our annual Creek Cleanup. He will be greatly missed.



Pick.Click.Give.

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. Please remember that you can select AWC for a donation by March 31. Click [here](#) for our profile.

Please Consider a Membership

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Anchorage Waterways Council - *Streamline*



Creek Cleanup September 2020

Spring Volunteer Events are Happening!



**Scoop the Poop Day - Saturday, April 17
11 am to 3 pm**

University Lake and Connors Bog

Stop by our tables and pick up a bucket, bags, gloves, and shovel or trowel.

DIY Scoop the Poop

Wherever you want to clean up.

Send photos of your cleanup by April 24 to awc@anchoragecreeks.org

Those attending the regular cleanup at University Lake and Connors Bog will be entered into drawings for six \$25 gift certificates from [Arctic Pups](#) for great dog gear. Those cleaning up on their own will be entered into a drawing for two additional Arctic Pups' gift certificates. All we ask is for a photo and contact information by April 24.

2021 Creek Cleanup Team Signup is Open!

Cleanup is Thursday, May 20 to Tuesday, May 25

If you, your family and friends, or work team are ready to get out and help clear up the winter trash from local waterways, you can sign up now.

Start here to find an open [location](#)
Then sign up your [group](#)

All supplies will be ready for pickup on May 14. Information will be emailed to teams for pickup and return.

GoFundMe Campaign for Creek Analysis

AWC board member Dr. Birgit Hagedorn has started a [GoFundMe campaign](#) for funds to cover expenses to process samples from local anadromous waterways for a newly discovered compound coming from tire particles. Recently reported [studies](#) have shown that an additive used to extend the life of tires results in a chemical known as 6-PPD that ultimately ends up in waterways through stormwater runoff, and that it has proven lethal to coho salmon in Washington state studies.



Specialized lab analyses run about \$500 each, and our goal is to collect one or two samples from areas that are heavily impacted by vehicle traffic and are close to local creeks. These include Ship, Chester, Campbell, Little Campbell, and Rabbit creeks. Please consider making a tax deductible contribution that will help us learn more about the potential risk to our local salmon. AWC staff and Dr. Hagedorn are donating their time to the project as funds are only requested for lab work.

Remember: AWC is Blue Market AK's Non-profit Recipient for 1% Giving Back

We are excited to be selected by [Blue Market AK](#) as their 1% Giving Back recipient from April to June. Their mission is to provide a great shopping experience (much of it from local Alaskans) while eliminating all that wasteful and polluting plastic that is found in traditional stores. AWC has spent the last several years focusing on the impact of plastic pollution in our waterways, so this philosophy aligns perfectly with our goals. Check them out! It's a wonderful place to shop and you can help AWC as well!

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Anchorage Waterways Council - *Streamline*

Campbell Creek east of Brayton - June 2, 2021, and December 20, 2020



Check out our spring volunteer events!



Involving the little ones early on Scoop the Poop Day!

April - Scoop the Poop Day(s)

This popular event is expanding to more and more areas. Besides cleanups at University Lake and Connors Bog dog parks, several groups went out onto local trails to clean up throughout April. Reports are that hundreds of pounds of pet waste were cleaned up, but that's merely a drop in the bucket (no pun intended). EVERY single day, Anchorage's dogs deposit about 24 TONS of poop in the Municipality, so EVERY day is Scoop the Poop Day. A huge thanks to all who regularly pick up as well as those who show up for these special events.



University Lake Dog Park on April 17, 2021

May - 37th Annual Creek Cleanup

This is quite exciting to report! Our 37th Annual Creek Cleanup had a record number of team signups--over 40!!! And, even better is the fact that many teams reported much less trash along the creeks this year. Let's hope that this continues. We'll be holding another cleanup in September, so watch for announcements.



AWWU's "Clearly for Clean Water" team on Campbell Creek



Knik Canoers and Kayakers in Campbell Creek



Team Orange in Westchester and Eastchester Lagoons



Yukon River Inter-tribal Watershed Council on Ship Creek



St. Johns United Methodist Church at Campbell Creek



Team Fish on Campbell Creek



PND Engineering on Campbell Creek as Matson's Caring for Alaska team

Another huge thanks to all the teams and families who came out, and we especially appreciate seeing young ones cleaning up. They are our future stewards.

Lastly, this great event could not happen without our sponsors: ConocoPhillips Alaska, CIRI, and Matson's new "Caring for Alaska" program.

THANK YOU TO ALL!

GoFundMe Campaign for Creek Analysis Update

As we reported in the previous newsletter, AWC board member Dr. Birgit Hagedorn started a [*GoFundMe campaign*](#) for funds to cover expenses to process samples from local anadromous waterways for a newly discovered compound coming from tire particles that has killed sockeye salmon. As of today, generous donations have resulted in reaching \$4,975. or 90% of our goal.

The first 2 samples will be sent in June, and we are very anxiously awaiting the results. The *GoFundMe Campaign* is still open. Please consider a tax deductible donation of any amount to help us reach our goal.

KTUU ran a recent news story on this which can be viewed [*here*](#).



Reminder: AWC is Blue Market AK's Non-profit Recipient for 1% Giving Back Through June

For one more month [Blue Market AK](#) is donating 1% of their sales to AWC. If you haven't checked out their neat little market, you should. It's a place whose goal is to reduce wasteful and polluting plastic that is found in traditional stores. This aligns perfectly with AWC's focus on the impact of plastic pollution in our waterways.

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Anchorage Waterways Council - *Streamline*



Loon on Jewel Lake with monofilament fishing line hanging from its bill
(C. Northon, 2014)



AWC's summer intern Dylan Bruce (holding a monofilament recycling bin) and executive director Cherie Northon receiving a generous check from Blue Market AK's Jess Johnson that was generated from their 1% Giving program, July 1, 2021

AWC was Blue Market AK's 1% Giving Program recipient from April through June --THANK YOU!

What a great way to kick off summer! [Blue Market AK](#), Anchorage's first consumer option for reducing plastic packaging, has a generous 1% giving program for selected non-profits. Every quarter, 1% of their gross profit is donated to these organizations, and AWC was very fortunate to be the recipient of the donation for April, May and June.

As a reminder, not all programs that AWC oversees are funded. One that is no longer funded, yet is both popular and critical for reducing injury and death to fish and wildlife, is our [monofilament recycling program](#). This program was created in 2015 with a Challenge Grant from the Anchorage Parks Foundation and assistance from Eagle Scout candidate Kyler Ince who built 21 bins that were placed at popular fishing spots around Anchorage.

Over time, some of the bins have been vandalized, damaged, or removed. The cost for parts is substantial--about \$1,000. AWC

will use the donation from Blue Market AK to repair and replace bins. Considering the mission of Blue Market AK to reduce plastic waste, we feel this is very fitting use of the donation. A HUGE thanks to Blue Market AK and their supporters!!!

And this is the perfect segue to our next story...

Introducing our Summer Intern



Dylan Bruce

Dylan Bruce, a senior studying environmental science at Western Washington University, was raised in Anchorage. Returning home for summer, he needed an internship to finalize his studies and approached us. His qualifications fit AWC well, and he is taking on some of our unfunded programs, i.e. monofilament recycling and creek report cards.

As mentioned above, the monofilament recycling bin program will now have some new life breathed into it. Dylan started with AWC in mid-June, and his first task was to inventory and assess the existing bins. The results were: 10 missing, 6 needing minor repairs, and 1 in good shape but extremely FULL.

Bin parts run about \$90/ea., which covers the PVC tube, hose clamps, baffles to keep birds from nesting in them, and signage. The AWC board and staff will assemble the bins, and Dylan and

Thom Eley will install them at their locations. If this is the type of project that sparks your interest, please consider joining AWC if you're not a member or by making a donation towards this program so it can continue uninterrupted.

Dylan's second major project will be a partial update of the 2012 Creek Report Card project, which was carried out nearly 10 years ago on all creeks in the "bowl" as well as Eagle River. While dozens of volunteers participated previously and covered many creek miles, Dylan will only be focusing on Chester Creek as he'll be heading back to school soon. If you're interested in helping to review a reach of our creeks, please contact us.

Why we clean creeks, lakes, and lagoons...Team Orange



Thanks to Team Orange for cleaning up in Westchester Lagoon - July 2021

Just because it's not "officially" Creek Cleanup, please don't stop caring about our waterways. They always need your help. In 30 minutes, two Team Orange kayakers picked up 84 cans, multiple plastic bottles, a 5 gallon bucket, a pair of size 14 snow boots, clothing, and a tree trimming sign which was returned to MOA Parks and Rec.

Consider carrying a bag with you when out walking and picking up trash as you go. Everything you get will help keep our creeks cleaner. Thanks, TEAM ORANGE!

GoFundMe Campaign for Creek Analysis Update

The [*GoFundMe campaign*](#) created by scientist Birgit Hagedorn has reached \$5,000 of the \$5,500 goal, and samples have been sent off for analysis. The first samples were sent in late June, and we just followed up with another 6.

The areas sampled were stormwater outfalls from Chester Creek along the New Seward Highway and Ship Creek along the Glenn Highway. There were positive detects with concernable levels in the stormwater that drains from the Seward Highway into Chester Creek, however the dilution of the concentrations was still low once in the creek. In Ship Creek, the compound was detected in two stormwater outfalls, but they were below the concernable level, and the compound was non-detectable in Ship Creek water itself.

It is important to keep in mind that these few analyses do not allow an in-depth understanding on how the compound affects the creeks or coho salmon, which is why we hope to keep watching [*developments*](#) on this and to continue testing when the conditions are right and if we have the funding.



Donate items and shop to help AWC

[*Fashion Pact*](#) is a new resale shop in Anchorage where items you donate and purchase generate income for AWC. This is an excellent way to reuse items and keep them out of the waste stream. EVERYTHING in the shop is \$5. Everything! Of that \$5, \$1 goes to the non-profit that you designate when you donate items, and if you shop--an additional \$1 of the \$5 goes to the non-profit of your choice. It has turned out to be a great source of revenue as well as a good place to donate gently used items. Please check it out, and consider us if you shop or donate there.

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Moving to Electronic Renewal Notices

AWC is moving to paperless membership renewals and acknowledgements, and we need your help. In an effort to reduce costs and eliminate the impacts from paper and fuel consumption, we are asking for your email address for reminders. Please consider providing this information to [us](#) and know that we NEVER provide your information to any entities. Thank you!

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Anchorage Waterways Council - *Streamline*



We're at it again--a Fall Creek Cleanup
Campbell Creek at Rakof

"Walk-up" Creek Cleanup **Saturday, September 11, 11 am - 2 pm**

This September, AWC is following up on its highly successful May Creek Cleanup with a modified version. There will be 2 sites staffed with volunteers to provide creek cleaners with bags, gloves, hand wipes, and maps of areas needing cleaning.

Chester Creek - New Seward at 20th
Campbell Creek - Taku Lake parking lot at 76th

Please follow standard social distancing and wear a mask when stopping by to pick up supplies. Thank you!

If you want to scope out our regular cleanup locations, check this *link* to our website.

Belugas Count!

Due to the uptick in Covid-19 cases, NOAA Fisheries and its partners including AWC have decided to forego the traditional format for this year. Instead, there will be an online webinar called *NOAA Live! Alaska* on September 10. Additionally, you can look at the known beluga observation areas and find the best times of the day to observe them from the *NOAA* website.



Beluga cow and calf near Knik Arm, Paul Wade (NOAA)

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Anchorage Waterways Council - *Streamline*

Fall Creek Cleanup

Thanks to all who came out to clean up Chester, Fish, and Campbell creeks last month. It's always a good idea to get as much out of local waterways before they freeze up. See you next spring for our 38!!! Annual Creek Cleanup.

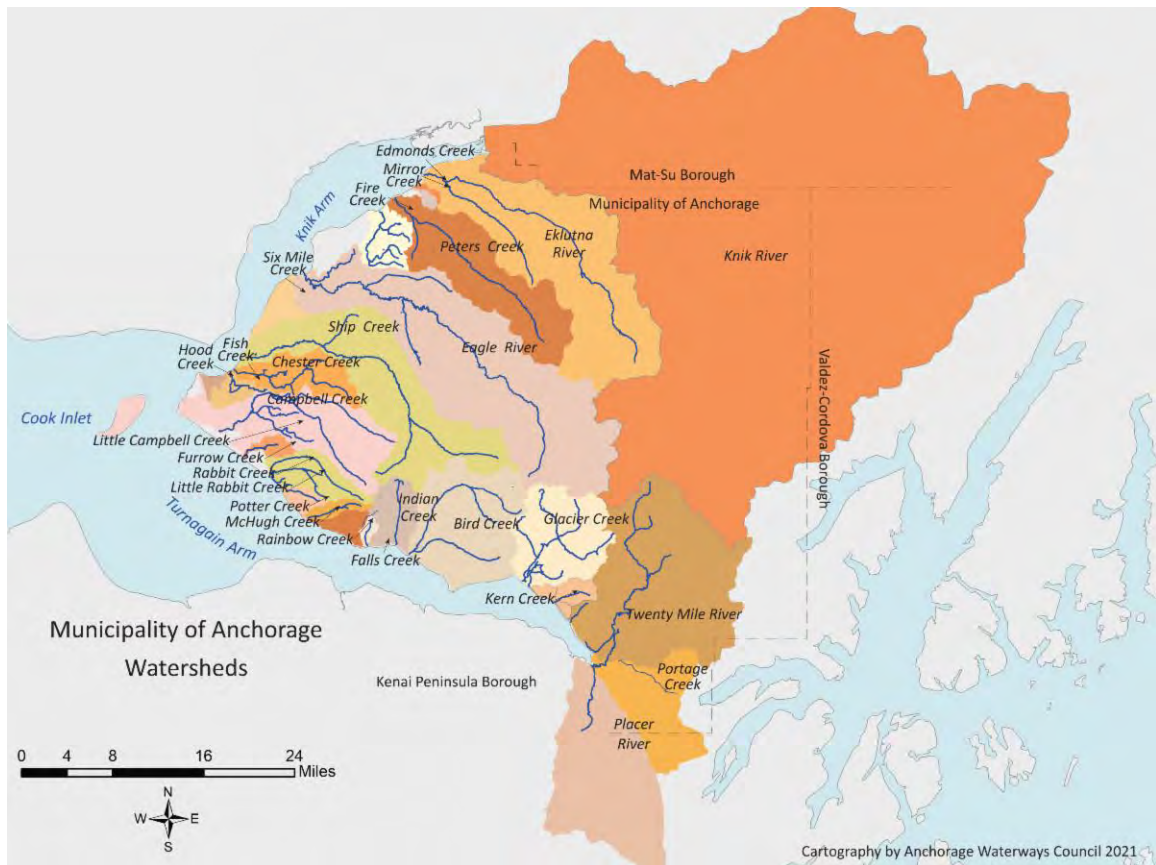


Cleaning up trash dumped along Chester Creek at Eastchester Park

AWC's "Taking Action on Issues" Program

Did you know that there are 28 watersheds in the Municipality of Anchorage? AWC works mostly on the 10 urban creeks that

extend from Eagle River in the north to Little Survival Creek in the south. With a staff of only 3, it's impossible to keep an eye on every creek mile, so we rely heavily on local citizens to report anything that doesn't seem right. Here is the link to our "[Citizen Reporting Form](#)" if you ever have a concern.



Every year, we receive about 2 dozen reports from citizens-- some can be easily explained and others require a site visit and forwarding information to the proper MOA or state agency. Following is a sample of reports that we've received recently and over the years.



S. Fork Little Campbell Creek at Petersburg--snow from the parking lot has been pushed up to the edge of the creek which is illegal. When it melts, there will be all sorts of trash and pollutants, e.g vehicle drips and ice melt chemicals, entering the creek.



S. Fork Little Campbell Creek at 76th and Old Seward--snow disposal from the parking lot was at the edge of the creek, which, when melted, left piles of road sand and gravel tumbling into the creek.



Chester Creek between A and C Streets--watching an orange plume like this coming towards you (AWC staff was working in the creek with students from North Star Elementary) is rather disconcerting. Sightings of "orange water" have been fairly common around Anchorage, and they usually occur on Chester and Fish creeks. In reality, they're basically harmless.

Anchorage has the perfect conditions that contribute to this phenomenon--rusting and aging stormwater infrastructure that carries runoff into local creeks whose water is iron-rich.

Several types of bacteria are characterized as "iron-eating" which, when they have the right mixture of oxygen, water, and iron, feed on the iron and produce an orange slime. The above example is rather extreme, and was most likely exacerbated by the storm drain being "flushed" at the time. These events are almost entirely episodic, and, once in the creek, the orange water will dissipate rapidly.



Rabbit Creek at the Old Seward Highway--paint and electronics were dumped down near the creek. It's very frustrating that creeks have become such a magnet for dumped objects. We've had reports of couches, mattresses (they are NOT fun when waterlogged), washers/dryers/refrigerators, shopping carts, and more. The above had the potential to cause some really significant damage to the creek if spilled.



Little Campbell Creek near E. 74th--a young man was observed by a neighbor pouring gasoline or something from a gasoline container into the creek. It was

reported to the MOA Watershed Management Services who visited the youth's family. We did not receive a follow-up on it probably due to a minor being involved. This is a perfect example of how important it is to document concerns with photos.



S. Fork Little Campbell Creek at Birch Road--A constituent of Assemblyman John Weddleton notified him of this brown "ooze" running down the path adjacent to Birch Road, which is about 500' uphill from the creek. The incident occurred during 2021 breakup, and the concern was runoff contamination into the creek. The source was confirmed to be from the adjacent equestrian area that had stormwater running through its grounds. MOA Watershed Management suggested their on-site manure storage and runoff mitigation plans be reviewed. The fecal coliform tests that we did showed very high *E. coli* bacteria counts.



South Fork Chester Creek--someone with extraordinary strength managed to dislodge the cover from a manhole and toss it into the creek. A neighbor alerted AWC, and one of our board members, Bob Shipley, responded. AWWU was contacted and both parts were reunited the next day.

It is vitally important to have an organization that concerned citizens can contact about creek concerns. Often, we hear that they have called various state and local agencies, which can be difficult to wade through in the first place, but they never received a response or the assistance necessary. AWC tries to be that liaison. We cannot always "fix" the problem, but we can find the right person or agency who will respond.

This program remains, however, unfunded now as it was in the past, which is the reason why memberships and contributions are so important to our work. AWC also depends heavily on its volunteer working board to help investigate these complaints. Bob Shipley, a long-time member, is usually the one who responds, and Birgit Hagedorn steps up to help as well.

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APPENDIX D -6PPD-Quinone Presentation

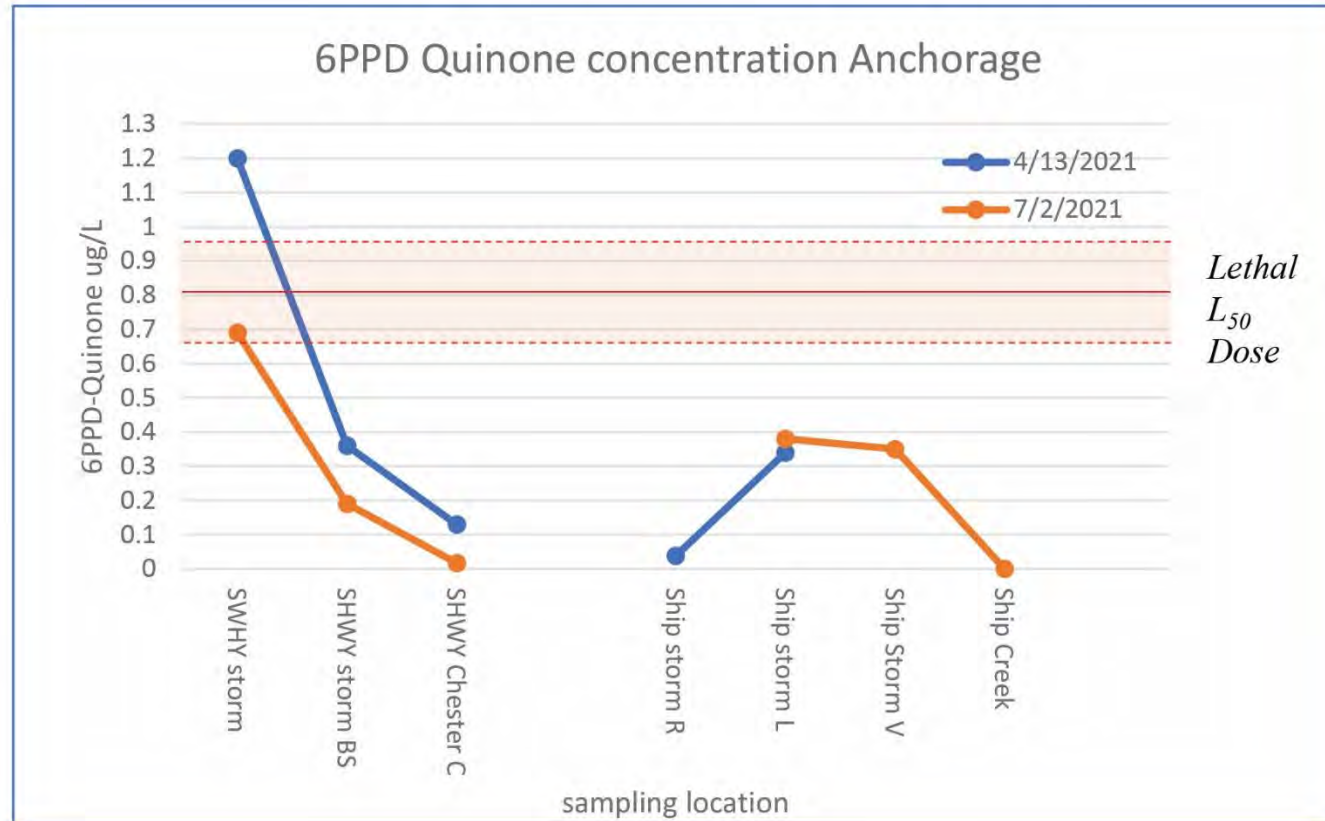
Prepared by Dr. Birgit Hagedorn, AWC board member and geochemist

6PPD-Quinone

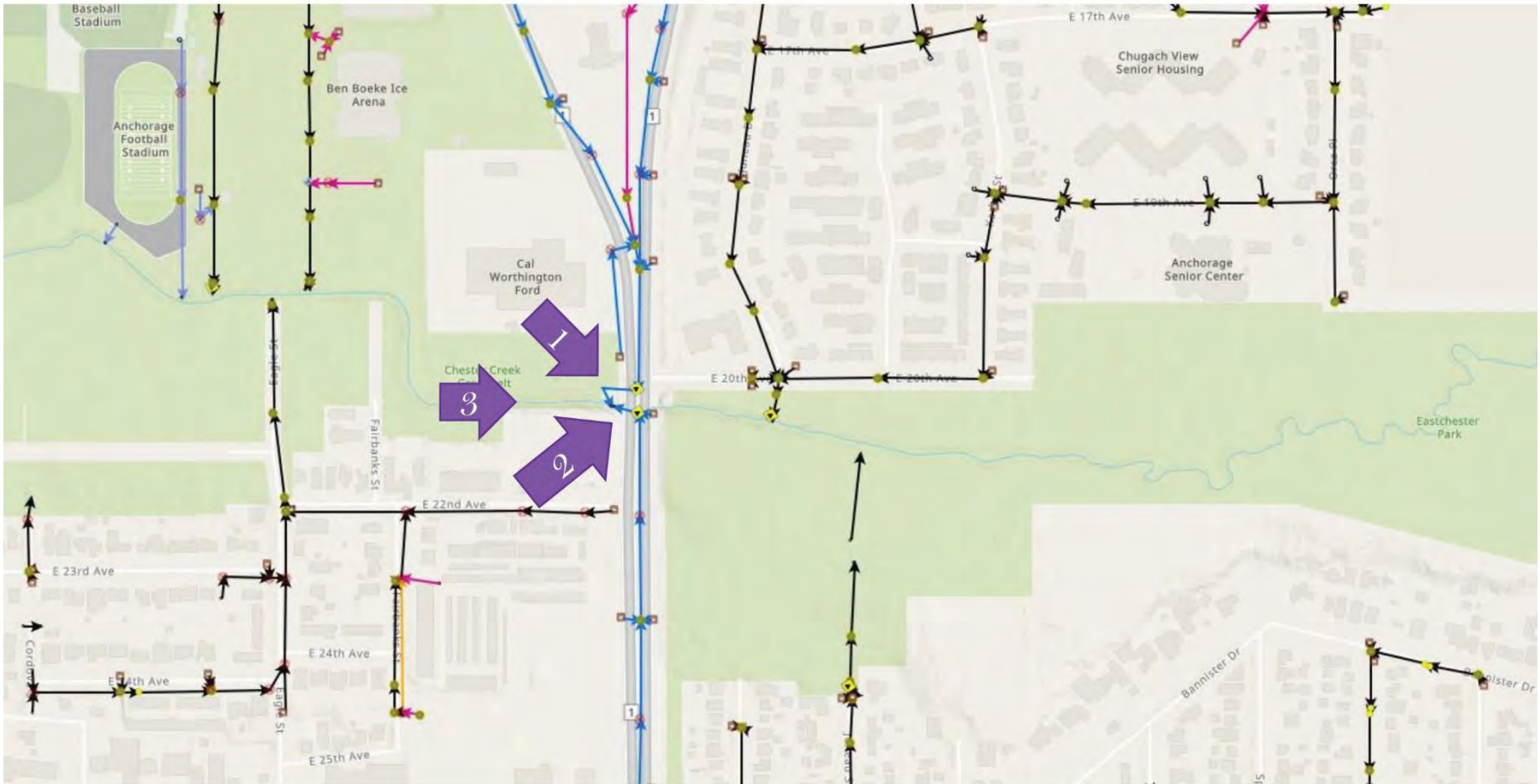
Chester Creek & Ship Creek
and associated storm drainages
Anchorage

Location Unit	Sample	Location	6PPD-quinone µg/L		Lethal dose µg/L ±	
			4/13/2021	7/2/2021		
Seward Highway/Chester creek	Storm	SWHY storm	1.3 1.1	0.69		
Sewart Highway/Chester creek	Creek	SHWY Chester C	0.13	0.017		
Sewart Highway/Chester creek	Black Sabbath	SHWY storm BS	0.36	0.19		
					0.8	0.16
Ship Creek@ A-street bridge	Storm left	Ship storm L	0.34	0.38		
Ship Creek@ Viking&Sitka	Storm	Ship Storm V	N/A	0.35		
Ship Creek @ Ingra	Creek	Ship Creek	N/A	0		
Ship Creek@ A-street bridge	Storm R	Ship storm R	0.038			

6PPD-Quinone Anchorage Ship and Chester Creek & storm drainages



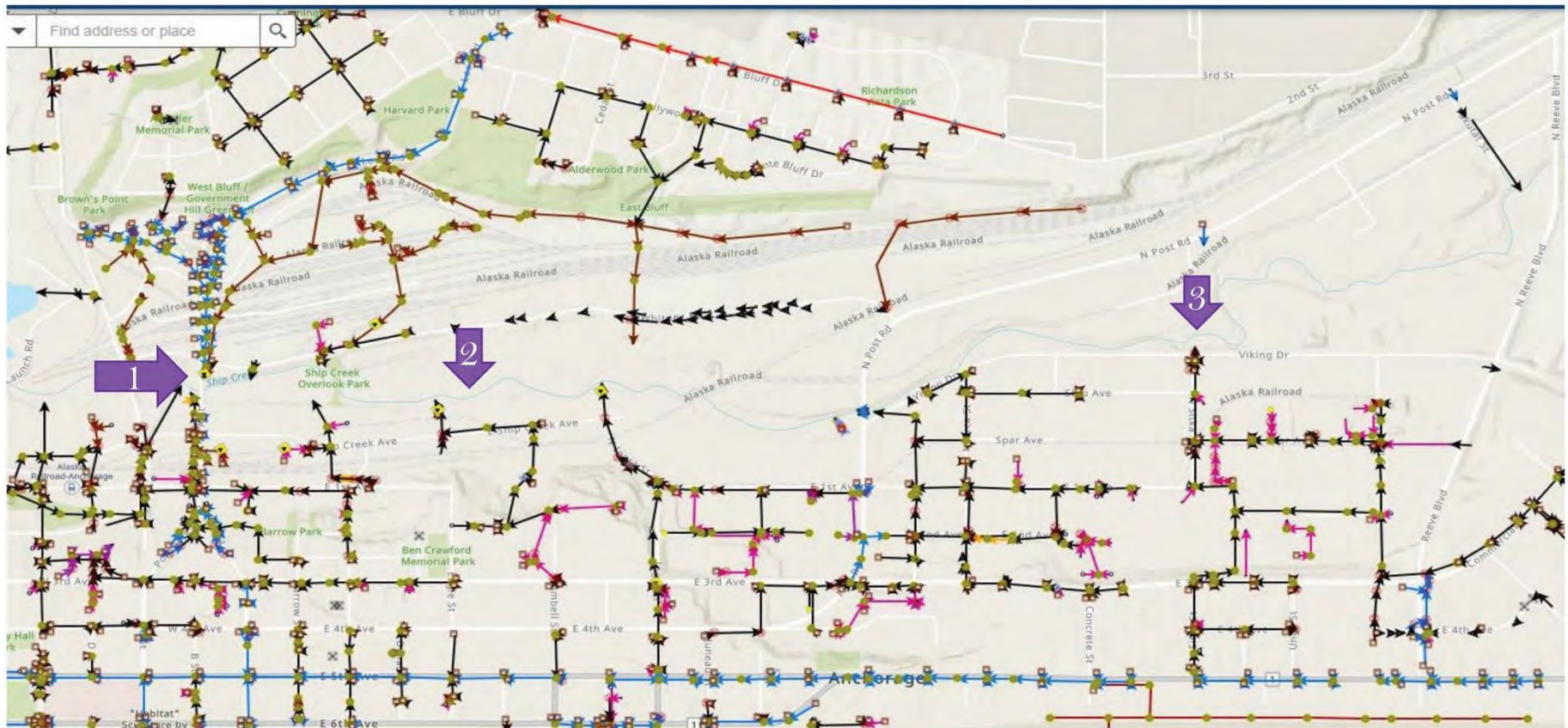
Chester Creek sampling location



<https://muniorg.maps.arcgis.com/apps/webappviewer/index.html?id=f605ba94425f46058abb8449afc92a34>

- 1: Chester Creek @ Seward Highway storm drainages direct from road
- 2: Chester Creek @ Seward Highway storm drainage (BS) from further South, draining wetland
- 3: Chester Creek @ Seward Highway Creek water

Ship Creek sampling location



<https://muniorg.maps.arcgis.com/apps/webappviewer/index.html?id=f605ba94425f46058abb8449afc92a34>

- 1: Ship Creek @ A street two storm drainages
- 2: Ship Creek @ Ingrá Creek water sample.
- 3: Ship Creek @ Viking & Sitka one storm drainage

APPENDIX E – Olé⁴

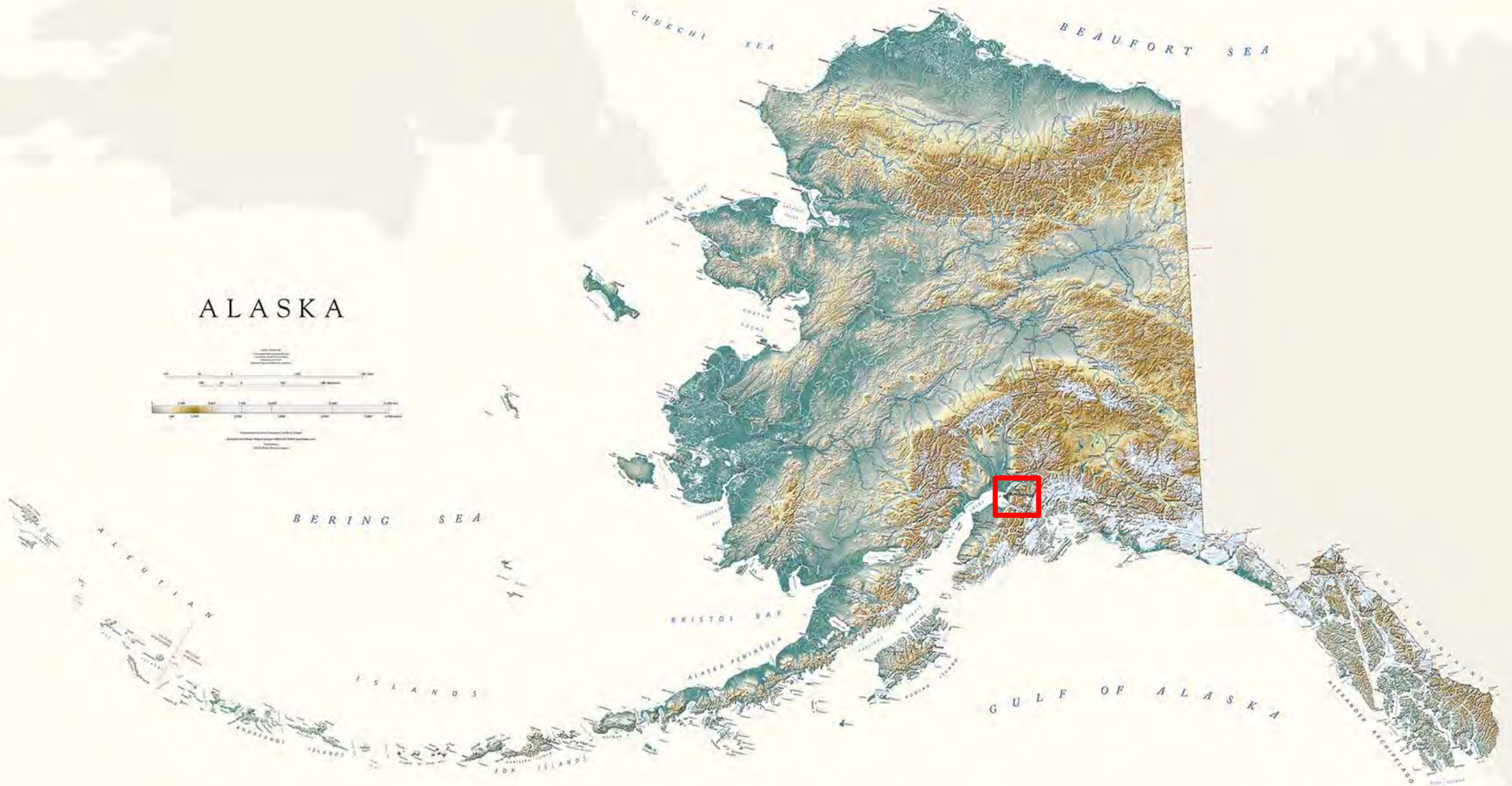
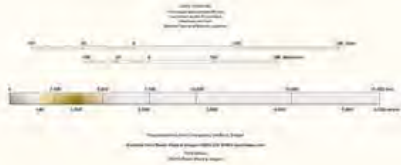
⁴ Olé presentation pages are not numbered.

Protecting Alaska's Waterways The Local Level

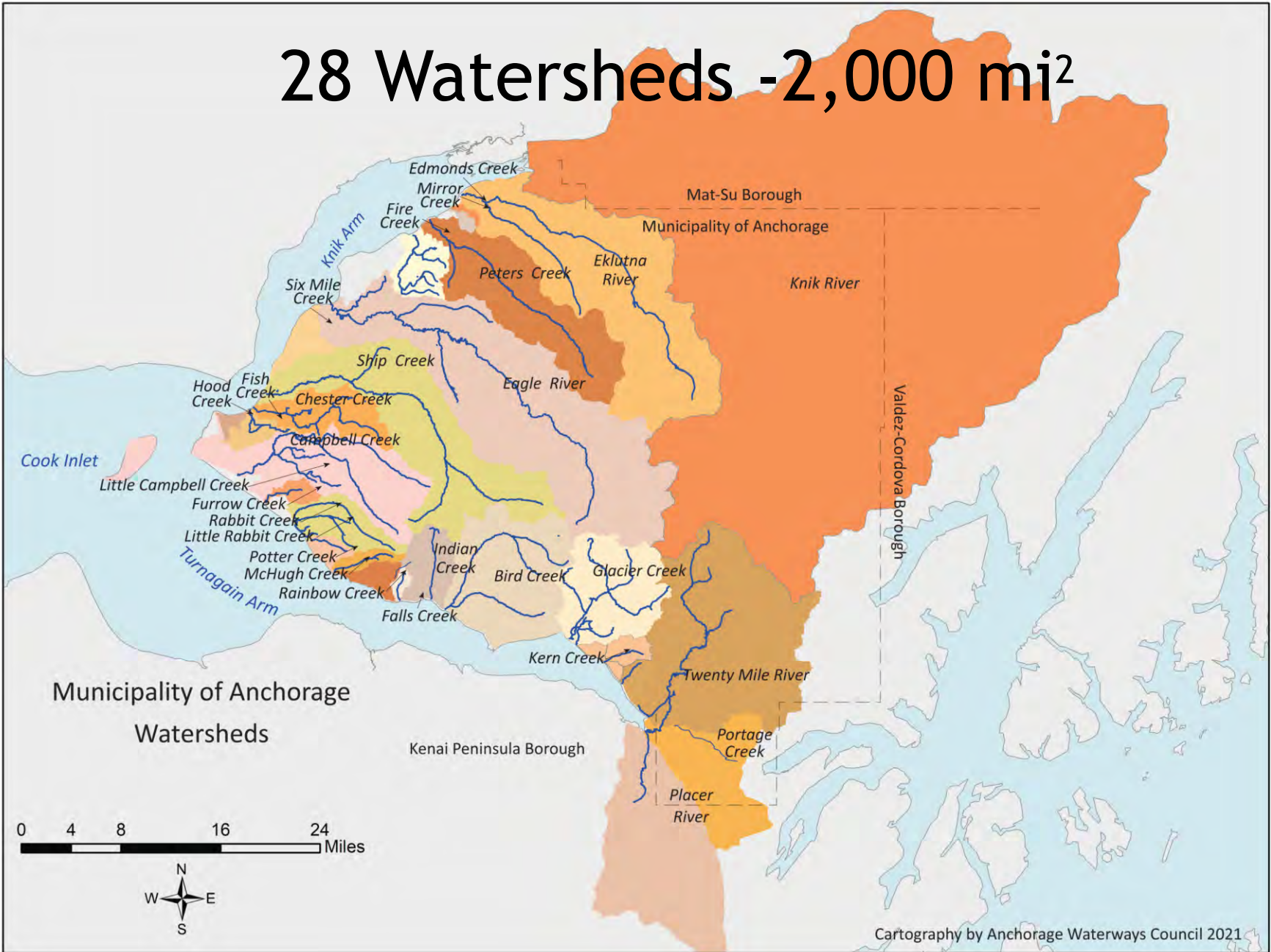


By: Cherie Northon, Ph.D.
Anchorage Waterways Council
October 28, 2021

ALASKA



28 Watersheds - 2,000 mi²



Cartography by Anchorage Waterways Council 2021

Who we are:

- ▶ Anchorage Waterways Council (AWC) was incorporated in 1985 as a 501 c 3 non-profit.
- ▶ *Mission: to promote the prevention of further environmental degradation; and to protect, restore, and enhance the waterways, wetlands, and associated uplands within the Municipality of Anchorage.*
- ▶ It was formed in response to health concerns about local streams and lakes that were called out by Dr. Rodman Wilson, public health director (1982-1987) under then-mayor Tony Knowles.
 - ▶ The Campbell Creek Classic, an annual water race in the city, was a casualty of health concerns, and was shut down in 1985 because of untreated sewage in the creek.



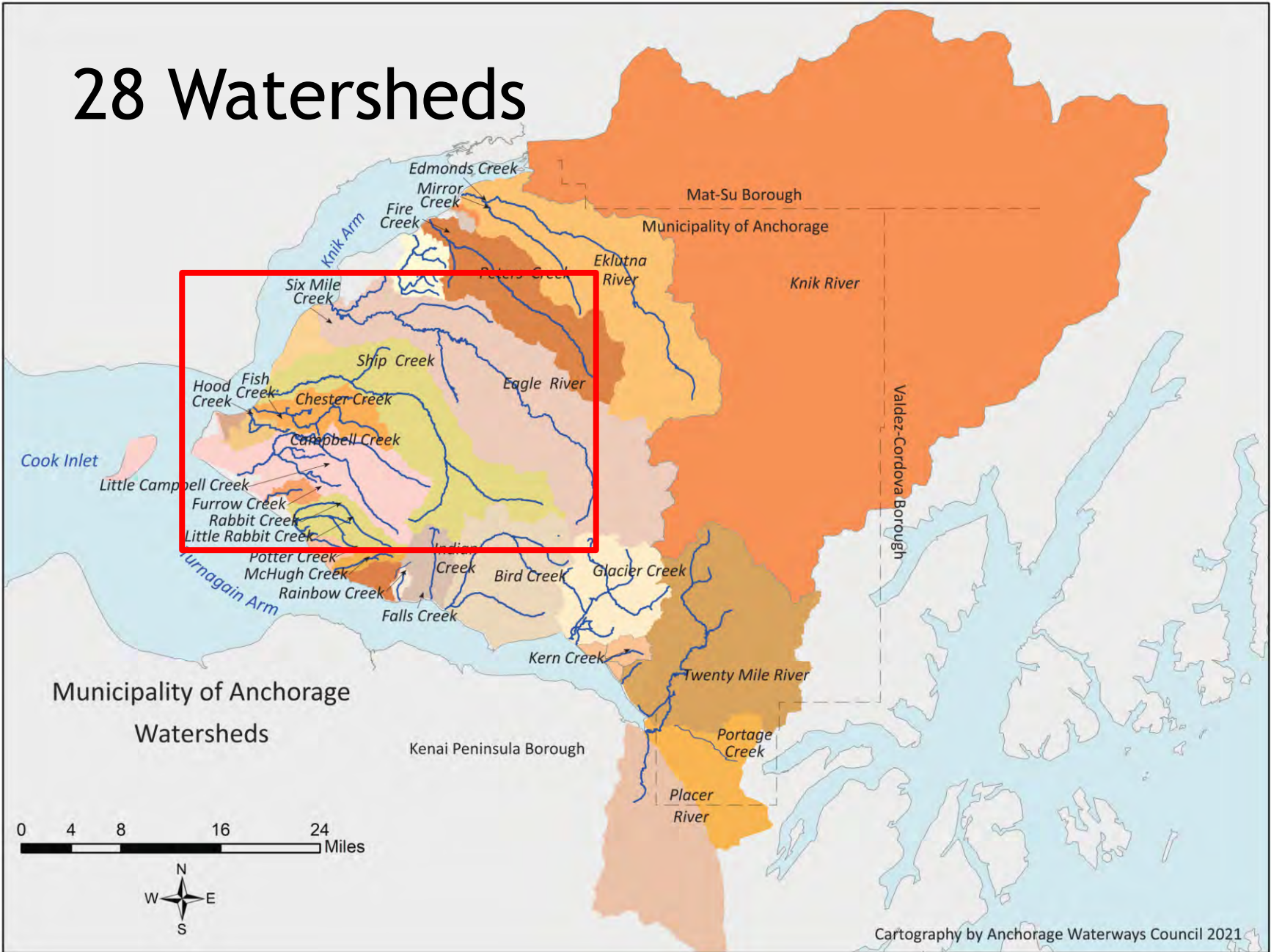
Anchorage Waterways Council Programs

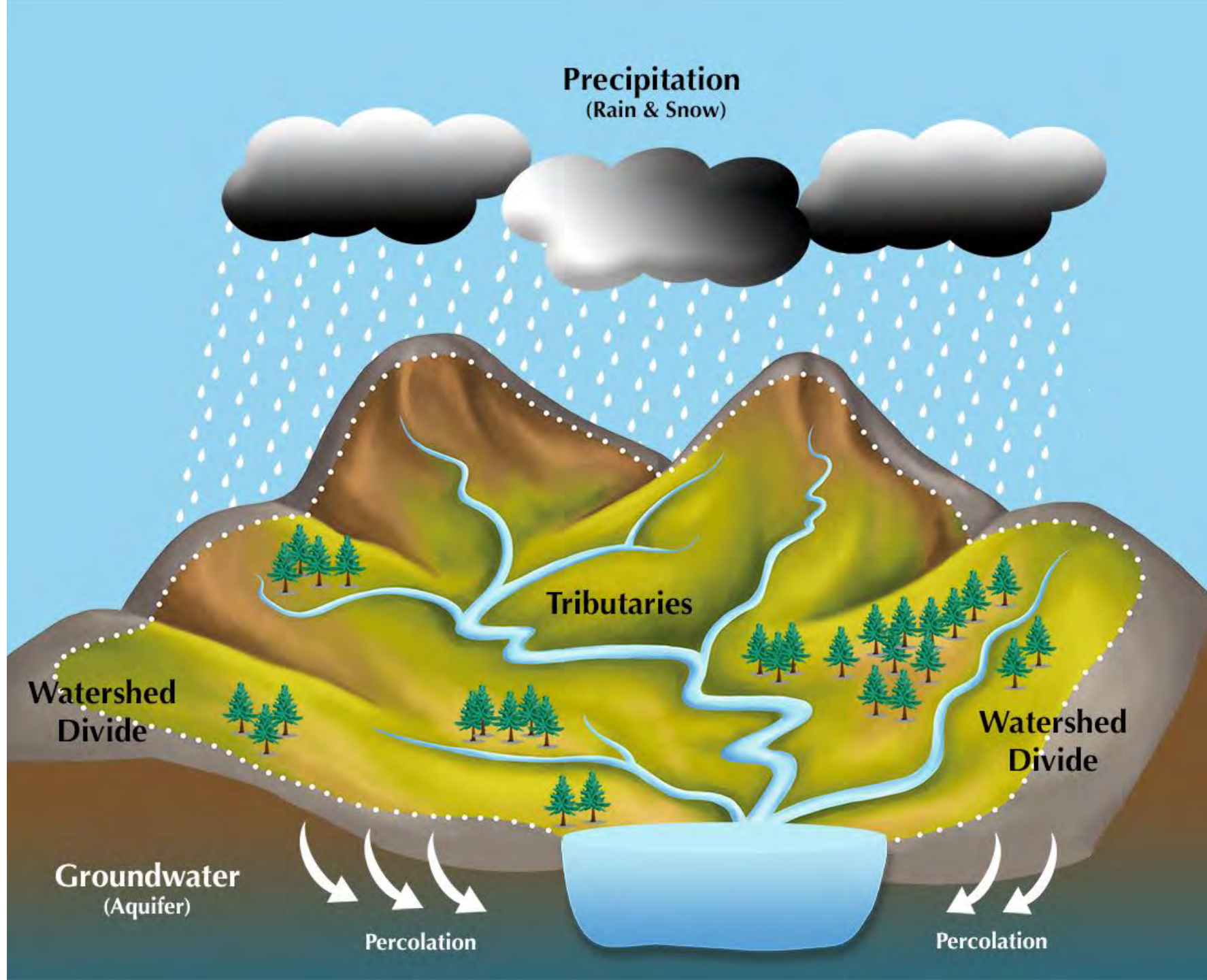
- ▶ Outreach and education
- ▶ Creeks as Classrooms
- ▶ Monofilament line recycling
- ▶ Citizens' Environmental Monitoring Program (CEMP)
- ▶ Responding to issues
- ▶ Events:
 - ▶ Scoop the Poop Day - April
 - ▶ Annual Creek Cleanup - May
- ▶ AWC Staff: 2.5 FTE
- ▶ Supported by grants, contracts, donations, and memberships

Outreach and Education

- ▶ Cities and other entities need a place to discharge stormwater runoff, and, fortunately, there are now rules in place to protect wherever that stormwater goes (although, like anything, there are always violations).
- ▶ The Municipality of Anchorage (MOA) has what's known as an “MS4” status.
 - ▶ MS4 = **M**unicipal **S**eparate **S**torm **S**ewer **S**ystem as opposed to a “combined system”.
- ▶ The MOA and AKDOT hold a joint permit originating under the EPA that administered by the Alaska Department of Conservation.
- ▶ Known as APDES or the **A**laska **P**ollutant **D**ischarge **E**limination **S**ystem, it provides standards that enable the MOA to discharge stormwater runoff into local creeks and lakes.
- ▶ Part of this permit involves public outreach and education about stormwater and its impacts on local watersheds, which AWC oversees for the MOA.

28 Watersheds





Pervious vs. Impervious Surfaces

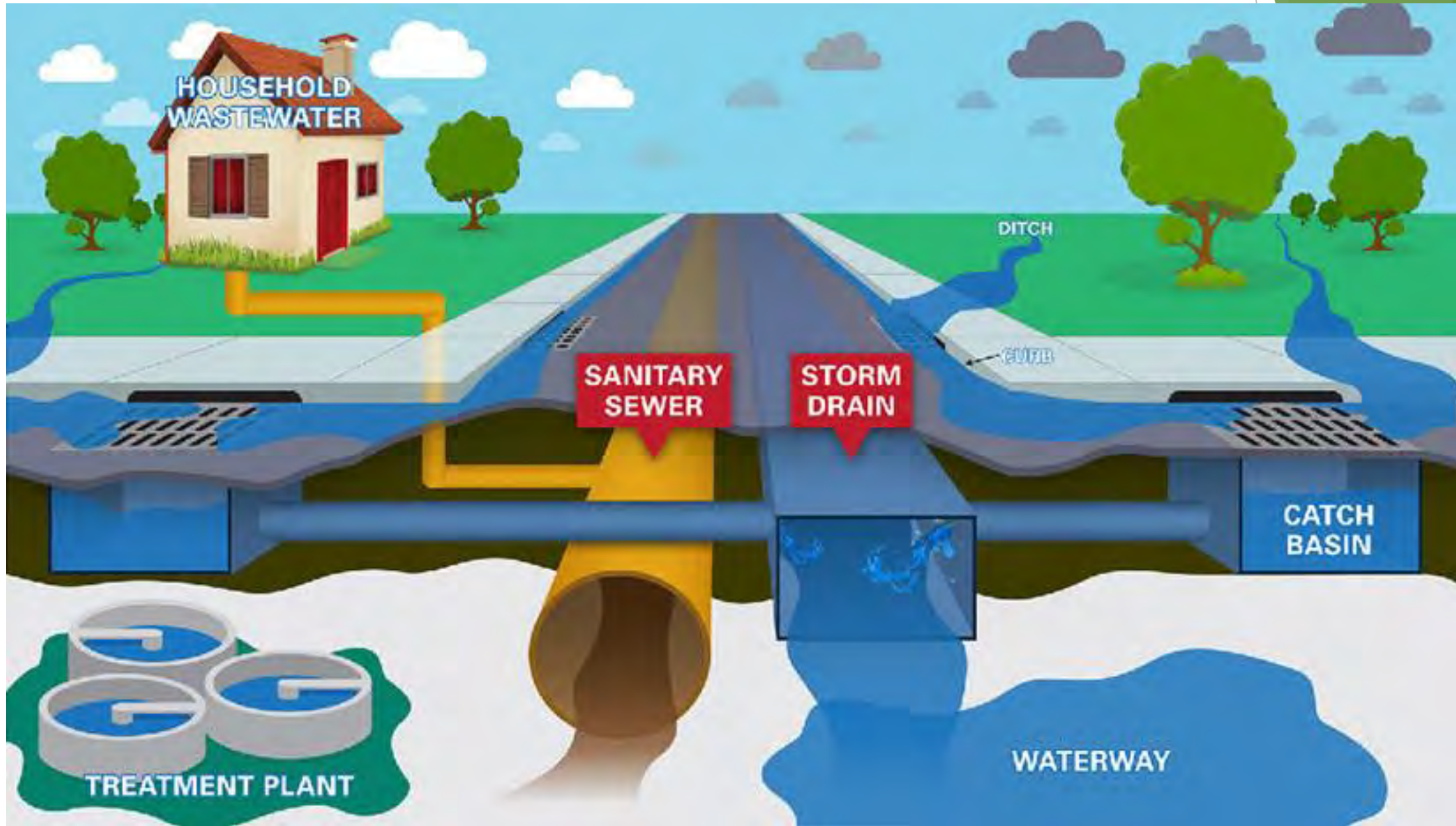


10% runoff - 50% infiltration



55% runoff - 15% infiltration

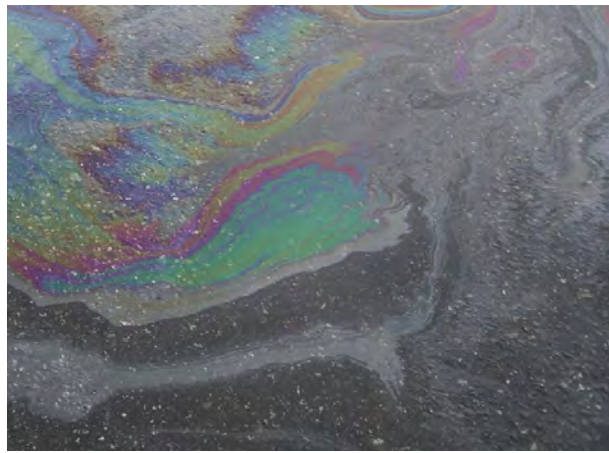
Stormwater discharges in Anchorage





Stormwater runoff is the #1 cause of stream impairment in urban areas





Because all this and more is in runoff!



Education and Outreach

Areas of Focus

- ▶ Scoop the Poop!
- ▶ Yard and garden chemicals, green waste
- ▶ Ice melt
- ▶ Car washing
- ▶ Plastics, cigarette butts

Pet Waste

- ▶ Pathogens live in dog poop (bacteria, protozoa, and worms).
- ▶ It has been estimated that a single gram (1/3 oz) of dog waste can contain 23 million fecal coliform bacteria.
- ▶ Besides pathogens, pet waste runoff into waterways carries nutrients—nitrogen and phosphorous.
- ▶ How much dog poop ends up in Anchorage every day?
 - ▶ 65,000 dogs > .75 lbs/day = 48,750 lbs = 24.375 tons!!!
 - ▶ 25 tons is approximately the weight of 4 elephants!

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



Scoop the Poop Day

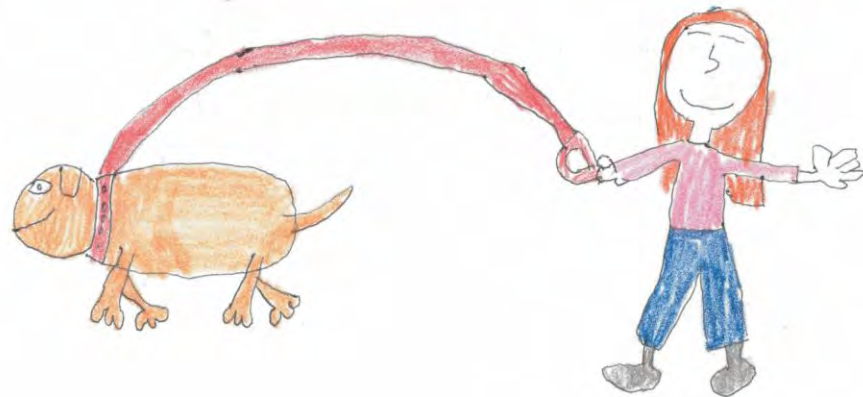




- ▶ Work with MOA Parks and Rec to get new pet waste stations out
- ▶ Tabling at events, e.g Friends of Pets' Dog Jog
- ▶ Rack cards and brochures
- ▶ Make targeted contacts to areas of concern

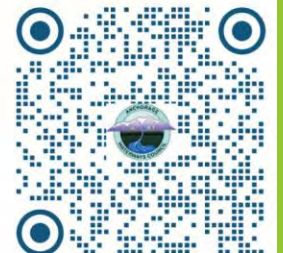


Scoop your dog's
Poop! It's gross!!!
You have to do it because
you don't want other
people to do it for you!





**KEEP
CALM
AND
SCOOP
POOP**



The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. The shapes are primarily triangles and polygons, creating a dynamic, layered effect. The overall composition is clean and modern, with the text centered on a white background.

STP Animation Graphic Scoop the Poop!

<https://www.anchoragecreeks.org/projecto-2>

Creeks as Classrooms

- ▶ Established in 2008 with funding from the US Fish and Wildlife
- ▶ Suspended in 2019 due to Covid and lack of funding
- ▶ ~5,000 students - annually
- ▶ Venues:
 - ▶ Individual classes
 - ▶ Water Discovery Days
 - ▶ Potter Marsh Day
 - ▶ Migratory Bird Day



Girdwood Elementary 2013 Video

<https://vimeo.com/63079449>

Monofilament Line Recycling

20 bins around the MOA



Jewel Lake common loon

KTUU News - September 7, 2021

<https://www.alaskasnewssource.com/2021/09/07/left-behind-fishing-line-can-be-deadly-birds/>

Citizens' Environmental Monitoring Program CEMP

- ▶ Established in 1998
- ▶ ~300 volunteer monitors
- ▶ 44 sites in the MOA to date
- ▶ Tests conducted:
 - ▶ Temperature
 - ▶ Dissolved Oxygen
 - ▶ pH
 - ▶ Turbidity
 - ▶ Electrical conductivity (EC)
 - ▶ Fecal coliform (FC)
- ▶ Funded by donations



Fecal coliform colonies

- ▶ 5 mL creek water
- ▶ Plated and incubated
- ▶ Blue/purple = *E. coli*
 - ▶ 4 *E. coli* colonies
 - ▶ Multiply x 20 = **80 FC colonies**
- ▶ Alaska Water Quality Standards (WQS)
 - ▶ For fresh water - 100 mL:
 - ▶ Drinking water
 - ▶ Primary water contact (recreation)
 - ▶ Secondary water contact (recreation)



Water Quality Standards for Designated Uses

POLLUTANT & WATER USE	CRITERIA
(2) BACTERIA, FOR FRESH WATER USES (See note 1)	
(A) Water Supply (i) drinking, culinary, and food processing <div style="text-align: center;">Drinking</div>	In a 30-day period, the geometric mean may not exceed 20 fecal coliform/100 ml, and not more than 10% of the samples may exceed 40 fecal coliform/100 ml. For groundwater, the fecal coliform concentration must be less than 1 fecal coliform/100 ml, using the fecal coliform Membrane Filter Technique, or less than 3 fecal coliform/100 ml, using the fecal coliform most probable number (MPN) technique.
(A) Water Supply (ii) agriculture, including irrigation and stock watering	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 samples may exceed 400 fecal coliform/100 ml. For products not normally cooked and for dairy sanitation of unpasteurized products, the criteria for drinking water supply, (2)(A)(i), apply.
(A) Water Supply (iii) aquaculture	For products normally cooked, the geometric mean of samples taken in a 30-day period may not exceed 200 fecal coliform/100 ml, and not more than 10% of the samples may exceed 400 fecal coliform/100 ml. For products not normally cooked, the criteria for drinking water supply, (2)(A)(i), apply.
(A) Water Supply (iv) industrial	Where worker contact is present, the geometric mean of samples taken in a 30-day period may not exceed 200 fecal coliform/100 ml, and not more than 10% of the samples may exceed 400 fecal coliform/100 ml.
(B) Water Recreation (i) contact recreation <div style="text-align: center;">Primary</div>	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 <div style="text-align: center;">Secondary</div>	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.

20 FC/100 mL

126 FC/100 mL

200 FC/100 mL

Responding to issues

- ▶ Citizen Reporting Form
- ▶ <https://www.anchoragecreeks.org/report-an-issue>

Illegal Dumping



Fish Creek



Fish, Campbell, & S. Fork Chester Creeks



S. Fork Chester Creek
near Boniface





Little Campbell and Rabbit Creeks

Vehicle drips



Littering



Homeless Encampments - Campbell Creek



Setback Encroachments



S. Fork Little Campbell Creek

Middle Fork Chester





S. Fork Little Campbell Creek

N. Fork Little Campbell Creek





N. Fork Little Campbell Creek
E. 71st Ave.





Little Campbell Creek east of Nathan Dr.



Runoff from an equestrian facility - Birch Road



Erosion Control Failures



Homer Drive & N. Fork Little Campbell Creek August 2010











Storm Drain Violations



Dewatering 52nd & Laurel - 2007 to 2008



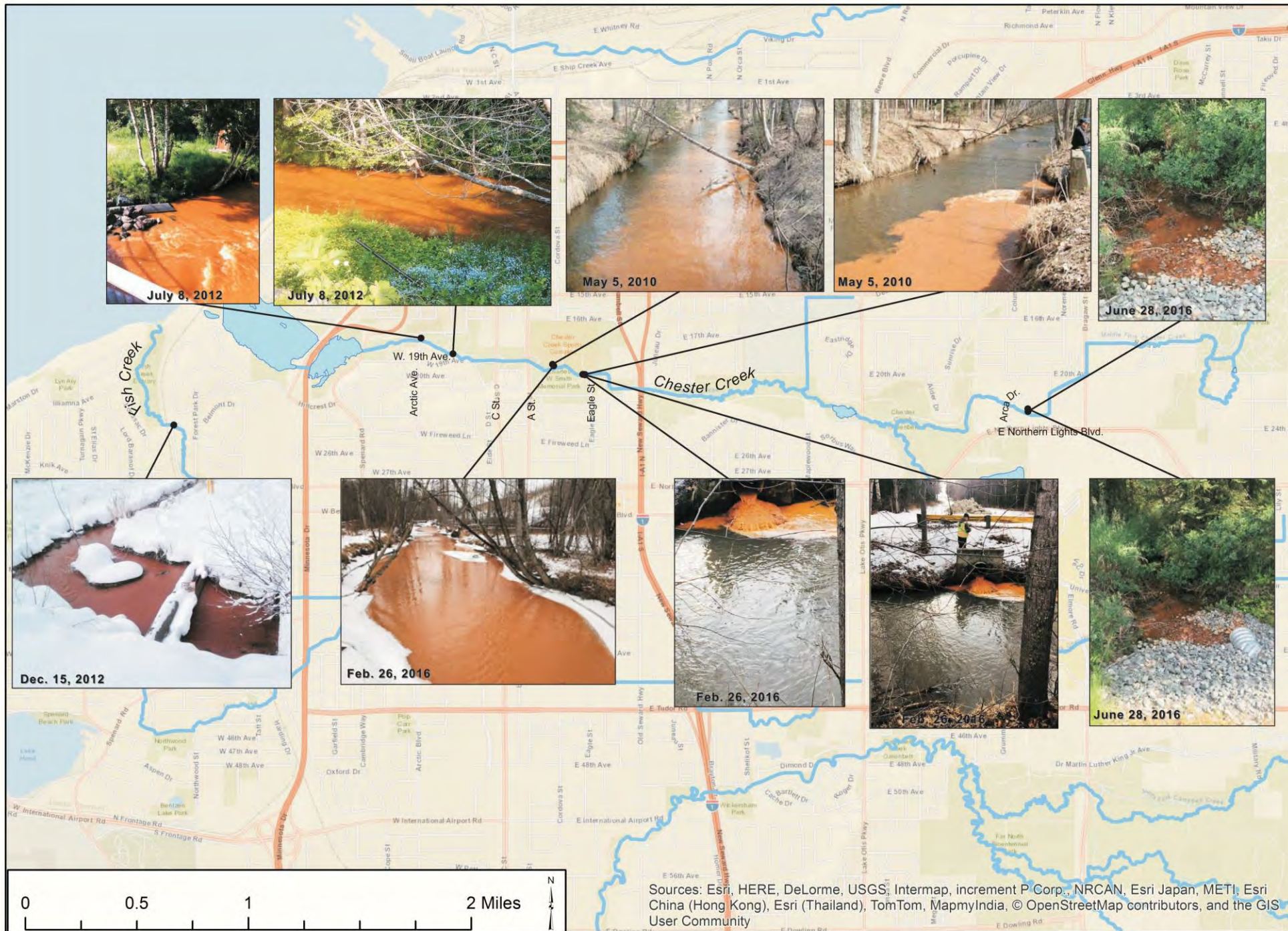




Campbell Creek at Lake Otis - 2007

Orange Water!!!





Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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

Thank you!

Questions?

anchoragecreeks.org

APPENDIX F – APDES Annual Meeting Presentation⁵

⁵ APDES Annual Meeting presentation pages are not numbered.

2020 Watershed Perception Survey

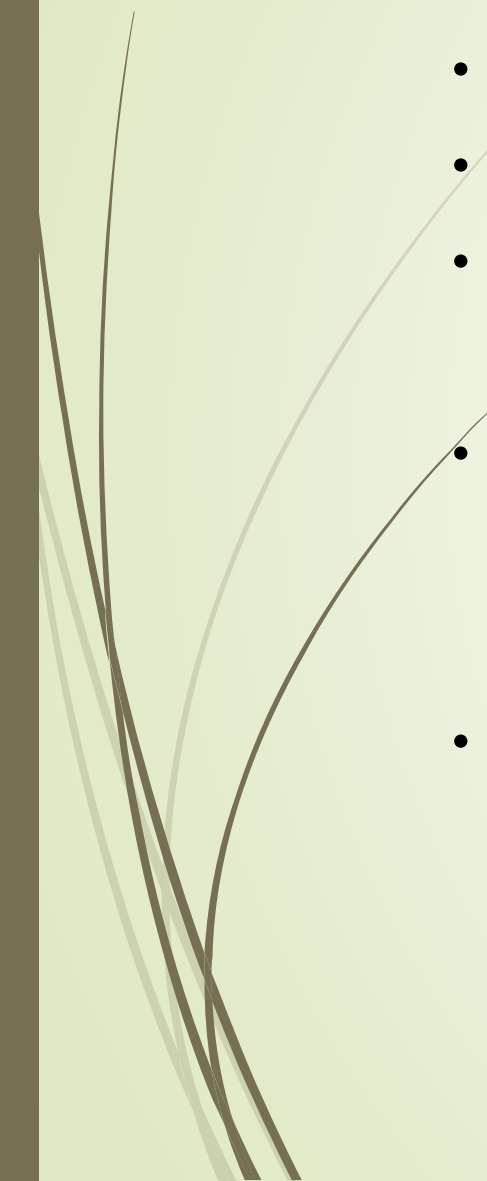


Cherie Northon, Ph.D.
Anchorage Waterways Council
February 24, 2021

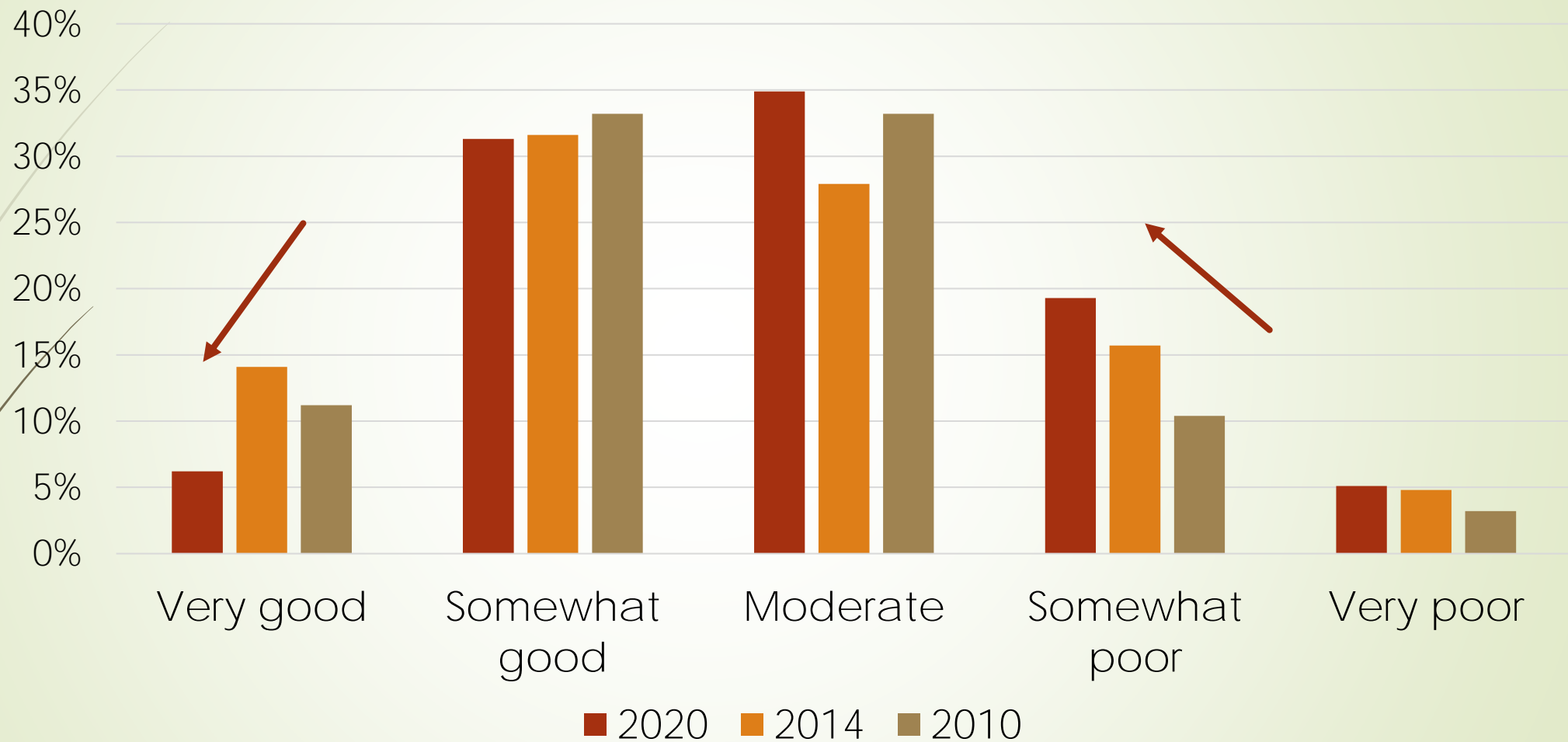




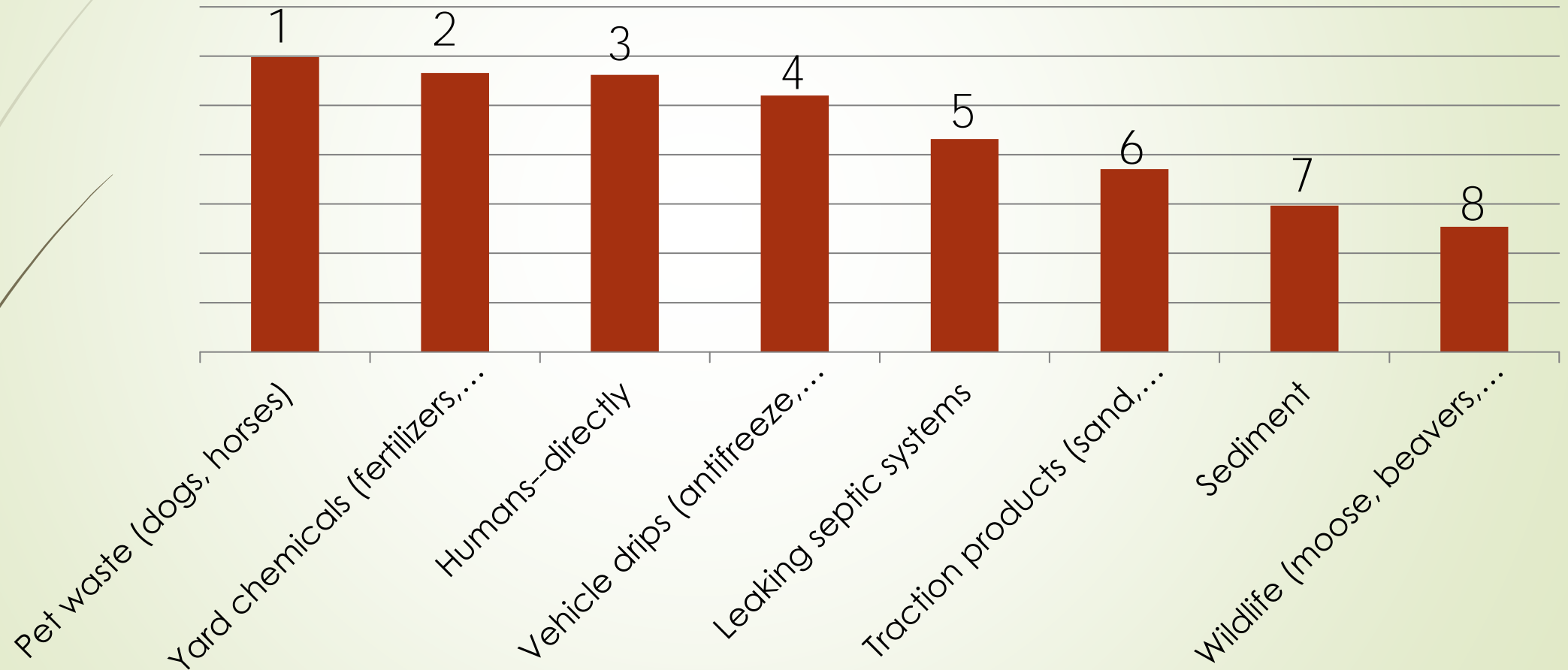
2020 Watershed Perception Survey

- Required at year 5 of the permit
 - Previous surveys were completed in 2010 and 2014
 - There are about 45 questions that are repeatedly asked in each survey, although sometimes they need updates
 - There were 450 responses (384 needed for a 95% confidence level with a $\pm 5\%$ error) across the community, and Survey Monkey was used to collect them
 - They are elicited primarily through social media
- 

Residents' perception of water quality



What do you think is the BIGGEST threat to water quality in Anchorage's creeks?
(Ranked—categories provided)

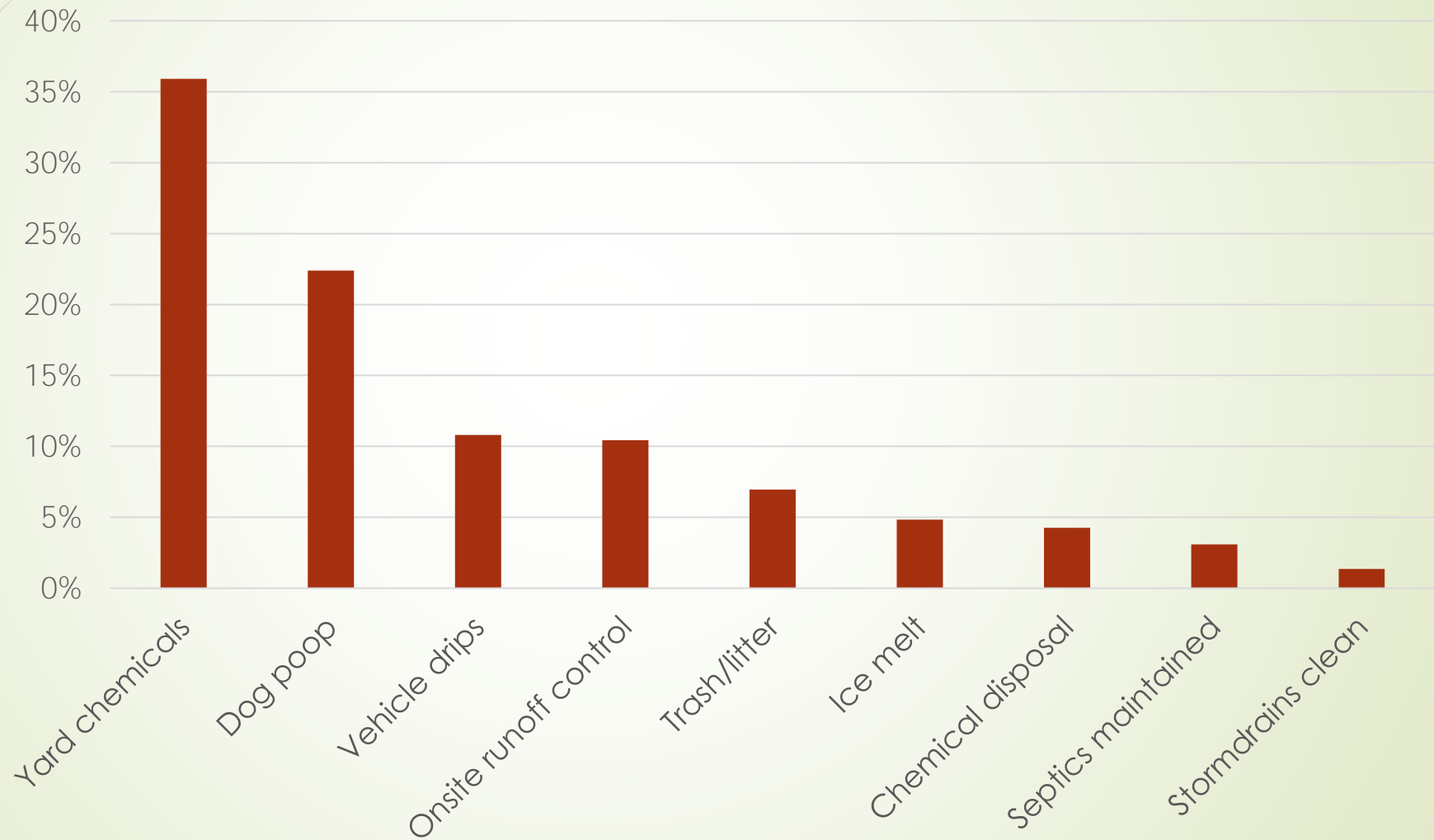




Rank	2020	2014	2010
1	Pet waste	Runoff	Runoff
2	Yard Chemicals	Animal Waste	Animal Waste
3	Humans-directly*	Lawn & Household Chemicals	Human Trash
4	Vehicle Drips	Sewage/Leaking Septic Systems	Pollution
5	Septic systems	Urban Development	Vehicle Fluid
6	Traction products*	Human Trash	Urban Development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

* New categories

What is the most important action that you can take to help keep Anchorage creeks healthy?



Thank you!

