



Suzanne LaFrance, Mayor

2024 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

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February 3, 2025

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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 4 report for the current permit period.

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

Public Education and Involvement

AWC promotes public education on stormwater by focusing on a variety of topics that affect water quality. The primary issues have been, and continue to be: pet waste; waterfowl feeding; invasive species; yard treatments; disposal of green waste; snow melt products and snow removal; residential vehicle repairs and car washing; plastics; monofilament fishing line; lead fishing weights; hazardous waste and materials; trash and litter; and illegal dumping into storm drains.

Scoop the Poop Campaign Activities

Scoop the Poop Day, April 20, 2024:

AWC’s Scoop the Poop (STP) Campaign provided information and STP-related items (brochures, stickers, pet waste bags, etc.) at its Annual ‘Scoop the Poop Day’ on April 20 which was held at University Lake Dog Park and Connors Bog Dog Park. This year’s event was staffed by volunteers from AWC and MOA staff, AWC board members, and several dog park users who handed out buckets, shovels, gloves, and bags to scoopers at Connors Bog and University Lake. Turnout for this event increases annually with over 100 eager volunteers, many of them showing up even before set up has begun!



Figure 1 - Connors Bog STP volunteers Cathy and Keith Foerster and MOA WMS staff Kenna Billups (C. Northon)

Reading Rendezvous, May 18, 2024:

AWC has been participating in Reading Rendezvous since 2022, and it continues to have a receptive and diverse audience. Organized by the Anchorage Public Library and the Alaska Center for the Book, its goal is to provide children and families with reading materials and healthy activities. The event was held on the grounds of the Loussac Library. AWC's emphasis was again on Scoop the Poop and our "Love A Loon" campaign, and activities were offered, suitable for toddlers through older children. The organizers estimated over 3,000 people in attendance. At least 600 people engaged in AWC's outreach activities.



Figure 2 - AWC's booth at 2024 Reading Rendezvous and the loon toss for Loon, Lines, and Lead program (V. Wight)

STP outreach continued full force in other areas. Since 2021, AWC has provided park and trail users with the 18" x 24" corrugated plastic signs that AWC created with different Scoop the Poop messages¹. To date, approximately 125 signs have been placed during winter along popular trailheads and trails.

¹ Sign examples can be found at AWC's 2021 Stormwater Outreach Education Public Education report at <https://www.anchoragestormwater.com/Documents/Archive%20APDES%20Reports/2021%20APDES%20Annual%20Report/AppG12021StormwaterOutreachSummary.pdf>

Potter Marsh Day, June 1, 2024

Potter Marsh Day is always an exciting family-friendly nature celebration in early June, and traditionally AWC uses hands-on activities with benthic insects to explain their use in determining water quality. A special emphasis is also placed on the Scoop the Poop program—again trying to encourage youngsters to clean up after their dogs. In 2024, AWC hired Kaitlan McLallen as our macroinvertebrate education specialist², and she oversaw this event. Her report states that approximately 200 children and adults visited AWC's station, and they found it fun and enjoyed it.



Figure 3 - AWC at Potter Marsh Day

Annual Creek Cleanup – May 14-26 and Flotilla 3 – May 18

In spring 1984, the recently formed AWC held a small Creek Cleanup on Chester Creek. From this humble beginning, the event has continued annually for 40 years. Over that period, it's estimated that over 20,000 volunteers have turned out to clear 50,000+ tons of trash from hundreds of stream miles and lakes in the Anchorage bowl. The spring 2024 Creek Cleanup continued again with 40+ cleanup teams who fanned out to Ship, Chester, Fish, Campbell, Little Campbell, and Furrow creeks as well as Westchester Lagoon, Potter Marsh, and Waldron, University, and Reflection lakes. Teams were formed from environmental and engineering firms, recreational groups, churches, NGOs, schools, municipal, state and federal employees, medical staff, neighborhood groups, families, and individuals. Flotilla 3 was held on May 18th this

² Kaitlan's 2022 senior project at APU whose 2022 senior project at APU was titled, "Using High Frequency Sensors to Analyze Water Quality and Macroinvertebrate Community Composition in the Anchorage Cook Inlet Region".

year, and it attracted over 50 kayakers who paddled across Westchester and Eastchester lagoons as well as Cheney, Delong, Jewel, Sand, Sundi, and Taku lakes. See Figure 6 for the creek and lake areas that were cleaned in 2024.



Figure 4 – PND Engineers team on Campbell Creek



Figure 5 - Flotilla crew at Jewel Lake

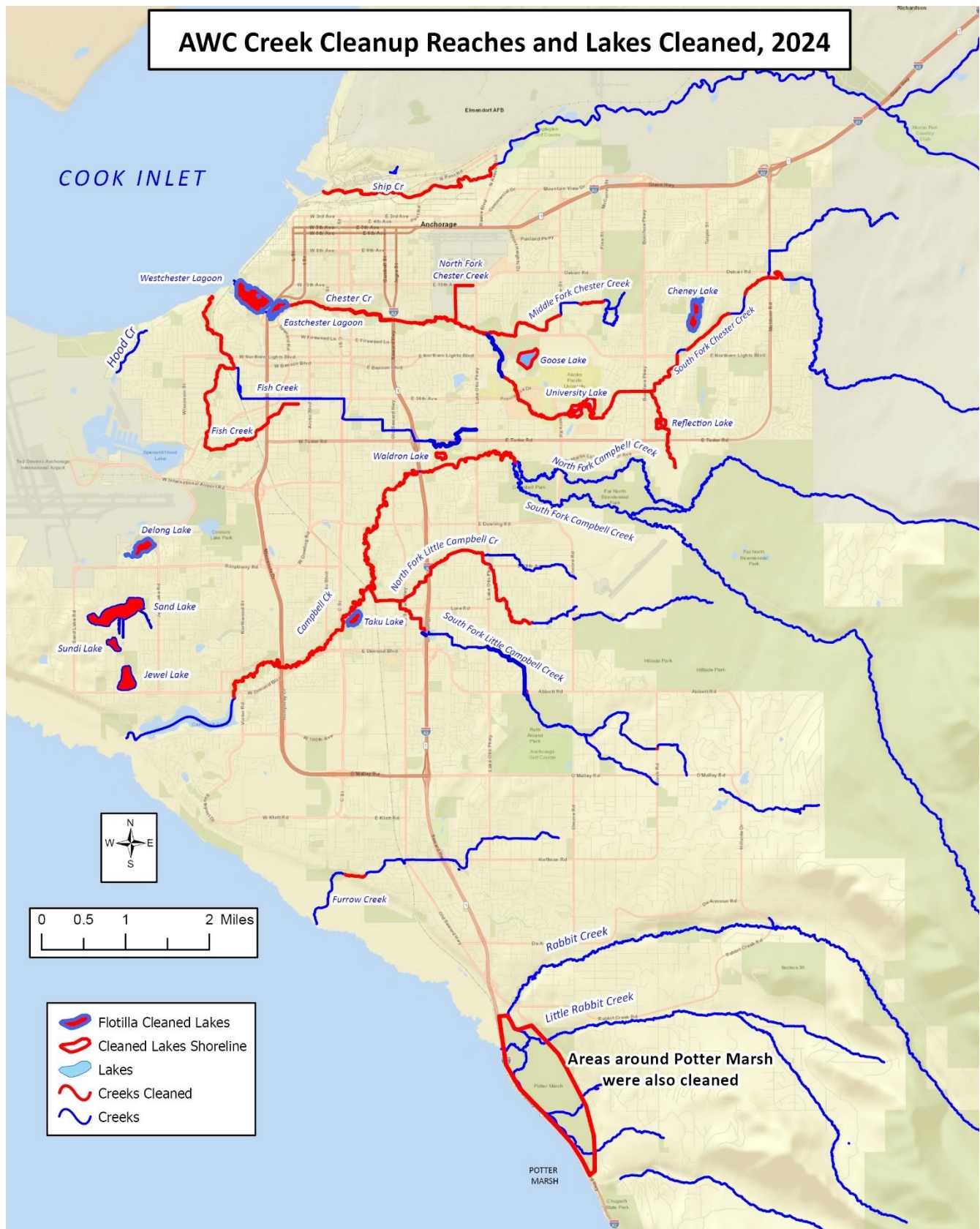


Figure 6 – 2024 Creek Cleanup locations

Issue Response

AWC responded to a few concerns by residents in 2024. Besides phone or email, there is a “Citizen’s Reporting Form” on our website³ which provides a place to report problems or concerns along Anchorage’s creeks and lakes. We respond to those we can, and, if we are unable to handle them, the person is given information on the appropriate agency or department to contact.

In 2022, AWC began a campaign to preemptively contact residents whose property has a creek running alongside it. It is especially important to provide these property owners and residents with information on being responsible creek neighbors. Similar to concerns on Chester Creek, Little Campbell Creek runs as a divider between the yards of several residential properties. In 2024, letters were sent to 400 residents along the main stem of Little Campbell Creek from Nathan Dr. to where it splits into the North and South Forks, and then along North Fork Little Campbell Creek east to Elmore (see Figure 7). The mailing included a Little Campbell Creek letter, envelope and information sheet titled, “How to Live with a Creek”. **(Appendix A)**

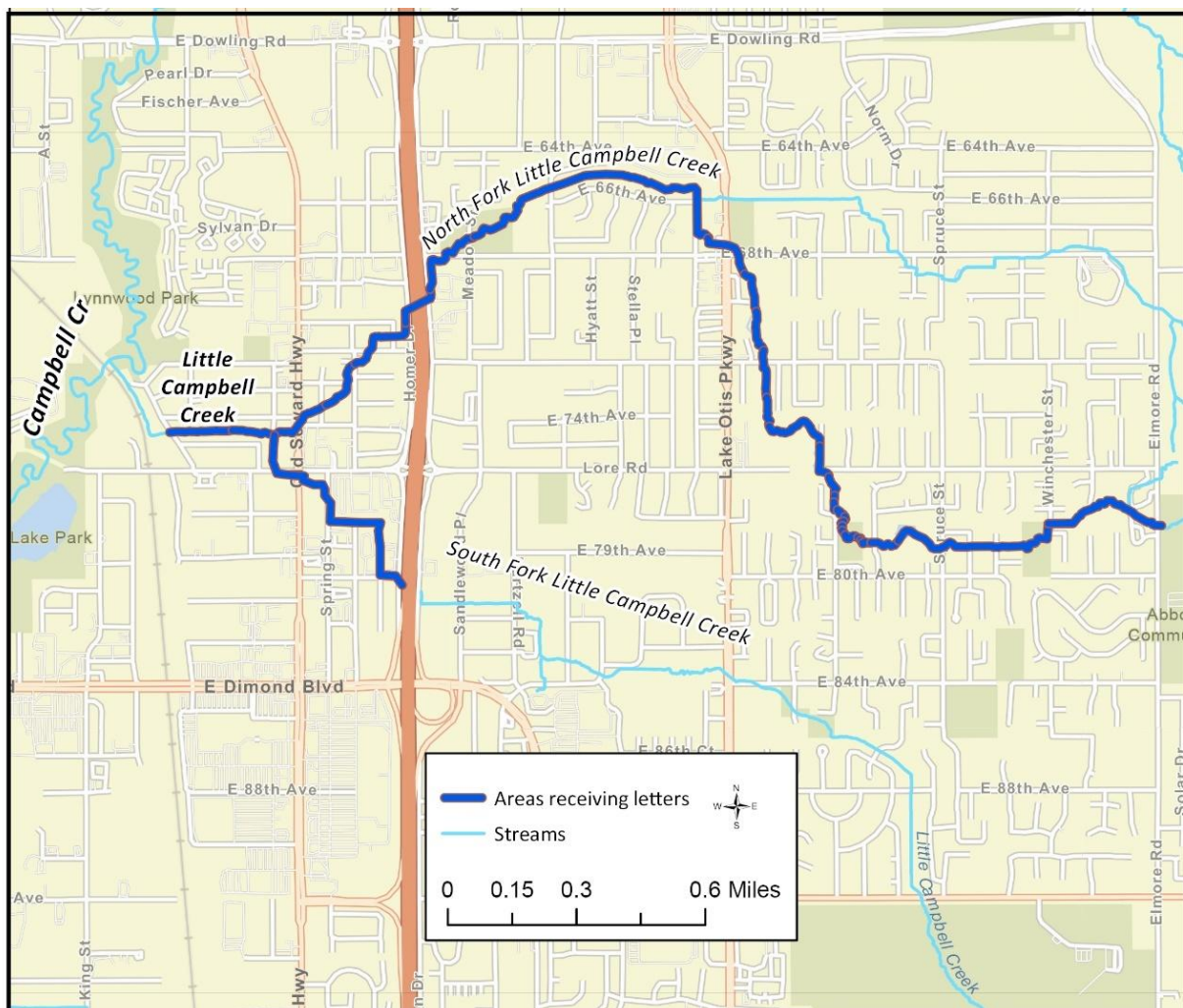


Figure 7 – Little Campbell Creek neighborhoods receiving creek letters

³ <https://www.anchorag creeks.org/report-an-issue>

Road Chemicals

6PPD Quinone Update

The 6PPD Quinone working group did not meet in 2024, but a meeting is being scheduled for 2025.

Electrical conductivity (EC) sampling

As first reported in 2022, AWC volunteer monitors have sampled for EC along Chester Creek since 2019. The objective is to monitor water quality parameters and water chemistry to evaluate the influence of frequent melt events in the winter on stream chemistry and evaluate if changes in street de-icing treatment affect water quality during melt events. Results from EC readings in winter 2023 and throughout 2024 (Figure 8) depict a consistency with data collected in previous years. The data shows, as would be expected, that EC readings increase along Chester Creek as it runs downstream, with higher numbers between October and April, especially during the main snow melt in April, due to the high use of road treatments. The idea behind this work is to look at this trend in terms of climate change with more frequent thaw and freeze events as they impact the immediate environment and infrastructure. Monitoring sites listed in the chart follow in Figure 9.

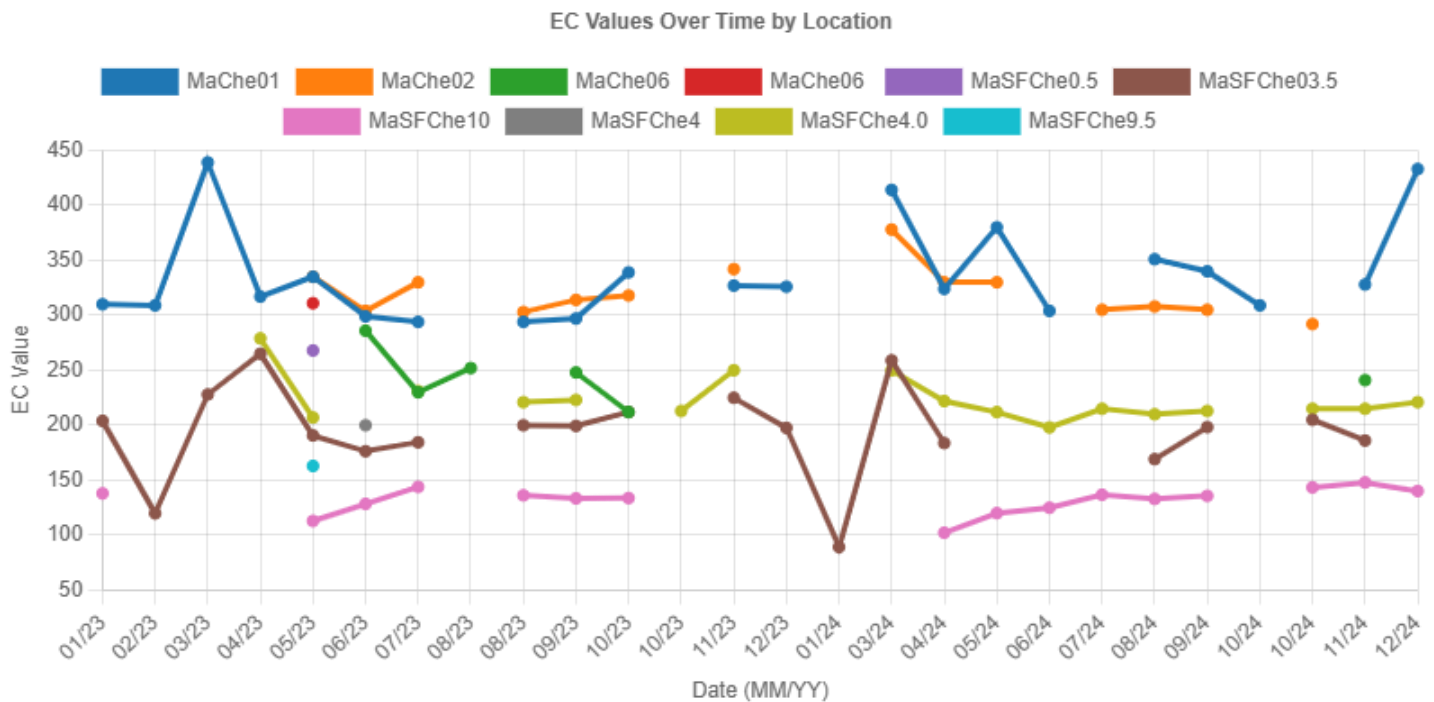


Figure 8 - EC data collected by AWC monitors from January 2023 to December 2024, from upstream to downstream⁴. (B. Hagedorn)

⁴ Gaps in data indicate lack of access due to hazardous ice conditions.

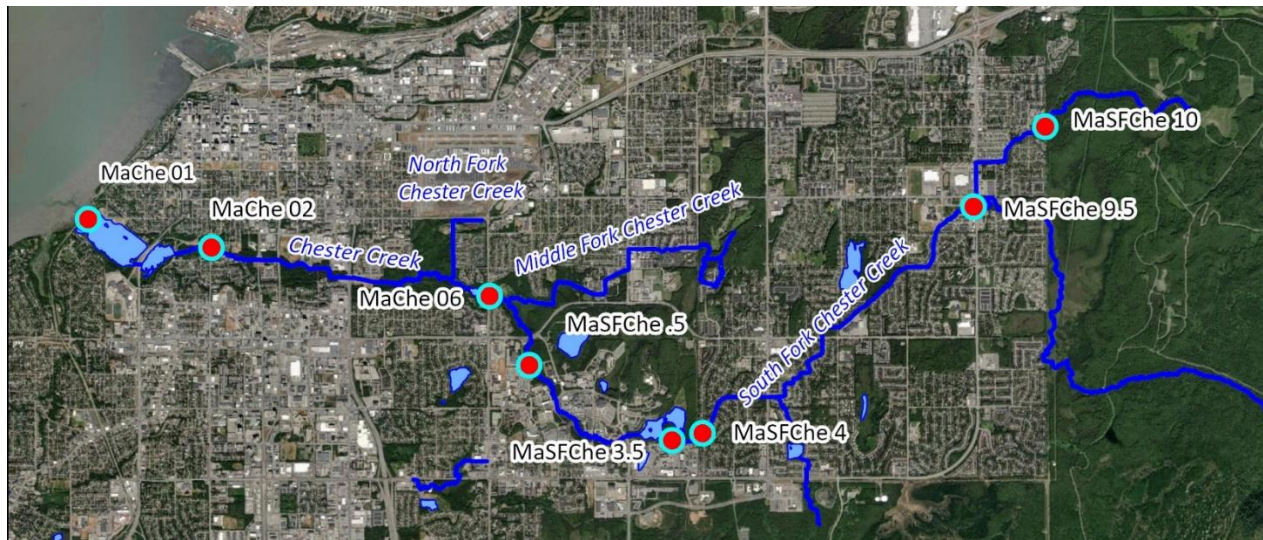


Figure 9 – AWC 2024 monitoring sites where EC samples were collected

Loons, Line and Lead program

In Spring 2024, the “Loons, Line and Lead” (LLL) program began its third year with funding from the U.S. Fish and Wildlife Service (U.S.F.W.S.) and the Alaska Community Foundation (ACF). The primary partners are U.S.F.W.S. Migratory Birds, ACF, Bird TLC, and AWC. The 2024 intern was Laney Kinsey, a nursing student from Texas, and Michelle Oliveira, the LLL 2023 intern, continued working later in the fall. Over the summer, all 18 monofilament recycling bins in Anchorage were checked, cleaned up, repaired, and fishing line and tackle were collected. Additionally, 8 new bins that were placed on Joint Base Elmendorf Ft. Richardson (JBER) in 2023 were visited and cleaned out. Both interns had several outreach opportunities to share information on the impact of monofilament and lead tackle on wildlife—especially loons. Over six hundred packets of non-lead fishing weights were given out to anglers, and approximately 7 miles of fishing line and 1/2 lb. of weights and tackle were collected from all bins. Samples of our outreach materials are in **Appendix B**.



Figure 10 – Intern Michelle Oliveira collecting monofilament line from Taku Lake bin



Figure 11 – Monofilament/lead recycling bins in Anchorage, 2024

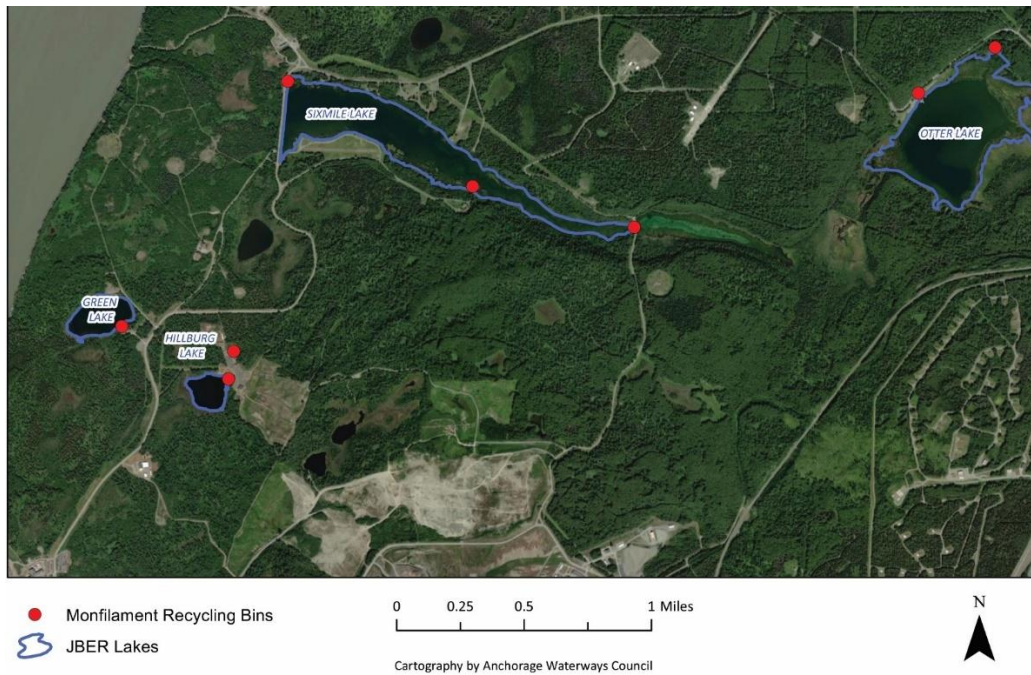


Figure 12 – Monofilament/lead recycling bins on JBER, 2024

There were two news stories on the LLL program during July 2024. The news clips originated from the release of a duckling that was rescued after being injured by a fish hook in its bill. The KTUU reporter, Georgina Fernandez, decided that it was important to provide preventative measures for waterfowl injuries that local fishermen could take, and she did a follow-up story the next day on monofilament recycling bins and the impact of lead fishing tackle on waterfowl and other animals. Video links are in the Media section following.

Media

During Year 4, there was one Letter to the Editor (LTE) on May 5, 2024, in the *Anchorage Daily News* by AWC director Cherie Northon who responded to Pete Eberhardt's LTE on April 28, 2024 where he acknowledges less pet waste on trails and his appreciation for those cleaning up after their pets. (**Appendix C**) The two KTUU news stories on the Loons, Line and Lead program mentioned above are at these links⁵:

<https://www.alaskasnewssource.com/2024/07/11/duckling-who-had-hook-removed-throat-recovering-anchorage-bird-tlc/>

<https://www.alaskasnewssource.com/2024/07/12/citing-deadly-risk-anchorage-council-urges-anglers-move-lead-nontoxic-sinkers/>

Lastly, the Anchorage Park Foundation commissioned a video titled, "Your Ultimate Guide to Floating Campbell Creek, Anchorage, Alaska" that provides information on safely paddling on Campbell Creek. In one section, Cherie Northon explains how watersheds facilitate trash and other undesirable substances finding their way into waterways. The video can be found on YouTube at <https://www.youtube.com/watch?v=I7YJv-uClj8>

Newsletters

AWC sent out eight newsletters during this period that announced upcoming events, discussed its various programs, and provided a wrapup of its events. The five most pertinent *Streamline* issues are in **Appendix D**. Current readership continues to increase with about 300 from the direct email using Constant Contact, and the newsletters are also boosted on Facebook where another 2,000+ readers receive them.

Social Media

AWC continues to boost most of its outreach information using Facebook and its digital newsletter *Streamline*. Since today the primary way that society wants its information delivered, AWC puts the majority of its information out in its digital newsletter, *Streamline*, and social media sites including Facebook⁶ and Nextdoor.com. The two Facebook accounts now have over 1,200 followers, and when important information is posted, they are "boosted" for a fee. There were 59,832 AWC post recipients and 6,940 for Scoop the Poop Anchorage during this contract year.

Presentations

In October 2023, Cherie Northon joined a steering committee of statewide watershed groups, Fish Habitat Partnerships, Soil and Water Conservation Districts, and Tribal Organizations. This committee organized an informational workshop, 2024 Statewide Watershed Workshop, held in Juneau from February 20th to the 22nd. The workshop featured a variety of presentations on Alaska, including "Managing Urban Watersheds: the Municipality of Anchorage" by Cherie Northon and "Urban and Rural Watersheds: What are the impacts to an urban watershed, and how do they impact surrounding communities? Overlaps between urban and rural" by Dr. Birgit Hagedorns. (**Appendix E**)

⁵ Apologies for the ads that are now appearing before the videos are played.

⁶ facebook.com/anchoragewaterways and facebook.com/ScoopthePoopAnchorage

APDES Annual Meeting

On March 6, 2024, AWC presented at the APDES Annual Meeting. The topic was “Anchorage Waterways Council: 40 Years of Making a Difference”. (**Appendix E**)

Conclusion

AWC is very encouraged that its activities and messaging are making a difference on several fronts. Anecdotal information on pet waste pickup is likely one of the better means of measurement. This is gathered from speaking with youth and adults as well as observation. At the various events, there appears to be much more familiarity with the problems associated with pet waste that’s not picked up as well as concerns voiced by residents on use areas that need attention, such as trailheads. Even the youngest children are demonstrating that they know how, or at least why, cleaning up after their pets is important, even though their parents are the ones who usually pick up dog poop. Pet waste cleanup will never be 100%, but finding a growing awareness of the problem IS a huge win.

Unfortunately, new waterway habitat concerns are always emerging, and AWC seeks to identify and respond to them. The impact of vehicle tire wear (6PPD quinone) and chemical road treatments in stormwater runoff are two that are currently in the spotlight along with the injury and death of birds and other wildlife from discarded fishing line and lead fishing tackle. Mitigation efforts to assist with Anchorage’s changing climate patterns are certainly another area for focus. Getting the message out is a continual process, and AWC will continue using what is working while also pursuing new methods.

APPENDIX A – Outreach Materials for Little Campbell Creek Residents

Letter

Envelope

Information sheet



Anchorage Waterways Council
P.O. Box 241774
Anchorage, AK 99524
(907) 272-7335

September 28, 2024

Dear Little Campbell Creek Neighbor,

There are not a lot of urban dwellers who can say that they have salmon living in a creek by their yard! Anchorage Waterways Council's work focuses on keeping local creeks and lakes healthy for all to use and enjoy, which is why we would like your help.

But first, did you know that:

- Little Campbell Creek encompasses about 24 miles of stream habitat, and its two forks, the North and the South, join just west of the Old Seward Highway before entering Campbell Creek near Nathan Drive.
- Little Campbell Creek's North Fork begins in Far North Bicentennial Park and the South Fork near the Glen Alps/Flattop Mountain trailhead.
- Juvenile coho (silvers) and chinook (kings) rear in Little Campbell Creek, and sockeye (reds) have been known to spawn there as well. Dolly Varden and other trout also inhabit the creek.
- Except for its upper reaches, most of Little Campbell Creek runs through residential and commercial areas.
- Stormwater and yard runoff carry cigarette butts, pet waste, yard clippings, and litter into storm drains which then empty directly into our creeks without treatment! Because Little Campbell Creek's environment is so highly urbanized, stormwater runoff can severely impact its health.

I'm including some information that we hope you'll consider in order to help Little Campbell Creek be a healthy waterway for its aquatic inhabitants as well as for the enjoyment of all.

If you'd like to know more about local waterways and our work, please visit our website at www.anchoragecreeks.org. We're the only organization dedicated to caring exclusively for local waterways, which we have been doing for 40 years.

Sincerely,

Cherie Northon, Ph.D.
Executive Director



How to Live with a Creek

Be a steward for your local creek and keep an eye on it. Report any issues online at www.anchoragecreeks.org/report-an-issue.

Please Scoop the Poop! Pet waste carries a variety of pathogens, including bacteria and viruses, that can make humans and their pets extremely sick.

Don't water your driveway and paved areas and don't overwater your yard. Your yard only needs about 1" of water. Put an empty tuna tin on the area you're watering, and when it's full—you've watered enough.

Sweep your driveway rather than power washing or hosing it. All that debris will find its way into a creek.

Direct your downspouts ONTO your yard and OFF impermeable surfaces. Also, consider rain barrels and rain gardens to reduce yard runoff.

Reduce or eliminate yard and ice melt chemicals. Their ingredients can cause algae blooms and be detrimental to creek critters.

Don't dump yard waste into the creek or cut your lawn close to the creek's edge. Yard waste contains chemical additives as well as high nitrogen and phosphorus. Rather than bagging your grass clippings, mulch them on the lawn when you mow as a natural source of fertilizer. Yard waste that decomposes in waterways uses up dissolved oxygen which is essential for fish habitat. Leave native vegetation buffers along waterways.

Use car washes as they capture and recycle their waste water. Ultimately, waste water from car washes enters Anchorage's sanitary sewer system where it is treated. If you wash at home, park your vehicle on a lawn or gravel area and use non-phosphate cleaners.

Don't alter the bank or course of a creek. Creeks have a mind of their own about where they want to go, which is protected by local, state, and federal law.

Don't trample creek banks! Bank trampling by humans, bikes, dogs, and horses causes erosion and sediment to run off into waterways which disturbs gravel beds where fish spawn and little ones grow.

Protect and preserve shoreline vegetation and don't cut trees or remove vegetation within the creek setback. The vegetation provides habitat, shade to keep the water cooler, protection from prey, and stabilization of the streambank.

Don't disturb instream rocks or build dams and footbridges. The undersides of rocks are habitat for macroinvertebrates, which are food for fish, birds, and other aquatic inhabitants. Dams can block fish passage, and during highwater events—they and footbridges can catch debris and increase the likelihood of flooding in your yard.

Participate in Anchorage Waterways Council's Annual Creek Cleanup (every May) and consider becoming a member. Memberships help support a variety of programs. www.anchoragecreeks.org/donate

Anchorage Waterways Council

P.O. Box 241774

Anchorage, AK 99524

LITTLE CAMPBELL CREEK



APPENDIX B – Outreach Materials for Loons, Line, and Lead program

Posters

Rack cards

Non-lead sample packages



ANGLERS CAN HELP SAVE LOONS & OTHER SPECIES FROM LEAD POISONING

Alaska is an incredible place to fish. Unfortunately, improper disposal of monofilament line and the widespread use of lead sinkers and tackle threaten Alaska's birds, fish, and other wildlife. 'Love a Loon' by choosing safe alternatives to lead and properly disposing of fishing line.



LEAD POISONING IS A FISHING-RELATED HAZARD FOR BIRDS

- Most tackle—especially sinkers and jigs—are made of lead, which is a toxic metal that can be fatal when ingested by birds and other wildlife.
- Once ingested, the lead tackle goes into the loon's gizzard. The acid and grinding action of the gizzard erodes the lead, which then passes into the bloodstream and poisons the loon.
- Even a single small lead sinker is fatal to loons.



LOONS AND OTHER WILDLIFE OFTEN GET TANGLED IN FISHING LINE

- Loons may eat a fish that has broken the line and ingest the line into their throat or get tangled in fishing line from a snagged lure below the surface.
- Entanglement in fishing line can cause death by preventing a loon from eating, causing infection, and drowning.
- Please don't leave fishing line behind—Pick it up and dispose of it in the trash or a fishing line collection bin.



LOONS ARE UNIQUELY VULNERABLE TO LEAD AND LINE

- Loons are aggressive hunters and may strike bait as it is being retrieved, strike at a fish that is being reeled in by an angler, or eat a fish that has broken a line with attached tackle.
- Loons normally ingest small pebbles as grit, and they may mistake a lost sinker or other piece of tackle for a small pebble.
- Survival of adult loons is the most crucial factor in assuring the continued viability of Alaska's loon population.



ANGLERS CAN PROTECT ALASKA'S LOONS!

- Anglers can choose lead-free fishing tackle made of tungsten, steel, tin, bismuth/tin, and glass.
- Lead-free alternatives are very effective! Tungsten even performs better than lead because it sinks faster and is more sensitive.
- Properly recycle or dispose of unwanted lead and line.
- Spread the word. Tell your friends about the problem. Ask your favorite retailers to stock lead-free fishing tackle.

PARTNERS





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Photo courtesy of Milo Burcham



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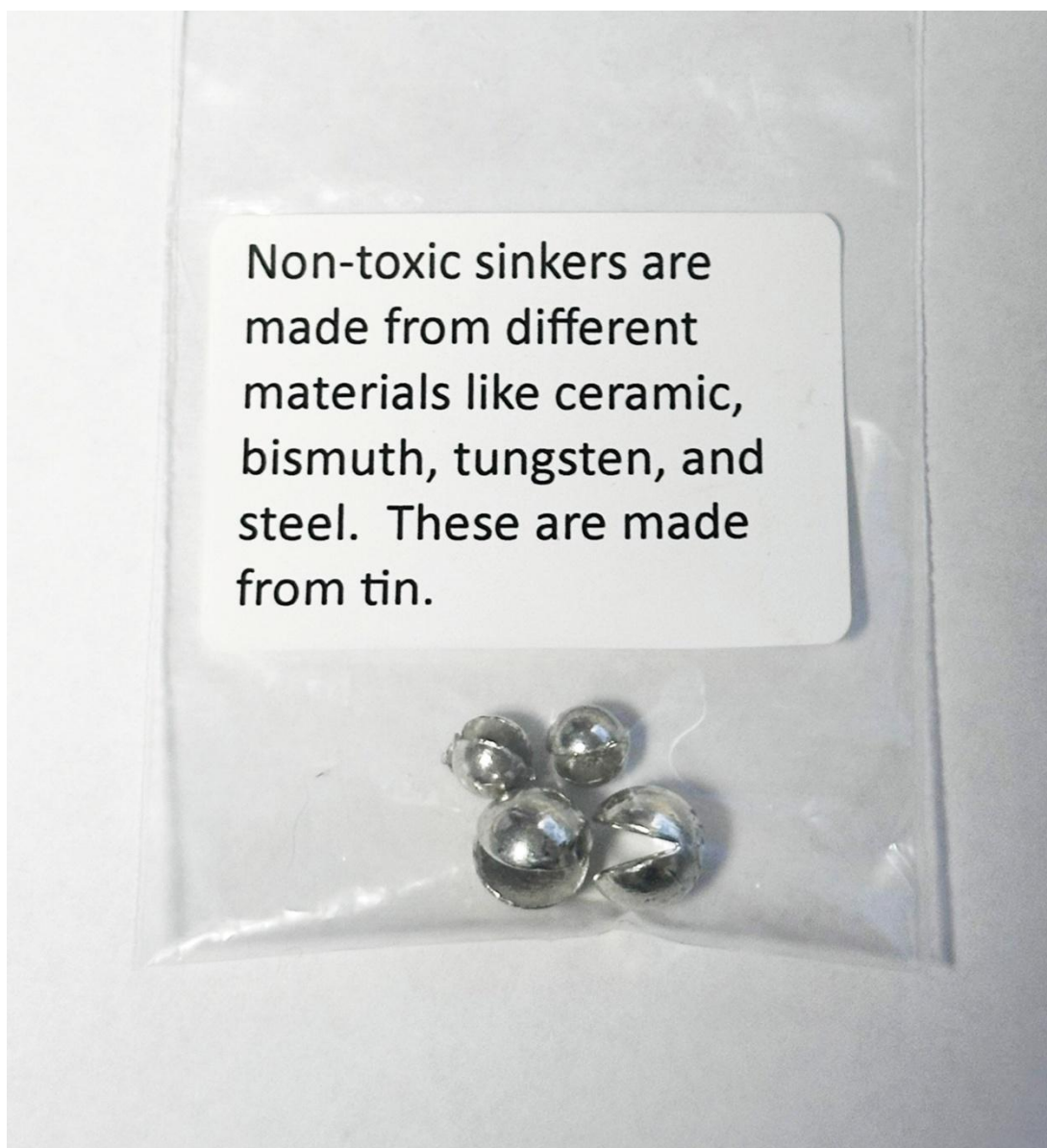
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Spread the word. Tell your friends about the problem. Ask your favorite retailers to stock lead-free fishing tackle.



PARTNERS





Samples of non-lead weights included with Love-a-Loon outreach materials.

APPENDIX C – Letters to the Editor (LTE)

Letters to the Editor – Anchorage Daily News

4/26/2024 Letter from Pete Eberhardt

5/2/2024 Letter from Cherie Northon

LETTERS TO THE EDITOR

SEEKING PEACE AND JUSTICE

As a person of Jewish descent deeply committed to humanitarian principles, I feel compelled to engage in the dialogue initiated by Rabbi Abram Goldstein's thoughtful commentary regarding the Anchorage Assembly's consideration of a ceasefire in Gaza. Rabbi Goldstein's reflections resonated with me, not only because of our shared heritage but also due to our mutual aspirations for peace and security for all peoples, irrespective of their nationality or faith.

Rabbi Goldstein eloquently articulated the historical and emotional bonds that tie Jewish communities around the world to Israel. His concerns about rising antisemitism, fueled by the complexities of the Israeli-Palestinian conflict, are valid and demand our collective attention and action. It is crucial that we strive to ensure the safety and dignity of Jewish individuals everywhere, including the beautiful state of Alaska that Rabbi Goldstein and many others call home.

However, it is from this place of shared concern and aspiration that I advocate for a broader perspective on the Anchorage Assembly's resolution for a ceasefire. The pursuit of peace in Gaza, and indeed in all conflict zones, must be guided by a commitment to protect all civilians and uphold international law. The call for a ceasefire is not an indictment of one side but a plea for humanity to prevail over hostility.

President Biden's remarks characterizing Israel's response as "over the top" reflect a growing global apprehension about the escalation of violence and the resultant humanitarian crises. Advocating for restraint and adherence to international humanitarian standards is not an affront to Israel or the Jewish people; rather, it is a stance in favor of justice and the sanctity of human life.

Furthermore, the United States' veto of a United Nations resolution intended to address the conflict warrants scrutiny and debate. Such actions should not go unchallenged, as they impact the international community's ability to contribute to peace efforts. Protesting this veto, and advocating for accountability for any actions that may constitute war crimes, is a call for the rule of law and human rights to be upheld universally.

My appeal for a ceasefire and for a balanced re-evaluation of support for actions that may exacerbate the conflict is rooted in a humanitarian desire for an end to suffering for all involved. It is a call for dialogue, empathy, and a renewed commitment to peace that respects the rights and aspirations of both Israelis and Palestinians.

In writing this letter, my aim is not to diminish the very real fears and concerns of the Jewish community but to broaden our collective gaze to encompass the humanity of all parties affected by this tragic conflict. Let us work towards a future where peace is not just a fleeting hope but a sustainable reality, built on the foundations of justice, respect, and mutual understanding.

— Ron Alleva
Anchorage

DOG CLEAN-UP

Twenty years ago or so, I started my jog at the top of the "West High hill"

down the bike path toward Westchester Lagoon. It was just about this time of year with most of the snow having recently melted. I proceeded only a few yards before I realized I could not go any further — the trail was literally solid dog waste and would be impossible to avoid stepping on it. It was disgusting.

Fast forward to today: Yeah, you might see a bit of scattered waste, but it's pretty much a different scene. A clean trail.

Bottom line: People have changed their habits. People are picking up.

Here's a tip of the hat to all of you who stop and take the time to clean up after your pet. It's made a huge difference to all of us who use the trail and a tremendous positive impact on what ends up in the waterways. A total win-win.

It's so easy to use the provided bags from the parks department and then toss them into the trash bins located nearby. What a pleasure it is for me to write this report — thanks again to all of you.

— Pete Eberhardt
Anchorage

ASSEMBLY'S TEMPER TANTRUM

I'm sure everyone has heard of the Eklutna River dispute between the Anchorage Assembly and the utility companies who own the project. However, I don't think many people are paying attention to how our city officials are handling the dispute.

On April 4, a meeting between Assembly staff and municipal attorneys took place to review confidential documents about the dispute. First, the Assembly staff only gave four hours of notice to view the documents. This was unprofessional enough to cancel the visit, but the attorney's office reworked their schedule for the day and made it happen.

Second, and most unbelievably, the municipal attorneys experienced harassment and disorderly conduct within their office space from the Assembly staff. This included, according to the letter, "Yelling through the halls of the attorney's office."

This seems to be a case of the Assembly not getting what they wanted and deciding to throw a temper tantrum to try to intimidate the attorneys. All I know is that if anyone acted like that at the workplaces I've been employed at since graduating college, they'd be fired on the spot.

— Cody Hazby
Anchorage

COURT RULING ON HOMELESSNESS

As the Supreme Court considers allowing the prosecution of homeless people for sleeping in public, including incarceration (Grants Pass, Oregon, etc.), consider that in many places throughout the U.S., the only alternatives for shelter consist of faith-based programs such as Lighthouse Missions and Salvation Army shelters. These places in particular can now refuse gay homeless people seeking shelter.

In the Mother Jones article "The Supreme Court Allows Discrimination Against LGBTQ People," Justice Sonia Sotomayor stated: "Today, the Court, for the first time in its history, grants businesses open to the public a

constitutional right to refuse to serve members of a protected class." That Supreme Court decision from June 30, 2023, allowed faith-based programs to discriminate not only against employees but homeless people seeking shelter.

This is especially troubling to me, as I've been homeless after attempting to utilize an anti-discrimination ordinance for LGBTQ people in Tucson, Arizona, decades ago. At that time, I contacted ultra-conservative Barry Goldwater hoping he might help since he was openly advocating for gays in the military (he had a gay grandson). Goldwater wrote me back politely declining, explaining because he was a resident of Phoenix, it wouldn't be proper for him to become involved in city of Tucson affairs.

Although that Goldwater rejection letter was a bit amusing, I appreciated him writing back. What I'm not amused by is that in June 2024 the Supreme Court may decide to allow homeless people, including LGBTQ+, to be incarcerated — President George W. Bush's faith-based initiative social programs and "straight is the gate and few there be that find it" notwithstanding.

— Chris Deile
Anchorage

THANKS FOR PASSING SCHOOL BOND

On behalf of the Anchorage School District (ASD), I extend my deepest gratitude and thanks to Anchorage residents for their support in passing Proposition 1, the security and safety school bond for our district. Their support is a testament to their concern for the safety of our 43,000-plus students and recognizes the importance of maintaining a safe and secure school facilities.

At just over \$62 million, the bond will have lasting impacts on our schools throughout the district to ensure these facilities remain functional and safe for years to come. Since 2022, ASD has worked on implementing a multiyear safety and security package, and Proposition 1 is an extension of that work. From vital roof replacements, seismic resilience work, and creating secure entrances at our elementary schools, this school bond addresses safety and security. Information, status reports, and the latest information on these and all capital planning projects can be found on our Capital Planning and Construction website.

Thank you for your support, your trust, and your belief in the mission of the Anchorage School District. We are incredibly grateful for your partnership and look forward to continuing to work together to prepare all students for success in life.

With gratitude,

— Jarrett Bryantt
ASD Superintendent

ACTIONS AND CONSEQUENCES

I see published in The Economist, that since the Supreme Court has rolled back Roe v. Wade, tubal ligations, the self-sterilization of young women in the US, has doubled to 450 per 100,000. Now that's quite an accomplishment — social engineering at its finest.

— Bob Lacher
Palmer

LETTERS TO THE EDITOR

ADOPT FROM SHELTERS

My husband and I adopted a beautiful cat, a large Maine coon mix, from Anchorage Animal Control in November of 2007.

Initially, our cat's name was Squiggy or Squiggly. We changed her name to Kodiak. We already had two great feline family members, Allie and Kenai, also adopted from Anchorage Animal Control. They had such great personalities and were so much fun to have. Allie and Kenai crossed the "rainbow bridge" a few years earlier, and we sadly just said goodbye to Kodi.

Our Alaskan cats spent most of their lives in Florida. Kodi was such a gentle giant, so sweet and amazingly stubborn at the same time. She was quirky beyond belief. Quirky, beautiful, sweet, stubborn, so gentle and loving. Whoever surrendered her years ago gave us an enormous gift for 16 and a half years.

I write this to encourage animal lovers in Anchorage to adopt or rescue a dog or a cat, giving them a loving home for which they deserve. For those of you unable to care for the animals you do have, please surrender them to a safe shelter so these wonderful creatures have a chance of finding a loving home. Go visit Anchorage Animal Control or another animal shelter and please save a life. You will never regret enriching your lives and those you save.

— *Connie Laverty Laws*
Sebastian, Florida

HELP CLEAN UP THE GREENBELT

At Anchorage Waterways Council (AWC), we love to hear positive stories, such as Pete Eberhardt's recent letter to the editor. He reported on a very encouraging transition of a trail down to Westchester Lagoon that was pretty much impassable from dog poop 20 years ago to one that hosted only a few after this year's breakup.

Why is this great news to us? For 40 years, AWC has worked painstakingly to educate residents about the various impacts of dog poop that is not picked up and disposed of properly. Eberhardt's story illustrates that our messaging is getting out, and people are responding. Other trail users have reported similar anecdotal evidence on the Coastal and Chester Creek trails, and I've seen it myself along the Campbell Creek Trail.

Our primary aim is to keep the pathogens, which include bacteria, viruses, and parasites, from contaminating local creeks and lakes where there is swimming and wading. These well-loved and highly used waterways are one of the great amenities to living here, so why chance you or your children or pets getting sick from contaminated water? And who among us hasn't had the unpleasant experience of getting dog poop on our shoes?

As he also noted, cleaning up dog poop is pretty simple along trails where there are pet waste stations and trash bins to accommodate pet

owners. It's also a great idea to carry extra bags for those who have forgotten one — this happens to all of us no matter how diligent we are.

Lastly, we all know that carrying a bag of dog poop isn't among our top 10 favorite activities, but disposing of it properly is so important. So, please do. Your creeks will thank you for it.

— *Cherie Northon*
Anchorage Waterways Council
Anchorage

EDUCATION OPTIONS

It is possible to support public education and still believe some children will do better with a different educational experience than the public system. It is possible to support public education and also want your children or grandchildren to have a different experience than the public system.

One way this can happen is for families to join together and make a personal sacrifice to support a private school. It is also possible that such a school would be inclusive and open to any who wanted to attend and that it would provide an excellent education. This school would not have to define itself in opposition to the public system, which has a different set of demands and some truly difficult challenges.

Support the public schools with our tax dollars and public funds? Yes. But also allow parents freedom, and give them access to some small portion of their public funds to join with their own monies to support a school of their choice. After all, their children are Alaska children too.

Whenever the current barrage of letters, articles and bills against private schools subsidies, maybe legislators will find a way to craft such a solution, by whatever means it takes. This could bring the most benefit to the greatest number of Alaska children.

— *Fr. Marc Dunaway*
Saint John Orthodox
Christian School
Eagle River

PUBLIC MONEY FOR PUBLIC SCHOOLS

Our nation's public schools have played a major role in ensuring the survival of our democracy by providing education to all. Public schools historically have been supervised by local school boards. These schools provide knowledge of our government and its organization and allow the development of skills for interaction with others.

Historically, some wealthy people choose to send their children to private schools at their own expense. Others choose schools steeped in their particular religion. This is fine, but public money meant for public schools should not be spent on special interests; that is why it is unconstitutional. Also, public money meant to support public schools should not be handed to parents in return for keeping their kids home away from public school.

— *John C. Finley*
Anchorage

APPENDIX D – *Streamline* Newsletters

Streamline – January 28, 2024

Streamline - April 10, 2024

Streamline – August 2, 2024

Streamline – August 17, 2024

Streamline – November 10, 2024



Anchorage Waterways Council - *Streamline*

January 29, 2024



Maybe ducks can't read

Larry William and his son, Brandon, 15 months, feed the ducks and sea gulls at Westchester Lagoon. The ducks don't seem to mind the polluted water, or else they can't read. Today is creek

cleanup day for the Anchorage area, when residents hike up their pants legs and pick the trash from local waterways. Many of Anchorage's creeks and lakes have been declared polluted.

Times photo by Al Grillo

Photo at Westchester Lagoon, May 31, 1986 (The Anchorage Times)

Heading into an Exciting Year!

It's hard to believe that AWC is turning 40 this year! In 1984, Anchorage was considerably different from what we see now. Signs warning about polluted water were common on its creeks and lakes, and this situation prompted the local government and citizens to do something about it.

Throughout this coming year, AWC will be recognizing those individuals who came together to take on the enormous challenge of making

1984 was a GREAT year!

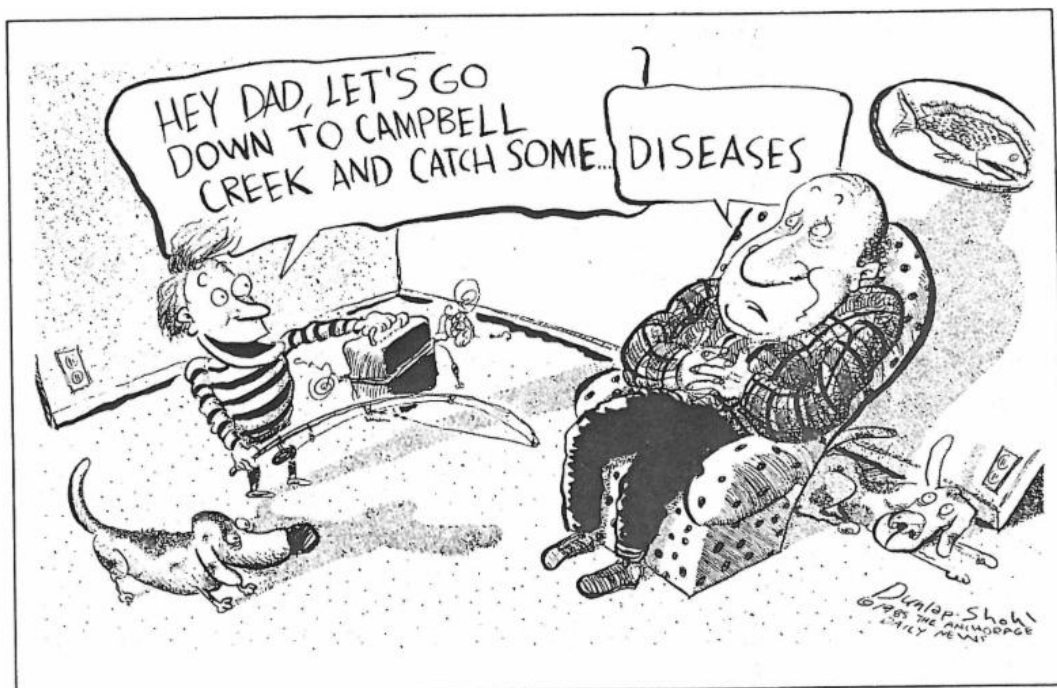
To many of us, "1984" conjures up the dystopian world recounted by author George Orwell, but here in Anchorage, it was a bellwether year. It heralded the coming together of a dedicated group of people who realized that our well-loved creeks and lakes needed help. It was also the year when a municipal bond had been passed by Anchorage voters to fund stream improvement projects and to establish a water quality program within the Municipality.

Known as the "Municipal Water Quality Council", the new program focused on water monitoring, public education, and code enforcement to eliminate pollution sources that affect public health and the quality of surface and subsurface water. Anchorage physician Dr. Rodman Wilson was the Public Health Director and Chairman of the Water Quality Council under former-mayor Tony Knowles.

In a 1986 newsletter named the "H₂O Update" published by the Water Quality Council, Dr. Wilson opined,

[m]any of us came to Alaska or chose to stay here because we thought of Alaska as pristine, primitive, and unsullied, the skies pellucid and the waters pure. At the same time, most of us wanted the opportunities and amenities of city life. We thought, perhaps, that we could have both-- uncontaminated wilderness and urban advantages.

Harsh awakening came in 1983 and 1984, when we learned that our air was dirty and our streams and lakes polluted. The town reacted. The Mayor reacted. The Governor reacted. The Assembly and the Legislature reacted. They all said with words and dollars, "Let's do something about it."



Cartoon by Peter Dunlap-Shohl (Anchorage Daily News, 1985)

It was also 1984 when Anchorage Waterways Council was founded by a group of dedicated people who came together and planned the first of 39 Annual Creek Cleanups. It was billed as a "Litter cleanup of Chester Creek" and today has expanded to the 10 major watersheds and sub-watersheds in the Anchorage Bowl.

Cleaning up creeks and lakes, however, was only part of the new group's focus. A governing board was established; a mission statement, by-laws, and Articles of Incorporation were developed; and committees were created. These included: Issues, Education, and Organization. AWC was granted non-profit status as a 501 (c) (3) in September 1985, and it has been going strong since!

Please join us on a journey this year to relive the past and look towards the future of this great organization.

How can you help? This [link](#) will connect you to a short survey that asks about your involvement with AWC, e.g. board member, water monitor, Creek Cleanup team member, etc. We want to know how you've helped improve the health of local waterways. Thank you!

It's that time of year again!

January brings on the expectations of longer and warmer days as every day we are gaining about 5 minutes of sunlight. In the next few months our temperatures will rise, snow will melt, and the green of spring will emerge. January is also the time when Alaskans can file for their Permanent Fund Dividend. Part of that process includes the opportunity to donate a portion of our PFDs to non-profits that are important to us. Every donation amount provides us with the funds to continue improving and maintaining local waterways. Thank you for the many years of support!

Pick.Click.Give.

Fashion Pact Update

Two years ago, [Fashion Pact](#) launched its first thrift boutique that raises funds for non-profits. Since then, AWC has been the recipient of nearly \$2,000 dollars. This is revenue from the donation of goods by AWC supporters as well as those purchasing items who designate AWC as a recipient. This makes a huge difference to AWC's unfunded programs, such as its volunteer water quality monitoring program which needs support for equipment, supplies, and staff time to oversee it.

Shop or donate at 2520 E. 68th/Lake Otis Pkwy or 221 E. Dimond Blvd.
You'll be glad you did!

Memberships and Donations

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\$30-\$99 Waterway Watcher
\$100-\$249 River Keeper
\$250-\$499 Habitat Protector
\$500-\$999 Watershed Steward
\$1,000+ President's Circle

AWC is also a recipient of Pick, Click, Give donations and greatly appreciates them.

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Anchorage Waterways Council - *Streamline*

SAVE THE DATES!!!

SCOOP THE POOP DAY



Saturday, April 20 11-3
Connors Dog Park &
University Lake Dog Park

To show your support for clean waterways, stop by University Lake or Connors Bog dog parks on Saturday, April 20, where you'll be greeted by smiling volunteers who will be handing out gloves, bags, buckets, and trowels.

How does scooping dog poop help the greater world?

A gram of dog poop contains about 23 million fecal coliform (FC) bacteria! Multiply that out to get an idea of how many FC are in the droppings of one pet for one day. All poop that is not cleaned up will eventually make its way to the nearest waterway in stormwater runoff. It doesn't take much math to get the idea of how much FC enters our waterways every day, and these bacteria have pathogens that can make [humans and their pets sick](#) (AWC 1:00 video). ALL water is precious, and it needs to be cared for. So please, make every day a **Scoop the Poop Day!**

Hoping to see you out there!

Thank you for helping to make our creeks and lakes healthier!



Great Land Trust team at Fish Creek Estuary, May 2023

40th Annual Creek Cleanup May 14-26 Signups open April 10!

For the past 39 years, thousands of Anchorageites have fanned out along local creeks and lakes to pull tons of trash from them. This May is our 40th!!!

How? AWC provides teams with a tote filled with bags, hand sanitizers, a first aid kit, a location map, and sign-in forms. This year, there will be trash pickers, safety vests, and gloves donated by Matson's [Caring for Alaska](#) program. Besides supplies, Matson has also made a very generous donation of \$10,000 to help defray our expenses. Our other sponsor is ConocoPhillips Alaska for \$5,000. A huge THANK YOU to both!

[Team signups](#) will open April 10! If you want to check out the available locations beforehand, go to this [link](#). Questions? Email: awc@anchoragecreeks.org.

How do clean creeks help the greater world?

We all live in a watershed. Everything we do in our local environment can affect the larger world. A simple piece of trash, like a plastic soda bottle that is left on the ground, could eventually make its way to the Pacific

Ocean and the "great garbage patch"! Cleaning up the trash and litter along our creeks now prevents it from making its way down into a local creek to Cook Inlet to Prince William Sound to the Gulf of Alaska and finally the Pacific Ocean!



3rd Annual Flotilla May 18

Flotilla is Back! May 18!

Flotilla signups are open!

Our third annual Flotilla is an on-the-water event. Anyone with a kayak, canoe, or packraft can participate. The locations and more information are available on the [signup page](#).



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\$30-\$99 Waterway Watcher
\$100-\$249 River Keeper
\$250-\$499 Habitat Protector
\$500-\$999 Watershed Steward
\$1,000+ President's Circle

AWC is also a recipient of [Pick, Click, Give](#) donations. Please consider us when you fill out your PCG application. Applications close March 31! Thank you!

Donate items and shop to help AWC

[Fashion Pact](#) is a new resale shop in downtown 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. Almost everything in the shop is \$5 except for a few exception offerings. Of that \$5, \$1 (20%) goes to the non-profit that you designate when you donate items, and if you shop--an additional \$1 (20%) 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.

Our [Fred Meyer Rewards](#) program is an additional way to support our work.

Contact: 907 272-7335 or awc@anchoragecreeks.org
Follow us on Facebook: [AnchorageWaterways](#) and [ScoopThePoopAnchorage](#)

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Anchorage Waterways Council - *Streamline*

August 2024



Scoop the Poop day volunteers, Cathy and Keith Foerster and Kenna Billups, at Connors Bog Dog Park, April 20, 2024, (C. Northon)

Spring/Summer Events

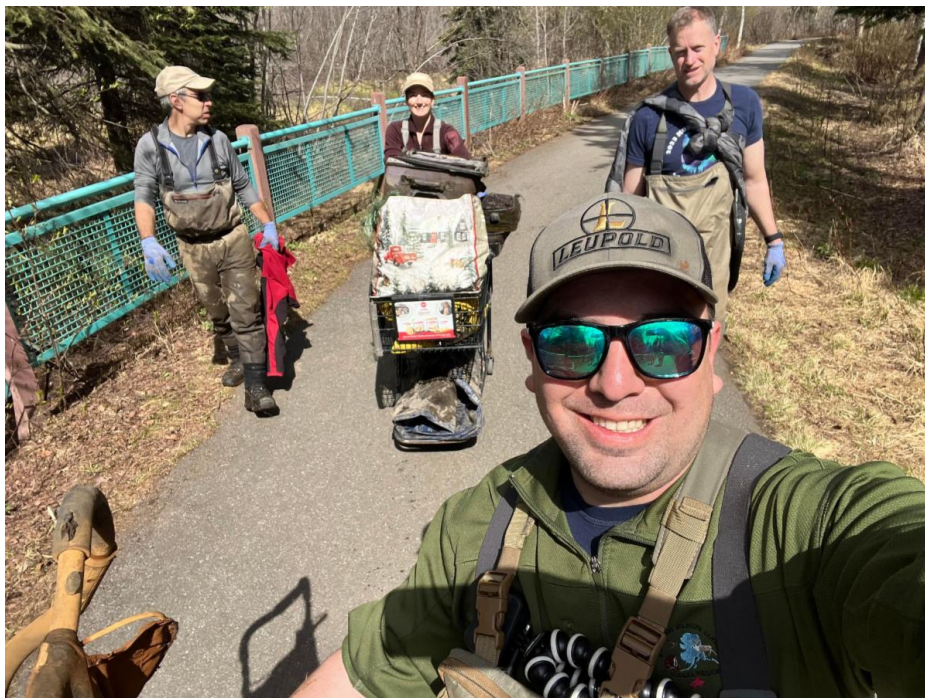
Every April, AWC kicks spring off with major cleanups, like "Scoop the Poop Day"! Dozens of pooper scoopers fan out across University Lake and Connors Bog dog parks to clean up pet waste that has not been picked up over the winter. As awareness increases about the ills caused by dog poop (shown in our short [video](#)), we find more volunteers are helping to clean up. A huge THANK YOU to all who participated and to those who pick up every day!

This year is noteworthy because it was **AWC's 40th Annual Creek Cleanup!** More than 40 teams (agencies, environmental consulting firms, recreational clubs, church and Scout groups, non-profits, neighbors, and families) removed over 5,000 lbs. of trash from local creeks and lakes. This well-loved event is devoted to keeping local waterways healthy and ready for summer and fall enjoyment, and it would not happen without our extraordinary volunteers and sponsors: Matson's "[Caring for Alaska](#)" [program](#) and ConocoPhillips. A huge THANK YOU to all!

Flotilla, a paddler cleanup program organized by AWC, MOA Parks and Rec, Anchorage Park Foundation, and a volunteer group called "Team Orange", had its third meetup on May 18 and cleaned at a dozen lakes and Westchester Lagoon.



PND Engineers' Creek Cleanup team at Campbell Creek, May 2024 (Alex Jefferies)



U.S. Fish and Wildlife's Creek Cleanup team wrapping up along Campbell Creek, May 2024 (K. Liebich)



Flotilla paddlers on Jewel Lake, May 18, 2024

It's now August which reminds us that we are heading into autumn. Even though the rains will increase and eventually morph into snow--this is still a great time of year. Harvests in our gardens are underway, kids go back to school, and the Fair starts.

I am a California-transplant who moved to this great state 25 years ago. In California, the droughts and water-rationing that I lived through left an indelible mark on me. They made me ever-grateful for the abundance of water that we have throughout all of Alaska and especially Anchorage.

Additionally, I find Anchorage to be such an amazing city! Where else can you find salmon and trout swimming right through urban neighborhoods? Also in local creeks and lakes, there is an abundance of wildlife, including beaver, muskrats, otters, Canada geese, Red-necked grebes, Pacific loons, Trumpeter swans, and a variety of ducks. I know readers of *Streamline* appreciate these amenities as well.

Every five years, AWC sends out a survey in the fall to learn what Anchorage residents know and think about local waterways. Responses from our "Watershed Perception Survey" provide a good picture of their thoughts, concerns, and suggestions. The results will be compared to three previous surveys (2010, 2015 and 2020) in order to get a good picture of the condition of local waterways from those who are most familiar with them!

For statistical purposes, we need about ~400 respondents who live in or own a business in the Municipality. I urge you to take the survey and PLEASE forward the link to your friends, neighbors, co-workers--anyone who lives here. The goal is to get as broad a coverage as possible.

<https://www.surveymonkey.com/r/25Z25JR>

All who respond and leave a contact email will be entered into a "Thank You" drawing for one of ten \$25 Alaska Mill and Feed gift cards. Your help on this is greatly appreciated!

Fashion Pact

Two years ago, [Fashion Pact](#) launched its first thrift boutique that raises funds for non-profits. Since then, AWC has been the recipient of over \$3,000 dollars. This is revenue from the donation of goods by AWC supporters as well as those purchasing items who designate AWC as the recipient. This income goes directly towards AWC's unfunded programs, such as [Loons, Line, and Lead](#), which is dedicated to reducing death and injury to wildlife from improperly discarded fishing line and lead tackle.

Shop or donate at the store on the corner E. 68th and Lake Otis Pkwy or 221 E. Dimond Blvd. You'll be glad you did!

Memberships and Donations

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Join or Donate

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Anchorage Waterways Council - *Streamline*

August 2024



Potter Marsh swans and mallard (C. Northon)

Help Preserve Potter Marsh

Great Land Trust (GLT) is close to the finish line in securing the 300 acres of undeveloped natural habitat that sit above Potter Marsh. GLT's Executive Director Ellen Kazary and her team have been working to put this together for the last five years. The runoff from this pristine piece of land provides a large percentage of the water for the marsh below and its wildlife. Anchorage Waterways Council fully supports this important acquisition.

- This is a large tract of land to be preserved; by comparison Campbell Creek Estuary is 60 acres, Russian Jack Park is 300 acres, and Kincaid Park is 1,400 acres. The addition of the 300-acre Potter Marsh Watershed Park to the current area will become 860 acres!
- The project has been approved by the Anchorage Assembly, local community councils, and nearby residents
- After the acquisition, new trails and modest facilities for year-

round use will be developed with input from local residents along with GLT & MOA planners.

- GLT has already secured over 90% of the funding to purchase and improve the land, much of it from federal agencies.
- These agencies really like to see local participation and the goal is to raise \$100,000 to finish this out!

Please join Great Land Trust and fellow Marsh supporters on August 22nd, 5:30 to 7:30, for a fundraiser at King Street Brewing located at 91st & King St.



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Anchorage Waterways Council - *Streamline*

November 2024



A blast from the past with four of AWC's founders and original board members: Judy Stanek, Larry Rundquist, Jim Nordlund, and Cathy Gleason at AWC's October 27 Open House (C. Northon)

Connections

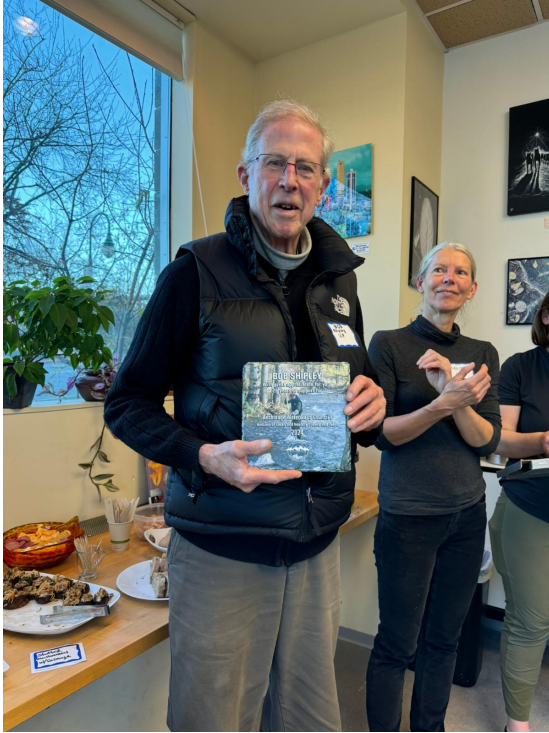
On Sunday, October 27, AWC held an Open House to celebrate 40 years of caring for and working to improve the health of Anchorage's wonderful creeks and lakes. The event was held at board member Birgit Hagedorn's [*Kaffee Klatsch*](#) on a beautiful fall afternoon and connected AWC's founding members to current board and organization members, staff, and water quality monitors. Besides four of the founders (above), the attendees included two past board presidents--Molly Welker and Pete Pritchard, eight [*board members*](#), seven of AWC's current cadre of eleven monitors, and [*staff*](#) Cherie Northon, Thom Eley, and Vangie Wight. Additionally, our new Outdoor Educator, Kaitlan McLallen, was introduced and welcomed.



Open House guests (V. Wight)

One of the special surprises of the day was giving long-time member Bob Shipley a plaque commemorating his time with AWC. Bob joined the board in 1998 and completed AWC's first water quality sampling on Campbell Creek that February. Why he chose mid-winter to begin this highly valuable method for monitoring the health of our waterways remains a mystery. LOL. That aside, the program went forward and has enlisted over 250 volunteer monitors who have collected thousands of creek data records.

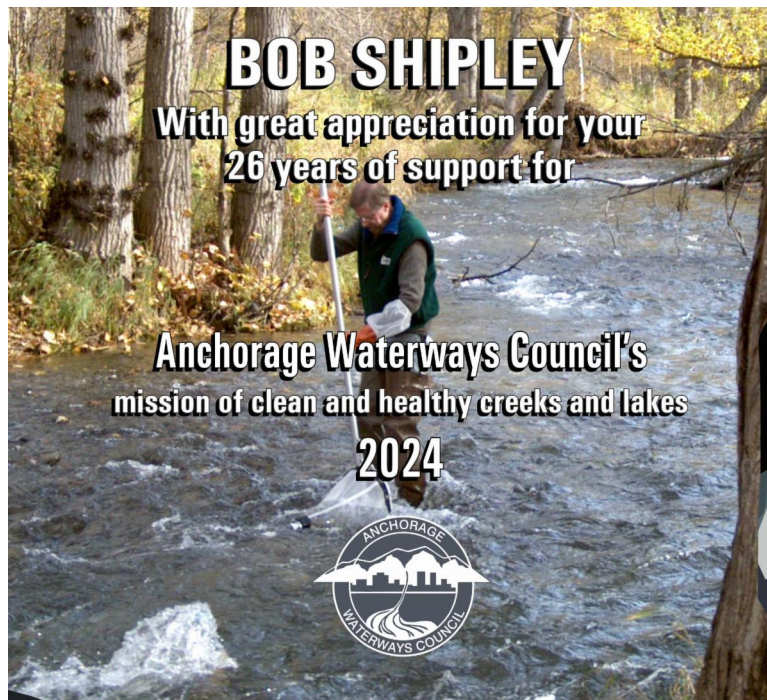
Besides initiating our monitoring program, Bob has been our "go-to" person for responding to [issues](#) and assisting with our "[Creeks as Classrooms](#)" outreach. Bob's plaque features him collecting macroinvertebrates in Campbell Creek.

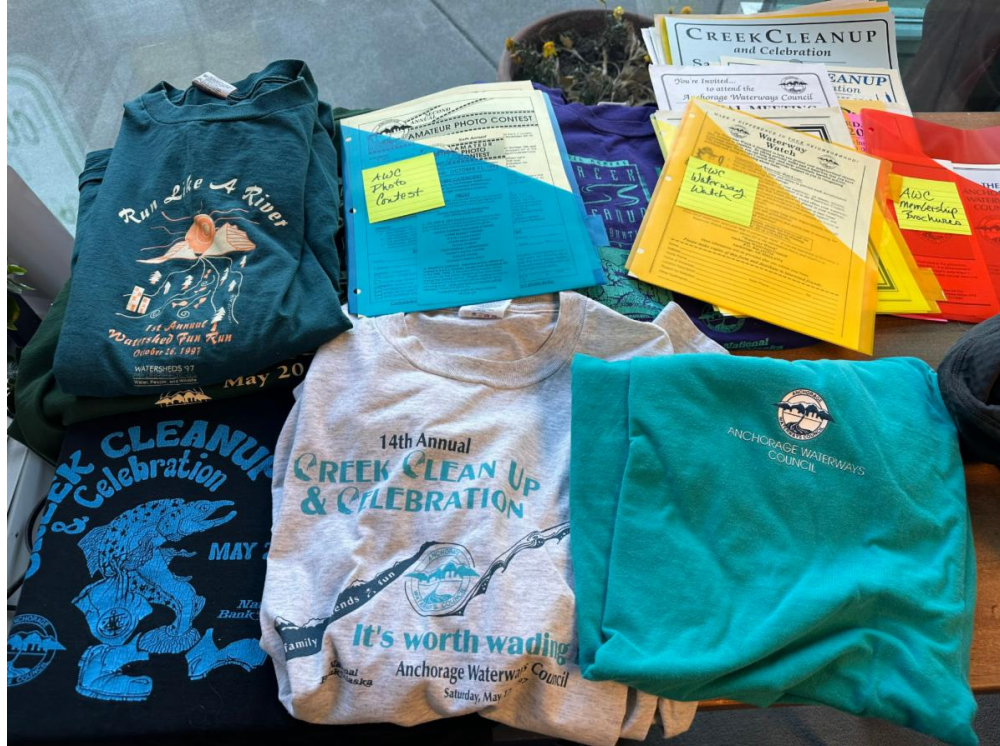


Bob Shipley receives a plaque commemorating his 26 years of service to AWC, board member Birgit Hagedorn is to his right (V. Wight)



Executive Director Cherie Northon and Outdoor Educator Kaitlan McLallen (V. Wight)





Part of Cathy Gleason's COMPLETE set of Creek Cleanup tee shirts along with archived copies of "Waterway Watch", photo contest information, and more! (D. Camp)

It was a real treat to visit with the attendees at the Open House. One thing I was struck by is the amazing number of connections that I discovered among our guests. Two of our monitors realized that they were in the same yarn spinning class which opened up a dialogue between them on their shared monitoring experiences. Board president Isaac Watkins and Kaitlan McLallen learned that they had both studied macroinvertebrates and aquatic ecosystems at Alaska Pacific University. And there were others--especially the shared passion as we all connected on our caring for local waterways that we strive to protect.

I began writing this newsletter before the election, and it's been difficult for me to focus on finishing it as there's been so much angst for what could have been and what we might face now on a multitude of levels. It is important to remember that all of us support AWC because we care about our local riparian environment as well as that of the world in general. It's imperative that we remember that we are a dedicated group of like-minded people who will continue to connect with each other in order to ensure that what we cherish locally and globally is sustained. Please, let's stay connected and working for our common goals.

Watershed Perception Survey Update

A few months ago, AWC ran its survey to collect information on how Anchorageites perceive the state of local waterways. It did, however, take quite a while to garner the number of respondents to make the results statistically valid. As of this writing, the survey has been completed and

is being compiled and compared to previous surveys done over the past 15 years. There've been requests for us to post the "correct" answers for a few of the questions which is a wonderful idea. Once the compilation and analysis are complete, the "preferred" responses will be posted on our [website](#) of which you'll be notified in another newsletter.

As part of our appreciation to those who took the time to respond, ten people were awarded \$25 gift cards to Alaska Mill and Feed. Congratulations to Beverly C., Erika A., Christine T., Katie P., Matthew C., Puck V., Janie K., Jennifer S., Tracy S., and John Q. who received the gift cards.

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APPENDIX E - Presentations

Presentations by Cherie Northon and Birgit Hagedorn to the Statewide Watershed
APDES meeting presentation

Managing Urban Watersheds: the Municipality of Anchorage

Cherie Northon, Ph.D.

Executive Director, Anchorage Waterways Council

February 21, 2024



Anchorage Waterways Council

- ▶ Organized in 1983
- ▶ Incorporated in 1985 as a 501 (c) (3) non-profit
- ▶ 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.*
- ▶ Staff: 1 full-time and 2 part-time staff
- ▶ Supported by grants, membership donations, and contracts



Municipality of Anchorage Watersheds

- ~2,000 mi² or 3,218 km
- ~284,000 population - about 40% of the entire state
- 28 watersheds
- Primary focus is on 7 urbanized watersheds which comprise ~10% of the overall land area



AWC's Focus Watersheds

- Eagle River
- Ship Creek
- Chester Creek
- Fish Creek
- Campbell & Little Campbell
Creeks
- Furrow Creek
- Rabbit Creek & Little Rabbit
Creek

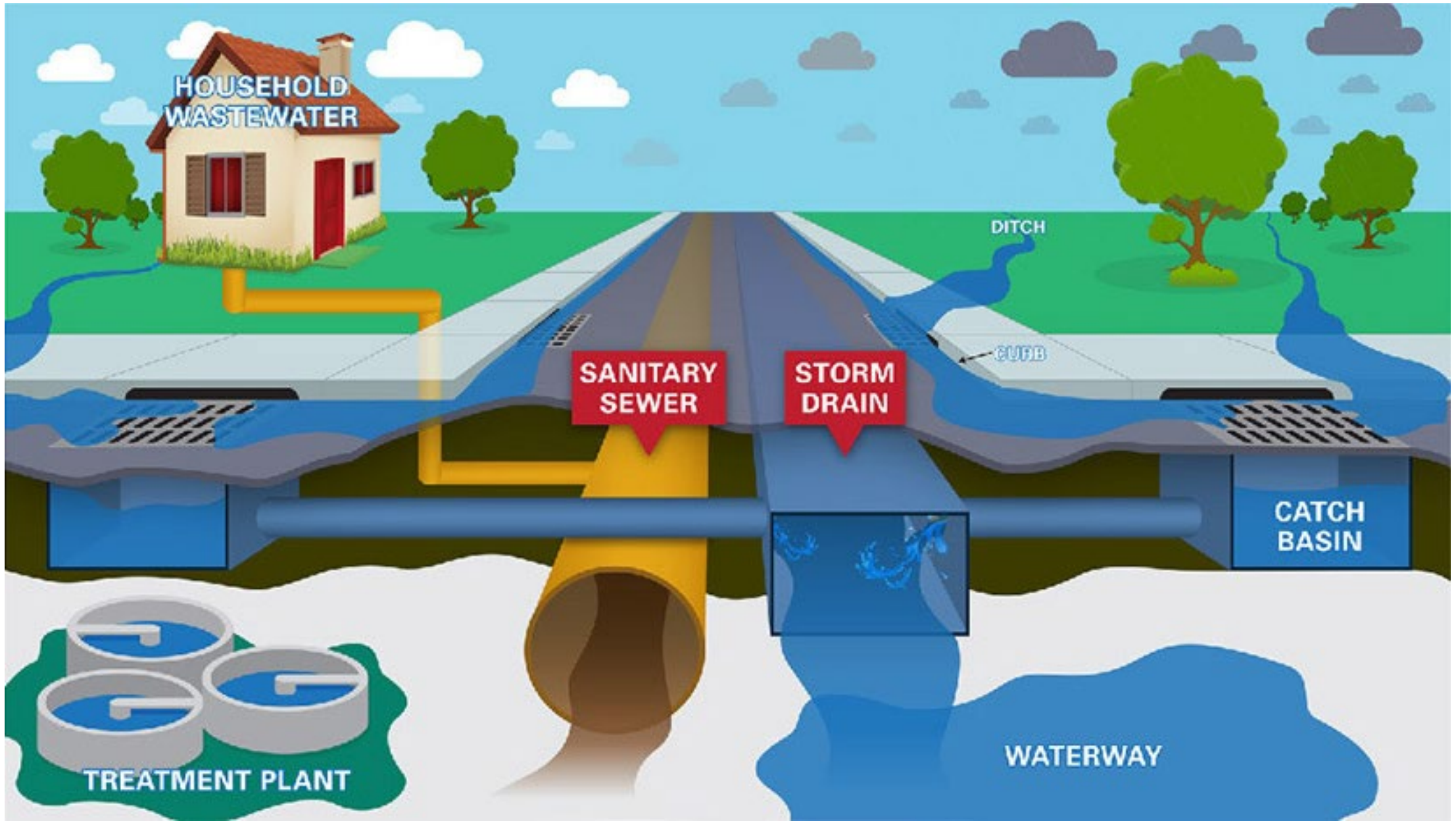
All anadromous except for Furrow
Creek



How Anchorage's watersheds differ from most of Alaska:

- ▶ Anchorage is an MS4 city.
- ▶ MS4 = Multiple Separate Storm Sewer System which means the sanitary sewer and storm sewers are separate.
- ▶ Anchorage, Fairbanks, and North Pole (also MS4 cities) are the only **cities** in Alaska that are currently required to have stormwater discharge permits that are regulated under the Alaska Pollutant Discharge Elimination System or APDES.
- ▶ Juneau is now moving towards having a permit.
- ▶ The permit is overseen by the Department of Environmental Conservation (DEC) for the EPA.
- ▶ AWC is one of the contractors engaged by the Municipality to fulfill permit requirements for stormwater outreach and education.

Stormwater discharge in Anchorage



AWC's Areas of Focus

► Impacts from stormwater runoff:

- **Animals:** pet waste, boarding kennels, dog parks, equine facilities, chicken raising, the Alaska Zoo, feeding of waterfowl
- **Yard waste and treatments:** green waste, fertilizers, herbicides, pesticides, ice melt, invasive species
- **Vehicles:** drips from gasoline, diesel, transmission fluids, and oil, car washing and detailing, tire wear
- **Septic systems:** placement, failures
- **Winter road treatments:** salts, brines, sand, gravel
- **Construction activities:** illegal, improper/failing/no stormwater containment
- **Litter and trash:** ciggies, litter, homeless encampments
- **Illegal dumping:** snow, yard waste, appliances, paint, mobile businesses--such as carpet cleaners

► Other urban issues:

- **Urban fisheries:** monofilament fishing line, lead fishing tackle
- **Fish passage:** storm sewer (~525 pipes/300 miles of open channels) that is about 50 years old

University Lake
Dog Park

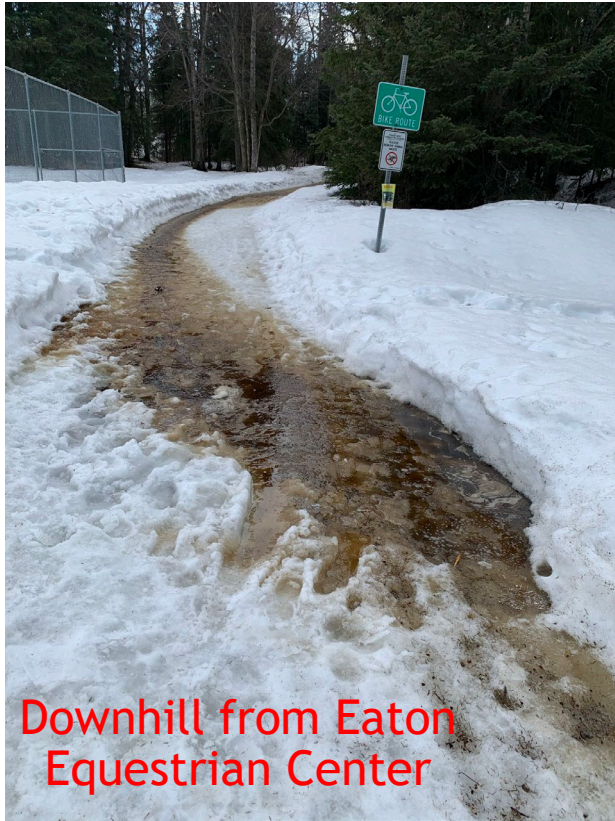


Animal Issues

Brown Bear Exhibit
Alaska Zoo



South Fork Little Campbell
Creek



Downhill from Eaton
Equestrian Center



Anchorage has an estimated 65,000 dogs that produce over 45,000 lbs. of poop DAILY!

Chickens

Little Campbell Creek



Cuddy Pond (Fish Creek)

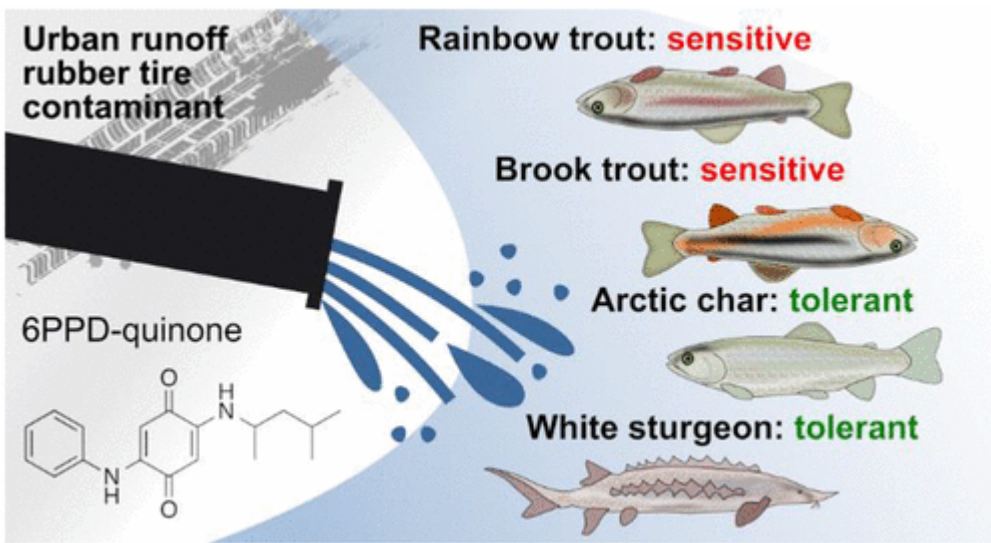


Yard Issues



Vehicles





Tire wear 6PPD quinone



Erosion Control Issues



Snow Dump Debris



Illicit dewatering into a storm drain



AKDOT contractor cleared open stormwater channel a few days before a large rainstorm



Juvenile coho salmon killed by turbidity with silt in their gills



Setback Encroachments - snow and gravel pushed into in creeks



Illegal Dumping



Fish Creek



S. Fork Chester Creek



Campbell Creek



Gasoline!

Little Campbell Creek



Rabbit Creek

Homeless Encampments Along Waterways



Stormwater from the 6-lane Seward Highway and 4-lane Old Seward Highway into Chester and S. Fork Little Campbell Creeks—both anadromous



Chester Creek



S. Fork Little Campbell Creek



Culvert Failure on Chester Creek at Northern Lights Blvd.

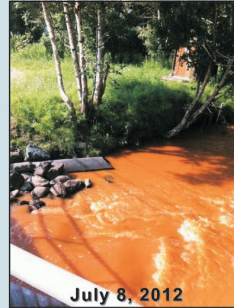




Northern Lights Blvd.

Chester Creek

Orange Water!



July 8, 2012



July 8, 2012



May 5, 2010



May 5, 2010



June 28, 2016



Dec. 15, 2012



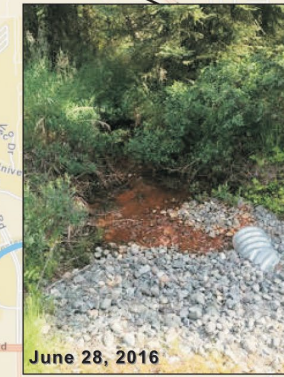
Feb. 26, 2016



Feb. 26, 2016



Feb. 26, 2016



June 28, 2016



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

AWC Programs

- ▶ Stormwater EDUCATION and outreach
- ▶ Annual Creek Cleanup
- ▶ Scoop the Poop
- ▶ Creeks as Classrooms - program for youth
- ▶ Citizens' Environmental Monitoring Program (CEMP) on major creeks
- ▶ Loons, Line, and Lead
- ▶ Issue response
- ▶ 6PPD - quinone

Volunteer Water Quality Monitoring



Creeks as Classrooms



Loons, Line & Lead



ANGLERS CAN HELP SAVE LOONS & OTHER SPECIES FROM LEAD POISONING

Alaska is an incredible place to fish for salmon, rainbow trout, and Dolly Varden. Unfortunately, improper disposal of monofilament line and the widespread use of lead sinkers and tackle threaten Alaska's birds, fish, and other wildlife. [Love a Loon](#) by choosing safe alternatives to lead and properly disposing of fishing line.



Monofilament Recycling



Annual Creek Cleanup



The background features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic design.

Thank You!

Cherie@anchoragecreeks.org

Anchoragecreeks.org

Urban and Rural Watersheds - What are the impacts to an urban watershed, and how does that impact surrounding communities? Overlaps between urban and rural

- The physical and chemical effects of stormwater runoff during snowmelt on urban creeks in Anchorage -sediment - salt - antifreeze - and tire rub-off (6PPDE-quinone) -

Birgit Hagedorn, Ph.D.

February 21, 2024

The effect of Stormwater on:

Stream water quality

- Turbidity (NTUs)
- Electrical Conductivity
- pH
- Dissolved Oxygen
- Major Ions (Calcium, Magnesium, Sodium, Chloride)

NSF NNA Project
Jennifer Schmidt PI

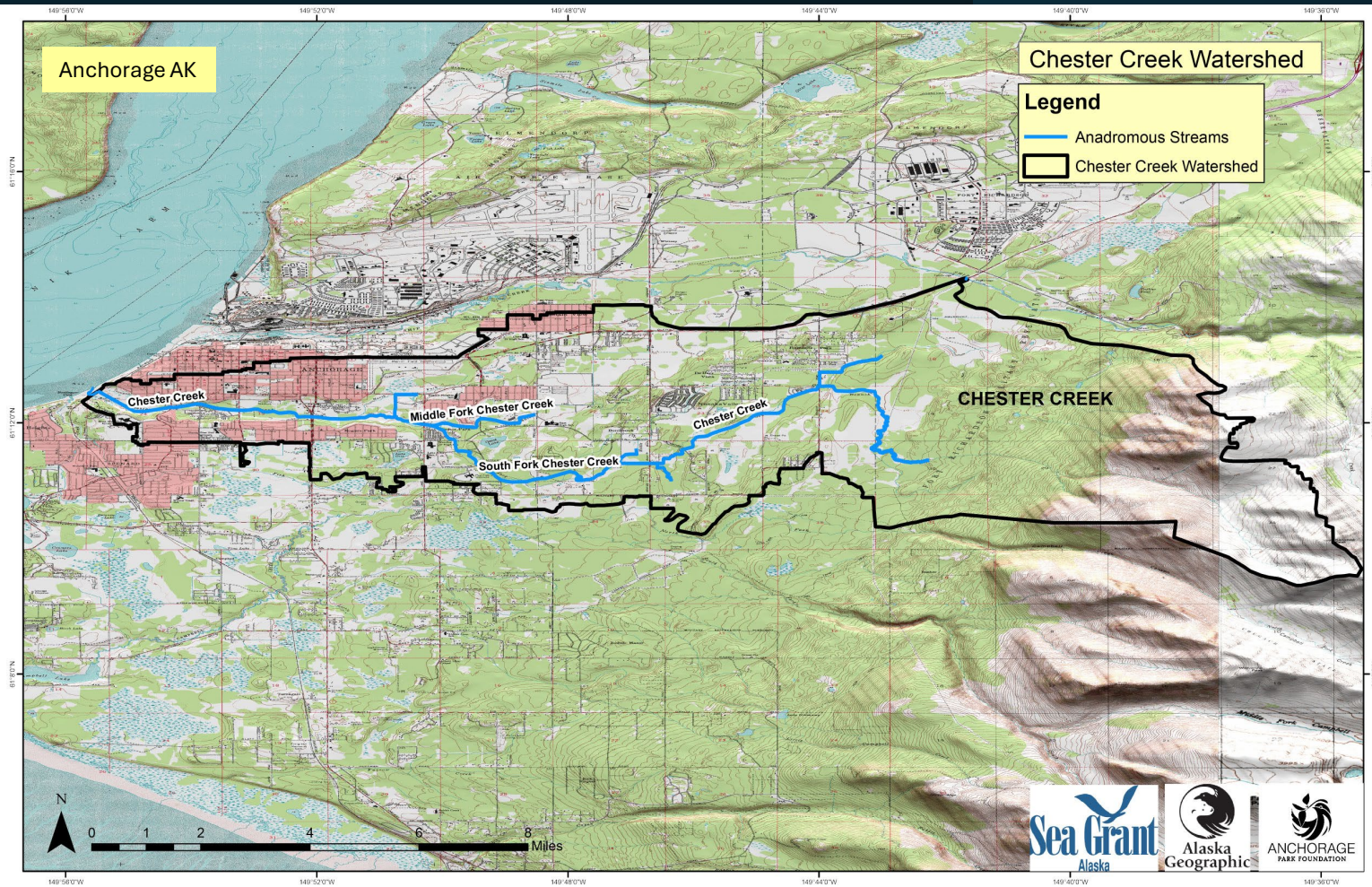
Including some “New Emerging Contaminants”:

- 6-PPDE Quinone (antioxygen in Tires)
- Triazoles (deicing agents, anticorrosive, plasticizer)

GoFundMe
fundraiser to AWC

UAA/ENRI Grant to
Hagedorn & Dotson

Chester Creek Watershed



Chester Creek Drainageways in Anchorage, AK and associated Sampling Sites

Sample sites

- USGS gauging station
- Inflow Sears Mall, Barnes and Noble

- Inflow Fred Meyer, Seward Highway
- UAA
- Providence
- Inflow from Fred Meyer Muldoon

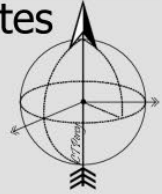
- University Lake
- Inflow U-Med district
- Burger Fi
- Turf Ct

Drainageways

- USGS gauging station
- Inflow Sears Mall, Barnes and Noble
- Inflow Fred Meyers, Seward Highway

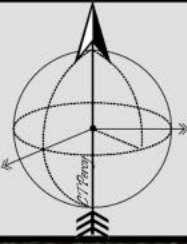
- UAA
- Providence
- Inflow from Fred Meyers Muldoon
- Inflow University Lake
- Inflow U-Med district

- Burger Fi
- Turf Ct
- Chester Creek

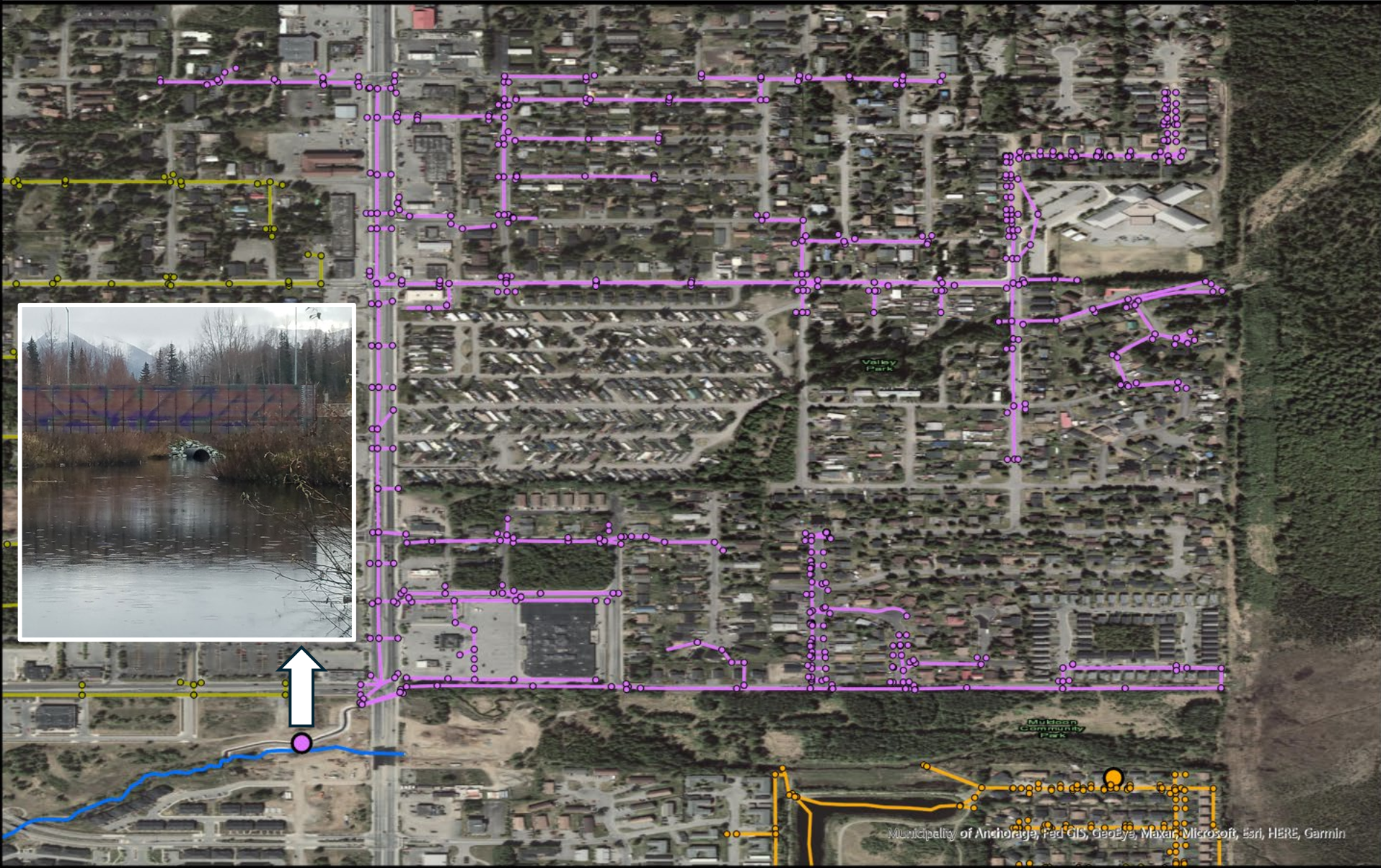


1:9,000

Burger-Fi, Muldoon



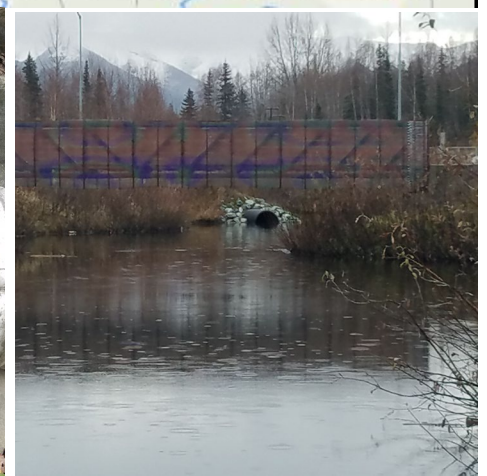
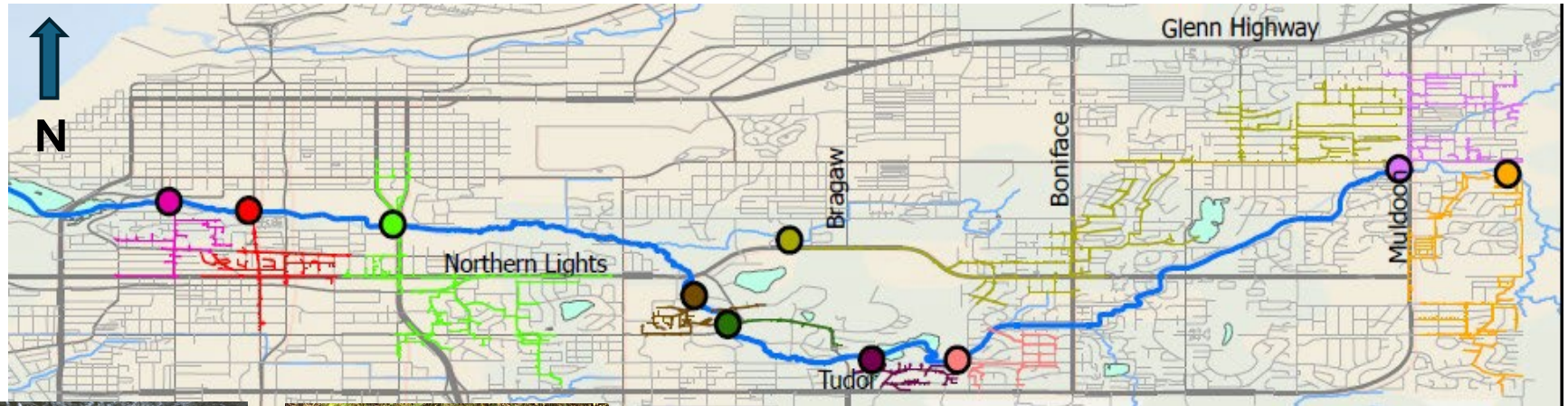
0 0.25 Miles

A scale bar with tick marks every 0.0625 miles, labeled "0" at the start and "0.25 Miles" at the end.

Storm drainages Inlets



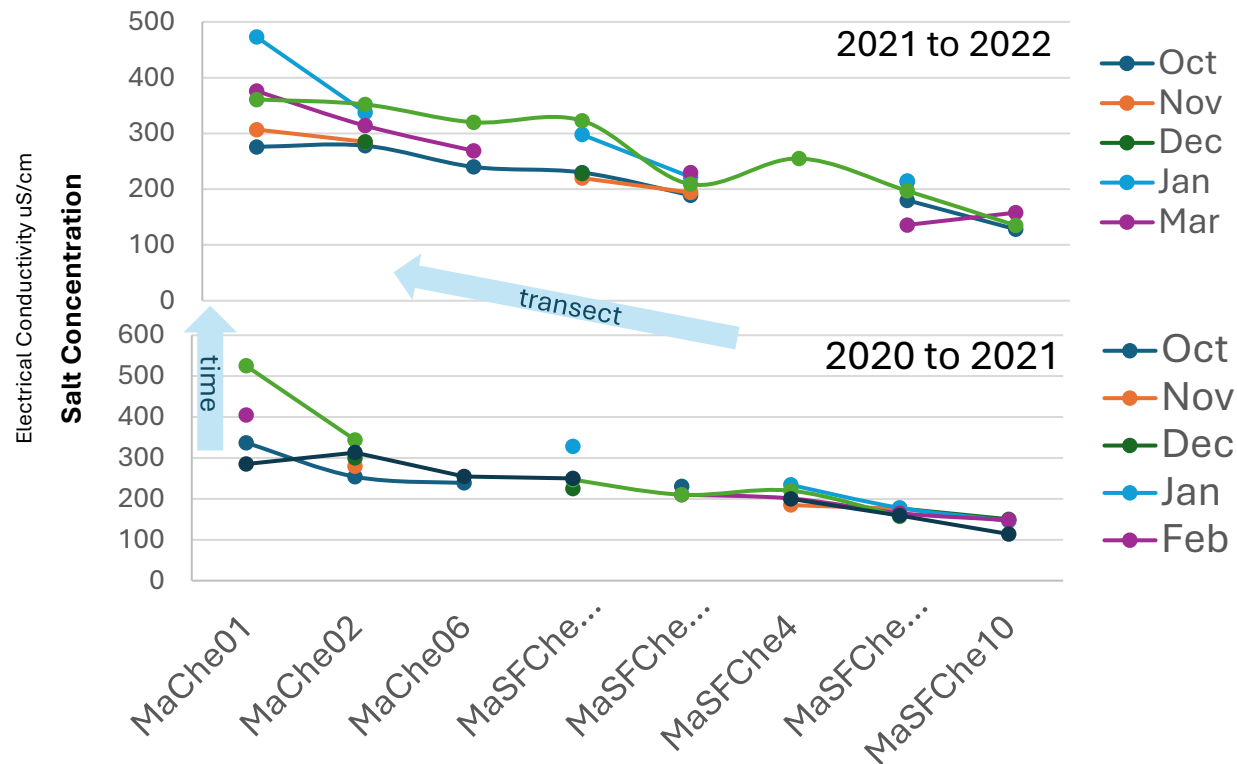
Storm drainages outlets



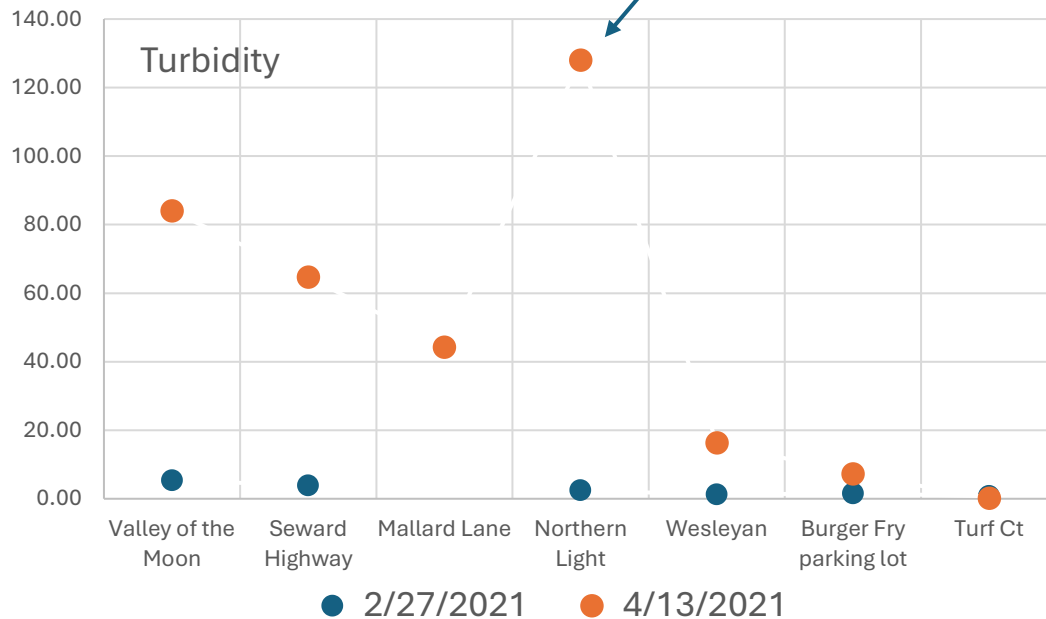
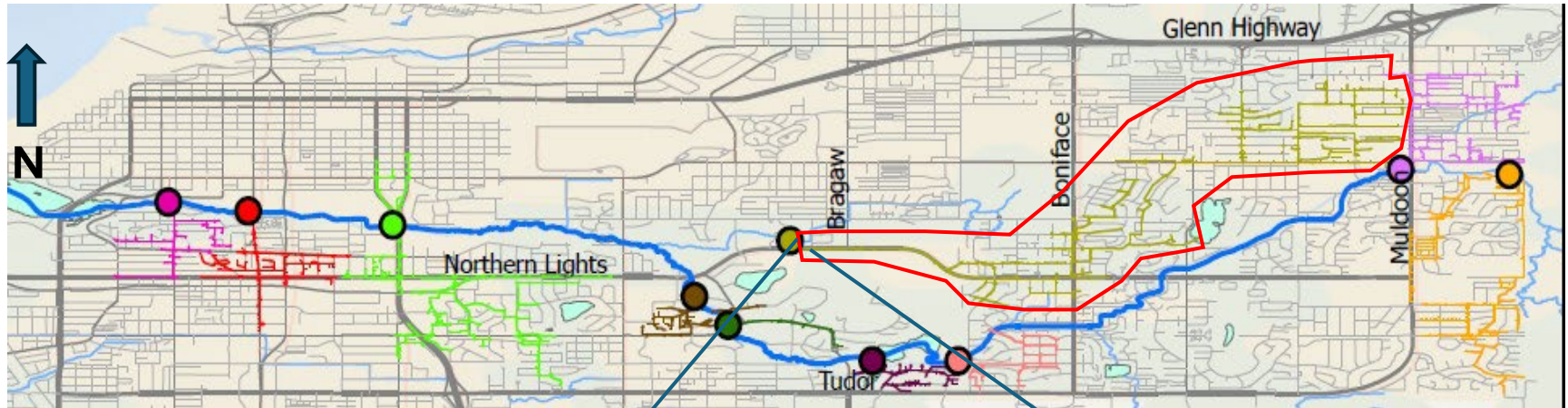


Water Quality

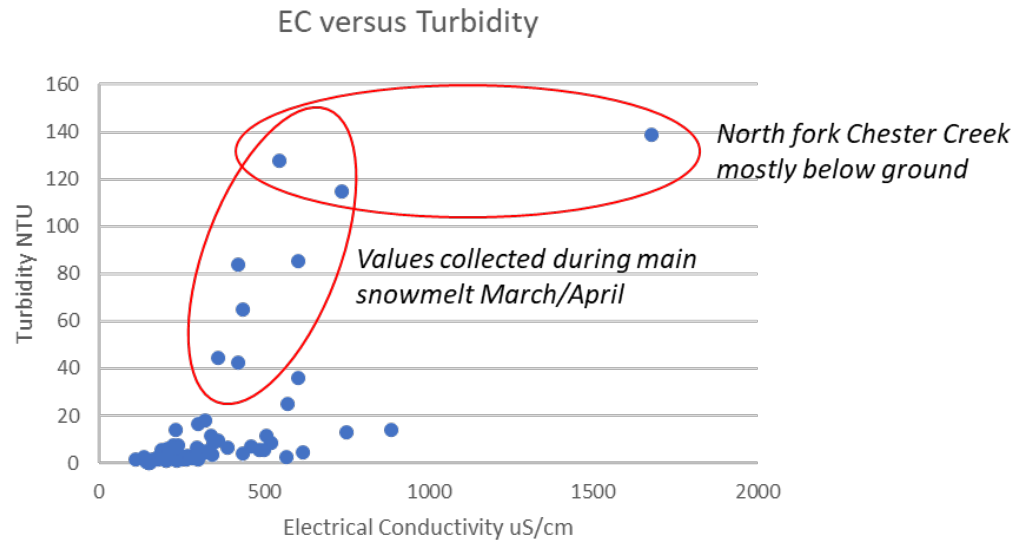
Volunteer Monitoring Conductivity



Water Quality



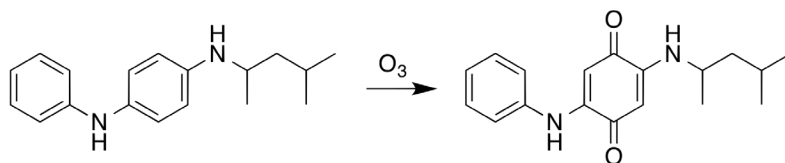
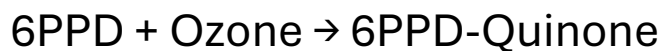
Water Quality: Turbidity versus Conductivity



New Emerging Contaminants

6PPD-Quinone (*N*-(1,3-Dimethylbutyl)-*N'*-phenyl-*p*-phenylenediamine-quinone)

- 6PPD is an Antiozonant added to tire rubber.



- Soluble in water reaches surface water via road runoff.
- 6PPD Quinone has been found to be lethal at small amounts:

- Coho Salmon = 95 ng/L (ppt)
- Brook trout = 590 ng/L (ppt)
- Rainbow trout = 1000 ng/L (ppt)



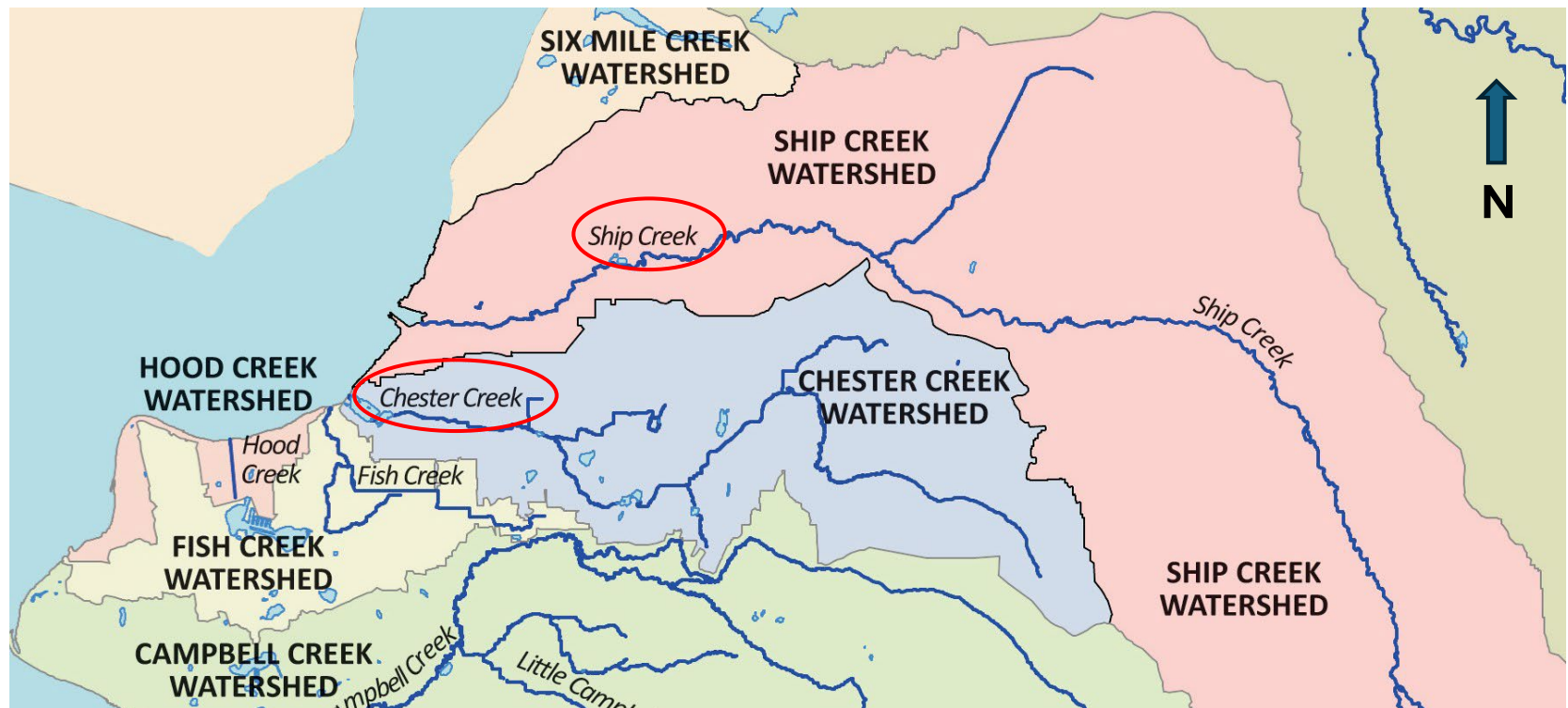
<https://www.washington.edu/news/2018/12/18/salmon-may-lose-the-ability-to-smell-danger-as-carbon-emissions-rise/>

New Emerging Contaminants

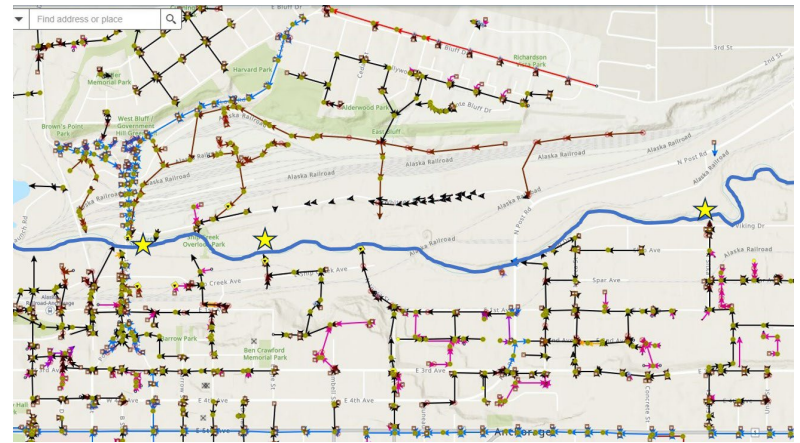
6PPD-Quinone analyses in Anchorage

Eurofins/Test America California
Funding for 10 samples @ \$500/ea

2 sampling events:
04/13/21 snowmelt
07/02/21 heavy rain

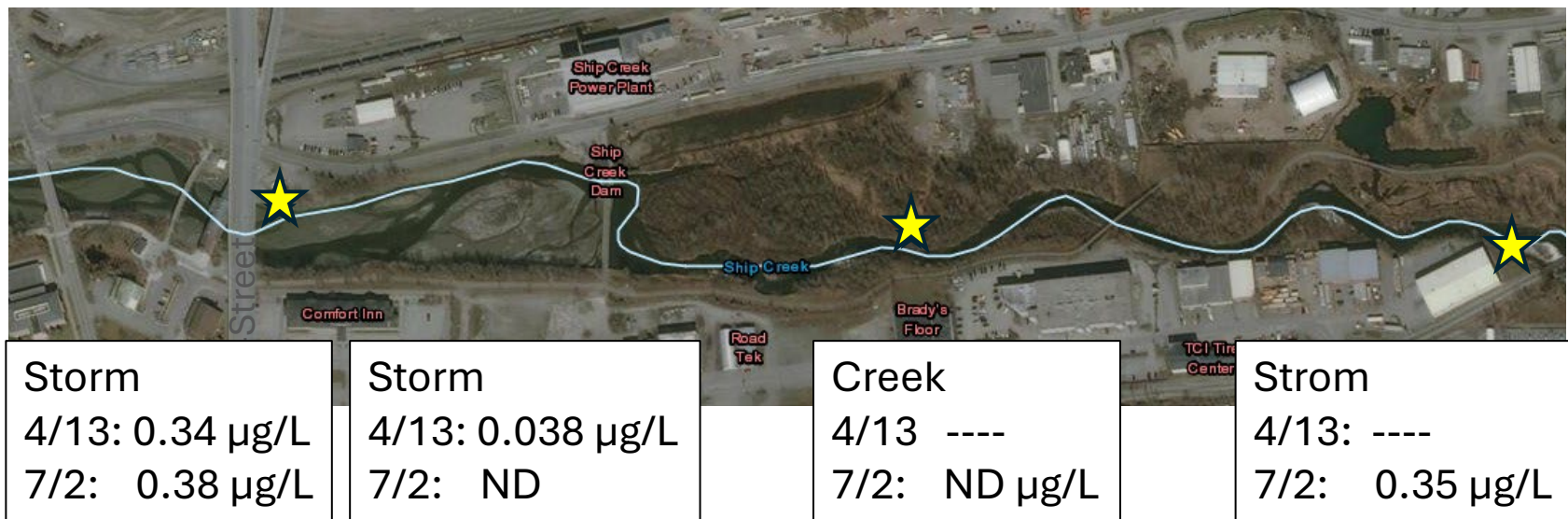


6PPD-Quinone Ship Creek Sampling Locations



6PPD-Quinone

Ship Creek Sampling Locations

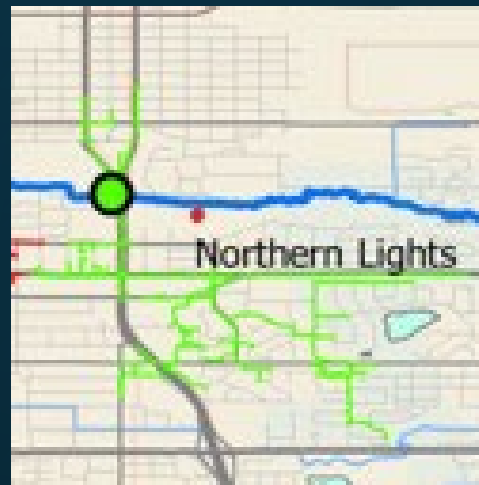
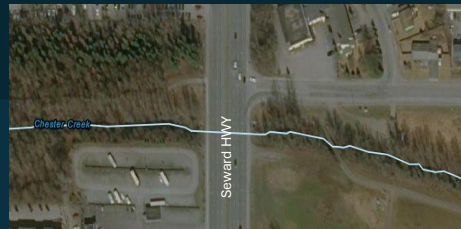


Lethal Level **L50** @ **$0.8 \pm 0.16 \mu\text{g/L}$**

6PPD-Quinone Chester Creek

Storm
outfall from
Midtown

Chester
Creek



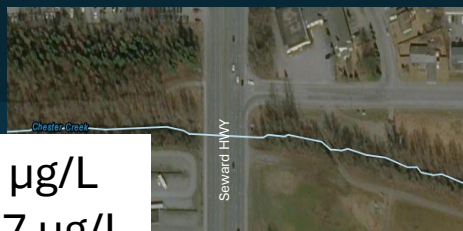
Storm outfall
from
Seward HWY



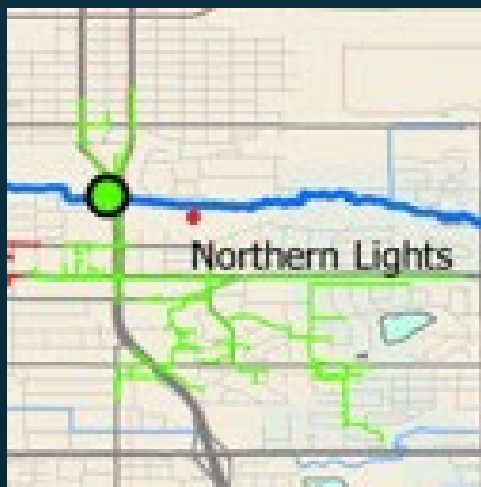
6PPD-Quinone Chester Creek

Lethal Level **L50: 0.8 ± 0.16 $\mu\text{g/L}$**

4/13: $0.36 \mu\text{g/L}$
7/2: $0.19 \mu\text{g/L}$



$0.13 \mu\text{g/L}$
 $0.017 \mu\text{g/L}$



4/13: **$1.3 (1.1) \mu\text{g/L}$**
7/2: **$0.69 \mu\text{g/L}$**

What we learned and our thoughts!

- **Water Quality**
 - Snowmelt impacts creeks through stormwater runoff.
 - Increases salt content.
 - Increases organic contaminants.
- **6PPD-Q**
 - Is present in stormwater runoff
 - Higher concentration found in direct street runoff
 - Concentrations were above LC50 winter and summer
 - Was low or not detected in associated stream samples

New Research @ UAA

6PPD-Q Research in Alaska:

Persistence in Cold Regions

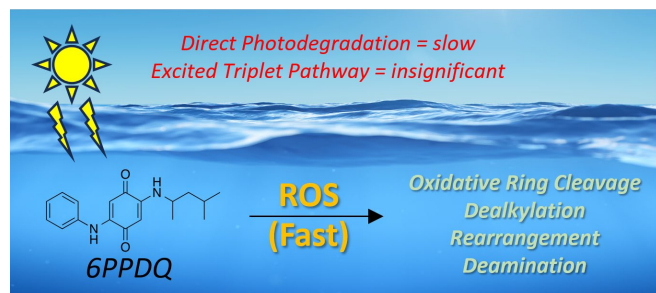
- Photo-chemistry

Toxicity tests with salmon

- Ship Creek and Galena Hatchery brood stock
- Coho, Sockeye, Chinook
- LC50, Thermal Stress Tolerance

Planned research:

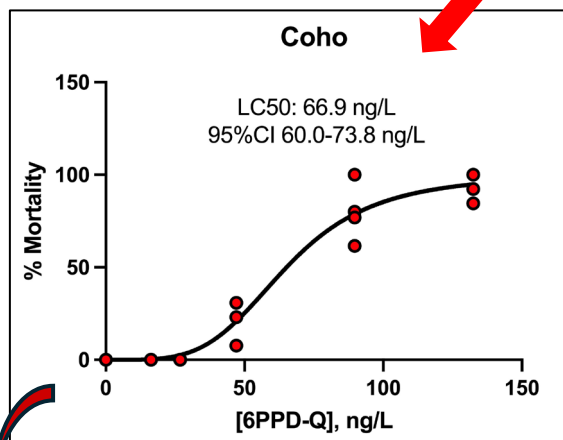
- Mapping 6PPD-Q and Tire Road Wear Particulates in Southcentral Alaska
- Additive stress of increasing temperatures due to climate change



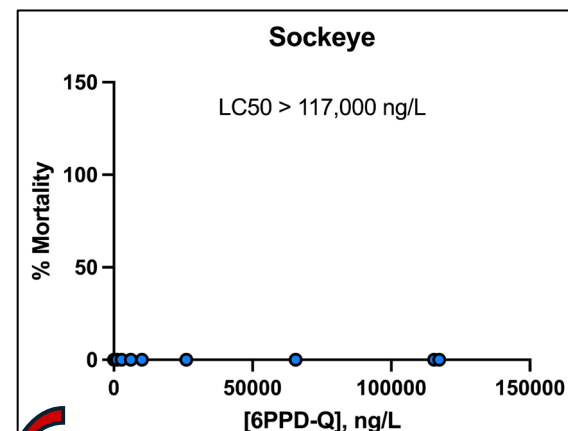
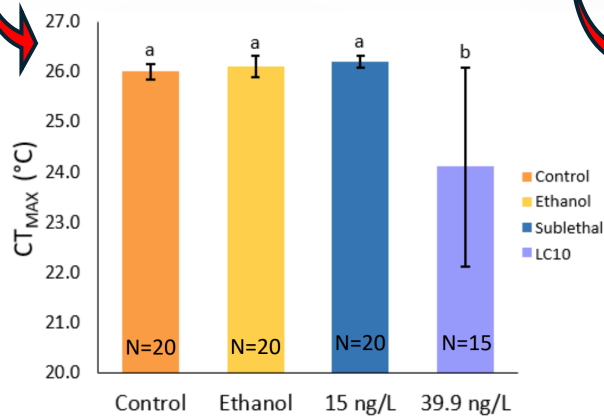
<https://pubs.acs.org/doi/abs/10.1021/acs.est.3c05742>

NSF 2203761, ConocoPhillips Arctic Science and Engineering Endowment, and Alaska INBRE.

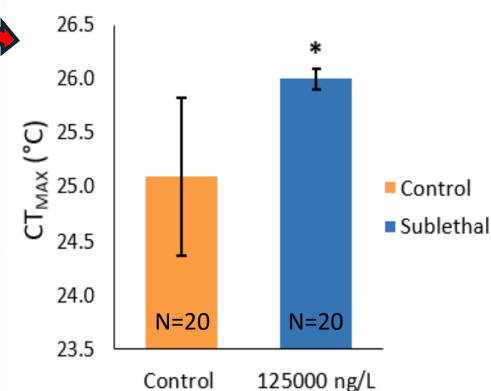
UAA researchers: Patrick Tomco, Ph.D, Jonathan Stecyk, Ph.D, Zachary Redman, Ph.D (pltomco@alaska.edu)



Coho Exhibited Decreased CT_{MAX} with 6PPD-Q Exposure



Sockeye Exhibited Increased CT_{MAX} with 6PPD-Q Exposure



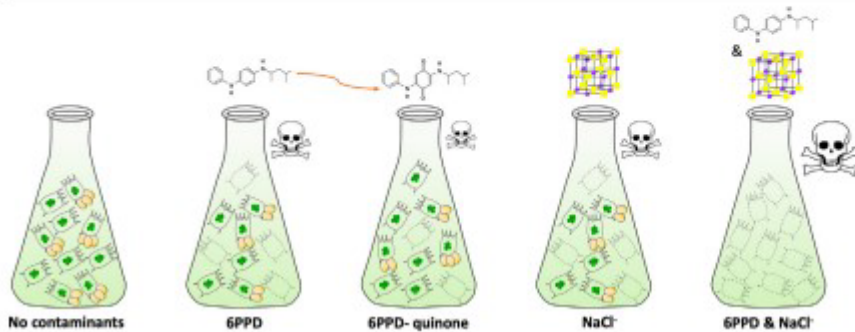
Manuscript in-prep

New Research

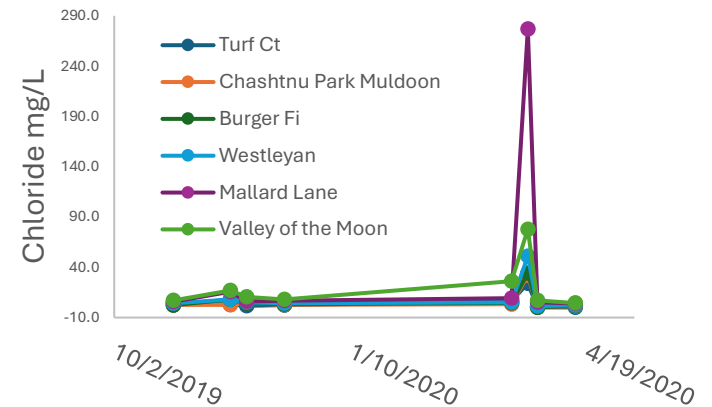
Synergistic effect with salt increases negative effect of 6PPD on rotifers.

The joint effects of salt and 6PPD contamination on a freshwater herbivore. Klauschies and Isanta-Navarro (2022)

GRAPHICAL ABSTRACT



Chloride concentration Chester Creeks



Other locations in Alaska?

High Traffic areas with
direct road runoff

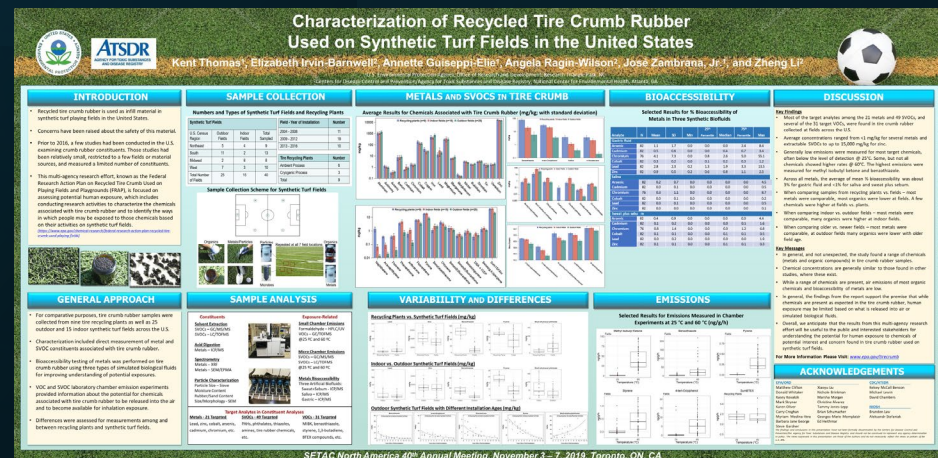
- Glenn Highway
- Seward Highway (further south)
- Sterling Highway
- Mining Operations:
Trucks with large tires

Sport fields and Playgrounds

INTRODUCTION

- Recycled tire crumb rubber is used as infill material in synthetic turf playing fields in the United States.
- Concerns have been raised about the safety of this material.
- Prior to 2016, a few studies had been conducted in the U.S. examining crumb rubber constituents. Those studies had been relatively small, restricted to a few fields or material sources, and measured a limited number of constituents.
- This multi-agency research effort, known as the Federal Research Action Plan on Recycled Tire Crumb Used on Playing Fields and Playgrounds (FRAP), is focused on assessing potential human exposure, which includes conducting research activities to characterize the chemicals associated with tire crumb rubber and to identify the ways in which people may be exposed to those chemicals based on their activities on synthetic turf fields.

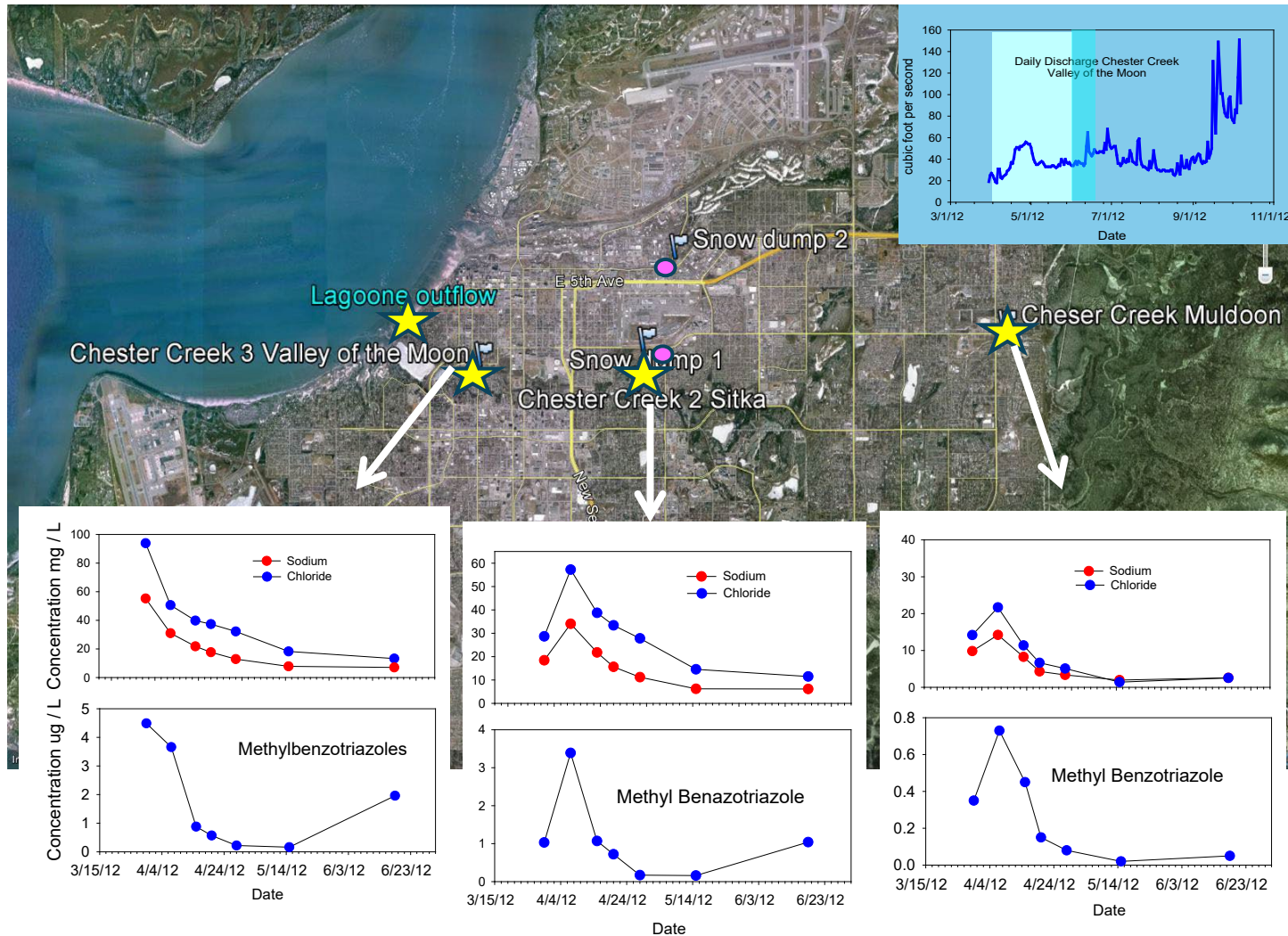
(<https://www.epa.gov/chemical-research/federal-research-action-plan-recycled-tire-crumb-used-playing-fields>)



Triazoles

Antifreeze and Anticorrosive agents

(Hagedorn and Dotson, 2013)





Thank You!

**Jennifer Schmidt (PI NSF NNA),
Colton Percy (grad student),
Patrick Tomco (PI UAA Research Team),
all who supported us via GoFundMe fundraiser**

Water Quality:

- **NSF 1927563, Navigating the New Arctic, subaward UAA 20-0094,**

6PPDE-Q:

- **GoFundMe Fundraiser to Anchorage Waterways Council**
- **NSF 2203761, ConocoPhillips Arctic Science and Engineering Endowment and Alaska INBRE to UAA Research Group**

Anchorage Waterways Council: 40 Years of Making a Difference

APDES 2024 Annual Meeting
March 6, 2024



Cherie Northon, Ph.D.
Executive Director

Anchorage Water Quality in the 80s:

- ▶ A 1984 report (DEC), *“An Investigation of Surface Water Quality in Four Selected Streams Within the Anchorage Urban Area”*, documented gross contamination in:
 - ▶ Campbell Creek, Campbell Lake, and Little Campbell Creek
 - ▶ Chester Creek and Westchester Lagoon
 - ▶ Fish Creek
- ▶ This report drew the attention of Dr. Rodman Wilson, public health director (1982-1987) under then-mayor Tony Knowles, because of the impact of **raw sewage** in local streams and lakes.
- ▶ In the mere 70 years when Anchorage expanded out from a tent city along Ship Creek, there was little regard towards drainage and the impact on the Municipality’s local streams and aquifers.
- ▶ And, this was coming back to roost!

1985 - The Campbell Creek Classic was cancelled!



**Pollution ends
annual race
in city creek**
Campbell Creek Classic off
By CRAIG MEDRED
Daily News reporter

Warning signs were posted

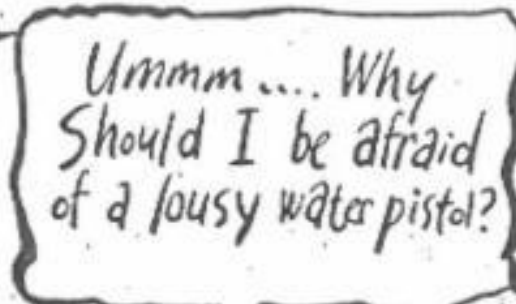


Times photo by Al Grillo

Maybe ducks can't read

Larry William and his son, Brandon, 15 months, feed the ducks and sea gulls at Westchester Lagoon. The ducks don't seem to mind the polluted water, or else they can't read. Today is creek

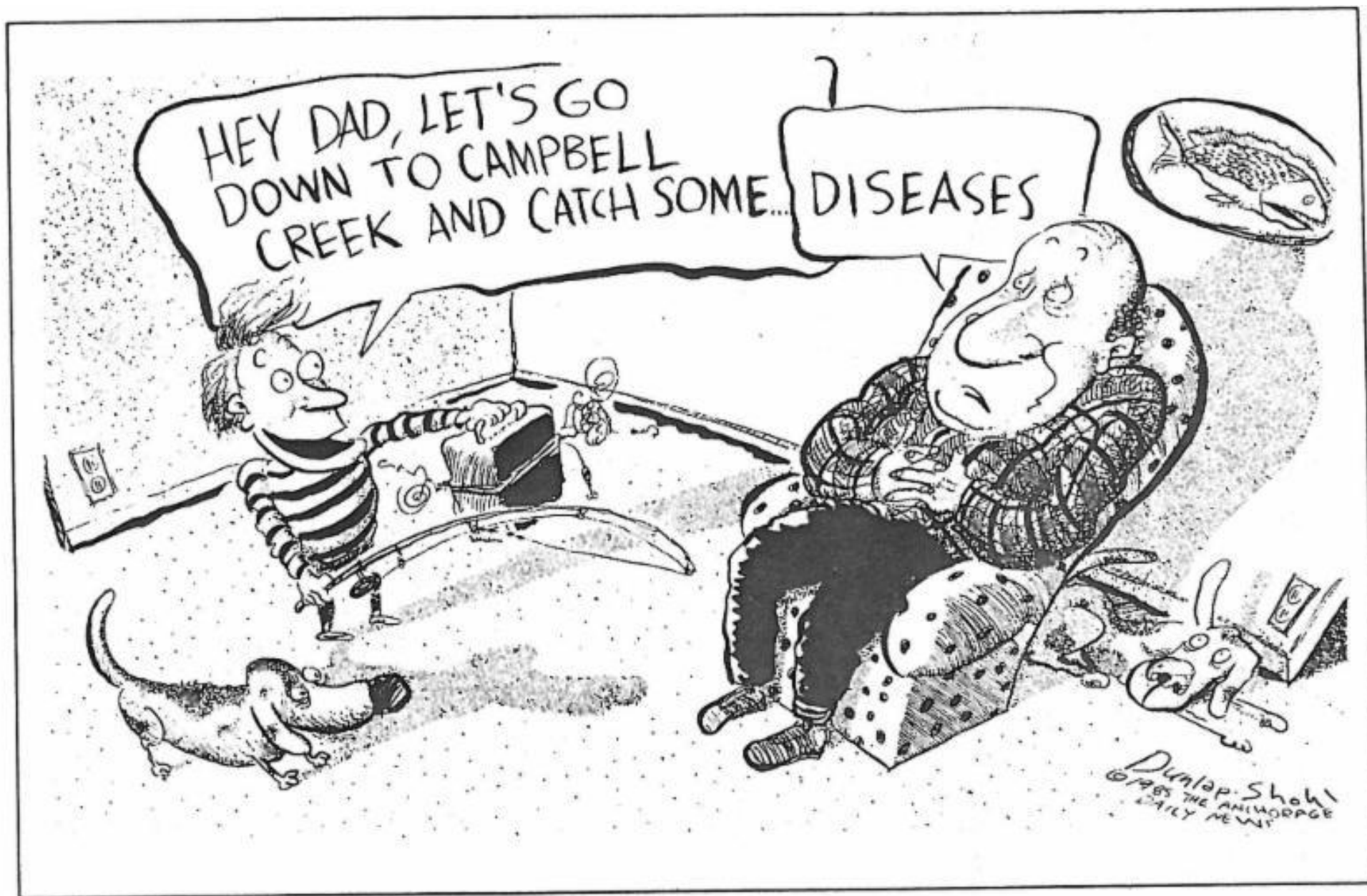
cleanup day for the Anchorage area, when residents hike up their pants legs and pick the trash from local waterways. Many of Anchorage's creeks and lakes have been declared polluted.



Dunlap Shull
©1985 THE ANCHORAGE
DAILY NEWS



It was the humane thing to do~ it was only a matter of time before he drank from one of our creeks.



Anchorage Waterways Council - 1984

- ▶ In 1984, a citizens group organized and became the **Anchorage Waterways Council**.
- ▶ 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.*
- ▶ Intent: “to clean up all the waterways within the Municipality by 1990”
- ▶ Goals:
 - ▶ Education on pet waste, yard additives, litter, and vehicle maintenance
 - ▶ Respond to issues
 - ▶ Influence public policy
 - ▶ Community service projects including the first Creek Cleanup on Chester Creek

Annual Creek Cleanup

- ▶ The first Creek Cleanup was on Chester Creek in May 1984.
- ▶ This May will be our 40th!



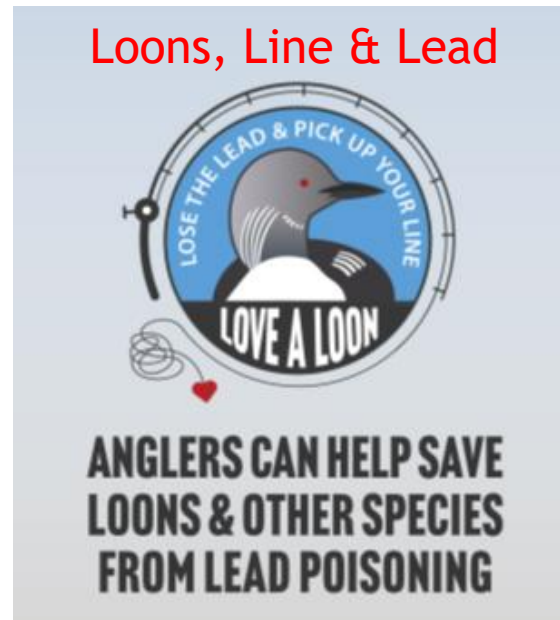
Anchorage Waterways Council - 2024

- ▶ Volunteer working board: 9 members
- ▶ Staff: 1 full-time and 2 part-time
- ▶ Funded by contracts, grants, and membership/donations
 - ▶ APDES Stormwater education and outreach - 14 years
 - ▶ Scoop the Poop - 20 years
 - ▶ Creeks as Classrooms - program for youth - 15 years
 - ▶ Citizens' Environmental Monitoring Program - 25 years
 - ▶ Loons, Line, and Lead: Monofilament line recycling and lead tackle - 9 years
 - ▶ Annual Creek Cleanup - 40 years
 - ▶ Responding to issues - 40 years
 - ▶ 6PPD - quinone - 3 years

Volunteer Water
Quality Monitoring



Loons, Line & Lead



Creeks as Classrooms



Scoop the Poop!

Creek Cleanup



Chester Creek Sampling

Birgit Hagedorn, Ph.D., geochemist, AWC board member



New Emerging Contaminants: 6PPD-Quinone

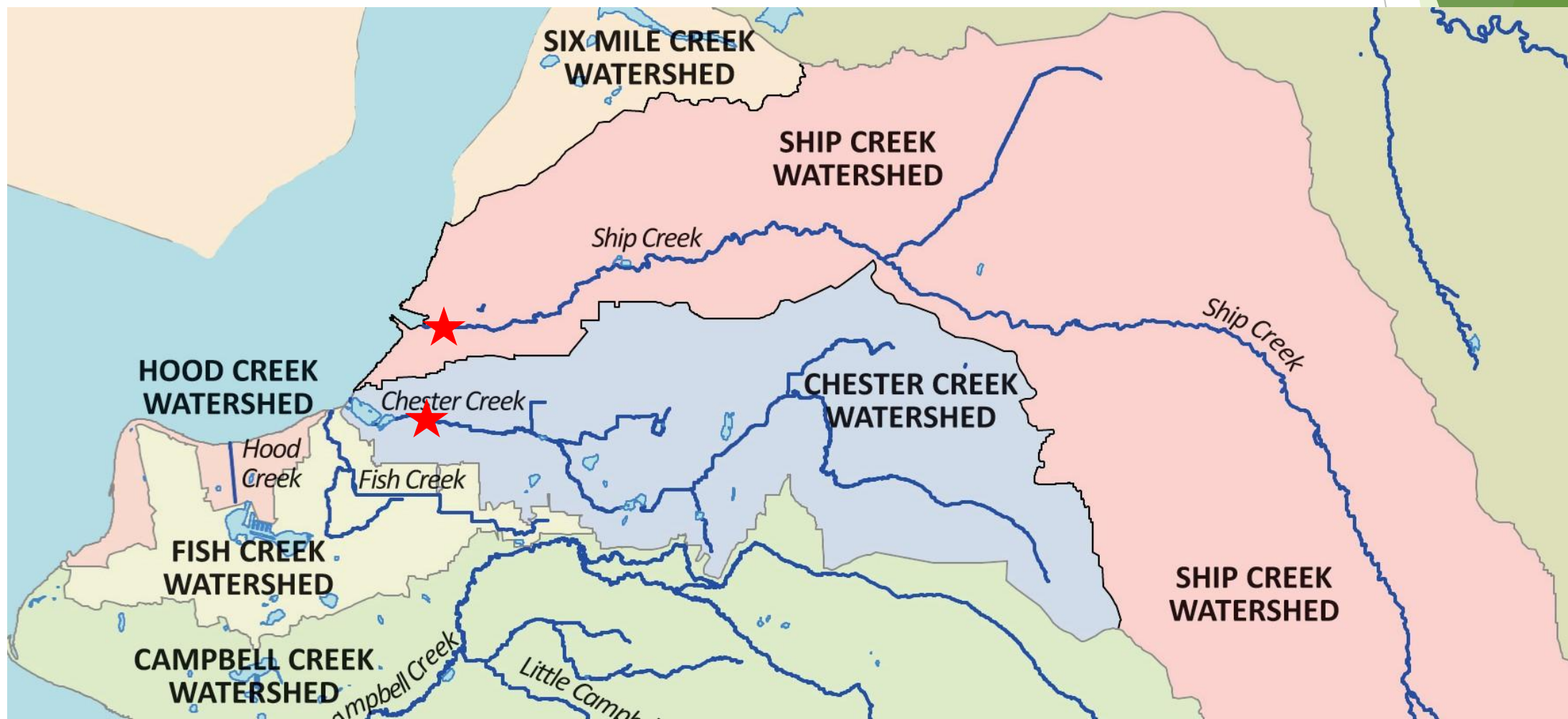
- ▶ 6PPD is added into tire rubber manufacturing to prevent tire degradation.
- ▶ As tires wear, they break down and the particles travel to surface water in road runoff.
- ▶ 6PPD Quinone has been found to be lethal in very small amounts:
 - ▶ Coho salmon = 95 ng/L or 0.095 (ppt) parts per billion
 - ▶ Brook trout = 590 ng/L (ppt) or 0.59 parts per billion
 - ▶ Rainbow trout = 1000 ng/L (ppt) or 1 part per billion
- ▶ Worldwide: 3.1 billions tires manufactured annually
- ▶ Terri Lomax at DEC holds 1-2 meetings annually for researchers, tire manufacturers, and others to connect on the latest findings.



6PPD-Quinone analyses in Anchorage

Eurofins/Test America California
Funding for 10 samples @ \$500/ea

2 sampling events:
04/13/21 snowmelt
07/02/21 heavy rain



Ship Creek



Storm drain outflow
4/13/21 0.34 $\mu\text{g/L}$
7/2/21 0.38 $\mu\text{g/L}$



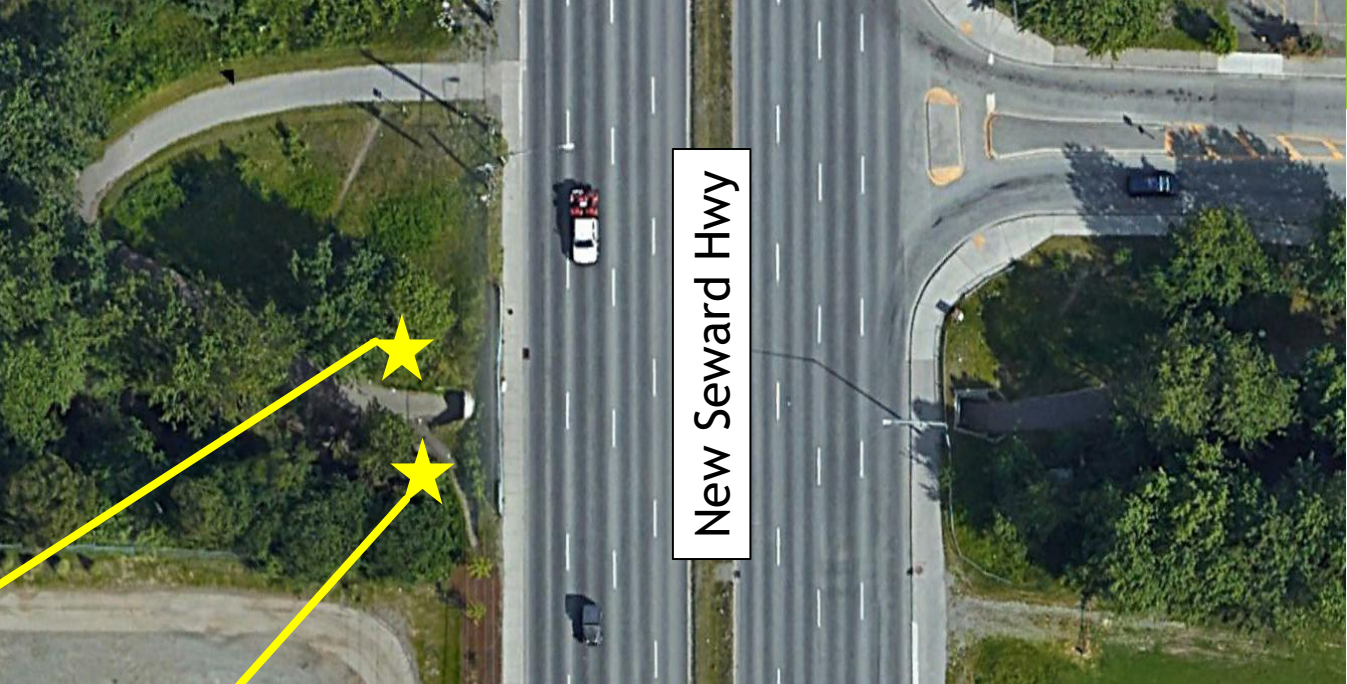
Storm drain outflow
4/13: 0.038 $\mu\text{g/L}$
7/2: ND

Creek
4/13/21 ----
7/2/21 ND $\mu\text{g/L}$

Storm drain outflow
4/13/21 ----
7/2/21 0.35 $\mu\text{g/L}$

Lethal Level L50 @ $0.8 \pm 0.16 \mu\text{g/L}$

Chester Creek



Chester Creek

North side of Chester Creek



4/13/21 1.3 (1.1) $\mu\text{g/L}$
7/2/21 0.69 $\mu\text{g/L}$

4/13: 0.36 $\mu\text{g/L}$
7/2: 0.19 $\mu\text{g/L}$



South side of Chester Creek

4/13: 0.13 $\mu\text{g/L}$
7/2: 0.017 $\mu\text{g/L}$

Lethal Level L50: $0.8 \pm 0.16 \mu\text{g/L}$



Pondering the next new waterway threat...

What will be the issues in 2064?

Thank you!

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