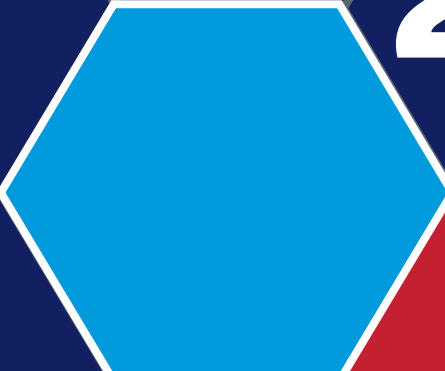


WATER QUALITY CONTROL DIVISION ANNUAL REPORT 2020



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Jennifer Opila

Director, Water Quality Control Division

Foreword

Beginning in 2021, the Water Quality Control Division has shifted the annual reporting period from the State Fiscal Year (July 1 to June 30) to the Federal Fiscal Year (Oct. 1 to Sept. 30) in order to streamline data reported to multiple agencies. I am happy to share this annual report of our various accomplishments between October 1, 2019 and September 30, 2020.

This report covers essential projects, such as the division's COVID-19 response and the 2020 PFAS Sampling Project. It also shares data about the permitting, inspection, and compliance work from our Clean Water and Safe Drinking Water Programs.

Our staff, stakeholders, and partners work together to make Colorado's drinking water and state waters the best possible quality.

Our mission is:

“To protect and restore water quality for public health and the environment.”

Statutory requirements

The division submits this report to the commission as required by Colorado Statute every year. The report discusses the effectiveness of the division's efforts under the state Water Quality Control Act. In particular, the division will:

“Include in such report such recommendations as it may have with respect to any regulatory or legislative changes that may be needed or desired. Such report shall include the then-current information that has been obtained pursuant to Section 25-8-303 (monitoring) and information concerning the status of the division's implementation of the discharge permit program established in Part 5 of this article.”

As required by Section 25-8-305 of the Colorado Water Quality Control Act, this report will also go to:

- House Agriculture, Livestock, and Natural Resources Committee
- Senate Agriculture, Natural Resources, and Energy Committee

Major projects

Health equity and environmental justice

The division is committed to furthering environmental justice and health equity priorities through the thoughtful administration of its programs and effective community engagement.

Some of the steps taken towards this goal include:

- Translating public notice documents, sampling instructions, and permits into Spanish.
- Updating language on web pages and compliance orders to increase public accessibility.
- Tracking enforcement orders in disproportionately impacted communities.



As you move through this report, you will find further details on how each program promotes health equity and environmental justice. While we continue to advance progress by learning from experience and others' tactics, we understand that there is always room to better include health equity and environmental justice in the work we do.

COVID-19 response

Throughout the COVID-19 pandemic the division adapted and remained resilient – maintaining its core duties and exploring approaches to fight the virus. Key accomplishments include:

- Providing assistance and guidance to water and wastewater utilities so they could continue their essential critical functions protecting public and environmental health – no one reported any system failures in the 2020 pandemic year.
- Developing standard operating procedures that kept staff safe but allowed field inspections to continue. While COVID-19 led to an overall decrease in inspections, these procedures allowed the division to complete 141 in-field drinking water inspections and 458 clean water inspections during the pandemic. Of the clean water inspections, 380 were reconnaissance inspections, which allowed the division to maintain oversight while social distancing.
- Launching a pilot program to track the COVID-19 virus in wastewater which can give health professionals an idea of how prevalent the virus is in their community, sometimes days in advance of an outbreak and even if people are asymptomatic. The department is planning to analyze the data to see how it can be used to forecast outbreaks, helping health professionals take action.
- Partnering with associations and networks to share resources such as operator personnel, masks, and COVID-19 updates and information.
- Adapting operations to better accommodate an online-only work world, including allowing electronic signatures and shifting to virtual meetings and training. Since the shift, we have had historic levels of stakeholder engagement in division and commission meetings and more streamlined processes.

Major projects

Wildfire emergency response

The 2020 wildfire season saw the three largest wildfires in Colorado's recorded history. It affected over 140 public drinking water systems and 30 wastewater systems, leading to an unusually high level of short- and long-term support provided by the division.

The division supported local communities with technical assistance and over \$900,000 for projects to address post-fire water quality, flooding, and infrastructure impacts. We also published a playbook that serves as an actionable worksheet for counties, tribes, municipalities, and water providers and includes specific and critical steps to take and contacts to make before, during, and within the first 30-days after a fire. Since its release in 2020, three local recovery groups are putting the playbook to good use.

We're better connected for wildfire emergency response than ever before. The division joined the Watershed Wildfire Protection Group and partnered with Utah to monitor the Colorado River. These external partnerships assist our work with communities to identify potential problem areas for future fires, mitigate further erosion of burn areas, reduce runoff, and lessen the chance of flooding.

Toxic firefighting foam

Colorado faces an emerging health challenge from a group of chemicals typically found in toxic firefighting foam, called polyfluoroalkyl substances, or PFAS. The division continues to proactively assess risks and protect public health from exposure to these chemicals:

- **Sampling project:** The division facilitated the sampling of 400 water systems, 15 firefighting districts, 152 groundwater sources, and 71 surface water sources. None of the treated drinking water tested above EPA's health advisory level, however higher levels were found in some groundwater and surface water sources.
- **Discharge permit survey:** The division surveyed discharge-related permittees to assess the risk of these chemicals making their way into Colorado groundwater and surface water through discharges. Approximately 70% of permittees responded to this voluntary survey with 193 facilities reporting a known or suspected presence of these chemicals.
- **PFAS Narrative Policy:** Through an extensive stakeholder effort, the division drafted and proposed the PFAS Narrative Policy, setting guidelines on how to better monitor these chemicals at discharge permittee's facilities. With the commission's adoption of the policy the division has taken action such as evaluating the inclusion of PFAS limits in Suncor's draft renewal permit – a move that better supports the residents living in the Commerce City - North Denver area.

Lead reduction

The division oversaw the first year of Denver Water's Lead Reduction Program. Denver Water prioritized lead-service line replacement in disproportionately impacted communities, translated communication materials into multiple languages, and developed a community-leaders-network who encouraged filter use and information sharing about the program. Despite the COVID-19 pandemic, Denver Water replaced 5,287 lead service lines throughout 2020 and has met or exceeded all year one reporting requirements as part of the Lead Reduction Program.

The division sampled for PFAS at:



15 fire districts



152 groundwater sources

400 water systems



71 surface water sources

Clean Water Program

The Clean Water Program works to maintain and improve water quality in Colorado's rivers, lakes, and streams. The program sets standards and pollutant limits, permits entities to ensure limits are met to support stream standards, and takes action to maintain and regain compliance.

10-year water quality roadmap



Stakeholders have been actively involved in the 10-year water quality roadmap, an effort designed to develop or revise water quality standards for temperature and various nutrients and chemicals by 2027.

- Up to **300 attendees** at each quarterly meeting.
- Approximately **400 facilities** are monitoring for nutrients and submitting data annually.
- Over **125 stakeholders** have signed-up for a voluntary incentive program for early nutrient reduction.



Health equity and environmental justice

Everyone deserves to live in a clean environment with clean water and we acknowledge some Colorado communities are disproportionately impacted by pollution and other environmental injustices. We are committed to making information accessible, getting and considering community input, and looking through a health equity and environmental justice lens when making decisions.

- The division translated the construction stormwater discharge permit to Spanish so the information is more accessible and easier to follow for Spanish-speaking community members.
- The division updated the nonpoint source funding application criteria so that disproportionately impacted communities are better prioritized.

- The division developed three discharger-specific variance proposals that were adopted by the commission. These variances are often implemented to help water dischargers in small, rural, and/or disproportionately impacted communities. They are site-specific, temporary actions that help the discharger work towards compliance while dealing with funding, technology, or other limitations and are routinely reviewed by the commission.

Clean Water Program

Permitting

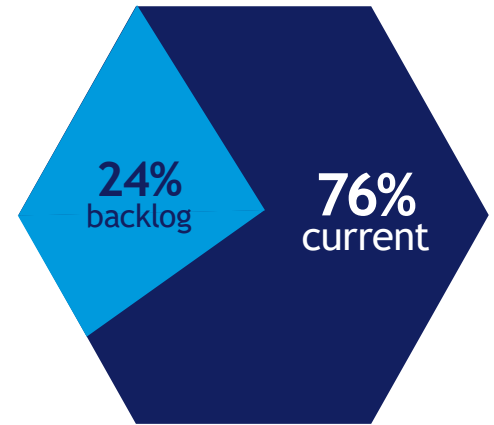
The division issues permits for discharges of pollution to waters of the state, including groundwater. The intent is to ensure that the permits issued are protective of the uses of those waters, like drinking water, aquatic life, agriculture, and recreation. The division has 8,441 permits in effect, 76% are current and 24% are backlogged.

A backlogged permit is either:

- A permit with a renewal application that has not been renewed prior to its expiration date.
- A new individual permit that is not issued within 180 days of receipt of the application.

The permit backlog is addressed by focusing on renewing general permits that cover a large number of permittees and working with permittees to transition them from individual to general permits when appropriate. Permits that are up-to-date reflect the most recent standards adopted by the commission, creating the fullest protections for the water.

8,441 ACTIVE PERMITS



Permit type	Backlogged	Current	Total	Backlog %
Commerce and Industry	1,279	664	1,943	66%
Construction	262	5,490	5,752	5%
MS4	66	60	126	52%
Pesticides	0	79	79	0%
Public and Private Utilities	405	233	638	63%
Total	2,012	6,429	8,441	24%

Stakeholder outreach

When COVID-19 restrictions were put in place, the division quickly shifted to virtual meetings. In many cases, the stakeholder attendance average doubled and we saw over 100 people attend our meetings. We've heard from many stakeholders, including disproportionately impacted, rural, and Western Slope community members, that shifting to all virtual meetings has made our stakeholder efforts more accessible and easier to participate in.

The division hosted several stakeholder initiatives including proposing revisions to Regulation 84, MS4 renewal, and the industrial general permits, and evaluating a potential dredge and fill permit program. Additionally, we offered a quarterly webinar to provide an opportunity for permittees to discuss various permits and answer questions so permit information is more accessible.



Clean Water Program

Watershed restoration and protection

The division has two programs that specifically work towards watershed restoration and protection from point and nonpoint sources of pollution: Nonpoint Source (NPS) and Watershed Analysis and Implementation Support (WAIS).

Unlike pollution that makes its way to water bodies through pipes and other conveyances, nonpoint source pollution occurs when rainfall or snowmelt run off over land and through the ground and carries pollutants to water bodies. We work with local communities to voluntarily address nonpoint source pollution and through permits to reduce impacts from point source discharges.

NPS and WAIS provide technical analysis and assistance to local communities to develop a plan to restore and protect water quality and help ensure water quality standards are attained and maintained, provide funding to help implement the plan, and manage the long-term project. In 2020, the division oversaw 33 projects, administering over \$5.6 million in funding assistance to help local communities improve water quality.

MANAGED
33
WATER QUALITY
IMPROVEMENT
PROJECTS

PROVIDED
\$5.6
MILLION
IN FUNDING
ASSISTANCE

Sampling and monitoring data

Colorado has more than 105,344 stream miles and more than 249,787 lake acres.

The division uses a rotating basin approach for stream monitoring, sampling the entire state on a five-year cycle. Biological and physical sampling, as well as special studies, are completed concurrently with routine sampling.

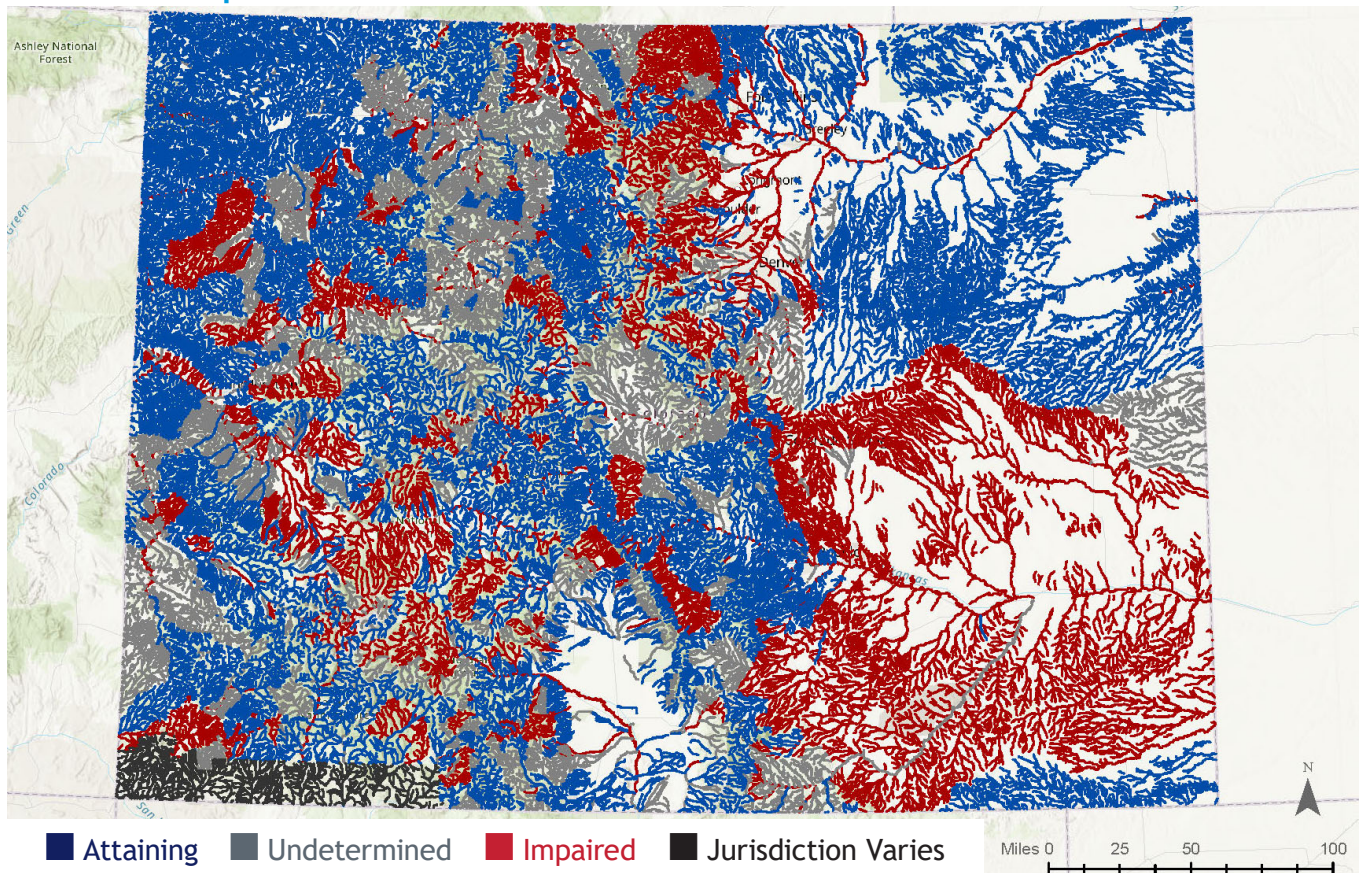
Water samples were primarily collected from the San Juan and Gunnison River basins in the winter and spring of 2019/2020 and the Arkansas, Rio Grande, and Colorado River basins in the summer of 2020.

We also monitor the biological and physical make-up of our waters. Monitoring benthic macroinvertebrates, periphyton, phytoplankton, and sediment provide indicators to the state of our water.

971
samples
over **250**
locations

404
reported spills
284 required
staff triage

Streams impairment status



Clean Water Program



Special study: Fish tissue, selenium, and arsenic

We coordinated with Colorado Parks and Wildlife to collect fish tissue samples that will be tested for different chemical forms of arsenic to help determine if the consumption of freshwater fish is a significant source of toxic forms of arsenic in humans.

They will also be tested for selenium, which can be highly toxic for aquatic life and aquatic-dependant wildlife at elevated levels. Results will be used to update selenium and arsenic standards.

Special study: E. coli Total Maximum Daily Load

We continue to partner with Colorado State University to collect E. coli samples and measure stream flow at sites on Clear Creek and Sand Creek to support the development of E. coli Total Maximum Daily Loads. We expect to complete sampling in 2021 as a first step in addressing E. coli in these waters.

Toxic algae

Toxic algae is an emerging contaminant that can impact drinking water and recreational uses of waterways. The division's dedicated toxic algae program is two years old, and within that time, we have:

- Increased the number of samples collected and tested by approximately 600%.
- Created materials to better serve Coloradans including a historic data dashboard, risk management tool kit, and fact sheets.
- Developed "caution," "lake closed," and "area closed" signage in English and Spanish for water recreation managers to use for free. Signs can be downloaded and printed for use as needed.

DANGER
AREA IS CLOSED TO FULL-BODY CONTACT

Toxic algae is present! Water contact can cause illness

- ▶ Keep kids out
- ▶ No pets in water (death may occur)
- ▶ Do not drink water
- ▶ No water recreation (swimming, skiing, paddle-boarding, wading, etc.)
- ▶ If exposed, shower immediately

Fishing permitted - rinse fish with clean water and properly dispose guts
Boating permitted - avoid algae

If you or your animals have nausea, vomiting, diarrhea, rash, irritated eyes, seizures or breathing problems, call Poison Control: 1-800-222-1222

PELIGRO
EL ÁREA ESTÁ CERRADA a TODO CONTACTO CORPORAL

¡Presencia de algas tóxicas! El contacto con el agua puede causar enfermedades

- ▶ Mantenga a los niños alejados
- ▶ No se permiten mascotas en el agua (puede provocar la muerte)
- ▶ No beba el agua
- ▶ No se permiten actividades acuáticas recreativas (nadar, caminar por el agua, practicar esquí o paddleboard, etc.)
- ▶ En caso de exposición, dúchese de inmediato

Se permite la pesca: enjuagar los pescados con agua limpia y desechar apropiadamente las vísceras
Se permite la navegación: evitar las algas

Si usted o sus mascotas presentan náuseas, vómitos, diarrea, sarpullido, irritación en los ojos, convulsiones o problemas para respirar, llame al control de intoxicación: 1-800-222-1222

CAUTION
TOXIC ALGAE MAY BE PRESENT

Water contact can cause illness

- ▶ Keep kids out
- ▶ No pets in water
- ▶ Do not drink water
- ▶ Avoid contact with algae
- ▶ If exposed, shower immediately

Fishing permitted - rinse fish with clean water and properly dispose guts
Boating permitted - avoid algae

If you or your animals have nausea, vomiting, diarrhea, rash, irritated eyes, seizures or breathing problems, call Poison Control: 1-800-222-1222

PRECAUCIÓN
POSIBLE PRESENCIA DE ALGAS TÓXICAS

El contacto con el agua puede causar enfermedades

- ▶ Mantenga a los niños alejados
- ▶ No se permiten mascotas en el agua
- ▶ No beba el agua
- ▶ Evite el contacto con las algas
- ▶ En caso de exposición, dúchese de inmediato

Se permite la pesca: enjuagar los pescados con agua limpia y desechar apropiadamente las vísceras
Se permite la navegación: evitar las algas

Si usted o sus mascotas presentan náuseas, vómitos, diarrea, sarpullido, irritación en los ojos, convulsiones o problemas para respirar, llame al control de intoxicación: 1-800-222-1222

Safe Drinking Water Program

The Safe Drinking Water Program works to ensure that visitors and residents in Colorado always have clean and safe drinking water, and aims to prevent waterborne diseases and reduce chronic public health risk. The program's work has contributed to the safest tap water Colorado has seen, with no waterborne disease outbreaks in over a decade and E. coli violations drastically reduced.

2,056 public water systems

# Systems	Population served
1,568	25 - 500
309	501 - 3,300
93	3,301 - 10,000
75	10,001 - 100,000
11	> 100,000

RESOLVED:

768

 DEFICIENCIES & VIOLATIONS

AT WATER SYSTEMS SERVING:

1,969,138

Coloradans

Priority list of contaminants

The division reviewed the drinking water priority list of contaminants for which a minimum general sanitary standard may be appropriate. It was determined that the list established in 2019 is sufficient at this time.

The list is as follows:

- PFOA: Chemical Abstract Service Number (CAS No.) 334-67-1
- PFOS: CAS No. 1763-23-1
- PFHxS: CAS No. 355-46-4
- PFNA: CAS No. 375-95-1

252

 system inspections
for conditions that could lead to public health threats

379

field based violations or significant deficiencies identified

Safe Drinking Water Program



Health equity and environmental justice

Making data and information accessible is critical for health equity and environmental justice. We received complaints from residents of Eagle River Mobile Home Park about the taste of their drinking water. The system met all drinking water standards, but there are higher levels of minerals that may make the water taste worse for some. We sent a team of staff to evaluate the drinking water system and we guided the park owners in creating Spanish and English communication materials. We also worked with a resident, trusted by the community, to help distribute the message and educate the residents. Residents gave feedback that the additional information helped with previous misconceptions.

Additional efforts for health equity and environmental justice included:

- Translating a radionuclide public notice and lead and copper tap sampling instructions to Spanish.
- Improving readability of enforcement orders by making them easier to understand - providing a summary and customized response form that act as a guide to gaining compliance.
- Relocating compliance staff to satellite offices on the Western Slope to bring them into those communities.

Stakeholder outreach

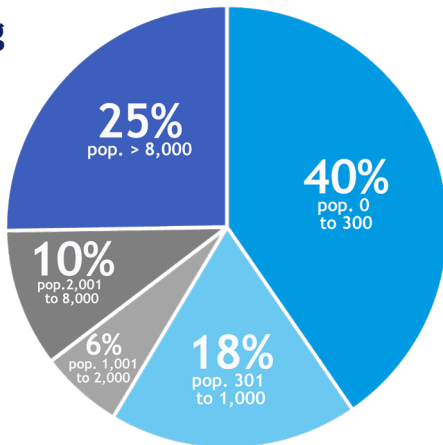
The division connected with over 30 entities across the state to update drinking water rules involving storage tanks and backflow cross-connection control. Through a thoughtful engagement process, the division found an agreeable approach with stakeholders that continues to protect public health but also helps streamline processes for water systems.



Infrastructure projects

The division connects communities to grants and loans to help them maintain or advance their drinking water and wastewater infrastructure. We supported 126 projects involving grants or loans and coordinated with the community, local agencies, project consultants, and internal partners to ensure compliance with federal requirements such as conducting environmental reviews. The division also performs engineering reviews of all significant publicly owned water/wastewater infrastructure projects in Colorado.

Over 300 engineering review projects annually



Projects broken down by population served



Photo courtesy Colorado Water Resources and Power Development Authority

Improvement projects

Success stories

Straight Creek restoration

Straight Creek is a drinking water supply and flows into the Blue River, which is prized for fishing and recreation. Straight Creek has been impacted by hillside erosion and traction sanding on I-70, making it impaired since 1998 due to sediment.

To remove Straight Creek from the impaired waters list, the division took the following actions:

- Worked with the Colorado Department of Transportation and many other partners to develop a Sediment Control Action Plan.
- Provided \$745,500 through NPS Section 319 and Section 208 grant funds to implement stormwater control measures.
- Coordinated sediment monitoring with external partners to track water quality improvement.

Straight Creek is no longer impaired and the EPA recognized this project in their NPS Success Story database.



**\$745,500
Funding**

Cotopaxi School drinking water inspection

Cotopaxi School District RE-3 is a rural public drinking water system serving over 290 children, staff, and visitors from Pre-K to adults.

The division conducted an inspection in 2017, identifying a significant deficiency that could have led to a waterborne disease outbreak from the pathogens Giardia and Cryptosporidium. To confirm these findings, we assisted Cotopaxi School with a source investigation and determined that the water source needed filtration treatment.

To help Cotopaxi School protect public health, we:

- Partnered with the Colorado School of Mines to provide free engineering services to Cotopaxi School.
- Provided \$25,000 in funding through the division's assistance grant program to upgrade the school's treatment plant.
- Provided compliance assistance to help ensure Cotopaxi School can provide the required testing and reporting to demonstrate the water is safe.

Upgrades were completed in 2020 and we will continue to monitor the system to make sure kids have access to safe water.



**\$25,000
Funding**



Looking ahead



Direct potable reuse

The division is embarking on an extensive stakeholder effort to begin developing a direct potable reuse (DPR) rule this year. The current regulations do not prohibit DPR but do not provide for adequate treatment needed to protect public health. This leaves us vulnerable to a situation where a community in a drought needs to utilize DPR, but the state does not have an adequate framework to support and oversee the situation. This rule will give communities the needed platform to be resilient with a changing climate and growing population while also ensuring public trust.

Engaging disproportionately impacted communities

There are multiple environmental projects and impacts happening in the Commerce City - North Denver community located next to the Suncor Refinery. Projects include the water and air quality Suncor permit renewals, coordinating supplemental environmental projects from prior Suncor violations, special studies on health impacts, and more. As step one in more effectively serving this community, we merged information across environmental divisions and projects into one webpage. We are taking a cross-media promotional approach so residents can engage in events and get other information related to their neighborhood more easily. The environmental divisions in the department have and will continue to package information together to keep the community informed. We hope this approach can be a model for future engagement activities in communities throughout Colorado.

Toxic firefighting foam

The legislature passed a bill that created a fee structure giving us the resources to investigate and support communities that may be impacted by PFAS. These fees will be used for a grant program and a takeback program. As of January 1, 2021, \$1,189,381 has been collected and credited to the fund. The division is designing and coordinating the rollout of both of these programs and expects both to launch by the fall of 2021.

The division is also partnering with the Tri-County Health Department to test private wells and public water systems for these chemicals throughout Adams County. This investigation will help assess the potential extent of groundwater that may be impacted. Samples will be collected, prioritizing areas that have been disproportionately impacted by health inequities, as well as sites downgradient from industries identified by EPA as potential sources of PFAS contamination. We plan to expand testing statewide in the future.

Water quality public perceptions

The division secured funding for a third Water Quality Public Perceptions survey and focus groups. The survey and focus groups help learn about Coloradans' opinions and preferred actions to protect water quality. Data collected will be compared to the data from the 2007 and 2014 survey efforts to see how opinions have changed over time. The 2021 survey and focus groups will also work to address health equity and environmental justice issues, making a concerted effort to reach disproportionately impacted communities and collect their responses.

Legislative recommendations

As of April 26, 2021, Colorado officially has gap waters that are no longer protected through the U.S. Army Corp of Engineers permit process. Implications are immediate for Grand County as they have a series of housing development projects that pose an immediate risk to Elk Creek and Fraser River. More risks to Colorado waters are anticipated. Without a permit program, the division will be unable to protect the waters and will only be able to enforce after the damage has been done and without any additional resources.

The department recommends Colorado implement a state dredge and fill program.



Photo credit: Colorado Natural Heritage Program

Division online resources

Water Quality Control Division

cdphe.colorado.gov/water-quality

Water Quality Control Commission

cdphe.colorado.gov/wqcc



COLORADO
Department of Public
Health & Environment