

Improving Gold Creek Water Quality: *Input from Gold Creek Placer Miners* Project Report : July 2022



Prepared for:



Alaska Department of Environmental Conservation
Division of Water

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Introduction

The Alaska Department of Environmental Conservation (DEC), Division of Water has been gathering information to aid general planning efforts for the Gold Creek Watershed. As part of this effort, DEC is interested in understanding the interests, concerns and ideas of placer miners related to water quality in Gold Creek, a tributary of the Koyukuk River located within the Koyukuk Mining District. Gold Creek is a 9.5-mile-long eastern tributary of the Middle Fork of the Koyukuk River, located 12 miles north of Wiseman (See Figure). Mining has continuously occurred at Gold Creek since the initial discovery of pay gravels in 1900 (<https://ardf.wr.usgs.gov/>). Much of the stream channel of Gold Creek has been mined with most activity concentrated between two and six miles upstream from the Dalton Highway. Considerable reclaimed placer tailings are present, and cabins and mining equipment are scattered along the drainage (E. Lamb, BLM, personal communication, June 16, 2022). At the time of publication of this report, there are 38 federal mining claims and 16 state mining claims on Gold Creek but only six active permits/approvals through the Application for Permits to Mine in Alaska (APMA) process administered by Alaska Department of Natural Resources (D. Charron, ADNR, personal communication, June 3, 2022).

This report provides themes and highlights from interviews conducted with seven placer miners that hold claims on Gold Creek. In addition, it offers considerations for DEC and other key agencies, particularly the Bureau of Land Management (BLM), as they collaborate with miners to address apparent water quality issues in the Gold Creek watershed.

Water Quality Recent History

The following is a brief timeline of events preceding DEC planning efforts for the Gold Creek watershed:

- August 2019: DEC received 2015-2018 Gold Creek turbidity data from BLM for analysis for inclusion in Alaska's 2020 Integrated Water Quality Monitoring and Report (IR). In 2020, turbidity data was analyzed, and it was found that Gold Creek did not meet state water quality standards. Therefore, DEC proposed to place Gold Creek into Category 5¹ in the 2020 IR.

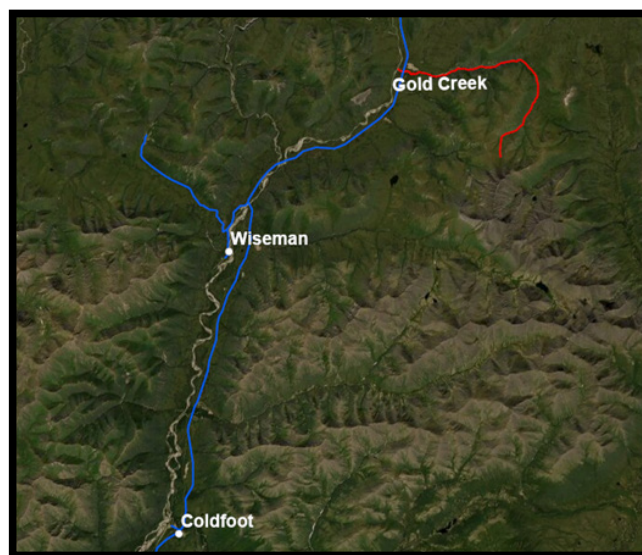


Fig.1 Gold Creek geographical context

¹ See Appendix

- December 2020: DEC put the Draft 2020 IR out for stakeholder review and received several comments from miners and agencies.
- January 2021 – Spring 2021: Based on input from placer miners and discussions with BLM, DEC placed Gold Creek in Category 3 waters (category for waters for which there is not enough information/data to determine water quality attainment or impairment) to provide time to do research to determine the primary source of turbidity. The IR went out for Public Notice and was subsequently submitted to EPA with Gold Creek in Category 3.
- Because of the interest in Gold Creek water quality, DEC initiated a watershed planning effort to work with partners to better understand how to protect or improve Gold Creek.

The BLM has been collecting water quality data for Gold Creek from 2015 to present. In summer 2021, seven water quality meters were deployed by the BLM, and in June 2022, the meters were deployed in the same locations to collect additional data. Currently, the DEC is reviewing water quality data collected at Gold Creek, and the BLM is initiating work to inventory sediment sources in the watershed in an effort to inform DEC's overall watershed planning efforts. BLM field work is slated to occur in summer 2022 through a contract administered by Salcha-Delta Soil and Water Conservation District (T. LaMarr, BLM, correspondence, January 14, 2022). Based on the monitoring results, Gold Creek's status will be reassessed in a future IR.



Photo provided by the BLM

Placer Miner Interviews

Methods

In March and April 2022, qualitative interviews were conducted with seven placer miners that have claims on Gold Creek. The interviews were conducted via phone or Zoom using an 11-question interview guide that was organized by nine objectives (see below) and was reviewed and approved by DEC. The interviews took between thirty and forty-five minutes. The interviews were conducted by a single social scientist (Dr. Cynthia Jacobson) who took extensive written notes and captured data in the form of quotes. The data were analyzed by Dr. Jacobson, and themes were identified. Interviews were confidential, and interview responses were not associated with names of specific individuals or their businesses. Data are presented as quotes (see blue call-out boxes in text below).

The following nine interview objectives guided this inquiry:

Interview Objectives

1. To learn about placer miners' historical knowledge and perception of change related to water quality in Gold Creek
2. To learn about placer miners' knowledge and assessment of ecological conditions of the watershed
3. To understand placer miners' concerns regarding water quality improvement on Gold Creek
4. To understand placer miners' perceptions of turbidity and other issues that could be affecting the ecological health of the Gold Creek watershed
5. To learn about placer miners' perceptions about how to address water quality issues in the Gold Creek watershed
6. To learn about placer miners' interest in information/tools/trainings related to water quality improvement
7. To understand how placer miners want to be engaged in helping to provide input to improve water quality in Gold Creek
8. To determine if interest in Gold Creek placer miners working group exists
9. To provide an opportunity for Gold Creek placer miners' questions, concerns or suggestions related to placer mining and pass them along to the relevant agencies

Results

Placer miners' general information

All seven of the placer miners held mining claims on Gold Creek but only two reported that they were currently mining (starting summer 2022) and intended on continuing to do so. Four of the five remaining placer miners were either engaged in the permitting process and/or reported having intentions to mine at Gold Creek in the future. One miner noted that he was uncertain about whether or not he would mine at Gold Creek in the future. All of the placer miners interviewed had a long history mining in the area, some going back as far as the early 1980s. The placer miners were very knowledgeable about the ecological and physical conditions of the Gold Creek watershed and offered a wealth of perspectives about whether and how these conditions have changed over time.

Current physical and ecological conditions

Placer miners described Gold Creek as a relatively short stream in the north-central Interior of Alaska that drains uplands in the Middle Fork Koyukuk River watershed. It is characterized by black spruce taiga typical of its latitude. The stream has cut a moderately, and in some areas extremely, steep channel through the upland terrain. Many of the steep banks are comprised of loess or silt deposits that were permafrost until recent thawing due to warmer climatic conditions. Many noted that warming climatic conditions and increased water flows due to higher snow levels and rainfall were causing these exposed banks to thaw quicker and to be easily scoured and erode unpredictably and rapidly. This condition was believed to be depositing great amounts of loess or silt into the water flowing through the creek bed with a resultant surge in sediment and turbidity. Some explained that auf ice (referred to as “glaciering”) contributed to the stream’s flow being redirected either to the exposed banks or onto the creek’s geographically limited riparian floodplain with the same result of adding additional sediment and turbidity to the flowing water. The effects of auf ice diversion—reported to occur as late as July in some areas of the stream—was considered by some placer miners to have had detrimental results on the landscape due to seasonally thawing ground. According to the miners interviewed, increased stream sediment load and turbidity is more a result of accelerated erosion caused by climate change-induced thawing of permafrost, heavy runoff from higher precipitation levels in all seasons, and stream channel diversion due to auf ice accumulation in the traditional creek bed than is current mining activity. Some miners acknowledged that past placer mining likely impacted the area and that current mining activity may have minor physical and ecological impacts on the area as well.

Climate Change

"I have pictures of the very extreme sloughing but definitely getting worse in the narrows. Climate change has a lot to do with it. Thawed out. We have pictures of where we dredge, was all trees, now [it is] all dirt."

"Years I have been traversing [this area], climate change, trail subsiding in places... Subsidence results in high turbidity, Creasey Gulch example, constant flow of dirty, glacial looking water. Warming of the soils and melting of ice layers in the soils, water has to go somewhere."

Terrain

"This is a young mountain range, really steep. ...so steep, have to climb with your hands and feet. When you get up to the tundra, [there are] huge rips in the carpet. . Also temperature has changed. More heat, winters not as severe. More ice, deeper, tracks down the side. Doesn't let the stream take its natural course. Water forced into new country, bringing out fresh goodies, seeing that come down the stream. Gets into its own groove when ice melts."

"As far as I know, any erosion is all nature. Stream banks, steep. Hearty vegetation. Sloughing comes from the steep slopes."

Creek Flow and Ice

"Very variable flow, very much like Brooks Range Creek. Spring snow on the mountain rushing down at a high rate, [it is] over in late June, almost a trickle."

"Glaciering (auf ice) every year is different, 8-10 feet ice buildup in the creek at times, depends on the weather, mid-May to July. Ice doesn't scour but cause changes in the water flow from non-ice. Armouring the stream back, causing water to be redirected. Eroding banks that otherwise won't be eroded."

Presence of fish and wildlife

Placer miners reported that in their experience, the Gold Creek watershed does not have a great deal of fish and wildlife. Most had reported seeing some wildlife (e.g., bears, wolves, sheep) or signs of wildlife only occasionally at or around Gold Creek. Very few placer miners reported seeing fish, most said that the creek dries completely at times so would likely not support fish in their opinions.

Perception of existing water quality and change

Although most of the placer miners reported Gold Creek's water to be turbid ("nasty" and "dirty") at times, due to a variety of causes, none of the interviewees said that they were particularly concerned about water quality. Some said that they drink out of the stream or use it for food preparation and that all placer miners want the stream to be clear.

Some thought that the creek had likely been turbid historically, while others attributed increasing levels of turbidity to changing climatic conditions, particularly thawing permafrost and increased extreme rain events. Interviewees noted that high turbidity in areas that had not recently been disturbed by mining activities demonstrated that mining was not the primary cause. Concern was expressed about placement of turbidity monitors near mining activity without using controls in other non-disturbance areas and evaluating similarities and differences among the different sites. Some individuals worried that turbidity designations would affect their ability to mine or otherwise use the area now or into the future. In general, interviewees believe that turbidity in Gold Creek is naturally occurring, and any efforts to hold miners accountable for higher-than-natural turbidity is unreasonable.

Water Quality

"Most [turbidity] comes during rain incidents off the vertical banks. Canyons are narrow with vertical banks on top of it. Loamy type material sloughs off when we have a rain incident. Several canyons like this one mile off the Haul Road and one to two miles past my camp. May also be permafrost [contributing to turbidity]. Trail also gets a little mucky."

"Personally, [I have] no [concerns]. Only concern, how [turbidity] would affect permitting should I decide to do any mining on the claims that I have. And as it would affect my ability to traverse across the trail."

"More permafrost melting in recent years, upper and mid-parts of the creek on a couple of different tributaries (Creasey Gulch, Little Gold Creek), all these depressions in tundra, implies melting out and going from there into the creek. Extreme amount of clay and silt. So fine, going all the way to the Koyukuk. Neither one of these tributaries have had mining."

"Everyone wants the stream clear, that is where we get our drinking water. Neighbor helping neighbor, miners above you have to be good neighbors."

Gold Creek trail

Concerns about the Gold Creek trail were mentioned by most placer miners interviewed. Issues ranged from the trail contributing to turbidity in Gold Creek to the ability of miners to continue to use the trail to the need for maintenance of the trail. It was mentioned by some miners that the trail had been moved from the creek bottom to the tundra above the creek where use disrupts the marshy tundra creating mud and loose soil that runs into Gold Creek, resulting in increased turbidity. Further, during high rains, materials from the road can run into the creek causing or adding to turbidity. Most of the miners interviewed were concerned about lack of maintenance of the trail, either by BLM or by not allowing miners themselves to maintain it. Some miners noted their willingness to help maintain the trail, others expressed frustration that BLM doesn't maintain it.

The Gold Creek trail

“The trail was moved off the creek bottom to the tundra and now [it is] a mess, material runs into the creek in places.”

“We don't get to do any improvements to the trail. Hard to keep runoff from going into creek. BLM doesn't allow us to make improvements, and they don't [make improvements].”

“[I] Want to be able to continue to use that road. Landslides that happen from further up the hillside. When you get these rain events that can lead to slips and slides that cross the road and could get into the stream. If BLM wants to maintain the trail better, could.”

“Can't use the road that you could drive up [the old road]. BLM said no, go up on the tundra. Now a bunch of trails, use it so many times turns into a mud hole because it is tundra. There would be no damage if we drove up the creek.”

Mining activity at Gold Creek

Placer miners noted that there is much less mining at Gold Creek than there had been in the past and believed that was due to increased regulations, paperwork or other barriers making it more challenging for small businesses to be able to work in the area. One miner was worried that agencies will use turbidity pollution standards to limit or prohibit mining at Gold Creek. Although most placer miners said that they wanted to continue mining at Gold Creek, some expressed concerns about whether they will be able to for a variety of reasons ranging from personal issues to not being able to get a permit.

Mining Activity

“Very little mining activity in the last three years.”

“My camp has really shrunk from the days with my grandfather. Now much smaller camp there. Dad got tired of doing paperwork, so he stopped [mining]. We moved everything. Starting up again now. Won’t necessarily or realistically will be as big as it was before. Different level of regulations. Not interested in that, way harder regulations. Will keep it fairly small.”

“Used to be more mining going on in the late ‘90s. . . Less and less mining. Since BLM put in their turbidity meters, no mining going on. Some permitting, but more nuances to it. . . . Eventually they [miners] will give up.”

Water quality monitoring and research

Placer miners raised concerns about water quality monitoring at Gold Creek, primarily related to the placement of the monitoring instrumentation. Some believed that the placement of the monitors was not based on a sound design and could potentially bias the results against mining operations. For example, one person observed that monitors were disproportionately placed near mining disturbance sites instead of representatively along the creek. Another person noted that the placement of the monitors would not help to pinpoint causes of turbidity. Overall, miners did not have a great deal of confidence in water quality monitoring of Gold Creek as it exists now. Some interviewees stressed that agencies should work with miners on placement of monitoring equipment and were interested in assisting agencies in making those decisions.

Monitoring

“Methods don’t make sense. No way to tie the water flow to the readings, don’t know where it is coming from, rain event? Turbidity readers not put in right, not rigorous.”

Interest in additional information, tools and training

The majority of the placer miners were familiar with DEC water quality informational handbooks and other training materials, and there were mixed reviews about the utility of them. Generally, interviewees did not express a need for any additional information, tools and training beyond what has already been produced. Interviewees noted that they had been in the business for a long time and are aware of what they need to do and how to do it. It was suggested that information and training would likely be helpful for new miners. For example, one person said that new miners could benefit from “training on how to build a settling pond or how to make a diversion.”



Relationship with agencies/trust

Most of the placer miners appreciated that DEC was asking about their knowledge and perspectives related to Gold Creek, but some were concerned that no action would be taken based on their input as that is what they had observed in the past. Further, interviewees noted frustration to varying degrees related to their relationship with government agencies and would like to see improvements. Suggestions made included making concerted and consistent efforts to build trust. Examples of how to do that included involving the miners in helping to define issues and identify solutions.

Relationships/trust

“Miners do have some responsibility but [should be] shared with the agency that gives them authorization to do something.”

“Been doing this for a quite a few years, in general what would help is if we look at this in a [holistic] scientific manner and figure out what is going on. Feels like BLM just wants to blame the miners. Made it look like I am responsible. Not saying miners don’t contribute but it is not only them. [There are] so few miners now. Most of the reclamation is holding up well.”

“Biggest issue is that no matter what recommendation made, [agencies] don’t listen. Will let this drag on for another thirty years.”

Placer Miners Suggestions for Improvement

The Gold Creek trail

Many of the suggestions for addressing concerns at Gold Creek were related to the Gold Creek trail. Numerous miners were concerned about the trail being previously moved to an undesirable place (i.e., above the stream on the tundra) and that it should be moved back to the stream bed. If moving the trail is not an option, alternative suggestions from placer miners can be broken down into three primary categories. First, placer miners noted that BLM could allow them to do some maintenance on the trail. Although some miners said that they were willing to do this maintenance, it was with the condition that they were not held responsible for overall conditions of the trail generally or of environmental impacts should maintenance not be effective. If trail maintenance was agreeable to both parties, it was noted that conditions related to trail maintenance be agreed to by both parties in advance. Second, it was suggested that it is the responsibility of BLM to maintain the trail similar to what they do on other BLM lands. One interviewee said that it would be difficult for BLM to maintain the trail because of its remoteness, often rapidly changing circumstances due to rain, and the fact that BLM cannot be on site much of the time. Third, a number of placer miners said that employing an engineering firm with appropriate experience in this or similar areas to identify appropriate mitigation techniques would be helpful and could also assist with erosion abatement and other issues. It was also noted that an engineer could help with identifying a more sustainable location for the trail.

Trail improvements

"[I have] proposed a couple of things. Brought up the question of the constant waterflow that comes down the trail, responsible for the down cutting. . . would need to put in water bars and line with rock and put in a sediment trap to minimize what gets into the river. Needs to be a four or five of them to take the water off in small enough volumes to minimize erosion. If I put them in, [however], BLM could hold me responsible for the conditions around the trail. Ignoring this problem is no way to manage our lands."

"Another one of the cases, as years went by, the trail ends up closer to the creek. BLM asked me if I would fix. What could I have done with all of that material? Where would it go? Suggest to BLM to get engineer to look at hill slip and see if they have a way to work with. I don't want to be responsible, needs to be moved. Not going to just push dirt into the creek."

"Would like to see some way for us to maintain the trail to a certain degree. One straight trail kills the tundra, just plain mud. If we could move it a little, it would be better."

Turbidity monitors:

Multiple miners expressed willingness to provide ideas for and even assist in monitoring activities at gold creek. Although some miners noted that they had discussed with agencies the location of monitoring instruments in the past, they said that it was apparent to them that their input had not been used or at least not to miners' satisfaction.



Monitoring

"If turbidity monitors [were placed appropriately] to look at all potential sources of turbidity, then I would have more confidence in the results. [I am] planning to be up there this summer, happy to point out some of these things and show exactly what I am talking about."

No intervention

As mentioned previously, most of the placer miners believe that an extreme environment, previous mining activity and/or climate change impacts are causing turbidity in Gold Creek at certain times, particularly after significant rain. These miners stress that there is nothing that can be done to change this reality. They believe that the impact of placer mining on water quality is negligible.

No Action

"If turbidity is naturally occurring, no way to change. Not going to change weather patterns, etc. . . some [of the issues] can be about mining but there hasn't been mining on Gold Creek (lately) so can't from current mining, must be from the past. Areas I have seen are reclaiming themselves very well."

"Realistically, I have no suggestions. Mostly natural. Miners are careful so don't know what to do to stop the banks from sloughing."

"... clear beautiful blue day, creek running muddy, creeks run muddy because it rained for a week and a half, doesn't quit being muddy immediately after the rain stops. Hills everywhere, water runs down hills bring mud into the creek."

How placer miners want to be engaged

The majority of placer miners interviewed want to stay engaged with agencies to some extent related to placer mining on Gold Creek as some noted that it “was in [their] interest to do so.” Although most people wanted to be kept informed via email or mailers, most noted that they are busy, so it is best to be as efficient as possible in terms of gathering information from miners and keeping in touch with them generally. Some noted that they are not that interested in engaging with agencies because they are not actively mining there now. Another interviewee expressed frustration in that he noted there has been some information gathering already and not much has changed in his opinion, particularly related to turbidity monitoring and issues related to the trail.

Interest in engaging

“Interested in staying in touch. Would be interested in how the issues are being approached...hope you are looking at it holistically.”

“Keep me posted.”

“Not interested, not really mining there. Very few people actively mining there now.”

When asked specifically about interest in participating in a Gold Creek placer mining working group, there was some, but limited interest.

Interest in Gold Creek placer miner working group

“Would be useful, don’t know how many miners will be up there. Only know of one other person that has a permit.”

“We have already done this, dedicated so much of my time and life on this to see nothing happen. No way going to start this all over again. Not going to spend more of my time on this without some solution.”

“Would be open to communication with others. Open to discussions with them. . . We don’t want to do anything to cause creek problems. Would be willing to be part of a working group.”

Conclusions

Interviews with Gold Creek placer miners were very informative and should be of value to DEC, BLM and perhaps other agencies in their efforts to address water quality issues in the watershed. General conclusions from the interviews are as follows:

- The seven placer miners interviewed for this project had a wealth of experience, knowledge and opinions about Gold Creek and shared them generously.
- Although most placer miners acknowledged that Gold Creek was turbid—and even highly turbid—at times, none recognized it a significant ecological or human health concern.
- Placer miners focused a lot of their responses on their perspectives about the cause of turbidity, most notably the natural conditions at the creek, climate change, and mining activity from the past.
- The primary concern placer miners had about turbidity in Gold Creek was the potential for a Category 5 designation to compromise mining opportunity.
- Placer miners expressed frustration about what some believed was a lack of serious attention to input from miners. This belief has contributed to a lack of trust of specific agency or agencies depending on the interviewee.
- There was a general perception that agencies are trying to “shut down” mining via increasing regulations or introducing other hurdles.
- Among the placer miners interviewed, there was little interest in new information/tools/resources, but it was suggested that these resources could be useful for new placer miners.
- Although placer miners wanted to stay informed by agencies and be asked their opinion, there was limited enthusiasm for a Gold Creek placer mining working group at this time.
- Most placer miners wanted to be engaged in addressing issues, some miners were particularly interested in providing assistance (e.g., with identifying monitoring sites, trail maintenance). Although the BLM study that is being initiated this summer (2022) was not mentioned specifically, this work could be a good opportunity to initiate monitoring collaboratively with miners’ and to continue to work through the project and results interpretation with them.

Considerations

Although the overarching focus of the interviews was to understand Gold Creek placer miners' perspectives on water quality issues, a wealth of information came from the interviews that should be of interest and value to agencies that have oversight of placer mining or related activities and impacts. Results from the Gold Creek placer miner interviews reveal a variety of options for agencies to consider in their efforts to add. The following are considerations for agencies as they move forward in thinking about next steps to address water quality or related issues in the Gold Creek watershed.

Focus on building trust and relationships

- It would benefit agencies and placer miners alike to initiate and maintain open and periodic communication to identify and address issues or misconceptions proactively versus reactively in the future. It was mentioned frequently in interviews that placer miners feel that their knowledge or ideas are not being taken seriously by agencies. It will be important to build trust by providing listening and learning opportunities to share information and discuss solutions to water quality and other related issues at Gold Creek. Working with miners to find mutually agreeable opportunities to visit sites unrelated to inspections could go a long way to create shared understanding and problem solving.
- Recognizing site visits may not always be possible, identify ways to meaningfully stay in touch and share information. For example, informal gatherings pre and post season to provide information, discuss concerns, monitoring needs, observations, etc. would be a way to stay in touch and exchange important information related to water quality and changes in the watershed. Periodic one-way communication such as email updates or mailings as needed is another way to keep in touch related to, for example, progress or results from turbidity monitoring.

Engage placer miners in actions

- Miners identified numerous ways that they could potentially be of assistance in understanding and addressing potential causes of turbidity. Some options include engaging miners meaningfully from conceptualization and design, for example of monitoring and other projects, all the way through to implementation and possibly data collection. Share results and provide opportunities to discuss the results, what observed inconsistencies could mean and potential ways to address issues. Placer miners could provide input on site location of monitoring equipment and participate in monitoring activities. As miners are present at sites much more than agencies can be, if willing and provided the necessary equipment and guidance, they could do water quality monitoring and recording of observations throughout the season collecting valuable information that otherwise would not be possible.
- Gather information and insight related to needed trail improvements. As possible, enlist the assistance of willing placer miners in trail mitigation (e.g., water drainage management) or other restoration activities (e.g., erosion control) as appropriate and as time and resources allow.

Next Steps

The results presented in this report offer important input to help agencies improve collaboration with Gold Creek placer miners related to water quality and other issues in which there is a common interest. This inquiry represents a solid step in helping to gather information and build trust, but much work needs to be done to ensure that mutually beneficial outcomes are achieved related to Gold Creek placer mining. Although frustrations exist, the incentives and benefits of working together is apparent to placer miners and agencies. Both DEC and BLM have heard a presentation of the interview results and have identified some near-term ideas that could help advance understanding of water quality issues and options for improvements as well as improve relationships between agencies and Gold Creek placer miners. Near-term actions include:

- Working collaboratively with placer miners on trail improvement. Note: BLM has an engineer going out this summer (2022) to look at landside issues
- Continuing to work with miners on monitoring equipment locations
- Providing miners with field data sheets so that they could capture observational data this field season to help inform agencies' water quality assessment
- Sending out an activity update “newsletter” to interested parties periodically to keep placer miners informed. Note: DEC plans on sending an update to Gold Creek placer miners this fall (2022)
- Agencies are interested in continuing to share information and otherwise engage placer miners in helping to address water quality issues in the Gold Creek watershed.



Appendix

Integrated Water Quality Monitoring and Assessment Report

The Clean Water Act (CWA) mandates that each state develop a program to monitor and report on the quality of its waters and prepare a report describing the status of its water quality. The relevant CWA sections are Section 305(b), which requires that the quality of all waterbodies be characterized, and Section 303(d) which requires that states list any waterbodies that do not meet water quality standards (WQS) (known as polluted or impaired waters). Alaska's Integrated Water Quality Monitoring and Assessment Report (Integrated Report) combines the information into a single comprehensive report.

Categories 1 and 2: Waters for which there is enough information to determine that water quality standards are attained for all or some of their designated uses.

Category 3: Waters for which there is not enough information to determine their status.

Category 4: Waters that are impaired but have one of several different types of waterbody recovery plans.

Category 5: Waters that are impaired and do not yet have waterbody recovery plans. Also known as 303(d) list impaired waters.

Impairment means that a waterbody persistently exceeds state water quality standards (18 AAC 70), usually determined after two or more years of water quality monitoring. DEC makes impairment decisions using publicly available listing methodologies. EPA has approval authority over waters moving into and out of Category 5, also known as the impaired waters list. Waters in Category 4 are also impaired but have an EPA-approved waterbody recovery plan.





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