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Draft 2021 ANNUAL REPORT

Basin Environmental Improvement Project Commission

May 2022

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Cover Photo, Overview of East Fork Ninemile Waste Consolidation Area

Executive Summary

The Basin Environmental Improvement Project Commission (BEIPC) is responsible for coordinating environmental remediation to address heavy metal contamination, natural resource restoration and water quality in the Coeur d'Alene Basin (Basin). The BEIPC also participates in guiding and coordinating infrastructure upgrades and improvements to protect the environmental cleanup remedy and enhance living conditions in the communities of the Basin. The Basin is defined as the watersheds of the Coeur d'Alene River (CDA River), Coeur d'Alene Lake and the Spokane River within the Idaho Counties of Shoshone, Kootenai, and Benewah, as well as the Coeur d'Alene Tribal Reservation within Idaho.

During Calendar Year 2021, the BEIPC coordinated and monitored accomplishments by various implementing entities for environmental remediation and natural resource restoration work included in the BEIPC 2021 Annual Work Plan and the five-year operating plan. It also developed a 2022 Annual Work Plan and an updated five-year plan. The environmental remediation work was performed through the federal Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA/Superfund) Program and the State of Idaho environmental cleanup programs, and actions under the direction of the Environmental Protection Agency (EPA) by the Coeur d'Alene Work Trust (Trust) formed under the ASARCO Bankruptcy settlement. Natural resource damage restoration work was performed by the Coeur d'Alene Basin Natural Resource Trustees (Restoration Partnership) including the Coeur d'Alene Tribe (CDA Tribe), State of Idaho Department of Environmental Quality (IDEQ) and Idaho Department of Fish and Game (IDFG), U.S. Department of Interior through the U.S. Fish and Wildlife Service (USFWS) and Bureau of Land Management (BLM) and U.S. Department of Agriculture through the U.S. Forest Service (USFS). The Panhandle Health District (PHD) continued to manage the Institutional Controls Program (ICP) to control the release and migration of contamination remaining in place after remediation.

BEIPC Overview

Authorization and Duties

The BEIPC was established by the Idaho State Legislature and implemented through a Memorandum of Agreement (MOA) among implementing parties.

The Basin is considered to be Operable Unit 3 (OU-3) of the Bunker Hill Mining and Metallurgical Complex Superfund Facility originally listed on the CERCLA National Priorities List in 1983. Operable Units 1 and 2 (OU-1&2) are the populated, industrial, and undeveloped areas in a 21 square mile area encompassing the communities of Pinehurst, Smelterville, Wardner, and Kellogg and outlying Shoshone County lands known as the "Bunker Hill Box" located within the Basin. OU-3 includes the remainder of the site outside the Box in the Basin where contamination has come to be present.

The BEIPC's primary purpose is to work with the EPA and IDEQ to implement the Interim Record of Decision (ROD) for OU-3 throughout the Basin and implement the Interim Upper Basin ROD Amendment (RODA) for portions of OU-3 and work in OU-2 included in the Amendment designed to advance the remediation of heavy metals contamination in the Upper Basin (confluence of the North and South Forks of the CDA River to the head waters of the South Fork above Mullan).

In addition, the BEIPC is involved in:

- Assisting the EPA in developing and managing the Superfund Cleanup Implementation Plan (SCIP), a comprehensive cleanup plan for the Upper and Lower Basins based on remedies selected in the OU-3 ROD and Upper Basin RODA,
- Coeur d'Alene Lake management planning and implementation,
- Heavy metal contamination remediation efforts at mining sites in the North Fork of the CDA River (NFCDR),
- Assisting the Restoration Partnership in the implementation of their natural resource restoration program as provided for in the CDA Basin Restoration Plan; and
- Leading multi-agency coordination in addressing potential flooding in the South Fork CDA River (SFCDR) and Pine Creek drainages.

Legislation and the MOA creating the BEIPC authorized appointment of a seven-member board comprised of:

- Four members from Idaho, one representing the state, and one each representing the county commissions from Shoshone, Kootenai, and Benewah Counties, appointed by the Governor of Idaho,
- One representative of the state of Washington appointed by the Governor of Washington,
- One representative appointed by the Council of the Coeur d'Alene Tribe, and
- One federal representative of the United States appointed by the President.

The Executive Director of the Basin Commission is Terry Harwood.

BEIPC Membership as of December 2021:

Name	Title	Representing
Philip Lampert	Benewah County Commissioner	Benewah County
Bill Brooks	Kootenai County Commissioner	Kootenai County
Mike Fitzgerald Chair	Chair Shoshone County Commissioners	Shoshone County
Hemene James	Tribal Member	Coeur d'Alene Tribe
Brook Beeler	Regional Director, Washington Dept. of Ecology	State of Washington
Jess Byrne	Director, Idaho Department of Environmental Quality	State of Idaho
Calvin Terada	Regional Superfund & Emergency Management Division Director EPA, Region 10	Federal Government

Program Management

The BEIPC operates in accordance with the Idaho statute and the MOA among the governing entities. It is responsible for coordinating the activities of federal, tribal, state and local government agencies implementing the ROD for OU-3 and the Upper Basin RODA for human health and ecological remediation activities. It is also involved in the efforts by the Restoration Partnership to restore natural resources in accordance with their CDA Basin Restoration Plan and to coordinate efforts to protect the cleanup remedies, human health, and the environment from the release and migration of contaminants through the implementation and management of Institutional Controls in the Basin (ICP).

The Executive Director (ED) works with the seven governmental entities and their agencies to establish annual work priorities and operating plans, manages the activities and programs of the BEIPC, and assists governments on various engineering and environmental issues at their request. To assist the Executive Director in program management, planning, and implementation, volunteer staff "on loan" to the BEIPC from the states of Idaho and Washington, the EPA, the Coeur d'Alene Tribe and the Counties coordinate with the Executive Director and provide routine intergovernmental input on technical and policy issues. Other support groups include the Technical Leadership Group (TLG) and the Citizen Coordinating Council (CCC).

Technical Leadership Group (TLG)

The TLG with its Project Focus Teams (PFTs) is the BEIPC primary technical advisory group. It is comprised of federal, state, local and tribal representatives as well as interested private citizens serving on the PFTs who provide expertise in science, engineering, logistics, regulatory aspects, and land management in the Basin. The TLG advises the BEIPC on work planning and implementation while striving toward consensus-based recommendations. In 2021`, the ED and TLG developed the 2022-2026 Five-Year and Calendar Year 2022 draft work plans and studied and developed project and program proposals to implement the remedy in OU-2 and 3.

Public Outreach and Citizen Involvement

Community Involvement

During Calendar Year 2021, all BEIPC meetings were held virtually because of the COVID situation. The August field trip was cancelled. The BEIPC maintained an up-to-date Basin website at: **www.basincommission.com**. Meeting information was announced on the website, in local newspapers, flyers posted throughout the community and at the BEIPC office in Kellogg, Idaho. The BEIPC also participated in public education/outreach efforts. The joint information booth at the North Idaho Fair was provided but not occupied for public contact.

Citizen Coordinating Council (CCC)

The CCC serves as an information conduit to and from the BEIPC on citizen, community, and special interest issues, and on environmental cleanup and restoration concerns. It is comprised of politically and geographically diverse members and was established to provide local citizen review and input on Basin related work to the BEIPC.

CCC Meetings and Communication

The CCC facilitated communications to its members and the public on an as-needed basis by e-mail, flyers, newspaper ads and posting to the BEIPC website and EPA Facebook.

In 2021, no CCC meetings were held due to the COVID situation. Throughout 2021, the CCC arranged for transmission of information to its members and the public regarding activities in the Basin.

Chronology of Selected CCC Activities and Input to the BEIPC in 2021

In addition to receiving various reports for review and comments, CCC members were involved in the following BEIPC activities in 2021:

October
The draft 2022 Annual Work Plan and 2022-2026 Five Year Work Plan were provided to CCC members and other interested parties for comment prior to completing the final draft documents by posting them on the BEIPC web site for consideration and approval by the BEIPC at the November virtual meeting.

November
At the November virtual BEIPC meeting, the CCC Chair reaffirmed that the CCC would continue to concentrate on holding special meetings when possible to discuss specific issues and keep the CCC members informed of activities through the use of the extensive mailing list maintained at the BEIPC office.

Additional Outreach Activities

In addition to the activities of the CCC, the various governmental entities represented by the BEIPC continue to support the TLG and CCC by being involved in the activities of those groups. The governmental entities have been involved in outreach activities including meeting with citizen groups, giving technical presentations, participating in Basin events, holding tours of Basin project areas, maintaining information posting throughout the Basin, and publishing various information documents to provide updates on Basin activities and to give answers to common environmental cleanup and improvement questions.

As part of the public outreach program, the Basin Commission ED continued to make numerous presentations to local business and community groups concerning activities of the BEIPC and planned cleanup actions and activities required to protect the remedy, human health, and the environment.

North Idaho Fair Booth

BEIPC Communications and Public Involvement

In 2021, the BEIPC continued its efforts to maintain public involvement in spite of the COVID situation concerning BEIPC activities and communication between the Basin community, the BEIPC and agencies involved in the cleanup. The CCC continued to be the focus organization to help implement this process.

The following is a partial list of BEIPC and ED community involvement activities throughout the year:

- ED assisted EPA R-9 on issues concerning sites in Nevada in February.
- ED met with South Fork Sewer District in March to discuss remedial work in the Basin and potential interfacing with some of their work.
- ED met with IDEQ Director and State Legislators to update them on BEIPC activities in June.
- ED met with Silver Valley Transportation Team numerous times to update them on Superfund activities in the Silver Valley and impacts on transportation facilities.
- ED met with Idaho Senator's Crapo's staff for a meeting and tour of sites in the Upper Basin in August.
- ED attended meetings of the Idaho Four Counties Natural Resource Committee in September, October, November, and December to update them on Cleanup actions and discuss other topics of concern.
- Assistant publicized BEIPC and CCC meetings by posting the dates and agendas to the BEIPC website, newspaper advertising, and through electronic media and distribution of informational flyers with assistance from EPA and IDEQ.
- Assistant sent out reports and activities updates, CCC and BEIPC meeting notices as well as BEIPC work plans to CCC members by email for review and comment.
- Assistant shared BEIPC related information with the Community Involvement Coordinators (CICs) of EPA, IDEQ and the Lake Management Plan (LMP) staff for publication on their Facebook pages.
- Assistant continued to populate the BEIPC website with new information about BEIPC related activities and other information as requested by various agencies and advisory groups. The website provides information to keep the public informed including how to become involved and participate in the process; and opportunities for the community to provide input. Updates, including agendas and summary minutes of quarterly meetings, are posted to the website at **www.basincommission.com**.
- ED worked with BEIPC Consultant, U.S. Army Corps of Engineers (ACOE), FEMA and the local Flood Group concerning remapping of flood zones in the South Fork CDA River channel from Elizabeth Park to Pinehurst. BEICP funded some of the Consultant work.

EPA Community Involvement Activities

EPA Region 10 makes coordinating with local communities and residents a priority. The cleanup team wants to give people meaningful opportunities to be involved in and informed about the cleanup. Many of EPA's community involvement activities are done in partnership with others, including the IDEQ, BEIPC, and PHD. Despite the continuing challenges posed in 2021 by the COVID-19 pandemic, we're pleased to report another productive year of important community involvement accomplishments in the Basin. Highlights include:

- EPA continued to follow its Community Involvement Plan for the cleanup: https://semspub.epa.gov/src/document/10/100137919. The plan lays out how community members can get information and be involved, and summarized local concerns and input. It also outlines how EPA collaborates with its partners. Many local people helped develop this plan.

- EPA is continuing to partner with IDEQ and Panhandle Health District to increase public health messaging and education related to limiting exposures to heavy metals. New health signs continue to be posted around areas commonly used for recreation. Well over thirty signs have been posted.

- The agency, in coordination with its partners, conducted outreach on several projects this year, distributing flyers locally: Canyon Complex Repository/Waste Consolidation Area; Work starts up again: Theater Bridge Area cleanup, Ninemile Basin seasonal cleanup activities, Canyon Creek Basin seasonal cleanup activities, Douglas Mine and Mill Site sampling, Trucks will resume hauling to Lower Burke Canyon Repository, and Sampling at Highway 3 Bridge. Outreach was also conducted for lead health education; the Bunker Hill Central Treatment Plant/Groundwater Collection System Project; soil testing and property cleanups; recreation and health; repositories; habitat restoration; roads projects; and more.

- The agency produced two longer, more detailed flyers: 2021 Construction Season Preview, which gave a forecast of the cleanup activities sitewide, and Central Treatment Plant/Groundwater Collection System: Improves Water Quality. These were distributed through email, social media, and EPA's project webpage.

- Two fact sheet mailers were sent to about 2,400 Lower Basin residents: Questions and Answers about sampling at Lower Basin properties and looking ahead: Dudley Reach Riverbed Project.

- EPA completed its fifth Five-Year Review for the Bunker Hill Superfund Site. We posted the final report on the CDA Basin FB page and the EPA project webpage. We notified communities and partners through email and public notices in local newspapers. EPA is required to review Superfund cleanups at least every five years at sites where contaminants remain in place. We use the review to make sure cleanup actions are protecting human health and the environment.

- The **Coeur d'Alene Basin Facebook** page continues to provide site updates to the public. Find it at **www.facebook.com/CDAbasin**. The page offers site news, photos, and resource information. The EPA invites participation, suggestions, and postings.

- Publication of EPA's **Basin Bulletin** newsletter continues. Published three times per year, in March, July, and November, it provides news and updates about the Coeur d'Alene Basin Cleanup.

- The agency maintained its commitment to the BEIPC process throughout 2021. EPA provides staff support and regular participation at meetings of the BEIPC, CCC, and TLG. This year, due to the continuing COVID-19 pandemic, BEIPC quarterly meetings were held virtually, and the August tour of select cleanup projects was cancelled.

- EPA continues to maintain the website for the Basin Cleanup. It offers the public access to updates, site documents, and background information. Suggestions for improvements are always welcome. (Website URL: www.epa.gov/superfund/bunker-hill)

- EPA maintains document collections related to the cleanup at several area libraries and at the EPA Coeur d'Alene Field Office for public access.

- Project managers met several times with local officials, interest groups, and others to provide updates and answer questions in 2021.

- EPA regularly worked with the media in 2021, arranging a number of press availability sessions, fielding questions from reporters about the site, running newspaper display ads, and issuing press releases on high-interest activities.

IDEQ and Panhandle Health District (PHD) Community Involvement Activities

IDEQ and PHD conduct education, public engagement, and health awareness activities related to the CDA Basin cleanup. Kellogg PHD is the primary partner for health messaging and outreach through the Lead Health Intervention Program. The aim is to raise awareness about lead intervention and to support the continuation of healthy trends for children, families, and visitors to the area.

Due to measures taken to help prevent the spread of the COVID-19 virus, PHD followed the CDC guidance and most public outreach, and education activities were postponed, canceled, or altered to accommodate the current CDC guidelines. The focus shifted to other methods of outreach.

The following are highlights of 2021 activities:

- Assisted the Confluence Project with Snow Science Field Trips at Lookout Pass. High Schools who participated included: Wallace, Lake City, Lakeland
- Conducted an online ICP course for the University of Idaho's Annual Safety Fest (this event was held online only due to COVID-19 restrictions)
- Conducted the ICP class for Kootenai Electric
- Presented to new Nurse Practitioner for Panhandle Health District
- Restocked Play Clean Brochures in local laundromats and other public locations
- Attended Idaho's Lead Advisory Committee Meetings, gave updates on outreach, events, and future activities
- Attended Kootenai Shoshone Conservation District Meeting
- Presented to Environmental Science students at Coeur d'Alene High School
- Presented for the West Valley Outdoor Research Center via Facebook Live
- Arranged for Public Service Announcements from May 3 to August 29, 2021, three times a day on KPND-KTPO-FM, KICR-KIBR-FM through Blue Sky Broadcasting and twice a day on KXLY and KZZU through KXLY Radio Group
- Assisted The Confluence Project at Lake City High School to prepare for the Youth Water Summit

- Superfund Site Tour for Environmental Health Specialists from PHD
- Presentation on site history and ICP to Silver Valley Realtor's Association
- Attended Silver Valley Chamber meeting to give updates on 2021 remedial activities
- Put together 900 SWAG bags and distributed to 9 schools throughout the Silver Valley and Medimont
- Put together mailer on behalf of the Rec Site Group for the lower basin properties located near/on beach fronts
- Lead a Coeur d'Alene High School Field trip to the Silver Valley
- Assisted with the Youth Water Summit
- Presented to Wallace High School
- Attended Health Services Advisory Committee Meeting/Mountain States Early Head Start and NIC Head Start
- Kootenai Environmental Alliance Superfund Site Tour
- Attended PHD Health Promotion/Nutritional Services Meeting, gave updates on outreach and events
- Hosted Booth at the Kellogg Community Market
- Hosted Booth at Silver Hoops 3 on 3 Basketball tournament in Kellogg
- Advertised and put together informational bags for Panhandle Health District's Annual Blood Lead Screening Event
- Set up a booth at the North Idaho Fair. The booth was unmanned this year, so replenished it daily with materials for the public.
- Provided nailbrush, lunch containers and Health Living in the Silver Valley brochure for Shoshone Medical Center Kid's Health Fair bags (300 total)
- Provided bags for new and existing tenants at The Canyon Side Apartments in Burke and each child living in the complex
- Provided bags to include with boxed food provided by the Community Action Network (food bank) in Kellogg
- Water quality field trip with The Confluence Project for Timberlake High School, Kellogg High School, and Lakeland High School science students
- Water quality and Bunker Hill Superfund Site field trip with The Confluence Project for Coeur d'Alene High School and Wallace High School science students
- Provide the WIC program with customized information about raising a child in the Bunker Hill Superfund Site Safely
- Presented to Local Realtors based out of the Silver Valley
- Guest appearance on North Idaho News Podcast
- IDEQ, PHD, and Hecla staff presented on remedial work, ICP, and mining in the Silver Valley for CDA Leadership Day
- Presentation for SEEP on upgrades to the Central Treatment Plant, Groundwater Collection System, and IDEQ's takeover of Operations and Maintenance
- Site Tour with Senator Crapo's staff
- Posted flyers for EPA's summer work in Canyon Creek, Nine Mile Basin, Theater Bridge Area Cleanup (IDEQ lead), Douglas Mine and Mill Site, Trucks Hauling to Lower Burke Canyon Repository, and the Canyon Complex Repository/Waste Consolidation Area.
- Disbursed Basin Bulletin and EPA project updates throughout site. EPA released three Basin Bulletins in 2021: March 2021, July 2021, and November 2021.

- Provided brochures and information at the Cataldo Mission State Park Visitor Center
- Presentation given to students at the Gonzaga School of Nursing
- Presented to Kellogg High School Science class
- Presentation given to AVISTA's regional environmental team.
- Met with Panhandle Health District Epidemiology Team to review CDC changes to blood lead reporting levels
- Provide full day, guided tour to U of I staff and members of the Idaho Conservation League.

Sample of Various Outreach Items

Calendar Year 2021 Work Accomplishments

Part 1 -
Work Performed Through Federal Superfund or Other Cleanup Programs:

Lead Health Intervention Program

Screening of children for elevated blood lead levels has been occurring annually in the CDA Basin since 1996. For children with elevated blood lead levels, follow-up consultations from a public health professional are available through the Lead Health Intervention Program to assist families with identifying ways to reduce lead exposures. The screening program also informs the Basin cleanup efforts, although cleanup decisions are not based on annual blood lead testing results. The goal is to prevent lead exposures that could result in elevated blood lead levels.

The following table shows the Basin Blood Lead summary results from 2017 – 2021 for children residing in the Basin 6 months to 6 years of age.

Year	2017	2018	2019	2020	2021
Number of Children	105	88	84	4	19
Min (µg/dL)	1.0	1.4	1.9	1.9	<1
Max (µg/dL)	20.0	9.0	14	6	7
Ave (µg/dL)	4.3	2.4	2.5	3.5	1.9
GeoMean (µg/dL)	3.5	2.0	1.9	3.1	1.5

In 2012, the Centers for Disease Control & Prevention (CDC) established a "level of concern" associated with childhood lead poisoning with a "reference value" of 5µg/dl. On October 28, 2021, the CDC lowered the blood lead "reference value" (BLRV) from 5.0 µg/dL to 3.5 µg/dL. The Panhandle Health District (PHD) lead health screening was held in August of 2021 and therefore used the 5ug/dL BLRV applicable for that time. For future screenings the new lower value means that more children will be identified as having lead exposure allowing parents, doctors, public health officials, and communities to act earlier to reduce the child's future exposure to lead.

For 2021, PHD held the blood screening as an appointment only event to follow CDC's Covid-19 pandemic guidelines. This allowed PHD to limit the number of individuals being screened at one time to provide for appropriate social distancing. In addition, PHD took additional precautions by requiring attendants 4 years and older to wear masks. Staff also sanitized all surfaces and workspaces between each client. PHD did notice a decline in the number of participants using the appointment only method versus previous walk-in screening events.

When an individual is identified with an elevated blood lead, it is recommended their physician be notified and PHD will make an appointment for a home visit to identify potential sources of exposure in and around the home. These in-home consultations help PHD, and individual families identify ways to reduce

exposure risks. In addition, PHD can help identify potential exposure pathways that the cleanup project can address to prevent future lead exposures.

In addition to the 19 children between 6 months to 6 years of age screened in the Basin, 8 individuals over the age of 6 who reside in the Basin also received screenings through PHD. The average blood lead level (BLL) in this group was 2.4µg/dL. In the Box, 38 children between 6 months to 6 years received screenings through PHD in 2021, with an average BLL of 1.5 µg/dL. Additionally, 13 individuals over the age of 6, who reside in the Box were tested and the average BLL of that group was 1.0 µg/dL. An additional 25 children participated and had capillary test results only, 24 of which were below the detection limit (less than 3.3 ug/dl).

PHD will continue to offer free blood lead screening for residents living within the Bunker Hill Superfund Site boundaries year-round. In addition, PHD is planning to conduct its annual summer screening in 2022 with a $40 incentive for children between ages 6 months to 6 years of age residing within the Basin.

During 2022, the Lead Health Intervention Program will continue to offer the additional services:

- Year-round blood lead screening and follow-ups
- In-home consultations for individuals with elevated blood lead
- HEPA vacuum loan program for cleaning residences
- Education, outreach, and awareness for parents, children, community members, recreationalists, and visitors
- Education classes in local schools for grades K-12
- Annual Environmental Science and Health Fair
- Education and outreach at community events
- Sampling of soil, dust, paint, water, and other media as appropriate

Basin Property Remediation Program (BPRP)

The CDA Trust BPRP Program collected a total of 88 soil samples from 4 residential properties and one right-of-way (ROW) throughout 2021. In addition, five private drinking water system samples were collected from one property.

The CDA Trust BPRP Program completed remediation of one residential property and one ROW for a total of 0.04 acres in 2021, which resulted in five truckloads of waste that was disposed of in repositories. The construction season started on August 16th and finished on August 17th.

At the commencement of 2021, the CDA Trust continued to maintain six existing reverse osmosis under-sink water filtration systems treating drinking water from private sources. At the request of the landowner, removal of the system occurred in 2021 for the 7th installed system. This system will be re-installed if future owners' request.

At the conclusion of the 2021 field season, properties remaining to be sampled and/or remediated in the Upper and Lower Basin are those whose owners have refused access, or who have not responded to repeated contact attempts by the CDA Trust and IDEQ. At the conclusion of 2021, a total of 3,928 properties have been remediated in the Upper and Lower Basin.

IDEQ did not complete any remediation in the Box this year, as there was not any transfer of ownership or change in access status for the remaining refusal properties. Nine Box properties remain to be remediated once owners grant access. At the conclusion of 2021, a total of 3,236 properties have been remediated in the Box.

Contaminated Waste Disposal and Management

Introduction

Contaminated waste disposal and management is an ongoing process that must meet the demand for the disposal of historic mining related contamination for the entire Basin environmental and human health related remediation program. The contaminated waste management program currently includes a three-part approach to dispose of waste material generated by the BPRP and other remedial actions performed by EPA through the Trust or IDEQ; and waste generated by private parties and local government agencies under the Institutional Control Program (ICP) managed by PHD. Without the expansion of existing disposal facilities or the construction of new facilities, continued remediation and control of contamination could be compromised and potentially stopped.

Facilities to accommodate disposal of waste from remedial and ICP activities are engineered and constructed to reliably contain materials and prevent contaminants from being released to surface water, groundwater, or air in concentrations that will cause state and/or federal standards to be exceeded. Facilities in current use and development include Repositories that are large, centrally located areas within the Upper and Lower Basin where contaminated soil and material excavated during remediation and ICP actions are transported to be managed and secured. The second current approach is the use and development of Waste Consolidation Areas (WCAs) in the Upper and Lower Basins, located adjacent to or near the waste source areas, serving for consolidation or placement of wastes from specifically identified sources such as mine and mill site remedial actions. The third approach involves the Community Fill Plan

(CFP) developed in recognition that the ICP allows use of contaminated soils for fill material to create more developable ground in the Upper Basin. Its use taking place under agreement between a generator and a property owner with space for fill approved by the PHD in compliance with the ICP and with the approval of EPA and IDEQ for any CFPs proposed to dispose of 5,000 cubic yards (cy) or greater.

Five Repositories were operated to receive remedial action and ICP waste in the 2021 field season. Big Creek Repository (BCR) and Big Creek Repository Annex (BCRA) near the community of Big Creek and Lower Burke Canyon Repository (LBCR) serve the Upper Basin, and East Mission Flats Repository (EMFR) near Cataldo serves communities in the Lower Basin. The Page Repository, located near Smelterville receives the ICP and remedial action wastes generated by the cleanup activities conducted in the "Box." EMFR, BCR, BCRA and LBCR are operated by the Trust. Page is operated by IDEQ. Both IDEQ and the Trust directed waste to the repositories to minimize transportation distances and costs. In addition, the Page Repository continues to use recycled construction materials extracted from Basin and Box waste streams which helps to further reduce repository operating costs. A summary of activity at each site is described in the sections below.

Big Creek Repository

- During 2021, BCR received waste from BPRP and ICP. Waste streams delivered to BCR were placed on the east slope of BCR.
- The water quality monitoring program at BCR found operations have not impacted adjacent surface or ground waters.
- The year-end repository shutdown activities have been completed and include:
    - All road surfaces were graded and sloped inward to collect runoff to capture runoff and prevent ponding.
    - Waste was graded and sloped inward to collect runoff to capture runoff into roadside ditches.
    - Mulch Berms were added where silt fence was removed along the east slope during tree removal (downed trees from January's 2021 severe windstorm).

- In 2021, BCR received 201 cy from the ICP, for an estimated 670 cy of waste placed. At the end of the 2021 construction season, the BCR contained approximately 641,005 cy of waste soils. BCR currently has approximately 90,502 compacted cy of capacity left for disposal. The ICP area will be managed by the Trust's Operations Contractor during the winter closure period. Prior to spring runoff, all ICP waste resulting from winter operations will be transported and stockpiled on top of BCRA repository for processing and future placement and compaction.

Big Creek Repository Annex

- In 2021, BCRA received 49 truckloads from the ICP, for an estimated 490 cy of waste placed. BCRA currently has approximately 169,471compacted cy of capacity left for disposal. Operation of the Annex capitalizes on the use of the existing infrastructure at BCR such as the main entrance and wash station.

Lower Burke Canyon Repository

During 2021, LBCR received 921 truckloads from the ICP for a total waste placement of 5,730 cy. LBCR currently has approximately 1,042,975 compacted cy of capacity left for disposal. The year-end repository shutdown activities have been completed and include:

- Stabilize slopes by track walking.
- Create low area sump near decontamination pad to ensure that runoff from the asphalt area is contained on site.
- Construct drainage swale around south end of fill limits to collect any runoff during rain on snow events.
- Crown center of waste area to encourage drainage to runoff collection ditches.
- Install additional storm water management controls including straw waddles, shredded wood, and silt fencing on steep slopes to further protect against erosion.

Lower Burke Canyon Repository Waste Material Placement

East Fork of Ninemile Creek Waste Consolidation Area (WCA)

During 2021, the EFNM WCA received 40,500 cy of waste from remedial actions in EFNM drainage resulting in a compacted volume of 35,808 cy. The total volume of material placed in the WCA to date is approximately 678,083 cy. Temporary cover materials were placed over the contaminated waste rock and mine tailings at the WCA prior to winter shutdown.

Design work was also completed this year for the Phase 2 Final Cover and Final Expansion for the WCA. The final cover will be installed over a completed portion of consolidated waste, and the expansion will increase capacity at the WCA to allow placement of approximately 580,000 cubic yards of contaminated waste rock and mine tailings from upcoming EFNM projects.

To date, the East Fork WCA site has generated approximately 200,000 cubic yards of rock and 250,000 cubic yards of soil for East Fork Ninemile Creek Remedial Actions. This has saved the project approximately $8.4 million and significantly minimized traffic through local communities.

Canyon Complex Repository and Waste Consolidation Area (CCR/WCA)

Construction continued in 2021 on the CCR/WCA which is located southeast of the LBCR. This site is being developed in order to receive waste from source remediation sites and other mine remediation areas. In 2021, approximately 638,000 cy of contaminated materials were excavated from the existing Silver Valley Natural Resources Trustees (SVNRT) Repository and placed into the new CCR/WCA. The SVNRT Repository was constructed in 1995 and had contaminated springs leaking from the base of the Repository which necessitated the removals completed in 2021.

Construction of Canyon Creek Waste Consolidation Area

East Mission Flats Repository

In 2021, the EMFR repository received 221 truckloads from the ICP. Final in-place, compacted volume calculated from the truck load count was about 5,700 cy. EMFR currently has approximately 162,660 compacted cy of capacity left for disposal. The ICP disposal area will be available at the east end of EMFR to receive ICP waste during the winter closure period and managed by the Trust's Operations Contractor. Prior to spring runoff, all ICP waste will be transported and stockpiled on top of the repository for processing and future placement and compaction.

Semiannual groundwater monitoring was conducted at six monitoring wells located on or near EMFR. Groundwater and surface water monitoring results indicate that disposal activities have not impacted water quality near the site.

Page Repository

Early in 2021 cell# 3 was completed at the Page Repository to allow for waste placement during the 2021 construction season. Cell #2 was regraded to improve stormwater management and construction of cell #4. Page Repository received 1,952 truckloads of ICP waste and 268 loads of remedial action waste in 2021. The total estimated volume of material placed at Page in 2021 based on the year-end survey was 17,844 cubic yards.

Additional Disposal Locations

In addition to the operational repositories, an additional area for future disposal and permanent storage of mining related contamination is currently being considered. The repository site selection process initiated in 2008 culminated in the identification of two new repository sites in the Upper Basin; the Osburn Tailings Impoundment (OTI) near Osburn and the LBCR. LBCR is currently accepting waste and the Osburn Tailings Impoundments will be considered for use in the future depending on disposal needs.

Mullan ICP Transfer Station

The transfer station ensures that future local ICP wastes get disposed of in an engineered facility (e.g. BCRA or Lower Burke Canyon Repository), and local ICP users can continue to use the facility as they are currently accustomed. The Disposal Area was capped and left for Mullan City to maintain. The transfer station will only accept ICP waste from Mullan residents. The Trust will operate the transfer station for the foreseeable future. In 2021, 18 truckloads of waste were transferred from the Mullan Transfer Facility to LBCR.

Upper Basin Remedies

Remedial Actions in East Fork Nine Mile Creek (EFNM), Canyon Creek and Pine Creek

In 2021, investigations/remedies in the EFNM Creek Drainage consisted of the following:

- Operations and maintenance (O&M) of the Interstate Callahan Mine Rock Dumps, the Success Mine Complex, Interstate Millsite and Rex Mine No. 2/ Sixteen-to-One.
- Operation of the EFNM WCA.
- Continued surface water monitoring in EFNM Basin.
- Completion of the Lower EFNM remedial action.
- Completion of the design for the Dayrock Complex to support future remedial action.
- Conducting characterization and sampling activities in the Ninemile Creek riparian area downstream of the Dayrock Mine.

The following summarizes the 2021 construction activities conducted in the EFNM Drainage:

- Approximately 40,500 cy of contaminated waste rock and mine tailings were hauled from the upper portion of the EFNM Riparian Site and placed and compacted at the EFNM WCA. In addition to the removal of mine waste rock and tailings there was approximately 1185 feet of Stream Channel that was re-constructed at the upper portion of the LEFNM site.

Completed Remediation of Section of Lower EFNM Drainage

Construction of Fish Passage Structure in Lower EFNM Drainage

In 2021, investigations/remedies in the Canyon Creek Drainage consisted of the following:

- Conducting characterization and sampling activities at the Gem Complex (4 sites), Standard Mammoth Reach (13 sites), Black Bear/Flynn Mines, and at several other RODA sites located in the upper reaches of Canyon Creek including the Marsh Mine, Oneill Gulch Unnamed Rock Dump, the Canyon Creek Garbage Dump, and the Ajax No. 3.
- Continued surface water monitoring in the Canyon Creek Basin.
- Construction of the third of four years of remedial action and WCA development for moving and disposing of the waste material in the existing SVNRT repository.
- Continued development of the Canyon Creek Quarry (CCQ). The CCQ will supply clean aggregate materials to CCR/WCA as well as other future Canyon Creek remedial action projects.
- Continued design for the Star Complex to support future remedial action.
- Began design for the Tamarack No. 7 site to support future remedial action.

In 2021, investigations/remedies in the Pine Creek Drainage consisted of the following:

- Completion of the design for the Douglas Mine Complex to support future remedial action.

Central Treatment Plant (CTP) and Groundwater Collection System (GCS)

- In October 2021, after over four and a half years of design, construction and testing EPA and the U.S. Army Corps of Engineers (ACOE) finished upgrading the CTP and installing a GCS designed to capture metals from the highest single source to the South Fork Coeur d'Alene River (SFCDR).

The upgraded CTP will also improve treatment of acid mine drainage coming from the Bunker Hill Mine. Recent monitoring indicates that the new system is already successfully removing over 99 percent of zinc in the influent and meeting current discharge criteria. On October 22, 2021, IDEQ took over operations and maintenance of the CTP/GCS, using funds provided from the Hecla settlement. As described below, design, construction and operation of the CTP/GCS was a multi-step collaboration between EPA, ACOE and their contractor, and IDEQ.

- The USACE awarded the Design/Build/Operate Contract to AMEC/Foster Wheeler (AMEC) in 2016 and issued the Notice to Proceed on Feb 2, 2017. Prior to commencement of work AMEC was acquired by Wood. Wood assumed the responsibility for the continued operation of the existing CTP during design, construction and for one year after the completion of the upgrades to the plant and construction of the GCS. Wood responsibilities included design and construction of the CTP upgrades, new GCS, and new lined Sludge Impoundment on top of the Central Impoundment Area (CIA). The ACOE was charged with administration and management of the contract.

- The GCS portion of the project includes an approximately 8,000-linear feet by approximately 35 feet deep soil bentonite cutoff wall (cutoff wall) between the CIA and Interstate 90 (I-90), nine extraction wells equipped with pumps and instrumentation for measuring water elevation, discharge pressure, and discharge flowrate; a network of observation wells with instrumentation for measuring water elevation; and a system for conveying water from the extraction wells to the CTP. An additional three extraction wells were installed but were not put into service due to lower than anticipated well yield. An automated data acquisition system monitors water levels and extraction flow rates and controls pumping rates to maintain groundwater levels in select wells at specified elevations. Wood closed the remaining gaps in the cut off wall in June 2020 and GCS testing continued throughout the summer as part of the integrated testing of the facility.
- The Upgraded CTP includes a stand-alone sludge thickener, new computer maintenance and management system, seven vessel filtration system, new discharge line to the SFCDR and new flocculant system.

- Concurrent with ongoing completion of remaining construction and site restoration activities, Wood began the lengthy testing and commissioning phase in January 2020. This included, but was not limited to, factory acceptance testing, construction acceptance testing, and equipment and system testing of each component prior to testing the integrated CTP and GCS facility. The CTP testing included two phases of peak capacity tests; the first phase occurred during summer base flows and the second phase occurred during 2021 spring high flows. The commissioning phase in 2020 also included a series of pump, well, and aquifer tests for the GCS. This included individual well tests, compensating wells tests, and combined well tests. The second series of combined well tests were performed during 2021 spring high flows.

- Wood continued operations of the CTP and GCS in 2021 after reaching a significant milestone by starting the one-year Operations and Maintenance (O&M) period on October 21, 2020. The purpose of the one-year O&M phase was for the contractor to continue operations of the upgraded facility through a full year, and through the various seasonal and influent flow/quality conditions to proof out the system and to implement and incorporate any necessary system and/or operational revisions.

- During the one-year O&M period, IDEQ completed the contracting and selection process for the follow-on operations contractor. Once selected, Wood provided formal training on all systems to the follow-on contractor.

- As noted above, the final major milestone was reached in October 2021 when EPA officially transferred operation of the CTP/GCS to IDEQ to be operated by their follow-on operator using funds from the Hecla settlement set aside for IDEQ to operate the GCS/CTP. This transition occurred smoothly even as Wood finished up final punch-list items such as coating the inside of the mixing basins, which required a short shut-down period in December 2021.

- EPA and IDEQ continue to monitor the performance of the GCS. This includes SFCDR water quality in the vicinity where historic seeps had been observed prior to construction and visible sediment plumes were discovered in the river in December 2018 after the cutoff wall was constructed. No seeps have been observed since the GCS started full operation in March 2020. As part of the Basin Environmental Monitoring Program (BEMP), EPA will continue to monitor groundwater and surface water quality to evaluate the long-term effectiveness of the remedy.

- The CTP upgrades are necessary to treat additional influent flow from the GCS, improve system reliability, meet current more stringent discharge requirements, and operate in High-Density Sludge (HDS) mode. These upgrades have been necessary for some time to provide dependable and more efficient water treatment of the Bunker Hill Mine water, and the groundwater collected from the GCS near the CIA. The Bunker Hill Mine water has been and continues to be treated at the CTP.

  The upgraded CTP is sized to treat influent flows at rates that nearly triple the current rate of base flows from the Bunker Hill Mine. Excess flow from the Bunker Hill Mine will be diverted to in-mine storage. The upgraded plant when operating in HDS mode will result in much less sludge production, more efficient operating conditions, and the need for fewer sludge ponds being constructed over time. Following treatment, the effluent discharged from the CTP to the SFCDA River must be in compliance with current water quality standards.

- On an average basis the upgraded CTP and GCS, as selected in the RODA, will result in significant removal of dissolved metals, the most notable of which is zinc that is currently being discharged to the SFCDR from groundwater interaction. Historic estimates of loading to the SFCDR range from 150 to 450 lbs/day but there is a significant unknown about the potential source of metals that may not be captured by the GCS. Base flow/strength typically occurs in late summer or early fall and maximum flow/strength typically occurs during spring runoff. It will take several years to observe the seasonal and annual variability and effectiveness of the remedy.

Upgraded Central Treatment Plant

Lower Basin Remedies

The cleanup described in the 2002 OU-3 ROD for the Lower Basin includes actions for the wetlands and lateral lakes, the riverbanks, splay areas, and riverbed. These remedial actions, envisioned primarily as pilot studies, are being evaluated for implementation under the 2002 OU-3 ROD. The objectives of remediation in the Lower Basin include reducing risks to human health and wildlife by reducing exposure to particulate lead and improving habitat quality in the CDA River system. Remedies that address human health or ecological exposure, coupled with continued evolution of our understanding of sediment transport and recontamination in the Lower Basin, are interconnected with natural resource restoration actions.

In 2021, EPA continued work on the Gray's Meadow (formerly Black Lake Ranch) project. Gray's Meadow is a collaborative effort between the EPA, the CDA Trust and the Restoration Partnership to remediate and restore approximately 700 acres of publicly owned contaminated agricultural land to clean, diverse, productive wetlands and riparian waterfowl/wildlife habitat.

In 2021, progress on the Gray's Meadow project included:

- Completion and stakeholder review of the 60 percent design. The 90 percent design will be completed during the first quarter of 2022.
- Design and construction of the Cave Lake wetland discharge improvement project
- Design and construction of the Lamb Peak wetland discharge and access road improvement project
- Pilot study to evaluate tilling methods in Cave Lake wetlands
- Groundwater and surface water monitoring
- Cultural resource monitoring activities for both Cave Lake and Lambs Peak construction projects

As part of the 60 percent design process, informed by the data and stakeholder input, EPA prioritized water management to relocate the historic discharge from Black Lake to the Coeur d'Alene River. Designs to

relocate the discharge point for the Cave Lake and the Lamb Peak wetlands to the Coeur d'Alene River were finalized and construction completed during 2021 when water levels were low. The Cave Lake discharge was completed in the spring of 2021. The Lamb Peak construction includes widening the access road and replacing the existing bridge that leads to the wetland. Lamb Peak construction was initiated during the winter of 2021 and will be complete within the first quarter of 2022.

A tilling project was conducted in the Cave Lake wetland during the fall of 2021. Tilling has been identified as a remedial technology to reduce lead concentrations in soil to below the cleanup level of 530 milligrams per kilogram (mg/kg).

Cave Lake Field Discharge Change From Black Lake to the CDA River

Completed Cave Lake Wetland Discharge

Tilling Pilot Project in Cave Lake Field

In 2021, EPA continued studies related to lead bioaccessibility and amendments, as well as metrics for measuring lead exposure in waterfowl. Several studies were completed or are ongoing including:

- A bench-scale treatability study to explore the efficacy of biochar amendments on Lane Marsh wetland sediment as compared to a control (no amendments), lime, and activated charcoal to reduce soil lead bioavailability under environmental conditions realistic for wetlands. The results of this study were recently published in the journal article: The effects of biochar and redox conditions on soil Pb bioaccessibility to people and waterfowl (https://doi.org/10.1016/j.chemosphere.2022.133675).

- Field studies to measure the effects of oxidizing and reducing conditions in seasonal wetland sediments on lead bioaccessibility

- Field studies to identify non-invasive biological metrics for monitoring tundra swan lead exposure by measuring lead concentrations in sediment, feces and blood.

To address source control in the river channel, The Dudley Reach pilot riverbed remediation project planning continued in 2021. The subject location is downstream of the grade break near River Mile 160, near the site of a former dredging operation. The riverbed footprint is over 1,200 acres, spanning 37 river miles and contains approximately 5-10 million cubic yards of contaminated sediment. EPA has developed several alternatives for testing in the Dudley Reach, including capping, dredging and riverbed weirs. A Draft Riverbed Management Plan was completed in 2021 that describes an approach for the entire Lower Basin riverbed below Cataldo and divides the riverbed into sediment management areas (SMAs) as a starting place to conceptualize addressing the riverbed source areas throughout the channel and help facilitate remediation planning. Remedial technologies were assessed for potential effectiveness primarily focused on lead load reduction, system responses (changes in flood water levels), and implementability. The approach includes an initial integrated remediation scenario for the entire riverbed.

In 2021, data collection efforts associated with the river channel included the following:

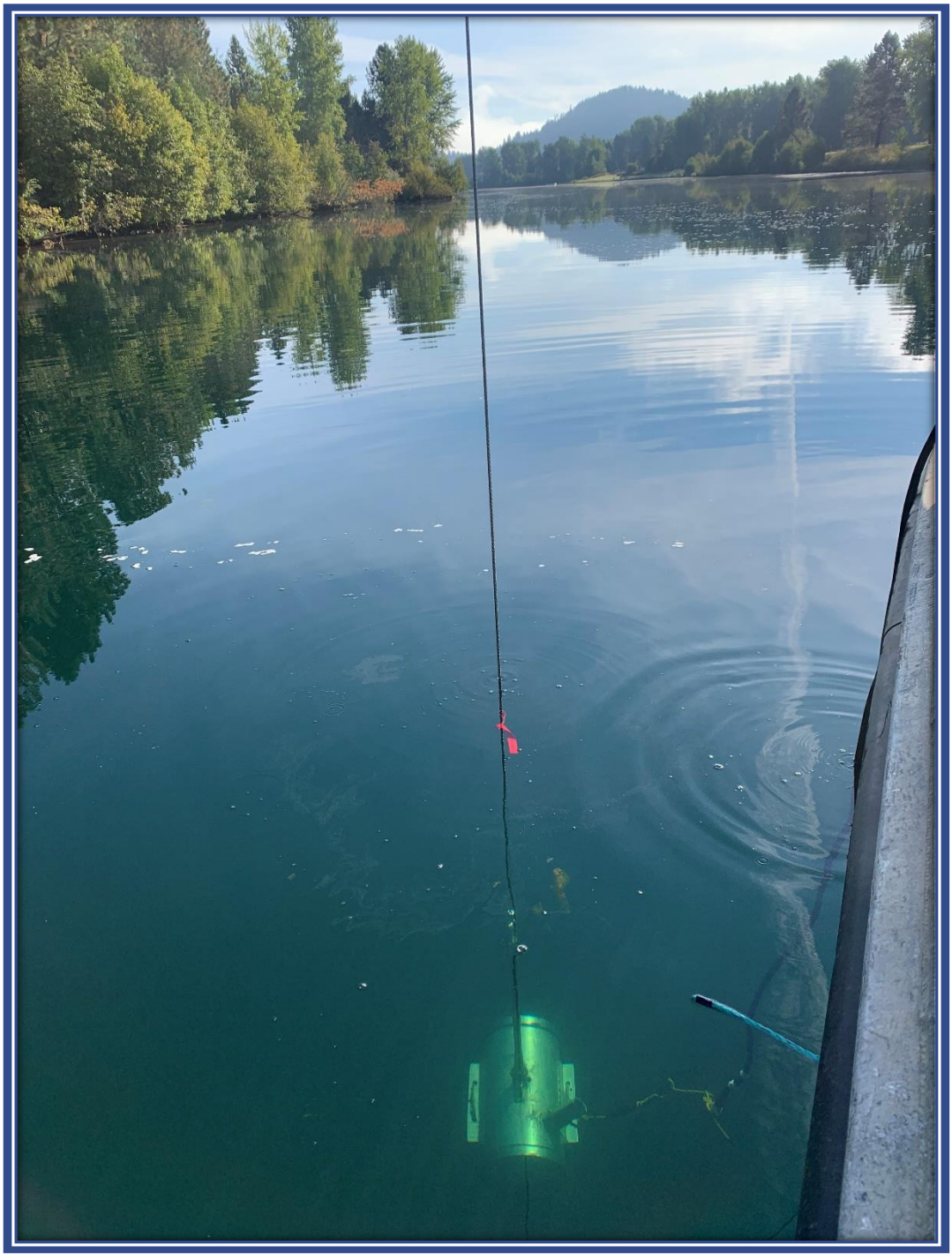
- Sediment sampling at 21 locations using vibracore in Dudley Reach accompanied by 21 penetrometer tests;

- Riverbank Erosion pin monitoring at 5 locations in Dudley Reach, samples were collected to characterize riverbank soils

- Soils were also characterized at 3 riverbank pins located elsewhere in the lower basin.

Health Intervention Program projects lead by IDEQ and PHD continue to be relevant and meaningful Basin-wide. Projects aim to lower human exposure rates to heavy metals through educational outreach.

With help from partnering agencies, several efforts were undertaken in 2021 including airing radio announcements, staffing informational booths, providing educational presentations to school students, and installation of new information signage in use areas. The purpose of these activities was to provide health tips to reduce risks of exposure to heavy metals for recreationists. Long-term planning for addressing Human Health Risks because of recreational activities at dispersed recreation sites in both the Lower and Upper Basin is described in the Recreation Sites Section of this Report.



Vibracore Collection of Riverbed Cores

Submerged Vibracore Drilling Into Riverbed

Measurement of Riverbank Erosion

State of Washington Projects

A periodic review was completed for the Spokane River beach sites in late 2021 and is planned to go out for public review in 2022. It includes a complete survey of each of the remediated beach sites along the Spokane River in Washington that was conducted in 2018, including results from XRF analyses and observations summarized in a technical report dated June 2019, and sediment sampling from a site downstream of the beaches in 2020.

In general, it was observed that the beach sites closest to the Washington-Idaho border have accumulated sediment from upstream sources that contain heavy metals. However, current concentrations at the upstream beach sites have not reached the action levels that were used when conducting the cleanups. Overall, the cleanup at each of the beach sites is in good condition.

Recreational Sites

Work on Recreation Areas in 2021 included sampling, remediation, and public education/outreach activities for areas in both the Box and Basin. New health information signs were developed and installed to inform users of contamination and provide consistent health messaging. Three signs were replaced at Lower Basin locations and four new signs were installed at Upper Basin locations. New signage in the Lower Basin focused on replacing health messaging signs at informal river access points and beach areas. New signage in the Upper Basin focused on health messaging signs near the Big Creek Trailhead where recreational activity has been observed. In 2021, over 300 information packets were mailed to residents along the CDA River and Chain Lakes in the Lower Basin.

Recreation site work in the Box focused on the SFCDA River between Elizabeth Park in Kellogg and the Pine Creek trailhead in Pinehurst. Cleanups at Theater Bridge River Access and Airport River Walk were completed to provide clean access points to publicly owned properties and new signage was developed for the areas. A remediation alternative is under development for the Mtn View Park in Kellogg, along with an enhanced trail barrier design at the Airport River Walk, with work expected to be implemented in 2022.

The 2021 cleanup work in the Basin focused on Lower Basin recreation sites. EPA continued to evaluate previously completed initial actions at the Medimont boat launch, Rainy Hill boat launch, Anderson Lake boat launch, Thompson Lake boat launch and East of Rose Lake boat launch. At four boat launches, willows and/or alders were planted in 2020 to discourage families from recreating on soils near the CDA River that are re-contaminated with yearly flooding, and bare soil areas were hydroseeded to promote vegetation establishment. Initial actions such as concrete pavers or enhanced vegetation will continue to be evaluated in areas where ongoing recontamination due to flooding is a concern. EPA began preparing remediation plans for the informal recreational site at the beach across from the Black Rock Trailhead and continued planning for remediation at the Cataldo Boat Launch. Work at these locations is expected to be implemented in 2022.

EPA and the Coeur d'Alene Trust continued to evaluate other recreational areas in the Upper and Lower Basin for future cleanup work.

Basin Environmental Monitoring

The BEMP Workgroup was restarted in Spring 2021 as an annual forum to share basin-wide monitoring results and planning amongst partner agencies. This workgroup includes IDEQ, US Geological Survey (USGS), US Fish and Wildlife Service (USFWS), the Coeur d'Alene Tribe, Coeur d'Alene Trust, and EPA.

An updated Bunker Hill Basin Environmental Monitoring Plan (BEMP) was finalized in 2021. The BEMP provides the framework for ongoing remedy effectiveness and long-term monitoring associated with actions in the Upper, Middle and Lower Basin. The goal of the updated and optimized BEMP is to design efficient data collection plans to support site-wide management decisions. The CDA BEMP incorporates adaptive management principles and is anticipated to evolve during the remedy implementation timeframe. The over-arching plan includes the Site-wide Quality Management Plan (completed in 2015) and media-specific Quality Assurance Project Plans (QAPPs).

A programmatic Data Management Plan for the Bunker Hill Site is under development with partner agencies that will provide guidance and data requirements for all entities collecting environmental data at the Site. Human health-related data will not be included in this database. Until this task is completed, stakeholders can make specific data requests to the EPA Remedial Project Manager associated with the work being conducted.

The BEMP is structured into three geographically based tiers: Site-specific Remedial Action (RA) effectiveness and performance monitoring; Area-wide monitoring; and Basin-wide long-term monitoring. The final Area-wide RA Effectiveness Monitoring Plan for Ninemile Basin was completed in 2021. It is anticipated that a Lower Basin RA Effectiveness Monitoring Plan will be drafted in 2022.

During 2021, USGS, IDEQ, USFWS, CDA Trust and EPA continued BEMP sampling. Specific activities are outlined below.

Surface Water

In 2021, USGS collected 67 stream discharge measurements and water-quality samples from 16 OU-3 and 4 OU-2 surface water stations during a range of hydrographic events. Samples were collected during the first flush in April, during peak spring snowmelt runoff in May, during baseflow conditions in September, and during a late-fall rain event in November. Most sites were sampled between two and four times during the year. One site, 473254116091200 Seeps North of Deadwood Tailing, was only sampled once, in May 2021, because it was dry in September 2021. Samples were analyzed for nutrients, selected trace metals and major ions, and suspended sediment.

Twelve of the sixteen OU-3 stations are collecting continuous streamflow data and are telemetered with real-time streamflow access. Information can be viewed at http://waterdata.usgs.gov/id/nwis/rt.

There was only a minor winter flow event, so winter sampling targeting the first flush associated with spring snowmelt runoff in late April. Spring snowmelt runoff peaked in May throughout the basin; the peak was generally lower in magnitude than, but similar in duration to, the historic median runoff peak. Late summer baseflow samples were collected in September 2021. Late fall samples were collected in November 2021 during a rainy period.

The USGS completed a long-term trends analysis of trace metal and nutrient concentrations and loads in the Basin in support of the Five-Year Review. The analysis, data and final report were published in September 2020 and are available online at https://doi.org/10.3133/sir20205096.

All gaging station stream discharge and water-quality records for the BEMP gages for Water Year (WY) 2021 were worked up, approved, and are furnished electronically at https://waterdata.usgs.gov/id/nwis/current/?type=BEMP. The annual data summaries will be completed and delivered to EPA during the first quarter of calendar year 2022.

Groundwater

Groundwater monitoring in 2021 focused on collecting baseline data after implementation of the GCS, which completed construction in December 2019. During high flow conditions in May and June, 62 groundwater sites were sampled. During base flow conditions in October and November, 69 sites were sampled. The laboratories analyzed the samples for metals, phosphorus, and other parameters. Sampling was conducted to capture baseline data across the site that reflects the initial conditions of groundwater quality following the startup of the GCS. EPA and IDEQ are currently reviewing preliminary data from the baseflow sampling event. Water level monitoring continued through 2021 with approximately 50 in situ transducers installed across site. The next water quality monitoring effort will be performed during high flow around April/May 2022.

Biological Resources

USFWS conducts annual waterfowl surveys from early February to late April in lower Basin floodplain wetlands, recording observations of waterfowl use and tundra swan mortalities. In 2021 these surveys were once again successfully completed after a shortened 2020 season due to restrictions associated with the COVID pandemic. The USFWS OU2 and OU3 biannual waterfowl survey report for years 2020-2021 is planned for submission to EPA in Fall 2022.

Sediment

Suspended sediment sampling is conducted to obtain information regarding the amount and characteristics of sediment being transported at specific times and locations in the river system. EPA contractors currently collect suspended sediment sampling opportunistically by boat during large floods only, to supplement the USGS sampling program. The river flow threshold criterion for conducting opportunistic sampling of suspended sediment is approximately 25,000 cubic feet per second (cfs) at Cataldo (USGS station 12413500). The Water Year (WY) 2021 flow at Cataldo did not meet the threshold criterion; therefore, no boat-based sampling and data collection were performed.

Part 2 –
Other BEIPC Activities and Responsibilities:

IDEQ Lake Management Activities

The Coeur d'Alene Lake Management Plan (LMP), developed by the Coeur d'Alene Tribe (Tribe) and Idaho Department of Environmental Quality (IDEQ), was finalized in 2009. Since then, the Tribe and IDEQ have been implementing core aspects of the LMP such as water quality monitoring, modeling, nutrient source inventory, and education/outreach.

In 2018, the Coeur d'Alene Tribe asserted that the LMP has been inadequate, as implemented, as an effective tool to protect water quality in the lake. The Tribe withdrew their support of the LMP, as an alternative to a CERCLA remedy, in 2019. That same year, Idaho Governor Brad Little called for a third-party review of lake data to take a closer looks at observed lake water quality trends and guide actions to protect the lake moving forward. In 2020, the State of Idaho, Kootenai County, and EPA sponsored the contract with the National Academy of Sciences, Engineering, and Medicine (NAS) to conduct this neutral third-party review of lake data.

Discussions among the Tribe, IDEQ and EPA have continued to determine what additional mechanisms/actions are needed to manage the hazardous materials in the lakebed sediments. Although various aspects outlined in the LMP and listed below are essential to continue, additional approaches to augment work conducted under the auspices of the LMP will be evaluated once the NAS report is finalized.

Lake management accomplishments in 2021 consisted of the following staff activities:

Science Core Program

- Routine lake monitoring by IDEQ continued through 2021.
- IDEQ staff continued working with AVISTA, the Idaho State Department of Agriculture, and Tribe staff to survey aquatic plants and coordinate responses to infestations of aquatic invasive species in 2021.
- IDEQ staff continued data analysis and report development to describe a conceptual model for the lake's structure and mixing. The current draft report incorporates river hydrography, IDEQ electronic sonde data from 2014 – 2019, lake wind fields, preliminary AEM3D modeling, and data from a stable isotope study from 2015, into a physical description and analysis of the lake's structure and mixing.
- IDEQ staff provided technical support to the NAS committee that is conducting a neutral third-party review of lake data

Education & Outreach Core Program

- Throughout 2021, IDEQ staff provided updates on lake management activities to a variety of community groups and made presentations to the public.
- In 2021, IDEQ staff participated in The Confluence Project (TCP) committee to provide virtual water quality outreach materials and field science-based experiences in water quality, groundwater, and snow science, to basin high schools, as COVID-19 restrictions allowed.

- IDEQ staff continued participating in the Our Gem Coeur d'Alene Lake Collaborative (Collaborative), which provided regular articles in the CDA Press related to Coeur d'Alene Lake and water quality and organized a second speaker series to further outreach efforts. The collaborative also conducted a community survey to assess knowledge and interest in water quality. The results will guide future outreach efforts and will be shared with local decision-makers and throughout the community. A summary of results will be posted on the Collaborative web page at www.uidaho.edu/OurGem.

- IDEQ staff worked with NAS staff to develop a list of basin stakeholders for use in announcing NAS committee open meetings. Staff also coordinated with NAS to organize virtual open sessions of the NAS committee, develop and record presentations for the committee, and participate in question/answer sessions during these meetings.

- IDEQ worked with the University of Idaho, EPA, and the Tribe to record informative video clips at points of interest throughout the basin and made these available as an online storymap to serve as a virtual basin tour. This was in lieu of the NAS committee participating in a field trip in person (due to COVID-19 restrictions) and has been made available to the general public.

- IDEQ worked with local media to make information on Governor Little's Leading Idaho Initiative and activities of the Coeur d'Alene Lake Advisory Committee (CLAC) available to the public.

- IDEQ continued participating in the Local Gems program through the Coeur d'Alene Regional Chamber of Commerce Natural Resource Committee.

- IDEQ continued participating in the Bay Watchers program, organized by the U of I through the Community Water Resource Center.

- IDEQ continued participating on the Panhandle Stormwater and Erosion Education Program (SEEP) steering committee and assisted in delivering educational programming related to water quality to the construction/development community.

- IDEQ worked with the City of Coeur d'Alene, University of Idaho, SEEP committee, AVISTA Corp, the Tribe, and ISDA to develop an educational sign depicting stormwater and aquatic invasive species information in the City of Coeur d'Alene. The sign is scheduled for installation by Memorial Weekend 2022

Nutrient Inventory/Reduction

- IDEQ staff continued to collect water quality for 11 tributaries to Coeur d'Alene Lake. These include Beauty Creek, Bennett Creek, Blue Creek, Cougar Creek, Fernan Creek, French Gulch, Kidd Creek, Mica Creek, Neachen Creek, Turner Creek, and Wolf Lodge Creek.
- IDEQ staff continued to collect seasonal data for 10 small drainages around the lake, including Gotham Creek; small streams at Sunnyside road and Boothe Park Road; and 6 locations on the lake's west side (along Tall Pines road, at Mica Bay boater park, Lyle Creek, Scott Creek, Stinson Creek, and a small creek on Solitaire Rd at Black Rock).
- IDEQ staff conducted a preliminary analysis of stream flows and nitrogen and phosphorus loads for the above-mentioned streams as part of a continued effort to fill data gaps identified in the basin-wide nutrient source inventory (2020).

- IDEQ continues to work with the City of Coeur d'Alene and University of Idaho to identify opportunities to monitor stormwater where outfall improvement projects are implemented and gather local data on stormwater nutrient loading.
- IDEQ assisted the CLAC and basin stakeholders to solicit, evaluate, and select project applications for funding under Governor Little's Leading Idaho Initiative. This initiative is focused on implementing projects throughout the basin that will reduce phosphorus loading to Coeur d'Alene Lake. Project implementation will commence in 2022.

Partnerships with Other Entities

- IDEQ worked with Governor Little's staff to implement portions of the Leading Idaho Initiative related to Coeur d'Alene Lake, including organizing and facilitating meetings of the CLAC, soliciting applications for projects that reduce phosphorus loading to Coeur d'Alene Lake, providing support to the CLAC in ranking applications, and following up with applicants to develop agreements for project implementation.
- IDEQ continues to coordinate with Avista Corp on identifying and prioritizing projects to enhance wetland habitat, reduce bank erosion, and improve fisheries throughout the basin, in addition to monitoring aquatic invasive species in the lake and rivers.
- IDEQ continues to participate in the Coeur d'Alene Regional Chamber of Commerce Natural Resource Committee, the Our Gem Coeur d'Alene Lake Collaborative, Panhandle SEEP, the 4-County Natural Resource Committee, and other groups focused on water quality protection to facilitate communication and possibilities for collaboration.
- IDEQ staff continued participating in Panhandle Basin Advisory Group meetings.
- IDEQ staff worked with the BEIPC Executive Director to provide Lake activity updates to the TLG and BEIPC.
- IDEQ staff continue working with County staff, the CDA 2030 Project, and the Coeur d'Alene Chamber's Natural Resources Committee.

This continued level of coordination with BEIPC forums maximizes opportunities for information exchange and advice, while recognizing that IDEQ retains its respective decision-making authorities.

Coeur d'Alene Tribe Lake Management Activities

The Coeur d'Alene Lake Management Plan (LMP), developed by the Coeur d'Alene Tribe (Tribe) and Idaho Department of Environmental Quality (IDEQ), was finalized in 2009. Since then the Tribe and IDEQ have been implementing core aspects of the LMP such as water quality monitoring, modeling, nutrient source inventory, and education/outreach.

As of the summer of 2018, the Coeur d'Alene Tribe determined that the LMP is inadequate, in itself, as an effective tool to protect water quality in the Lake. The Tribe withdrew their support as a signatory government to the LMP in 2019. In 2020, the State of Idaho, Kootenai County and EPA sponsored a contract with the National Academy of Sciences (NAS) to conduct a neutral third-party review of the Lake data.

Discussions among the Tribe, IDEQ and EPA have continued in order to determine what additional mechanisms/actions are needed to manage the hazardous materials in the lakebed sediments. Therefore, although various aspects outlined in the LMP and listed below are essential to continue, additional approaches to augment work conducted under the auspices of the LMP are being reconsidered by the Tribe. These discussions are ongoing.

Lake management accomplishments in 2021 consisted of the following staff activities:

Science Core Program

- Routine lake monitoring by the Tribe continued through 2021.

- Tribal staff continued their milfoil control program in southern waters during 2021, including bottom barrier and mechanical harvester treatments. The Tribe is continuing its monitoring of treatment efficacies and native plant communities and is focusing control efforts at high use public areas such as boat launches, swim areas, and boating lanes. Mechanical harvesting has worked well in opening up these areas to recreational activities. Harvesting also helps remove the oversupply of nutrients in nearshore areas. The Tribe removed approximately 70,472 lbs. (wet weight) of aquatic vegetation in the summer of 2021, which translates to ~28 lbs. (dry weight) of phosphorus and ~140 lbs. (dry weight) of nitrogen.

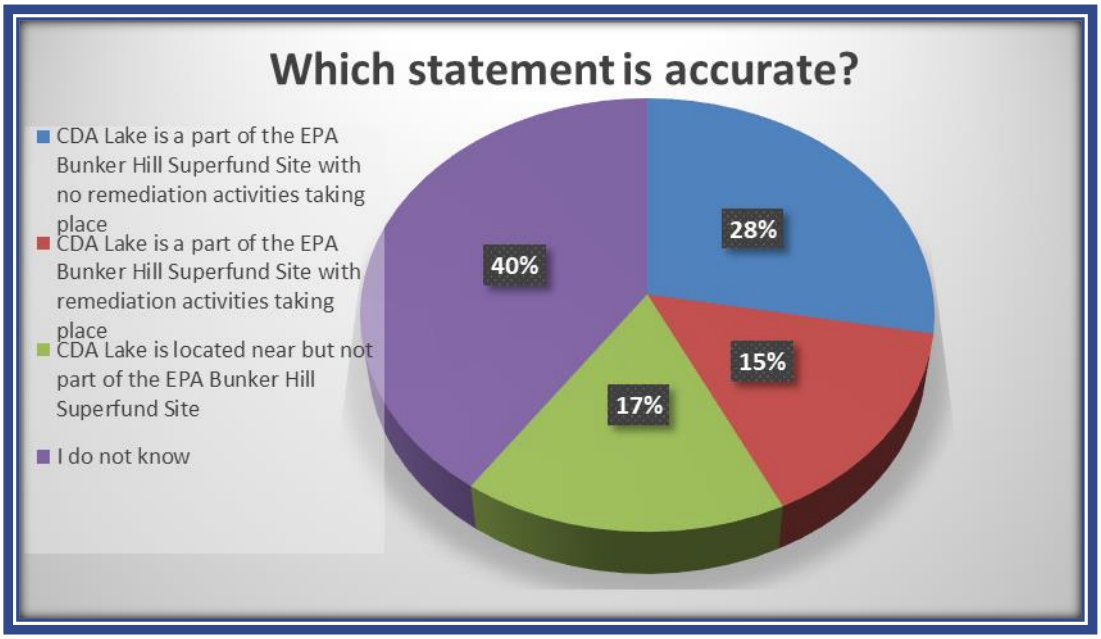
Education & Outreach Core Program

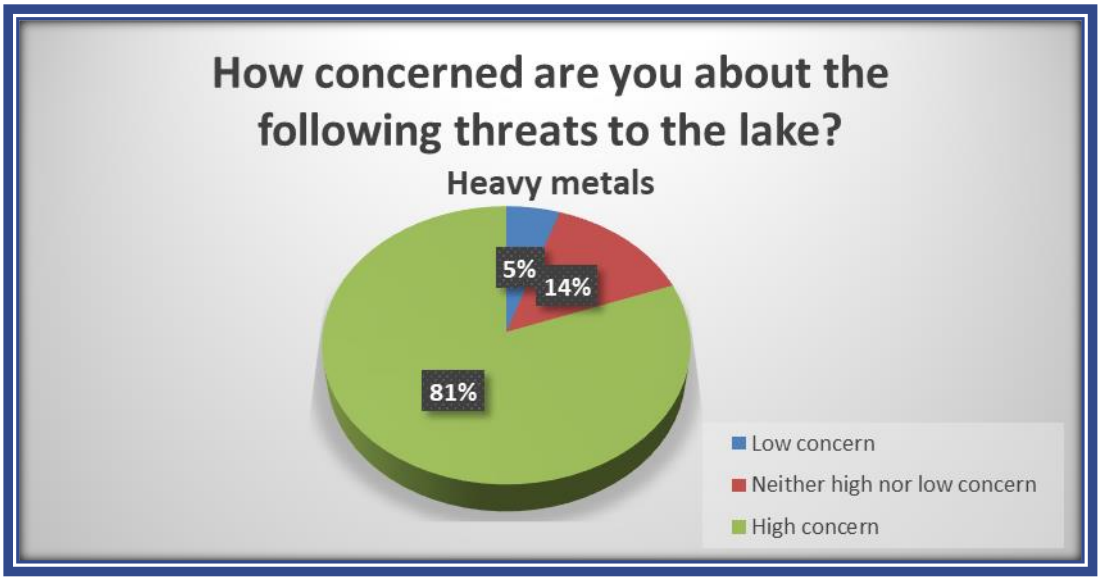
- Throughout 2021, Tribal staff provided updates on lake management activities to a variety of community groups and made presentations to the public.

- Due to the COVID-19 pandemic, in 2021, The Confluence Project (TCP) committee worked with Basin high school teachers and students using virtual water quality outreach materials that were developed in 2020. Water quality, groundwater, and snow science field trips for high school students and teachers in North Idaho continued where COVID restrictions allowed.

- The Our Gem Coeur d'Alene Lake Collaborative (Collaborative) worked throughout 2021 to provide regular articles in the CDA Press related to Coeur d'Alene Lake and water quality to keep this subject present in the community. They continued to provide virtual 2-week speaker series that were well attended and received positive feedback. For more information on the articles and to watch the recorded Speaker Series visit: https://www.uidaho.edu/cda/cwrc/our-gem. The Collaborative is made up of the Tribe, IDEQ, U of I Community Water Resource Center (CWRC), Kootenai County, Kootenai Environmental Alliance, CDA2030, and the Coeur d'Alene Regional Chamber of Commerce.

- In 2021, Tribal staff and the Collaborative surveyed the Coeur d'Alene Basin Community on their knowledge and understanding of water quality issues pertaining to Coeur d'Alene Lake and those results will be posted on the website above in early 2022. As per the results of the survey, a number of those respondents are still unaware that the Lake is a part of the Bunker Hill Superfund Site however; a high number of respondents are worried about heavy metals (see graphs below).





- Tribal staff continued to work with the Coeur d'Alene Regional Chamber of Commerce Natural Resource Committee to implement the "Local Gems" program through virtual meetings.

- Tribal staff continued to collaborate with the U of I CWRC and agency partners to conduct Baywatchers workshops for Coeur d'Alene Lake Bay community volunteers/liaisons utilizing combined virtual and in-person meetings with appropriate safety measures in place.

Lake and River Water Quality Sampling 2021

- Tribal staff continued to sample from the Coeur d'Alene River at Harrison, St. Joe River, Chatcolet Lake, and Coeur d'Alene Lake sampling locations.

- Tribal staff continued data analysis and writing the 2019 and 2020 combined report for Coeur d'Alene Lake.

- The Tribe's Limnologist continued calibration of the AEM3D Coeur d'Alene Lake model and reported the model calibration results to the NAS and filled seven data requests from the NAS.

Partnerships with Other Entities (all meetings were held virtually due to the pandemic)

- Tribal staff continued to be involved in the Panhandle Basin Advisory Group meetings, which were held virtually.

- Tribal staff worked with the BEIPC Executive Director to provide Lake activity updates to the TLG and BEIPC during Zoom meetings and for written reports.

- Tribal staff continued coordination with County staff, the CDA 2030 Project and have continued participation in the Coeur d'Alene Chamber's Natural Resources Committee via Zoom meetings.

This continued level of coordination with BEIPC forums maximizes opportunities for information exchange and advice, while recognizing that the Tribe retains their decision-making authorities.

Flood Control and Infrastructure

Working through the MOA developed and implemented in 2018 for flood control in the Upper Basin, the BEIPC and the Silver Valley Flood Control Group continued to deal with flooding and its impacts on the communities and the Superfund remedies. The formal partnership continued to work with the U.S. Army Corps of Engineers (COE), BEIPC Consultant and FEMA to complete a Flood Map Revision for the River from Elizabeth Park to Pinehurst. The City of Pinehurst has received their Flood Risk Assessment from the COE in anticipation of a similar flood mapping change request to FEMA for the Pinehurst area for the Pine Creek Drainage.

Restoration Partnership

The Restoration Partnership (Partnership) is a collaborative effort comprising the Coeur d'Alene Basin Natural Resource Trustees which are the U.S. Department of the Interior, represented by the U.S. Fish and Wildlife Service (USFWS) and Bureau of Land Management (BLM); the Coeur d'Alene Tribe (Tribe); the U.S. Department of Agriculture, represented by the U.S. Forest Service (USFS); and the State of Idaho, represented by the Idaho Department of Fish and Game (IDFG) and Idaho Department of Environmental Quality (IDEQ). The Partnership's primary mission is to develop and implement a restoration plan to help restore the health, productivity, and diversity of injured natural resources from releases of mine waste contamination and the services they provide in the Coeur d'Alene Basin for present and future generations. This includes compensation for lost human use services of those resources by developing and implementing projects under the framework of a Restoration Plan for the Coeur d'Alene Basin. The following Partnership activities occurred throughout federal fiscal year 2021 (FY21):

- The Partnership continued support for ongoing operations and maintenance by USFWS, Ducks Unlimited (D.U.), and private landowners for wetlands at the Schlepp Agriculture to Wetlands Conversion Project. The construction and implementation of this restoration project has been completed, for more information visit: https://www.restorationpartnership.org/schlepp.html

- The Trustees continued to refine their administrative processes for implementing the natural resource restoration projects that have been underway since Fiscal Year (FY)18 and coordinated quarterly reporting and site visits with the Project Sponsors and Project Leads as appropriate.

- Implementation of the following 19 projects continued in FY21 with the exception of some work being delayed due to the COVID-19 pandemic. The amounts expended in FY21 are noted with a brief narrative of work that was completed. The full annual reports can be found on the website at www.restorationpartnership.org . There were seven projects completed in FY21.

    - Wetland and stream enhancement at Cougar Bay on Coeur d'Alene Lake (BLM and USFWS sponsors).
      -Funds Allocated: $282,000 wetland enhancement and $125,000 Johnson parcel
      -Amount Expended in FY21: $3,685
      -FY21 Activities: 1) Willows for the Johnson parcel planting test site were grown and provided by the Coeur d'Alene Tribe from their nursery, 2) A site survey and 1-foot contour topographical map of the Johnson project area was lumped under the same contract as Cougar Bay (directly across Hwy 95), 3) Through the cooperative agreement between D.U. and USFWS and D.U. completed a final plan for the wetland improvements for both parcels, 4) The Cougar Bay parcel was mowed and sprayed by a D.U. contractor to suppress the reed canary grass, 5) D.U. prepared a construction bid package and BLM awarded the contract, and 6) Channel, floodplain, and pond construction began in October.

    - *Guł Hnch'mchinmsh* - Native Willow Nursery for Support of Restoration Actions throughout the Restoration Partnership Project Area (Tribe sponsor).
      -Funds Allocated $205,462
      -Amount Expended in FY21: $23,128
      -FY21 Activities: 1) Ground preparation continued with a wildlife exclusion fence and gate, 2) 600 individual willow poles were purchased and planted, 3) Tribal staff maintained access via mowing between rows of established willows, 4) a tour and virtual presentation were provided to the public and Trustees, and 5) Willows were provided to BLM and IDFG for their Cougar Bay and Gray's Meadow restoration projects.

    - Cultural Harvest opportunities in the Hangman Creek Watershed (Tribe sponsor).
      -Funds Allocated $97,335
      -Amount Expended in FY21: $5,767
      -FY21 Activities: 1) Additional planning for the parking access occurred, 2) Interviews with the Tribal community and staff were conducted to compile a verbal history of salmon in the Tribes' territories and how cultural harvest opportunities and reintroduction might impact the Tribe, and 3) Due to drought and unseasonable hot weather in the spring and early summer, stream conditions at the release site would not support a live release of salmon for a cultural harvest event.

    - Culturally Significant Plants in the Hangman Creek (Tribe sponsor).
      -Funds Allocated $187,770
      -Amount Expended in FY21: $36,116
      -FY21 Activities: 1) Purchased a variety of tall-one nursery plantings, 2) Planted 2,055 native trees and shrubs that provide fruit and utilitarian materials, 3) gathered camas seed for future restoration efforts, 4) Modified camas seed gathering due to drought conditions, and 5) Partnered with Bonneville Power Administration, AVISTA, the Farm Service Agency, and USFWS on all components of the project.

- Coeur d'Alene Lake Monitoring and Modeling (Tribe sponsor).
  -Funds Allocated $268,668
  -Amount Expended in FY21: $41,201
  -FY21 Activities: 1) collected and analyzed water quality samples from 4 sites over an eight month period as other Tribal budgets were used for the other sampling events, 2) Reporting and data sharing to the NAS, 3) Continued data analysis and writing the 2019-2020 combined report for Coeur d'Alene Lake, and 4) Continued calibration of the AEM3D model and reporting to the NAS.

- Coeur d'Alene Lake Education and outreach- *FINAL* (Tribe sponsor).
  -Funds Allocated $81,008
  -Amount Expended in FY21: $9,264
  -FY21 Activities: 1) Provided Our Gem Collaborative updates to the Coeur d'Alene Regional Chamber of Commerce on a monthly basis, 2) Provided updates to the BEIPC and TLG, and local Soil and Water Conservation Districts, 3) Submitted monthly Our Gem Lake Stewardship articles to the Coeur d'Alene Press, 4) Surveyed the Basin community on their perceptions of lake water quality, and 5) worked with numerous partners and area high school students on the development of online water quality curriculum and virtually hosted The Confluence Project.

- Hepton Lake (*Gu̱ł Hnch'mchinmsh)* Wetland Restoration Planning Phase I- *FINAL* (Tribe sponsor).
  -Funds Allocated $ 210,900
  -Amount Expended in FY21: $24,992
  -FY21 Activities: 1) Secured all necessary permits for construction, 2) Submitted the final Wetland Reserve Program of Operations to the Natural Resources Conservation Service (NRCS) and secured matching funds from NRCS for construction with Partnership funds, and 3) transitioned Tribal oversight from planning, design, cultural resource inventory and assessment over to construction planning (Phase II).

- Wetlands restoration planning at Gray's Meadow (IDFG sponsor).
  -Funds Allocated $ 250,000
  -Amount Expended in FY21: $39,667
  -FY21 Activities: 1) Designed and replaced the Lamb's Peak Infrastructure phase to relocate the pump house to the Coeur d'Alene River with all necessary engineering needs accounted for, 2) Produced the 60% Design for Remediation and Restoration with the CDA Trust and EPA, 3) Continued ongoing ecological monitoring and assessments, and 4) Redirected Cave Lake water transfers from Black Lake to the Coeur d'Alene River.

- Gene Day Pond Fishing Access (IDFG sponsor)
  -Funds Allocated $25,000
  -Amount Expended in FY21: $0
  -FY21 Activities: 1) Completed permit acquisition with Idaho Dept. of Transportation and coordinated efforts with BLM and Idaho Dept. of Parks and Recreation.

- Black Rock Slough Wetland enhancement *FINAL* (IDFG sponsor)
  -Funds Allocated $75,000
  -Amount Expended from 2018-2021: $75,000

-FY21 Activities: 1) Acquired a geotechnical evaluation of the Trail of the Coeur d'Alene's causeway, 2) Completed Phase I of the project to limit annual importation of contaminated sediment and reducing the risk of recontamination setting the stage for future remediation by EPA and restoration by the Partnership, and 3) Evaluated the functional performance to facilitate manipulation of wetland pool elevation to meet management goals.

- Wolf Lodge Creek Reach 3 Stream Restoration and Habitat Enhancement Project *FINAL*
  (DEQ sponsor with Kootenai-Shoshone Soil and Water Conservation District)
  -Funds Allocated $195,814
  -Amount Expended in FY21: $195,814
  -FY21 Activities: 1) Stabilized 2,000 feet of highly eroding streambank with willing landowners, 2) Restored 3.2 acres of riparian area, and 3) Re-established proper channel dimensions to reduce rates of lateral channel migration, property loss, and sedimentation using bioengineering techniques.

- Conservation of Agricultural to Wetlands Conversion Properties within Canyon Marsh
  (USFWS sponsor with the Inland Northwest Land Conservancy).
  -Funds Allocated $801,480 and $372,400
  -Amount Expended in FY21: $10,010
  -FY21 Activities: 1) Re-assessed easement appraisals due to inflated real estate prices, 2) Finalized 3 conservation easements with private landowners, 3) Initiated future remediation discussions with EPA and the CDA Trust and the Partnership for restoration activities to provide for clean wetlands and waterfowl habitat, 4) Assessed water level management techniques for both waterfowl use and agricultural operations, and 5) Conducted waterfowl surveys.

- Conservation of Agricultural to Wetlands Conversion Property Gleason's Marsh (USFWS sponsor with the Inland Northwest Land Conservancy).
  -Funds Allocated $656,140
  -Amount Expended in FY21: $0
  -FY21 Activities: 1) 255 acre easement was secured and future remediation and restoration was initiated with EPA, the CDA Trust, and the Partnership.

- Lake Creek Watershed Restoration (CDA Tribe sponsor)
  -Funds Allocated $615,951
  -Amount Expended in FY21: $40,446
  -FY21 Activities: 1) Large woody debris placement, 2) High resolution aerial imagery acquired to assist with ongoing designs for re-engaging floodplain pulses, and 3) laid the foundation for compositionally and structurally diverse riparian ecosystems to develop over the next 25-50 years.

- Castle Rock Ranch North Fork Coeur d'Alene River Riparian Restoration Project *FINAL*
  (IDEQ sponsor with Kootenai-Shoshone Soil and Water Conservation District)
  -Funds Allocated $12,265
  -Amount Expended in FY21: $12,235

-FY21 Activities: 1) Planted native trees and shrubs along the river and on the floodplain with the assistance from a willing landowner, and 2) Coordinated discussions with the landowner and NRCS for future irrigation improvements on the property.

- Prichard Creek Phase I: Conservation Easement and Restoration Planning (IDEQ sponsor with Idaho Forest Group and Trout Unlimited)
  -Funds Allocated $1,908,450
  -Amount Expended in FY21: $128,730
  -FY21 Activities: 1) Completed field analysis and initiated development of the phased preliminary restoration plan for the entire project area, 2) Conducted additional metals characterization, snorkel fish surveys, treated populations of the invasive Bohemian knotweed plant, 3) Conducted Cultural Resource Background Investigations, and 4) Initiated conservation easement discussions with the Kaniksu Land Trust and Idaho Forest Group.

- Trapper Creek Bridge and Fish Passage Enhancement *FINAL* (IDFG sponsor with BLM and Shoshone County
  -Funds Allocated $135,000
  -Amount Expended in FY21: $90,167
  -FY21 Activities: 1) Secured all necessary permits, and 2) Removed inadequate culverts, installed the new bridge, and final bank and channel grading was completed.
- Red Ives Phase I Dam Removal *FINAL* (USFS sponsor)
  -Funds Allocated $30,000
  -Amount Expended in FY21: $0 (utilized dedicated USFS funds for Phase I).
  -FY21 Activities: 1) Completed the removal of the abandoned hydroelectric dam to provide for fish passage, 2) 200’ of streambank and fish habitat improvement work was completed utilizing native materials, and 3) Initiated Phase II discussions.

- Rehart Conservation Easement (IDFG sponsor)
  -Funds Allocated $600,000
  -Amount Expended in FY21: $0
  -FY21 Activities: 1) Initiated conservation easement negotiations with a willing landowner to protect natural floodplain communities and cold-water hyporheic flow.

This year the Trustees assessed or restored approximately:

- Secured three Conservation Easements
- 3,200 linear feet of stream/riverbank stabilized
- 2,655 native plantings
- 3.2 acres of riparian area restored

Total Funds Allocated (FY18-21): $6,697,193
Total Funds Expended in FY21: $736,222

CDA Lake Cougar Bay Wetland and Stream Enhancements

Pre-dam Removal at Red Ives, Upper St. Joe Watershed

Post-dam Removal at Red Ives

Challenges Ahead

As noted in this report, a great deal of work was accomplished across the Upper and Lower Basin in 2021, in spite of the effects of the COVID-19 situation. This work was accomplished while following public health and safety protocols concerning the virus. The cleanup and restoration effort were focused on a mix of items; remediation of human health risks resulting from contaminated residential and commercial properties; extensive work by the CDA Trust in the EFNM Creek, Canyon Creek and Pine Creek drainages and the Lower Basin on ecological remedies and related human health issues; and EPA directed work to address the contaminated ground water problems and mine discharges in OU-2 noted in the Upper Basin RODA. Human health related projects continue to be a priority, but cleanup work in fish and wildlife habitat areas, and surface and ground water is moving forward with EPA working with the BEIPC, IDEQ, the CDA Trust, and other cooperating agencies and stakeholders. The Restoration Partnership also continued moving forward with implementation of natural resource restoration actions in the Basin.

Besides the RODA for the Upper Basin, the involved governments and agencies continue to develop project proposals to address Lower Basin human health and ecological issues.

Because the CDA River system contains millions of tons of contaminated sediments, a portion of which is moving downstream every year, recontamination from annual flooding is a major concern for any project

planned in the Lower Basin.

There continues to be concern about implementing remedial actions on sites in the Lower Basin that have the potential of being recontaminated during spring runoff or high flow events before removal or stabilization of the contaminated sediments in the beds and banks of the River.

Other major challenges include management of the ICP by PHD; development of any needed additional waste repositories and consolidation areas for disposal of remedial action and ICP wastes; continued implementation of the RODA for the Upper Basin and OU-3 ROD for the Lower Basin; development of a solution to major flooding issues in Lower Pine Creek, SFCDR and Main Stem of the CDA River; and continued coordination with the CDA Tribe and State's efforts to address CDA Lake management issues and the Restoration Partnership to implement natural resource restoration actions throughout the Basin.

An important activity in 2022 is to continue to provide information and data to the National Academies of Sciences, Engineering and Medicine in its analysis concerning CDA Lake and future water quality conditions in the Lake.

The ASARCO bankruptcy settlement continues to be the major source of funding for the environmental remediation actions in the Basin. Careful action through the implementation of the Upper Basin RODA and Lower Basin OU-3 ROD, any additional needed amendments plus diligent work on the part of the Restoration Partnership utilizing their funding source is necessary to ensure that the available funds are expended in a judicious manner. Additional funding will be needed to carryon remedial actions in the Box because funds from the ASARCO settlement cannot be used in the Box. Assuring sustainable funding intended to advance cleanup as planned in the RODs and amendments, along with operation and maintenance of the implemented remedies, restoration of injured natural resources, and management of CDA Lake, the tributaries emptying into the Lake and surrounding lands continue to represent a significant challenge into the future.