

# 2015 ANNUAL REPORT



*Basin Environmental Improvement  
Project Commission*

February 2016

# *Table of Contents*

<b>Executive Summary .....</b>	<b>2</b>
<b>BEIPC Overview .....</b>	<b>2 - 3</b>
<b>Program Management .....</b>	<b>4</b>
<b>Public Outreach and Citizen Involvement .....</b>	<b>4 -11</b>
<b>Calendar Year 2015 Work Accomplishments .....</b>	<b>12 - 35</b>
<b>Part 1 - Work Performed Through Federal Superfund or Other Cleanup Programs:</b>	
<ul style="list-style-type: none"><li>- Blood Lead Screening in Children</li><li>- Basin Property Remediation Program including Private Drinking Water Supply</li><li>- Remedy Protection Projects</li><li>- Paved Roadway Surface Remediation Program</li><li>- Characterization of Mine and Mill Sites</li><li>- Repository Development and Management</li><li>- Upper Basin Remedies</li><li>- Lower Basin Remedies</li><li>- Recreational Sites</li><li>- State of Washington Projects</li><li>- Basin Environmental Monitoring</li></ul>	
<b>Part 2 - Other BEIPC Activities and Responsibilities:</b>	
<ul style="list-style-type: none"><li>- Lake Management Activities</li><li>- Flood Control and Infrastructure Revitalization</li><li>- Natural Resource Damage Restoration</li></ul>	
<b>Challenges Ahead .....</b>	<b>35</b>

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## *Executive Summary*

The Basin Environmental Improvement Project Commission (BEIPC) is responsible for overseeing environmental cleanup 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 2015, the BEIPC coordinated and monitored accomplishments by various implementing entities for environmental cleanup and natural resource restoration work included in the BEIPC 2015 Annual Work Plan and the five-year operating plan. It also developed a 2016 Annual Work Plan and an updated five-year plan. The environmental cleanup 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 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 to direct, and/or coordinate environmental remediation, natural resource restoration, and related measures to address water quality and heavy metal contamination in the Basin.

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 what is known as the "Bunker Hill Box" located within the Basin.

The BEIPC's primary purpose is to work with the EPA and IDEQ to implement the Record of Decision (ROD) for OU-3 throughout the Basin and implement the Upper Basin ROD Amendment (RODA) for portions of OU-3 and work in OU-2 included in the Amendment designed to advance the cleanup of heavy metals contamination.

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 cleanup efforts at mining sites in the North Fork of the CDA River (NFCDR); 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 tribal council member of the Coeur d'Alene Tribe 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 is Terry Harwood.

### **Current BEIPC Membership**

Name	Title	Representing
Jack Buell, Chair	Benewah County Commissioner	Benewah County
Marc Eberlein	Kootenai County Commissioner	Kootenai County
Leslee Stanley	Shoshone County Commissioner	Shoshone County
Phillip Cernera	Lake Management Director	Coeur d'Alene Tribe
Grant Pfeifer	Regional Director, Washington Dept. of Ecology	State of Washington
John Tippetts	Director, Idaho Department of Environmental Quality	State of Idaho
Dennis McLerran	Regional Administrator, EPA, Region 10	Federal Government

## *Program Management*

The BEIPC operates in accordance with the Idaho statute and the MOA between 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 cleanup activities. It is also involved in the coordination of efforts to protect the cleanup remedies, human health, and the environment from the release and migration of contaminants through the implementation of Institutional Controls in the Basin and implementation of a Drainage Control and Infrastructure Revitalization Plan (DCIRP) for the Upper Basin Communities.

The Executive Director 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, and the Coeur d’Alene Tribe 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 2015, the Executive Director and TLG developed the 2016-2020 Five-Year and Calendar Year 2016 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 2015, the BEIPC held meetings and deliberations open to the public and maintained an up-to-date Basin website at: [www.basincommission.com](http://www.basincommission.com). Meetings were held at various locations within the Basin with locations and dates announced in local newspapers, flyers posted throughout the community and at the BEIPC office in Kellogg, Idaho. EPA, IDEQ and the BEIPC held a number of community meetings to discuss proposed project work in the Basin and Box. The BEIPC also participated in public education/outreach efforts including the joint information booth at the North Idaho Fair, a booth at the Silver Valley Business Expo, STEM program presentations for North Idaho Schools, and career and professional education booth for Jr. and Sr. High students on the CDA Indian Reservation.



## **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 email and US Mail communications to its members and the public on an as-needed basis. CCC meetings were held in January and April 2015 in different locations around the Coeur d'Alene Basin. All meetings were open to the public. CCC members were invited on the August Tour of project work and issues in the Upper and Lower Basins.

At the regular CCC meetings, members were updated on ongoing BEIPC and TLG activities and asked to provide input on a variety of issues such as how information is best distributed to residents in the Basin, and the one and five-year BEIPC work plans. The CCC informed the BEIPC of its activities by providing meeting minutes and comments to Commissioners prior to BEIPC meetings and by making presentations at BEIPC meetings.

## **Chronology of Selected CCC Activities and Input to the BEIPC in 2015**

In addition to receiving updates approximately once a month via email or regular mail about current BEIPC activities, CCC members were involved in the following activities in 2015.

### **January**

- The CCC held a regular quarterly meeting in January in Coeur d'Alene, Idaho. The Executive Director provided general updates on Basin Commission activities in the Basin.

### **February-March**

- The CCC Chair presented the results of the January CCC meeting at the February BEIPC meeting in Wallace, Idaho.

### **April**

- The April CCC meeting was held at the Osburn VFW Hall.

### **May-June**

- The CCC Chair presented the results of the April 24 CCC meeting at the May BEIPC meeting in Wallace, Idaho.

### **August-September**

- CCC members were invited to the BEIPC Site Tour and a number attended along with TLG Members, federal, state, and local government officials, members of the public and the Idaho Congressional Delegation.
- The CCC Chair and other CCC members volunteered to help staff the joint fair booth at the North Idaho Fair that was sponsored by the BEIPC, IDEQ, CDA Tribe, EPA and PHD for public education and outreach.

### **October**

- The draft five-year and one-year (2016) BEIPC work plans were circulated to CCC Members for review and comment via email and mail in lieu of a meeting.

## **November-December**

- At the November, 2015, BEIPC meeting, the CCC Chair discussed CCC meetings and the fact that several persons requested copies of the BEIPC work plans and that he received no comments on the work plans.

Throughout 2015, the CCC has arranged for transmission of information to its members and the public regarding activities in the Basin.

## **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 repositories 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 Executive Director 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. The Executive Director also hosted a tour of projects in August by interested parties; prepared, submitted and had published an editorial article in the CDA Press discussing Basin issues; and was interviewed numerous times by the media for news stories.

## **Communications and Public Involvement**

### **BEIPC Communications and Public Involvement**

In 2015, the BEIPC continued its efforts to strengthen public involvement in BEIPC activities and communication between the Basin community, the BEIPC and agencies involved in the cleanup. The CCC continues to be the focus organization to help implement this process.

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

- Participated in public education/outreach efforts in a joint booth with IDEQ, EPA, CDA Tribe and PHD at the North Idaho Fair. Provided promotional “Play Clean” cups for distribution.
- Participated in BEIPC public education/outreach efforts at the annual Silver Valley Business Expo with an information booth and handouts.
- Coordinated a field tour of sites in the Lower Basin for the Basin Commissioners, agency representatives, and citizens in August. Participants viewed the Central Treatment Plant (CTP), remedy protection, paved roads, stream bank stabilization and property remediation projects from Kellogg into the Lower Basin. A lunch stop in the West Shoshone Park in Pinehurst provided more opportunities for information sharing and conversation.
- Provided assistance to BEIPC groups and staff on communications material including presentations, brochures, news articles, displays, banner, and advertising.

- Publicized BEIPC and CCC meetings by posting the dates and agendas to the BEIPC website and through distribution of informational flyers with assistance from EPA and IDEQ.
- Utilized other communication methods to publicize meetings such as community calendar pages, newspaper advertising, and electronic media.
- Sent out activities updates of road work, CCC meetings and BEIPC meetings as well as BEIPC work plans to CCC members by email for review and comment.
- 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.
- Continued efforts 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 minutes of quarterly meetings, are posted to the website at [www.basincommission.com](http://www.basincommission.com).



### **BEIPC August Field Trip, Jackass Creek Outlet**

#### **EPA Community Involvement Activities**

Coordinating with local communities and local residents is a priority for EPA Region 10. 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 and PHD.



Highlights for the year include:

- The EPA continued to follow its Community Involvement Plan for the cleanup. Many local people helped develop this plan. The plan lays out how community members can get information and be involved, and summarizes local concerns and input. It also outlines how the EPA collaborates with its partners. EPA and IDEQ CICs interviewed more than 20 local citizens to ensure the plan reflects local values and suggestions. (<http://go.usa.gov/vvgG>)
- The Trust, EPA, and IDEQ planned, designed, and constructed several projects that will help protect completed cleanup work. Project coordinators have been working closely with local jurisdictions and other property owners on these Remedy Protection Projects. Agency fact sheets, door-to-door communications, and other outreach efforts have been ongoing. Local jurisdictions are also especially involved with public outreach. ([http://www.epa.gov/region10/pdf/sites/bunkerhill/cda\\_basin/cdb\\_remedy\\_protection\\_fs\\_082014.pdf](http://www.epa.gov/region10/pdf/sites/bunkerhill/cda_basin/cdb_remedy_protection_fs_082014.pdf))
- The agency conducted outreach on several specific projects this year including: the work in East Fork Ninemile area; the cleanup's Five Year Review; fencing of the SVNRT repository in Canyon Creek in response to public requests; presentation of a Site Reuse Award for the Schlepp wetland project; discussions on new Limited Use Repositories; recreation education and blood-lead testing opportunities; the EPA grant for local air quality; roads projects; and more.
- The **Coeur d'Alene Basin Facebook** page continues to provide site updates to the public. Find it at [www.facebook.com/CDAbasin](http://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** continues (<http://go.usa.gov/VNUx>). Published three times per year, it provides news and updates about the Coeur d'Alene Basin Cleanup Project.
- The agency maintained its commitment to the BEIPC process throughout 2015. EPA provides staff support and regular participation at meetings of the BEIPC, CCC, TLG, and PFTs. The EPA also provides funding support for facilitation of the CCC.
- An EPA website for the Basin Cleanup offers the public access to updates, site documents, and background information. Suggestions for improvements are always welcome. ([www.epa.gov/r10earth/bunkerhill](http://www.epa.gov/r10earth/bunkerhill))
- 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 2015. Additionally, EPA led site tours for interested parties, provided presentations to groups in the area, and staffed booth exhibits at local events. EPA also supported the interagency exhibit about the cleanup at the North Idaho Fair.
- EPA regularly worked with the media in 2015, arranging quarterly press availability sessions, fielding questions from reporters about the site, running newspaper display ads, and issuing press releases on high-interest activities.
- EPA's Community Liaison continued working with the community, serving as a resource for local residents. The EPA created this liaison position in response to requests for an on-site representative. In coordination with the IDEQ Public Outreach Analyst, the liaison is enhancing local communications, providing people with easier access to the agency, and helping the EPA be responsive to local issues and questions.

## **IDEQ Community Involvement Activities**

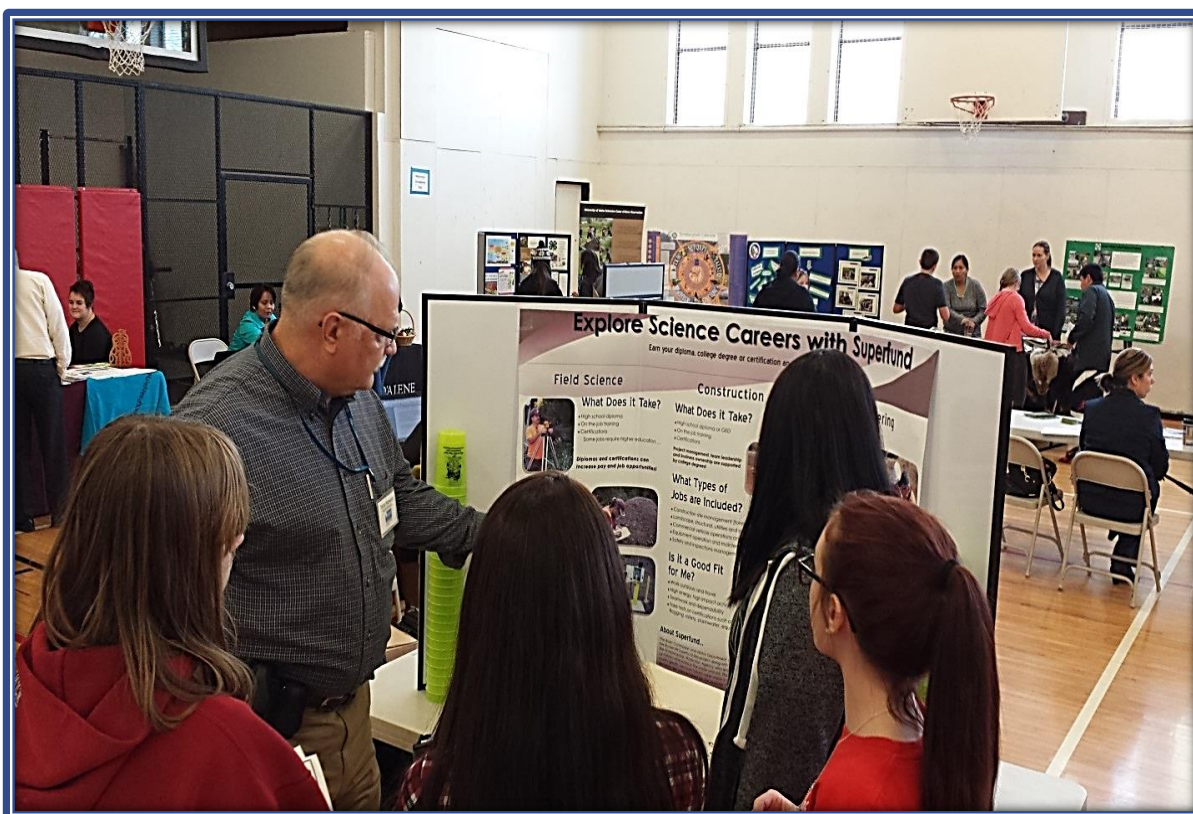
IDEQ provides and supports diverse avenues for public input, education, public engagement, and health awareness. Community and recreational health activities raise awareness about lead intervention and support the continuation of healthy trends for children, families, and visitors. Kellogg PHD is the primary partner for health messaging. The following are highlights of IDEQ 2015 activities:

- Projects included:
  - Expanded content of “Riley’s Family” children’s activity book
  - Placed radio public service announcements in the pacific northwest region
  - Managed website [www.deq.idaho.gov/PlayClean](http://www.deq.idaho.gov/PlayClean)
  - Provided children’s coloring contest program in region
  - Published weekly construction updates in news media, CDA Basin Facebook page, and direct to community members
  - Produced articles for the EPA Basin Bulletin
- Community presentations and events provide education and meaningful dialogue from the community. IDEQ also regularly attends community and civic meetings to support coordination. Events in 2015 included:
  - Lead Health Intervention Program in elementary schools implemented by Kellogg PHD
  - Simplified scientific blood lead modeling in middle and high schools
  - Watershed and pollution prevention education model for elementary schools and high schools
  - Student Career Fair for middle and high school with BEIPC
  - Business group presentation for “Leadership Coeur d’Alene”
  - Educational posters developed and displayed at high schools and chamber of commerce offices
  - Watershed pollution demonstration at Kellogg High School
  - North Idaho Fair education booth coordination, display items, trivia game, giveaways. The joint project includes BEIPC, EPA, IDEQ and CDA Tribe. The collective booth was honored with a 1<sup>st</sup> Place Exhibitor ribbon this year.
  - Assistance and participation in BEIPC’s meetings

IDEQ outreach also supports cleanup program projects. IDEQ engaged directly with community members and jurisdictions regarding Box Remedy Protection, Box Paved Roadway Remediation Program, Community Fill Plan, and Limited Use Repository projects.

Recreation areas influenced by flood water or mill tailings are a known potential source of metals exposure. Awareness and education is necessary because landscape vegetation has improved dramatically in the last decade and streams are clearer than they once were. Recreation is becoming popular in the recent decade. Designated recreation sites like the Trail of the Coeur d’Alenes see upwards of 80,000 trips per year. Undesignated and/or unmanaged areas such as the floodplain at Bull Run are also popular.

- IDEQ and Kellogg PHD work together to improve recreational human health awareness throughout the Basin. Specific recreation education projects emphasize how recreation users can reduce their risk of exposure to contaminants including:
  - Inventoried popular, un-designated CDA River and South Fork CDA River shoreline recreation sites
  - Inventoried existing signage, ensuring signage is accessible
  - Added signage to newly identified popular recreation areas
  - Created a CDA River Basin map and brochure “Recreate Safely in the Coeur d’Alene Basin”
  - Placed educational information in visitor’s and family-oriented publications
  - Added recreation images and tips to *Riley’s Family* activity book
  - Added distribution points on the Trail of Coeur d’Alene’s recreation checkpoints
  - Supported EPA in developing a series of posters featuring frequently used recreation areas and health tips



**STEM Career Day @ Lakeside School in Plummer**





**North Idaho Fair Booth**



**First Place Exhibitors Ribbon**



## *Calendar Year 2015 Work Accomplishments*

### **Part 1 -**

### **Work Performed Through Federal Superfund or Other Cleanup Programs:**

#### **Blood Lead Screening in Children**

Screening of children for elevated blood lead levels has been occurring annually in the CDA Basin since 1996 as a public health service to identify children with elevated blood lead levels and to provide follow-up from a public health professional to identify 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

Results of the 2015 Screening Program were presented at the November BEIPC meeting. The following table shows the Basin Blood Lead summary results from 2006 – 2015 for children residing in the Basin 6 months to 6 years of age.

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>Number of Children</b>	<b>69</b>	<b>71</b>	<b>73</b>	<b>175</b>	<b>108</b>	<b>75</b>	<b>83</b>	<b>92</b>	<b>77</b>	<b>94</b>
<b>Min (µg/dl)</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>
<b>Max (µg/dl)</b>	<b>10.0</b>	<b>9.0</b>	<b>14.0</b>	<b>10.0</b>	<b>20.0</b>	<b>12.0</b>	<b>8.0</b>	<b>16</b>	<b>11</b>	<b>13</b>
<b>Ave (µg/dl)</b>	<b>2.8</b>	<b>2.9</b>	<b>2.4</b>	<b>3.1</b>	<b>2.5</b>	<b>3.1</b>	<b>3.3</b>	<b>2.8</b>	<b>3.1</b>	<b>3.2</b>
<b>GeoMean (µg/dl)</b>	<b>2.4</b>	<b>2.6</b>	<b>2.1</b>	<b>2.7</b>	<b>2.1</b>	<b>2.6</b>	<b>3.1</b>	<b>2.5</b>	<b>2.9</b>	<b>2.8</b>

In early 2012, the Centers for Disease Control & Prevention (CDC) changed its “level of concern” associated with childhood lead poisoning from a blood lead level of 10 micrograms per deciliter (µg/dl) to a new “reference value” of 5µg/dl. The new lower value means that more children will be identified as having lead exposure allowing parents, doctors, public health officials, and communities to take action earlier to reduce the child’s future exposure to lead.

In 2015, six children in the Basin were identified with a blood lead level greater than 5µg/dl, with two of those being slightly above 10µg/dl. PHD contacted all families of children who had a child with a blood lead level equal to or greater than 5µg/dl to provide information on how to reduce exposures and to offer follow-up screenings. All 2015 children that have participated in follow-up screenings with PHD have seen their blood lead levels decline. We believe this is at least partially due to our follow-up efforts, but we recognize that the follow-up measures are also likely to be less than the initial screen because we intentionally schedule our blood lead screens to occur in late summer when blood lead levels are at their annual seasonal peak. Also, in 2015 Basin participants were paid \$30 for each child screened. In 2015 we saw the highest participation rate in the Basin since 2010. The blood lead screening program will continue offering a \$30 incentive in 2016 for children between ages 6 months to 6 years of age residing within the Basin.

## Basin Property Remediation Program (BPRP)

Year	Number of Property Addresses	Area Remediated (Acres)	Waste From BPRP Disposed of in Repositories ( Truckloads)	Truckloads Per Acre
2007	373	60	9,240	154
2008	352	57	8,129	143
2009	547	149	18,780	126
2010	311	70	10,725	153
2011	243	64	9,795	153
2012	216	73	9,127	125
2013	128	44	3,500	80
2014	95	30	3,647	121
2015	82	37	3,069	83

The IDEQ BPRP program remediated a total of five residential and commercial properties in 2015. Three commercial properties requiring additional work were completed. This resulted in 138,088 square feet or 3.17 acres of contaminated property being remediated.

Work began on May 6<sup>th</sup> and concluded on October 28<sup>th</sup>. Activities at the repositories extended slightly beyond the beginning and end dates of the BPRP due to seasonal preparation and closeout, Remedy Protection, and ICP related business.

The Trust BPRP program remediated a total of 77 residential and commercial properties in 2015. Remediation included one limited use repository (LUR) and three large commercial properties. 2015 construction season started on the 9<sup>th</sup> of June and finished on the 24<sup>th</sup> of November. The remedial contractor was successful in remediating a total of 1,465,220 square feet or 33.64 acres.



**Property Remediation**

## Remedy Protection Projects

Remedy Protection is a high priority in the Upper Basin RODA and the SCIP developed by EPA in the fall of 2012. The objective of this work is to protect the installed human health related remedy from recontamination and scouring caused by heavy precipitation and tributary flooding. In 2012, planning, survey and design began on a number of projects in the urban areas of the Box and Upper Basin portion of OU-3 noted in the RODA.

With IDEQ completing the following work in 2015, Remedy Protection is now complete in the Box:

- Construction of the Little Pine Creek Project in Pinehurst was completed,
- Design and construction of the Jackass Creek project in Kellogg was completed, and
- Design and construction of two small side gulch projects, one on Silver Creek in the Page area and one on Slaughterhouse Gulch Road above Wardner were completed.

The CDA Work Trust completed design and construction of the following projects in 2015:

- Revenue Gulch project in Silverton,
- Mill Road project in Mullan,
- South 2nd Street project in Mullan, and
- A small side gulch project on McCarthy Creek at Ninemile Road.

The CDA Work Trust also worked on designs for a number of projects in the Basin to be constructed in 2016.

EPA and IDEQ continued collection and analysis of data to define remedy protection projects for select side gulches noted in the RODA. Analysis of side gulches will continue in 2016.



**Mill Road Remedy Protection Project in Mullan Under Construction**





**Completed Mullan Remedy Protection Project South 2<sup>nd</sup> Street  
Fish Passage Crossing of Mill Creek**

### **Paved Roadway Surface Remediation Program**

EPA and IDEQ implemented the roadway surface remediation program in 2013 to address the deterioration of contaminated paved road surfaces due to heavy traffic during site remediation activities to ensure road surfaces continue to serve as barriers that reduce or eliminate exposures to underlying contamination. There were 593 road segments to be remediated in the original program Strategy; the EPA/IDEQ Roads Board has added approximately 10 segments that were not identified originally by the local jurisdictions resulting in a total to date of 603 segments. The local road jurisdictions working with their engineering consultants and contractors under the program oversight of the Roads Board completed 259 segments in 2013-2015. Many of these segments were in need of being totally rebuilt as opposed to overlay planned in the Strategy. Reconstruction of many of these roads also were completed in coordination with major subsurface infrastructure projects in Mullan, Wallace and Kellogg, which were funded by utilities or through local bond elections and USDA Rural development Grants.

The Board estimates that about 85% of the segments will require significantly greater improvements than were originally identified in the Strategy. Accomplishments to date are about 43% of the entire program with an investment of about \$16.7 million. Therefore, 43% of the work has been completed with about 31.5% of the original \$54 million allocated for this program. These accomplishments are attributed to the contracting procedure, the oversight of the Board and the hard work of the Jurisdictions.





### **Paved Roadway Program Silver Valley Road**

#### **Characterization of Mine and Mill Sites**

Characterization of mine and mill sites in close proximity to residential properties is ongoing to identify sites that might pose a threat to human health. Following characterization, the sites will be prioritized to identify future remediation needs to address human health exposures and ensure that completed remedies are not re-contaminated by migration of contaminants from mine and mill sites.

Since more than 1,000 mining-impacted sites are catalogued for the Bunker Hill Superfund Site, sites that might pose a threat to human health were identified using the following categories. These categories were selected to identify sites with potential human health exposures and to assist with site prioritization.

- Site is located within 200 feet of a residence.
- Site is located between 200 and 1,000 feet of a residence.
- Site intersects a road and/or stream upstream of a residential area.
- Site is up-gradient of a residential area.

Based on this categorization, approximately 100 sites were identified as candidates for this characterization task. Characterization is performed in accordance with the *Sampling Analysis Plan/Quality Assurance Project Plan (SAP/QAPP) for Upper Coeur d'Alene Basin Mine and Mill Sites for Characterization of Human Health Risks* and includes: historic desktop research, access agreements, site visits to determine potential human health concerns, and sampling (if necessary). During the 2015 field season, site visits were conducted for approximately 50 sites and sampling completed for approximately 10 sites located within the Upper Basin. Characterization will continue during 2016.



**Example of a Residential Property Next to Mine Site**

## **Repository Development and Management**

### **Introduction**

Repository development 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 cleanup program. The cleanup program includes the BPRP, and other cleanup actions performed by EPA through the Trust or IDEQ. It also includes waste generated by private parties and local government agencies under the ICP and Paved Roadway Surface Remediation Program. Without the expansion of existing repositories or the construction of new repositories, continued cleanup and control of contamination could be compromised and potentially stopped.

The Upper Basin RODA specifies a two-part approach to waste management that utilizes both repositories and Waste Consolidation Areas (WCAs). Repositories are large, centrally located areas within the Upper and Lower Basin where contaminated soil and material excavated during cleanup actions is transported to, managed, and secured. WCAs will be located adjacent to or near the waste source areas and will serve for consolidation or placement of wastes from specifically identified sources such as mine and mill site remedial actions. Repositories and WCAs (see the Upper Basin remedy section for more on WCAs) constructed under the remedy are engineered and constructed to reliably contain waste 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.



A third waste management approach was adopted in 2014 following public review and comment called the Community Fill Plan (CFP). The CFP was developed in recognition that the ICP allows use of contaminated soils for fill and the need for fill material to create more developable ground in the Upper Basin. Use of a CFP would take place under agreement between a generator and a property owner with space for fill, but must be approved by the PHD in compliance with the ICP. PHD must seek approval of EPA and IDEQ for any CFPs proposed to dispose of 5,000 cubic yards (cy) or greater. No CFPs were developed in 2015.

A fourth waste management approach takes advantage of the relatively low volume of base materials excavated during paved roads projects, and their inclusion with the relatively inert asphalt or Portland Cement concrete which makes up 30 – 50% of the wastes generated when roads are torn up for replacement. Approximately 55,000 cy of paved roads waste was disposed in two Limited Use Repositories (LURs). The first LUR completed was constructed using 35,000 cy in East Osburn on a U.S. Silver Property. The second remains under construction in Government Gulch where 20,000 cy were disposed in 2015. LURs will take advantage of the roads waste physical characteristics which, when placed properly, make it a moderate quality construction fill. LURs have all of the engineering controls used in larger scaled repositories, but are “limited” to the type of fill (roads waste) and duration of time (2-3 years) before they need to be closed, capped and covered. The three primary goals for constructing LURs are: 1) the economy of disposing low toxicity wastes in places close to roads projects, 2) conserving repository space for more contaminated remediation waste, and 3) increasing the developable space inventory in the Upper Basin. Relative to the first, waste disposal costs for road waste is currently between \$9.50 and \$11.00/cy in LURs as opposed to \$22 – \$35/cy in the long term repositories (described below). For the LURs that currently exist, it is estimated that when completed they will provide an additional 9 acres of flat developable ground.

Five repositories were operated to receive remedial action and ICP waste in the 2015 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 were 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 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 2015, BCR received 2,206 truckloads from the BPRP, 678 truckloads from the ICP, 597 truckloads from Remedy Protection Projects and zero truckloads from Paved Roads Projects (see discussion of Limited Use Repositories). Final in-place, compacted volume calculated from the truck load count was about 32,000 loose cy. This material was placed and compacted in accordance with the fill plan outlined in the annual BCR Operations Plan. The Trust’s site management contractor oversaw these activities including operation of the decontamination facility. In 2015, the water quality monitoring program at the site found that BCR operations had not impacted adjacent surface or ground waters.

BPRP, ICP, and Remedy Protection Program placed at BCR in 2015 were placed on top of the repository, which currently has about 17,000 compacted cy of capacity left for disposal. Starting immediately after the last of these wastes were received the slope was stabilized and hydro seeded. The year-end repository shutdown activities have been completed and include:

- Finish grading of the north and west slopes of the BCR North End expansion area were initiated and completed. All slopes were cut/filled to a nominal 3:1 slope, and track-walked to prevent erosion.
- The active placement surface of the BCR North End expansion area was graded and sloped inward to prevent consolidated runoff from eroding any finished slopes.
- A storm water ditch (constructed of filter fabric and six inch cobble) was constructed at the interface between BCR North End expansion waste and the original tailings pond berm at the NW corner of the site to convey collected storm water off the waste mass.
- Additional storm water management controls including straw waddles and hydro-seeding with a native seed mix were installed on finished slopes to further protect against erosion of these surfaces.

At the end of the 2015 field season, the BCR contained approximately 590,000 cy of waste soils. The total anticipated capacity is approximately 607,000 cy including the final cap volume. Assuming similar production levels of waste from the BPRP, ICP, Remedy Protection Program and Paved Roadway Program, no more than one year of capacity remains in BCR. To ensure continued ICP capacity for the Upper Basin until operation of a new upper basin repository begins, careful management of wastes and the remaining BCR capacity will be critical. To this end, the Trust is evaluating the potential for additional capacity on the BCR. Furthermore, the BCR Annex began receiving waste soils in 2015 (see discussion below).

### **Big Creek Repository Annex**

Development of the BCRA was completed in 2015 and the repository opened to take remedial and ICP waste. BCRA received 169 truckloads from the BPRP, 115 from the ICP, and 133 from the Paved Roadway program. The Annex capitalized on being able to use the existing infrastructure at Big Creek Repository such as the main entrance and wash station.

### **East Mission Flats Repository**

In 2015, the EMFR received 694 truckloads from the BPRP, and 503 truckloads from the ICP. Final in-place, compacted volume calculated from the truck load count was about 16,126 cy.

All exterior slopes of EMFR completed in 2015 have been constructed to a nominal 3:1 slope, and track-walked to prevent erosion. Clean soil treated with approximately 180 cy of compost generated at the Page Repository was placed as a six inch cover over the 2015 lifts. This temporary cover will stabilize the exposed waste until the final cap and cover can be constructed. The exterior surfaces were further stabilized from erosion using straw waddles and hydro-seeded with a native vegetation seed mix.

As in the past, the ICP disposal area will be available at the east end of EMFR to receive ICP waste during the winter closure period. The ICP area will be managed by the Trust's Operations Contractor during the winter closure period. 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.



### **East Osburn LUR**

The East Osburn LUR was developed, filled and closed in 2015 following approval of the Limited Use Repository policy and design documents. It was created on private commercial property to provide for disposal of Upper Basin paved (concrete and asphalt) road waste and contaminated shallow base materials. The East Osburn LUR received paved road waste from the Paved Roadway Program (3,172 truckloads) and from the Remedy Protection Projects (403 truckloads). The LUR was capped with 6" of gravel on top and one foot of vegetated soil on the side slopes as part of the BPRP work. LURs allow the regular long-term repositories to focus on the more contaminated waste that comes from the BPRP, ICP and other programs instead of taking on relatively uncontaminated road surface waste. The 3.5 acre area has been closed in accordance with ICP rules and in a condition that is conducive to redevelopment of the property (2 acres of flat developable land included).

### **Page Repository**

The Page Repository is located just west of Smelterville. End of year surveys for placed and compacted wastes at Page are still in progress. However, IDEQ's Program manager estimated that during 2015 Page received and disposed of approximately 1,362 truckloads of ICP waste generated in the Box. Most of these materials were generated by commercial developments. Page received 205 truckloads of remedial action wastes from the Paved Roadway Remediation Program in the Box (most of the Paved Road waste from the Box went to the Government Gulch LUR – see below). Approximately 451 truckloads of Remedy Protection wastes were also delivered.

To mitigate for the expansion of the Page Repository into the West Page Swap, the West End Natural Infiltration Area (WENI) wetland restoration project was constructed. The WENI mitigation project is currently in a monitoring mode, but results from field inspections conclude that the area is developing at a much faster than expected rate. The IDFG has been contracted by IDEQ to implement the Robinson Creek Wetlands project, which will provide for the residual mitigation obligations for the Page Expansion. IDFG completed the drainage and regrading of Robinson Creek area in 2015. Although revegetation work began in 2015, additional work will need to be completed in 2016 to close out the project. Subsequently Robinson Creek will enter a monitoring and evaluation phase.

### **Government Gulch LUR**

The Government Gulch LUR was developed and partially filled in 2015. It is estimated that it will operate for one or two more years before being closed in a way that supports redevelopment of approximately 6 acres of land. The LUR was established to take paved road waste from Box Remedy Protection and Paved Roadway Programs. It received 129 truckloads from Remedy Protection and 2,496 truckloads from the Paved Roadway Program.

### **New Repositories**

In addition to the operational repositories, three separate areas for future disposal and permanent storage of mining related contamination are currently in some stage of development. 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 Star Tailings Impoundment (STI) near Woodland Park (now known as the Lower Burke Canyon Repository (LBCR)). The LBCR was developed during 2015 and received limited waste from remedial action in the Upper Basin during 2015. Waste streams included 84 truckloads from the Paved Roadway Program, 738 truckloads from Remedy Protection Projects, 714 truckloads from BPRP, and 146 truckloads of waste generated by various ICP projects.

The third area under development is a WCA in the East Fork of Ninemile Creek necessitated by the significant volume of waste identified for cleanup in that drainage. The progress toward transforming these sites into waste disposal facilities is described in the sections below. However, there are equivalent levels of effort being placed on waste reductions and cost cutting due to reprocessing and reuse of contaminated materials, particularly coarse durable. In the long run technical approaches to reuse will conserve repository storage capacity and limited funding.



**East Osburn LUR After Completion Providing for Further Development**

## **Upper Basin Remedies**

### **Cleanup Actions in East Fork Nine Mile Creek (EFNM)**

In 2015, remedies in the EFNM Creek Basin consisted of the following:

- Completion of the Interstate Callahan (IC) Rock Dumps Remedial Action (RA) Project.
- Operation of the EFNM Waste Consolidation Area (WCA).
- Construction of Success and Tamarack Haul Road Infrastructure.
- Continued Surface water monitoring in the EFNM Basin.
- Completion of the 90% design for Phase 2 of the EFNM WCA Expansion.
- Completion of the 90% Remedial Design of the Success Complex RA Site.
- Continued work to address all applicable regulatory requirements including compliance with the National Historic Preservation Act, Endangered Species Act, and Clean Water Act.
- Characterization of NM-363 at the Tamarack/Interstate Mill Site in EFNM Basin.

The above projects within the EFNM Creek Basin employed 97 workers during the 2015 construction season, 80% of which were local.

The following summarizes the construction activities conducted in the EFNM Creek Basin:

- Approximately 56,800 cy of contaminated waste rock and mine tailings were hauled from the IC Rock Dumps Site and were placed and compacted at the WCA.
- Approximately 1,700 lineal feet of EFNM Creek was reconstructed through the IC Rock Dumps Site.
- Revegetation of approximately 6.0 acres at the IC Rock Dumps.
- Construction of Support Road through the IC Rock Dumps (0.30 miles).
- Completion of WCA South Stockpile Area. Hauled excess clean materials from WCA to South Stockpile Area.
- Placement of temporary cover materials over contaminated waste rock and mine tailings at WCA prior to winter shutdown.
- Completion of infrastructure upgrades to the Success and Tamarack Haul Roads (2 miles) necessary to support the Success Complex RA Construction Project in 2016.
- Installation of four monitoring wells during NM-363 area wide investigation at the Tamarack/Interstate Mill Site.



**EFNM WCA**





**Interstate-Callahan Mine Waste Dump Remediation Post Construction**



**Tamarack Haul Road Construction**



## 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 river banks, splay areas and river bed. 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 focus on 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.

Health Intervention Program projects lead by IDEQ and Kellogg 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, a number of efforts were undertaken in 2015 including inventorying and relocating health signage and airing radio announcements that provide health tips to recreationists. Human Health Risks as a result of recreational activities in both the Lower and Upper Basin are being primarily addressed through the Strategy Plan for that purpose which is described in the Recreation Site Section of this Report.

EPA initiated two preliminary pilot projects in 2015 to evaluate wetland mitigation options. These included development of a work plan to test the effect on vegetation of thin layers of capping material, and consultation with soil scientists at EPA's Office of Research and Development regarding sediment treatments that may reduce the bioavailability of lead to waterfowl. These options are considered promising methods to cost-effectively reduce ecosystem impact from contamination while limiting hydraulic effects from remedial action. Both pilot projects will be continued in 2016.

EPA and project partners, including the Trust and the Restoration Partnership, monitored the river bank isolation project that was constructed in 2014 at the Kahnderosa Campground property, immediately downstream of Cataldo. Minor damage that occurred during a flood in February 2015 was repaired. Additional opportunities to reduce exposures in the Lower Basin will continue to be considered concurrent with the model development and additional analyses.

The two-dimensional hydraulic model of the Lower Basin was calibrated and validated in 2015, showing good agreement between measured and modeled water surface. The model will provide a valuable tool for evaluating flows in the river channel and across wetlands and floodplains, and in prioritizing and evaluating remedial designs. It can be used to evaluate the hydraulic effects of possible remedies early in the design process, and provides the foundation for the sediment transport model; development of this model began immediately following validation of the two-dimensional hydraulic model. The sediment transport model will allow simulations of how sediment is eroded, transported and deposited in the Lower Basin, providing enhanced abilities with which to evaluate potential remedial actions options and designs.

Other work to support development of the sediment transport model was conducted throughout 2015. Data files of river bed characteristics obtained from river bed coring conducted in 2013 were aligned with the model grid to allow the modeled bed to erode on the basis of localized sediment characteristics under different conditions. The erodibility characteristics of sediment in areas of high contamination were further evaluated using several methods; first the relative amount of in situ bed erosion occurring across a range of flow rates was visually assessed by divers using a nozzle testing device, and secondly, by cores that were obtained in key areas and sent to a laboratory for specialized quantification of specific erosion parameters. Patterns of horizontal and vertical variations in sediment characteristics and erodibility will be used to increase the reliability of the sediment transport model, and to evaluate the feasibility, relative priority and

effectiveness of possible remedial actions in the river. The sediment transport model is expected to be completed in mid-2016.

An extensive network of floodplain sediment deposition tiles was monitored following winter flooding in 2015 to document the rates and characteristics of deposited sediment. The network has been maintained and will remain in place for the current water year. Likewise, much of the flood stage suspended sediment sampling planned for 2015, which could not be conducted because of low runoff, will be conducted if high flows occur in 2016.

Documentation of ongoing data collection and analysis being conducted to support the Enhanced Conceptual Site Model (ECSM) continued through 2015, with updates to the initial ECSM (EPA, August 2010) being prepared as work elements were completed. Significant updates included documentation of floodplain sedimentation rate estimates using a simplistic 1D model (TM- E-5), which provides initial insight on flood plain deposition rates and documentation of riverbank characteristics, erosion rates, and lead contribution (TM E-1). Additionally, the completion of an updated tech memo regarding the processes of sediment and lead transport, erosion and deposition (TM D-3) is pending. Compilation of data and analyses of river bed characteristics (TM E-6) was initiated for a closely related document and is scheduled for completion in 2016. Other similar ECSM updates are currently being reviewed by EPA and will be made available to stakeholders in 2016. Information gained as a result of the ECSM helps in both decision making and the parameterization of the sediment transport model and will guide the selection and design of pilot projects.

In 2015, EPA also started the process of developing a comprehensive strategic plan that will further the work already underway in the Lower Basin and detail the work to be completed over the next 3-5 years, will outline a decision matrix or tool for prioritizing pilot projects and remedial actions that may be completed over the next 20-30 years, and will detail a stakeholder and community engagement process. EPA will develop the plan and seek input from stakeholders on the plan before finalizing it. EPA anticipates the strategic planning development process to be completed in early 2017.

EPA is not selecting new remedies for the Lower Basin through this strategic planning process, but prioritizing, evaluating and implementing actions that have been previously selected in the decision document. The OU-3 ROD provides a large degree of flexibility in how EPA chooses to approach development and implementation of remedies in the Lower Basin. However, EPA may choose supplemental actions, which are not explicitly identified by the ROD. In this case, EPA will evaluate the need for an Explanation of Significant Differences (ESD) or ROD amendment. EPA expects that actions taken will: 1) provide data to help inform future decisions 2) provide protection to human health exposure and 3) provide protection to sensitive species and contribute to a functioning ecosystem.

## **Recreational Sites**

During 2015, EPA, IDEQ, PHD and the Trust began development of a *Recreational Sites Strategy Plan for Managing Human Health Risks*. The goal of this plan is to determine strategies for managing and reducing human health risks at recreational sites throughout the Upper and Lower Basin. Recreational sites range from properties that are occupied for short periods to those that are used all summer. Examples of recreational activities include camping, hiking, riding ATVs, boating, swimming, inner tubing, etc... These activities can result in exposure to lead and other heavy metals from contaminated bank sediments and upland soils (located out of the floodplain). Contaminated soil can also result in contaminated dust that infiltrates tents, trailers, and campers and be transported from recreational sites to residential homes.

Some of the challenges associated with recreational sites include identifying use of sites in remote locations and ongoing recontamination by frequent flooding of sites in the flood plain. Upon completion, this strategy plan will provide an inventory of recreational sites, group these sites based on types of recreational activities, and provide information about potential exposure routes associated with recreational activities. This information will be used to determine and prioritize exposure reduction approaches for managing and reducing exposure to lead and other heavy metals for anyone recreating in the Bunker Hill Superfund Site. Since this recreational sites program overlaps with other Bunker Hill programs (such as the BPRP, mine and mill site characterization, and Lower Basin Pilot Projects), the programs will work together to efficiently implement exposure reduction approaches at recreational sites.

## **State of Washington Projects**

The Washington State Department of Ecology has performed sampling and observational site visits at the previously completed eight Spokane River beach cleanup sites in 2013 and 2014. In April 2015, a report documenting the outcome of those efforts was published. The report titled “Monitoring, Sampling, and Analysis Report: Spokane River Shoreline Sediment Sites Heavy Metals Post-Remediation Monitoring” provides data and discussion of the work undertaken. Despite some new accumulation of sediment at the sites, the remedies appear to be intact and performing as expected. Observational site visits will occur in 2016, but no sampling is planned.

## **Basin Environmental Monitoring**

### **Basin Environmental Monitoring Plan (BEMP)**

EPA has been working to consolidate the Bunker Hill Superfund Site/CDA Basin three primary monitoring plans into one plan for the entire Basin. Historically there have been three CDA Basin environmental monitoring programs/plans: OU-3 Basin Environmental Monitoring Plan (2004), OU-2 Environmental Monitoring Plan (EMP, 2006), and OU-3 RA Effectiveness Monitoring Program (2007). EPA has been working to integrate the existing plans into a consolidated CDA Basin environmental monitoring plan to: 1) optimize the current monitoring under the various programs; and 2) enhance the overall program operation and effectiveness with respect to changes and adaptive management, laboratory coordination, field sampling, data management, and reporting efforts. To date, EPA has completed a Bunker Hill Site Wide Quality Management Plan (QMP) and is continuing to work on an updated Data Management Plan (DMP) and an overall site wide monitoring Program Management Plan. EPA anticipates the monitoring program updates will be completed in 2016.

The major goal of the BEMP is to monitor and evaluate the progress of the remedy in terms of improving ecosystem conditions. Consistent with that goal, the BEMP will provide data relative to the following Basin-wide monitoring objectives:

- Assess long-term status and trends of surface water, sediment, groundwater and biological resource conditions in the Basin using rigorous statistical analysis.
- Evaluate progress toward meeting remedial action objectives (RAOs), applicable or relevant and appropriate requirements (ARARs), and preliminary remediation goals (PRGs).
- Improve the understanding of Basin environmental processes and variability to improve the effectiveness and efficiency of remedial actions.
- Provide data for CERCLA - required Five-Year Reviews of remedy performance.



During 2015, U.S. Geological Survey (USGS), IDEQ, USFWS and EPA continued BEMP and EMP sampling. Specific activities are outlined below.

## **Surface Water**

In Fiscal Year (FY) 2015, USGS collected 63 stream discharge and water-quality samples from of 16 OU-3 and 4 OU-2 surface-water stations for a range of hydrographic events. Samples were collected during fall base flow in October, during the winter flush in February, during the spring snowmelt runoff in March, and during the hydrograph recession in June. Each site was sampled between 2 and 4 times during the year. All samples were analyzed for nutrients, selected trace metals and major ions, and suspended sediment.

Thirteen of the 16 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>

Spring snowmelt runoff occurred quite early during FY15 and was well below normal. Based on historical data, the FY15 runoff occurred about 3-4 weeks earlier than normal. As a result, recession samples were collected in June whereas normally they have been collected in July or even as late as August. As a result, fall base flow samples collected in October, 2015 at most of the BEMP stations were at historical low stream flows.

All gaging station stream discharge and water-quality records for the BEMP gages for Water Year (WY) 2014 were worked up, approved, and included in the 2014 USGS annual data report for Idaho. The annual data summaries were completed and delivered to EPA during the first quarter of FY15. USGS personnel worked with EPA to upload all of the BEMP surface water quality data to STORET.

The USGS completed a first draft of the SW QAPP which was sent to the EPA for review. Comments from EPA were received and an updated SWQAPP was returned to EPA for further review.

During FY15, the new gaging station was operated on the Spokane River at the outlet of Coeur d'Alene Lake about ¼ mile downstream of the U.S. Highway 95 bridge. Enough measurements were made at the new location to develop a solid rating and real-time streamflow data is now available online for the new station. The old location upstream of the bridge created difficulties with silt buildup and lacked sufficient velocity for high-quality measurements. Water quality samples will continue to be collected upstream of the outfall from the Coeur d'Alene STP while discharge measurements will be made at the new location.

## **Groundwater**

In 2015, IDEQ administered semiannual groundwater sampling within OU-2 of the Bunker Hill Box in accordance with OU-2 EMP. The sampling objective is to evaluate the OU-2 Phase I human health Remedial Actions conducted pursuant to the 1992 OU-2 ROD. In addition, the OU-2 sampling helps to inform and support the implementation of the Phase II water quality remedial actions identified for OU-2.

During 2015, groundwater sampling was conducted at 27 sites during March high flow conditions and 11 sites during October low flow conditions. In addition to measurement of typical field parameters, samples underwent laboratory analysis for a number of dissolved metals at all sites and total phosphorus at select sites. Some of the sites were also analyzed for acidity, alkalinity, total dissolved solids, total suspended solids, anions, and o-phosphate.

As part of the overall effort to consolidate the BEMP, IDEQ is continuing to work with EPA to optimize the long-term groundwater monitoring network by reducing the number of sites sampled. For the high flow event, the number of sites decreased from 83 sites in 2014 to 27 sites in 2015. For the low flow event, the

number of sites decreased from 61 sites in 2014 to 11 sites in 2015. These changes were made based on review of historic data and ongoing discussions between IDEQ and EPA regarding the groundwater monitoring objectives.

Sites sampled during both the fall and spring 2015 events included ongoing baseline monitoring in preparation for the installation of the groundwater collection system in OU-2 between the Central Impoundment Area (CIA) and Interstate 90. Data was collected to estimate dissolved metal loads to the SFCDR, monitor remedy performance and effectiveness, and evaluate long-term response to the collection system operation.

## **Biological Resources**

USFWS conducted waterfowl surveys from late February to late April 2015 in 26 Lower Basin floodplain wetlands recording observations of waterfowl use and tundra swan mortalities. During June songbird blood was collected for lead analysis at the two Monitoring of Avian Productivity and Survivorship (MAPS) locations in the Basin, Smelterville Flats and a Reference Site (located on the Lambrose Property) adjacent to the NFCDR.

Also in June staff performed fish salvage activities with Trust contractors on EFN Creek to prepare for remediation of the Interstate Callahan Rock Dump removal activities. Benthic macroinvertebrate tissue samples were collected from SFCDR for remedial effectiveness monitoring associated with the Central Treatment Plant (CTP) upgrades/expansion (2 sites) for cadmium, lead, zinc, and arsenic tissue concentration analyses. These sites will be sampled again post-CTP improvements to evaluate the success and assist in guiding any additional work at this location, or future locations.

All Waterfowl Observation and Tundra Swan mortality data through 2015 was uploaded in to WQX. In addition, both waterfowl blood and songbird blood data were prepared for WQX submission.

## **Sediment**

2015 BEMP sediment sampling in the Basin included the collection of two types of samples: sediment suspended in the water column (suspended sediment) and sediment deposited on banks near the river channel and in off-channel lakes or wetland areas (depositional sediment). Suspended sediment sampling is conducted to obtain data on the amount and characteristics of sediment being transported at a given time and location in the river system. Five suspended sediment sampling stations are located in the Lower Basin: SFCDR near Pinehurst (mouth of the SFCDR), NFCDR near Enaville (mouth of the NFCDR), CDA River near Cataldo, CDA River near Rose Lake, and CDA River near Harrison.

Depositional sediment sampling is conducted as soon as practicable at each sampling station after floodwaters recede to provide data on the amount and characteristics of sediment deposited by high-flow events. Sampling stations in the Lower Basin include 10 within-bank or near-channel locations. Six off-channel locations are used to assess sediment deposition rates and characteristics in shallow lakes and wetlands. These stations provide data on material deposited in wildlife habitat areas and can be used as an indication of sedimentation rates and risk characteristics associated with specific flood events. An additional near-channel depositional sampling station is located downstream of Coeur d'Alene Lake and Post Falls Dam on the Spokane River. This sampling location is used to assess the physical and chemical characteristics of sediment carried beyond Coeur d'Alene Lake. Analysis of depositional sediment is performed for seven metals determined by the Ecological Risk Assessment (EPA, 2002) to be contaminants of ecological concern.

An additional 55 supplemental sampling stations were installed in coordination with the BEMP depositional sampling program in 2015 to evaluate the depositional thickness and lead concentrations in off-channel/floodplain areas. These stations will be used for validation of the sediment transport model, and are not expected to be maintained over longer periods envisioned for the BEMP stations. However, data from these supplemental stations can be used to augment off-channel BEMP data. The supplemental stations are located throughout the Lower Basin from Cataldo downstream to Thompson Lake.

Regular suspended sediment sampling in 2015 was conducted by USGS. Streamflow conditions in WY 2015 were characterized with two elevated runoff events during the winter months: one event in early February and one in mid-March, followed by low flow conditions for the duration of the spring. The magnitude of the elevated runoff events did not meet threshold criteria to conduct supplemental (high volume) suspended sediment sampling by CH2M Hill. Depositional sediment sampling was conducted in March and April following the spring runoff and recession of water. All 17 of the near and off-channel stations were sampled, except Strobl Marsh and Bare Marsh due to no depositional material being present. Of the 55 supplemental off-channel/floodplain stations, 22 were sampled in WY 2015. Depositional material was not present or no floodwater inundations occurred at most locations.

The following conclusions provide a general summary of the data collected for WY2015.

- The lowest concentration of lead in depositional sediment samples was observed at the NFCDR at Enaville station. Lead concentrations at the Enaville station were characteristic of river sediment upstream of significant historical mining impacts and are considered to represent approximate background conditions. Conversely, the highest concentration of lead in depositional sediment samples was observed at the off-channel sampling station located at Rainy Hill.
- Lead concentrations were relatively low in the depositional sediment samples collected at the Cataldo station, compared with both upstream and downstream samples. These concentrations were lower than those upstream on the SFCDR but higher than those on the NFCDR. The relatively low lead concentrations near Cataldo appear to be the result of dilution of SFCDR sediment with cleaner sediment from the NFCDR and the cobbled river bottom in this reach, which does not store significant amounts of sediment from historical releases. Downstream of Cataldo, lead concentrations in depositional sediment increased to levels above SFCDR levels - indicating that lead is being mobilized from within the CDA River channel. In WY 2015, elevated lead concentrations were observed in both near and off-channel sampling locations.
- Depositional results indicate that concentrations of lead immediately downstream of the old Cataldo Dredge Site are similar to Cataldo. However, about one river mile downstream of the Dudley Scour Hole concentrations of lead in depositional sediment increase rapidly. This pattern supports the conceptual model of recruitment of previously deposited sediment from the riverbed (and, to a lesser degree, riverbanks) that contains higher concentrations of metals and subsequent downstream transport and deposition of this sediment.
- Of the 55 additional off-channel/floodplain sampling locations, the highest lead concentrations were detected near the Strobl splay area, near Swan Lake, and near Killarney Lake. Lead concentrations were highly variable at the stations sampled, but were generally lower in the Cataldo and Cataldo Mission areas.

EPA will continue to make analytical results from site surface water, sediment, groundwater, and biological resource sampling available on a web-accessible data management system, currently WQX. Due to budget cuts the Bunker Hill web page is no longer available however data can be downloaded directly from WQX.





### **USFWS Biological Electrofishing in the EFNM Creek**

## **Part 2 – Other BEIPC Activities and Responsibilities:**

### **Lake Management Activities**

The Lake Management Plan (LMP), developed by the CDA Tribe and IDEQ, was finalized in 2009. Since then the CDA Tribe and IDEQ have been implementing core aspects of the LMP. LMP coordinators with IDEQ and the CDA Tribe are in the process of conducting an audit of activities completed by various stakeholders since 2009. Below is an interim list of nutrient reduction projects that are a key component of the LMP accomplished basin-wide since 2009. It is not a comprehensive list, as audit activities are ongoing. Following this summary is an update of LMP program staff accomplishments in 2015. Basin-wide nutrient source reduction projects since 2009:

1. Over the last 15 years, the CDA Tribe has purchased over 2,200 acres for fish and wildlife habitat restoration in the Basin, and expends in excess of \$750,000/year on maintenance of these lands.
2. From 2001-2012, the CDA Tribe has enhanced 13.5 stream miles for instream habitat and 3.5 miles of stream for floodplain connectivity.
3. The CDA Tribe partnered with several industrial timber companies, Benewah County and Idaho Department of Lands to assess the above sub-watersheds and created prioritized action plans. This work included 300 miles of road inventory.
4. In 2014-2015, the CDA Tribe partnered with Benewah County to gravel two miles of county road and replace seven culverts.

5. The CDA Tribe has partnered with the Spokane County Soil and Water Conservation District to conduct outreach to Reservation farmers advertising the availability of low-interest loans for the purchase of direct-seed equipment.
6. In fall 2015, the CDA Tribe and IDEQ partnered with Girl Scouts of Eastern Washington and Northern Idaho to remove 150 feet of yellow flag iris (an invasive species) and install a native vegetated waterfront buffer.
7. Streambank/Shoreline Protection practices (including riprap, willow plantings, barbs, and some root wads) applied from 2010 to 2015 through Natural Resource Conservation Service (NRCS) programs include the following:
  - St Joe River: 45,328 feet
  - St Maries River: 9,610 feet
8. Streambank/Shoreline Protection practices applied from 2009 to 2015 through NRCS/Kootenai-Shoshone Soil and Water Conservation District (KSSWCD) programs on the CDA River totals 58,525 feet.
9. LMP staff supported the KSSWCD on three stabilization projects in Wolf Lodge Creek in 2014-2015 (rocks barbs and debris jam removal).
10. Approximately 6,000 feet of eroding riverbank was stabilized on the St. Joe River using Avista Corporation mitigation funding under FERC license requirements for their Post Falls Dam facility. Avista additionally provided matching funds for approximately 4,000 feet of stabilization on the CDA River reported under number 8 above.
11. The City of Plummer, upon the passage of a \$10 million bond, began the construction of a new wastewater treatment plant, with several million dollars of the construction costs being explicitly committed to inclusion of new equipment for phosphorous removal to support the goals of the LMP. The City received a grant in 2015 to reduce inflow and infiltration of groundwater into sewer pipes within the city.
12. Since 2009, Heyburn State Park constructed a \$5.3 million community wastewater treatment facility with upland discharge that moved homes in the park off aging septic systems. A 2015 IDEQ loan will assist expansion of the facility to include the 22 float homes in Hidden Lake.
13. The Carlin Bay Property Owners Association constructed a wastewater treatment plant (WWTP) to replace an unlined lagoon and began seasonally irrigating a forested site.
14. Cave Bay Community Services constructed a WWTP to replace an unlined lagoon and started seasonally irrigating a forested site.
15. A new land application wastewater system was installed when the Black Rock Community was developed.
16. A new land application wastewater system was installed when Gozzer Ranch was developed. The Arrowpoint Community also connected to this system, allowing the abandonment of the large community drain field previously serving Arrowpoint.
17. Kootenai County has replaced over a dozen of their waterfront recreation site restrooms with modern vault toilets. They have made other improvements to minimize erosion and runoff impacts to CDA Lake at the boat ramps they manage.
18. The Santa/Fernwood WWTP was upgraded in 2013, improving consistency of treatment. The pump station was later improved to prevent inflow and infiltration of groundwater into the system.
19. The Kootenai School District completed construction of a land application wastewater treatment system to replace an unlined lagoon. The old lagoon had unintentionally overflowed in the past into a tributary to Black Lake.
20. The city of Smelterville improved the treatment capabilities of their WWTP in 2007 by replacing most of the wastewater collection system. The city is preparing a facility plan to evaluate options for upgrading the WWTP in the future.

Additional LMP implementation accomplishments in 2015 consisted of the following staff activities:

### **Science Core Program**

- LMP staff compiled data collected by the CDA Tribe and IDEQ since 2007 and are developing a report of trends for stakeholders.
- Routine lake monitoring by CDA Tribe and IDEQ staff continued through 2015. IDEQ continued collecting surface sediment samples in selected bays for presence and abundance of benthic invertebrates, along with trace metal concentrations.
- IDEQ completed rooted aquatic plant surveys within Wolf Lodge and Neachen Bays. Visual surveys were also conducted by IDEQ in northern portions of the lake. Milfoil was identified in Windy Bay and reported to Avista and the Idaho State Department of Agriculture for response. Annual reports of the plant surveys are forwarded to Avista Corporation. IDEQ is a cooperative partner under Avista's aquatic plant management program.
- The CDA Tribe continued its milfoil treatment program in southern waters during 2015. Work included continued herbicide, bottom barrier, and diver dredging treatments. The CDA Tribe also conducted pre and post treatment monitoring to determine efficacy of treatments as well as conducted water quality sampling during the treatments. All herbicide treatments were conducted using containment booms to reduce herbicide drift.

### **Education & Outreach Core Program**

- Revision of the Coeur d'Alene Basin Lake\*A\*Syst materials was initiated in order to incorporate feedback from stakeholder groups. Revisions will be finalized in 2016.
- LMP staff conducted their fifth year of water quality training for camp counselors at Camp Cross in Loffs Bay and Camp Four Echoes in Windy Bay. In 2015, training for counselors at Camp Easton in Gotham Bay was also added.
- For the sixth consecutive year, LMP staff participated in a water quality educational booth at the North Idaho Fair in August, with partners from EPA and BEIPC. Survey information was collected from booth visitors in order to assess the audience reached at this event. This information will be used for 2016 outreach planning.
- Throughout 2015, LMP staff provided updates on LMP activities to a variety of community groups and made various presentations to the public.
- LMP staff participated in several K-12 educational programs, including the University of Idaho (UI) "Back to the Earth" watershed education program; UI's Confluence Project; Women in Science Fair at NIC; and other science-based programs.
- LMP staff continued to be involved with the Panhandle Stormwater and Erosion Education Program (SEEP) and in partnership with the UI Community Water Resource Program (CWRC). LMP staff collaborated with UI to begin development of an outdoor classroom at the CWRC, featuring Low Impact Development (LID) technology. The CDA Tribe's project engineer will be providing site design services.
- LMP staff collaborated with the Spokane River Forum, CDA 2030 Project, the UI CWRC, the Coeur d'Alene Chamber of Commerce Natural Resource Committee (NR Committee) to begin planning the second Our Gem Coeur d'Alene Lake Symposium, scheduled for March 2016.
- LMP staff worked with the Coeur d'Alene Chamber Natural Resource Committee to award the first two "Local Gems" awards. Local Gems is a program that was developed to recognize businesses and individuals that are doing things good for the health of Coeur d'Alene Lake. The NR Committee will select an award recipient quarterly and announce the recipients at the Chamber's regularly-scheduled Upbeat Breakfast events.



## **Nutrient Inventory & Nutrient Reduction Core Program**

- IDEQ staff worked with their Technical Services Program to compile existing nutrient loading information throughout the basin. Data sources summarized include the CDA Lake Tributaries Five-Year Review report, the USGS BEMP report released in 2014, and monitoring results from the IDEQ/CDA Tribe's three-year St. Joe/St. Maries watershed monitoring effort in 2010-2012. The report is in draft form and will be finalized in early 2016. It will serve as an interim nutrient reduction tool while a more detailed tool is under development (see below).
- Tribe and IDEQ staff continued to develop a GIS-based nutrient loading model that builds on available monitoring data. This will be used to identify priority areas for nutrient reduction work.
- In 2015, LMP partners at KSSWCD/Idaho Department of Lands received additional funds through the Western Coordination Grant. They will assess watershed conditions in Blue Creek, Wolf Lodge Creek and Fernan sub-watersheds, and develop watershed action plans. LMP staff provided technical assistance as requested.
- LMP staff coordinated with the KSSWCD and the Idaho Soil and Water Conservation Commission to identify an agricultural project to improve drainage and decrease erosion that is impacting CDA Lake. IDEQ and CDA Tribal operating funds will be used to help implement improvements.
- Planning is underway to look at 3-4 recreational sites along the St. Joe River and other tributaries to the lake for potential future stabilization projects. This is a cooperative effort with Avista, IDEQ, the CDA Tribe, NRCS, and others.

## **Partnerships with Other Entities**

- LMP staff continued to be involved in the CDA River and Lake Tributaries Watershed Advisory Group (WAG), and the St. Joe/St. Maries Rivers WAG. These WAGs have completed 5-year reviews of existing TMDLs for these water bodies.
- LMP staff worked with the BEIPC Executive Director to provide LMP activity updates to the TLG, CCC, and BEIPC during quarterly meetings and for written reports.
- LMP staff continued coordination with county staff and the CDA 2030 Project and have continued participation in the CDA Chamber Natural Resource Committee. The LMP coordinator for the CDA Tribe sits on the CDA 2030 Project board.
- LMP staff provided review and comment to land use applications throughout the Basin where there can be potential impacts to Lake or tributary water quality.
- LMP staff continued to collaborate with the University of Idaho EPSCoR "Managing Idaho Landscapes for Ecosystem Services (MILES)" project, which supports joint outreach activities and special studies.
- The CDA Tribe collaborated with UI MILES faculty to submit a proposal for expansion of data to improve the predictive ability of the ELCOM-CAEDYM model.
- LMP staff collaborated with Kootenai County representatives, UI CWRC, and the Laboratory for Applied Scientific Research (LASR) to submit a proposal for distribution of LakeASyst materials.

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

## **Flood Control and Infrastructure Revitalization**

The BEIPC Executive Director worked with the local jurisdictions to verify the inventory of drainage and flood control facilities in the side drainages of the SFCDR. That inventory will be used to work with the CDA River Watershed Management Group to develop an Operation and Maintenance Plan for these facilities including assignment of O&M responsibilities to insure that they are properly maintained.

The BEIPC continued to assist Upper Basin communities and utilities in pursuing funding to implement the Upper Basin Drainage Control and Infrastructure Revitalization Plan (DCIRP). A number of the priority drainage control projects and roads needs in the DCIRP are now being implemented as remedy protection projects and Paved Roadway Surface Remediation projects included in CERCLA/Superfund cleanup activities, so infrastructure and Superfund remedial needs are both being met by the work. A number of the local utility jurisdictions are replacing potable water lines and sanitary sewers ahead of road and street remedial actions under the Paved Roadway Program and the road program was coordinated with the utility work and remedy protection work to enhance the accomplishments being made with the funds available.

## **Restoration Partnership**

The Restoration Partnership (Partnership) has implemented a few restoration projects within the Basin. The Trustees include the USFS, BLM, USFWS, the CDA Tribe, and the State of Idaho; represented by the IDFG and IDEQ. The purpose of the Trustees' restoration projects is to restore natural resources injured due to the release of hazardous substances as a result of mining and mining related activities in the Basin. All current project work is being done under the Trustees' Interim Restoration Plan. In 2015, the Partnership focused mainly on developing the draft Environmental Impact Statement for the Coeur d'Alene Basin's draft Restoration Plan.

Throughout 2015, the Partnership continued developing and finalizing the draft Restoration Plan and draft Programmatic Environmental Impact Statement (PEIS) following the National Environmental Policy Act (NEPA) process. In particular, the Partnership focused on the NEPA Analysis of Effects for the PEIS. The team also coordinated with EPA in their remedial efforts as identified in the RODA. On the ground work that the Partnership was involved in included:

- **Schlepp Agriculture to Wetland Conversion Pilot Project**

Restoration and operation and maintenance activities continued in 2015. This included the planting of desirable plants beneficial to waterfowl feeding, the removal of undesirable plants, levee protection, and other activities. The result was the highest recorded numbers of tundra swan use at the site (4,200 swans during the migration season and over 3,000 in a single day). Overall, as many as 23 different species of waterfowl were observed feeding and resting in the clean habitat.

- **Robinson Creek**

35 acres of newly created wetlands were constructed in 2015. This included the construction of various habitats important for waterfowl, shore birds, and wildlife. It also included water control mechanisms and the use of native vegetation. The Partnership contributed funds to purchase this property which is adjacent to the Schlepp Project. Current project work is being funded by the IDEQ's Page Repository Expansion Mitigation fund.

- **ASARCO Settlement Lands Transfer**

In 2015, the Partnership assisted in transferring ownership of nearly 1,200 acres of Lands held by the Trust over to two of the Coeur d'Alene Basin Natural Resource Trustees. These lands, which were a part of the ASARCO settlement, are primarily located in the CDA River corridor. The Tribe assumed ownership of 1,044 acres and IDFG assumed ownership of 139.5 acres. These lands are contaminated and there are no current plans for active remediation or restoration.

The Partnership also continued to coordinate with the BEIPC through PFTs and BEIPC quarterly meetings. The Restoration team met with EPA and IDEQ Project Leads throughout the year on draft design documents from 30-90% phases.

## *Challenges Ahead*

The challenges ahead have not changed since last year and they will continue to be the focus of all the parties involved in environmental cleanup actions in the Basin. Again, the cleanup effort in 2015 was focused on a mix of items; remediation of human health risks resulting from contaminated residential and commercial properties and public roads; extensive work by the Trust in the EFN Creek Drainage on ecological remedies; and EPA directed work to address the contaminated ground water problems and mine discharges noted in the Upper Basin RODA. Human health related projects continue to be a priority, but cleanup work in fish and wildlife habitat areas, surface and ground water, and inactive mine and mill sites is moving forward with EPA working with the BEIPC, IDEQ, the Trust, other cooperating agencies and stakeholders.

Besides the RODA for the Upper Basin, the involved governments and agencies are continuing work on Lower Basin ecological issues and project planning. 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.

Other major challenges include: management of the ICP by PHD; development of any needed additional waste repositories for disposal of remedial action and ICP wastes; continued implementation of the RODA for the Upper Basin; assistance to the local jurisdictions in their implementation of an infrastructure revitalization and storm water drainage control program; development of a solution to major flooding issues in Lower Pine Creek and the SFCDR; and continued coordination with the CDA Tribe and State's efforts to implement the Lake Management Plan.

The ASARCO bankruptcy settlement and the Hecla settlement are currently the major sources of funding for the environmental remediation and natural resource restoration actions. Careful action through the implementation of the Upper Basin RODA any additional needed amendments plus diligent work on the part of the Natural Resource Trustees is necessary to ensure that the available funds are expended in a judicious manner. Current funding projections indicate that the funds from the Hecla settlement may be exhausted by the end of 2017. Some other source of funding will be needed to carry on 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 and restoration of injured natural resources still represents a significant challenge in the future.