

# Basin Environmental Improvement Project Commission

## Summary Meeting Minutes

November 20, 2024, 9:00 AM – 3:00 PM

Center Place Regional Event Center

Room 109

2426 N. Discovery PL

Spokane Valley, WA 99216

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*These minutes are summary notes of the reports and presentations and are intended to capture key topics and issues, conclusions, and next steps and not every detail of discussion or individual quotes.*

### **Attendees included the following:**

Sharon Bosley (BEIPC Executive Director)

### **Commissioners and Alternates present:**

Leslie Duncan (Kootenai County), Michael McCurdy (DEQ), Ed Moreen (EPA), Scott Fields (CDA Tribe), Brook Beeler (Washington State), Phil Lampert (Benewah County), Dave Dose (Shoshone County – attended virtually)

### **Staff present:**

Gail Yost (BEIPC, Assistant to E.D., Note taker), Tamara Langton (EPA), Sandra Treccani (Washington State), Rebecca Stevens (CDA Tribe), Jerry Boyd (CCC), Andy Helkey (DEQ)

### **Call to Order**

Leslie Duncan welcomed everyone to the BEIPC meeting and called it to order at 9:06 am. Roll Call was conducted for Commissioners in attendance.

### **Review and Approve Draft August 7, 2024, Meeting Minutes** – Sharon Bosley (**Action Item**)

There were no corrections to the draft August 7th meeting minutes that were provided to each Commissioner prior to today's meeting. A motion was made by Brook Beeler to approve the minutes as provided; Scott Fields seconded the motion; all Commissioners approved the meeting notes. **M/S/C**

### **Bank Stabilization Presentation** – Ryan Mitchell (Jacobs engineering)

Ryan is a River Engineer with Jacobs and has been with them for over 20 years. His presentation today will cover typical approaches for selecting riverbank treatments; define goals, constraints, and design criteria; selection of stable materials; stability evaluations; comparison of common treatment options; backwater design considerations; vegetation considerations; construction considerations – then he will be open to discussion and questions.

### **Typical Approach for Treatment Selection**

1. Define Goals, Constraints, and Design Criteria - This process will reduce the list of available options and help define the metrics for treatment selection and the end result.
2. Alternatives Analysis at Conceptual-Level Design
  - Identify candidate treatments that are consistent with goals and design criteria.
  - Develop conceptual level design for each alternative.
  - Evaluate performance and compare performance metrics.
  - Develop ROM construction cost estimate.

- Identify remaining feasibility questions, if any remain – if more analysis is needed to verify compliance with some metrics – select one or multiple treatments to advance in design process.
3. Optional: Identify multiple treatment options for different areas
    - Requires delineation or riverbank segments based on hydraulic conditions and other Factors.
    - The various treatment options should utilize the same material.

#### Goals, Constraints and Design Criteria

1. Goals and measure of success
  - What is the success/performance criteria?
  - What constitutes failure?
2. Constraints
  - Physical limitations (i.e. property boundaries, infrastructure, available disposal space).
  - Cost
  - Available materials should be thought about early.
  - Permitting
3. Design criteria
  - Constraints are often adopted as design criteria.
  - Allowable or preferred design materials.
  - Habitat (aquatic and riparian) can be species-specific or broad.
  - Permitting requirements
  - A table format is useful way to summarize all design criteria.
  - Avoiding adverse impacts
  - Stability factor of safety

Ryan showed a table with examples of Riverbank Stabilization Design Criteria. The more time you put into these steps, the better result you will end up with. He covered a range of treatment options: riprap; vegetated riprap; rock toe with vegetated side-slope; fabric encapsulated soil lifts; and combinations of all these - joined with the banking geometry like uniform, benched, or variable slopes. A bank treatment is the combined geometry and materials. He showed various pictures of lateral stability treatments (protective treatments).

Selection of Stable Materials – there's a lot of guidelines out there. Most agencies have their own and are using source references pointing back to the same research and log cases, but some cover more specific areas so it's good to pick a design guidance to use for your project. One example given was Fischenich (2001) used by the Army Corps of Engineers, which is a great resource for selecting stability thresholds for stream restoration. It is cited in quite a few of the guidelines and is the most commonly used as it summarizes all the work completed. Ryan explained through a series of slides showing tables and examples of construction conditions. The most common guide for sizing riprap and establishing geometry is the HEC-23 (FHWA 2009) guide.

## Comparison of Common Treatment Options

1. FESL (Fabric-Encapsulated Soil Lifts)
  - High strength alternative to riprap
  - Allows for steep slopes (1:1 or steeper)
  - High habitat value
  - Requires irrigation in first year for thrivability
  - Requires experienced contractor and oversight
  - Check stability of immediate post-construction stability (before vegetation establishes)
2. Vegetated Riprap Options - Vegetated riprap with willow bundles; vegetated riprap with bent poles; vegetated riprap with brush layering and pole planting; vegetated riprap with soil cover, grass and ground cover (aka buried riprap); and joint or live stake planted riprap.
  - High strength
  - Provide moderate habitat value
  - Max slope 1.5:1 – typical slope is 2:1
  - Irrigation required
  - Unnatural riverbank
  - Maintenance may be needed

For long reaches, it is common to not have the same hydraulic conditions everywhere, so you are not going to do the same treatment throughout the whole project. Multiple treatments can be done as long as you do not have radically different geometry.

## Backwater Design Considerations

- Full-pool elevations will determine lower limit of vegetation.
- Boat wake energy dissipation over a range of lake levels.
- Design flood scenarios need to consider flashy flows with low-pool elevations where velocities are often the highest.
  - Peak velocities may occur during smaller, flashier floods compared to larger and longer duration floods with higher backwater conditions.
- Water management can be challenging because of high water levels during the summer construction season.

## Vegetation Considerations

- Riparian vegetation provides high quality habitat value.
- Vegetation reduces water velocities which reduces erosive forces.
- Reduced velocities can lead to increases in water levels if conveyance isn't also increased as part of the design.
- Requires irrigation for the first two growing seasons to ensure survivability.
  - Contractor is typically responsible for irrigation and survivability via performance specifications.
- Live-stake Willows establish rapidly and perform well but require a near-by source for harvest.
- Consider partnering with non-profits or other community stakeholders to help with vegetation to lower project costs and increase community engagement.

### Construction considerations

- Access and workspace:
  - Access roads, staging areas, and consolidation areas – can be a logistical challenge depending on the site constraints.
- Care and management of water specifications:
  - Cofferd-dam design and sequencing, dewatering, possible effluent treatment, seasonal considerations, etc.
  - Often one of the most challenging aspects of in-water work.
- Management of contaminated sediments:
  - Off-site disposal volumes and near-by access to disposal facilities
  - On-site handling of contaminated materials – consolidation areas, wash-stations and possible water treatment requirements.

Brook Beeler appreciated the technical considerations and perspectives, there's a lot of important steps in the planning process to identify goals. She is curious about more of a regulatory framework. In Washington, ecological function is a requirement when considering projects that forbade stabilization other than rip rap and bulkheads. Are there other regulations that pull into these types of projects? Ryan stated he is not a permitting expert but if you went back to the design criteria table you would know early in the project to identify all the permitting requirements at that stage. They are different by jurisdiction, state and county, and different levels – get all the project partners to agree on your list of criteria and establish what options are available.

Michael McCurdy wanted to know if there is a typical schedule or timeline for each stage of planning, design and construction. Ryan answered the most common approach would be a year of design and then building the next year, but they do change dramatically. There could be a shortened timeline for an emergency response action, but typically preliminary design at 30%, 60%, 90%, then final design and construction in the following year. Michael's next question pertains to the miles and miles of the CDA River and not being able to tackle the entire stretch at the same time, what kind of criteria characteristics does he look at to separate that into phases? What goes into determining how to go about something that is so lengthy? Ryan said it depends on which treatment you're constructing – something like FESL is more complicated than just placing rip rap, you are probably talking a few thousand feet compared to miles at a time. It will be slower to construct something that is more complex and has more elements. It has a lot to do with how long your construction season lasts and the contractor's schedule. A lot also depends on how you will control the water during construction, water seepage, water quality and turbidity issues – so it is better to work on small manageable sections at a time.

Ed Moreen wanted to step back to the question about regulatory compliance and permitting. Because this is a Superfund activity when we're talking about the Lower Basin, we have a list of applicable or relevant and appropriate requirements (ARAR's) that are in our Records of Decision (RODs). So, the State of Idaho, the Coeur d'Alene Tribe, as well as other agencies, would have provided that list to us - so that is our guidance as to what we need to comply with. We would also be coordinating with Kootenai County's local flood authority. And because it is Superfund, the intent was the cleanup would not have to go through a permit process but still need to comply with the substantive requirements of those permits – this is what we would focus on in work in the Lower Basin. Ed mentioned the Kahnderosa project by Cataldo – that was completed in 300 ft links with attention to bull trout habitat as well.

Ed mentioned the part of Ryan's presentation where he was talking about velocities for design purposes and how typically the smaller flashy floods are the ones that come in and have a spike in velocity – where does that hit us on the table of things we need to be concerned about with siting riverbank stabilization activities? Does he remember what those velocities looked like? Ryan answered a lot of the things they were looking at for conceptual site models were designed for 100-year flood. Just the FESL and vegetative rip rap are totally appropriate in terms of their strength of material based on what kind of velocities you're looking at. Other treatments like fabric, if used alone, would probably not hold up.

Jerry Boyd was wondering about the fish spawning, and how important some of those fish species are to people (like kokanee and sockeye salmon), is there a comparison between the vegetative bank stabilization and rip rap. No answer was available for fish spawning. Jerry asked how long they monitor the bank stabilization to determine how effective it might be, and what is the cost comparison between vegetation and rip rap. Ryan did not touch on monitoring in his presentation – but especially the first year, two years if there is any vegetation and several times these years to measure survivability. After that, it might be on a every other year program just to make sure you're not losing material on the bank. As far as cost, that would be site specific – how many layers, how big the rip rap, how thick – the FESL tends to be more expensive than the vegetative rip rap due to its labor-intensive construction.

On-line – Jocelyn Carver from EPA made a comment to Michael's question on timelines, she said as an example, the CDA Work Trust has about a 1 ½ year design schedule, say design from 2025 to 2026 then they would start construction in 2027. The Trust did two or three years of focused investigations for specific areas in the Cataldo Reach for this current plan and pilot project. EPA has been doing general monitoring since 2018 along all four reaches on a quarterly basis which helps us identify specific priority areas to target for pilot projects.

#### **Kootenai County Workplan Request** – David Brown (Kootenai County)

Sharon quickly explained that there are copies of the letter and information provided to the Basin Commission available if anyone would like a copy to follow along with Kootenai County's request.

Dave Brown is a member of the Kootenai County Commissioners National Resources Advisory Board (KC NRAB). They work in conjunction with the committee on a variety of natural resource issues. Over the last three or four months, this topic has been a part of their discussions. The letter highlights and commends the work that has started and been done in the Upper Basin and initial work in the Lower Basin. The heart of the letter is an encouragement from the Kootenai County Board of Commissioners to really get going on work in the Lower Basin. The most important part would be the approval and completion of the Lower Basin Waste Consolidation Area (WCA) that has been previously reviewed and is now in consultation for completion. Much of the work likely to occur in the Lower Basin depends on having that WCA available to handle waste streams that are potentially developed as part of other actions.

Implementation is the second point. The Natural Resource Conservation Service (NRCS) streambank stabilization methodology on eroding banks in the Dudley Reach area on the CDA River was implemented around the early 1990s. He was working for the NRCS at the time, and one of the first projects was on the Schlepp property. This methodology combined smaller rock and vegetation, placed three feet below the summer water line and up to three feet above depending on the slope of the bank. They were also able to work around existing vegetation. Other projects funded by the NRCS in the Lower Basin have held up and are mostly intact. This bank stabilization was mainly targeted at boat wake erosion.

The third point would be to carry this same methodology of bank stabilization to high priority eroding banks further down the river. These banks are a significant contributor of both sediment and metal loading and stabilizing them would go a long way in reducing that contamination stream.

The fourth point would be to initiate a pilot project in the Dudley Reach area to quantify the armory of the riverbed with course rock to control erosion. The riverbeds are another source of contamination, and this would be an opportunity to see if the NRCS methodology can help in the overall effort to control sediment movement.

The fifth point is a funding encouragement - to identify and develop plans for \$1 million a year of implementation effort for items 2 thru 4 over the next five years. Dave believes that NRCS has funding available and could possibly help landowners pay a part of the cost of doing this kind of work on their property if eligible. The NRCS works in cooperation with Kootenai County Commissioners as well as Kootenai County Soil and Water Conservation District to help bring conservation on private lands.

Ed Moreen asked if Dave's suggestion of starting at Dudley Reach, is because it is the most upstream reach in Kootenai County as opposed to going further upstream. Dave answered that working upstream to downstream is always a good idea, that way you are not recontaminating as you work your way downstream. Also identifying those reaches that have some of the highest concentrations of metals in their bank materials.

Rebecca Stevens had a question regarding the language in item #2 – it says implementing the NRCS bank stabilization methodology on all eroding banks. We know that the technology works, but she is a little worried given Ryan's presentation to adopt one methodology as carte blanche, she feels there are other techniques that can be utilized. Have there been discussions on this? Dave replied that the encouragement is if there is eroding banks out there, we need to treat them. We know the NRCS method is both effective and cost effective, but certainly as we go through this process of identifying site specific situations where there could be different approaches and techniques that would be more appropriate. A lot of these banks are similar up and down the river and this treatment would work for many of them.

#### **Lower Basin Waste Consolidation Area siting request-** David Leptich

Dave thanked everyone for giving him a few minutes to talk about the Lower Basin WCA siting process and progress, and to make a request. He gave a brief introduction – he is a 35-year resident of Kootenai County; professional wildlife biologist employed by the State of Idaho Department of Fish and Game; manager of the CDA River Wildlife Management Area (WMA) which comprises over 40% of the wetlands in the Lower Basin and over 26 miles of riverbanks in the lower river; served on Restoration Partnership technical staff since its inception in 2011 and helped co-author the 2018 CDA Basin Restoration plan; member of the BEIPC Technical Leadership Group (TLG); member of EPAs Lower Basin Technical Work Group working on identifying and prioritizing remediation work; member CDA Basin Recreational Sites Team; restoration lead on collaborative remediation and restoration at Gray's Meadow Wetland Project; active CDA Basin collaborator working with county, state, tribal and federal government partners; and invited to participate in EPAs Lower Basin WCA Project Focus Team (PFT) to evaluate potential WCA locations for EPA decision on selecting a WCA. His hope is that this background provides the degree of standing and personal credibility for his presentation today.

Kootenai County Board of County Commissioners (BOCC) sent a letter that said in part, "The lack of approval of a Lower Basin WCA for the past 5 years prevents moving forward with implementation of pilot studies, demonstration projects or selection of meaningful remediation, stabilization, or human health protection

efforts along the Lower CDA River Basin. Wetlands remediation and restoration work is also stymied pending WCA identification.” The BOCC encourages EPA to move ahead with meaningful remediation work in the Lower Basin and requests the approval of a Lower Basin WCA be included in the BEIPC 2025 Annual and Five-Year Work Plans. Dave is here today to support this request to ask for immediate action by the responsible parties finalizing the siting of the WCA at the Dredge Road site.

What has happened:

- Public outreach – there has been great public outreach. In 2020, EPA did seek public opinion for the WCA and initiated a robust public engagement process where community stakeholders were able to express their perspectives, identify suitable WCA sites, and have a voice in the development of the WCA siting criteria used to identify a suitable site.
- Technical outreach – In 2022 and early 2023, EPA convened a WCA PFT comprised of a broad spectrum of agency and government stakeholders. WCA siting criteria developed by community stakeholders was reviewed and EPA presented two proposed sites including the Dredge Road site which met all the siting criteria. A viable WCA site alternative was also solicited for consideration.
- Unanimous consensus – the PFT vigorously discussed all the identified alternatives and met for the last time in January of 2023 to assess the level of support for the best WCA site meeting all the criteria. The PFT consensus was unanimous, and no member opposed or strongly opposed the siting.
- Deferential pause – those on the PFT who indicated they can live with the Dredge Road site noted that there were few other options, the location is needed, other sites are not available at this time, and the existing contamination on this site was a plus. However, they did ask for a more robust evaluation of existing repositories, the potential to use capacity at existing sites, consideration of adjacent land ownership, and the ability to show due diligence on these topics. Costs to build compared to using the Central Impoundment Area (CIA) in Kellogg were also taken into consideration. We respected this request, which was fully addressed in the next several weeks and completed late in 2023. The results of this due diligence showed no viable siting alternative was identified and has not been under consideration. Dave commended this pause – there should be no steam rolling of any partner which speaks highly to the open, balance, and fair process to this point.
- Inaction and unacceptable delay – subsequently in the Spring of 2023, a single stakeholder that had representation on the PFT and was part of the consensus, requested and entered close discussions with EPA. What has happened since that time is a standstill in the process and failure of EPA to finalize the siting of the Lower Basin WCA.

What has not happened:

- Transparency – what has to happen is a transparent EPA process under the full body of stakeholders gathered here today, communicate the specific issues and their relevance to the delayed decision, explain the prolonged public and natural resources harm that has frustrated the efforts of all basin stakeholders and impeded the BEIPC progress on several fronts as noted in the Kootenai County letter. Instead of transparency, we’ve had a year and a half of silence.
- New findings – no new findings since the application of new information that refutes the PFTs consensus on siting the Lower Basin WCA. After nearly two years, the Dredge Road remains the best available site based on siting criteria and technical merits. This is not a decision about the suitability of the site, we have identified a suitable site through a public and technical process.
- Identification of viable alternatives – neither EPA nor any other base of partners have identified a more suitable alternative to the Dredge Road site. That means this is not a decision about alternative sites, it is a decision about advancing the statutory remediation restoration initiative of this Commission for allowing it to be unjustifiably impeded or stopped.



- Identification of demonstrable harm – no demonstrations that siting and development of a Lower Basin WCA at Dredge Road results in the unfair, disproportionate or any other harm to the rights, lands, assets, resources, interest of any stakeholder and constitutes a failure of EPA to meet its responsibilities to any one or several partners. To the contrary, further delay harms all stakeholders and constitutes an ongoing failure of EPA to meet its responsibilities to all the people that live, work and play in the CDA Basin.
- Trust responsibility balance – there must be a balance of the stakeholders in the CDA Basin and the unanimous consensus of the PFT. We rightly took a differential pause to ensure that all perspectives were heard, considered and respected. No single small group of stakeholders were steamrolled. In the absence of any new information or alternatives, the perspective of the overwhelming majority of stakeholders to site the WCA should also be honored and respected.

Technical decision - this is a type of decision of limited scope, it is based on relative merits of alternative sites that we collaboratively developed public and technical siting criteria. Although there can be debate on those merits, it is not a negotiation. This decision is not a matter of individual stakeholder preferences nor an opportunity to discuss or seek consensus, it should be limited to a synthesis of relevant facts and finding the best balance of multiple objectives for siting the WCA. Anything beyond this is outside the decision frame and has no legitimate bearing on this decision.

Good Faith decision – this Commission represents a wide variety of CDA Basin private citizen residents, public agencies, and multiple governments. We can rarely ensure that our decisions will make everyone happy. Finding the most beneficial and least harmful path forward in this decision ensuring there is equitability of opportunity for input, that the results are beneficial to our mission, and that no party suffers unfair or disproportionate judgments.

Limited decision – this is a very limited decision and after all the things talked about today, we have a limited decision space. The decision makes itself and our task embarrassingly simple. We have one viable WCA site and that is the Dredge Road site. We aren't deciding about where to place the WCA as everyone already knows where it has to go. It is long past time to end the site selection process and start the work. We have a fair understanding of the consequences that result from inaction. The WCA site is critical to support Lower Basin remedial and restoration efforts by EPA and other collaborators. Not only does this delay EPA's remedial objectives but also the work of other remediation and restoration partners that must coordinate their work and timelines. EPA's continued failure to act is wasting time, money, and opportunity.

What needs to happen:

- EPA as lead partner reflect on adequacy of process, trust responsibility balance and act – Dave's request is for EPA to promptly act and fully announce selection of the Dredge Road site for the Lower Basin WCA. EPA has a unique leadership role in the work of the Basin. Please demonstrate your technical, good faith partnership, and objective decision-making leadership for all stakeholders in the Basin.
- BEIPC as statutory overseer provide direction – Dave's second request that the BEIPC reflect on the adequacy of the siting process, benefits of finalized Dredge Road WCA decision, the detrimental consequences, and the statutory purpose and mission of the Commission. The BEIPC has a unique oversight role in the work of the Basin. He referred to the BEIPC website and their purpose as established by state law to implement, correct and/or coordinate environmental remediation, natural resources, and restoration related measures. In the absence of immediate action by EPA to formally site the Lower Basin WCA, he requests the BEIPC exercise this oversight responsibility to help resolve the Dredge Road siting delay and its negative consequences. As part of today's meeting



packet, there is a draft text amendment for the 2025 Annual Work Plan to direct the siting of the WCA and for design work to begin in 2025. A former director once said, “The Basin Commission is a fine example of government serving the public. There are 7 governments and 20 agencies who work together to coordinate efforts for the good of the people, especially when they have different positions on issues, different ideas about how to avoid problems, different responsibilities, but still work together in an appropriate manner to get things done.”

- End current standstill and renew progress in the Lower Basin – Dave’s last request is that the Commission and EPA end the standstill and renew progress in the Lower Basin.

Parting thoughts – ask and answer these 5 questions:

- Was the process to site a Lower Basin WCA open, thorough and fair to all parties.
- Does new information disqualify the Dredge Road site or contradict the PFT consensus support.
- Is there any viable alternative site identified and under consideration.
- Is continued delay beneficial or detrimental to mission.
- Why not resolve this today.

The answer to one is yes, to two and three is no, to four is none – so it seems to him that the decision has already been made. Dave did not come today as a critic but as an advocate. He works professionally with all the people, agencies, and governments in the room. We are all good people who want to do good things in the Lower Basin.

Brook Beeler really appreciates Dave’s passion, skills, expertise and experience. She disagrees with one statement he made about one stakeholder seen as steamrolling the process. The CDA Tribe is a sovereign nation with different rights than the federal government and has a responsibility for them. Dave wasn’t suggesting that they’re steamrolling anything but that we need to balance that Trust responsibility for the entire Basin. Brook understands the urgency for getting the WCA sited but thinks we need to have patience and do it right and not have problems down the road. Now that we have been through the PFT process, the TLG process, and the public process - she believes we are in the next phase of how EPA decides which is the Consultation process, which is where we are at the last step, and that we need to trust that process. She has faith and respect for the conversation that the Tribe and EPA are having, and Dave agrees. She thinks they are going to get to a decision where the Tribes input is heard and it’s EPA’s responsibility to hear that. It is inappropriate for her as a representative of the State of Washington or as a member of the BEIPC to prevent that process. Dave restated that a year and a half is a long time.

Ed Moreen also thanked Dave for sharing his perspective and passion. He appreciates all his great work and contributions to major improvements that have been accomplished. This has been a difficult situation. EPA has been as transparent as they can be, but it does not discount how frustrating it is from all perspectives. We are in the consultation process, so this will remain untransparent to everybody who is not involved. We are doing everything we can because moving forward in the Lower Basin is the next big thing. Our actions will be to reduce lead loads, improve health, and reduce risk to people and wildlife. There is going to be some harm when we do it, but we want to get there. This is a priority and something we talk about often. Right now, we are focusing on setting a target for selection of a Lower Basin WCA and moving forward with the pilot project. You will see it in the 2025 Work Plan - riverbank stabilizations are planned to start designs in 2025. Lower Basin work is going on and we’re going to try to move as slow and as quickly as we can.

Scott Fields agreed that we are all passionate about these issues and he appreciates Ed’s and Brook’s comments. The government-to-government process is not transparent and is that way for a reason. He understands the frustrations of not being a part of those conversations. He also reminded everyone in this

room the reason we are here is the CDA Tribe brought these lawsuits and rung the bell first. He has been doing this for 25 years and takes a little offense that if anyone is reading between the lines that the Tribe is not serious about cleaning up this Basin – there isn't anyone more serious about this. We hope at the end of this Consultation process that all parties have been made whole, better solutions are made, and none of them will proceed at a faster rate than when we're all done. Please have patience. Dave wanted to make it clear that his intentions were not to bash the government, in fact, he tried very hard not to do that. He wanted to have a very factual layout of the process and frustrations involved in the harm that continues to be done.

#### **Waterfowl Research Overview** – Jennifer Crawford/Mark Jankowski (EPA)

The presentation today will be a more detailed update from the one given before on waterfowl research in the Basin. Jennifer has 20 years of experience at EPA Region 10 and has been an RPM on the Bunker Hill team for 5 years. Mark is a toxicologist whose research has been on birds over many years and works for EPA Region 10. They will discuss the biomonitoring tool EPA is developing for use in the Lower Basin with the goal of including it in the future as regular biomonitoring under the Basin Environmental Monitoring Program (BEMP). This project has been a very large collaboration effort across a multitude of organizations, agencies and the CDA Tribe. The work we are doing today is a result of the early work done by the Trustees, including the CDA Tribe and the USGS under the Natural Resource Damage Assessment process. Using this as a starting point really gave us a leg up to look at how we can best monitor site processes moving forward.

Every year approximately 10,000 swans stop and feed as they pass through the Lower Basin on their way to the tundra where they nest and reproduce in Alaska. There are many other susceptible waterfowl, such as wood ducks, that also migrate through the Basin. We all know the history of the CDA Basin where a century of mining, milling and smelting left 100 million tons of waste including 2.4 million tons of lead spread over thousands of acres. Jennifer displayed a map of the concentrations we see in the Lower Basin showing 95% of the available habitat is above the 530 milligrams per kilogram (mg/kg) action level, which is the lowest dose of lead that causes harmful health effects to waterfowl (LOAEL). The lead cleanup criteria of 530 mg/kg that we use for OU-3 (for the Upper and Lower Basin outside the Box) is based on risk and effects to waterfowl. In addition, 80% of the sediments in the Lower Basin also contain lead at levels lethal to waterfowl or higher, which is set at 1,800 mg/kg. With our partners and going through the many processes (i.e. Interim ROD, Lower Basin Prioritization Plan), there has been a subset of the contaminated water wetlands and water lakes that have been identified for prioritized remediation. There is a very large area to be considered and cleaned up, so we are focusing on a small amount which factors into how we monitor progress as clean-ups happen and when we might see some impacts to waterfowl. Gray's Meadow Agriculture-to Wetland conversion will be finished up soon with future clean-ups in the Gleason and Lane Marsh areas.

Tundra swans are extremely susceptible to lead poisoning. When they migrate in, they feed on approximately the top 12 inches of contaminated sediment, digging down for tubers, roots and water potatoes where their incidental exposure happens. The neurological signs of a lead poisoned bird include wing droop, inability to fly, gut impaction, emaciation from starvation and bile-stained feces. A study was conducted in the early 2000s looking at almost 250 waterfowl, the majority of which were tundra swans. It concluded that 93% of the swan contamination was coming from the sediment directly. During the course of our most recent work, they looked at single isotopes with their partners at the Office of Research and Development (ORD) and documented that by comparing feces, sediments and blood samples collected in the Basin, 90% of the lead within those swans was from Bunker Hill. The challenge is large - we have nearly 20,000 acres of contaminated wetlands with lead several feet deep into the sediments; there is a great need to demonstrate progress and to identify ways to optimize and have efficiency with the work we're doing

moving forward; and we obviously want to show reduction in lead exposure in waterfowl. The tundra swans are of the highest public interest as they are very visible but very difficult to capture. We are not looking for long-term capturing of swans or other waterfowl but need a tool that we can use as part of our normal process for biomonitoring that is efficient, cost effective and sustainable.

The current surveying for biomonitoring under the BEMP program has been conducted by the US Fish and Wildlife Service. Since 2005, they've been completing surveys every migration on a weekly basis to track the swans and other waterfowl species within the site wetlands and lateral lakes. This helps us figure out exactly where we are seeing the most impact and helps with prioritization as we move forward. This is our largest and longest data set in the Lower Basin for biological monitoring. The mortality figures are also due to many variables - are swans coming from California hungry where they come from drought; how much ice in the Basin so they can only go to Harrison where it is very contaminated, and they can't access the other areas; how long did they stay in the Basin. All of this metadata is very important to understand the implications.

Why do we need biological samples long-term?

- Birds sample the sediment that matters to THEM.
- They indicate remedy progress that directly relates to public concerns and cleanup criteria.
- They identify which remedy strategies yield results.
- Differences in bioavailability are accounted for specifically.
- Provide data on exposure differences due to vegetation food sources.
- They leave behind non-invasive samples (i.e. feces & shells) for easy, low-cost biomonitoring tools.

Mark continued – there are two different exposure pathways, swans go deep into the mud to consume vegetation and wood ducks are more surficial to the top couple of centimeters for exposure to potentially newer deposits of lead and other metals. Ducks also reproduce on site in nest boxes, making it easier to track them, collect eggshells and monitor effectiveness over time. One of the questions right off the bat is spatial resolution. Even though the swans fly from wetland to wetland, we can assume any samples we get are going to be broad based, but not the case with their feces. With the tracking of wood ducks, it is more likely to be focused on the wetland itself, so it's probably the difference between exposure pathways and abilities to monitor them differently.

As stated, we are learning about swans' exposure through their fecal samples - measuring for lead levels, co-factors of exposure risk and local from distal exposure. DNA sequencing will tell us that the feces sample is from a swan, will help us figure out what plants they have been eating, and will specify sex ratio which is really important for wildlife management. Mass spectrometry is where we get both lead concentration information as well as some isotope signatures; and XAS is looking at bioavailability differences between sediments and feces, what the lead situation was in the swans, and a way to figure out where the swans are consuming the lead in the sediment and vegetation.

Fecal samples versus blood samples: space, time, & logistics:

- Integration period and thus exposure window is different for each media
  - Blood reflects a turnover rate of 35 days.
  - Feces reflect a gut transit time of 3-6 hours.
- Sampling logistics
  - Blood sampling requires capture.

#### Four Phases for Swan Research:

1. 2021: **Pilot** season to work through sampling and analytical method challenges. Sediment and fecal samples collected. No birds trapped.
2. 2022 – 2024: **Empirical**: Swan trapping, sampling, and tracking.
3. 2024 – 2025: **Transition to Modeling**: Swan trapping, sampling, tracking, and model development.
4. 2026 onward: **Integration** of findings into monitoring recommendations.

#### Phase 2 Research Questions:

- Sampling conducted every March since 2022
- Primary Question
  - What is the environmental and biological meaning of a given Pb concentration in feces?
- Approaches
  - **Environmental** meaning of fecal Pb concentrations
    - Sediment Use: Relationships between sediment and fecal sample chemistry.
    - Vegetation Use: Relationship between vegetation consumed and Pb in fecal samples.
    - Site Use: GPS tracking of locations and behavioral activity.
  - **Biological** meaning of fecal Pb concentrations
    - Relationships between fecal and blood Pb levels.
    - Future: modeling impacts of Pb on life cycle.
    - Future: determination of a fecal Pb monitoring benchmark.

**Environmental** - Mark showed a slide that correlated sediment ingestion with lead in the feces. It passes through but has lead that can be absorbed. At Bunker Hill, 4.6 to 41% (or 20% averaged) of swans' diet is incidental sediment uptake which gives us the correlation between sediment lead and feces lead. He also showed a graph of sediment and feces samples taken from different wetlands and lateral lakes displaying the difference between the two - about four times more lead in the sediment than in the feces. This will also help with developing the monitoring benchmark. Next, he explained the significant diet differences between wetlands with fecal samples taken from Hepton, Schlepp and Thompson. With DNA sequencing, they tried to resolve the different types of plants at each site.

- Hepton dominated by Sparganium (bur-reed)
- Schlepp more diverse, but dominated by Hydrocharitaceae (Elodea)
- Thompson dominated by Equisetum diffusum (Himalayan horsetail)
- Sagittaria (water potato) was <1% of detected DNA, but correlated with higher Pb in feces

As we go forward, we can look at the vegetation types to help us understand if there is any correlation between what they're eating and what their lead concentration is to help guide restoration or remediation.

#### Summary of Vegetation Analyses:

- Plant consumption similar within, but different across wetlands.
- The five most common plants consumed by swans were Equisetum (horsetail), Hydrocharitaceae (elodea), Sparganium (bur-reed), Persicaria (knot weed), and Poaceae (rice).
- Based on 33 fecal samples from two wetlands, DNA read counts for Sagittaria negatively (-0.35, P=0.09) and Equisetum positively (0.34, P=0.11) correlated with Pb concentration.
- Pb not detected inside plant tissues (Luxton et al.)

The GPS collars that have been successfully positioned on the swans interact with satellites as well as cell phone towers. As the swan's pass, they download the data so that we can obtain their information. As Jennifer mentioned, their data tracks them going from California through our area and then up to Alaska and back. This data also tells us how long the swan typically spends in the wetlands, if they're feeding, flying, low feeding and the potential lead exposure which can guide us where to focus our remediation efforts. We are learning how all these factors form our sampling protocol.

**Biological** – To actually gather these birds and collect their blood has been expensive, but this research phase of the work has been really informative to know what their blood levels are. Mark showed a graph showing the relationship between fecal and blood lead concentrations for several lateral lakes. For the five or six samples they were able to gather, there was a nice correlation between the amount of lead in their feces with the amount of lead in their blood. As it stands now, there is not a high confidence that we can interpret biological effect in the fecal sample. We may have to use a different approach for developing our benchmark, but we have another year of data to verify.

Next Steps to Integrate Effectiveness Monitoring Program and Guide Remedy Implementation:

- Fecal deposition platforms
  - Looking into it for some wetlands soon.
- Activity budget analysis
  - How long do birds feed at each location?
- Modeling
  - Simulate how remedy implementation strategies affect swan behaviors at the site (and vice versa), and thus Pb exposure potential.
  - Couple with a model to estimate fitness costs of elevated Pb in feces.
- Integrate into long-term monitoring strategy after next year?

Next project: Wood duck eggshells

- Why Wood Ducks?
  - Wood ducks consume shallow benthic invertebrates during nesting season; swans forage deep into sediments.
  - Likely wetland specific use during pre-laying (TBD).
  - Eggshells are easy to find and collect in nest boxes; part of IDFG's regular work to clean WODU boxes.
  - Nesting success and other attributes could be monitored at nests.

Goal: Determine if wood ducks are a reliable ecological receptor for remediation efforts

- 1) Radio telemetry – wetland spatial use
- 2) Nest ecology – egg Pb conc
- 3) Invertebrates – Pb in diet
- 4) Sediment/Porewater/Surface water – connects to biological exposure
- 5) Plant sampling – Pb in potential diet

Wood Duck Capture:

- Trapped between April 2 - 16
- Captured & processed 37 wood ducks (31 females, 6 males)
- 11 days trapped, 2.8/d

#### Wood Duck Pb:

- Pb ranged from 1 – 604 µg/dL
- Geometric mean = 18 g/dL
- 65 % exceeded subclinical poisoning for sensitive species
- 46% exceeded subclinical poisoning
- 38% exceeded clinal poisoning
- 34% exceeded severe clinical poisoning

#### Wood Duck Telemetry:

- 31 transmitters deployed on female wood ducks
- 494 total relocations across 31 marked females
- Average 16 locations/bird
  - (range 3 – 35)
  - Home ranges – 24 females

#### Conclusions & Next Steps:

- TUSW
  - Rocket netting where swans normally go is path forward for capture.
  - Most Pb is of Bunker Hill origin in blood and feces.
  - Sediment Pb was generally higher than fecal Pb (~4x).
  - Pb in feces and blood don't necessarily correlate.
  - More work on vegetation and activity budgets to come followed by model development and implementation.
- WODU
  - 32 telemetered birds at locations ranging from low to high sediment Pb.
  - Water, sediment, invertebrates, and egg components are being analyzed now.
  - One more year of work to determine the best matrix for monitoring.
- Both
  - Likely: Feces and eggshells are wetland specific metrics that can be pooled for broader trends.
  - Likely: Represent different but complementary environmental exposure pathways.

Scott Fields (CDA Tribe) really likes the diversity and DNA analysis; he wanted to know if they were going back to those feeding areas and looking at the overall plant availability or are they just consuming a general population of plants or targeting specific things? Mark answered that they are thinking about it, an important thing would be to verify the conclusions. The data they are hoping to address is to actually sample gut content, but that would mean you would have to kill the bird. So instead, looking at the DNA and fecal samples is an indicator of what they consumed. The biomass coming in for the type of plant they ate versus the DNA going out, we need to make sure that it is a solid connection. We have some partners potentially lined up in Wyoming who have captive Trumpeter swans that may be able to help with validation. The other point is we will watch where the birds go, collect fecal samples from those areas, collect sediment samples and if those areas contain the vegetation that was found in the fecal samples, then that's a nice connection.

Dave Leptich (IDFG) commented that it was an excellent question, but you have to assess availability versus use. At what scale do you measure availability and where you are going to collect that sample – it would be excellent information to have but very hard to collect. Mark stated it depends on the complexity of the relationship but like at Thompson Lake where what was available to eat matched the sample then that would make it easier to guide our work.

Rebecca Stevens (CDA Tribe) just wanted to let everyone know that the Restoration Partnership public affairs officers met last week, and they will be putting together a collective messaging for this coming migratory season so that we all have the same message.

### **Sediment Research Overview** – Jennifer Crawford/Chris Eckley (EPA)

Jennifer introduced Chris Eckley – he works for EPA in the Seattle office as a geochemist. As part of the Bunker Hill team, they have had the privilege of working on the research studies listed below. Today, they will be talking about some of this sediment research that has been going on in the Lower Basin and looking at ways to handle all the contamination in place and alter those soils, so we don't necessarily have to remove it.

Studies included in overview:

- FY20 Superfund Technical Liaison Research (STLR) Grant: Metal bioavailability in sediments experiencing wetting and drying cycles—the impact of sulfur and iron chemistry
  - Study time frame: field: 2021; mesocosm: 2023-2024
- CH2MHill: Incremental Thin-Layer Capping Pilot Study
  - Study time frame: 2017 to 2019
- FY18 Regional Applied Research (RARE) grant: Soil amendments to reduce bioavailability of toxic metals in contaminated soils and sediments
  - Study time frame: field: 2019; laboratory: 2020
- FY22 Regional-ORD Applied Research Program (ROAR) grant: Application of jarosite-based remediation technologies to significantly decrease lead (Pb) bioavailability in contaminated soils
  - Study time frame: 2023-ongoing

Chris restated the broad scale lead contamination within the Lower Basin, both within the river system as well as the lateral lakes and wetlands. Not all metal contamination is created equal in terms of its form and speciation. He explains – are the metals bound to the solid phase of the sediment or are they in the dissolved phase in the porewater; how tightly are they bound to the sediment; and how easily would they dissolve within the gut if they were ingested. All these variables are dependent on the speciation of the metals that is impacted by the ambient redox – the oxidation reduction conditions within the sediment – and the redox conditions will change the speciation of sulfur and iron compounds. This can be really important in terms of that balance in determining how locked up those metals are to a solid particulate phase where it may be less bio-available versus more easily dissolved. Those redox conditions are heavily dependent on hydrological conditions when subjected to wetting/drying cycles.

### *Metal bioavailability in sediments experiencing wetting and drying cycles—the impact of sulfur and iron chemistry*

In the first study, we had the objective of looking at how hydrological variations within those wetland environments along the CDA River impact the sediment redox conditions and how those redox conditions influence the availability of metals. We measured this by looking at how much of it partitions from the solid phase of sediment into the porewater of sediment. In the spring, we often have higher water conditions within the wetlands, then during the fall we have drier conditions with some drying out completely. You also have lateral lakes along the river that stay wet permanently. Our sample sites included all these conditions at several locations. Our methods used for the field component was to go out and collect the sediment cores, section the cores so that we're just sampling a consistent top 4 centimeters, centrifuging that sediment then filtering out the porewater. There's another component to this study where we wanted to control variables more than we can in the environment. So, the sediment collected from the site was subjected to treatments of wetting and drying cycles under lab control.



Chris presented the results from the field experiments showing several slides explaining how the samples were handled. The results show very clearly for cadmium, zinc and mercury that you have significantly higher values of those constituents in the porewater in the wetlands that are seasonally inundated compared to the ones that are permanently inundated. You also have higher values for lead but with the variability between the samples, those differences were not significant. Another way to look at this data is by looking at the porewater coefficient which is the ratio of the concentration in the sediment to the concentration in the porewater. So, for the cadmium, zinc and mercury you have more of that metal partitioning into the porewater phase and it would be more mobile compared to the permanently inundated wetland. We also see a lowering for lead, but again the differences were not significant. This was one of the reasons why we wanted to do these controlled laboratory experiments. Here we had two different treatments – some were permanently wet, and some were subjected to the wet, dry, wet, dry conditions. The samples that were subjected to wet/dry have significantly higher lead concentration in the porewater compared to the permanently wet samples.

Conclusions - Seasonal water level fluctuations influence sediment metal cycling:

- Increased partitioning of metals into the porewater.
- Changes in water levels impact redox conditions such as iron and sulfate cycling.
- Enhanced MeHg production
- Provide a remediation tool that may reduce Hg availability on a landscape-scale.
- Help predict the impacts of changing climatic/hydrological conditions on metal mobility.

#### Incremental Thin-Layer Capping Pilot Study

Incremental thin-layer capping (ITLC) is a remediation approach involving the incremental placement of clean material over time, simulating natural sedimentation processes and allowing native vegetation to recover after each application. This study was conducted in Lane Marsh and completed in two parts. The first was small-scale test plots with frames and the second was a larger scale plot which was 0.4 acres. Both looked at different sediment capping of 2-, 4-, and 6-inch depths with sand and clean soil. The study was monitored over 2 years showing the vegetation recovered nicely and continued to grow even though it had been capped with up to 6 inches of clean soil.

Results & Conclusions - Incremental Thin-Layer Capping Pilot Study:

- Vegetation regrowth was robust after applying up to 6 inches of capping material.
- Colonization of capped areas by noxious weeds was barely observed.
- Benthic monitoring showed macroinvertebrate recolonization in the soil cap test areas.
- The thin layer cap may be effective in decreasing lead (Pb) concentrations; however, they are susceptible to recontamination either through bioturbation or fresh sedimentation.

#### Soil amendments to reduce bioavailability of toxic metals in contaminated soils and sediments

- Soil and sediment amendments are a type of in situ remediation option that can reduce the solubility of contaminants and decrease their uptake into biota following ingestion.
- The benefit of amendments is that they can be applied over large areas with minimal landscape disturbance.
- Biochar is a commonly used soil/sediment amendment that can absorb contaminants and promote soil health.

- Biochar is created through pyrolysis (i.e., heating) of organic matter in low or no oxygen environments. Differences in feedstocks and pyrolysis temperatures impact on the characteristics of the resulting biochar (e.g., pH, surface area, functional group density, total and water-soluble phosphorus content) and subsequent interaction with soil/sediment contaminants.

#### Project Objective:

- Determine the effectiveness of different types of biochar amendments at reducing lead (Pb) bioaccessibility in Pb-contaminated soils/sediments with differences in soil/sediment type and contaminant source.

#### Methods:

- Biochars tested: blends of 30% manure (poultry litter or dairy manure) and 70% lignocellulosic material (wheat straw or grand fir shavings) and pyrolyzed at 300, 500, 700, and 900 °C.
- Soils were amended with 2% biochar and incubated for 6 months.
- A suite of standard (e.g., EPA Method 1340) and experimental soil Pb bioaccessibility assays were used to assess the impact of the treatments.

#### Results - Soil amendments to reduce bioavailability of toxic metals in contaminated soils and sediments

- Differences in analytical methods can have a large impact on the assessment of Pb bioaccessibility.
- In unamended sediments using a pH 1.5 extraction showed that 85 to 92% of the Pb was bioaccessible; but a pH 2.5 solution was used bioaccessible Pb decreased to 54 to 74%.
- There was a larger difference observed when the anoxic sediment samples were air-dried prior to analysis, which resulted in a 4-fold increase in Pb bioaccessibility.
- Using the Avian Ohio State University Gastrointestinal Method which is designed to reflect an avian digestive system where soil is ingested along with food there was a 6-fold decrease in bioaccessibility, likely due to enhanced Pb sorption in the presence of food (e.g., protein, phosphorous, calcium, etc).
- Sediments were amended with 17 different types of biochar with roughly half of them resulting in significant decreases in Pb bioaccessibility.
- The magnitude of the decrease in bioaccessibility was relatively low, with none of the biochar additions decreasing bioaccessibility by more than 10% at any of the contaminated soils/sediments in this study.
- There did not appear to be any significant differences in effectiveness based on feedstock material (i.e., wheat straw, grand fir, manure); however, it was observed that biochars that were pyrolyzed at 700 °C were more effective than those pyrolyzed at the other temperatures (300, 500 and 900 °C).

#### Application of jarosite-based remediation technologies to significantly decrease lead (Pb) bioavailability in contaminated soils

- Chemical remediation techniques may allow for in situ conversion of soil contaminants to phases that are not easily mobilized upon ingestion.
- Jarosite is a mineral that is a combination of potassium, ferric iron, and sulfate.
- Study Goal: develop a remediation strategy to induce jarosite formation in Pb contaminated soils to reduce lead bioavailability.

34 soils in the study from EPA Regions 4, 7, 8, and 10 (2 from Bunker Hill)

The process involves:

- Soil hydration
- Mixing with Potassium Jarosite
- Addition of Ferric Sulfate with H<sub>2</sub>SO<sub>4</sub>
- Moderate Heating (22 and 40 °C)

Soil pre- and post-treatment were analyzed for total Pb concentration and extracted via EPA Method 1340 in vitro lead Bioaccessibility.

Results - Application of jarosite-based remediation technologies to significantly decrease lead (Pb) bioavailability in contaminated soil.

- Two soil samples were collected from Bunker Hill for the Jarosite Treatment.
- Initial total lead in the soils was 746 and 1073 mg kg<sup>-1</sup>
- After treatment the amount of lead extracted (IVBA) from each soil was less than 200 mg kg<sup>-1</sup> • 55 to 75% reduction in bioaccessibility of Pb after treatment.
- Difference in the initial IVBA and the reduced IVBA post remedy related to the initial lead chemical speciation.

Conclusions:

For the entire study (multi-Region samples): Room temperature treatments resulted in average Pb %IVBA decreases of 58% Heated conditions (≥40°C), resulted in an average decrease of 74%.

Phil Lampert (Benewah County) asked if there was any research finding soil amendments with the thin layer capping. Chris replied that there had definitely been studies on that, but none that he was aware of in the Bunker Hill area. Other studies have mixed in soil amendments as part of a cap to have enhanced sequestration of the metals and reduce mobilization, so there is other research.

Felicia from Alta wanted to know if Chris had an idea of the volume of amendment required compared to the treated soil, and his answer was yes. What was done in terms of the volume of amendments were applied at a 2% by weight of biochar first for soil, and often you don't get to higher ratios than that because the biochar is light and airy. Once you start mixing it in, it's quite a large quantity. The 2% range was feasible for being able to mix it in and get good coverage in the top 8 inches or so of the sediment.

Jerry Boyd (CCC) asked at what temperature did he treat the Jarosite – and Chris answered 40 degrees Celsius. Jerry also asked about the pH – and did they try it wet with the material – what were they looking for? Chris did not know the answer – Jen said they could look into that. Jerry mentioned it because he knows of a source of material that has ash from burning wood waste that would be relatively high pH and could be mixed in. Chris stated they probably know what the pH is, and he suspects it to be quite low during the process, but he didn't know the details.

Craig Cooper (DEQ) wanted to know if they tried phosphate materials for amendments. Jen said that there were concerns about using phosphate, but other studies have used it. Originally, they were going to use it at Bunker Hill, so they can definitely do that. Chris added that it exists in literature and other people and sites that are using phosphorus as a mechanism to reduce bioavailability.

Sandra Treccani (WA ECY) stated this has been great collaboration in working in all these different lines of research, is there anything else out there – we've got some great results with biochar and thin layer capping – is there anything else that is potentially applicable based on the results of what they have found in these

studies. Chris replied that water manipulation could be another factor in keeping areas of high contamination from wet or permanently dry. Even though biochar didn't really pan out in this study, there are other types of amendments that are more activated carbon-based materials, and on other sites he and Jen work on, they are looking at a host of different types of soil amendments, biochar just being one, and seeing which are most effective. Jen added that at the other sites one of the amendments is more mercury based but could potentially have implications for other metals as well.

Dave Leptich (IDFG) commented on thin layer capping and what you are essentially doing is building a wetland. As you build, you change the water depth across that wetland. Emerging plant communities are tied into water depth, so changing the plant community also changes the wildlife community that depend on it. It's not to say that it is an inappropriate technique, but keep in mind if you raise the bottom, you'll also have water control so you can raise the top. You could maintain that plant community with water control and also target sites that have perhaps more levels that were deeper than optimal for waterfowl and improve your plant community for your target species. The wet/dry cycles are another kind of conundrum because to maintain wetland productivity it needs to actually cycle wet/dry. The depth of wetlands is stable water levels where nutrients get locked into the soil particles during anoxic conditions, in order to oxidize those nutrients and release them, it needs the wet/dry cycle. Like everything in the Basin, nothing is easy. It's not to say we can't apply these techniques; we just need to think of the consequences and how to apply them.

Dan McCracken (DEQ) thinks EPA should take into consideration the liability of some of these, recognizing how contaminated some of the areas we're dealing with. He understands a lot of the places in the Lower Basin were as much as 10 times higher lead concentration than what we're really trying to get to for a remediation goal. So, 50% reduction is great, but it seems like what we actually need to achieve is maybe 90% reduction.

**Lunch and Executive Session** under Idaho Code 74-206 (1) b to Discuss Performance of Executive Director. Separate lunch for BEIPC Staff, TLG and CCC chairs. Phil Lampert made a motion to go into Executive Session; Ed Moreen seconded the motion, all approved. **M/S/C**

**Blood-lead screening event update** – Emily Hasz (PHD)

Emily Hasz from the Panhandle Health District (PHD) gave today's update on blood lead screening. This year's data is still being reviewed for final numbers; full data should be available for a presentation at the next Basin Commission meeting in March. Testing event numbers indicate that we tested 16 adults at our June event and 14 adults in October in conjunction with Vitalant at their blood drives in Kellogg, and 391 participants (adults and children) attended our annual week-long event in August.

PHD made this year's event more kid friendly by having it carnival themed with fun games and prizes, and they also introduced their very first online scheduling tool that allowed individuals to schedule their own appointments. Both actions are believed to have contributed to the larger turnout this year as compared to previous years.

Leslie asked about the adults who gave blood, is that problem for the recipient. Emily wasn't sure but was told by Vitalant that it is not something they use as a screening tool. She believes it is not an issue because when it comes to blood, they mostly worry about plasma. Dave Leptich stated that it is not part of the processing as it is diluted there.

### **Leading Idaho Update** – Jamie Brunner (DEQ)

Jamie will give a quick update on the Leading Idaho projects that DEQ have been working on for the past couple of years. They have received an increase in total funding since they were last presented.

- Total of \$35 million for projects
- Ranked through the Coeur d'Alene Lake Advisory Committee (CLAC) appointed by Governor Brad Little.
- Projects include:
  - Nonpoint sources
  - Wastewater upgrades
  - Stormwater treatment
  - National Academy of Science (NAS) recommendations

#### Funding changes from last update

- Previously \$600k unallocated as of the last update.
- New NAS project funded from previously ranked list (\$200k).
- Leaving Coeur d'Alene Lake projects with \$400k unallocated funds. All Leading Idaho funds need to be allocated by the end of this calendar year.

#### South Fork Sewer District (SFSD) changes:

- Davis-Bacon wage requirements (+ \$1.2 million).
- Smelterville tie-in (\$4.8-6.3 million) – further enhance the amount of wastewater treatment and to join the two systems together.
- SFSD groundbreaking September 20, 2024.

#### Active projects - On-the-ground projects, Wastewater Treatment Upgrades, and NAS Recommendations

##### City of Kellogg:

- Phase 1&2 Complete. Bunker Creek, Hill Street, North Kellogg, & Vactor Truck.
- Phase 3- Mapping/assessing remaining drainages and setting priorities.

##### City of Coeur d'Alene:

- Sanders Beach, Mullan, and Independence Point complete.
- 3rd Street outfall Spring 2025 – Two stormwater signs planned near Sanders Beach and Tubbs Hill Trailhead to educate people about what the stormwater treatment system looks like as this is a highly visible location.

##### Santa-Fernwood Wastewater Reuse:

- Land purchased
- Reuse permit process initiated

##### NAS Recommendations:

###### Science Coordination Team

- Working on priorities document

###### St. Joe Watershed Assessment

- Monitoring in progress

###### Evaluation of Recreational Areas in Coeur d'Alene Lake and Spokane River

- Samples collected this summer
- Final report 2026

###### Comprehensive Coring Plan

- Sponsored by the Coeur d'Alene Tribe
- Lakebed sediment coring to view historic lake conditions

- \$200k Leading Idaho funds allocated
- Additional funding:
  - Avista, \$200k
  - Restoration Partnership 100k

Completed projects:

- Riverside Track
- Schlagel Draw
- Sunnyside Road
- Marmot Trail Road
- Mica Creek Stabilization
- Kellogg School District
- Wolf Lodge Creek
- Mica Creek Floodplain Access

All of these projects have individual pages on the Leading Idaho website showing their funding overview, project details, and pictures.

Scott Fields asked about the Fernwood reuse permit - will they keep the permit for emergencies. Dan McCracken answered at this point they plan to convert to recycled water.

Rebecca wanted to know about the \$400k unallocated funds - are they going back to the state coffers? Jaime answered that it was going towards the money needed for the South Fork Sewer District.

**Review and Approve Draft 2025 BEIPC Work Plan** – Sharon Bosley (**Action Item**)

The Bunker Hill Superfund Site (BHSS) goes from the Montana Border into Washington, consisting of two different geographic areas – the Upper and Lower Basin - as well as the Box. We utilize the 2002 Record of Decision (ROD) and the 2012 ROD Amendment when we are looking at putting forth our work plans.

**Human Health Remedies**

**RESIDENTIAL AND COMMERCIAL PROPERTY REMEDIATION**

Remediations to date:

- 3,236 properties in “Box”
- 3,935 properties in “Basin”

2024:

- No properties have been remediated.
- 1 property including ROW & drinking water source was sampled.
- 2 Properties private drinking water source were sampled.

2025 Goals:

- Complete sampling and remediation if sampling above action levels & access is granted.
- 9 properties in the “Box” need remediation.
- 201 properties in the “Basin” require sampling.
- 38 properties in the “Basin” need remediation.

**UPDATED RESIDENTIAL SOIL LEAD GUIDANCE**

- Residential soil lead screening levels reduced from 400 PPM to 200 PPM or 100 PPM when multiple sources of lead exposure are present.
- Clean up levels are developed after investigations, assessments, site specific risks & other relevant information.

#### 2025 Goals:

- Assess need for changes in current clean-up levels.
- Review assumptions used to develop current clean up levels.
- Review site specific data to determine progress toward meeting screening level goals.
- If it is determined that updated cleanup levels are needed, work will begin in late 2025/early 2026.
- Changes to current approach will require amending decision documents & obtaining public input.

#### LEAD HEALTH INTERVENTION PROGRAM

##### LHIP Services:

- Year-round blood lead screening and free follow-ups.
- HEPA vacuum loan program for cleaning residences.
- Education, outreach, and awareness for parents, children, community members, recreationalists, and visitors.
- Education and outreach at community events local schools for grades K-12.
- Sampling of soil, dust, paint, water, and other media as appropriate.
- Provide healthy homes items including dust cloths, surface cleaner, door mats, and replacement furnace filters.

##### 2025 GOALS:

- Free blood lead screening for residents living within the Bunker Hill Superfund Site boundaries.
- Continue annual summer screening with \$50 incentive for children between ages 6 months and 6 years.
- If an individual is found to have elevated blood lead levels: Free in - home consultation to identify sources of exposure Help identify potential exposure pathways the cleanup can address.

#### RECREATIONAL USE ACTIVITIES

##### 2025 GOALS:

- Box recreational site strategy and implementation plan to be completed.
- Monitor completed remediation projects & install/update signs in the Basin.
- Evaluate sample results & potential clean up options at informal recreational sites east of Thompson Lake.
- Characterize activities at other Lower Basin recreational areas.
- In the Box, update signs and evaluate access controls at mine and recreation sites.

#### Waste Area Development & Management

##### REPOSITORIES:

- PAGE Operated by IDEQ receives waste from the Box and from the ICP 384,174 cy remaining capacity.
- BIG CREEK Operated by CDA Trust receives waste from the Upper Basin 81,500 cy remaining capacity.
- BIG CREEK ANNEX Operated by CDA Trust receives waste from the Upper Basin 168,871 cy remaining capacity.



- LOWER BURKE CANYON Operated by CDA Trust receives waste from the Upper Basin 1,028,025 cy remaining capacity.
- EAST MISSION FLATS Operated by CDA Trust receives waste from the Lower Basin 146,000 cy remaining capacity.

#### WASTE CONSOLIDATION AREAS:

- EAST FORK NINEMILE
  - Received waste from Tamarack and Dayrock Complex.
  - All priority cleanups were completed in 2024.
  - Final cover expected to be completed in 2026.
- CANYON COMPLEX
  - Repository and WCA
  - Accepting waste from Canyon Creek remedial actions.
  - In 2025, waste from Hecla Star and Tamarack No. 7.
- A DECISION HAS NOT BEEN MADE YET ON THE FINAL LOCATION OF A LOWER BASIN WCA

#### Remedial Actions

##### UPPER BASIN REMEDIAL ACTIONS

- 2012 UPPER BASIN RODA GOALS
  - Clean up to improve water quality and address human health and environmental risks.
  - Clean up in the Box to improve water quality of the SFCDR.
  - Treat additional contaminated water.
  - Focus on source control actions to address particulate lead Protect remedies from flooding.

##### BOX REMEDIAL ACTIONS

- CIA SLUDGE POND CLOSURE
  - Old sludge pond will be capped, covered and tied into existing CIA cover system.
- PINEHURST ELEMENTARY
  - Removal of deteriorated sections, regrading to promote drainage, and re-surfacing playground area.
- AIRPORT RIVERWALK TRAILS
  - Placement of barrier at one or two Oasis pads along previously completed trail.
- EAST SMELTERVILLE FLATS
  - 16-acre contaminated sites will be excavated and capped including removal along floodway on the north bank of the SFCDR.
- RIGHTS OF WAY, SIDEWALKS, AND PARKING AREAS
  - Deteriorated barriers will be remediated: 33% of Uptown Kellogg's sidewalks will be replaced & 100% of the Galena Ridge overview ROW capped.

##### UPPER BASIN REMEDIAL ACTIONS

- NINEMILE CREEK BASIN
  - CDA Trust completed priority cleanup in 2024. In 2025, O & M will continue at cleanup sites as well as remedial action effectiveness monitoring.
- CANYON CREEK BASIN
  - In 2025, CDA Trust will continue to investigate, design and implement clean-up projects.

## INVESTIGATIONS AND DESIGNS

- Investigation at Lower Canyon Creek Riparian area. Initiate design of Frisco Reach and complete the design for Standard Mammoth Reach.
- HECLA STAR
  - Continue remediation of the 22-acre site including removal of mine waste, placement of backfill, road & creek reconstruction.
- TAMARACK #7
  - Start remediation of the 23-acre site near Black Bear by removal of mine waste, re-grading and capping of mine waste, placement of clean backfill and reconstruction of Canyon Creek.
- PINECREEK DOUGLAS COMPLEX
  - Located on Pine Creek 6 miles south of Pinehurst, cleanup will include re-grading and capping mine waste and placement of clean backfill.
- SOUTH FORK OF THE CDA RIVER
  - CDA Trust will start to investigate contamination sources within the floodplain from Mullan to the “Box” prioritizing future design and cleanup work.

## LOWER BASIN REMEDIAL ACTIONS

- 2002 INTERIM ROD GOALS
  - Reduce human exposure to lead contaminated soil.
  - Improve water quality.
  - Reduce particulate lead and other heavy metals in Basin ecosystem.
- 2002 INTERIM ROD FOCUS
  - Lower Basin Riverbeds and banks
  - Lower Basin Floodplains
  - Recreational area cleanup

## LOWER BASIN RIVERBEDS AND BANKS PROJECTS

- DUDLEY REACH
  - Design for pilot cap & dredge project is at 30% but project is on hold until LB WCA sited.
- CATALDO REACH RIVERBANK DESIGN
  - Design for a riverbank pilot project at river mile 166-167 to address eroding banks.
- CATALDO REACH RIVERBANK INVESTIGATIONS
  - Characterization of additional riverbanks at Cataldo Reach to prioritize design for pilot projects to address sediment transport.

## LOWER BASIN FLOODPLAIN PROJECTS

- GRAYS MEADOW
  - 695-acre agriculture to wetland conversion will be completed in the spring of 2025 with O & M starting shortly after completion.
- GLEASON WETLAND REMEDIATION & RESTORATION
  - 250-acre easement property will be characterized in 2025 for a potential agriculture to wetland conversion.

## Basin Environmental Monitoring

### BASIN ENVIRONMENTAL MONITORING PROGRAM GOALS

- ASSESS LONG-TERM TRENDS
  - Surface water
  - Sediment
  - Groundwater
  - Biological resource conditions
- EVALUATE
  - Remedial Action Objectives
  - Applicable or Relevant and Appropriate Requirements
  - Preliminary Remediation Goals
- UNDERSTAND EFFECTIVENESS AND EFFICIENCY OF REMEDIAL ACTIONS
- DATA FOR CERCLA FIVE-YEAR REVIEW

### ENVIRONMENTAL MONITORING UPPER BASIN

- THE BOX
  - Four stations monitored twice per year upstream and downstream of the GCS
  - Biological monitoring of benthic macroinvertebrates at two stations upstream and downstream of the CTP.
- UPPER BASIN - NINEMILE CREEK & CANYON CREEK
  - Surface water quality samples two times per year during peak spring runoff and late summer base flow conditions.
  - Additional surface water quality samples by USGS four times per year during winter storm, peak spring runoff, late summer base flow, and late fall storm conditions.
- SOUTH FORK COEUR D'ALENE RIVER
  - Surface water quality samples upstream of the box two times per year during peak spring runoff and late summer base flow conditions.
  - Additional surface water quality samples by USGS at seven locations in the South Fork Coeur d'Alene River ranging from Mullan to Pinehurst.

### ENVIRONMENTAL MONITORING LOWER BASIN

- LOWER BASIN
  - The Lower Basin Area-wide Remedial Action Effectiveness Monitoring Plan is in progress and will continue to be drafted in 2025.
  - Surface water quality samples twelve times per year at seven locations in the Lower Basin targeted for high flow events and a fixed frequency approximately every 6 weeks.
- CDA LAKE
  - Initiated in 2024, continuous monitoring of surrogate technologies to estimate concentrations of suspended sediment, lead, and phosphorus at three USGS monitoring locations in the Lower Basin: Cataldo, Rose Lake, and Harrison.
- BIOLOGICAL MONITORING
  - Non-invasive biomonitoring waterfowl research of wood duck eggshells and tundra swan fecal samples to observe changes in lead exposure over time is anticipated to be completed in 2025.

### Operations and Maintenance

Private properties remediated under BPRP

- Individual property owners

Public gravel and paved remediated roads

- Local governments with jurisdiction over roads

Remedy protection program

- Governmental jurisdictions or property owner
- Environmental covenants filed as riders to deeds of remediated property

CDA Work Trust is responsible for their own work

- Except: road and remedy protection projects, gray's meadow after five years, and others

CTP and Ground Water Collection System

- DEQ

Other remedies under CERCLA

- DEQ

Remedies on BLM and NFS administered lands within the site and North Fork of CDA River

- BLM, USDA FS

### Part 2 – Other Activities

#### DEQ LAKE MANAGEMENT - LMP goals

Improve Scientific Understand of Lake Conditions through monitoring, modeling, and special studies

- Water quality monitoring & coordination of science coordination team to implement NAS suggestions.

Establish and strengthen partnerships to maximize benefits of actions under existing regulatory framework.

Finalize and implement a Nutrient Reduction Action Plan

- Work with funding recipients (10)+ under the LI initiative to implement phosphorus reduction projects in Coeur d'Alene basin.
- Analyze tributary data
- Share data gap monitoring
- Coordinate with CDA Tribe on nutrient loading in southern end of the lake.
- Collaborate on WQ improvements in CDA basin.
- Find opportunities to align nutrient reduction and remediation in lower basin.

Aquatic plant surveys

Increase Public Awareness of Lake Conditions and Influences on Water Quality

- Our Gem Collaborative, TCP, Bay Watchers, local gems & outreach about Alta's risk-based evaluation of CDA lake.

Establish funding mechanisms to support LMP goals, objectives and strategies

#### CDA TRIBE LAKE ACTIVITIES

Monitor Water Quality for metals, nutrients & physical parameters.

Model data collected from the Lake, Meteorological stations and USGS stations.

Monitor and treat invasive aquatics.

Work with EPA to identify opportunities to align nutrient reduction and remedial efforts in the lower basin.

Support TCP/YWS & The Our gem collaborative.

Work with DEQ to implement nutrient and water assessment of the St. Joe.

Continue to request that EPA reviews/evaluates their decision to "defer" a remedy for the lake.

## OTHER ACTIVITIES & RESPONSIBILITIES

### Flood control and infrastructure

- BEIPC will work with local flood group to update flood maps for Kellogg & Pinehurst.

### Communication and public involvement

- BEIPC will continue to work with community involvement coordinators and citizens coordinating council to carry out public involvement, outreach, and education regarding basin activities.
- BEIPC will participate in regional outreach and educational committees.

### State of Washington Activities

- Ecology will continue to monitor previous clean-up along the Spokane River.

## RESTORATION PARTNERSHIP - USDA, USFS, USFWS, BLM, CDA TRIBE, IDFG AND DEQ

- Restoration Partnership was awarded largest settlement for natural resource restoration in US history at 79.4 million dollars.
- 16 projects have been completed to date.
- 17 projects are ongoing.
- Returning natural resources back to a healthy condition.

Val Wade (online) has a two-part question – first, she wanted an update on the status of the closed beach at Rose Lake – second, are there plans to close any other heavily used beaches with high sample data. Jennifer Crawford answered about the closure, it was for a year with the Forest Service. During that time, there have been some cultural resource complications that are ongoing. It will be reassessed at the end of next summer at that location. And then a gate was installed at the west end of Blue Lake with Idaho Fish & Game, which was another high use area for long-term camping. We are assessing a couple of other locations as well.

Rebecca clarified that the Restoration Partnership settled for 140 million, not 79.4. It was incorrect on the slide presented, but it is not stated that way in the work plan.

Leslie stated we did receive a request to amend the one-year work plan, so we need to assess that there is a process of procedure to have items added. This request is to amend the 2025 Work Plan to include the Lower Basin WCA. Scott Fields answered that they are still in the Government-to-Government Consultation process and asked for more patience. They could possibly give an update at the next meeting of how that is going as the process is involved. Ed Moreen agreed that until they complete this process, it would be inappropriate to commit to moving forward on a Lower Basin WCA. Obviously, we want to do that, but we need to conclude the process so that we can move forward as quickly as possible. We will try to keep everyone apprized the best we can. Leslie asked if we will be able to have an agenda item in March to find out where the process is and an update, and the answer was yes. Leslie asked that the 2025 Work Plan be approved as it stands with the understanding that we'll get updates and hopefully look forward to the 2026 Lower Basin WCA. She asked for any other thoughts, questions or concerns before a motion is made to approve. There were no comments – a motion was made by Brook Beeler to approve the 2025 Work Plan; Phil Lampert seconded the motion; all Commissioners approved. **M/S/C**

## **Review and Approve Draft 2025-2029 Five Year BEIPC Work Plan** – Sharon Bosley (Action Item)

### Human Health Remedies BPRP & Recreation

#### Scope:

- Determine remediation needs of properties and drinking water sources.
- Assess human health risks associated with recreational activities.
- Provide fish advisories related to heavy metals.

Objective:

- Remediate properties
- Implement actions to reduce lead exposure at recreation sites in the Basin.

Lead:

- DEQ
- EPA
- CDA Tribe
- PHD

UPDATED RESIDENTIAL SOIL LEAD GUIDANCE:

Scope:

- Screening level reduced to 200/100 PPM Lead.
- Screening levels are not cleanup levels.
- Cleanup levels are developed after consideration of relevant site information.
- Assess if cleanup levels and actions used at Bunker Hill remain protective considering the recommendations.

Objective:

- Evaluate if changes to current residential soil clean up levels are necessary.

Lead

- EPA
- DEQ
- PHD

LEAD HEALTH INTERVENTION PROGRAM:

Scope:

- Prevent elevated blood lead levels in children and others within BHSS.
- Identify children with elevated blood lead levels and provide in-home follow-up services.
- Provide information on effectiveness of LHIP, clean-up programs and ICP.

Objective:

- PHD uses the 3.5 micrograms per deciliter as the trigger for follow up.
- Blood lead screening will continue during this 5- year period.

Lead:

- DEQ
- PHD

Waste Disposal Area Development & Management

Scope:

- Plan, develop, and manage engineered waste disposal areas.
- Two primary types of engineered waste disposal areas: Five repositories, and two Waste Consolidation Areas.
- Planning for a third WCA was initiated in 2020.

Objective:

- Continue implementation of the Waste Management Strategy.
- Evaluate repository and WCA cover design criteria.
- Consider the feasibility of future use options.
- Continue operations of repositories and WCAs.

- Continue to explore potential sites and development plans for WCA site(s) in the Lower Basin.

Lead:

- EPA
- CDA Trust
- DEQ
- PHD

### Upper Basin Remedies

Scope:

- Implement source control and water treatment remedies, ecological cleanup projects, and related human health activities.
- Coordination on natural resource restoration actions.
- Operate the groundwater collection system and upgraded Central Treatment Plant (CTP).
- Source control actions in the Canyon Creek and Upper South Fork CDA watershed.

Objective:

- Source control remedial actions to address contaminated surface water, soil, sediments, and source materials.
- Remedies are prioritized to reduce human health exposures and the contribution of contaminants downstream.
- Coordinate Cleanup actions with natural resource restoration.
- Adaptive management will prioritize human health exposure and effectiveness of actions.

Lead:

- EPA
- CDA Trust
- DEQ
- Restoration Partnership

### Lower Basin Remedies

Scope:

- Evaluate and prioritize ecological and source control remedies.
- Conduct pilot projects to address contaminated riverbed.
- Implement remedies that have low potential for recontamination and inform future remedy decisions.
- Characterize and prioritize riverbank segments for stabilization.
- Coordinate remedies with restoration activities.
- Identify recreation areas for remediation or development of clean areas.
- Educate recreation users regarding health risks.

Objective:

- Address risks to human health: property cleanups, remediate recreation sites, and education.
- Utilize information and recommendations for active remediation, evaluate remediation technologies, and areas for natural recovery.
- Utilize the Lower Basin PFT to evaluate source control, habitat cleanup and human health.
- Test supplemental actions to reduce downstream transport of lead. ROD amendment or ESD may be necessary.
- Plan and Implement habitat and riverbed pilot projects.



- Characterize wetlands, address mobilized contaminants in river system, and inventory recreation sites for remediation.

Lead:

- EPA
- CDA Trust
- CDA Tribe
- Restoration Partnership
- State and other federal agencies

#### Basin Environmental Monitoring

Scope:

- Implement remedy effectiveness and long-term monitoring.
- Data management for the Bunker Hill Site has largely transitioned to Scribe.net.

Objective:

- Utilize updated BEMP management plan.
- Evaluate the progress of cleanup actions and adjust monitoring programs to inform ongoing and upcoming cleanup actions.
- Utilize area-wide remedial action effectiveness monitoring plans for the Ninemile and Canyon Creek Basins.
- Draft area-wide remedial action effectiveness monitoring plan for the Lower Basin.

Lead:

- EPA
- DEQ
- CDA Tribe
- USFWS
- USGS

#### O & M

Private properties remediated under BPRP

- Individual property owners

Public gravel and paved remediated roads

- Local governments with jurisdiction over roads

Remedy protection program

- Governmental jurisdictions or property owner
- Environmental covenants filed as riders to deeds of remediated property

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- Except: road and remedy protection projects, gray's meadow after five years, and others

CTP and Ground Water Collection System

- DEQ

Other remedies under CERCLA

- DEQ

Remedies on BLM and NFS administered lands within the site and North Fork of CDA River

- BLM, USDA FS

## Coeur d'Alene Lake Activities

### INCREASE SCIENTIFIC UNDERSTANDING

#### Activity:

- Core Lake WQ monitoring
- Evaluate Third-Party Review
- Science Coordination Team

#### Scope:

- Monitor for metals, nutrients, physical parameters, and biological communities.
- Utilize the NAS third-party review of lake data, coordinate on future data collection priorities, and strategize on the path forward.
- SCT formed to guide lake management science priorities moving forward.

#### Lead:

- DEQ
- CDA Tribe
- EPA
- USGS
- U of I

### DEVELOP AND IMPLEMENT A NUTRIENT REDUCTION ACTION PLAN

#### Activity:

- Basin-wide nutrient inventory
- Bank erosion inventory
- Implementation coordination
- Aquatic Invasive Species
- Remedy implementation support

#### Scope:

- Continue nutrient monitoring data in lake tributaries.
- Share results with stakeholders to inform decision-making.
- Update Bank erosion inventories.
- Continue to collaborate with lead participants to identify WQ improvement projects.
- Continue implementing aquatic plant surveys.
- Continue to participate in the Lower Basin PFT and TLG.

#### Lead:

- DEQ
- CDA Tribe
- Avista
- SWCDs
- NRCS
- RP
- ISDA
- Kootenai County
- BEIPC
- EPA

### INCREASE PUBLIC AWARENESS OF LAKE CONDITIONS AND INFLUENCES ON WATER QUALITY

#### Activity:

- LakeASyst

- Demonstration sites
- Our Gem Coeur d'Alene Lake Collaborative
- K-12 Education
- General Outreach
- Local Gems

Scope:

- Continue to utilize materials.
- Utilize projects to demonstrate effective strategies and for public outreach.
- Share information and get feedback from the basin-wide community.
- Organize an Our Gem Coeur d'Alene Lake Symposium for early 2026.
- Incorporate water quality education into classroom: The Confluence Project.
- Participate in relevant education and outreach opportunities.
- Continue to support the Local Gems Recognition and Awards program.

Lead:

- DEQ
- CDA Tribe
- Stakeholders
- SWCDs
- U of I
- K-12 schools
- CDA Chamber
- BEIPC

Other Activities

FLOOD CONTROL AND INFRASTRUCTURE REVITALIZATION

- Continue to work on potential flooding issues on the SFCDR.
- Work with FEMA on new flood maps.

COMMUNICATIONS AND PUBLIC INVOLVEMENT

- Continue to address issues and facilitate public involvement and education in BEIPC activities.

RESTORATION PARTNERSHIP

- Continue to implement Restoration Plan working to restore injured natural resources.
- Coordinate restoration with remediation actions

Gail had one correction on page 12 of the work plan, it reads 2024—2028 so this will be changed to 2025—2029.

Phil Lampert asked if in the Annual and 5-year Work Plans there was any language that addressed emergency situations if they arise or if something is identified in the Basin. Ed Moreen answered that if there was an emergency situation, EPA or the State would address it. Phil also wondered about health issues, and Ed stated that we always have flexibility to handle that. Sharon added that PHD is there if they find there is an issue or elevated blood level, they will try to determine the source and address contamination issues.

There were no other questions or comments – a motion was made by Phil to approve the 2025-20029 Five Year Work Plan; Brook seconded the motion; all Commissioners approved. **M/S/C**

**Discussion and Comments with CCC** – Jerry Boyd, Chair

Jerry addressed Phil's question, in the past when there was a particular issue identified by a number of people, it seemed important enough to hold a CCC meeting and invite the public. They were able to come in with comments and questions, and in some instances, provide important input to issues. We are always open and available. Jerry works with Sharon on behalf of the Basin Commission to hold meetings when the need arises.

Jerry hopes everyone is getting the periodic mailings and information from the BEIPC and EPA as they are helpful and contain useful information. He commented that there has been a lot of money spent in the Basin and believes there have been many improvements made. Water quality and changes over time would make a great story to share with the public to be presented in some form.

Sharon commented on the water quality information – Lauren from USGS will be presenting at Our Gem virtual speaker series in February and will have more up to date information from when she presented before. An email will be sent out to everyone with the date and time.

**Public Comments & Discussion**

Sandra Treccani wanted to call out the fact that we are done with East Fork Nine Mile. It was included in all the plans and is a huge milestone for many people in this room and those working in the Basin for the last 25-30 years or longer. A lot of research and investigation has gone into characterizing that basin. Congratulations and kudos to everyone that was involved.

**Meeting Adjourned at 2:23 pm**