

Citizens Coordinating Council - Lower Basin Status & Planning Activities

April 18, 2018

Ed Moreen, PE / Kim Prestbo, PG

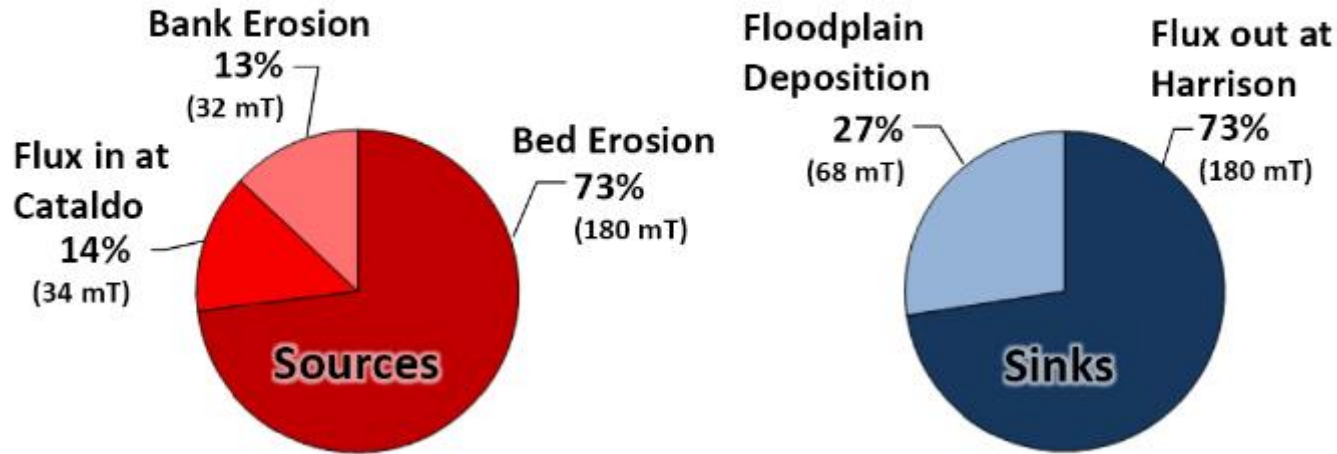


Highlights of 2017

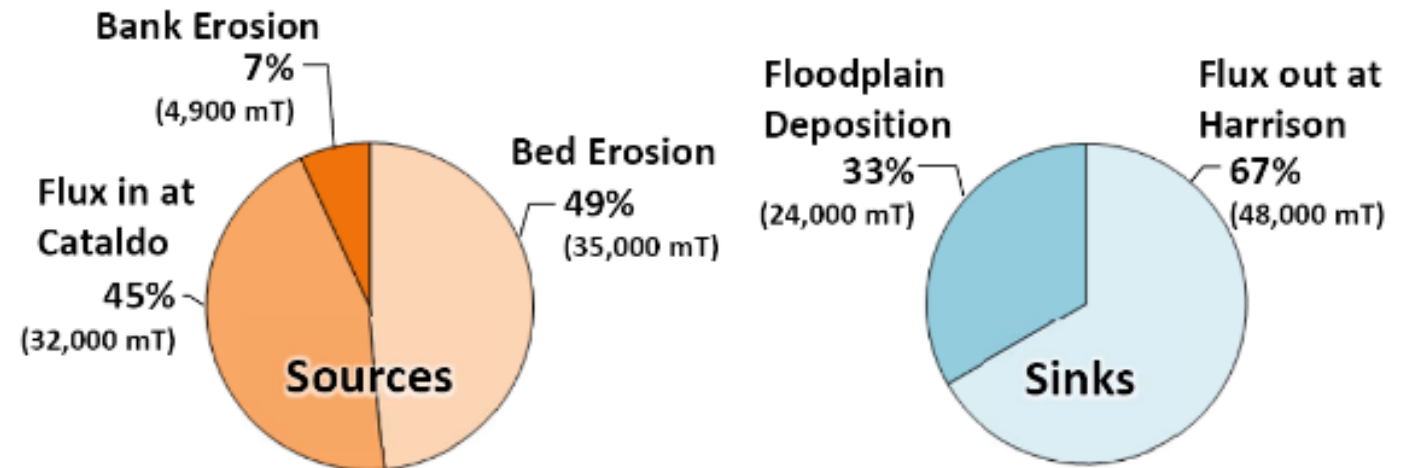
- March 2017 Flood Suspended Sediment Sampling
- Dudley Reach Coring
- Sediment Transport Model complete
- Extensive depositional sampling post 2017 Flood
- Finalize Strategic Plan
- Interagency Collaboration and Decision Process for Wetlands and Channel - MODA

Sediment and Lead “Budget”: Summary

Lead



Sediment



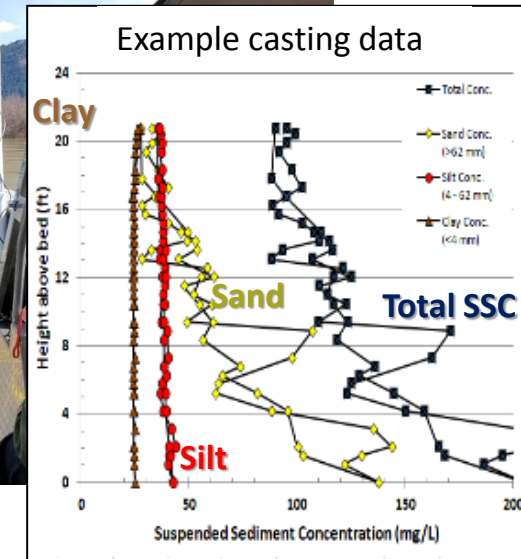
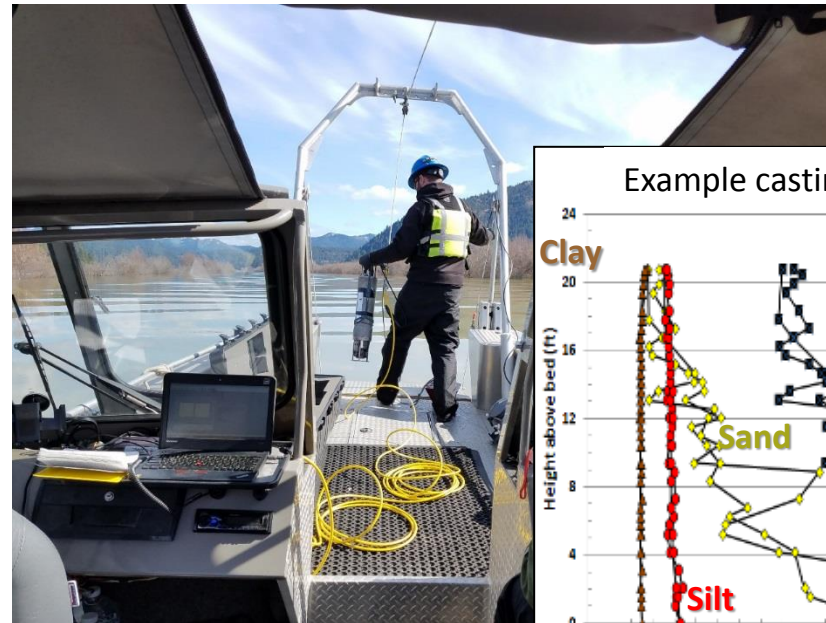
Based on 25 year period of record: 1988 - 2012

March 2017 Flood – Suspended Sediment Sampling

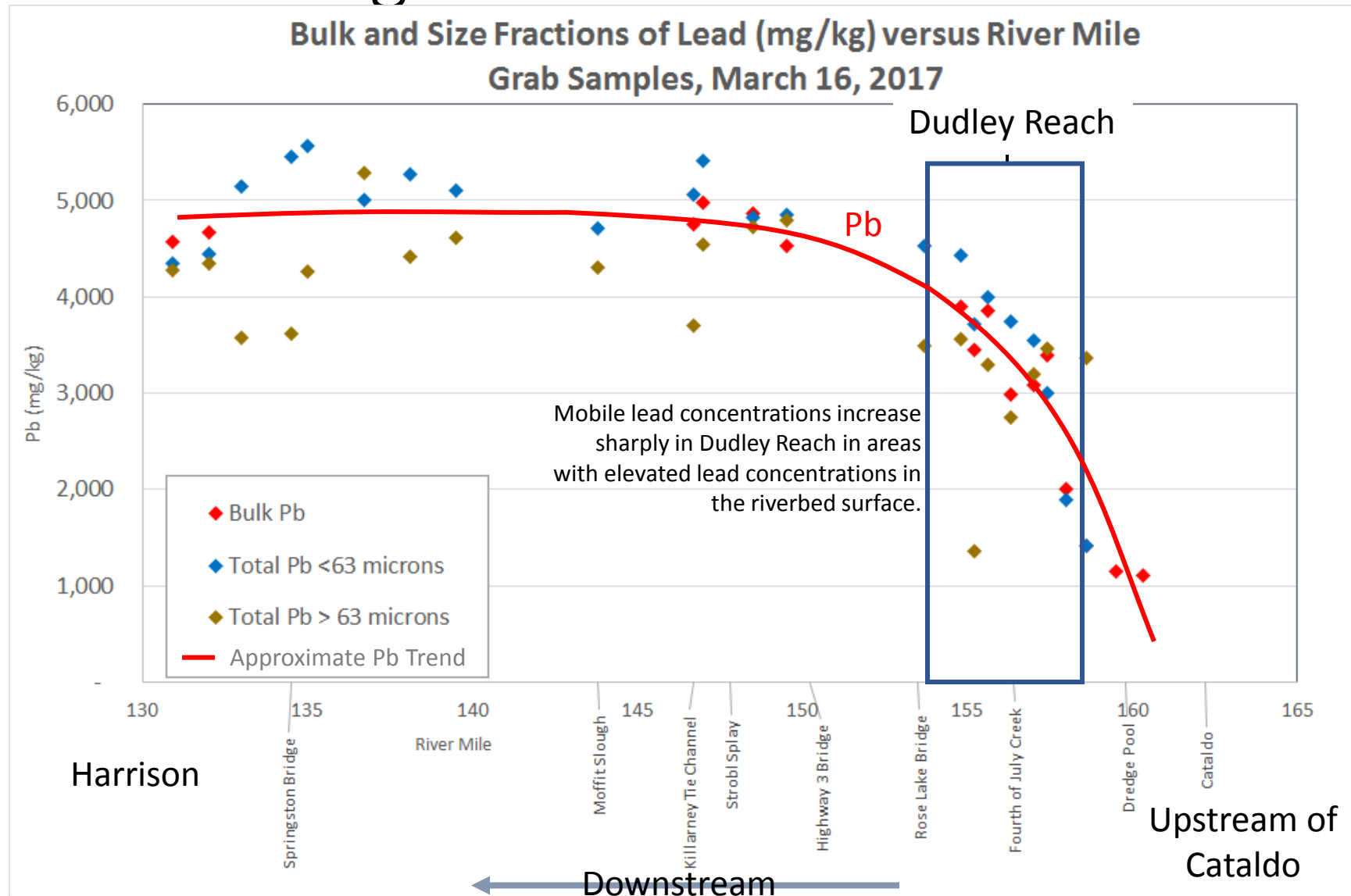
Grab Sampling (Metals)



LISST Casting (Particle Size and Loading)

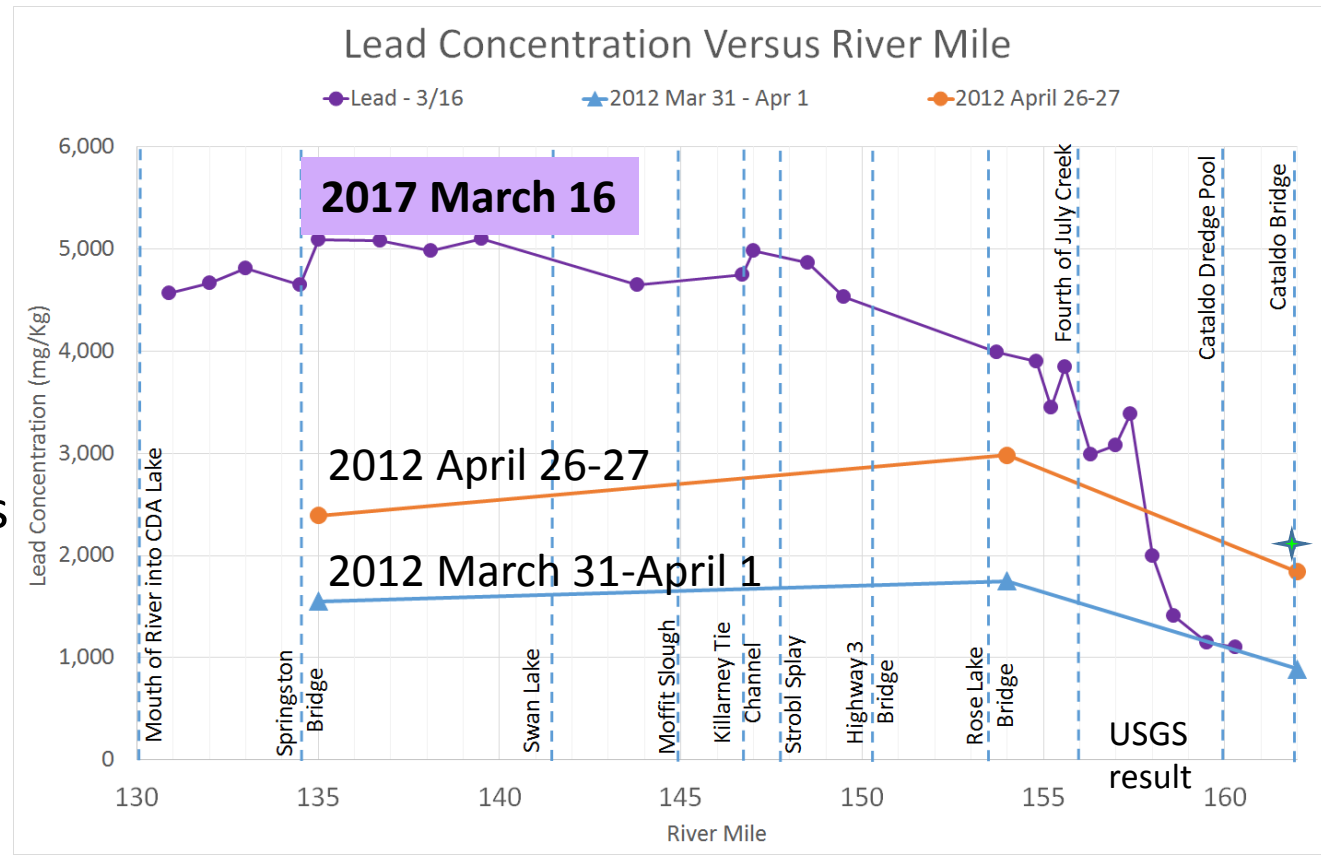


Lead loading increases rapidly in Dudley Reach during flood conditions

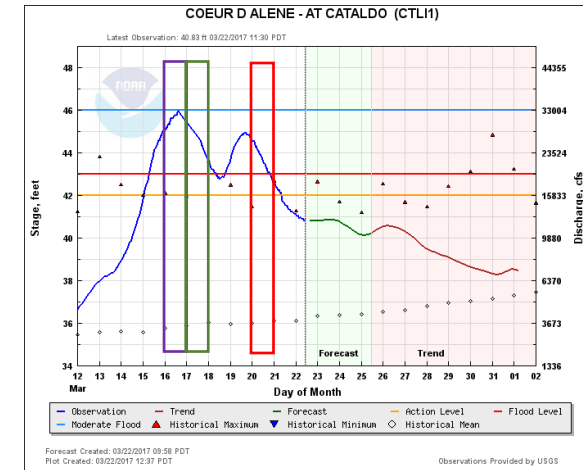
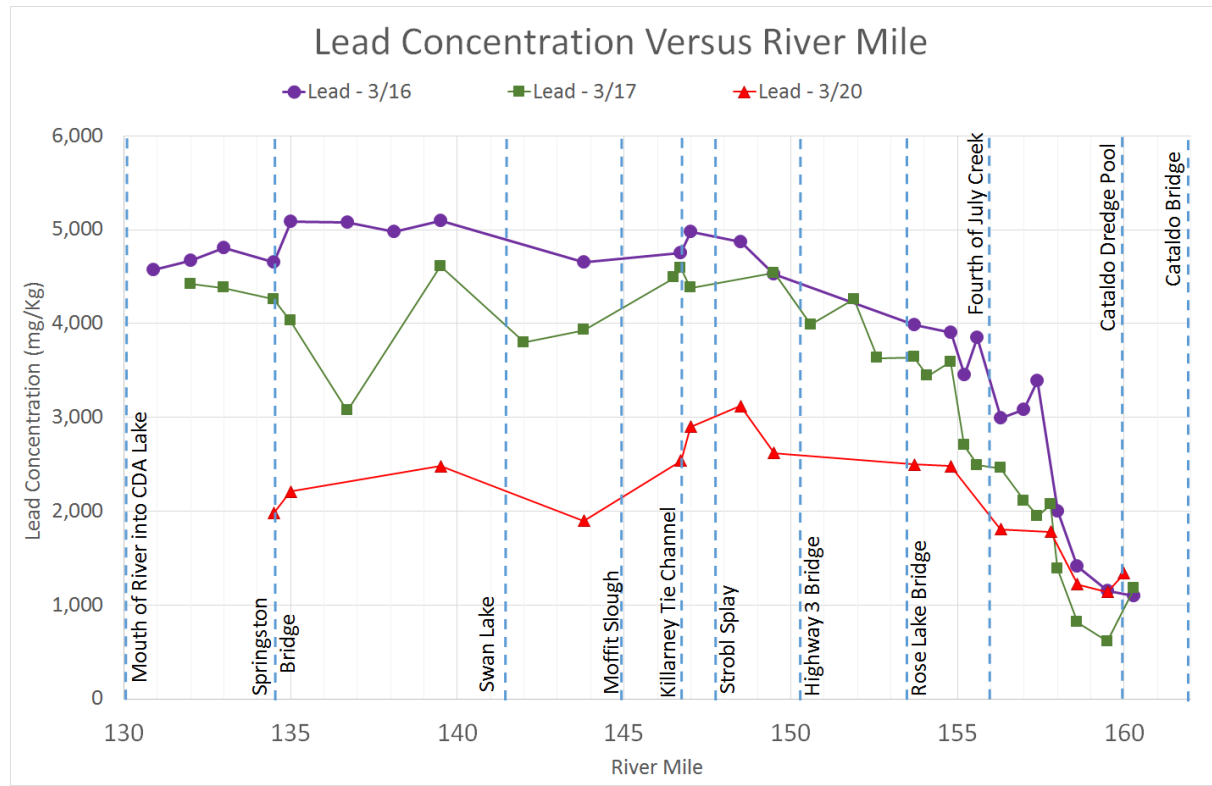


Boat-based vs Bridge-based sampling

- Resolution of metals data significantly improved compared to previous bridge-based sampling
- Data will be used to evaluate sources of sediment or lead and to validate sediment transport model



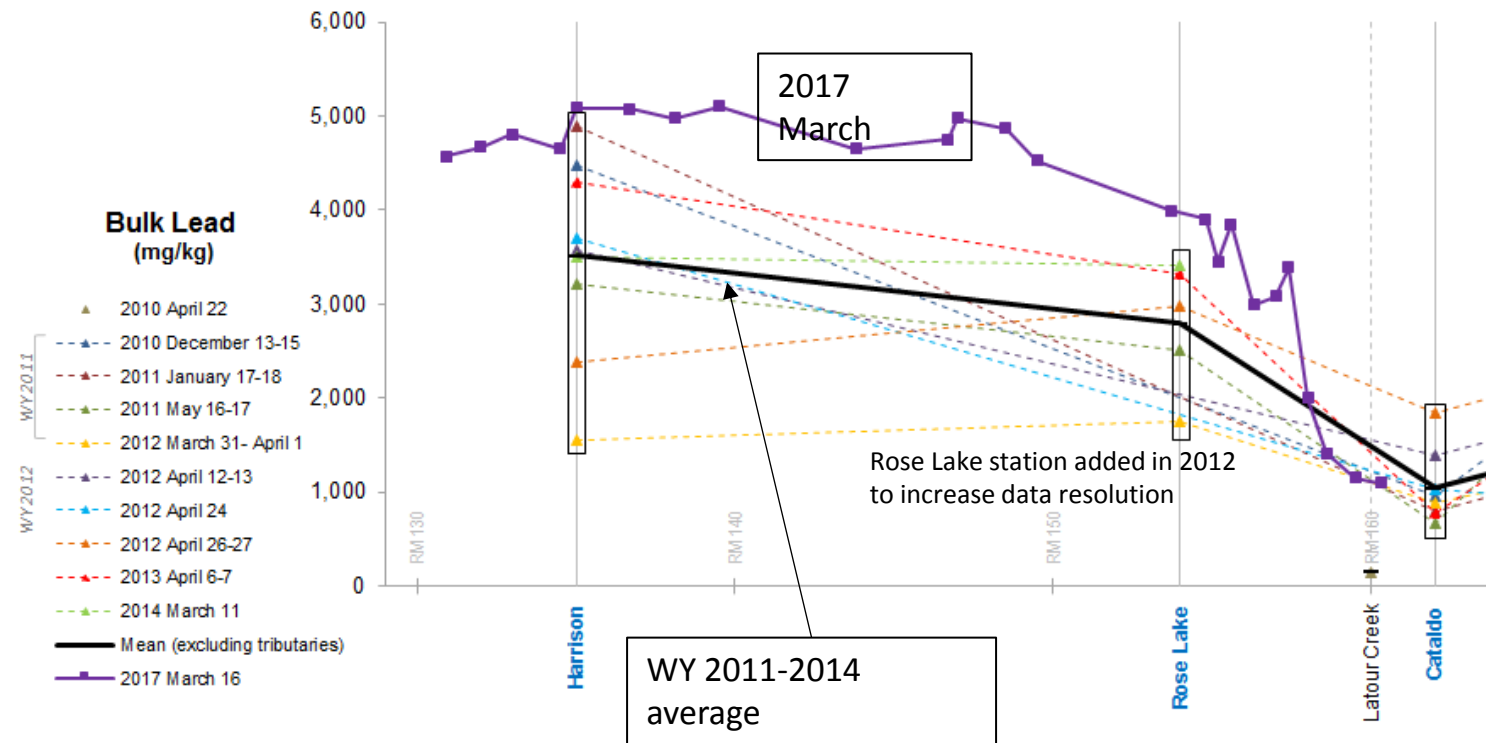
Lead Concentration by River Mile – Grab data



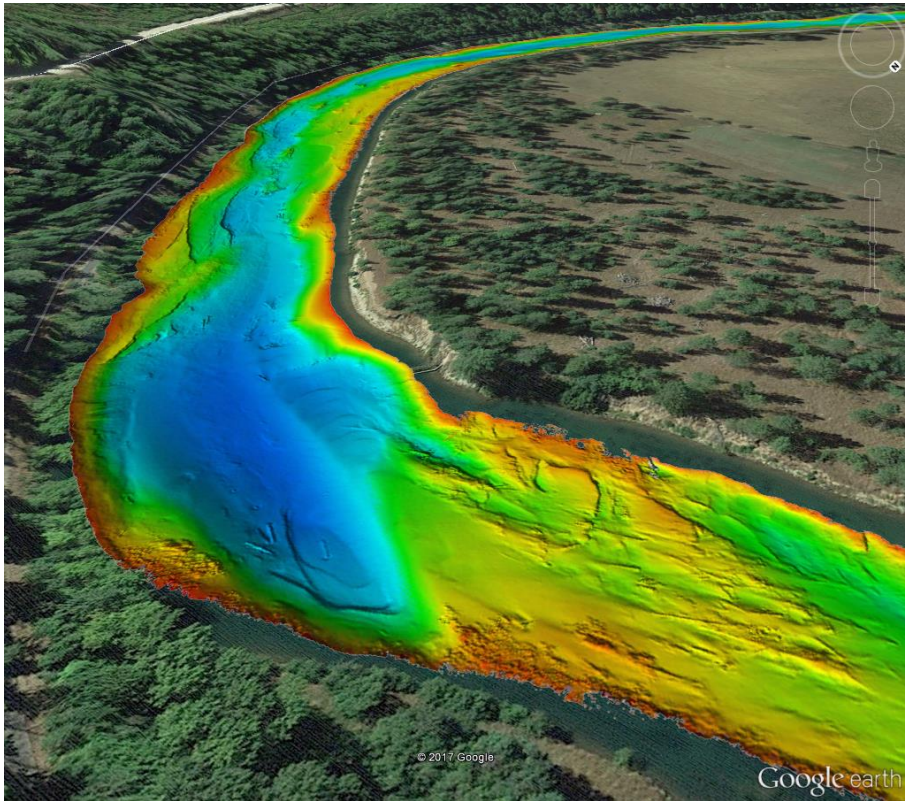
2017 March Grab Sample vs. WY 2011-2014 BEMP Bulk Lead

Note:
Collection
methods differ

- BEMP samples depth-integrated
- Grab samples 1.5 m from riverbed



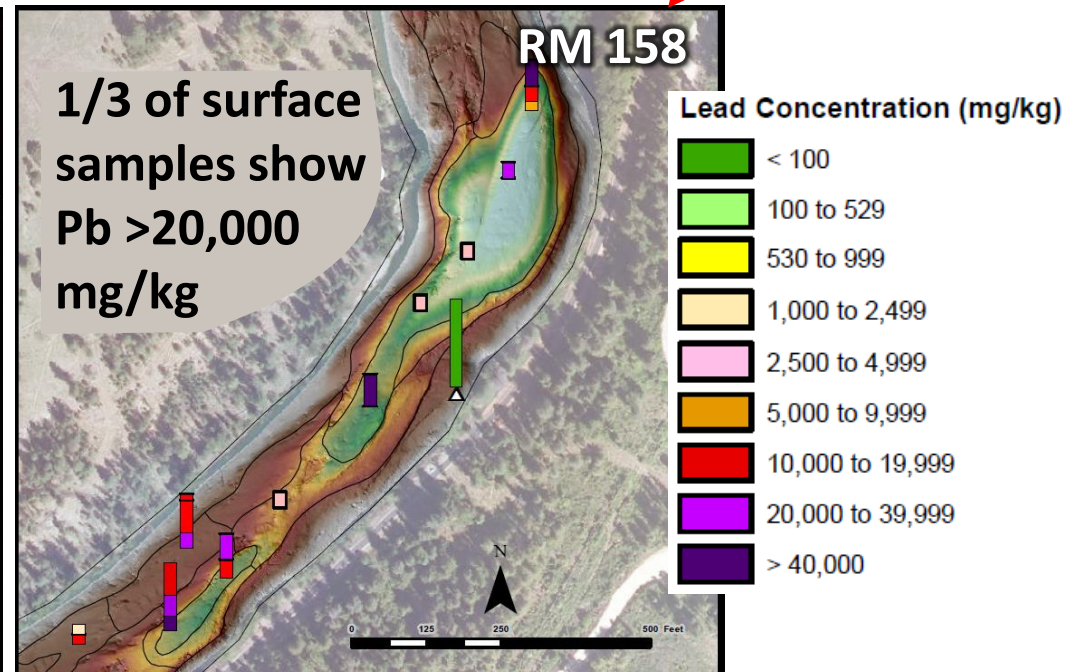
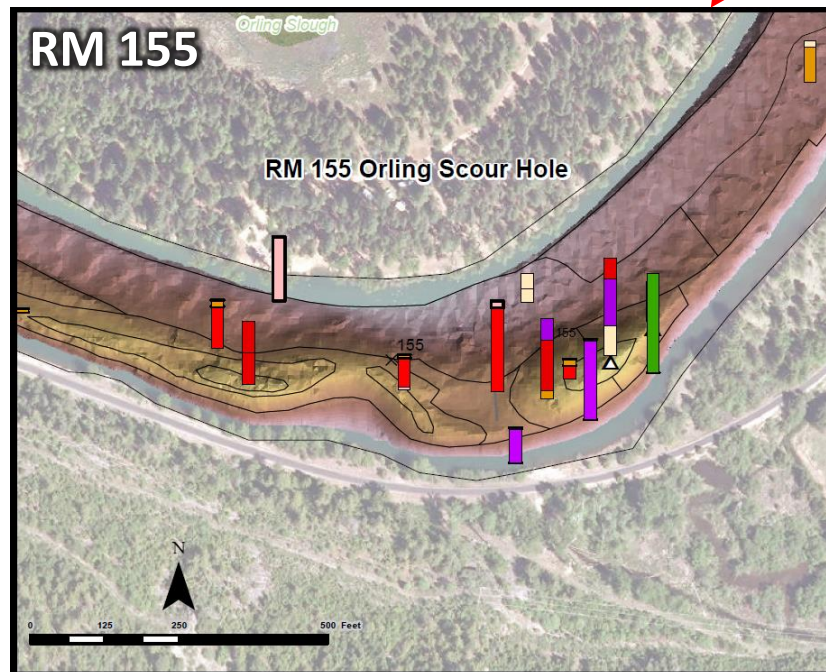
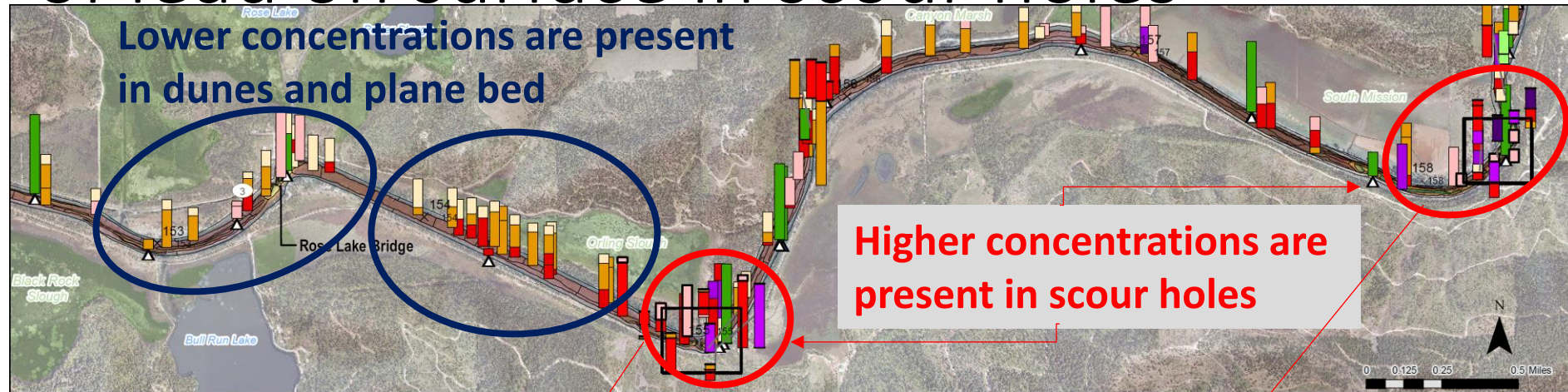
Dudley Reach Coring 2017



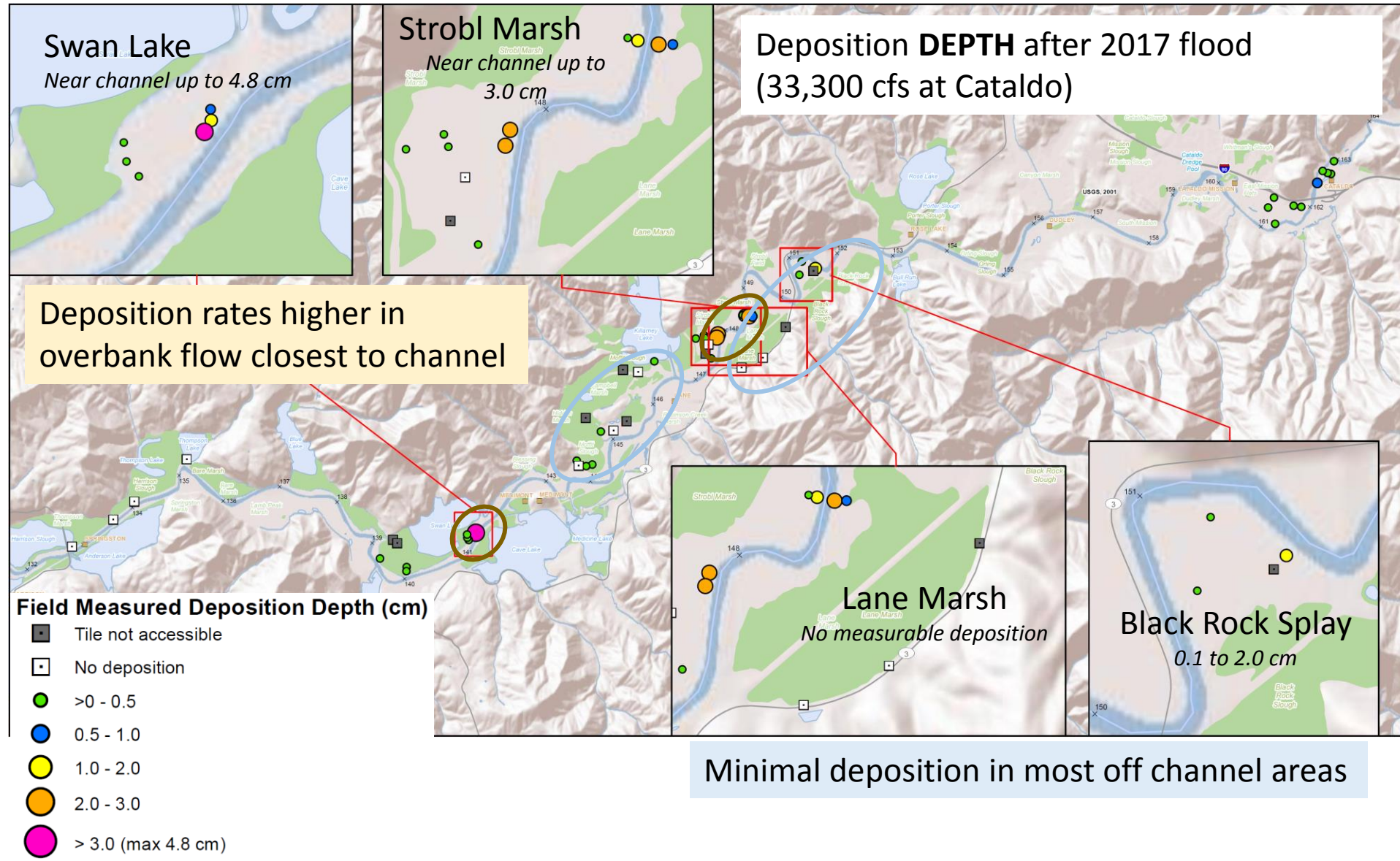
Purpose:

- **Supplement 2013 coring data**
- **Increase resolution on river bed and corroborate March flood sampling**
- **Increase resolution of coring data**
 - Provide greater resolution of sediment characterization within geomorphic bed types appearing to be highly contaminated
 - Supplement results from March 2017 flood sampling showing increased lead in suspended sediment in this reach
- **Provide data for previously unsampled bed type polygons**
 - Supplement data set from 2013 coring to confirm or refine existing characterizations

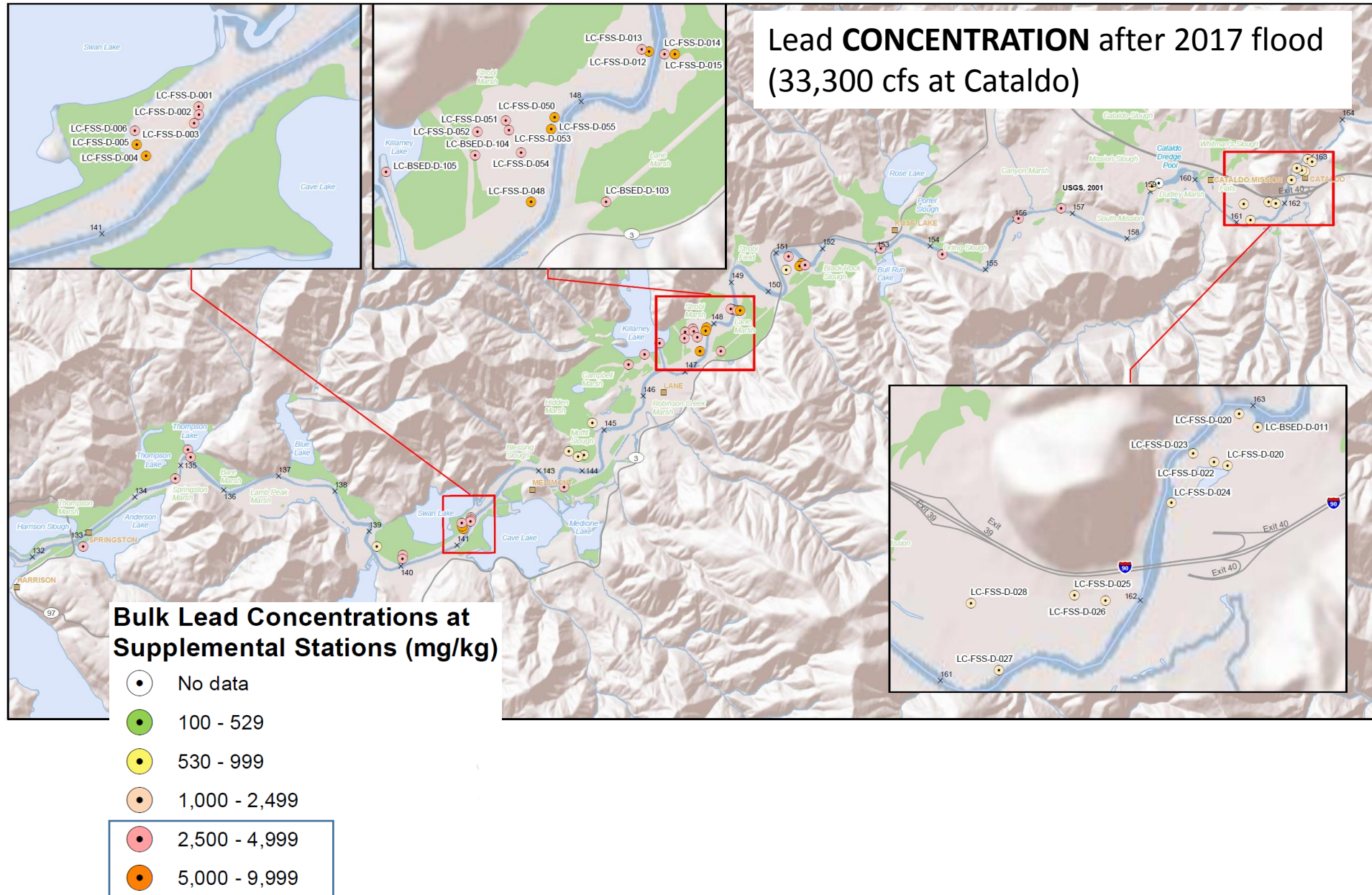
Dudley Reach shows high concentrations of lead on surface in scour holes



Deposition tiles show relatively low amounts of sediment deposited in low-flow off-channel areas



Lead concentrations in floodplain deposits are typical of sands from riverbed (3,000 – 5,000 mg/kg)

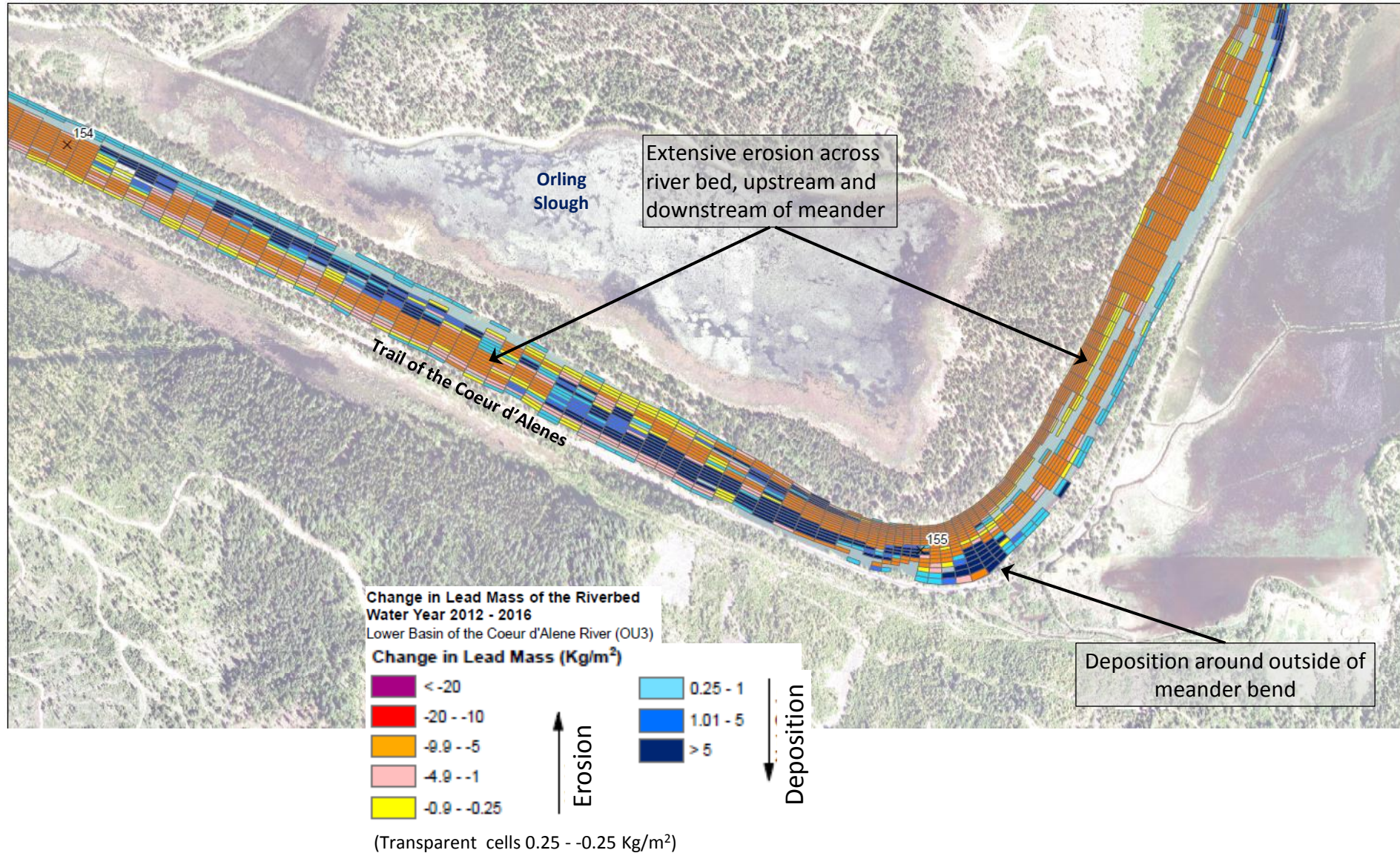


Modeling Update

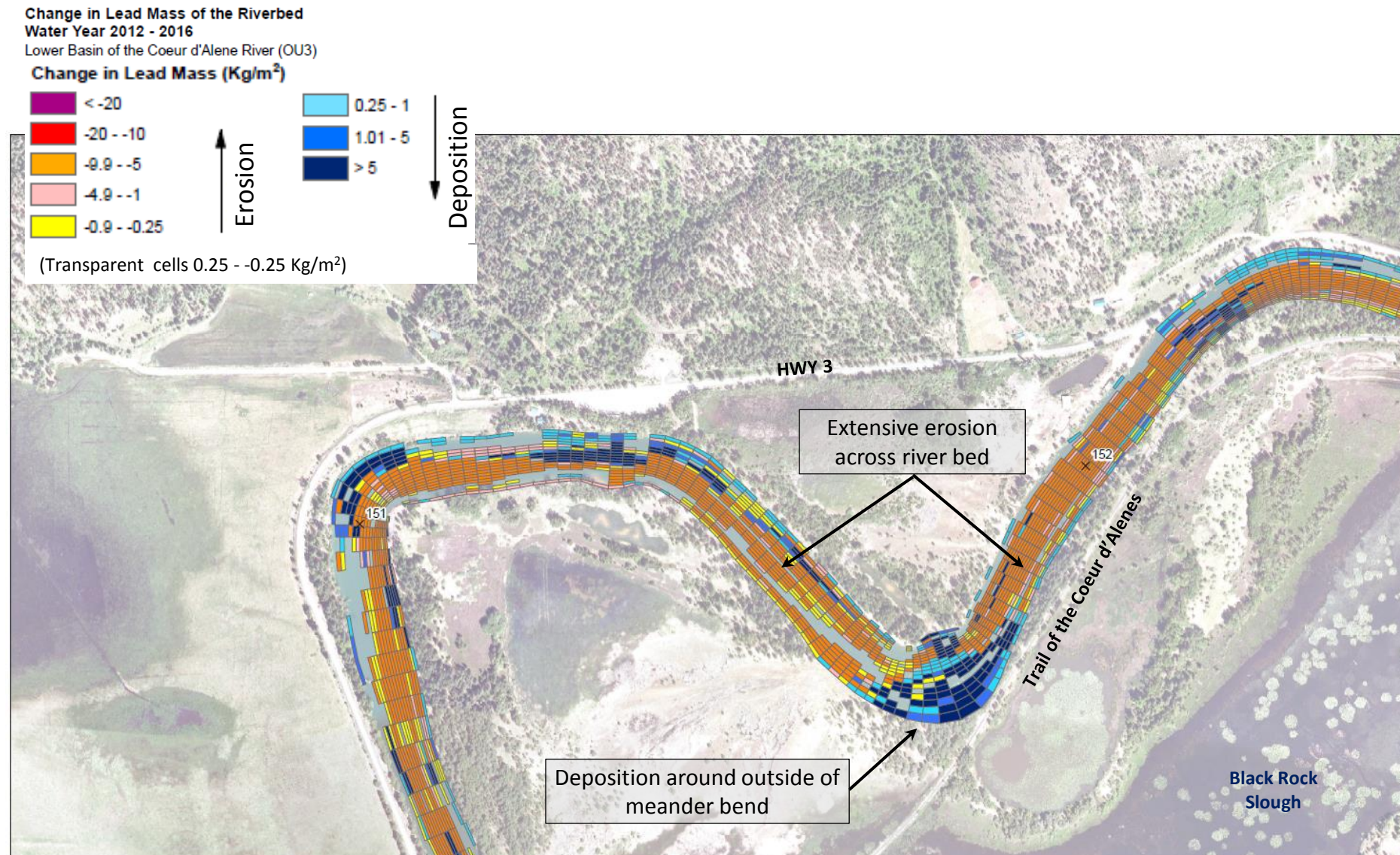
- ✓ Model development – complete
- ✓ Calibration and validation – complete
- ✓ Sensitivity testing – complete
- ✓ Model application testing – complete, results being compiled
- Documentation – in progress

- Four trial model applications:
 1. No action (5 years)
 2. In-channel source control in Dudley Reach
 - a) Isolate all sources
 - b) Isolate hot spots
 3. Off-channel remediation (levee at Strobl Marsh)

Sediment Transport Model shows erosion of lead across the riverbed and some deposition in meander bends (RM 155-154)



Sediment Transport Model shows erosion of lead across the riverbed and some deposition in meander bends (RM 152-151)



Lower Basin Strategic Plan

- High level Framework
- Goals for Cleanup
 - Reduce risks to people
 - Control sources of contamination
 - Reduce risks to wildlife
 - Promote long-term stewardship
- Work within the 2002 ROD . Six remedial actions identified. Built in flexibility. RODA or ESD as necessary
- Implement through strategic planning and adaptive management
 - Remedial action plan for source control in channel
 - Incremental wetlands mitigation through top-down planning/bottom up opportunities
- Leverage resources through partnership and coordination with RP

Coeur d'Alene Basin Cleanup

FRAMEWORK FOR A STRATEGIC PLAN

Goals and Objectives to Guide Cleanup of the Lower Basin

I. INTRODUCTION AND BACKGROUND

The Lower Basin, part of the Coeur d'Alene Basin Superfund Cleanup, is a complex system of river bed and bank, wetlands and upland with significant contamination due to historic mine waste disposal practices in the Upper Basin. It is part of the Bunker Hill Mining and Metallurgical Complex Superfund Site (Bunker Hill Site). The contamination in the Lower Basin is found throughout the riverbed and banks and in over 18,000 acres of wetlands and lateral lakes. People and wildlife use the resources of the Lower Basin in innumerable ways.

The Environmental Protection Agency (EPA) issued a Record of Decision (ROD) in 2002 that defines how cleanup will occur in both the Upper and Lower Basins. It sets forward Remedial Action Objectives (RAOs) against which all actions are measured. The ROD is an interim decision document that recognizes implementation will occur over several decades. The extended time frame is necessary to refine understanding of how the complex Lower Basin system functions, to develop the sophisticated tools and plans necessary for effective remedial actions, to allow for the planning and implementation of technically challenging projects, and to adaptively manage cleanup as new data is collected and analyzed.

The ROD listed six remedial actions for implementation in the Lower Basin given information and analysis available in 2002 (Table 12.2-1 in the ROD). The ROD provides a large degree of flexibility in how EPA chooses to approach development and implementation of remedies in the Lower Basin. These six remedial actions identified are listed below:

- Conversion of agricultural and other lands to wetlands – up to 1,500 acres
- Remediation of prescribed wetlands to reduce sediment toxicity and waterfowl mortality – 1,169 acres
- Remediation of prescribed lakes to reduce sediment toxicity – 1,859 acres

Lower Basin Technical Work Group

Common Themes for Prioritizing Work in Lower Basin

- Vision statements outlined important objectives we have incorporated into evaluation criteria
- Focus on making a long-term difference
- Leverage early actions
- Engage with and address issues and concerns of State, Tribe, and community – communicate clearly
- Plan for O&M and align with Restoration Partnership
- Recognize funding realities and changing agency roles through time
- Use river modeling tools to inform decision making

EPA

IDEQ

CDA Tribe

Panhandle Health

USFS

USFWS

IDFG

BLM

WA Ecology

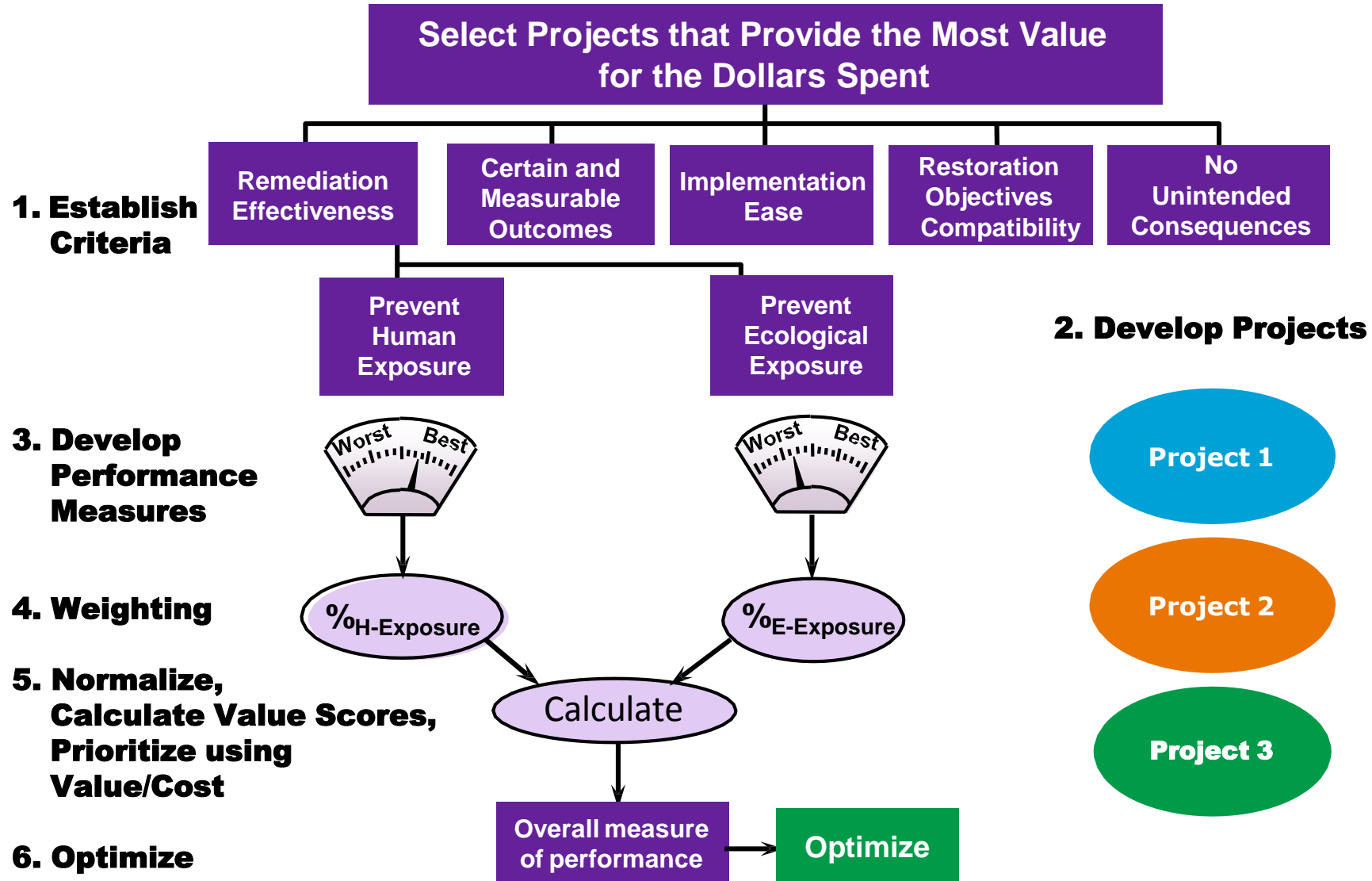
CDA Trust

Previous Efforts to Build On

- Pilot Project Proposals (April 2013)
- EPA Visioning Interviews (June 2015)
- TWG Visioning (April 2016)
- Recreation Site Health and Intervention Work Plan (2016)
- Restoration Partnership – Coeur d'Alene Basin Restoration Plan (Draft July 2015)
- EPA Strategic Framework for Lower Basin (2017)

Multi-Objective Decision Analysis (MODA)

Prioritization & Selection Approach



Factors that Play into Decision Making

- Lower Basin Geography
- Substantial Uncertainty
- Projects must consider downstream consequences.
- Consistent with Lower Basin ROD and contaminants of concern
- Land ownership is a limitation, not a constraint. EPA cannot hold land or easements.
- Repositories or other waste disposal options are critical if removals are to be conducted.
- Need to be able to monitor remedy effectiveness within reasonable timeframe.
- Need to factor in site-wide budget scenarios and uncertainties
- Need to recognize that there will never be enough money to 'clean it all up'

Evaluation Criteria

1. Protect Human Health
2. Prevent Recontamination/Remobilization of Lead
3. Ensure Protection of Wildlife and Ecological Function
4. Ease of Implementation
5. Learning Opportunities to Evaluate Remediation and Cost Effectiveness
6. Provide likely success and Observable Outcomes
7. Avoid Indirect, Adverse Impacts
8. Provide New/Improved Long-term Community or Economic Benefits
9. Minimize Long-Run Life-Cycle Cost

2018 Short List of Projects

- ☐ **6** Beach
Remediation
Projects
(Human
Health)
- ☐ **5** Habitat
Remediation
Projects
(Waterfowl)
- ☐ **7** Source
Control
Projects

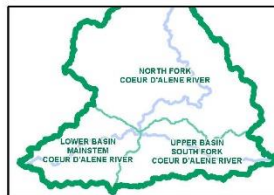
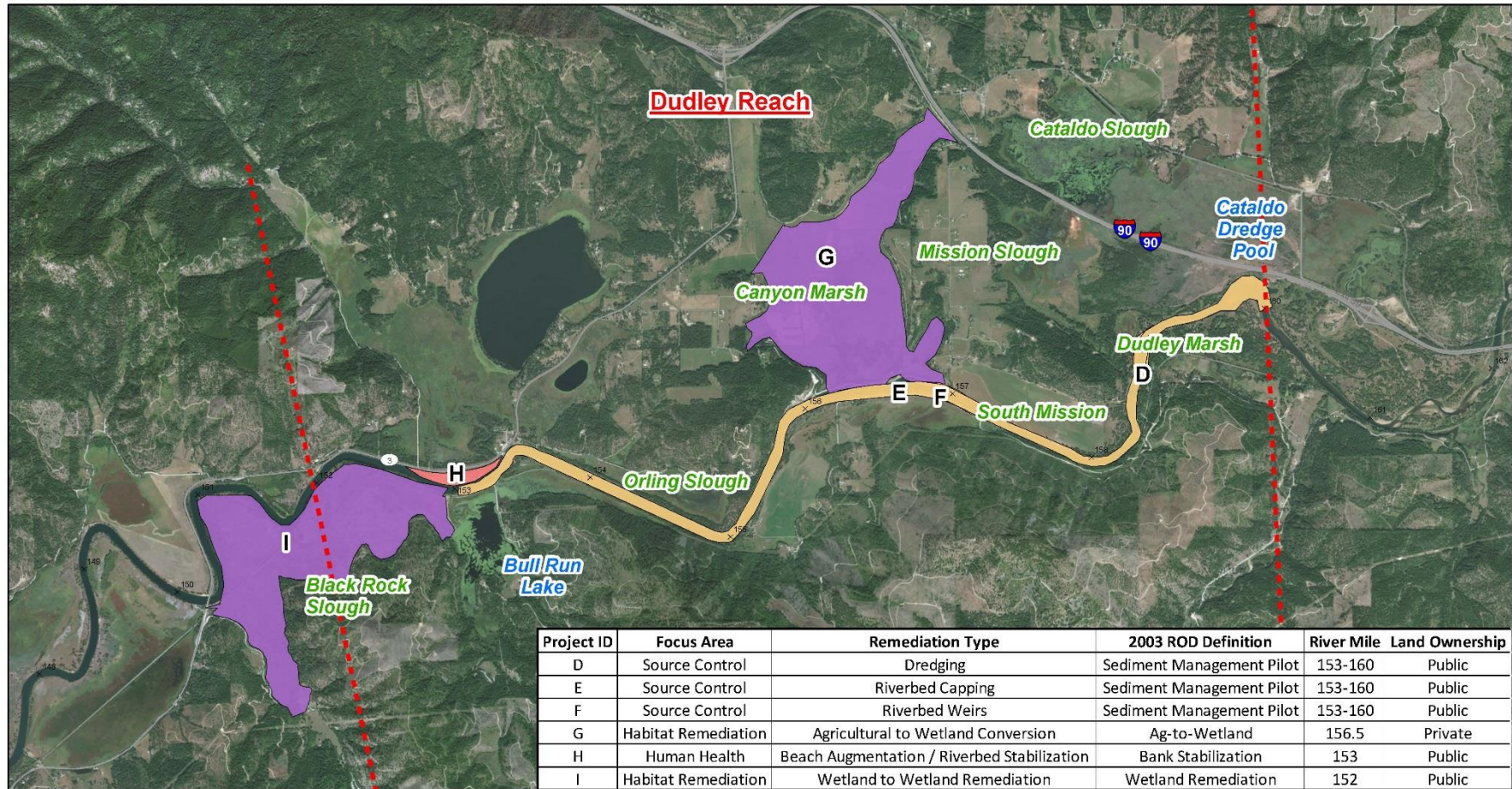
Coeur d'Alene Lower Basin Project Selection Process Draft Project List Map

Exhibit 10

Contents

- A. Cataldo Reach
- B. Dudley Reach
- C. Killarney Reach
- D. Springston Reach





LEGEND

Focus Area

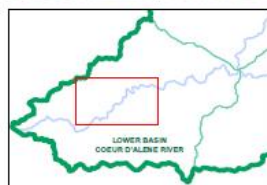
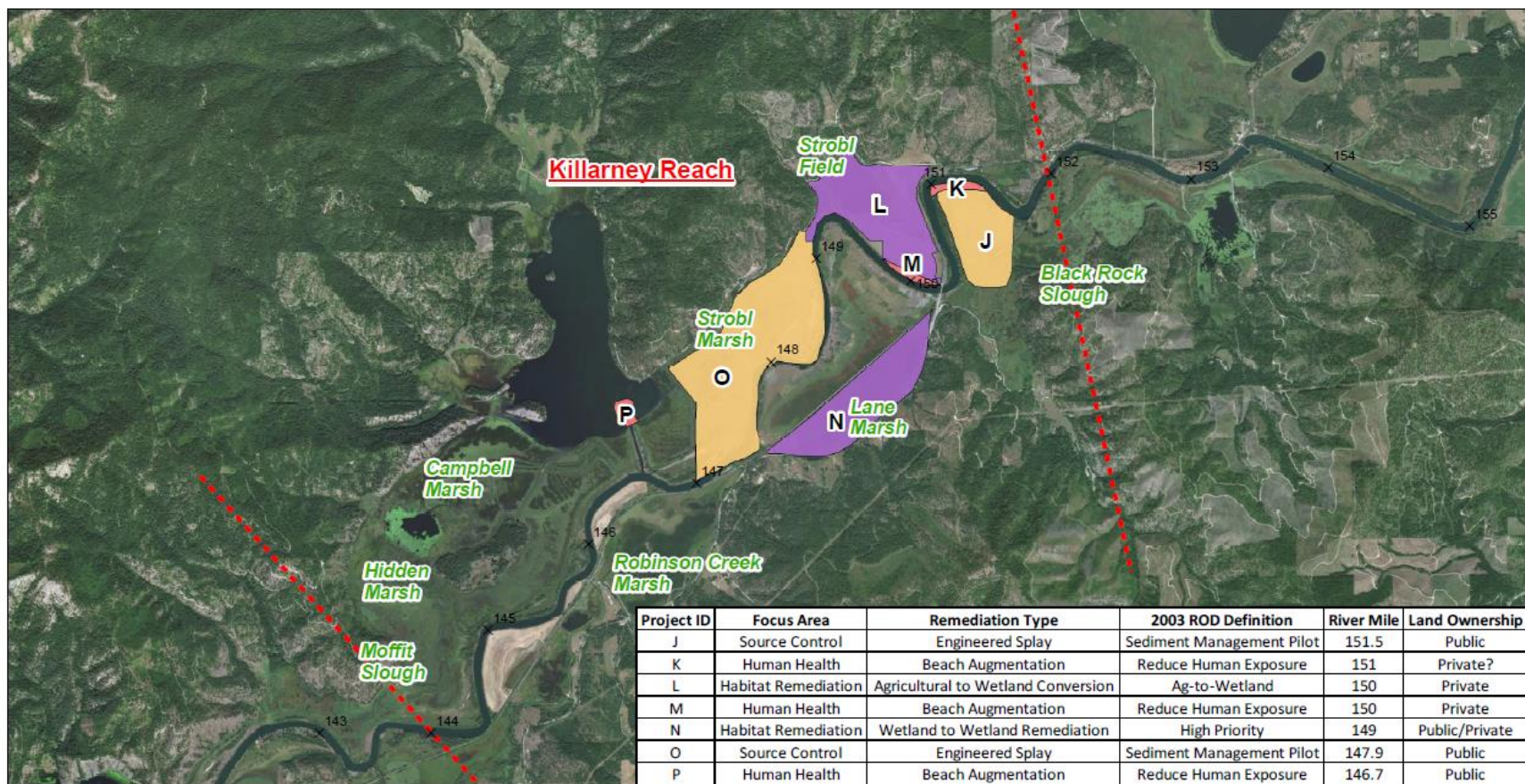
- Habitat Remediation
- Human Health
- Source Control



EXHIBIT 10 B
Short List Projects
 Lower Basin of the Coeur d'Alene River
 March 2018

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ch2m.



LEGEND

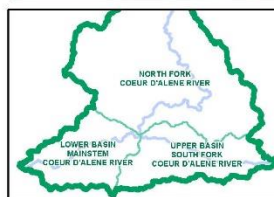
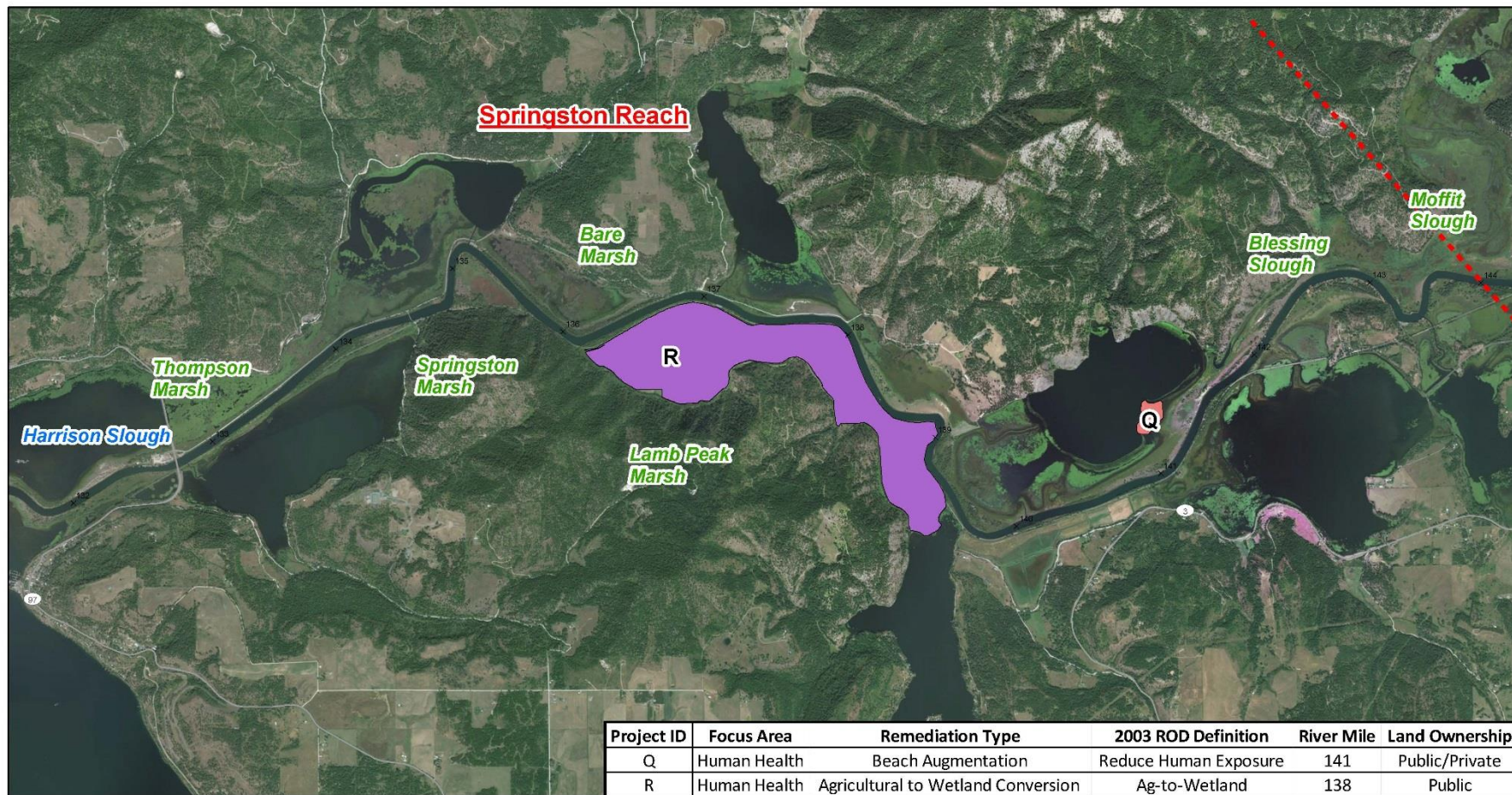
Focus Area

- Habitat Remediation
- Human Health
- Source Control



EXHIBIT 10c
Short List Projects
Sheet 3/4
 Lower Basin of the Coeur d'Alene River
 March 2018

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LEGEND

Focus Area

- Habitat Remediation
- Human Health
- Source Control

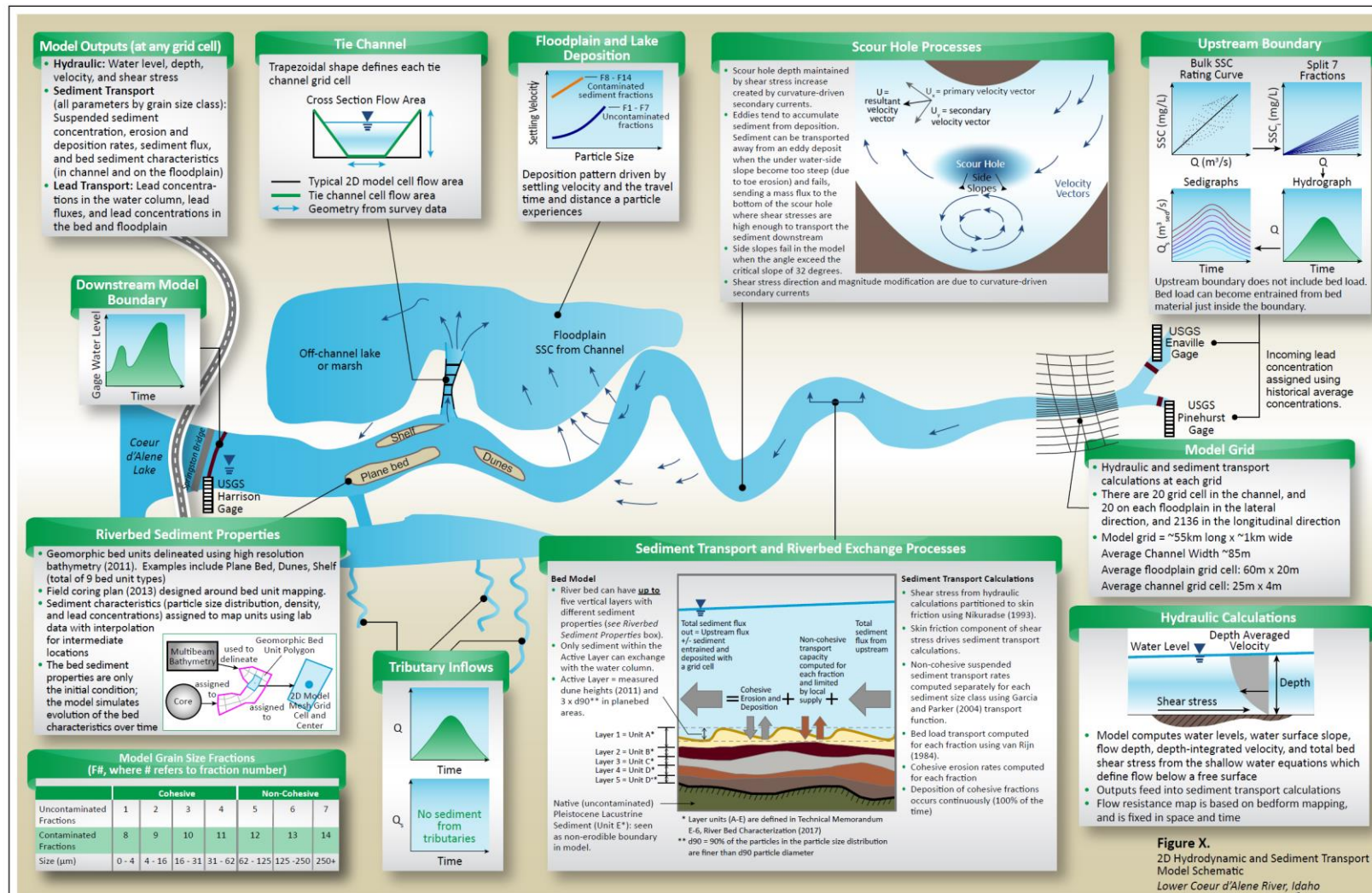


EXHIBIT 10 D
Short List Projects
 Lower Basin of the Coeur d'Alene River
 March 2018
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Next Steps

- Inform/Engage Lower Basin Stakeholders in - June
- Selected Project Champions develop proposals – June
- Teams score proposals against evaluation criteria – August
- Workshop to weight criteria and evaluate projects – September
- Select 2-3 projects by Oct 2019 for initial implementation in next 2-3 years
- Incorporate selected projects into CDA Trust workplans

Questions?



Boundaries, Givens, Key Assumptions

- Lower Basin Geography: Enaville to Harrison.
- Decisions must be made in the face of substantial uncertainty (time, space, other).
- Decision documents (e.g., ROD). ROD is flexible (promotes pilot tests) but has constraints, though modifications are possible. Treatability studies (e.g., pilot projects) are possible as part of ROD.
- Consistent with Record of Decision (ROD) – focus on Contaminants of Concern (stakeholder interest in addressing nutrients [i.e., phosphorus]).
- Projects must consider downstream consequences.

2018 Short List Projects

- HUMAN HEALTH

- Beach augmentation @ adjacent to Cataldo bridge (Trail/Rec site) (B)
- Beach augmentation @ Beach downstream from Black Rock Slough (K)
- Beach augmentation @ Beach downstream of Hwy 3 bridge (M)
- Beach augmentation @ Killarney Peninsula (P)
- Beach augmentation @ Swan Lake Islands (Q)
- Beach augmentation /riverbank stabilization @ USFS Property near Rose Lake (H)

- Habitat Remediation

- Ag to wetland conversion @ Canyon Marsh Complex (G)
- Ag to wetland conversion @ private property at RM 150 (L)
- Wetland to wetland remediation @ Black Rock Slough (I)
- Ag to wetland conversion @ Black Lake Ranch (R)
- Wetland to wetland remediation @ Lane Marsh (N)

Boundaries, Givens, Key Assumptions (cont.)

- Monitoring: need the ability to measure project effectiveness within a meaningful time frame to inform future larger scale decisions (more of an evaluation criterion).
- Land ownership is a limitation, not a constraint.
- EPA cannot own land or hold easement, under CERCLA, but Trust or other entities can.
- Technically, levees can be considered as part of an overall remedy.
- Trail of the CdA's could potentially be incorporated into the remedy.

Boundaries, Givens, Key Assumptions (cont.)

- Repositories or other waste disposal options are critical if removals are to be conducted.
- Needs to be recognition (and acceptance) that there's never going to be enough money to "clean it all up".
- Budget scenarios will need to be factored into planning because of long-term funding uncertainty.
- Budget is function of multiple factors including: Site-Wide Implementation Plan, time, scale, market returns, and fund allocations from Trust, EPA Headquarters and partners.

Revised 2018 Short List Project Selection Basis

- Meets human health and/or environmental objectives
 - Lower potential for recontamination
 - Selected within the ROD
 - Identified/nominated through multiple forums.
 - Willing/interested landowners/partners
 - Applications of technology with potential to reduce cost, simplify installation or increase effectiveness.
 - Cover all three focus areas (Human Health, Habitat Remediation, Source Control) in locations distributed throughout Lower Basin
 - Adaptable within budget constraints
- **Working Draft = 18 projects (4 flagged as CEET)**

- Moreen (Source Control)
 - Sediment trap near Cataldo Trail Bridge (A)
 - Riverbank stabilization upstream of Cataldo Boat Launch and downstream of Khanderosa (C)
 - Dredging @ Dudley Reach (D)
 - Riverbed capping @ Dudley Reach (E)
 - Riverbed weirs @ Dudley Reach (F)
 - Engineered splay @ Black Rock Slough (J)
 - Engineered splay @ Strobl Marsh (O)