

# Lower Basin Cleanup Planning

Hosted by the Citizen's Coordinating Council  
at the Medimont Grange

June 13, 2018

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# Today's Agenda

- Lower Basin Cleanup Status
- Community Input Session – Criteria
- Community Input Session – Projects
- Next Steps and General Schedule
- Adjourn



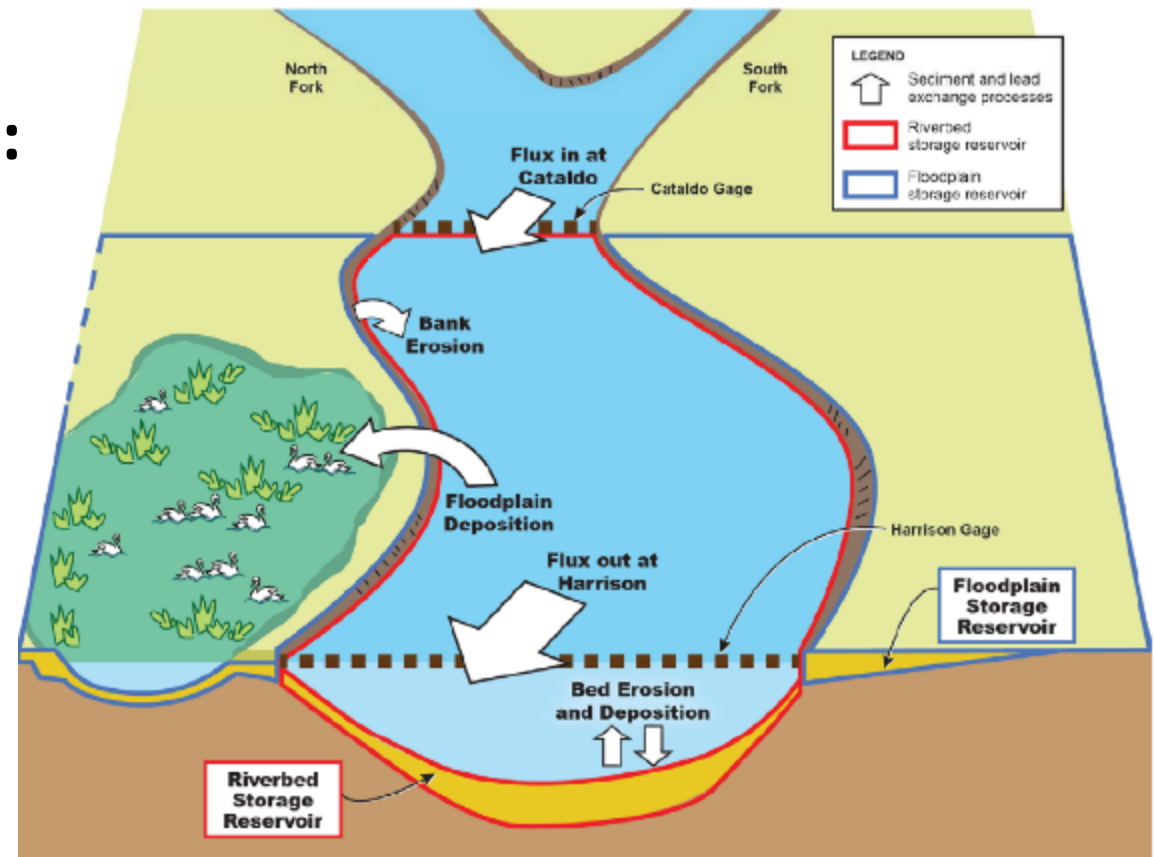
# Where are we now?

- Current Understanding of Contaminated Sediment in the Lower Basin
- Current Decision Making Approach



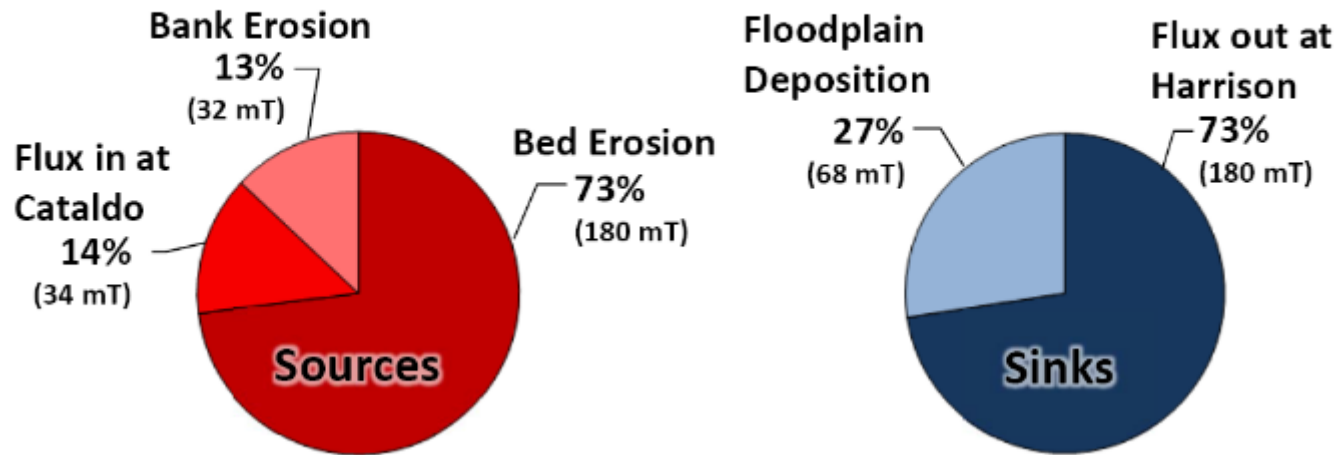
# Sediment and Lead “Budget”: Overview

- **Sediment Budget:** Accounting of sources, sinks, and transport of sediment
- **Purpose:** Helps to evaluate the different parts of the system to see which are the most important.
- **Components of the sediment budget:**
  - Sediment transport in channel
  - Sediment deposition in floodplain
  - Bank erosion of riverbanks
  - Erosion/deposition in the riverbed

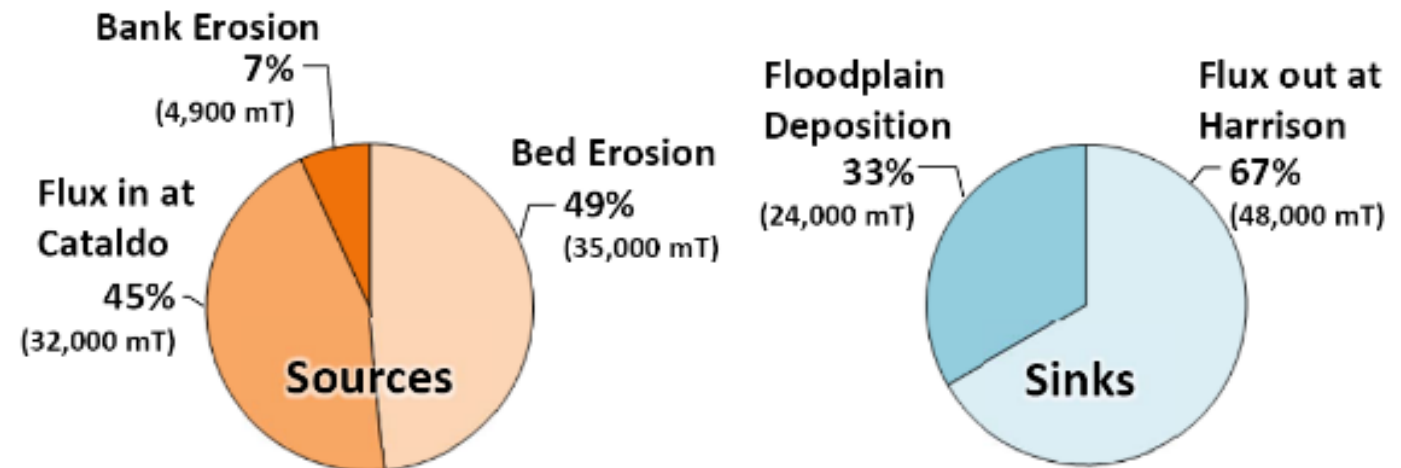


# Sediment and Lead “Budget”: Summary

## Lead



## Sediment



Based on 25 year period of record: 1988 - 2012





# March 2017 Flood – Suspended Sediment and Lead Sampling

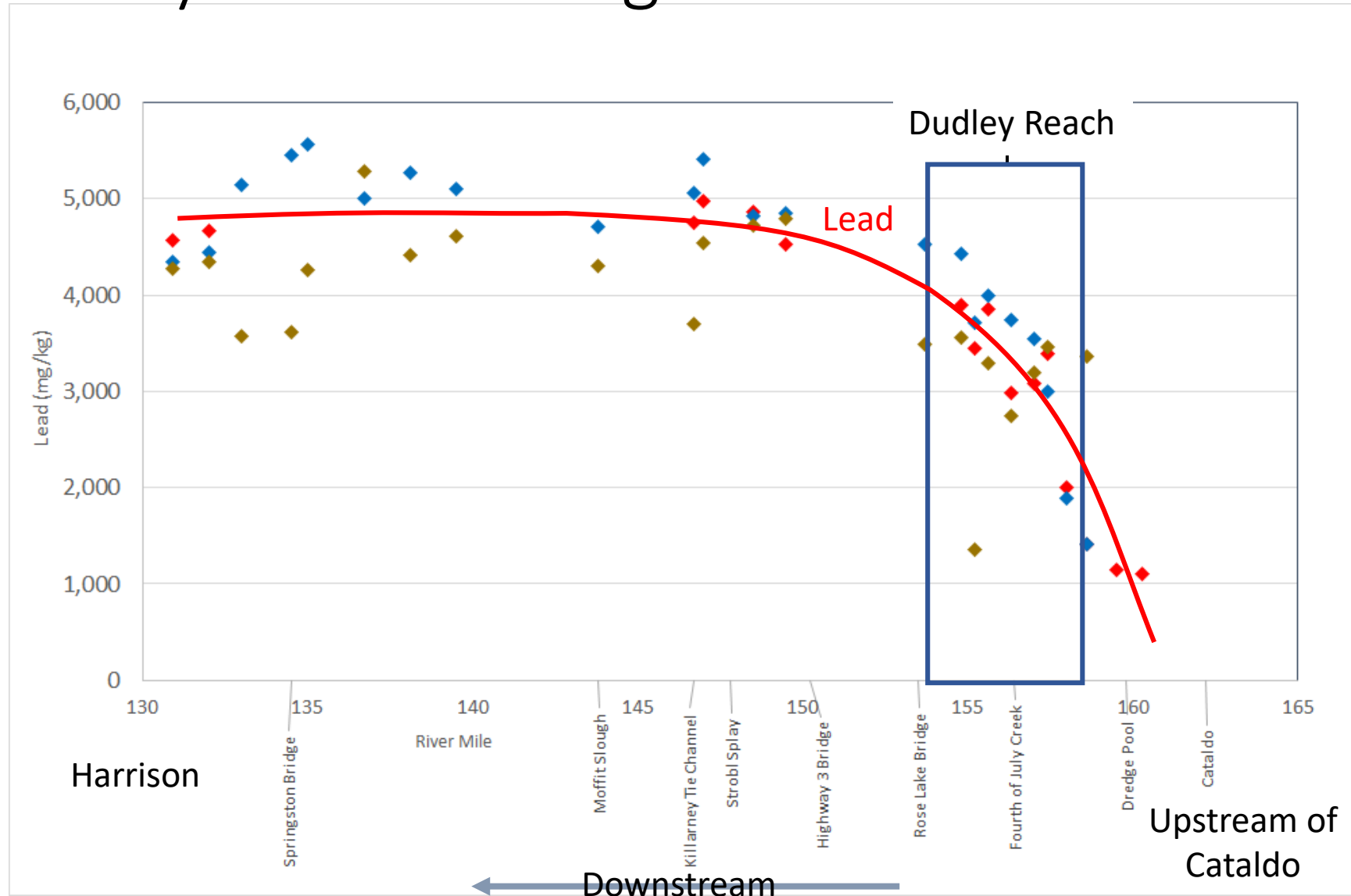
**Grab Sampling (Metals)**



**LISST Casting (Particle Size and Loading)**

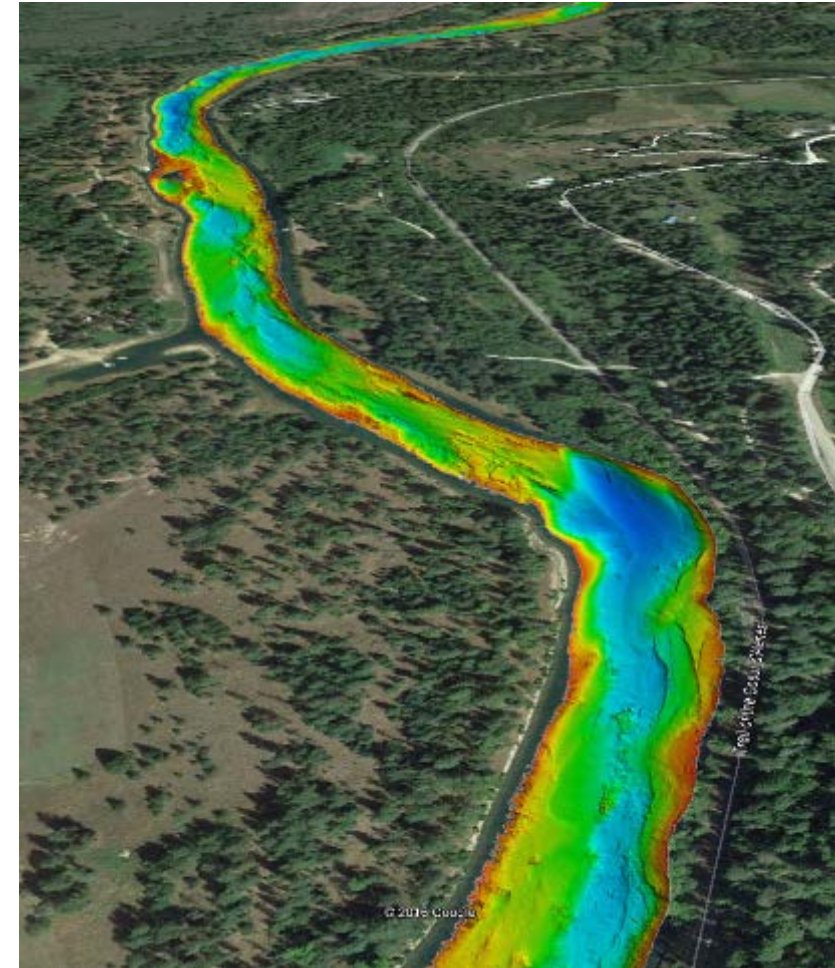
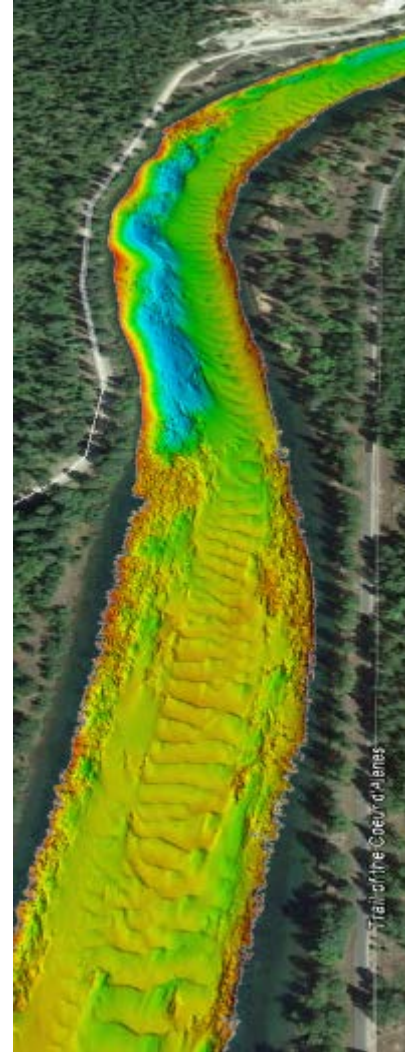


# Lead concentration increases rapidly in Dudley Reach during flood conditions



# Riverbed Characterization: Overview

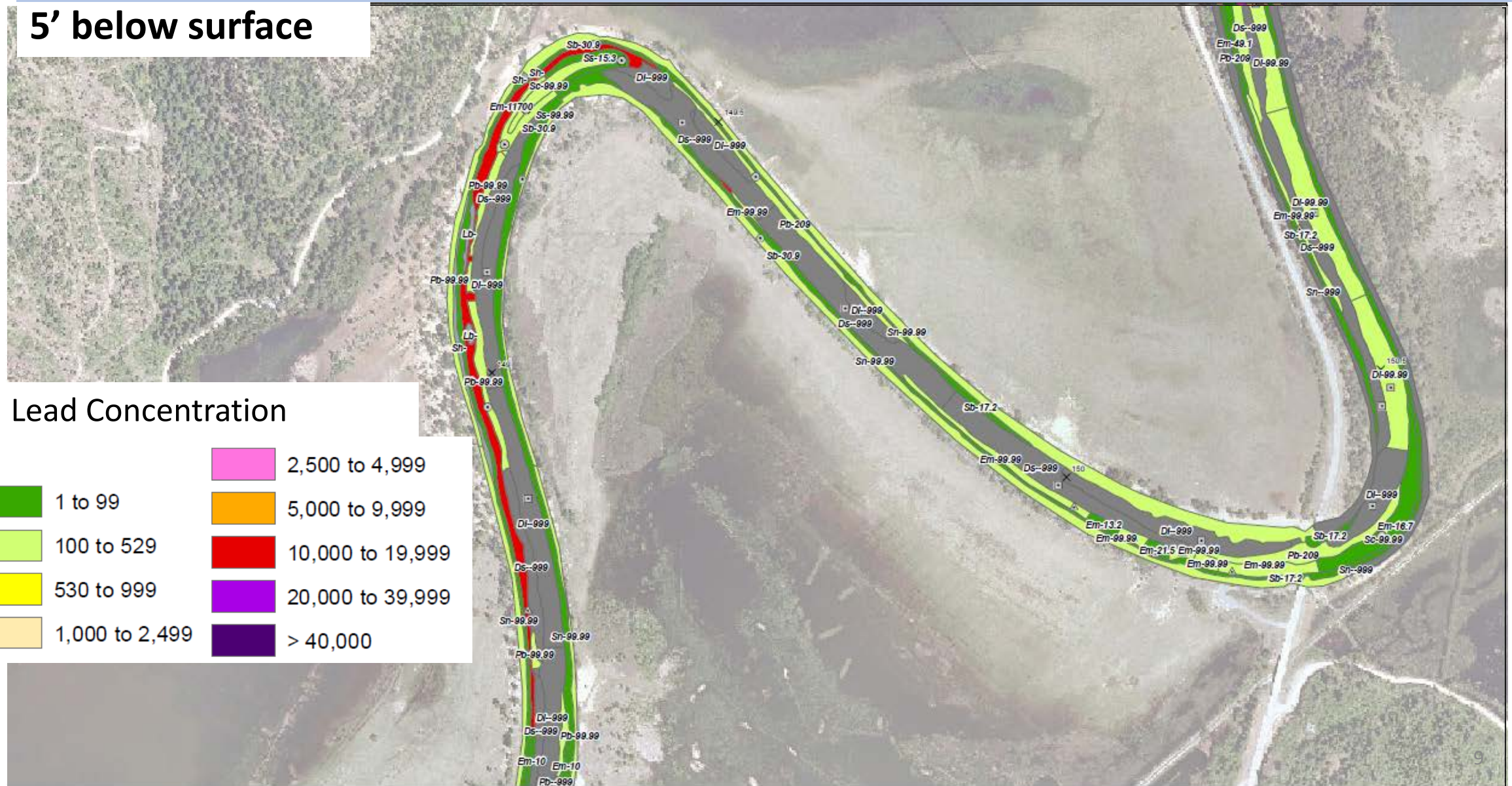
- Sediment “budget” showed riverbed to be the primary source of contamination
- Riverbed is 300 feet wide, 30+ miles long, with contaminated sediment as much as 17 feet thick.





# Riverbed Characterization: 3D Map of Riverbed

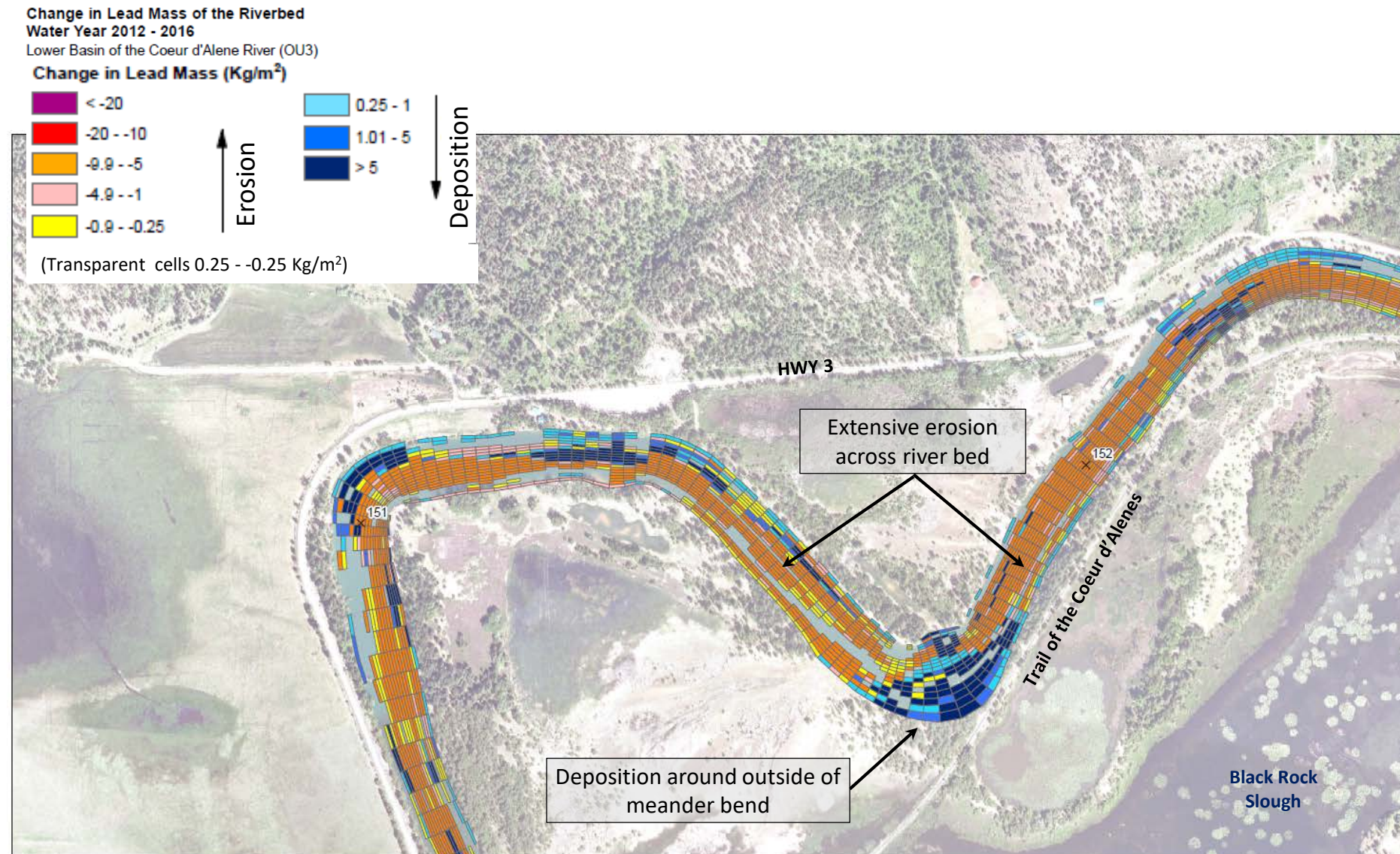
5' below surface







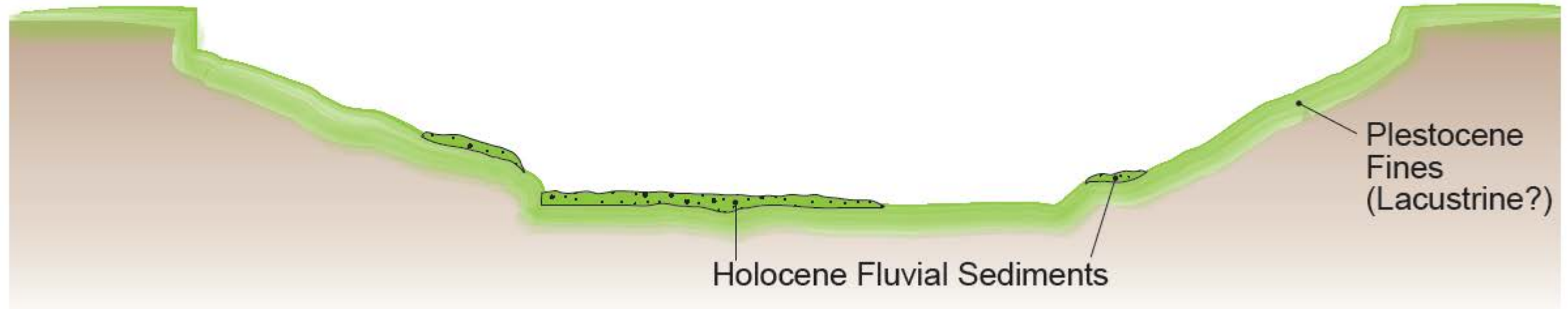
# Sediment Transport Model shows erosion of lead across the riverbed and some deposition in meander bends (RM 152-151)












# Riverbed Characterization: Evolution of Riverbed

## (A) PRE-MINING

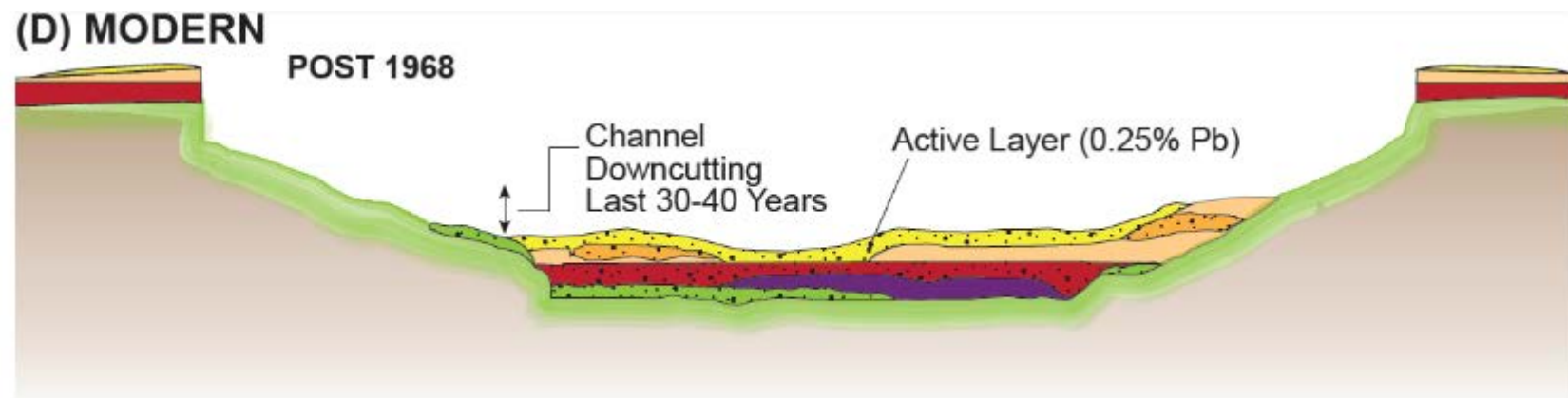


### LEGEND

-  Active Layer (*Unit A*)
-  Aggradational Deposits (Sand Facies) (*Unit B*)
-  Aggradational Deposits (Silt Facies) (*Unit C*)
-  Contaminated Silt (*Unit D*)

-  Highly Contaminated Silt (*Unit D+*)
-  Holocene Fluvial Sediments (*Unit Es*)
-  Pleistocene Lacustrine (?) Sediments (*Unit Es*)

# Riverbed Characterization: Evolution of Riverbed



## LEGEND

	Active Layer ( <i>Unit A</i> )	→	Pb 1,500 - 3,000 mg/kg
	Aggradational Deposits (Sand Facies) ( <i>Unit B</i> )	}	Pb 4,000 - 8,000 mg/kg
	Aggradational Deposits (Silt Facies) ( <i>Unit C</i> )		
	Contaminated Silt ( <i>Unit D</i> )	→	Pb 10,000 - 20,000 mg/kg
	Highly Contaminated Silt ( <i>Unit D+</i> )	→	Pb > 20,000 mg/kg
	Holocene Fluvial Sediments ( <i>Unit Es</i> )	}	Pb < 100 mg/kg
	Pleistocene Lacustrine (?) Sediments ( <i>Unit Es</i> )		



# What Questions Do You Have?





# Lower Basin Planning Process



Control sources of  
contamination



Promote long-term stewardship

Reduce risks to wildlife



Reduce risks to people



# Project Identification Builds on Previous Efforts

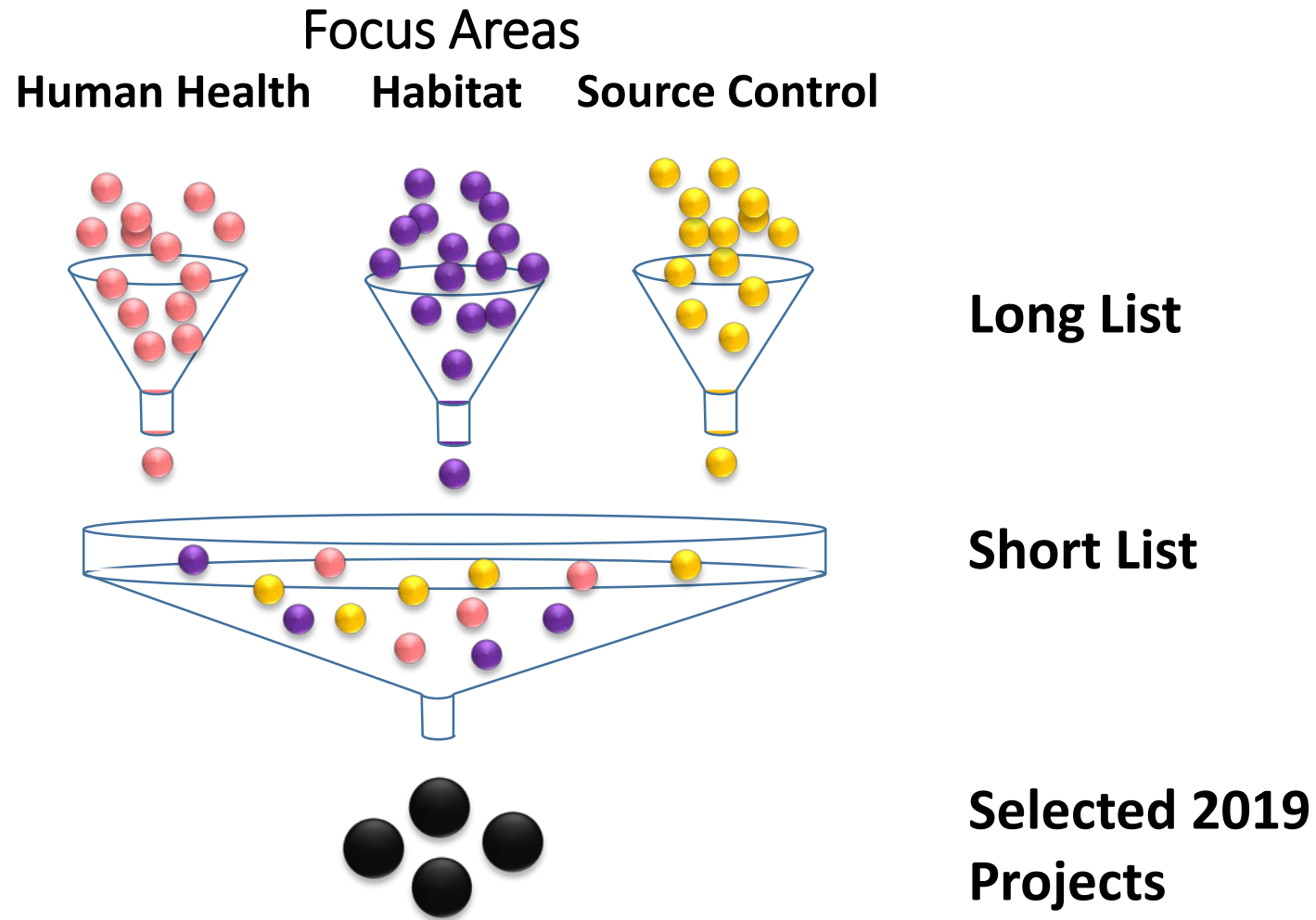
## **Outreach and Collaboration**

- Pilot Project Proposals (2013)
- EPA Visioning Interviews (2015)
- Wetlands Prioritization Work (2016)
- Recreation Site Health and Intervention Work Plan (2016)
- EPA Strategic Framework for Lower Basin (2017)
- Restoration Partnership – Coeur d'Alene Basin Restoration Plan (2018)

## **Evolved Conceptual Site Model**

- Hydraulic processes - flooding
- Sediment and lead transport
- Monitoring waterfowl and ecosystems
- Learning from pilots and projects
  - Ag-to-wetland (Schlepp)
  - Wetland enhancement (Robinson)
  - Bank stabilization (Kahnderosa)

# Projects Screened from Long-List to Short-List

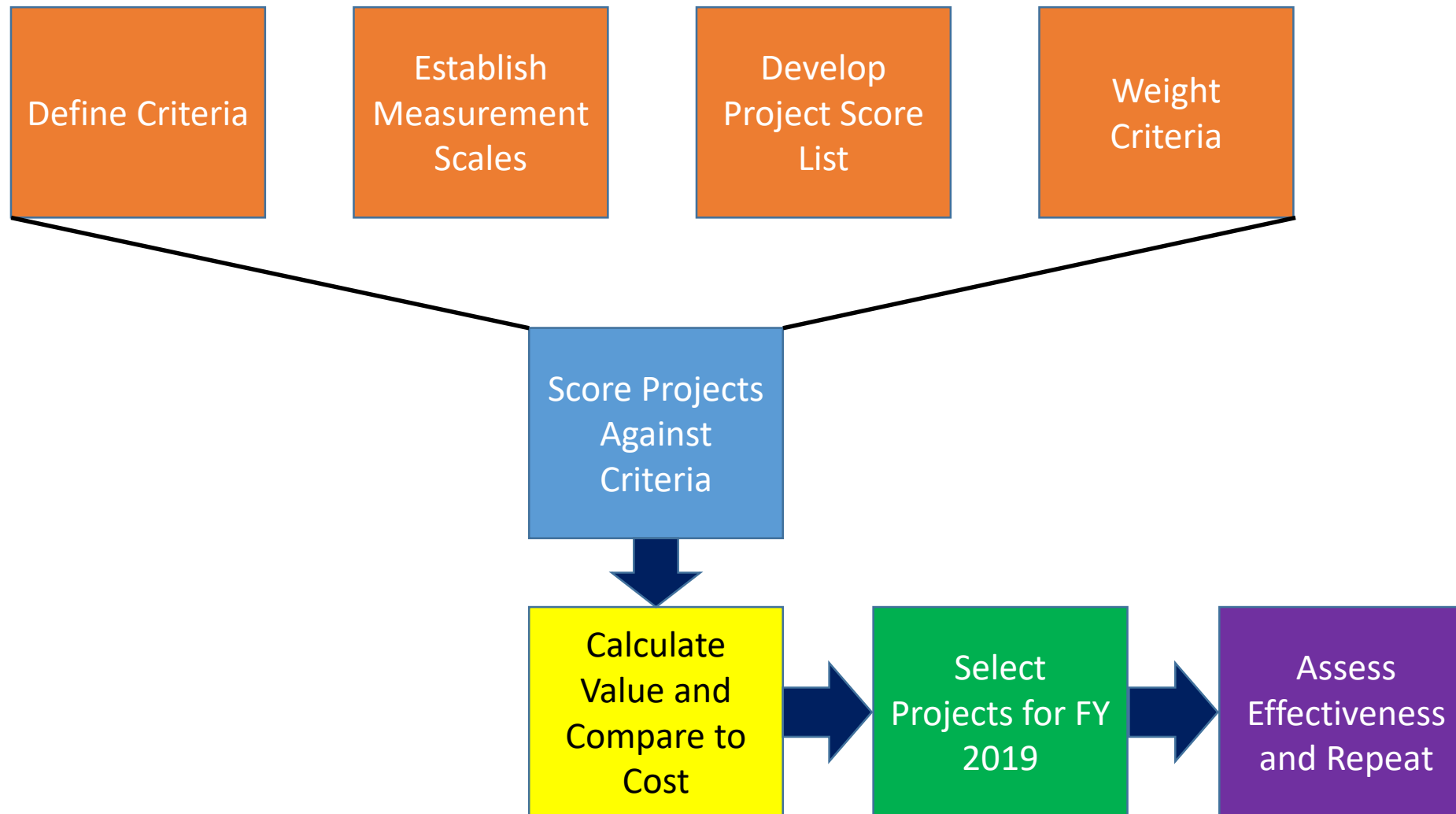




# Short List Project Selection Basis

- Defined location and remedial action
- Meets human health and/or environmental objectives
- Low potential for recontamination
- Selected within the Record of Decision (Cleanup Plan)
- Identified/nominated through multiple forums
- Willing & interested landowners/partners
- Technology with potential to reduce cost
- Approximate cost within budget constraints

# EPA's Project Selection Approach



# What Questions Do You Have?



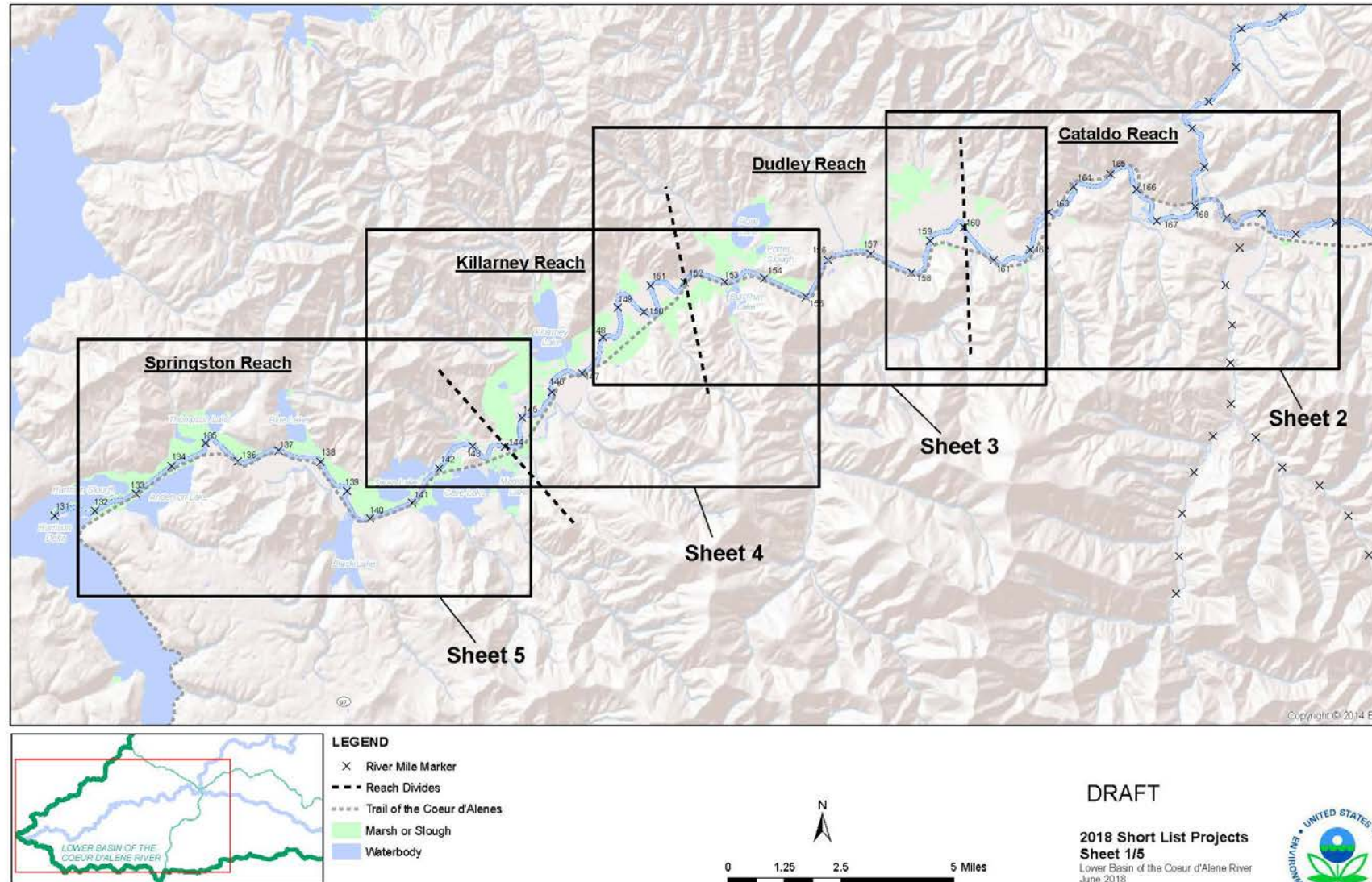


# Important Things to Consider When Picking Sites

## Draft Evaluation Criteria

- Protect Human Health
- Prevent Recontamination
- Ensure Protection of Wildlife and Local Ecology
- Ease of Implementation
- Learning Opportunities to Evaluate Remediation and Cost Effectiveness
- Provide Likely Success and Observable Outcomes
- Avoid Indirect, Adverse Impacts
- Provide New/Improved Long-term Community or Economic Benefits
- Minimize Long-term Costs

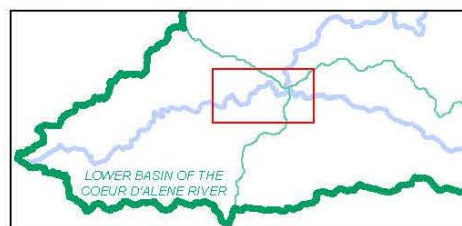
# Community Input - Projects



## 3 Focus Areas

- Habitat Remediation
- Human Health
- Source Control

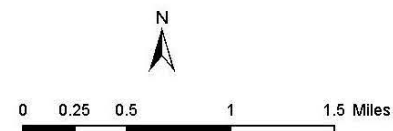




#### LEGEND

##### Focus Area

- Habitat Remediation
- Human Health
- Source Control



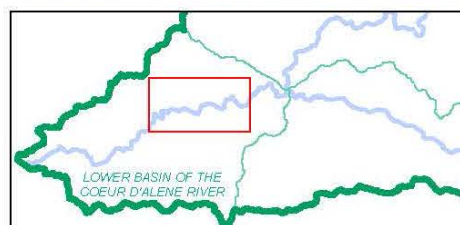
**DRAFT**

**2018 Short List Projects**  
**Sheet 2/5**  
 Lower Basin of the Coeur d'Alene River  
 June 2018



Note: Labels mark general project locations. Project extents to be determined during future outreach, analysis, and design phases.

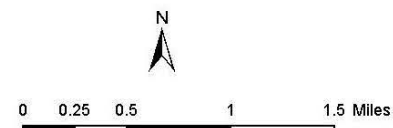




#### LEGEND

##### Focus Area

- Habitat Remediation
- Human Health
- Source Control



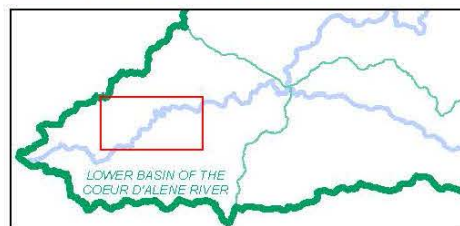
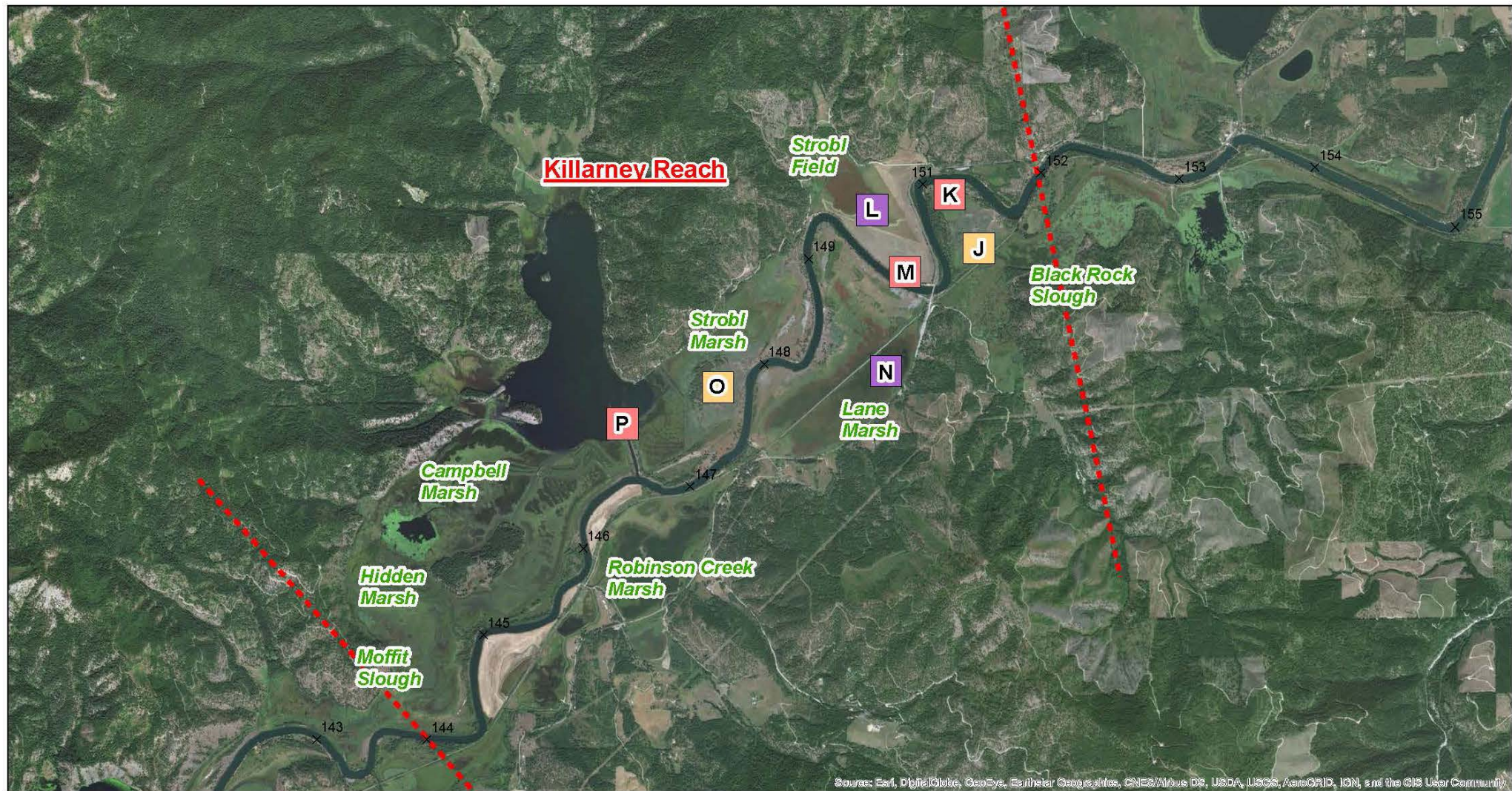
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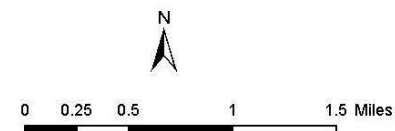




#### LEGEND

##### Focus Area

- Habitat Remediation
- Human Health
- Source Control



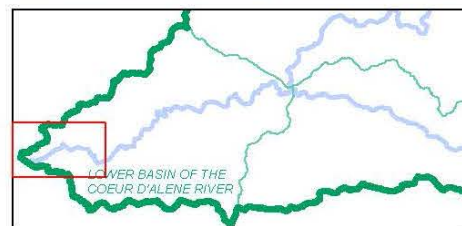
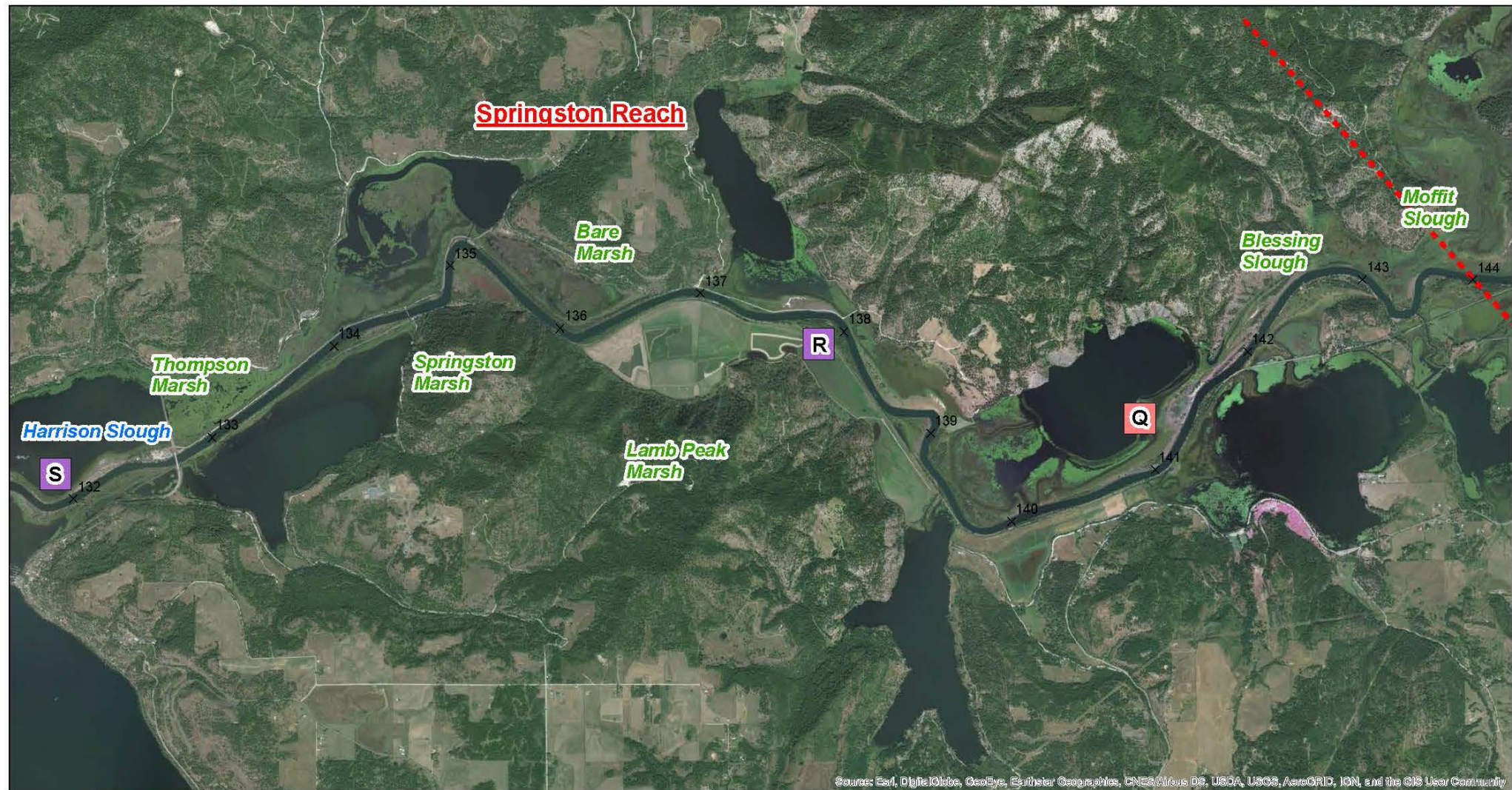
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**2018 Short List Projects  
Sheet 4/5**  
Lower Basin of the Coeur d'Alene River  
June 2018



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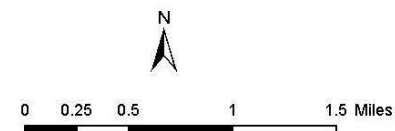




#### LEGEND

##### Focus Area

- Habitat Remediation
- Human Health
- Source Control



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2018 Short List Projects  
Sheet 5/5  
Lower Basin of the Coeur d'Alene River  
June 2018



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# Questions?



Photo by Chris Bonsignore, Ducks Unlimited. September 2014

## What's next

- Consider what we have heard from you
- Provide updates – BEIPC, CCC
- Select 2-3 projects by Oct 2018 for implementation in next 2-3 years
- 2019 - 2021
  - Fill data gaps
  - Address land management
  - State/federal compliance
  - Technical/practical feasibility
  - Evaluate with model
  - Design
  - Issue contracts
  - Construction

Thank You for your interest!



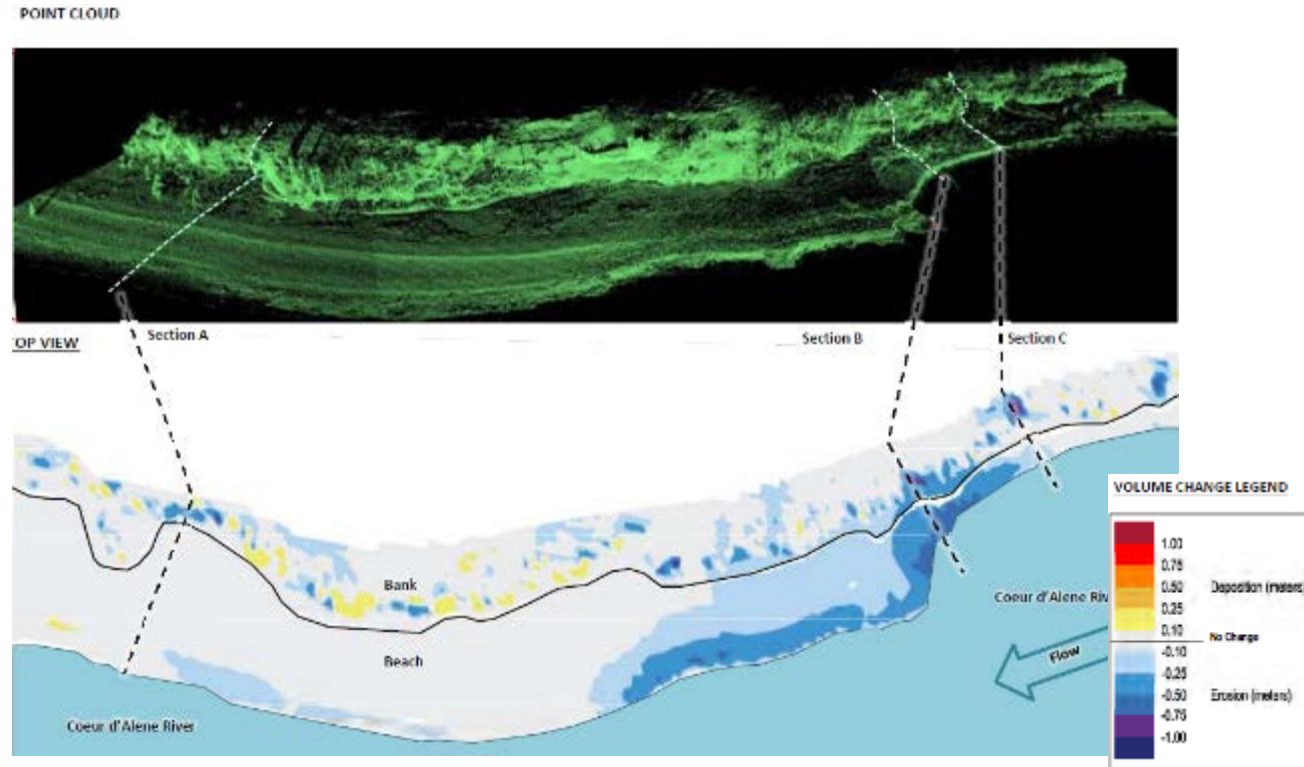


End of Slides

# Sediment and Lead “Budget”: Bank Erosion



Mass of sediment contributed by bank erosion (tons/yr) = 7,706  
Mass of contaminated sediment by bank erosion (tons/yr) = 4,915  
Mass of lead by bank erosion (tons/yr) = 32



## Conclusions –

- Exposed banks contain tailings-rich deposits.
- Banks contribute lead via collapse and decay of collapse blocks.
- Erosion rate of banks is about few inches per year; multiple studies show good agreement.

# 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)

## Source Control

- Sediment trap near Cataldo Trail Bridge (A)
- Riverbank stabilization upstream of Cataldo Boat Launch (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)