SEDIMENT SOLUTIONS:

Integrated Sediment Management for Watershed-Bayland Ecosystem Resilience



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Zone 2A Advisory Committee Meeting September 28, 2023



We are facing a baylands sediment deficit

SEDIMENT FOR SURVIVAL:

A Strategy for the Resilience of Bay Wetlands in the Lower San Francisco Estuary

SFE

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• Under current management approaches, there likely won't be enough sediment for tidal marshes and tidal flats to keep pace with sea-level rise

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- There is a need to get more watershed sediment onto baylands through increasing beneficial reuse and improving natural delivery processes

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- Under current management approaches, there likely won't be enough sediment for tidal marshes and tidal flats to keep pace with sea-level rise
- There is a need to get more watershed sediment onto baylands through increasing beneficial reuse and improving natural delivery processes
- We need to develop local management approaches that increase bayland sediment supply *while also* supporting and enhancing watershed ecosystems under a changing climate

SEDIMENT FOR SURVIVAL:

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1. Watershed Sediment Reuse Strategies and Pilot Projects Main Elements Towards a Coarse Sediment Strategy for the Bay Area

- Identifying new sediment sources that could be beneficially reused and appropriate reuse sites
 - Bayland restoration/shoreline adaptation 0
 - Watershed channel restoration 0
- Workshops with project partners and regulatory agencies to discuss challenges and opportunities

MARCH 2021







Bay Water Quality

A PRODUCT OF PREPARING FOR THE STORM

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Outputs

- Watershed Sediment Reuse Strategy
- Beneficial Reuse Pilot Project

MARCH 2021

A PRODUCT OF PREPARING FOR THE STORM

1. Watershed Sediment Reuse Strategies and Pilot Projects

Lichau Creek



Adobe Creek



2. Vision for Re-establishing Creek-Marsh Connections



1. Understand landscape functioning

- Physical and ecological
- Change from past \rightarrow present \rightarrow future
- Cultural resource assessment



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2. Meetings and Workshop

- Get community and tribal input on priorities/needs
- Identify opportunities and constraints
- Identify appropriate restoration concepts
- Collaboration among project team, advisors, stakeholders



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3. Assess landscape improvements associated with future Vision



2. Vision for Re-establishing Creek-Marsh



2. Vision for Re-establishing Creek-Marsh Connections





3. Future Watershed Sediment Dynamics

Main Research/Management Questions

- How much watershed sediment currently reaches the Bay and where are the erosion "hotspots" in the Petaluma River watershed?
- How will climate change impact watershed erosion, sediment delivery, and the channel-riparian ecosystem?
- What watershed management actions could support bayland sediment supply <u>AND</u> watershed ecosystem health <u>AND</u> flood management objectives?



3. Future Watershed Sediment Dynamics

Main Elements

- Field-based sediment source assessment
- Modeling climate change impacts on precip and air temperature → flow, erosion, and sediment transport
- Modeling of management/resotration scenarios to assess impacts to flow, erosion, and sediment transport
 - Floodplain restoration
 - o GSI/urban greening

Outputs

- Sediment source assessment tech memo
- Synthesis report



Summer 2023 – Summer 2027







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Project Partners and Supporters

San Francisco Bay Regional Water Quality Control Board San Francisco Estuary Partnership Valley Water Sonoma Water Contra Costa County Flood Control and Water Conservation District City of Petaluma East Bay Regional Park District Regional Monitoring Program for Water Quality in San Francisco Bay Wetlands Regional Monitoring Program Sonoma RCD Friends of the Petaluma River The Watershed Project Sonoma Land Trust Ducks Unlimited

Questions? Thank you!



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