



# **SEDIMENT AND BENEFICIAL REUSE COMMISSIONER WORKING GROUP**

San Francisco Bay Conservation and Development Commission

Sediment Management

Long Range Planning Program

# AGENDA

1. Welcome and Introductions
2. Review Bay Plan Amendment Process
3. Review Workplan and Timeline of Project
4. Project Direction and Goals
5. Public Comments



# WELCOME AND INTRODUCTIONS



# INFORMATIVE DOCUMENTS

## Reports

1. [Sediment for Survival: A Strategy for the resilience of Bay Wetlands in the Lower San Francisco Estuary](#) (2021) - can skip the methods section
2. Greening the Bay Report
3. [The Baylands and Climate Change](#) (2015; lengthy report but informative)
4. [Baylands Ecosystem Habitat Goals](#) (1999) - background to the 2015 updated
5. [San Francisco Bay Shoreline Adaptation Atlas](#) (2019)
6. [San Pablo Bay Shoreline Change Analysis](#) (2015)
7. [Changing Channels Regional Information for Developing Multi-benefit Flood Control Channels](#) (2017)
8. [New Life for Eroding Shorelines: Beach and Marsh Edge Change in the San Francisco Estuary](#) (2020)
9. [Towards a Coarse Sediment Strategy for the Bay Area](#) (2021)

## Scientific Literature

1. [Sediment transport in the SF Bay Coastal System: An overview](#) – Barnard et al., 2013 (15 pages; great overview of sediment transport)
2. [Sediment supply to SF Bay, Water Years 1995 – 2016](#) – Schoellhamer et al., 2018 (90 pages; can skip over methods; introduction and discussion should be reviewed; a bit technical)
3. [Adjustment of the SF Estuary and watershed to decreasing sediment supply in the 20<sup>th</sup> century](#) – Schoellhamer et al., 2013 (9 pages; little technical but useful information)
6. [Estimates of suspended sediment entering the SF Bay from the Delta](#) – McKee et al., 2006 (18 pages; can skip methods section)

## Upcoming Documents

Sand mining studies, facts sheets, story map, etc.,



# PURPOSE OF COMMISSIONER WORKING GROUP

- Explore the regional needs for and potential sources of sediment/soil, and mechanisms for connecting them.
- Examine challenges and opportunities of beneficial reuse of sediment/soil.
- Develop common ground findings.
- Consider whether San Francisco Bay Plan should be updated to promote beneficial reuse of sediment/soil.
- Develop proposed policies.
- Provide information and advice to the larger Commission on this issue.

# **BCDC LONG-RANGE PLANNING: BAY PLAN AMENDMENT OVERVIEW**

ERIK BUEHMANN, PLANNING MANAGER

MARCH 17, 2023

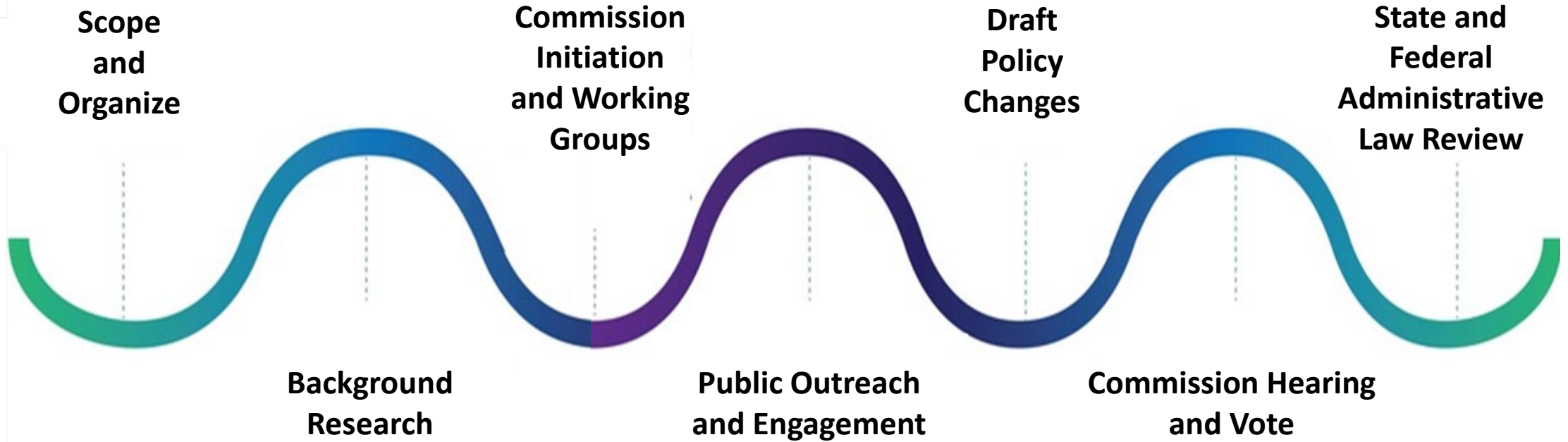
# SAN FRANCISCO BAY PLAN

- Guides the review of projects under the McAtter-Petris Act.
- Policies related to:
  - Protection of the Bay as a Resource.
  - Development of the Bay and Shoreline.
- Policies are updated periodically.



Bay Plan Cover (Source: BCDC)

# BAY PLAN AMENDMENT PROCESS





# STEP ONE: INITIATION!

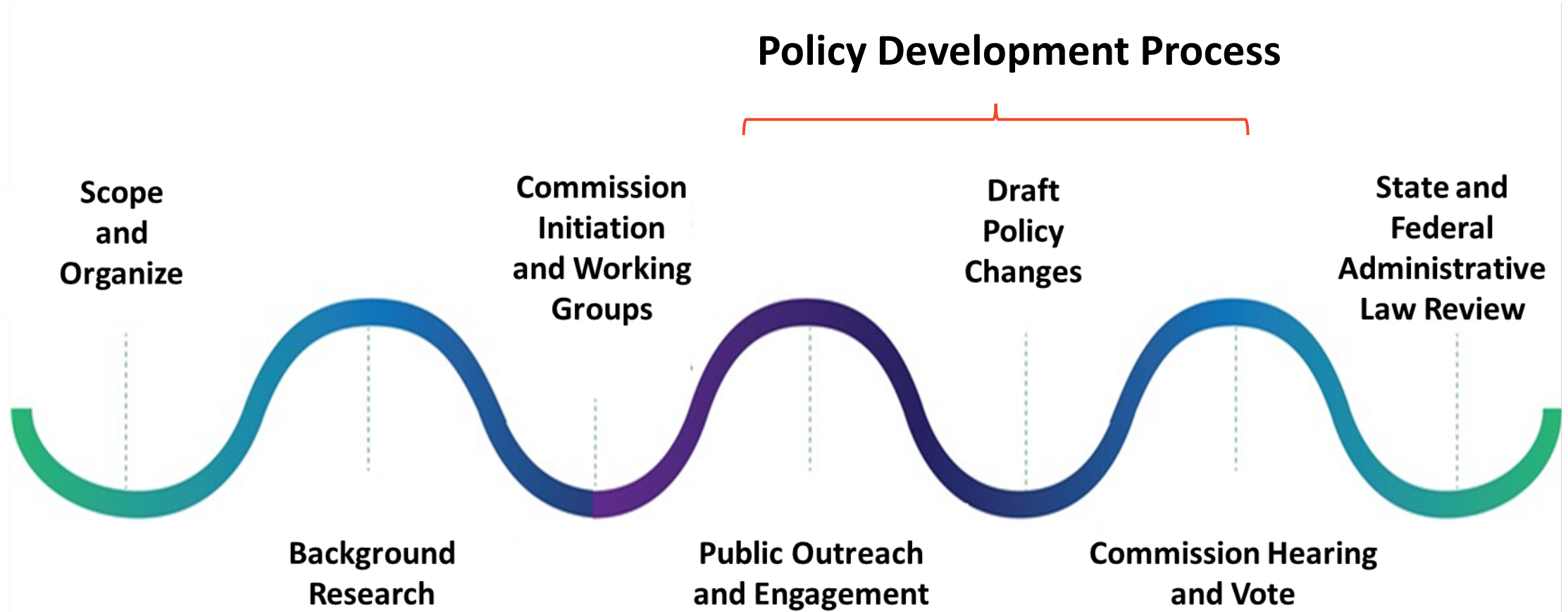
Hearing and  
Vote to  
Initiate BPA

- Send out DRAFT Brief Descriptive Notice 10 days before Hearing

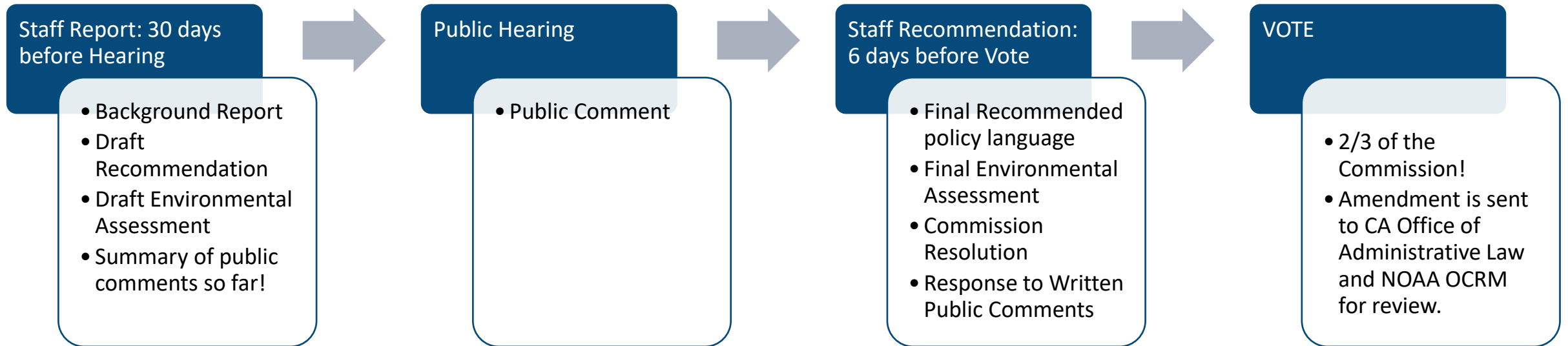
Brief  
Descriptive  
Notice

- BDN is sent out the day after the vote.
- Sets proposed public hearing (can be revised!)

# STEP TWO: POLICY DEVELOPMENT



# STEP THREE: THE DECISION



# BCDC LONG-RANGE PLANNING



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<https://www.bccdc.ca.gov/planning/>

# **REVIEW WORKPLAN AND TIMELINE OF PROJECT**

Maya McInerney

# EPA WETLANDS DEVELOPMENT GRANT & OCEAN PROTECTION COUNCIL ADAPTATION GRANT

## JANUARY 2023 THROUGH DECEMBER 2025

### ADDRESSING:

- Sediment and Soil Reuse
- Habitat Restoration
- Climate Adaptation
- Vulnerable Communities

### THROUGH:

- Stakeholder workshop (Phase 1)
- Bay Plan Amendment (Phase 2)
- Financing Assessment (Phase 3)

	2023	2024	2025
Stakeholder Workshop	[Green Bar]		
Bay Plan Amendment		[Green Bar]	
Financing Assessment		[Green Bar]	

# PROJECT OVERVIEW

## Task 1: Project Management (Throughout Project)

- Workplan
- Coordination and communication

## Task 2: Workshop / Phase 1 (February 2023-February 2024)

- Build stakeholder coalition
- Background documents/issue papers
- Roadmap document

## Task 3: Bay Plan Amendment / Phase 2 (January 2024-December 2025)

- Public workshops
- Update to Bay Plan regarding beneficial reuse of sediment/soil

## Task 4: Feasibility and Financing Assessment / Phase 3 (January 2024-December 2025)

- Funding issue papers and workshop(s)
- Proposed Financing Strategy

# TASK 1: PROJECT MANAGEMENT

- 1. Workplan Formulation**
2. Core Team
3. Commissioner Working Group
4. Internal Team Coordination
5. Project Communication



# WORKPLAN FORMULATION

## EPA Grant Project Description and Milestones

Task	Milestone	Output
1. Results Chain Analysis Scoping, Workplan Formulation, and stakeholder workgroup formation	12/31/22	1. Detailed workplan 2. Work group identified 3. Facilitator solicitation issued, facilitator hired
2. Pre-workshop meeting, pre workshop agenda, stakeholder invitation, background documents developed	2/28/23	1. Agenda developed, pre-workshop meeting held 2. Background documents developed
3. Workgroup workshop, results chain analysis findings, report and regional roadmap	8/30/23	1. Workshop held 2. Results chain analysis report 3. Draft roadmap complete
4. Review literature, develop annotated bibliography, Amendment workplan formulation. Work incorporates outputs of Phase 1.	4/30/23	1. Annotated bibliography 2. Bay Plan amendment workplan
5. Commission hearing and vote on Amendment initiation, establish Commission working group, Stakeholder and Commission public workshops and outreach	10/30/23	1. Stakeholder outreach complete 2. Commission meeting, hearing, vote. 3. Commissioner workgroup established 4. Two Commissioner workgroup meetings held
6. Staff drafts background report, conducts stakeholder interviews, social and environmental justice engagement effort	8/30/23	1. S&E engagement and comments documented 2. Stakeholder interviews document. 3. Background document drafted. 4. Six Commissioner workgroup meetings held
7. Bay Plan Amendment Workshop development, draft agendas, background information, and activities, stakeholder and public noticing, summarize findings	10/30/23	1. Agendas, activities produced 2. Public noticing documents 3. Three workshops held 4. Workshop findings summarized
8. Draft Findings and Policy formulation and Environmental Review	2/31/2024	1. Draft findings and policies complete. 2. Draft CEQA findings complete. 3. Four Commissioner workgroup meetings held
9. Final Amendment Recommendations, Environmental Assessment, Commissioner public hearing and vote, documentation submitted to Office of Administrative Law and Coastal Management Office	6/29/24	1. Commission recommendation developed. 2. Commission public hearing and vote 3. Two Commissioner workgroup meetings held
10. Research funding needs, interview target sectors and community practitioners to understand project costs	4/20/23	1. Report on costs and funding needs 2. Draft five issues documents
11. Meet with Financing the Future workgroup to gather input on potential financing strategy and investigate recommendations through coordination with stakeholders.	8/30/24	1. Five agendas and presentations developed 2. Five Financing the Future meetings held
12. Present draft funding strategy at a public Financing the Future workshop and obtain feedback. Circulate draft strategy for feedback from stakeholders. Incorporate feedback and prepare final document.	10/30/24	1. Financing Strategy developed 2. Financing the Future meeting and presentation. 3. Finance Strategy workshop held with stakeholders



**Sediment & Beneficial Reuse Bay Plan Amendment**  
Draft Workplan: Task Descriptions  
March 14, 2023

**1. Project Management**

1.1 Project Workplan Formulation (February-March 2023)

- Review grant materials and create detailed workplan (BCDC Staff)
- Internal team review
- Core team review
- Commissioner Working Group review

1.2 Core Team (February 2023-End of Project)

- Setup regular monthly meetings with Core Team members through end of project: BCDC, US EPA, SFEI, SFBJV, & WB.
- Seek Commission authorization for SFEI and SFBJV contracts to assist with project:
  - SFEI to provide scientific expertise regarding sediment issues.
  - SFBJV to provide expertise and advice regarding habitat restoration and adaptation for technical and policy document development and review, stakeholder coordination, and workshop guidance.

1.3 Commissioner Working Group (January 2023-End of Project)

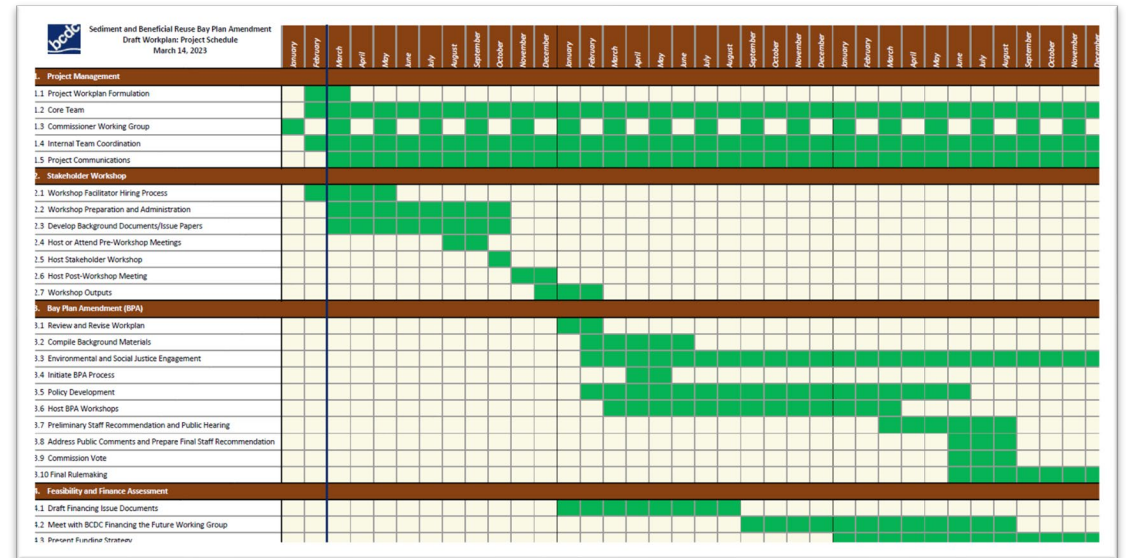
- Establish Commissioner Working Group
- Review relevant scientific material, issue papers, and proposed policy changes with Commissioner Working Group.
- Establish meeting schedule and topics:
  - March 2023 – Workplan and schedule, Bay Plan amendment process, and direction of project
  - Held every two months for duration of project. Topics to be determined.

1.4 Internal Team Coordination (February 2023-End of Project)

- Hold senior staff coordination meetings, every other month (Erik, Brenda, Maya, Jessica, Steve, Larry)
- Hold Sediment and Planning Team meetings, frequency to be determined. (Project Team: Erik, Brenda, Maya, Pascale, Jaime)

1.5 Project Communications (March 2023-End of Project)

- Develop a communication strategy. (Project Team)
- Prepare fact sheet to address entire project and make publicly available. (Project Team)
- Create and maintain project webpage on BCDC website. (Project Team)
- Brief BCDC Commission on project updates twice per year. (Project Team)



# TASK 1: PROJECT MANAGEMENT

1. Workplan Formulation
- 2. Core Team**
- 3. Commissioner Working Group**
- 4. Internal Team Coordination**
- 5. Project Communication**

# TASK 2: STAKEHOLDER WORKSHOP TO DEVELOP ROADMAP

- 1. Workshop Facilitator hiring process**
2. Workshop Preparation
3. Develop Background Documents
4. Host or Attend Pre-workshop Meeting(s)
5. Host Stakeholder Workshop
6. Host Post Workshop Meeting
7. Workshop Outputs



2023

2024

2025

January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
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1. Project Management		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December								
1.1	Project Workplan Formulation																																												
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2. Stakeholder Workshop		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December								
2.1	Workshop Facilitator Hiring Process																																												
2.2	Workshop Preparation and Administration																																												
2.3	Develop Background Documents/Issue Papers																																												
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2.7	Workshop Outputs																																												
3. Bay Plan Amendment (BPA)		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December								
3.1	Review and Revise Workplan																																												
3.2	Compile Background Materials																																												
3.3	Environmental and Social Justice Engagement																																												
3.4	Initiate BPA Process																																												
3.5	Policy Development																																												
3.6	Host BPA Workshops																																												
3.7	Preliminary Staff Recommendation and Public Hearing																																												
3.8	Address Public Comments and Prepare Final Staff Recommendation																																												
3.9	Commission Vote																																												
3.10	Final Rulemaking																																												
4. Feasibility and Finance Assessment		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December								
4.1	Draft Financing Issue Documents																																												
4.2	Meet with BCDP Financing the Future Working Group																																												
4.3	Present Funding Strategy																																												



# TASK 3: BAY PLAN AMENDMENT

1. Review and Revise Workplan
2. Compile Background Materials
3. Environmental and Social Justice Engagement
4. Initiate BPA Process
5. Policy Development
6. Host BPA Workshops
7. Preliminary Staff Recommendation and Public Hearing
8. Address Public Comments and Prepare Final Staff Recommendation
9. Commission Vote
10. Final Rulemaking

# TASK 4: FEASIBILITY AND FINANCING ASSESSMENT

1. Draft Financing Issue Documents
2. Meet with BCDC Financing the Future Working Group
3. Present Funding Strategy



## Questions / Discussion / Feedback

# Sediment Management San Francisco Bay

Brenda Goeden, Sediment Program Manager  
San Francisco Bay Conservation and Development Commission  
Sediment & Beneficial Reuse Commissioner Working Group  
March 17, 2023



*Making San Francisco Bay Better*





# Project Goal and Objectives

## Increase Beneficial Reuse of Sediment and Soil for Wetland Restoration and Resilience and for Sea Level Rise Adaptation

- ◆ Increase coordination and collaboration among agencies, project sponsors, and stakeholder to accomplish beneficial reuse of sediment and soil
- ◆ Develop a roadmap that supports the goal
- ◆ Improve policies to support beneficial reuse
- ◆ Develop a funding strategy for increased beneficial reuse



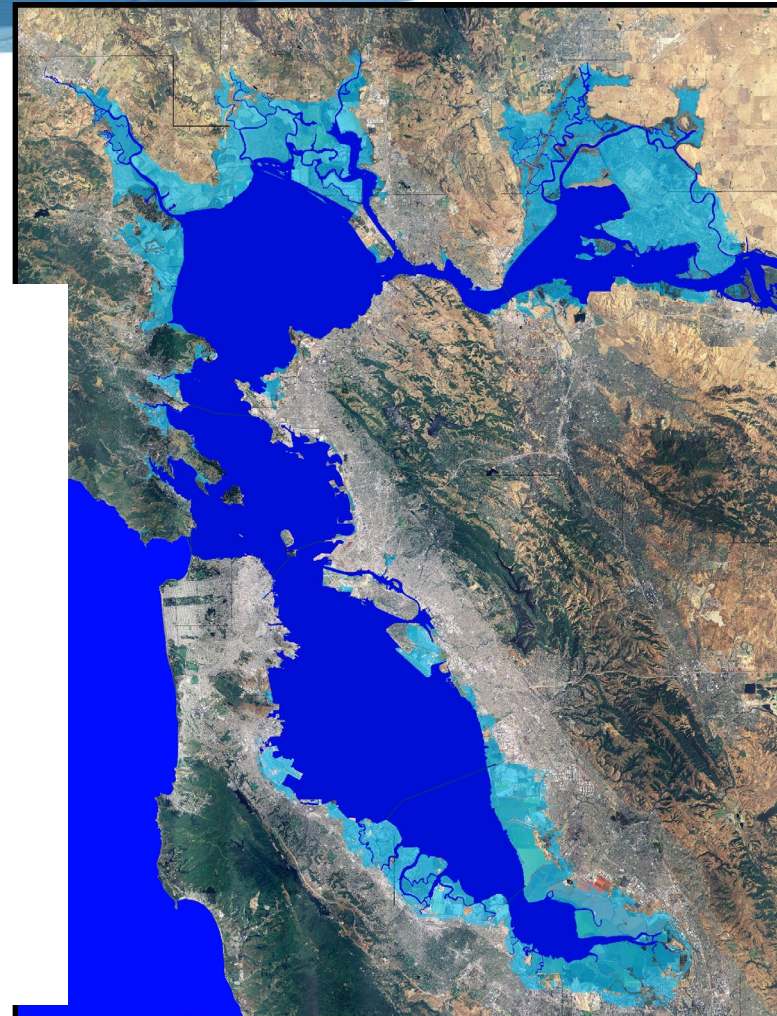
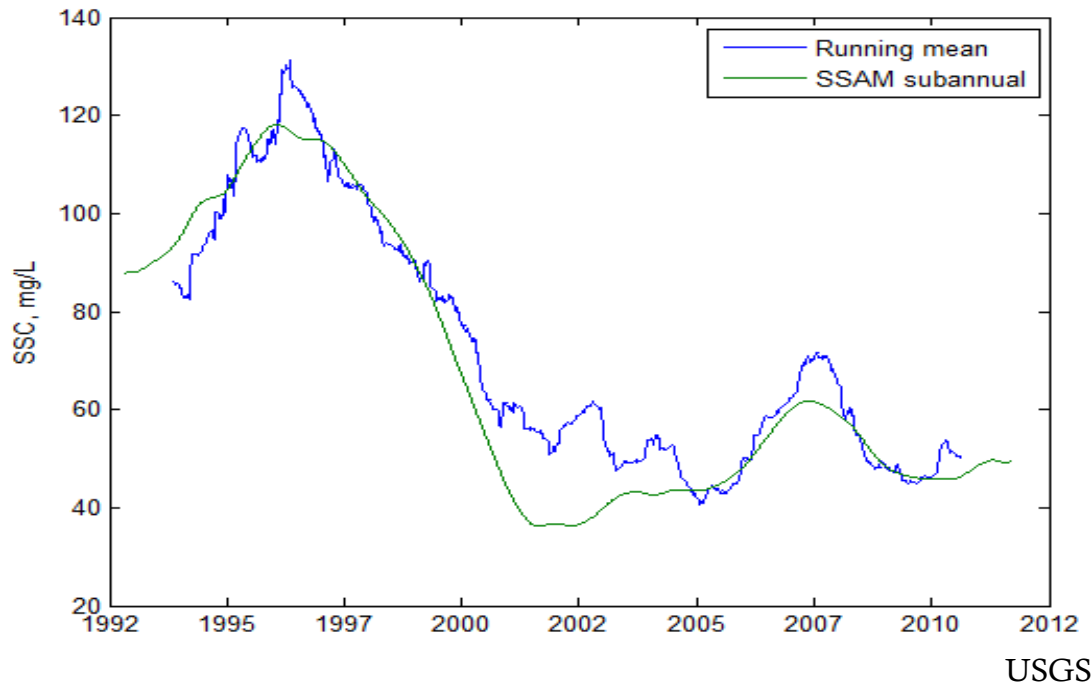
# What is Regional Sediment Management?

- ◆ **Regional Sediment Management** is the use of littoral, estuarine, and riverine sediment resources in an environmentally beneficial and economical manner. RSM strives to maintain or enhance the natural exchange of sediment within the boundaries of the physical system.
- ◆ **Engineering with Nature** is the intentional alignment of natural and engineering processes to efficiently and sustainably deliver economic, environmental, and social benefits.



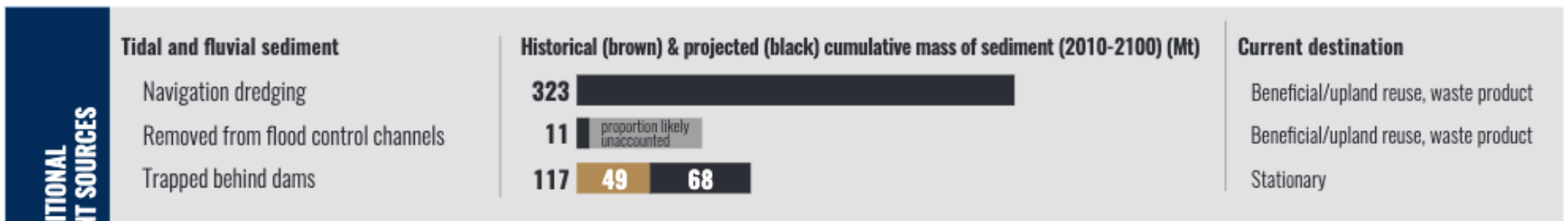
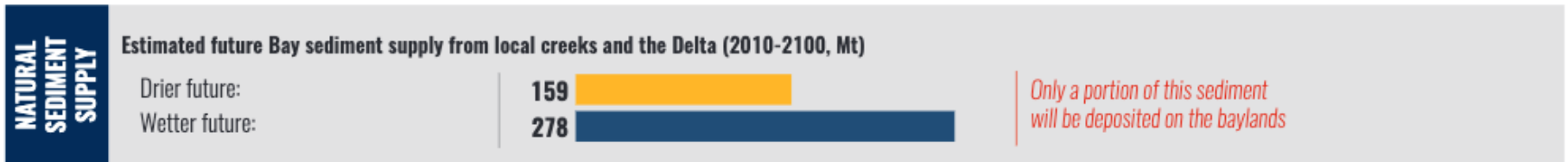
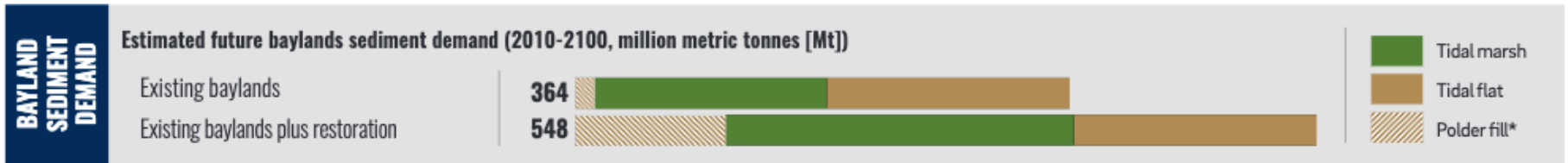
# The Changing Bay

- Loss of wetlands
- Decreasing sediment supply
- Rising Seas



# Sediment for Survival Report Findings – 450 Million Mt

Comparison of future bayland sediment demand, natural Bay sediment supply, and supply of additional sediment sources.



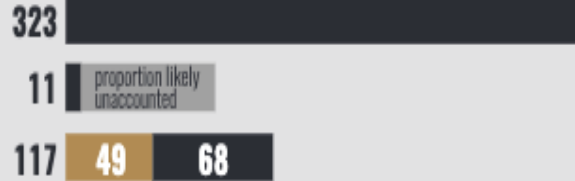
# Sediment for Survival Report Findings

## ADDITIONAL SEDIMENT SOURCES

### Tidal and fluvial sediment

- Navigation dredging
- Removed from flood control channels
- Trapped behind dams

### Historical (brown) & projected (black) cumulative mass of sediment (2010-2100) (Mt)



### Current destination

- Beneficial/upland reuse, waste product
- Beneficial/upland reuse, waste product
- Stationary

### Upland Sediment

- Excavated soils
- Treated biosolids

### Projected cumulative mass of upland materials (2010-2100) (Mt)



### Current destination

- Waste product
- Waste product, agriculture



# Navigation Dredging

Fine Grain Sediment >> Wetland Restoration

## LTMS Program Goal of Maximizing Beneficial Reuse 2000 – 2021

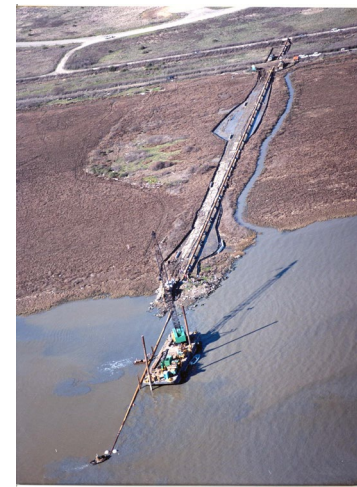
- 💧 ~ 70 million cy dredged
- 💧 ~ 29 million cy beneficially reused (41%)
- 💧 ~ 38% in Bay and ~21% ocean disposal
- 💧 Inclusive of twelve year transition period, significant deepening project, small dredger exemption
- 💧 Most medium and large dredgers focus on 40% beneficial reuse

2022 - LTMS Pilots 50%-50% beneficial reuse-in bay pilot



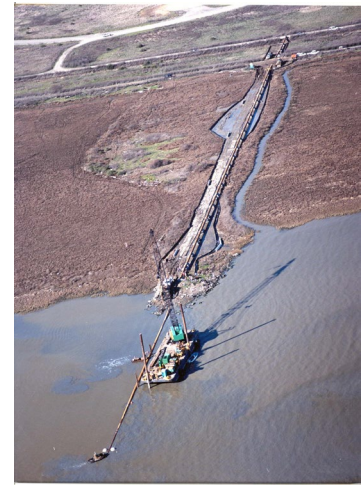
# Changes at the Federal Level

- 💧 Water Resources and Development Act (WRDA)
  - 💧 Federal to federal projects - allowed
- 💧 Water Infrastructure Improvement Act (WIIN) 2016 –  
Section 1122 – Resilient San Francisco Bay \$19m
  - 💧 Strategic Placement Pilot Project
- 💧 WRDA 2020 – Consider beneficial reuse & more
  - 💧 Section 125 a – c guidance
- 💧 Regional Dredge Material Management Plan
  - 💧 70% Beneficial reuse goal – General Spellmon



# Changes at the Regional & State Level

- 💧 Measure AA – beneficial reuse project inclusion 2016
- 💧 Mullin provides \$6 million incremental cost share for Redwood City 2018
- 💧 Ocean Protection Council includes beneficial reuse goals in strategic plan 2021





# Excess Construction Soil

Coarse Grain Sediment >> Levee & Ecotone

- 💧 Soil from development projects headed to landfill
- 💧 Primarily South Bay Projects – Bair Island, South Bay Salt Ponds and Shoreline Project
- 💧 Quarry soil contribution – levee geotech requirements
- 💧 Master Quality Assurance & Protection Plan
  - 💧 Water Board & BCDC coordination and collaboration
- 💧 Trucking



# Flood Conveyance Systems

- ◆ Focus on moving water from land
- ◆ Aging system – 50-75 years
- ◆ Loss of natural sediment conveyance, habitat
- ◆ Channelization, subterranean
- ◆ Significant local sediment removal
- ◆ Locally funded
- ◆ Flood Control 2.0, Healthy Watersheds & Baylands, San Tomas-Aquinas Pilot Realignment

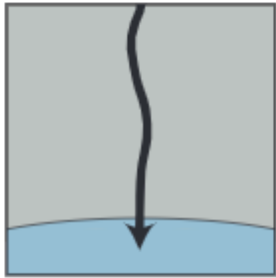


# Historic Connections

- **Connected to the Bay**

Channels entered directly into the Bay without passing through baylands (i.e., mudflats, tidal marshes, tidal-terrestrial transition zones).

*Example:* Hilarita Drainage (Marin County)

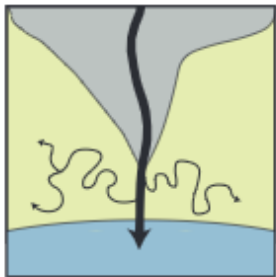


- **Connected to a tidal marsh channel with natural levee**

Channels reached tidal marshlands and merged into a tidal channel network.

*Example:* San Leandro Creek (Alameda County)

*Example with levee:* Guadalupe River (Santa Clara County)

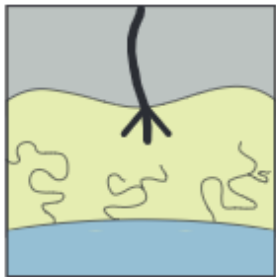


- **Drains onto a tidal marshland with natural levee**

Channels entered tidal marshlands and dissipated without connecting to a larger tidal channel network.

*Example:* Belmont Creek (San Mateo County)

*Example with levee:* San Lorenzo Creek (Alameda County)

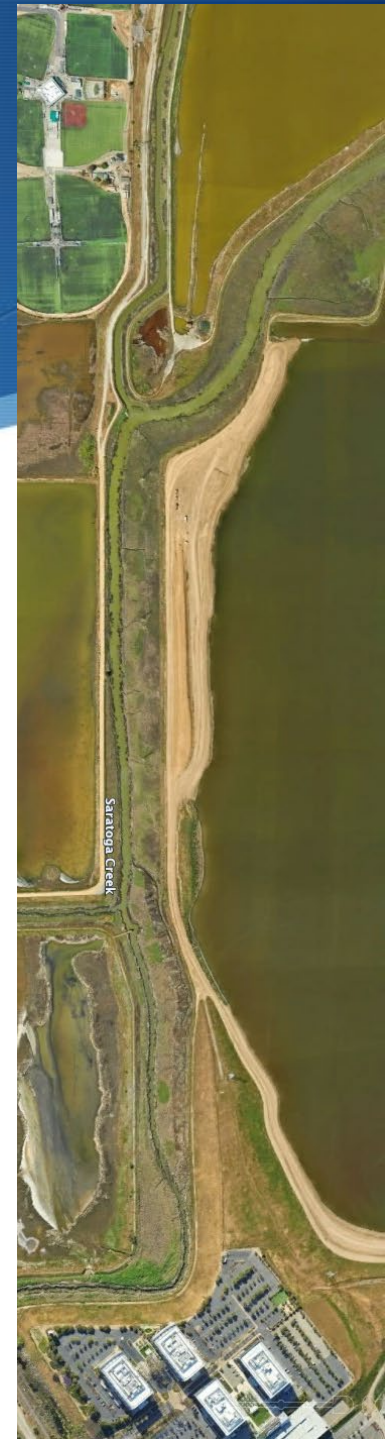
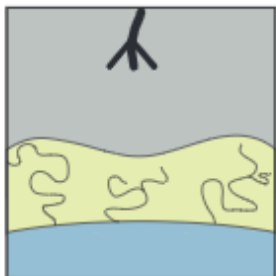


- **Disconnected on alluvial plain with natural levee**

Channels dissipated on alluvial plains or freshwater wetlands prior to reaching the baylands.

*Example:* Adobe Creek (Santa Clara County)

*Example with levee:* Stevens Creek (Santa Clara County)



# Sediment Trapped in Reservoirs

- ◆ Significant volume
- ◆ Distant from baylands (and BCDC jurisdiction)
- ◆ Mixed sediment quality (physical and chemical?)
- ◆ No current program/criteria for use



# Biosolids

- ◆ Small percentage of need
- ◆ Locally important?
- ◆ No current program/criteria for use
- ◆ Concern: pharmaceuticals and emerging contaminants



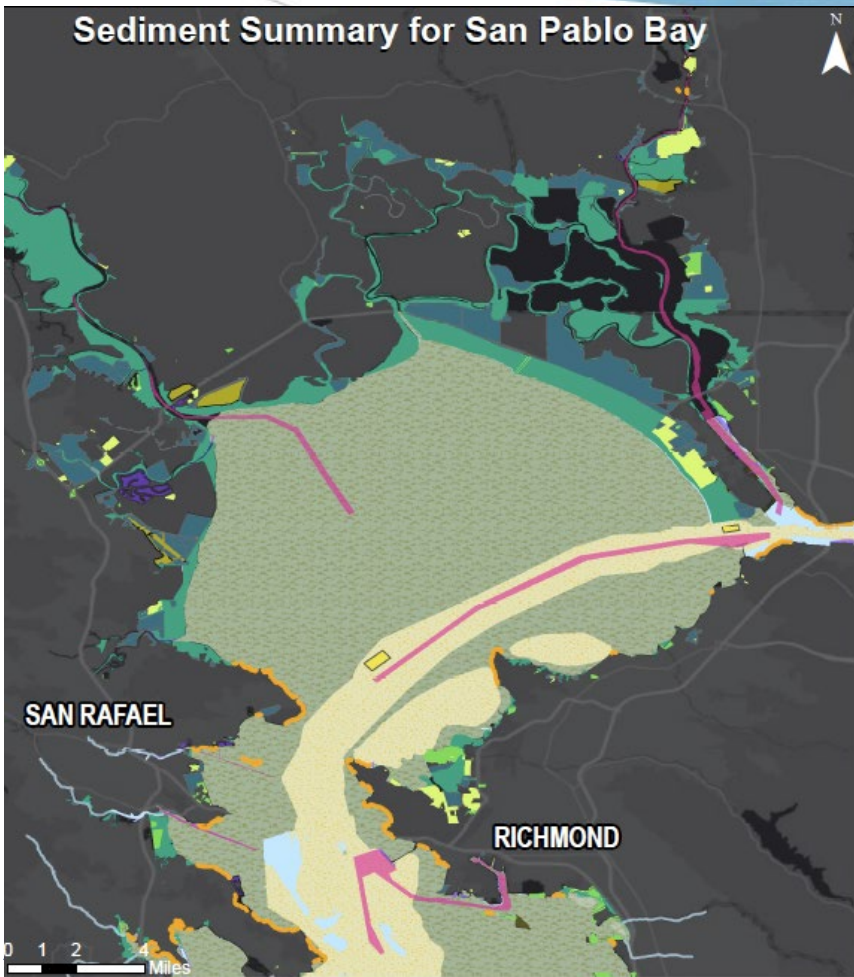
# Restoration Projects

- ◆ Cullinan and Montezuma currently accepting dredged sediment
- ◆ Bel Marin Keys expansion of Hamilton anticipated
- ◆ Other restoration sites encourage more beneficial reuse, but none prepared – except Tiscornia Marsh – pilot project
- ◆ Additional funding, information sharing, and support necessary

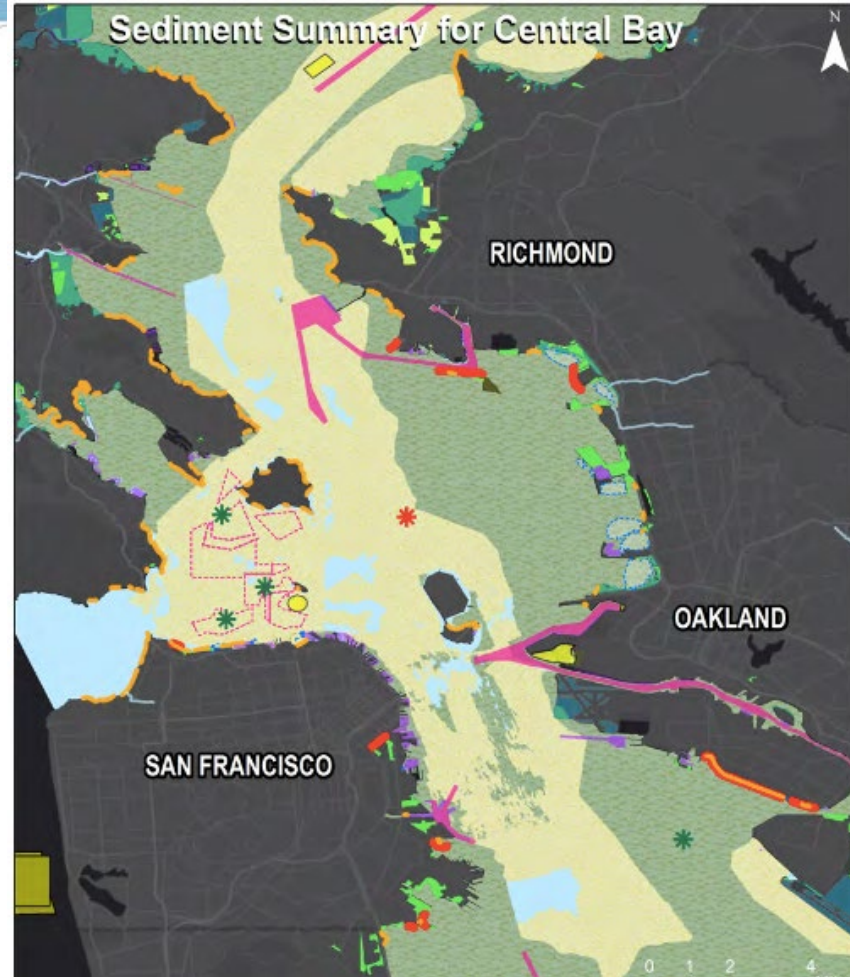


# Regional Sediment Management

Sediment Summary for San Pablo Bay



Sediment Summary for Central Bay



BCDC 2015  
and 2017

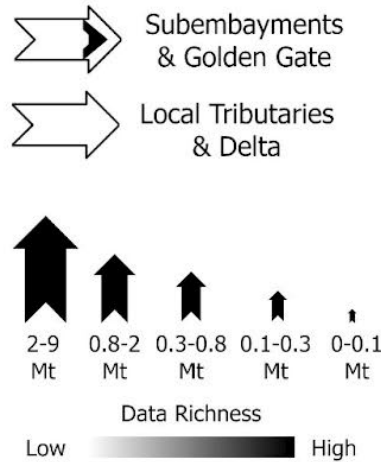
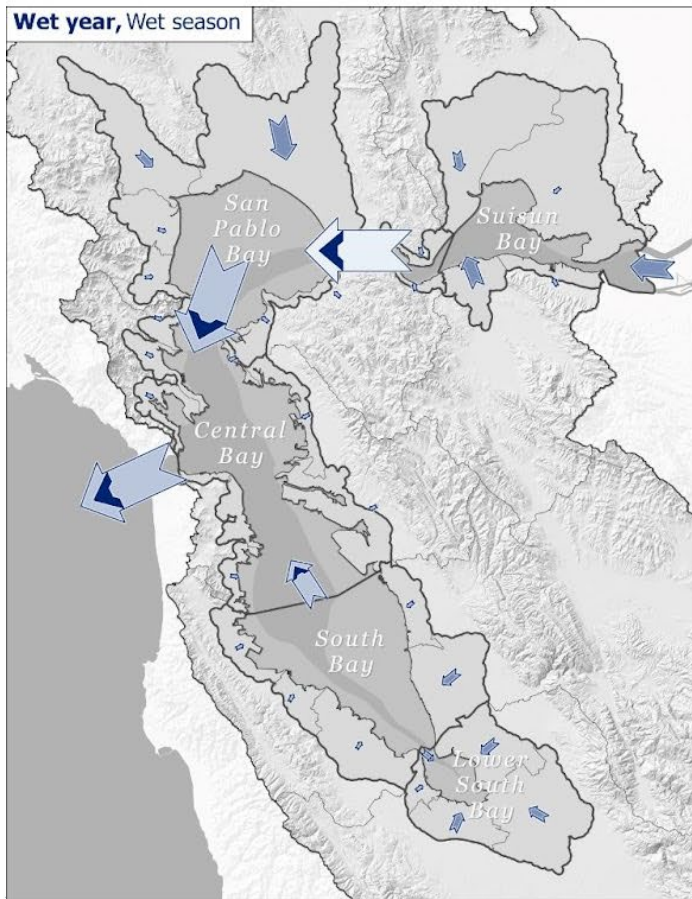
# South Bay & Suisun Bay ?





# Science, Data Collection & Pilots

## Current conditions (Avg. Net Flux) - **Wet Season**



A wide-angle photograph of the Golden Gate Bridge in San Francisco, California. The bridge's iconic red-orange towers and suspension cables are prominent against a clear blue sky. The bridge spans across the water, with waves breaking on a sandy beach in the foreground. The beach is wide and mostly empty, with a few small figures visible in the distance. To the right, a steep, grassy hillside rises, and a wooden fence runs along its base. The overall scene is bright and scenic.

# Thank You

Brenda Goeden  
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San Francisco Bay Conservation and Development Commission

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