Panel 3: How to Get More Dredged Material

- *Moderator:* **Jan Novak**

  Associate Environmental Planner & Scientist, *Port of Oakland*

  BPC Dredging & Beneficial Reuse Committee Co-Chair

- **Stu Townsley**

  Deputy District Engineer for Project Management, *USACE - SF District*

- **Melissa Foley**

  Program Managing Director & Senior Scientist, *San Francisco Estuary Institute (SFEI)*

- **Sonja Petek**

  Principal Fiscal & Policy Analyst, *CA Legislative Analyst's Office (CA LAO)*

HOW TO GET MORE DREDGED MATERIAL

Stu Townsley
Deputy for Project Management

US Army Corps of Engineers
San Francisco District
October 18, 2022

US Army Corps of Engineers®

ASK A MORE DETAILED QUESTION:

- How should we minimize deep ocean disposal aka “SF-DODS” and
- How can we maximize beneficial use?

Constraints:

- Federal Standard → least cost, environmentally practicable
- Dredging Window → June-Nov
- Dredging equipment → mostly clamshell in the bay, cutterhead/pipeline in the Delta
- Logistics → decouple dredging from beneficial use

FEDERAL STANDARD

- SF Bay is the most expensive dredging market
- More dredge material will require cost reductions or cost-share partners
- Reset Federal Standard base costs

DREDGING WINDOW

- Dredge equipment is expensive
- Skilled labor is expensive
- SF Bay costs reflect low utilization
- Current regulation allows for dredging outside of the window IF beneficially used

DREDGE EQUIPMENT

- Mostly clamshell in the bay, cutterhead/pipeline in the Delta
- Clamshell to scow to pump-out is the most expensive method

LOGISTICS

- Aquatic transfer decouples dredging from beneficial use placement
- Increased equipment utilization will reduce costs

SOLUTIONS?

- Under sea-level rise, restoring SF Bay to pre-European conditions is not possible
- Regulatory largely driven by site specific evaluation, need a Bay-wide solutions and updated regulations
- Require improved science to address environmental concerns and sediment management
- Need to act now!

Science to inform beneficial reuse

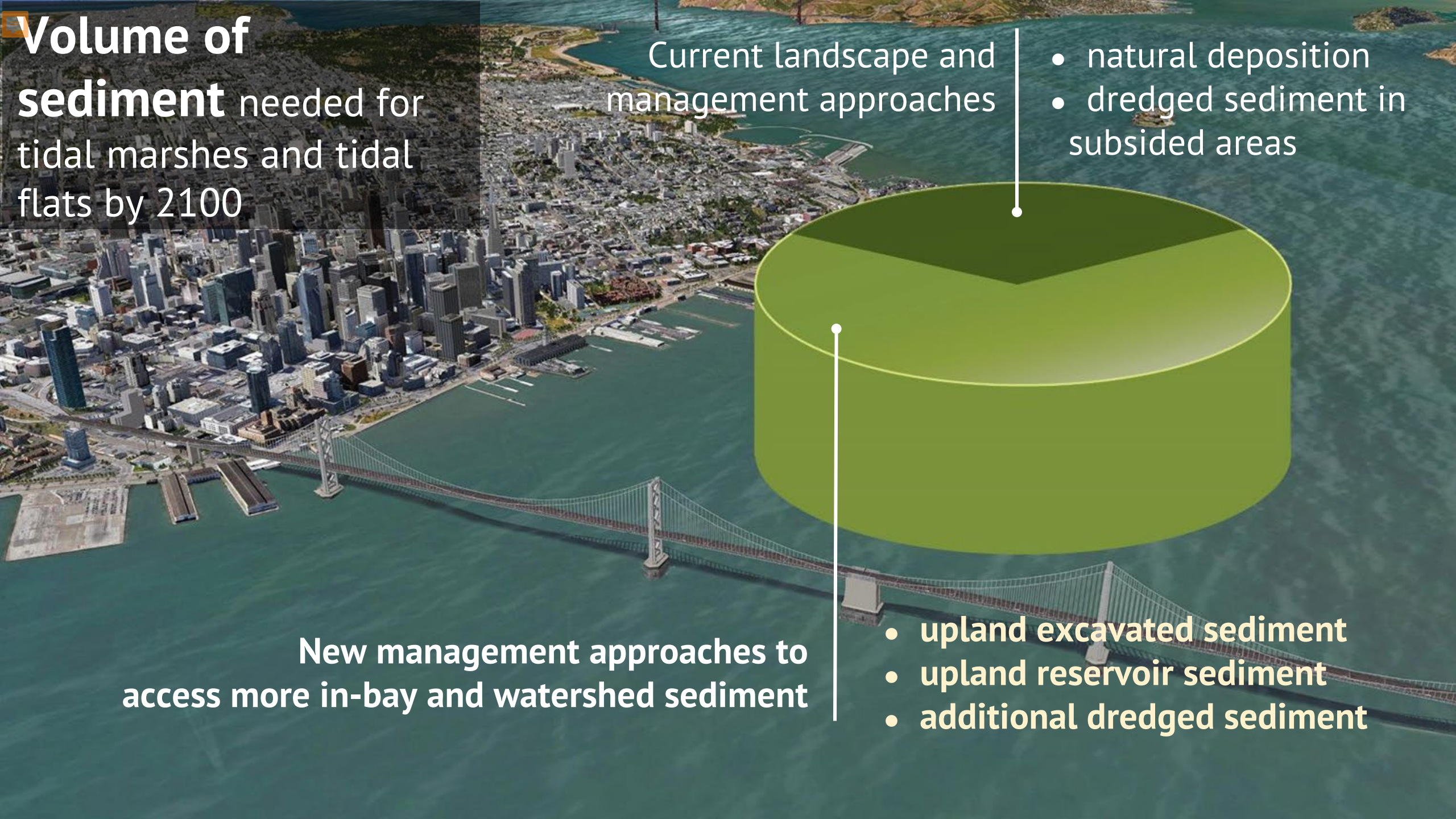
Melissa Foley
RMP Manager & Science Director

Clean Water & Resilient Landscapes Programs

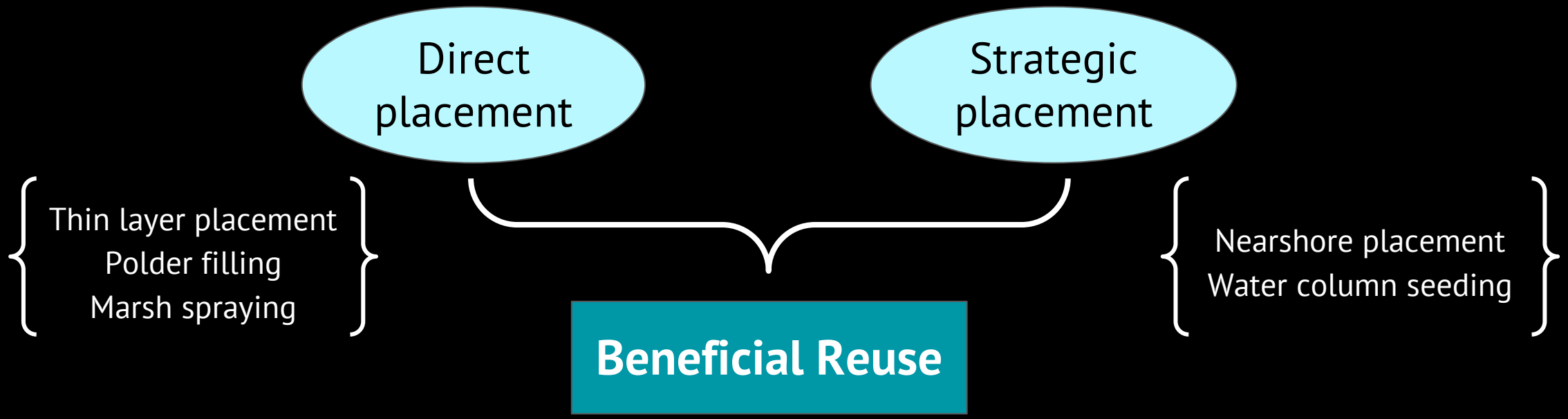
18 October 2022
BPC Dredging & Beneficial Reuse Workshop

SFEI AQUATIC SCIENCE CENTER

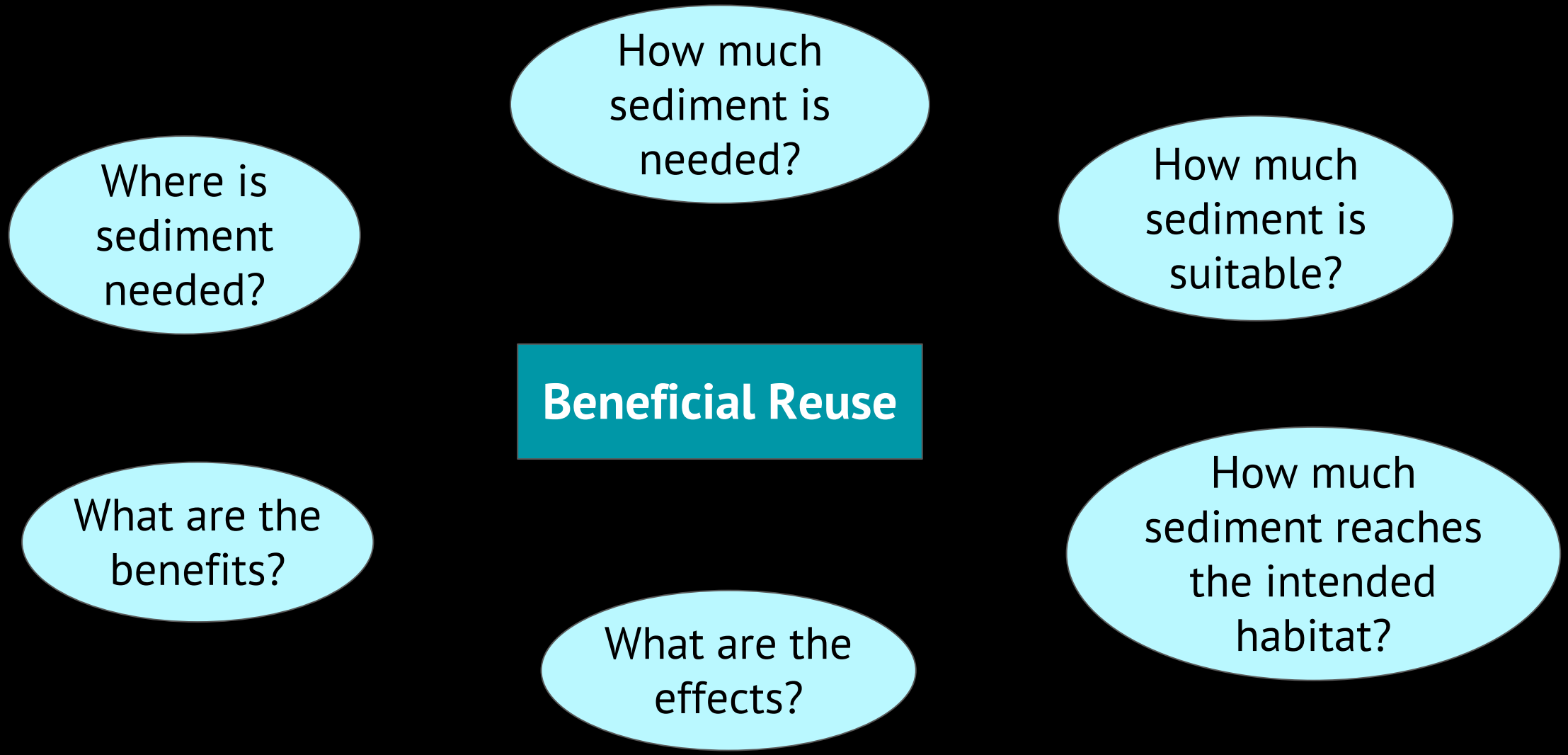
Volume of sediment needed for tidal marshes and tidal flats by 2100


Volume of sediment needed for tidal marshes and tidal flats by 2100
Current landscape and management approaches
• natural deposition
• dredged sediment in subsided areas
New management approaches to access more in-bay and watershed sediment
• upland excavated sediment
• upland reservoir sediment
• additional dredged sediment

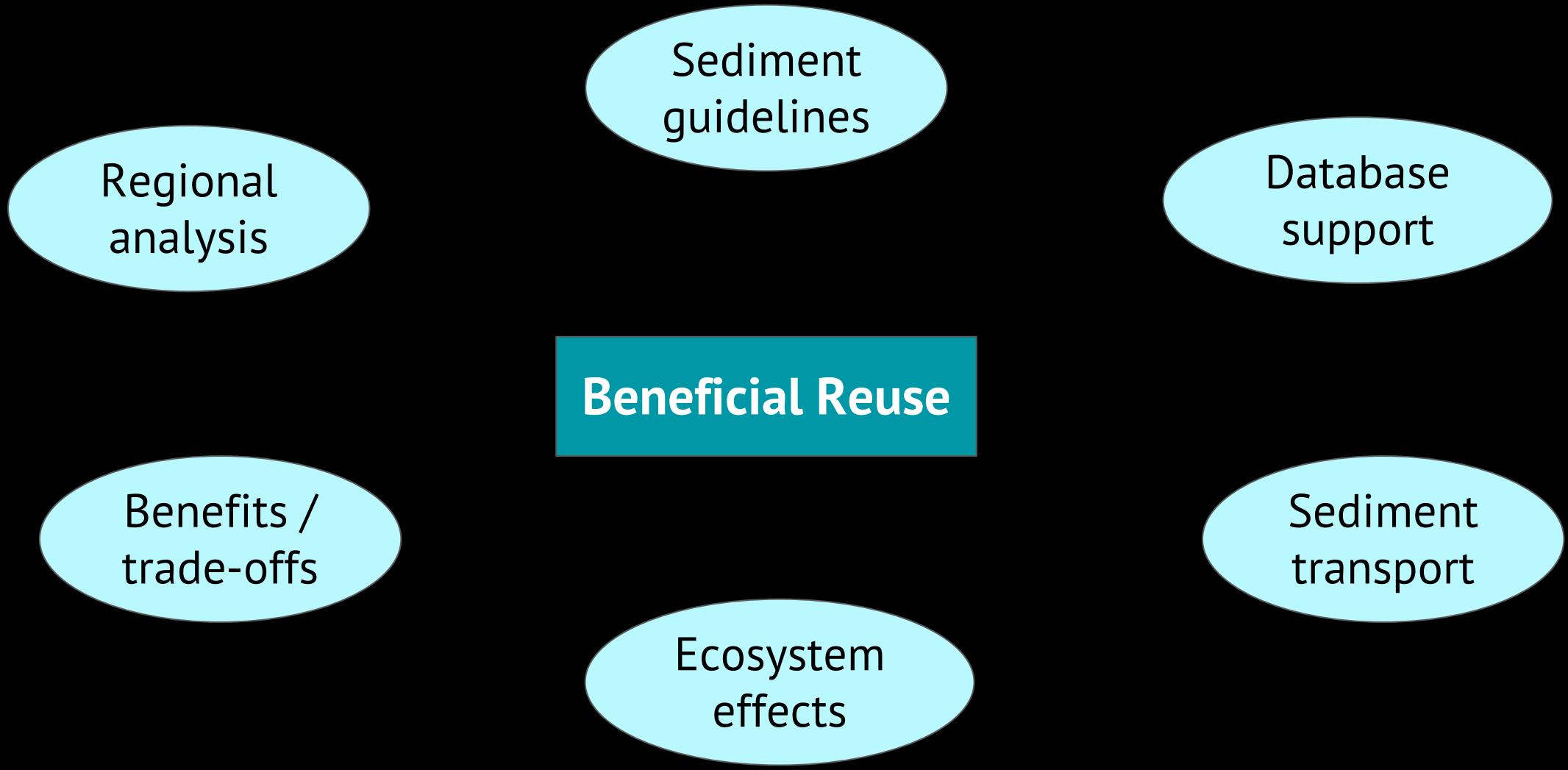
Science to support beneficial reuse



Science to support beneficial reuse



Science to support beneficial reuse



Science to support beneficial reuse - RMP

Work supported by the Regional Monitoring Program for Water Quality in San Francisco Bay

Sediment guidelines

- Sediment monitoring in deep Bay and margin areas
- Review of current sediment guidelines
- Alternate methods for deriving sediment thresholds

Database support

- DMMO database maintenance and improvements
- SediMatch web tool

Sediment transport

- Sediment Conceptual Model
- Bay to marsh sediment transport
- Watershed sediment loading

Science to support beneficial reuse - USACE

Work supported by the USACE RDMMP and Strategic Shallow Water Placement Pilot (1122)

Regional analysis

- Regional maps and narrative highlighting key locations (RDMMP)

Sediment transport

- Focused sediment transport modeling (1122)
- Post-project monitoring (1122)
- Expanded sediment transport modeling (RDMMP)

Ecosystem effects

- Before and after monitoring of sediment and benthic habitats (1122)
- Ecosystem effects modeling at key sites (RDMMP)

Benefits & trade-offs

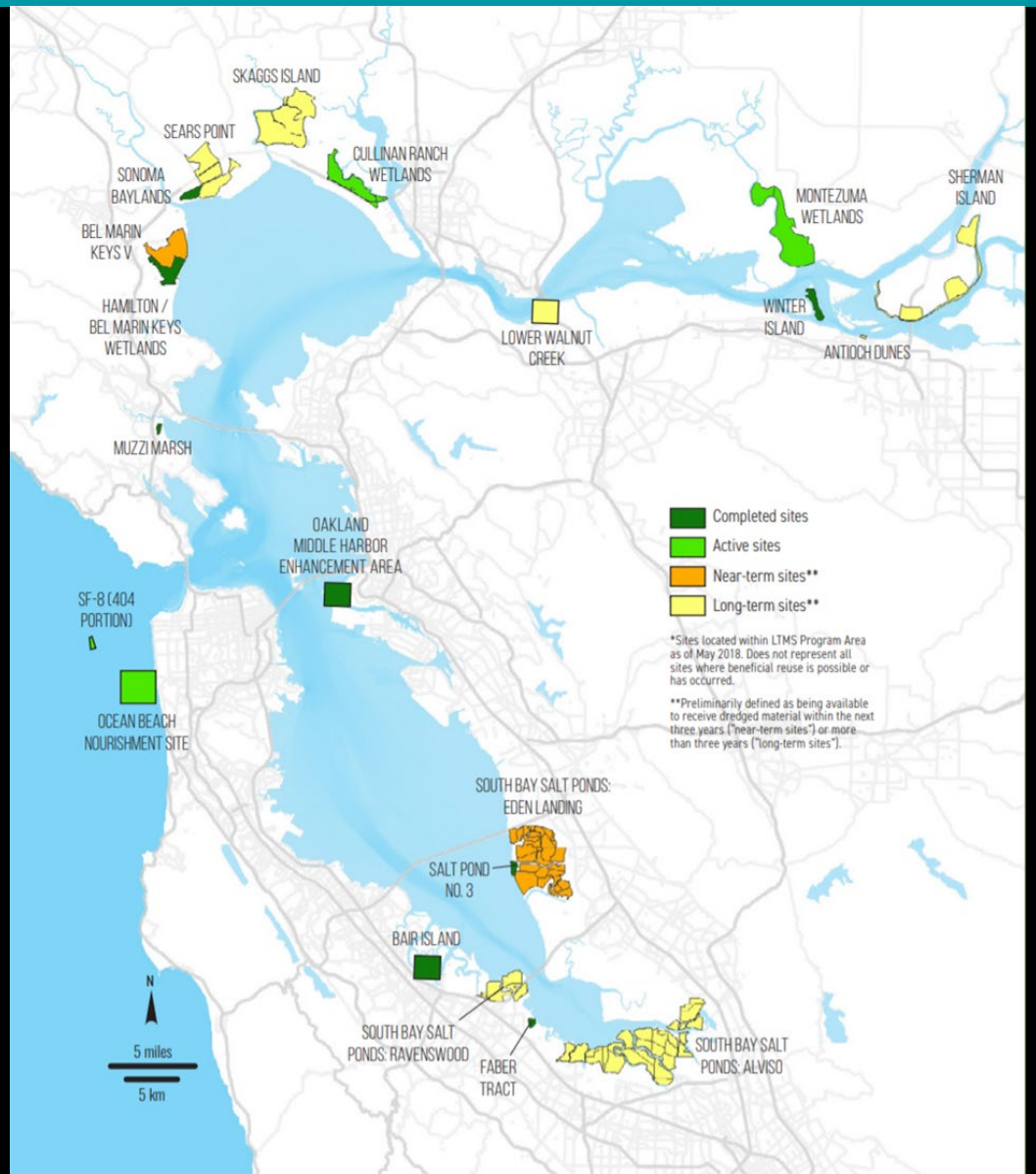
- Cost-benefit analysis of beneficial reuse options (RDMMP)

Beneficial reuse - Today

Direct placement

Beneficial Reuse

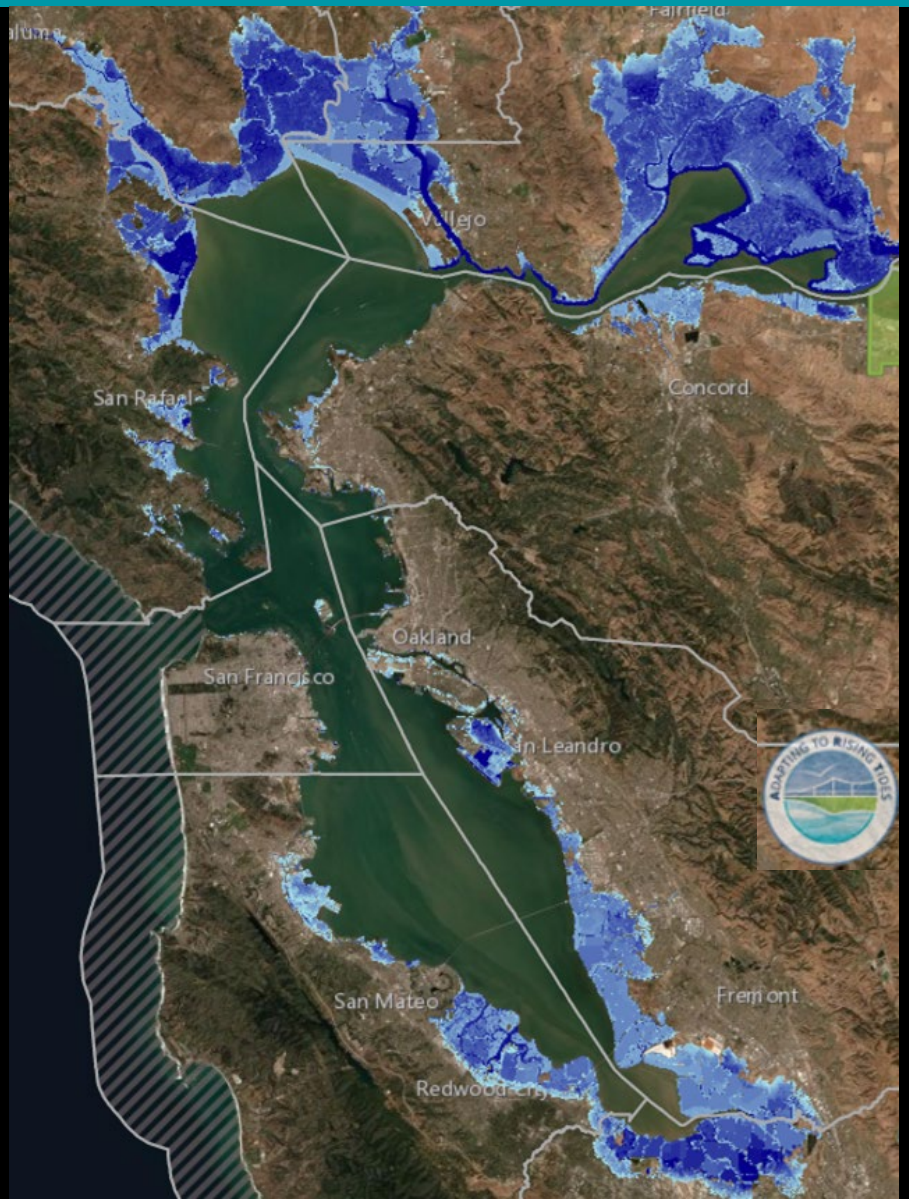
To date, ~25 million cubic yards of dredged sediment have been used to restore over 7,500 acres of wetlands



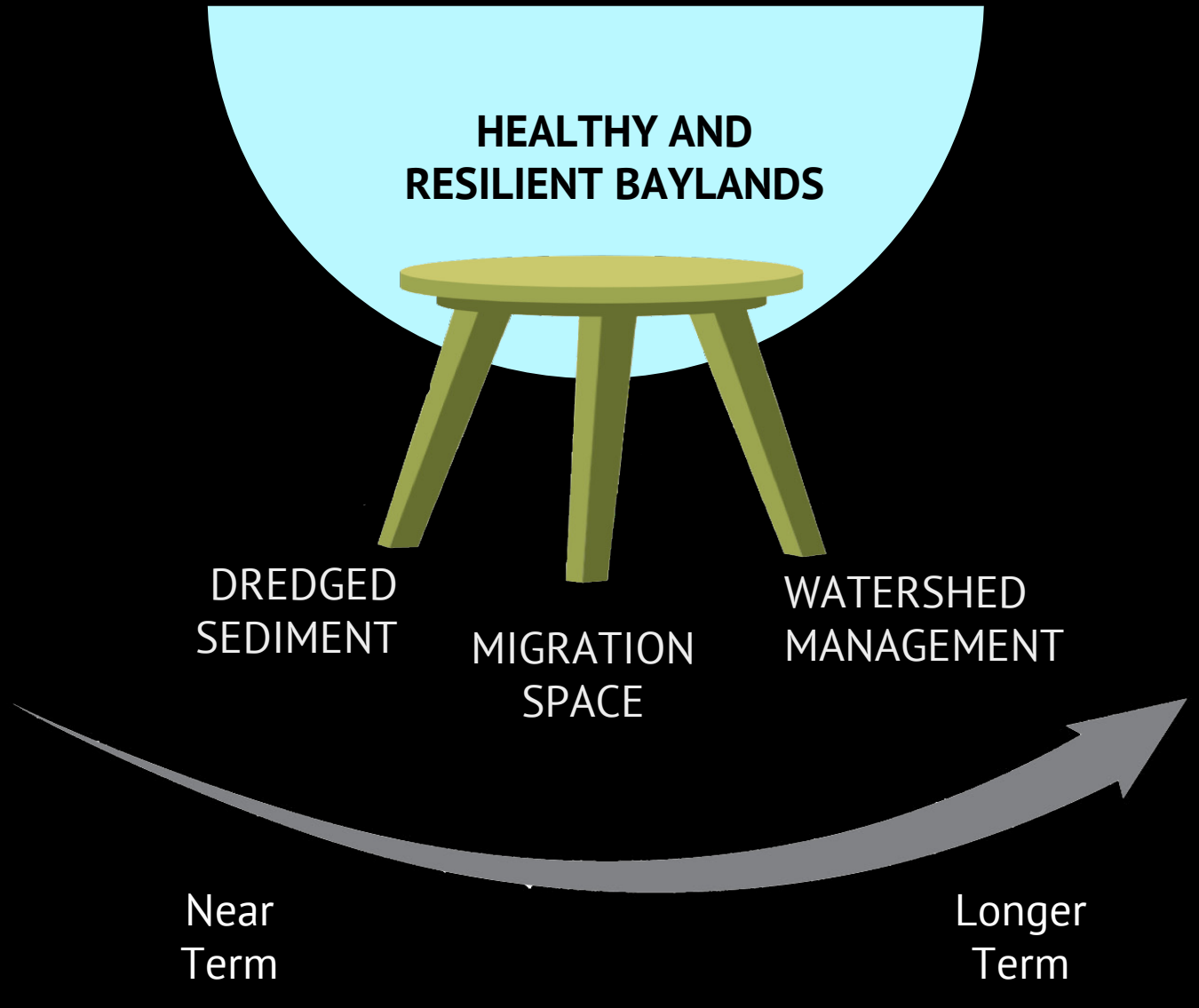
Beneficial reuse - Future

Direct placement + Strategic placement

Beneficial Reuse



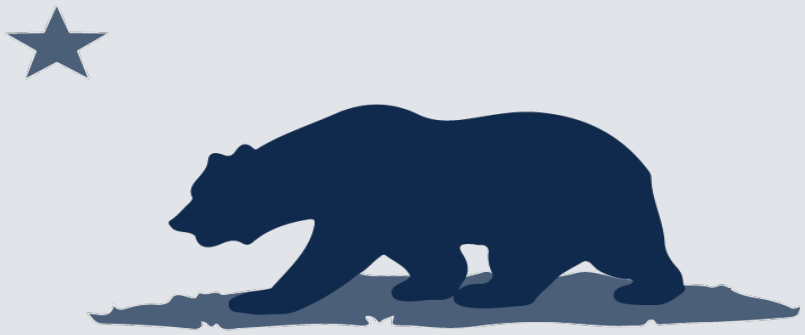
Bayland Adaptation - Not just dredged sediment



Questions?

melissaf@sfei.org

Recent State-Level Climate Resilience Activities



Presented to:

Bay Planning Coalition

Dredging and Beneficial Reuse Workshop

October 18, 2022

Sonja Petek

Legislative Analyst's Office

More Climate Action This Year

- **New and Expanded Efforts Through…**
  - Budget Investments.
  - Legislation.
  - State Agency Sea Level Rise Action Plan.

- **Intent for More Funding in Upcoming Years**
  - Will depend somewhat on state's fiscal condition.

Climate Budget Investments Approved in 2021-22 Budget

(In Millions)	**2021-22**	**2022-23**	**2023-24**	**Totals**
Water and Drought	$3,269	$880	$500	$4,649
Zero-Emission Vehicles	2,732	660	515	3,907
Climate Resilience	369	2,090	1,230	3,689
Wildfire and Forest Health	988	—	—	988
Renewable Energy	172	—	—	172
Totals	**$7,530**	**$3,630**	**$2,245**	**$13,405**

Additional Climate Budget Investments Approved in 2022-23 Budget

(In Millions)	2021-22	2022-23	2023-24	Totals
Energy	$2,250	$2,902	$2,426	**$7,578**
Zero-Emission Vehicles	619	2,508	1,592	**4,719**
Drought Response and Resilience	1,932	411	565	**2,908**
Wildfire and Forest Resilience	80	520	700	**1,300**
Nature-Based Solutions[a]	—	669	428	**1,097**
Extreme Heat[a]	—	165	200	**365**
Totals	**$4,881**	**$7,175**	**$5,911**	**$17,967**

[a] The Climate Resilience package approved in 2021-22 included much of the 2022-23 and 2023-24 funding for nature-based solutions and extreme heat.

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Climate Resilience Package

General Fund (In Millions)

Approved in 2021-22

Program	Department	2021-22	2022-23	2023-24	Totals
Multi-Benefit and Nature-Based Activities		**$46**	**$975**	**$350**	**$1,371**
Multibenefit and nature-based activities and projects	Various	—	$593	$175	$768
Protect fish and wildlife from changing conditions	WCB	$31	222	100	353
Habitat restoration projects	DWR	—	125	75	200
Protect fish and wildlife from changing conditions	CDFW	15	35	—	50
Community and Regional Activities		**$240**	**$325**	**$255**	**$819**
Transformative Climate Communities Program	SGC	$115	$165	$140	$420
Regional climate adaptation planning and implementation grants	OPR/SGC	25	125	100	250
Resilience projects on state conservancy lands	Conservancies	60	—	—	60
Climate adaptation planning grants	OPR	10	10	5	25
Environmental Justice Initiative	Cal EPA	10	10	5	25
Grants to build local capacity for climate projects (SB 1072)[a]	SGC	10	10	—	20
California Climate Action Corps	Cal Volunteers	5	5	5	14
Develop Vulnerable Communities Platform and enhance Cal-Adapt website	OPR	5	—	—	5
Extreme Heat Activities		**$50**	**$325**	**$425**	**$800**
Activities to mitigate extreme heat	Various	—	$150	$150	$300
Urban greening and forestry programs	CNRA	$50	100	100	250
Community resilience centers	SGC	—	25	75	100
Extreme heat grant program	SGC	—	25	75	100
Low-income weatherization program	CSD	—	25	25	50
Ocean and Coastal Resilience Activities		**$12**	**$400**	**$200**	**$612**
Coastal protection projects	SCC	—	$350	$150	$500
Coastal protection activities and projects	OPC	—	50	50	100
Implement Parks sea level rise adaptation strategy	Parks	$12	—	—	12
Other Climate Resilience Activities		**$22**	**$65**	**—**	**$87**
Biomass to hydrogen/biofuels pilot project	DOC	—	$50	—	$50
Fifth California Climate Assessment	Various	$22	—	—	22
Fluorinated gas reduction incentive program	CARB	—	15	—	15
Totals		**$369**	**$2,090**	**$1,230**	**$3,689**

[a] Chapter 377 of 2018 (SB 1072, Leyva).

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Nature-Based Solutions Package

General Fund, Unless Otherwise Noted (In Millions)

Approved in 2022-23

Program	Department	2022-23	2023-24	2024-25	Total
Land Acquisition and Management Programs		**$204.0**	**$95.0**	—	**$299.0**
Various WCB programs	WCB	$150.0	$95.0	—	$245.0
Wetlands Restoration Program	CDFW	54.0	—	—	54.0
Regionally Focused Programs		**$271.0**	**$129.0**	—	**$400.0**
Implementation of conservancy programs	Various conservancies	$70.0	$100.0	—	$170.0
Wildlife corridors (Including Liberty Canyon)	CDFW, SMMC	52.0	—		52.0
San Joaquin Valley flood plain restoration	WCB	40.0	—	—	40.0
Natural Community Conservation Program Planning and Land Acquisition	CDFW	36.0	—	—	36.0
Wetlands Restoration Program in Delta	DC	36.0		—	36.0
Climate Smart Land Management Program	DOC	14.0	6.0	—	20.0
Multibenefit Land Repurposing Program	DOC	—	20.0	—	20.0
San Francisco Bay wetlands support	SCC	11.0	—	—	11.0
Redondo Beach wetlands restoration	CNRA	10.0	—	—	10.0
Resource conservation strategies	WCB	2.0	3.0	—	5.0
Youth and Tribal Programs		**$109.0**	**$42.0**	**$1.0**	**$152.0**
Tribal program	CNRA	$70.0	$30.0	—	$100.0
Local and Tribal Nature-Based Solutions Corps	CCC	38.0	11.0	—	49.0
Tribal staffing	CNRA	1.0	1.0	$1.0	3.0
Sea-Level Rise Programs		**$75.0**	**$152.0**	**$19.0**	**$246.0**
Coastal adaptation projects	SCC	$37.5[a]	$97.0	$9.0	$143.5
Coastal adaptation projects and efforts	CNRA (OPC)	37.5[a]	55.0	10.0	102.5
Other Programs		**$9.8**	**$10.3**	—	**$20.0**
Healthy Soils Program	CDFA	—	$10.0	—	$10.0
Compost Permitting Pilot Program	CalRecycle	$7.5	—	—	7.5
Partnerships and improvements	CNRA	2.0	—	—	2.0
California nature support	CNRA	0.3	0.3	—	0.5
Totals		**$668.8**	**$428.3**	**$20.0**	**$1,117.0**

[a] Greenhouse Gas Reduction Fund.

Sea-Level Rise and Coastal Protection

Funding Approved in 2021-22 and 2022-23 for State Coastal Conservancy and Ocean Protection Council

(In Millions)	2022-23	2023-24	2024-25
Climate Resilience Package[a]	$400	$200	—
Nature-Based Solutions Package[a]	76	152	$19
Additional Funding Approved	120	300	—
Totals	**$596**	**$652**	**$19**

[a] This funding was included in earlier slides, but is shown here to highlight amounts for sea-level rise and ocean protection.

Sea-Level Rise and Coastal Protection

(Continued)

- **Budget Statutes Specify Funding Shall Support Projects…**
  - "To protect communities and natural resources from sea level rise…priority given to projects that adapt public infrastructure along the coast, including urban waterfronts, ports, and ecosystems."
  - "That conserve, protect, and restore marine wildlife and healthy ocean and coastal ecosystems."
  - "To protect, restore, and increase the resilience of coastal and ocean ecosystems and coastal watersheds."
    - Including projects "that are consistent with the **San Francisco Bay Restoration Authority Act**…including, but not limited to, projects that address sea level rise, flood management, and wetland restoration."

Coastal Resilience Legislation: 2021

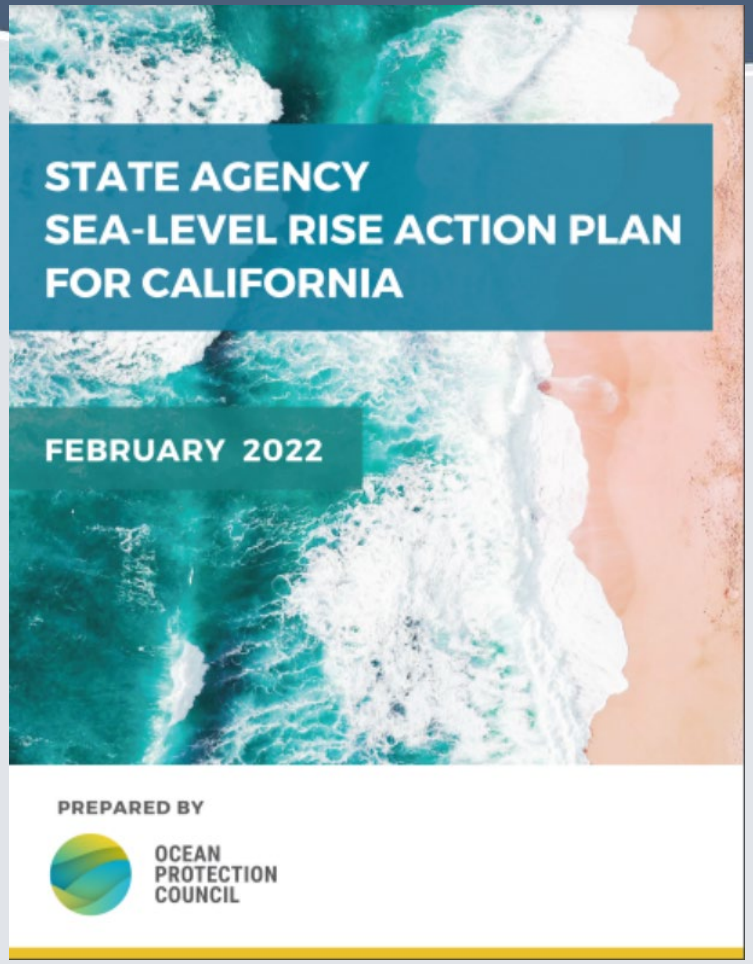
- **AB 72 (Petrie-Norris): Coastal Adaptation Project Permitting**
- **SB 1 (Atkins): Sea-Level Rise Planning**

Climate Resilience Legislation: 2022

- **SB 852 (Dodd): Climate Resilience Districts**
- **AB 1902 (Aguiar-Curry): Amendments to Law on Resource Conservation Districts**
- **AB 1384 (Gabriel): New Requirements for Climate Adaptation Strategy**

State Agency Sea-Level Rise Action Plan

- **Key Action 5.15: Address Regulatory and Financial Barriers Related to Reuse of Sediment and Soil Through a Policy Amendment to the Bay Plan**



Key Takeaways

- **Continuing State Focus on Climate Adaptation**
  - Some funding responds to emergency conditions.
  - Many projects in planning phases.
  - Numerous projects provide support through grants.
- **Significant State Funding Available**
  - Big focus on nature-based strategies and coordination across agencies and departments.
- **State-Local Partnerships Will Be Essential**
  - Many of the goals and objectives require buy-in and action by locals.
  - How can the state support and encourage effective local actions?

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Sonja Petek,
Sonja.Petek@lao.ca.gov