

# Tijuana River Sediment Management Work Plan TRNERR Advisory Committee February 7, 2023



# Agenda

- Sediment Management Work Plan Development
  - Importance
  - Process
- Document Overview
- Outcome Actions
  - Short Term
  - Long Term
- Next Steps
  - Public Meeting February 22, 2023
  - Final Sediment Management Work Plan
- Discussion

# Introductions



**Chris Helmer**  
**Project/Agency Lead**  
**City of Imperial Beach**

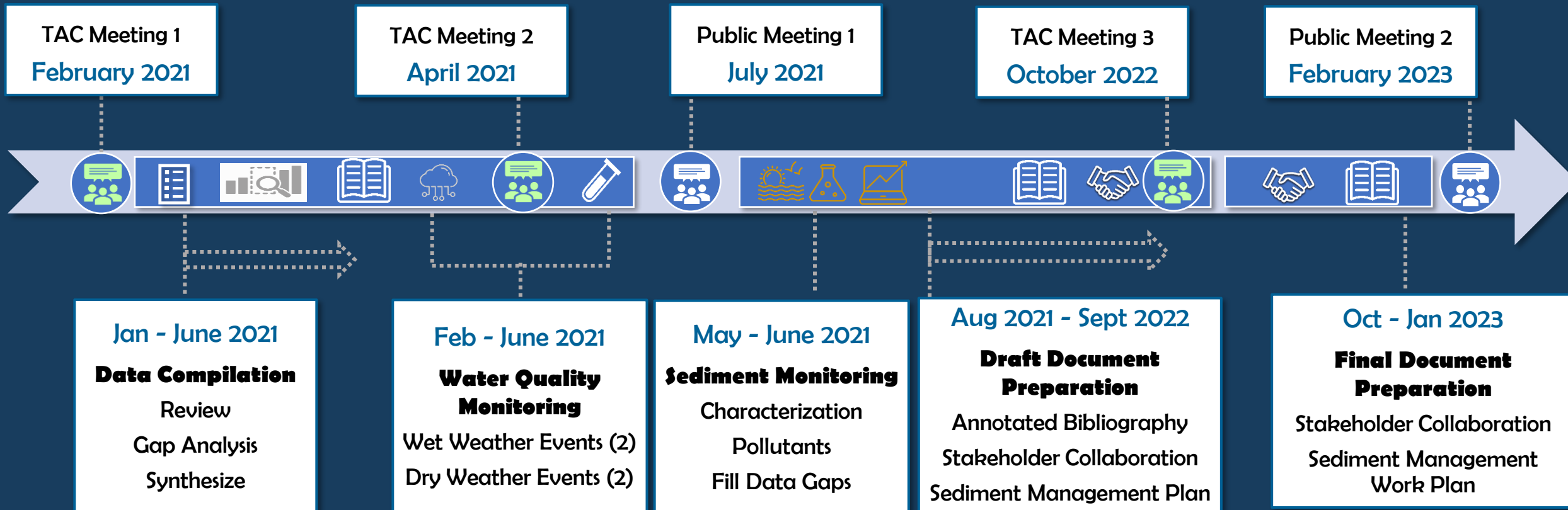


**Bryn Evans**  
**Consultant Project Manager**  
**Dudek**

# Importance of this Work

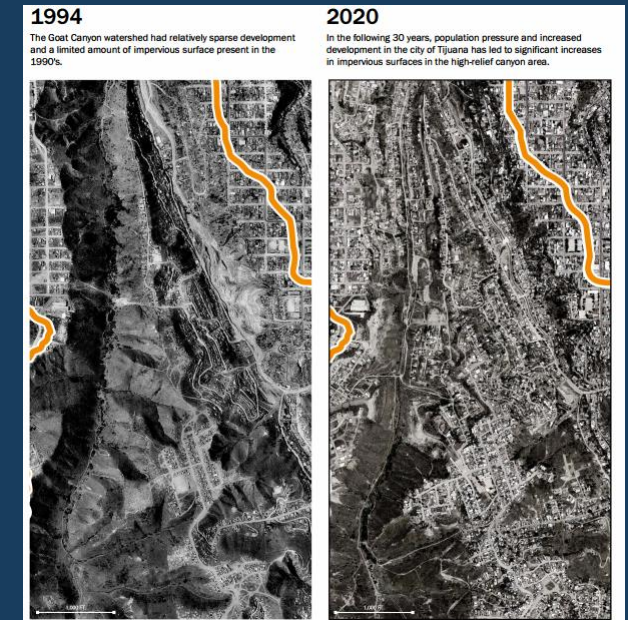
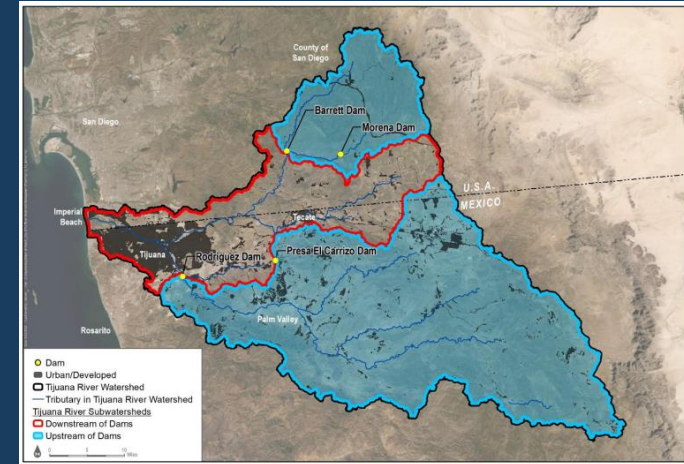
- Serves as framework for sediment management in Valley
  - Planning/Budgeting
  - Implementing
  - Permitting
- Outlines proactive follow up actions
  - Coordination
  - Source controls
  - Reduce barriers to reuse
  - Standardized/streamlined permitting
  - Data management efficiency
  - Science advancement support
  - Develop sustainable funding source(s)
- Sets short- & long-term goals for coordinated & optimized approach

# Project Overview- Work Plan Development

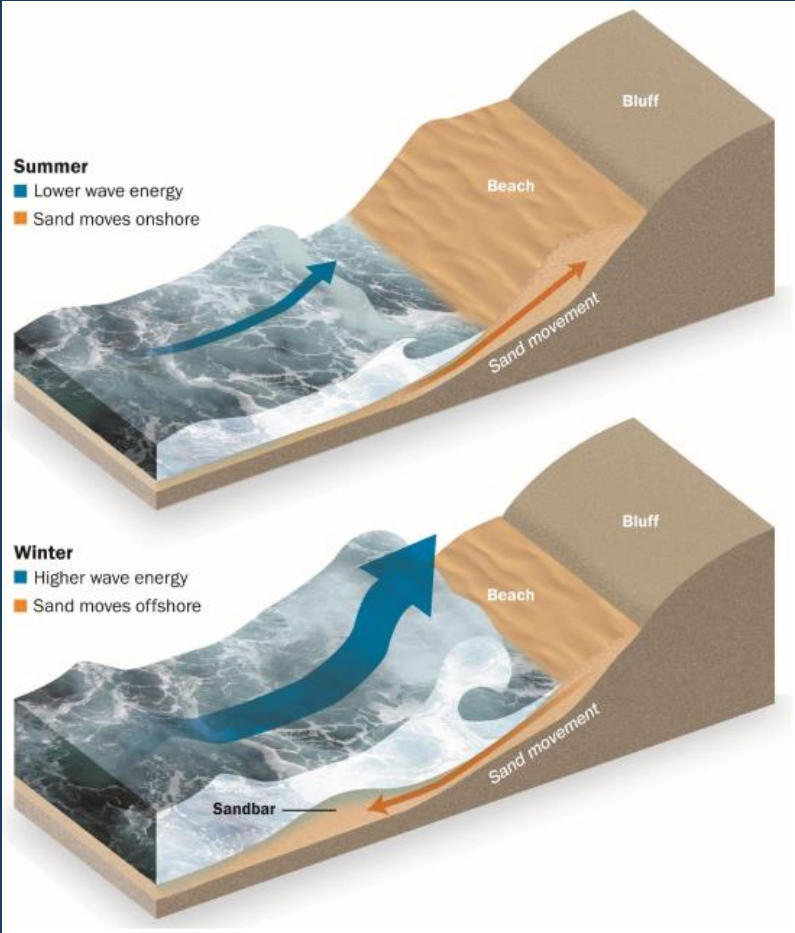
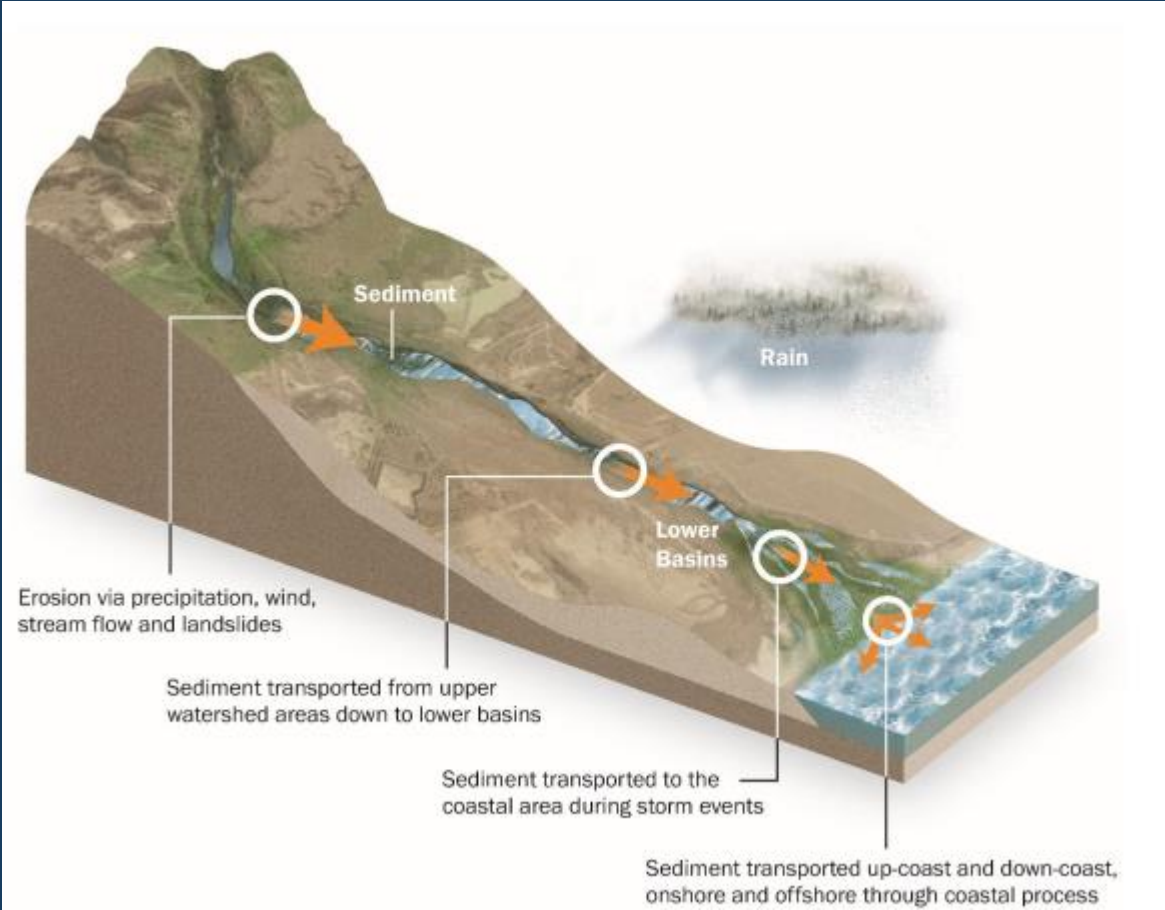


# Draft Plan Overview

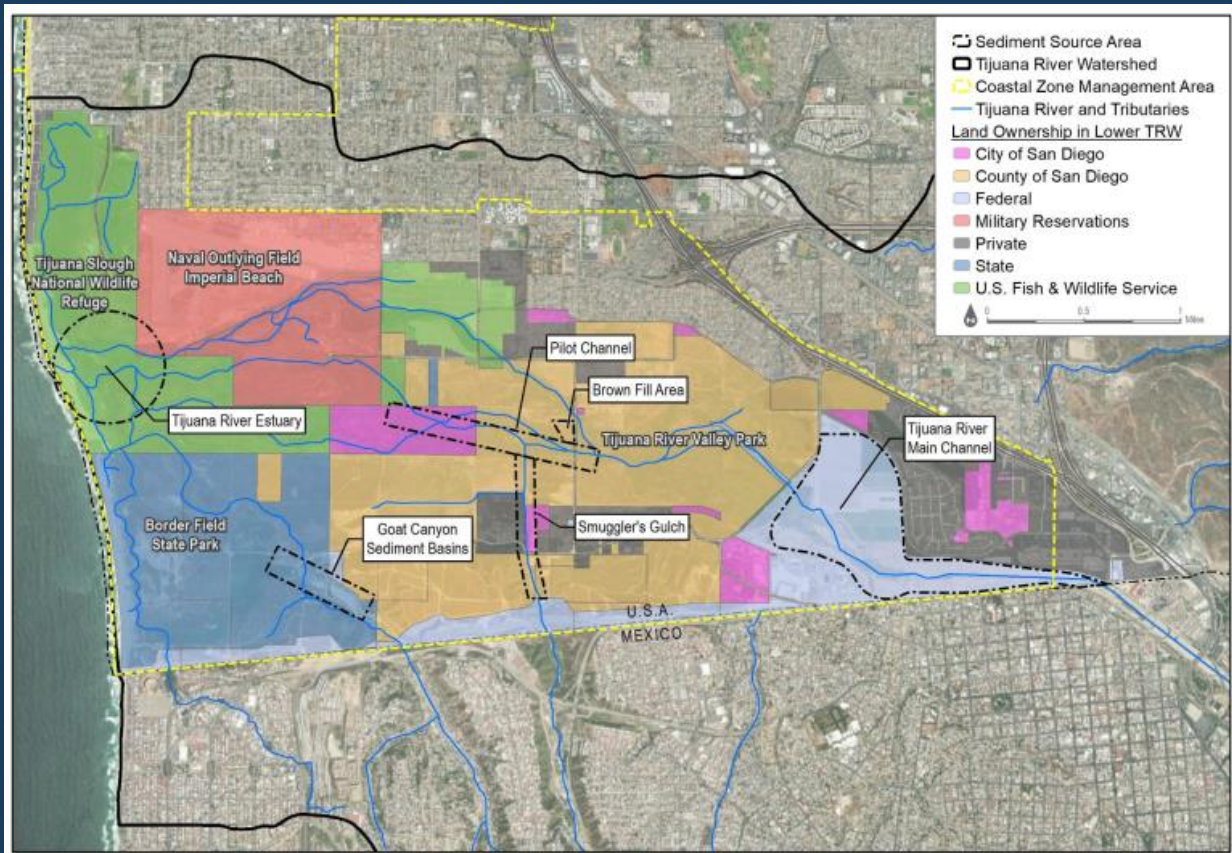
1. Introduction
2. Watershed and Coastal Processes
3. Sediment Sources
4. Management Components
5. Management Activities
6. Regulatory Framework
7. Monitoring and Reporting
8. Recommendations



# Watershed and Coastal Processes



# Tijuana River Valley Sediment Sources



## SEDIMENT SOURCE

### 3.2.1 Goat Canyon

**Location** Lower reach of Goat Canyon/Los Laureles Canyon near Monument Road in Border Field State Park

**Ownership** California State Parks

**Type of Source** Constructed sediment basins

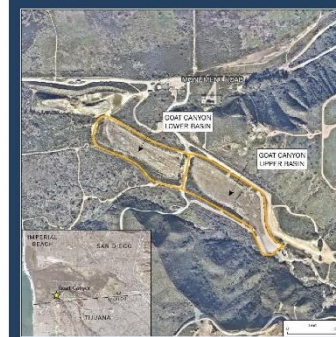
**Size** 19 acres

**Estimated Annual Sediment Yield** 25,000-60,000 cubic yards

**Maintenance** Annual; includes processing to remove trash/debris at an on site processing area

**Other Considerations** When at capacity, sediment-laden flows are bypassed to areas downstream including the Model Marsh (associated with the Tijuana Estuary Tidal Restoration Program)

#### Location of Goat Canyon Sediment Basins



Goat Canyon Upper Basin prior to excavation (2022)



#### Summary of Sediment Characteristics

<b>Particle Size (approximate)</b>	60% sands, 40% fines
<b>Color</b>	Light gray to pale olive, micaceous
<b>Contaminants</b>	No hazardous waste
<b>Trash Rating</b>	Very High

See Table 3.1 for additional detail and references



# Sediment Management Components

## 1 EXCAVATION OR DREDGING



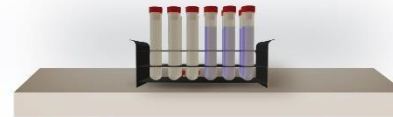
- Earthmoving equipment place sediment into stockpiles for ease of removal and hauling.
- Excavation/dredging may be required to maintain a river's channels, estuary, and inlet.

## 2 STAGING



- Required during sediment processing (sorting/separation of rock, sand, and debris).
- Ideally located on previously disturbed dirt that would allow for safe operation of equipment.

## 3 SEDIMENT CHARACTERIZATION AND TESTING



- Requirements and methods for sediment characterization and testing are selected based on the potential reuse opportunities or disposal options.

## 4 PROCESSING (de-watering, screening, separation, debris removal, contaminant stabilization)



- Material may require processing methods such as screening, dewatering and stabilization.
- Depending upon contamination level, stabilization/solidification may be required for certain disposal alternatives.

## 5 TRANSPORT



- Trucking will likely be used for transportation.
- Discharge by pipeline used if material is hydraulically dredged from river and estuary channels.

## 6 RE-USE/DISPOSAL



- Beneficial re-use is the repurposing of sediment from a waste product into a resource. Options for re-use include beach nourishment and levee rehabilitation, among others.
- Disposal refers to the framing of sediment as a waste material which will be taken to an upland landfill.

# Sediment Management Activities/Pathways

Table 5-1. Sediment Management Alternatives Summary

Activity	Composition	Contaminants	Environmental Considerations	Constructability Considerations	Transport Considerations	Volume	Timing	Cost
Beach and Nearshore Nourishment	Generally sand with limited fines up to 25%. Higher percentage fines material may be viable in certain conditions	Material needs to be free from trash, plastics, hazardous substances (i.e., heavy metals and petroleum), fecal coliform bacteria; Potential microplastics considerations	Improves beach profile, may provide limited sea level rise mitigation Potential for improved nearshore habitat	Conventional land-based equipment	Truck transport costs may limit receiver site locations; Potential for pipeline transport in certain conditions	Approximately 50,000 cy to 250,000 cy per placement event	Wet season (fall and winter)	\$20-\$30 per cy
Thin-Layer Sediment Addition	Silts and clays to coarse sand	Material needs to be free from trash, plastics, hazardous substances (i.e., heavy metals and petroleum), fecal coliform bacteria; Potential microplastics considerations	Habitat improvement, improved tidal hydrology and circulation, and increased resilience to sea level rise	Conventional dredging equipment and dredge/hydraulic jetting device	Local applications only; off-site transport cost prohibitive	Approximately 3,000 cy per acre filled	Biological work window limited to September 1 - February 15 (i.e., outside breeding season for endangered birds)	
Levee Rehabilitation	Fines and sand Cobble and rock may be used as riprap	Material needs to be free from trash, plastics, hazardous substances (i.e., heavy metals and petroleum), fecal coliform bacteria	Improved flood protection	Conventional land-based equipment Geotechnical constraints	Local applications only; off-site transport cost prohibitive	Unknown; likely limited material needed	Potential constraints associated with adjacent sensitive habitat	
Construction and Landscape Material	Must meet geotechnical engineering and soil properties of project or product	Material needs to be free from trash, plastics, hazardous substances (i.e., heavy metals and petroleum), fecal coliform bacteria	Transport distance may have ancillary impacts	Conventional land-based equipment Geotechnical constraints-material must meet project-specific criteria	Truck transport costs may limit receiver site locations	Variable; depends on receiver site project need On the order of 10,000 cy	Potential daily transport timing limitations	
Mine Reclamation	Fines, sands, cobble, rock	Material needs to be free from trash, plastics, hazardous substances (i.e., heavy metals and petroleum), fecal coliform bacteria  SPLP testing may be required by RWQCB <sup>a</sup>	Potential for habitat restoration	Conventional land-based equipment	Truck transport costs may limit receiver site locations	Approximately 1 million cy	no restrictions/constraints	
Commercial Landfill (Landfill Daily Cover)	Fines, sands, cobble, rock	Screen material to separate trash and sediment Meet individual landfill WDRs and the Integrated Waste Management Board regulations (CalEPA) <sup>b</sup> Potential testing required--RWQCB WET or STLC <sup>c</sup>	Limited direct environmental benefits; Indirect benefits include reuse of excavated material	Conventional land-based equipment	Truck transport costs may limit receiver site locations	Approximately 80-120 cy per day (contact the landfill for capacity)	Potential daily transport timing limitations	

**BENEFICIAL RE-USE AND DISPOSAL**

## 5.1 Beach and Nearshore Nourishment

**What is Beach and Nearshore Nourishment?**

**Definition:** The placement of appropriate material onto the beach or nearshore environment either in or just outside the surf zone. Beach and nearshore nourishment are the same sediment management pathway even though different actions are performed.

**Goal:** Support the sediment transport within the littoral cell and increase the volume of sediment with the littoral zone.

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**Summary**

<b>Composition</b>	Sand with limited fines up to 25%
<b>Contaminants</b>	Material needs to be free from trash, plastics, hazardous substances (i.e., heavy metals and petroleum), fecal coliform bacteria, Potential microplastics considerations
<b>Volume</b>	50,000 cy to 250,000 cy per placement
<b>Timing</b>	Wet Season (fall and winter)
<b>Cost</b>	\$20-\$30 per cy

**Characteristics of Sediment**

<b>Location</b>	Near source by truck, may be able to transit further by barge/hopper dredge
<b>Composition</b>	Sand and up to 50% fines
<b>Color</b>	Similar color to beach is preferred
<b>Contaminants</b>	Clean
<b>Trash</b>	Removed
<b>Plastics</b>	No

**Considerations**


Environmental	Constructability	Distance
Improves beach profile, may provide limited sea level rise mitigation. Potential for improved nearshore.	Conventional land-based equipment.	Truck transport costs may limit receiver site locations Potential for pipeline transport in certain conditions.

**COST** Excavating • Processing • Transporting • Placing ▶▶ \$20/cy - \$30/cy

- ▶ Does not include mobilization/demobilization of excavation/dredging and transportation equipment, any extraneous costs such as remediation, contractor markup, and contingency, material characterization, and post placement sediment monitoring.
- ▶ Sediment testing and treatment are separate costs that can greatly vary depending on the different tests/treatments that are required.

**Example Project**

**Tijuana Estuary Fine Sediment Fate and Transport Demonstration Project**



- ▶ Placed over 40,000 cy of material obtained from the Goat Canyon sediment basins at the waterline at low tide south of the river mouth.
- ▶ Material contained a high percentage of fine sediment consisting of silt and clay (approximately 40%).
- ▶ Material was excavated from the basins, stockpiled at a nearby processing pad, sorted for trash and debris, tested for grain size and chemistry, and trucked to and placed in the intertidal zone south of the Tijuana River mouth.
- ▶ Environmental conditions showed temporarily elevated ocean turbidity but rapid dispersion with no permanent impacts, and no significant levels of seabed burial of nearshore and offshore habitat areas.

# Regulatory Framework

Regulatory Level	Agencies	Applicable Legislation/Regulatory Guidance
Federal	U.S. Army Corps of Engineers U.S. Fish and Wildlife Service U. S. Environmental Protection Agency National Oceanic Atmospheric Administration	Clean Water Act of 1977 Rivers and Harbors Act (Section 10) National Environmental Policy Act of 1969 Marine Protection, Research, and Sanctuaries Act Coastal Zone Management Act Fish and Wildlife Coordination Act of 1958 Federal Endangered Species Act of 1973 Migratory Bird Treaty Act National Historic Preservation Act of 1966 Federal Water Project Recreation Act Resource Conservation and Recovery Act Magnuson-Stevens Fishery Conservation and Federal Antidegradation Policy
State	California Coastal Commission State Water Resources Control Board Regional Water Quality Control Board (RWQCB) California Department of Fish and Wildlife California State Lands Commission California State Department of Parks and Recreation	California Coastal Act of 1976 Porter Cologne Water Quality Act California Ocean Protection Act California Environmental Quality Act Construction General Permit California Endangered Species Act California Toxics Rule California Antidegradation Policy
Regional	RWQCB County of San Diego City of San Diego City of Imperial Beach	National Pollutant Discharge Elimination Syst Discharges from the Municipal Separate Stor San Diego; Order R9-2013-0001 – amended County of San Diego General Plan City of San Diego General Plan Tijuana River Valley Local Coastal Program La San Diego Multiple Species Conservation Pro

	USACE Section 404/10	USFWS/NMFS/CDFW/Local Incidental Take Permit	CCC/Local Cities Coastal Development Permit	CDFW Streambed Alteration Agreement	CDPR Encroachment Permit	SLC Lease of State Lands	RWQCB Section 401 Certification/WDR Enrollment	Local Grading Permit	Other
Beach and Nearshore Nourishment	●	●	●	●	●	●	●	●	
Thin-Layer Sediment Addition	●	●	●	●	●	●	●	●	
Levee Rehabilitation	●	●	●	●	●	●	●	●	
Construction and Landscape Material	●	●	●	●	●	●	●	●	Haul Permit
Landfill Daily Cover	●	●	●	●	●	●	●	●	Haul Permit
Mine Reclamation	●	●	●	●	●	●	●	●	Haul Permit

Notes: ● = Yes; ● = No; ● = Possible.

# Monitoring and Reporting

Beneficial Reuse	Monitoring Requirements						
	Sampling and Analysis Plan Process	Topography/Bathymetry Surveying	Water Quality (at least one of turbidity, DO, Temp, pH, salinity)	Habitat Mapping (Marine, Riparian, Salt Marsh or Upland)	Bird Surveys	Fish and Invertebrates	Burial by Sediment
Beach Nourishment	Yes	Yes	Yes	Yes	Yes	No	Yes
Thin Layer Addition	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mine Reclamation	Yes	Yes	No	No	No	No	No



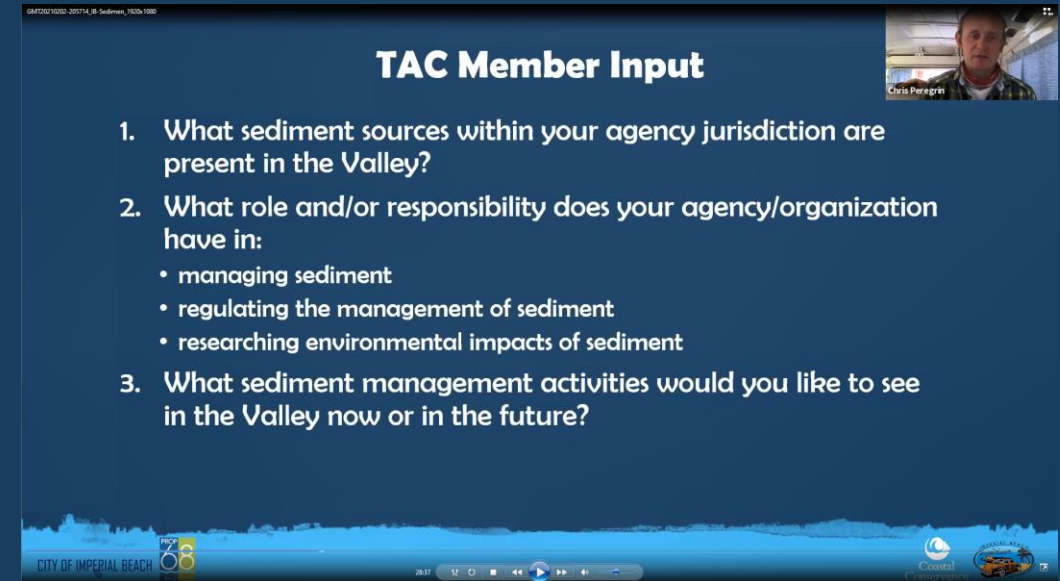
# Stakeholder Collaboration

## TAC Meetings

1. Organizational roles/responsibilities
2. Sediment management actions
3. Short-/Long-term goals

## Agency Meetings

1. Staff roles/responsibilities
2. Organizational needs
3. Process input



The screenshot shows a video player interface. At the top right, there is a small video feed of a man identified as Chris Peregrin. The main content area has a dark blue background with white text. The title 'TAC Member Input' is centered at the top. Below it is a numbered list of three questions. At the bottom of the video player, there are logos for 'CITY OF IMPERIAL BEACH' and 'Coastal Conservancy', along with a video control bar showing a play button and a progress indicator at 28:17.

### TAC Member Input

1. What sediment sources within your agency jurisdiction are present in the Valley?
2. What role and/or responsibility does your agency/organization have in:
  - managing sediment
  - regulating the management of sediment
  - researching environmental impacts of sediment
3. What sediment management activities would you like to see in the Valley now or in the future?

# Recommendations



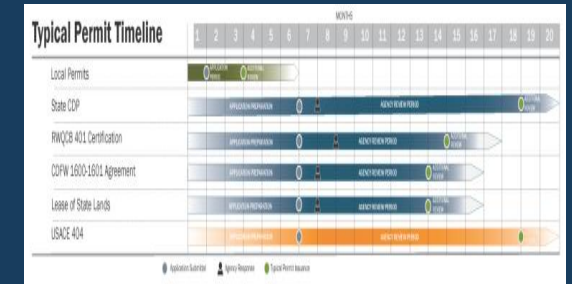
Coordination



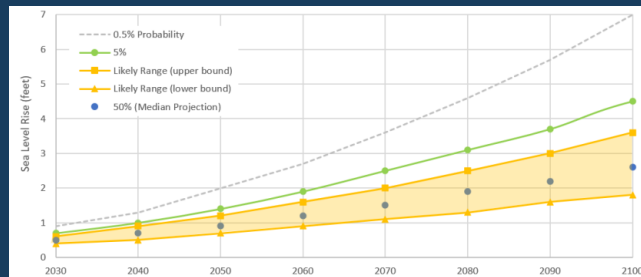
Source Control



Reduce Barriers to Beneficial Reuse



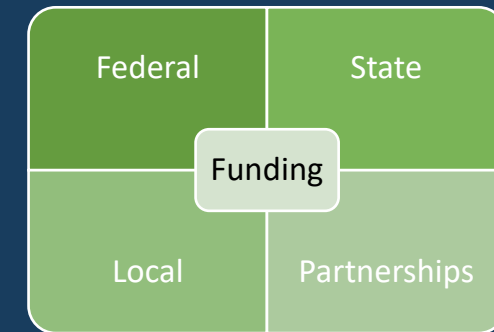
Permitting Strategies



Data Management



Science Advancement



Funding

# Short-Term Goals

1. **Coordinate with Ongoing Processes**
  - Binational Core Group- Sediment
  - TRVRT
  - Regional Sed Mgmt Programs
  - EPA/Eligible Public Agencies
  - Economic and Equity Task Force
2. **Project Development / Implementation Agreement(s)**
  - Smugglers Gulch Sediment Basin
  - Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment
  - TETRP
  - Beach nourishment pilot(s)
3. **Project-level Pre-consultation Meetings**
  - Federal, state and regional agencies
  - ID and follow processing timelines
4. **Legacy Trash/Sediment/Debris Cleanup**
  - Site Prioritization
  - Lead(s)
  - Funding / Permitting
5. **Coordinated Funding Development**
  - Regional approaches
  - Operations and maintenance
6. **University/Research Collaboration**
  - Research and policy priorities
  - Data management and visualization
  - Support future permit streamline efforts

# Long-Term Goals

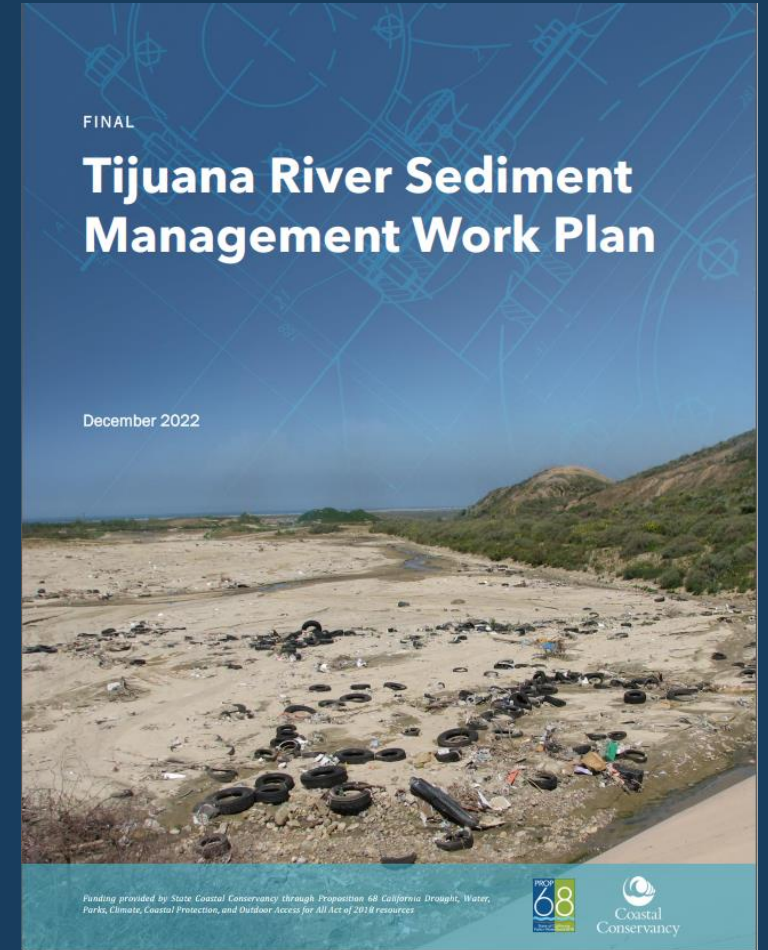
1. **Interagency Implementation Coordination**
  - Valley-wide perspective
  - Funding
  - Source control in Mexico
2. **Build Capacity for Adaptive Management**
  - Sediment management techniques
  - Permitting strategies
  - Monitoring requirements
  - University partnership
3. **Programmatic / Streamlined Environmental Permits**
  - Recurring actions
  - Monitoring and adaptive management needs





# Next Steps

- **Public Meeting #2 (Final)**
  - February 22, 2023
- **Imperial Beach City Council**
  - March 2023
- **Proactively Implement Follow-up Actions**
  - Coordination
  - Project Development
  - Permitting
  - Funding



# Discussion