



Mission Bay PEIR

Restoration of Shoreline

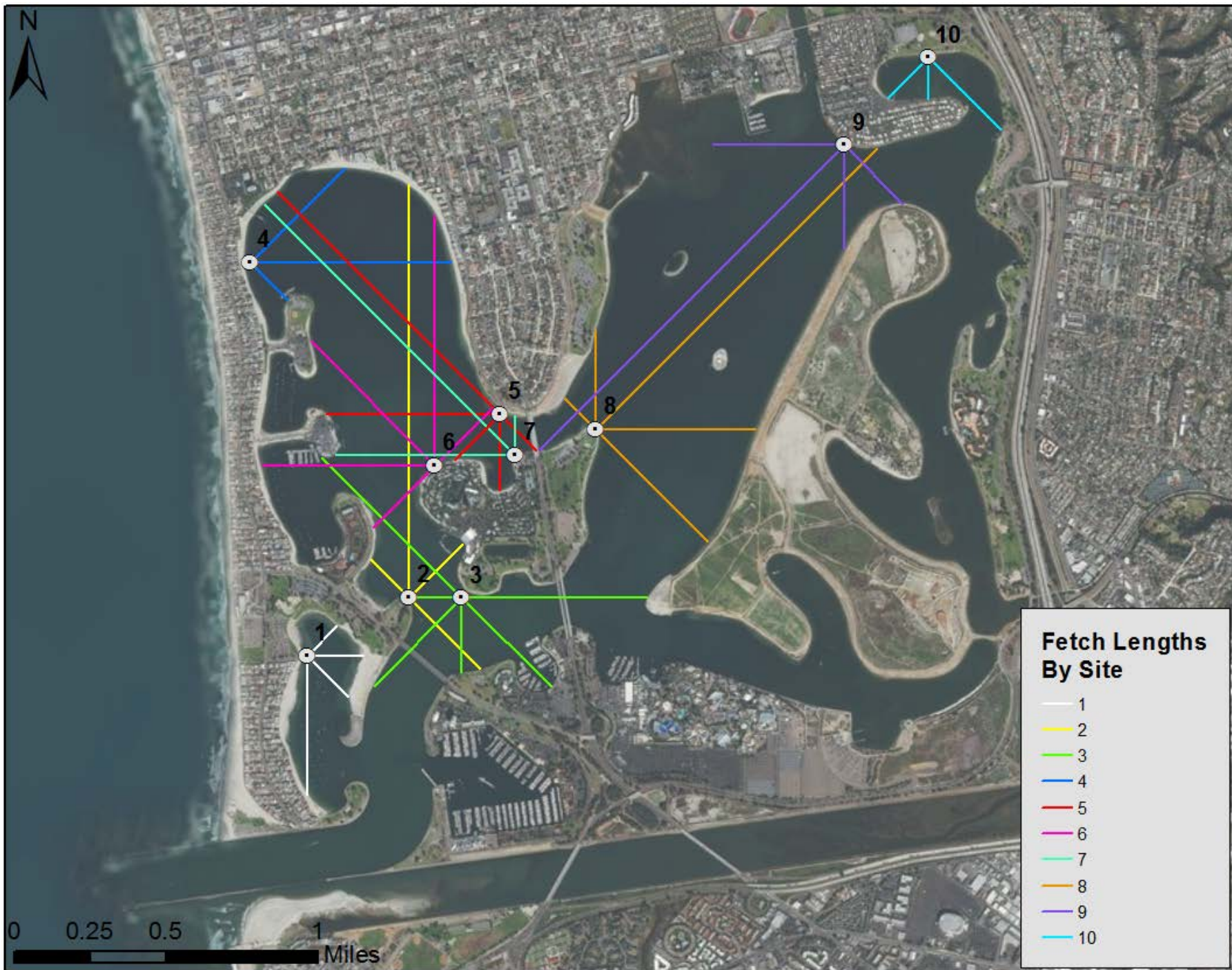
Outline

1. Purpose and Goals
2. Bay-wide Shoreline Assessment
3. West Sail Bay
4. Crown Point
5. Bonita Cove
6. Ventura Cove
7. Vacation Island
 - a. Southwest
 - b. Northwest
 - c. Northeast (Ski Beach)
8. De Anza
 - a. Boot
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9. Summary
10. Questions/Next Steps

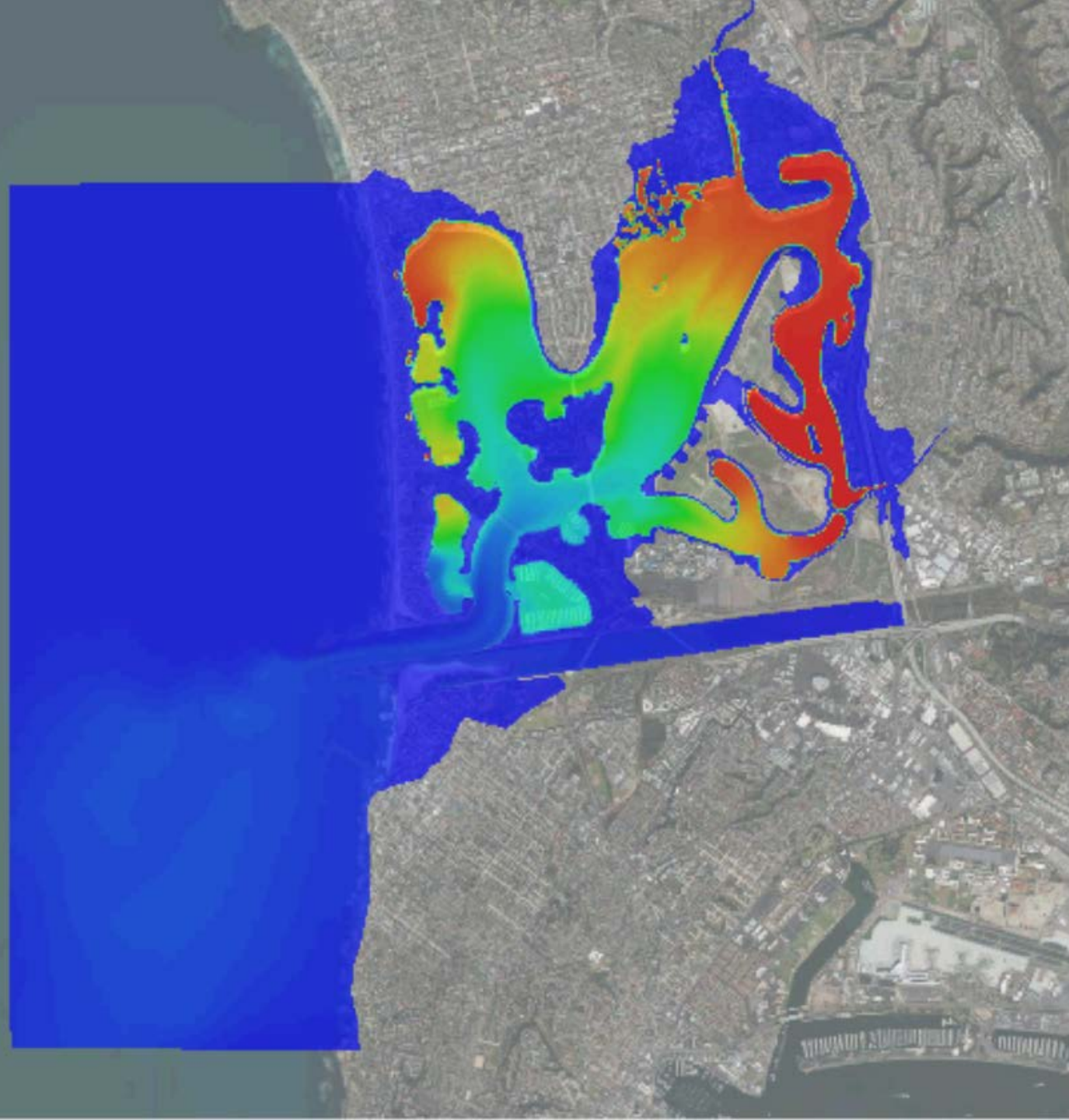
Purpose & Goals

- Review Waves and Tidal Circulation
- Review Bay-Wide Shoreline Assessment
- Discuss Potential Solutions at Vulnerable Sites
- Community Input

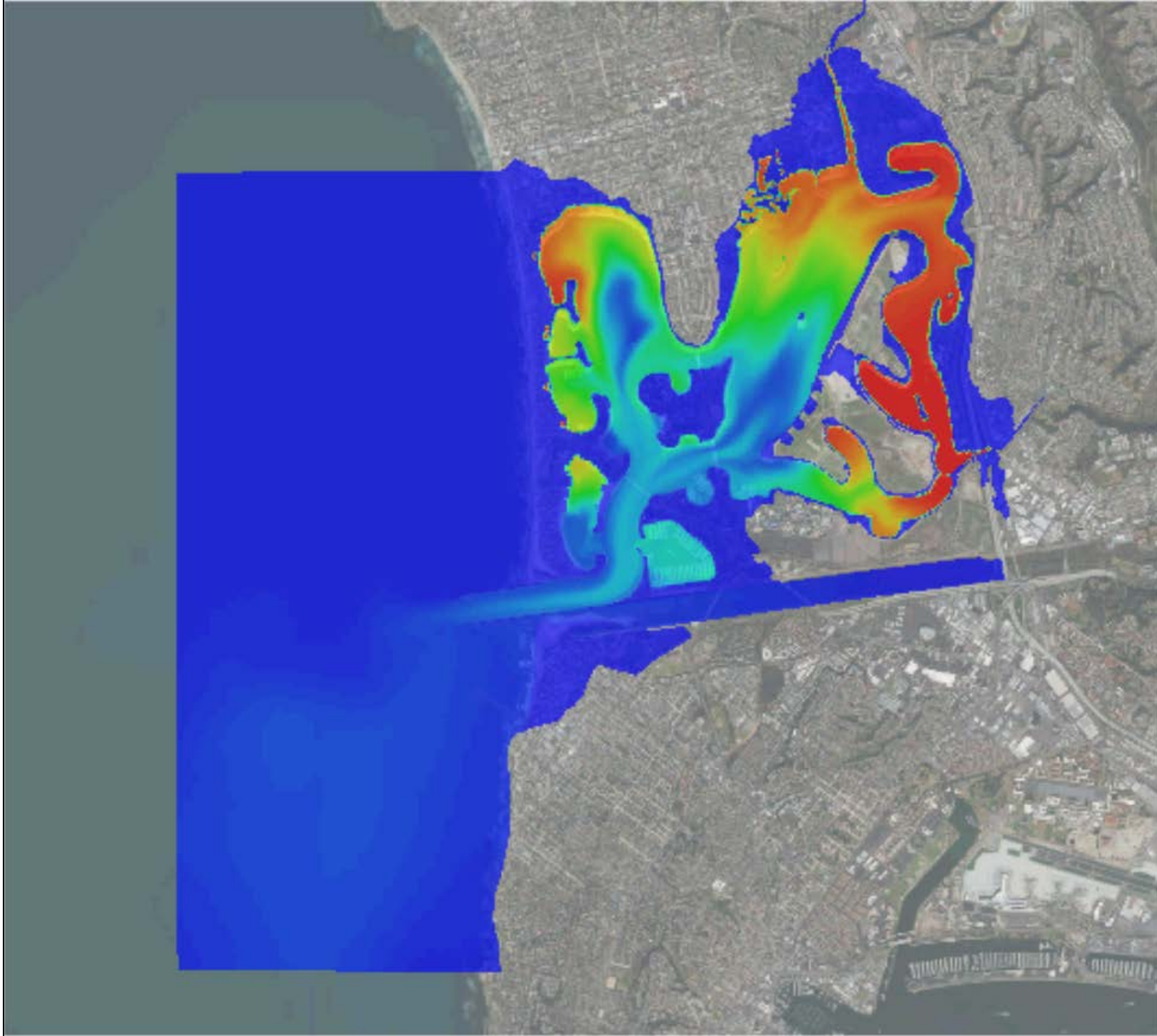
Mission Bay – Fetch (for assessing wind wave propagation)



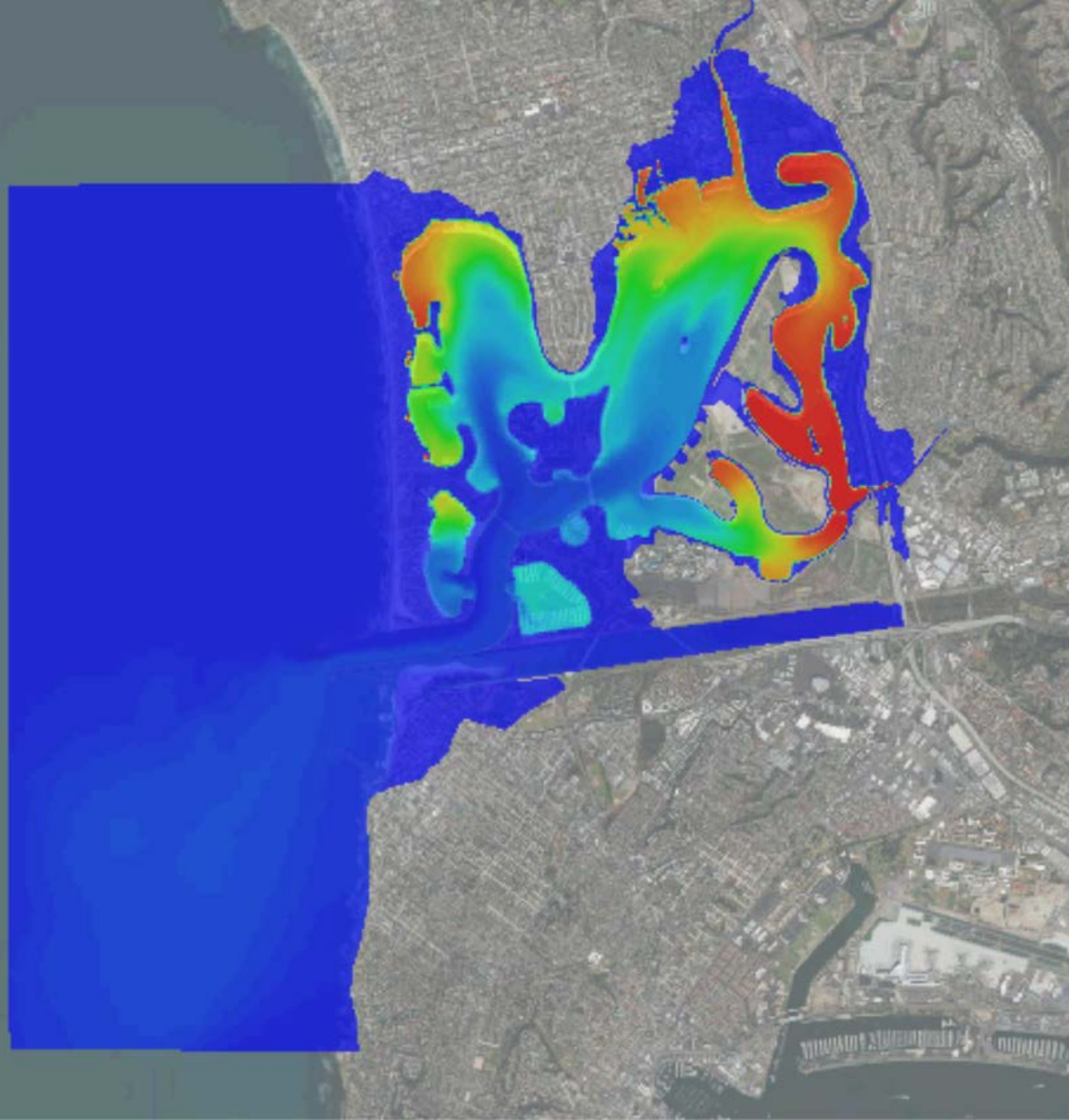
Hydrology Study



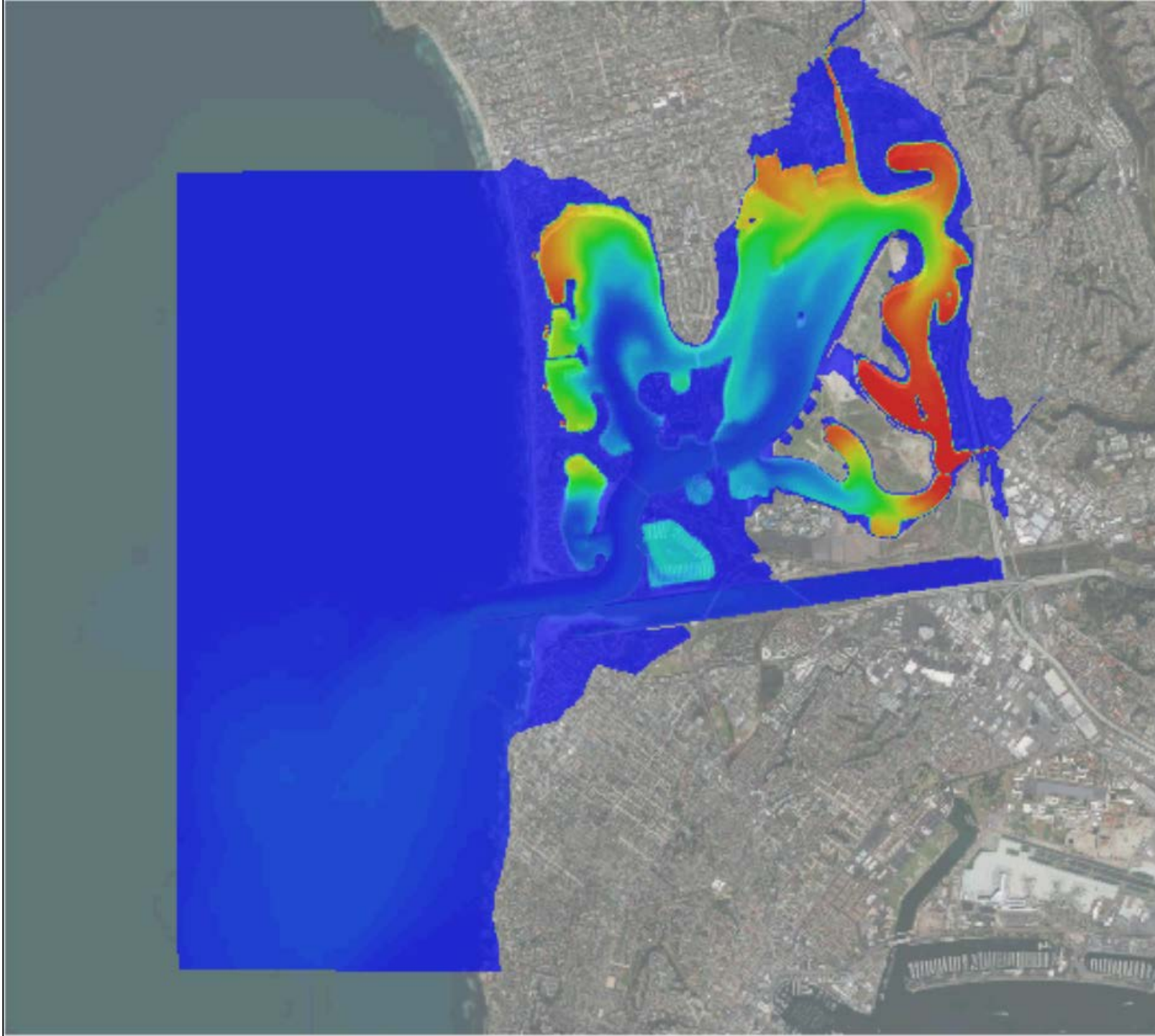
Hydrology Study



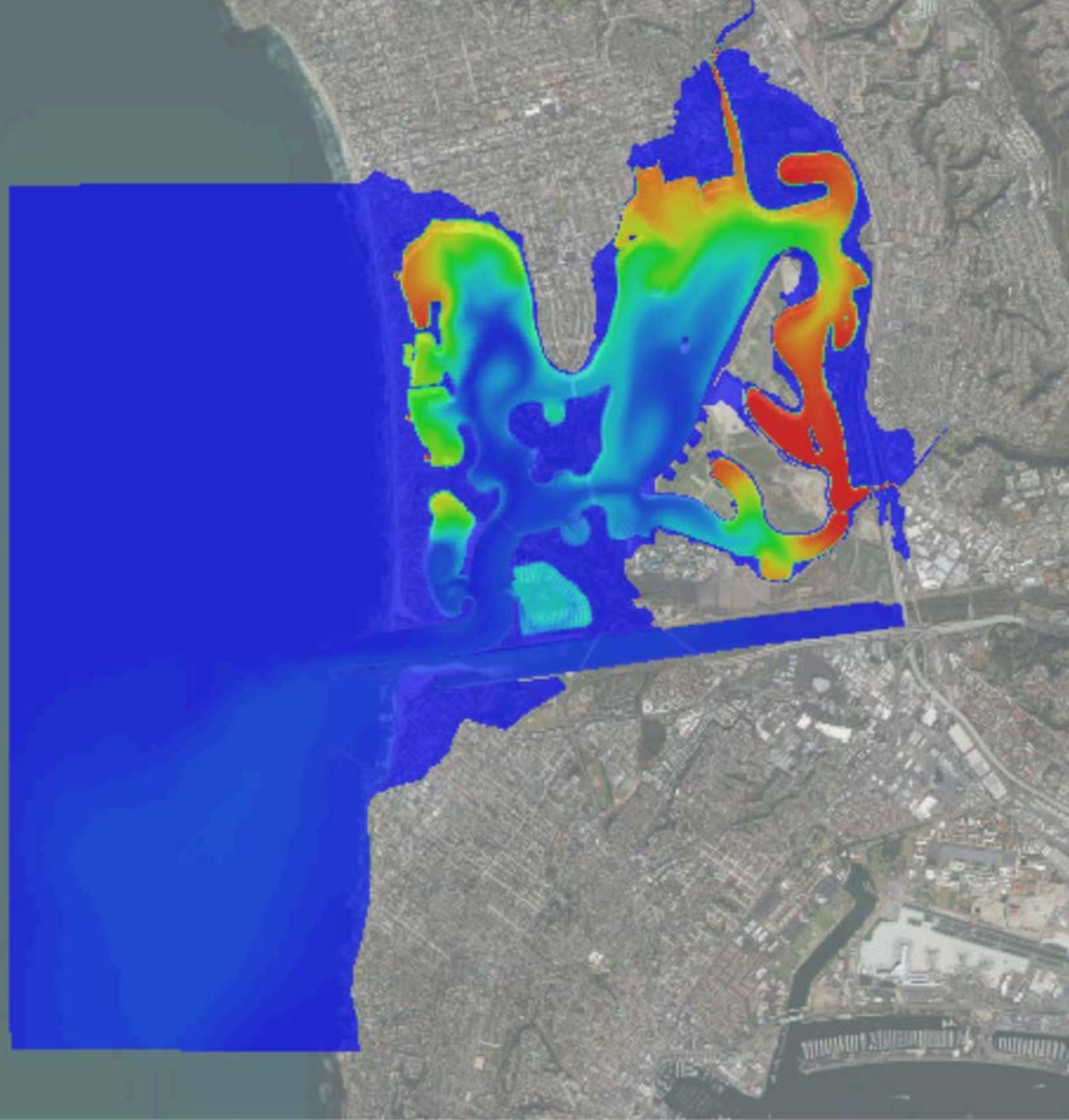
Hydrology Study



Hydrology Study

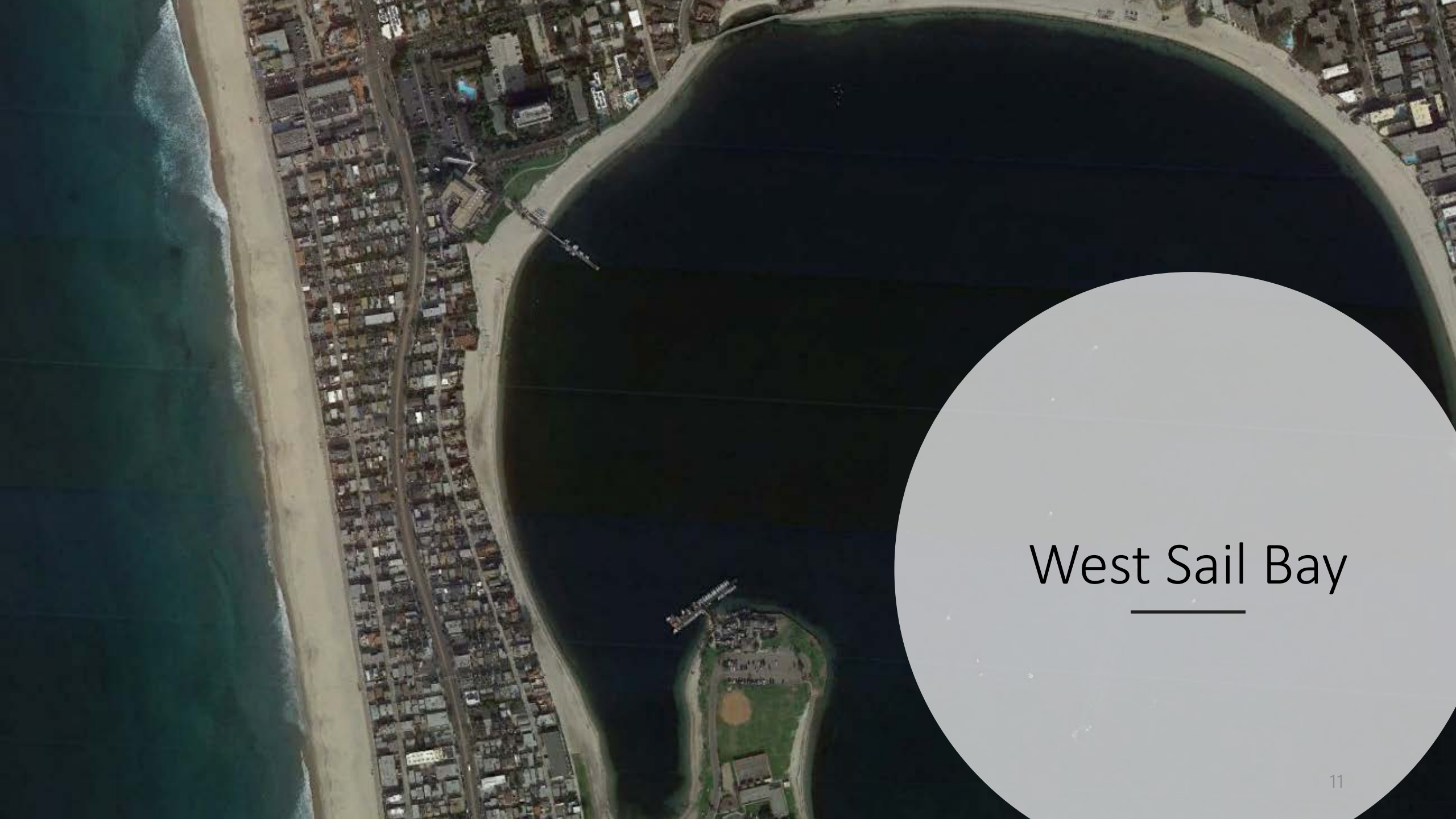


Hydrology Study



Bay-wide Shoreline Assessment Results





West Sail Bay

West Sail Bay – The Problem



West Sail Bay – The Problem



Beach Erosion

- Beach width has reduced from ~75 ft (in 1964) to ~20 ft (in 2017)
- Winter berm is required to protect public pathway and residences from extreme high tide and storm conditions





Crown Point

Crown Point – The Problem



Crown Point – The Problem



“End Effects”

- Wave-induced beach erosion where existing seawall ends and transitions to beach
- Vulnerable public pathway and beach access



Bonita Cove

Bonita Cove – The Problem



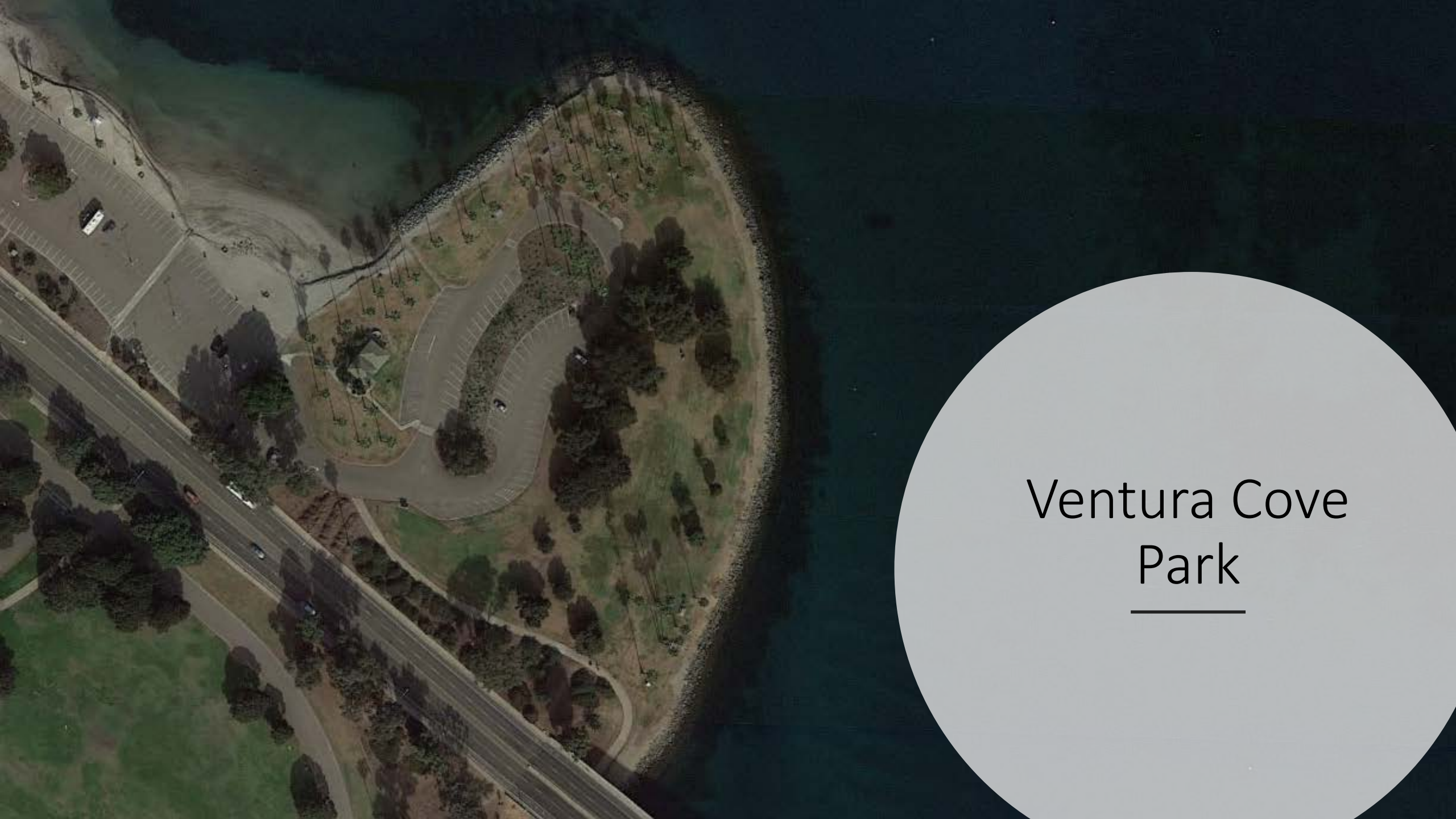
Bonita Cove – The Problem



Beach Erosion

- Beach erosion at the headland adjacent to San Fernando Pl
- Beach width has reduced from ~175 ft (in 1964) to ~24 ft (in 2017)
- Public pathway vulnerable to undermining and flooding
- Winter berms required to protect park and residences





Ventura Cove
Park

Ventura Cove Park – The Problem



Ventura Cove Park – The Problem

“End Effects” & Erosion

- Wave-induced shoreline erosion where new revetment transitions to under-protected reach
- Displaced, low-elevation rip rap does not adequately protect the shoreline
- Potential upland runoff eroding shoreline



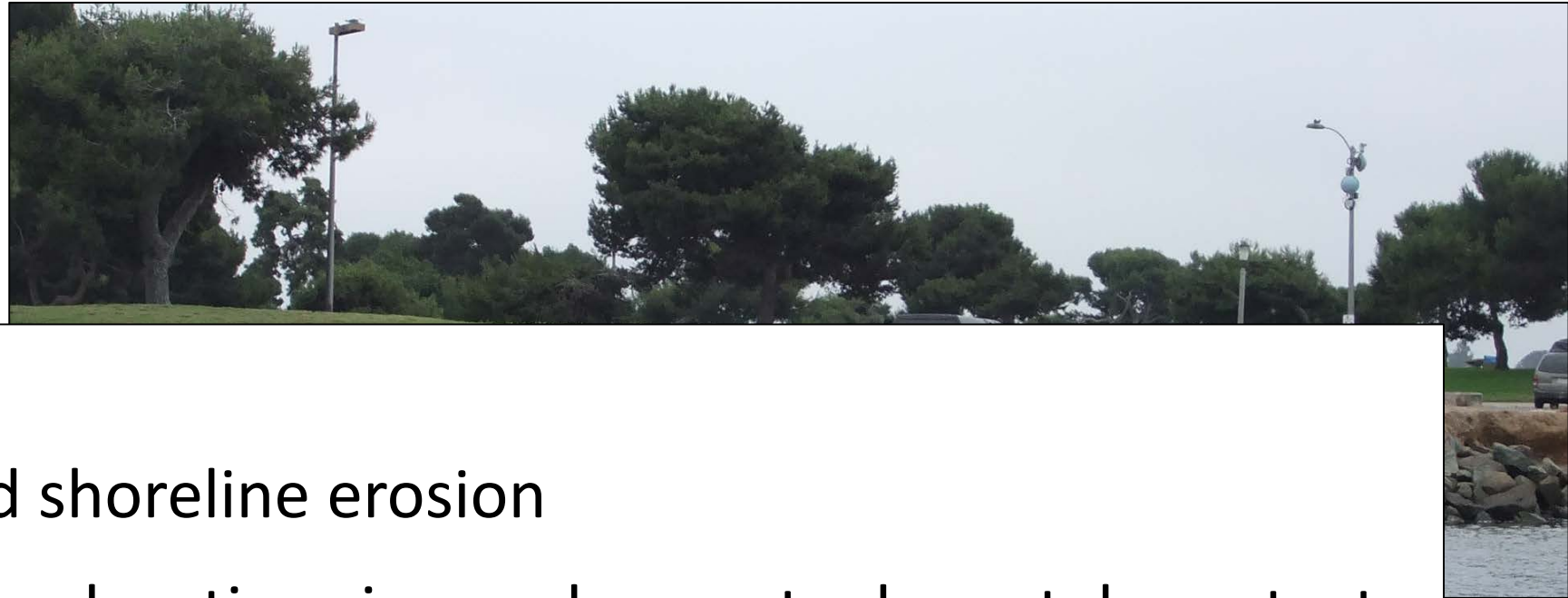
Vacation Island
Southwest



Vacation Island Southwest – The Problem

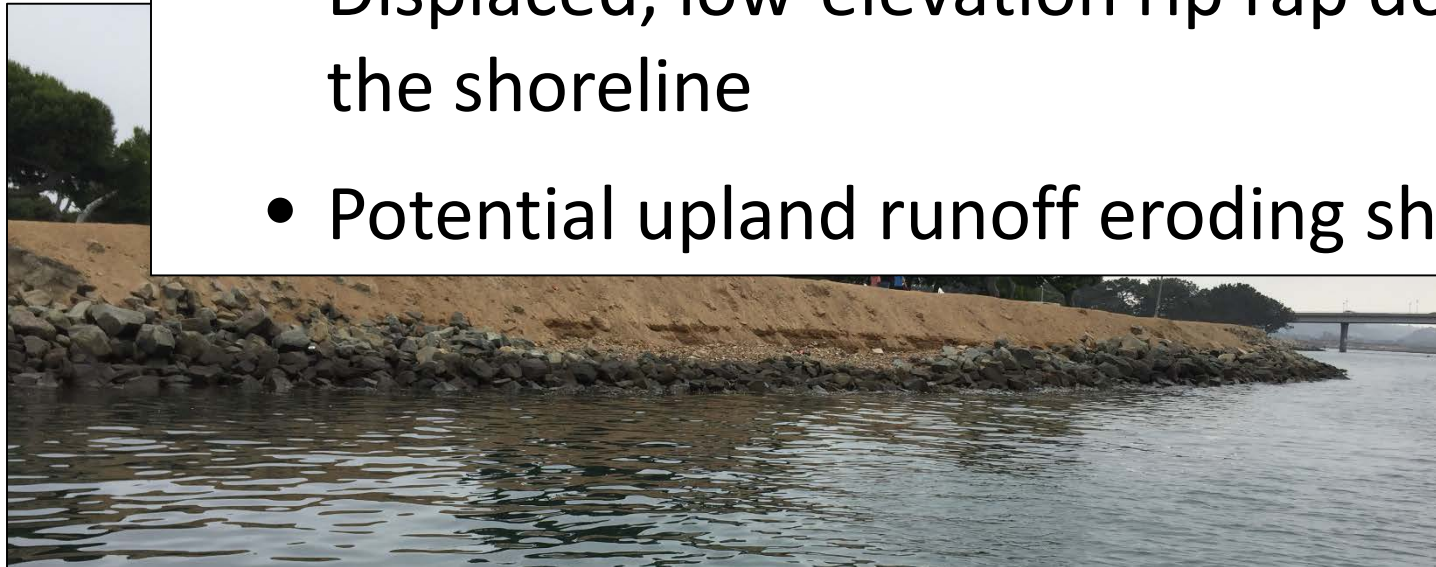


Vacation Island Southwest – The Problem



Shoreline Erosion

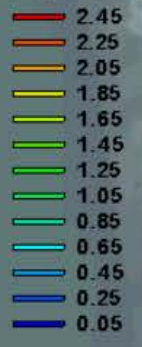
- Wave-induced shoreline erosion
- Displaced, low-elevation rip rap does not adequately protect the shoreline
- Potential upland runoff eroding shoreline





Vacation Island
Northwest

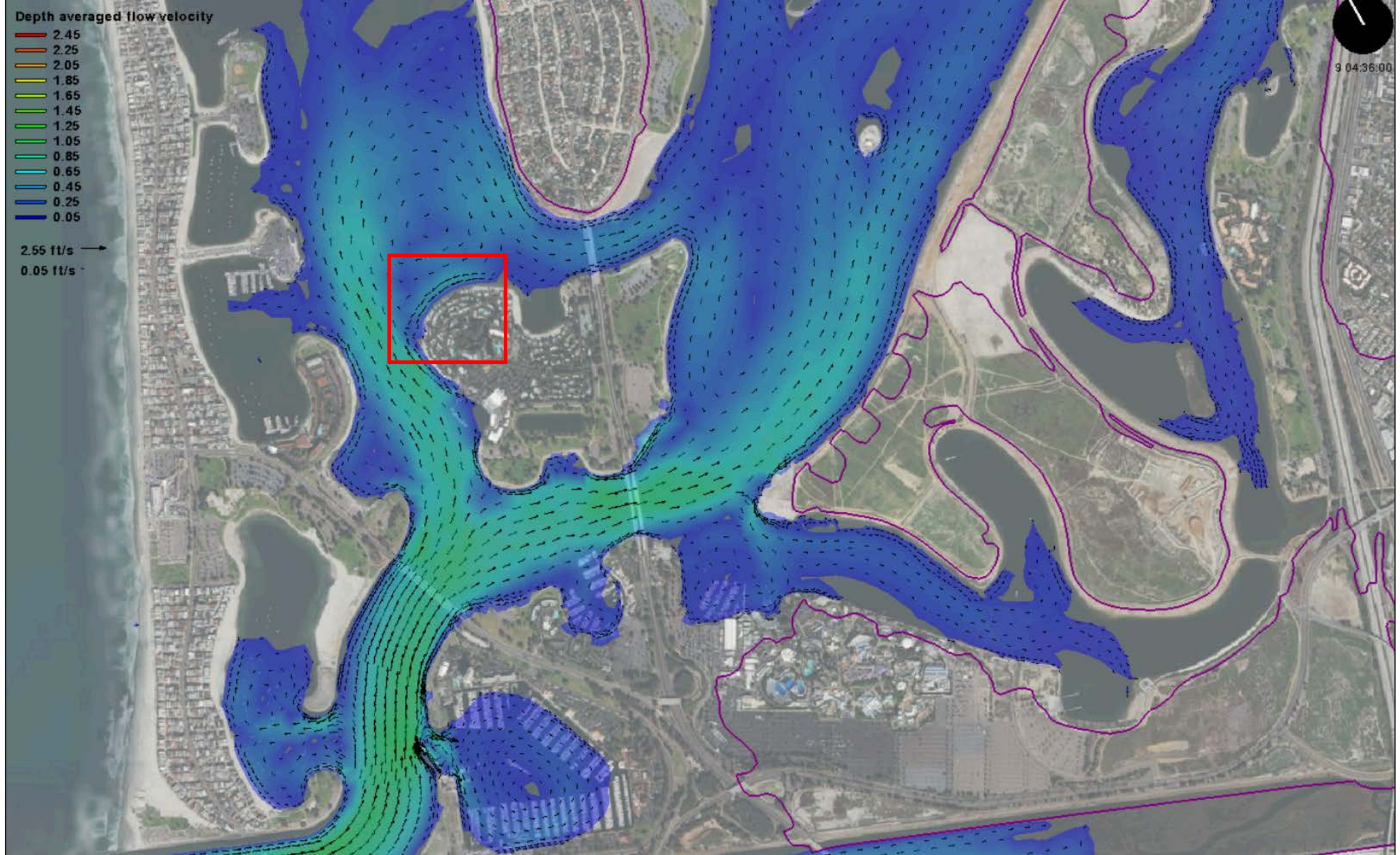
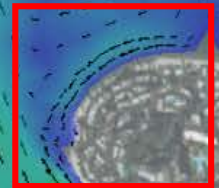
Depth averaged flow velocity



2.55 ft/s →
0.05 ft/s ←



9 04:36:00



Vacation Island Northwest – The Problem

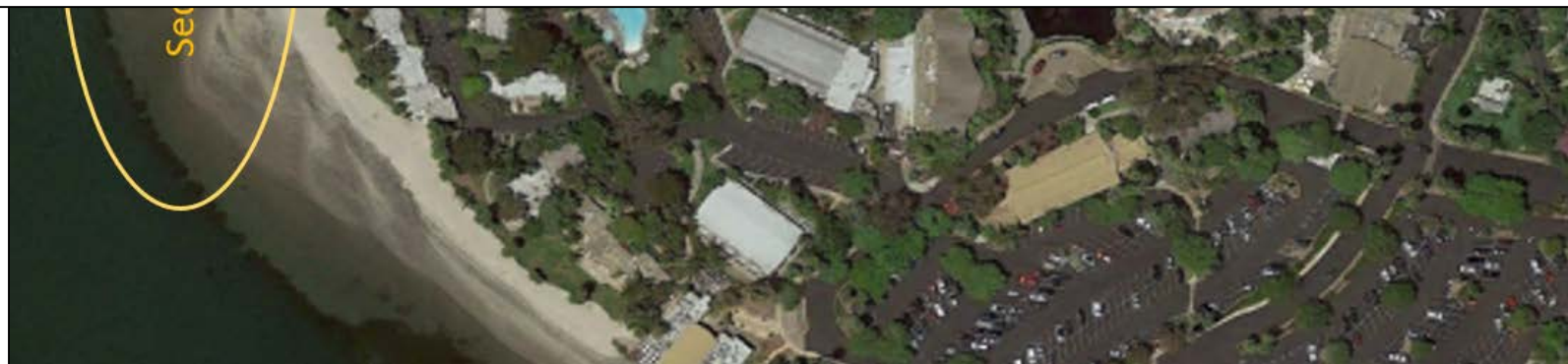


Vacation Island Northwest – The Problem



Beach Erosion

- Wave and current dynamics causing sand to move both east and west from the center of the headland
- Beach widths are decreasing, upland park vulnerable to undermining





Vacation Island
Northeast
(Ski Beach &
West of Ingraham St)

Vacation Island Northeast – The Problem



Vacation Island Northeast – The Problem

Shoreline Erosion – West of Ingraham St

- Wave-induced shoreline erosion
- Displaced, low-elevation rip rap does not adequately protect the shoreline
- Potential upland runoff eroding shoreline

Beach Erosion – Ski Beach

- Wave and current dynamics causing erosion of the shoreline
- Beach widths have reduced, upland park improvements vulnerable to undermining

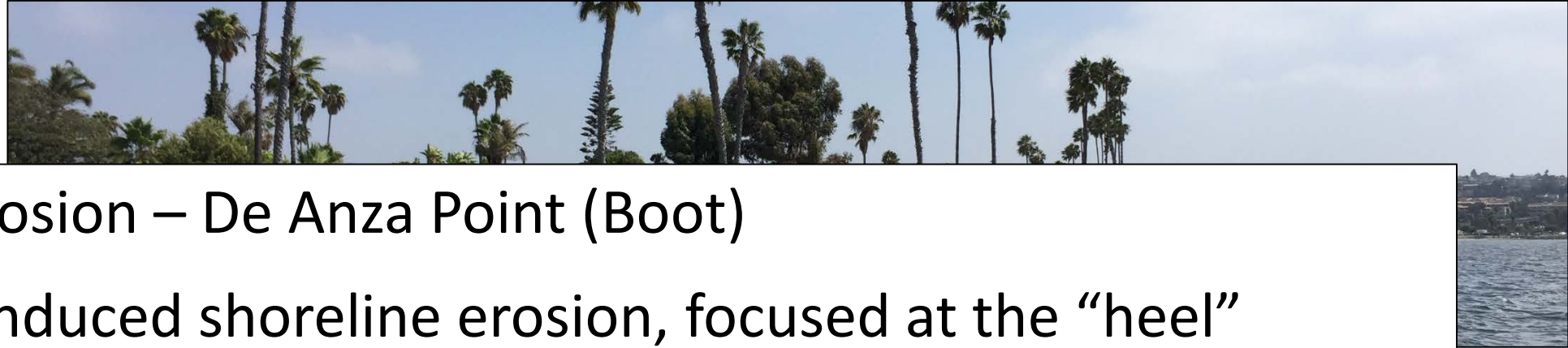


De Anza

De Anza – The Problem



De Anza – The Problem



Shoreline Erosion – De Anza Point (Boot)

- Wave-induced shoreline erosion, focused at the “heel”
- Displaced, low-elevation rip rap does not adequately protect the shoreline

Beach Erosion – De Anza Cove

- Beach width is small, especially on north shore (~15 ft)
- Scarps developing between grassy park and sandy beach



Potential Solutions

"Soft"
"Hard"
"Hybrid"



Soft Solutions



BEACH NOURISHMENT

Source: SANDAG



SAND DUNE

Source: City of Encinitas



COBBLE BERM

Source: Oregon DOT



WETLAND RESTORATION

Hard Solutions



Hybrid Solutions

Source: The Watershed Project



OYSTER REEF



PERCHED BEACH



SEAWALL HABITAT FAÇADE

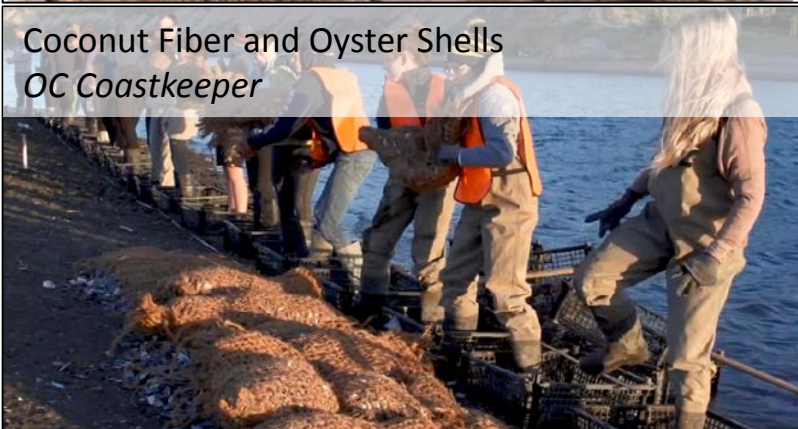
Source: EConcrete



Reef Balls, San Francisco Bay
The Watershed Project



Coconut Fiber and Oyster Shells
OC Coastkeeper



Native Olympia Oyster
SD Bay Native Oyster Restoration Plan



Non-Native Pacific Oyster
San Diego Bay Native Oyster Restoration Plan

Oyster Restoration

- Oysters are filter feeders which improve water quality and clarity.
- Oyster reefs provide a buffer from and are resilient to wave energy.
- Oysters reefs create nursery habitat for fish and bottom-feeders.

Questions/Next Steps

An aerial photograph of a coastal town built on a hillside overlooking a large bay. A long bridge spans across the water, connecting different parts of the town. The foreground shows a sandy beach and some residential buildings.

- City
 - Prepare concepts for 30% Design
- M&N
 - Assess wind and wave (ocean swell, wind, boat wake)
 - Refine design elevations
 - Digitize concepts
 - Deliver Draft Preliminary Engineering Reports



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THANK YOU!

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