

Coastal Resiliency: Beach Nourishment -Transport

**CMANC
Panel Discussion**

May 16, 2024



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Susie Ming
USACE - Los Angeles

Susan Brodeur
County of Orange – OC Parks

Brian Leslie
GHD Inc.

Jim McNally
Manson Construction Co.



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Kim Garvey
Moffatt & Nichol, and
California Shore & Beach Preservation Assn.

Brett Sanders
UC Irvine

Keith Greer
SANDAG
(San Diego Association of Governments)

Chris Miller
City of Newport Beach

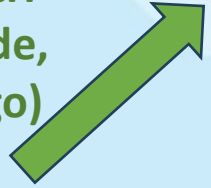
PROJECT #1
Surfside Sunset
(North Orange County)



PROJECT #2
Regional Collaborative
(South Orange County)



PROJECT #3
"RE-BEACH"
(Oceanside,
San Diego)



PROJECT #4
Regional Beach
Sand Projects
(San Diego)



PROJECT #5
Storm Damage
Reduction Project
(Encinitas & Solana Beaches)



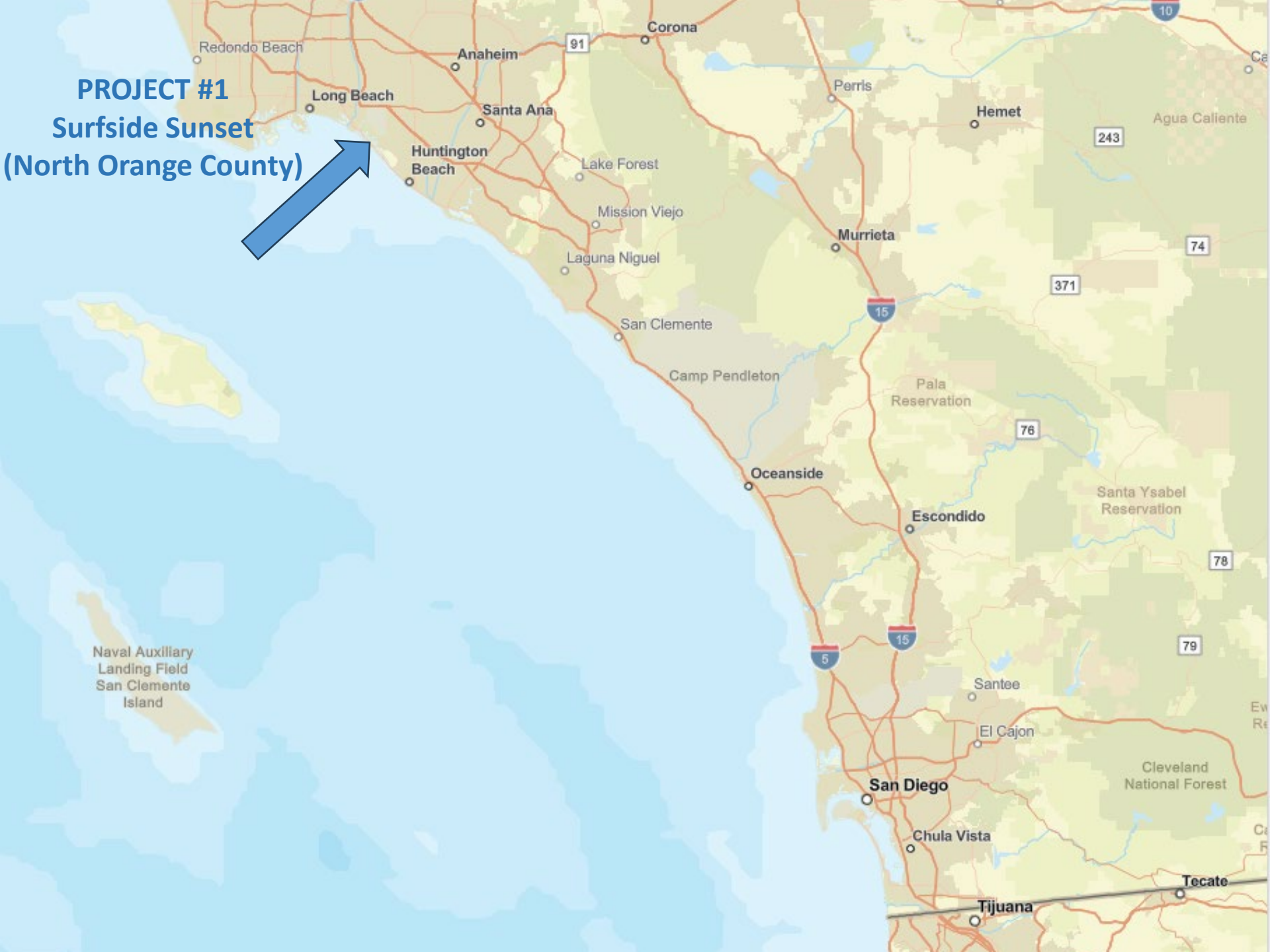
PROJECT #1

Surfside Sunset (Stage 13)

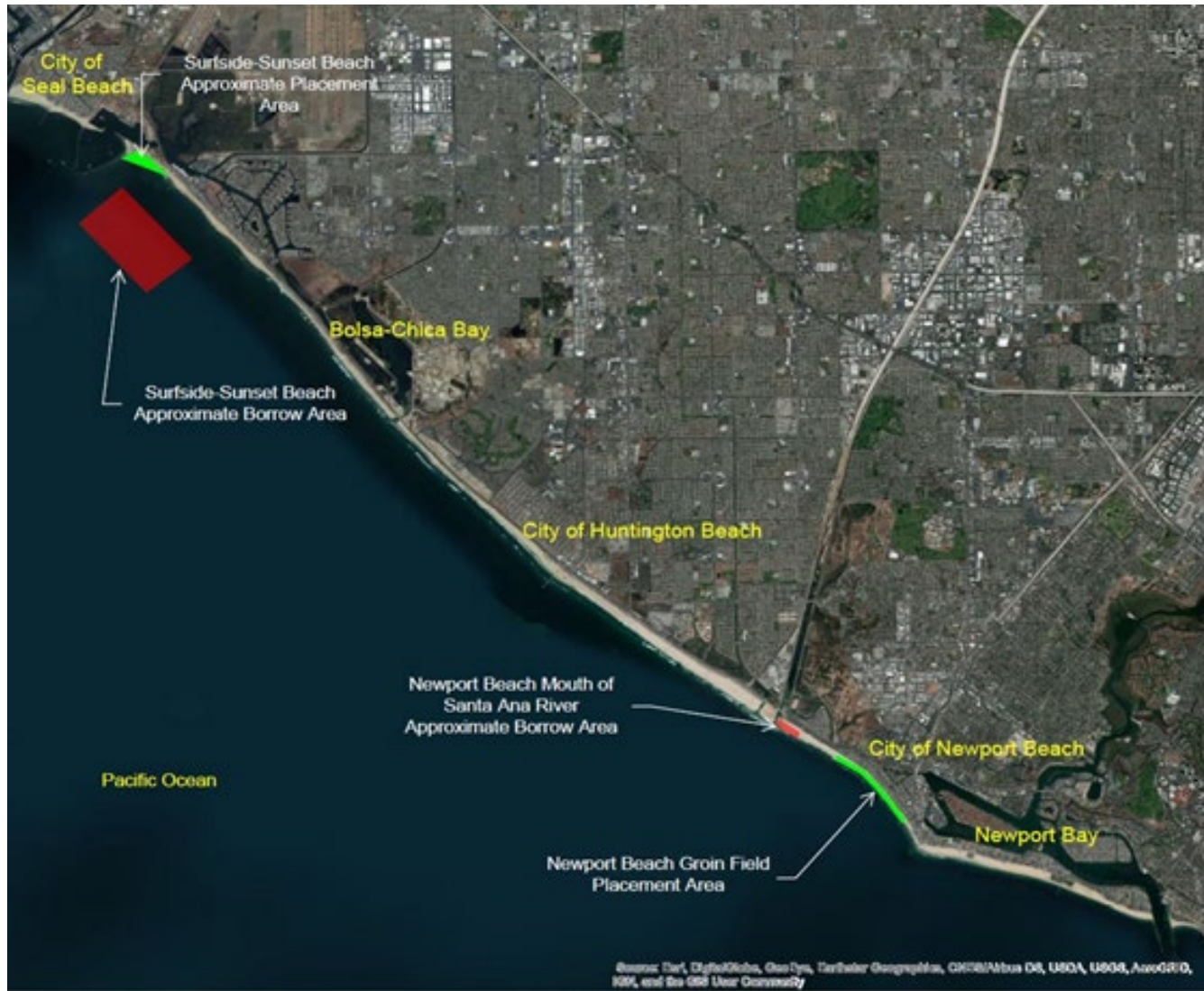
North Orange County



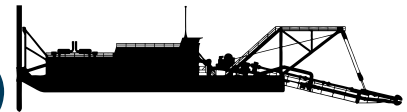
PROJECT #1
Surfside Sunset
(North Orange County)



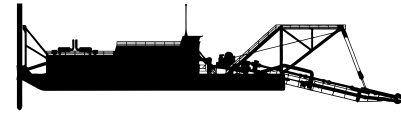
Surfside / Sunset (Nov 2023 – Feb 2024) Offshore Borrow Site, ~800,000 cy



**Surfside / Sunset (Nov 2023 – Feb 2024)
Offshore Borrow Site, ~800,000 cy**



**Surfside / Sunset (Nov 2023 – Feb 2024)
Offshore Borrow Site, ~800,000 cy**



Discharge Pipe

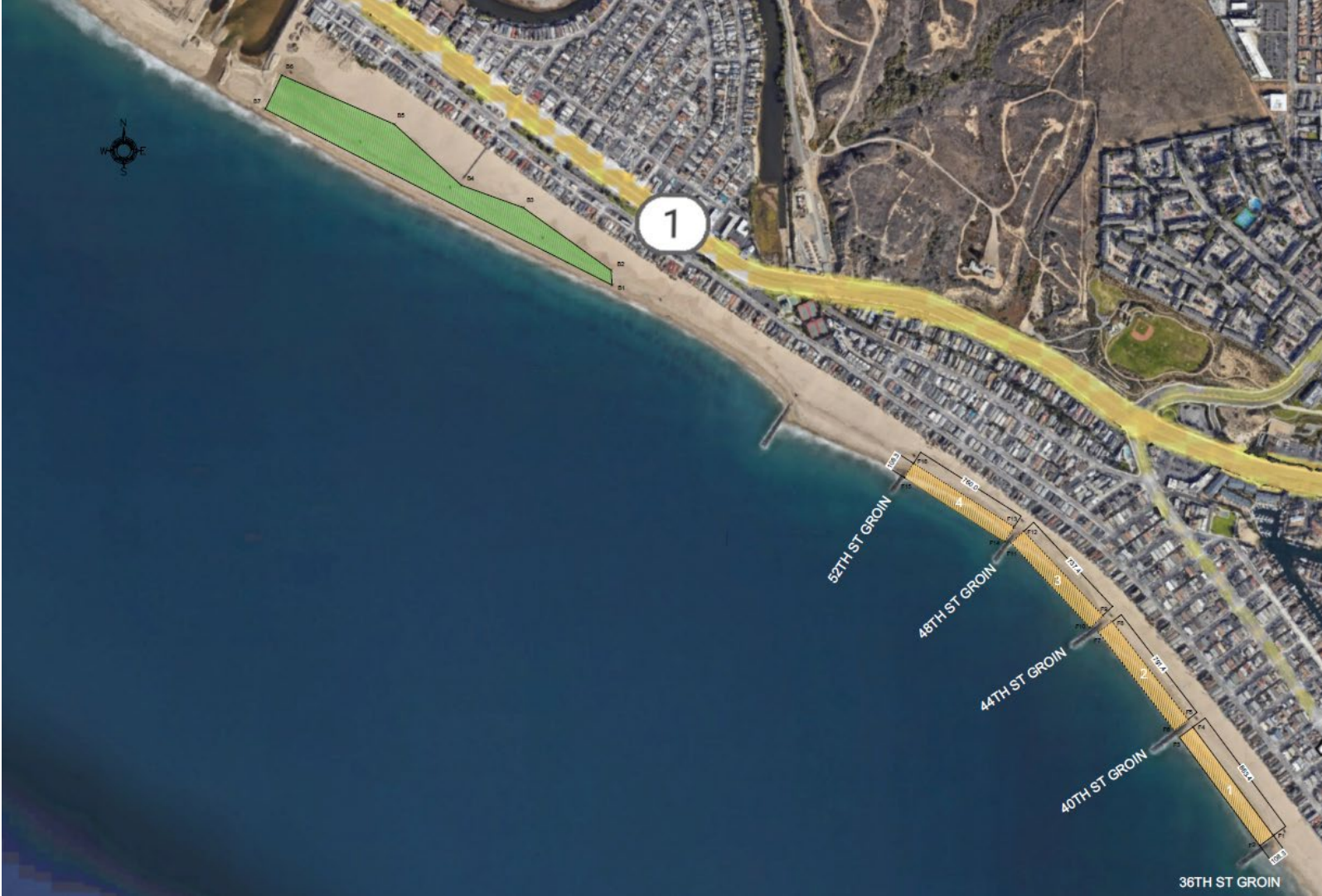
Surfside / Sunset (Nov 2023 – Feb 2024) Offshore Borrow Site, ~800,000 cy



Surfside / Sunset (Nov 2023 – Feb 2024) Offshore Borrow Site, ~800,000 cy



Surfside / Sunset (Nov 2023 – Feb 2024) Newport Beach Back-Passing, ~100,000 cy



Surfside / Sunset (Nov 2023 – Feb 2024) Newport Beach Back-Passing, ~100,000 cy

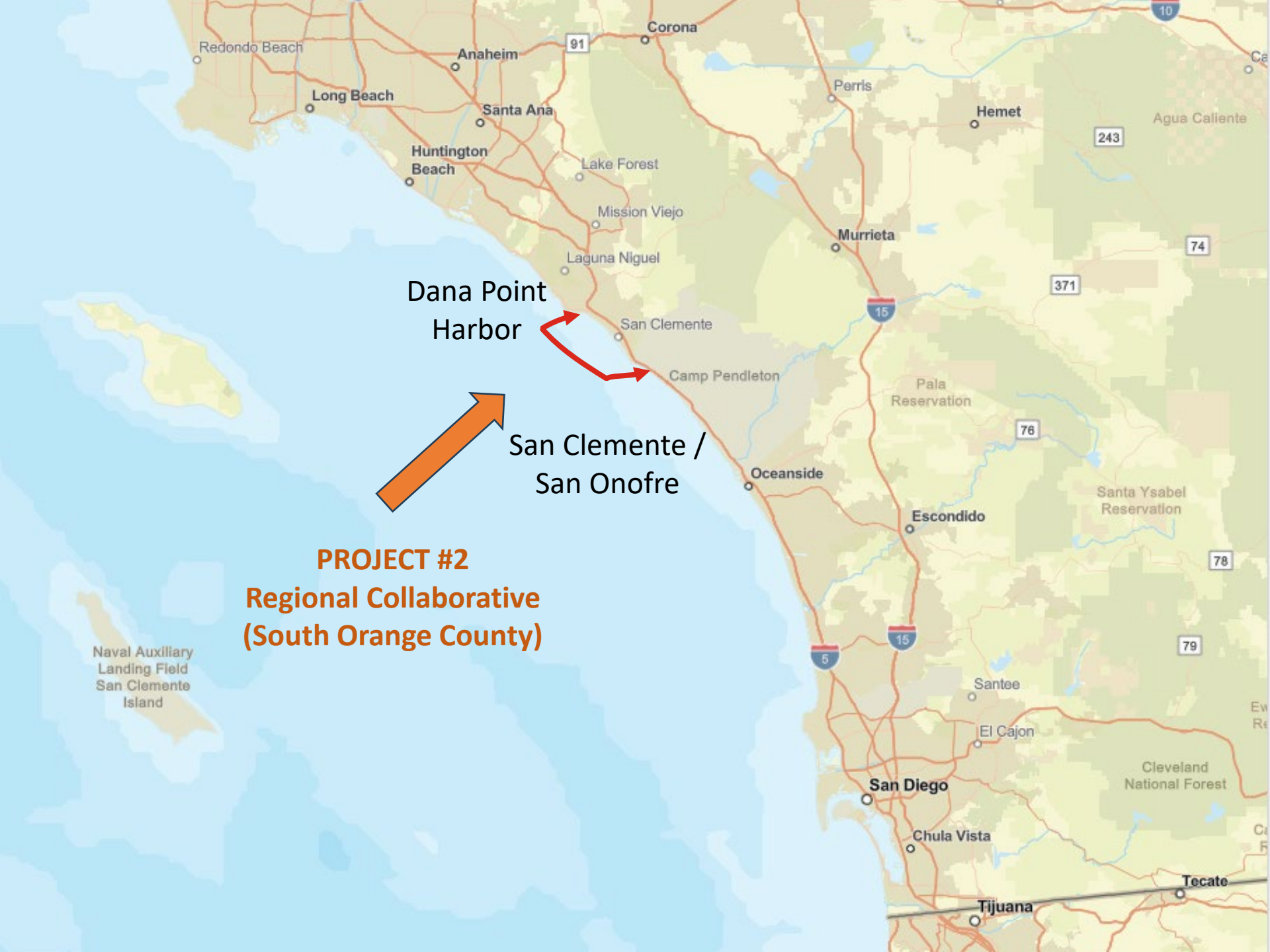


PROJECT #2

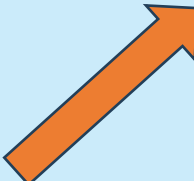
Regional Collaborative

South Orange County





Dana Point
Harbor



San Clemente /
San Onofre

PROJECT #2
Regional Collaborative
(South Orange County)

Naval Auxiliary
Landing Field
San Clemente
Island

San Diego

Chula Vista

Tijuana

Tecate



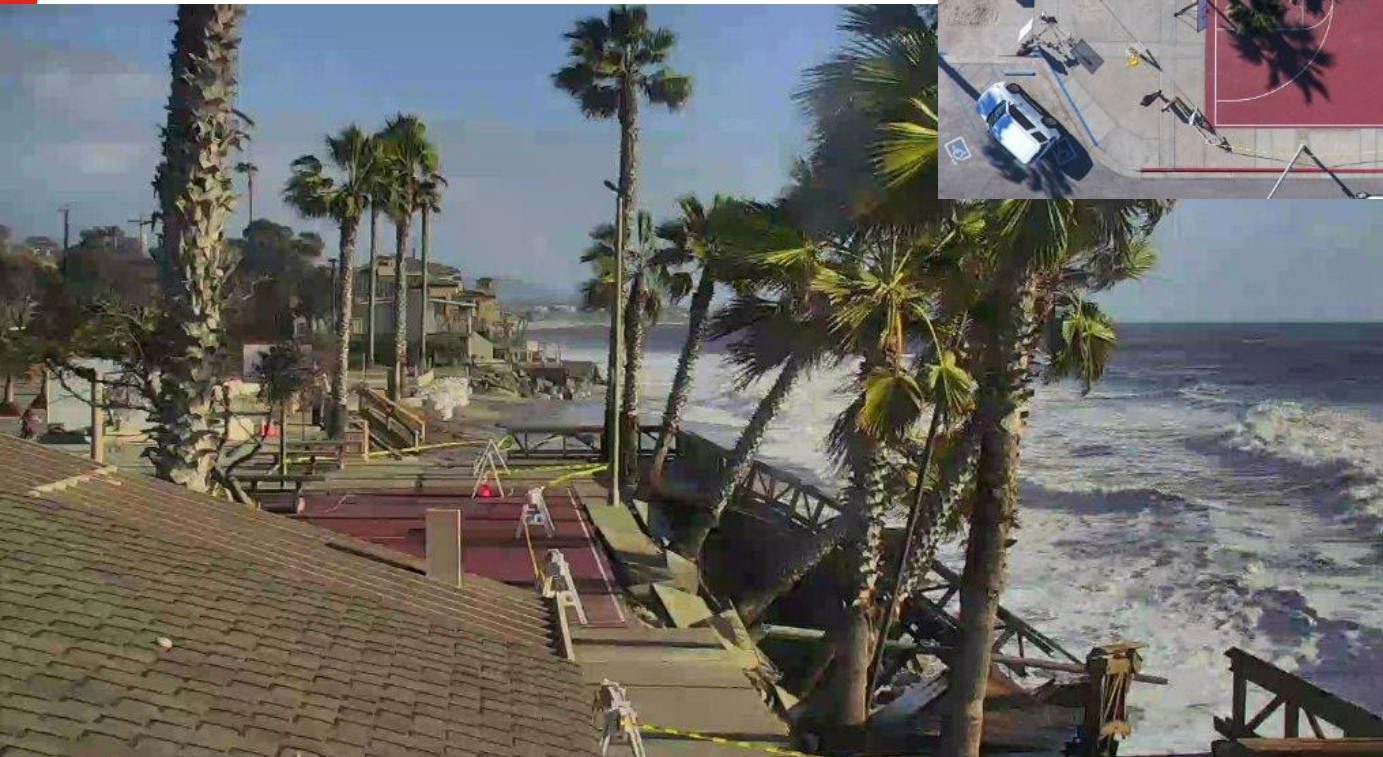
**Capistrano Beach
(County)**

&

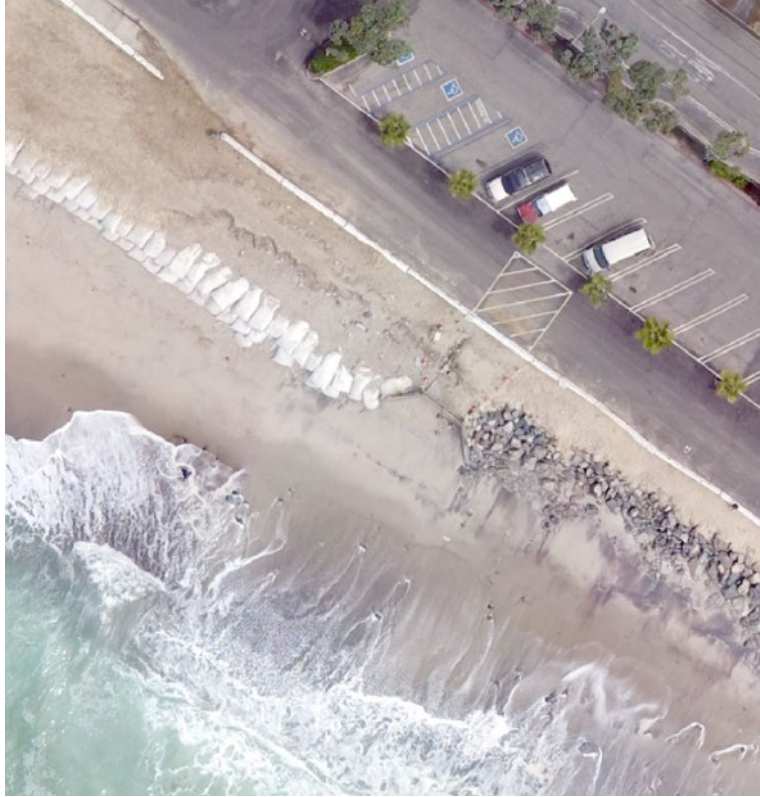
**Doheny Beach
(State)**

Capistrano Beach Erosion

Basketball court, public restroom and 1/3 of parking stalls eroded and removed.



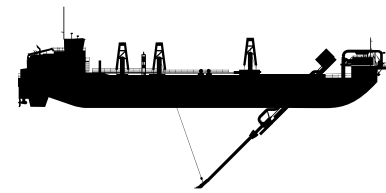
Capistrano Beach Erosion



Nature-Based Shoreline Project



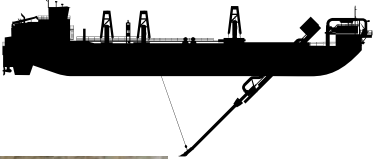
San Clemente (Dec 2023 – Jan 2024) Borrow Source Cobble



San Clemente (April 2024) Borrow Site: Surfside / Sunset, ~120,000 cy

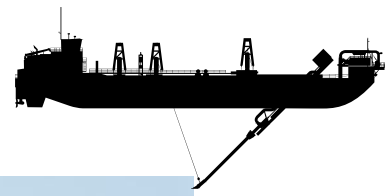


San Clemente (April 2024)
Borrow Site: Surfside / Sunset, ~120,000 cy



San Clemente (April 2024)

Borrow Site: Surfside / Sunset, ~120,000 cy



PROJECT #3

“RE-BEACH”

Oceanside, San Diego



**PROJECT #3
"RE-BEACH"
(Oceanside,
San Diego)**

**Oceanside
Littoral Cell**

Dana Point
Harbor

La Jolla



Existing Conditions





The U.S. Army Corps of Engineers conducts a yearly dredging of the Oceanside Harbor inlet. Photo courtesy of USACE

>21MCY Sand Placed on City beaches over 80 years

02.25.22

More Groaning Over Groins: Neighboring Cities OPPOSE Oceanside Groin Project

By [SFSD Administrator](#)

**DESIGN TEAM
COMPETITION**

FINALISTS

Deltares USA +
MVRDV

SCAPE + ESA +
Dredge Research
Collaborative

International
Coastal
Management
(ICM)

RE:BEACH

COASTAL RESILIENCE COMPETITION

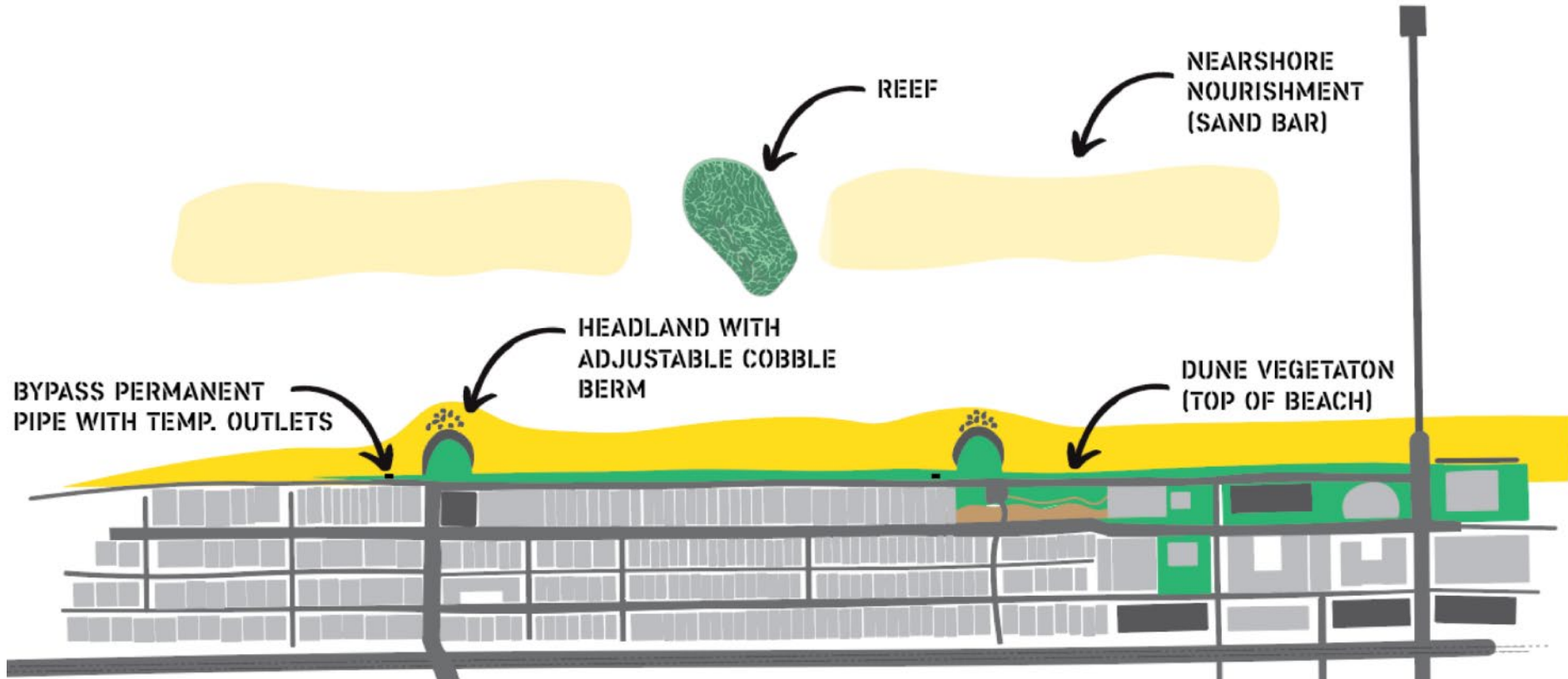


Your thoughts on
Oceanside's sand
replenishment and
retention pilot project
are wanted. Provide
your feedback ASAP
www.rebeach.org

SAVING OUR BEACHES IS A COLLECTIVE EFFORT



Living Speed Bumps (ICM Design)



Living Speed Bumps

BEACH USABILITY SCHEMATIC CONCEPT LAYOUT

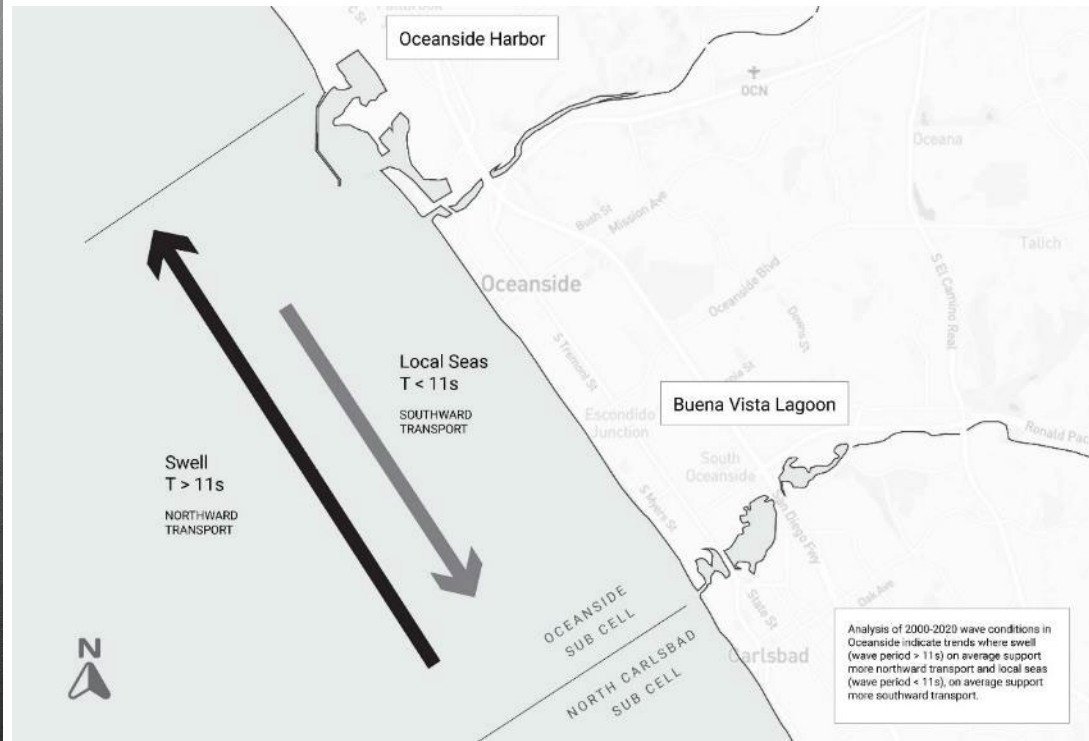


Inspiration for Living Speed Bumps:

Australia's Gold Coast: *Palm Beach Surf Reef*



CHALLENGE: *UNDERSTANDING LITTORAL CELLS*

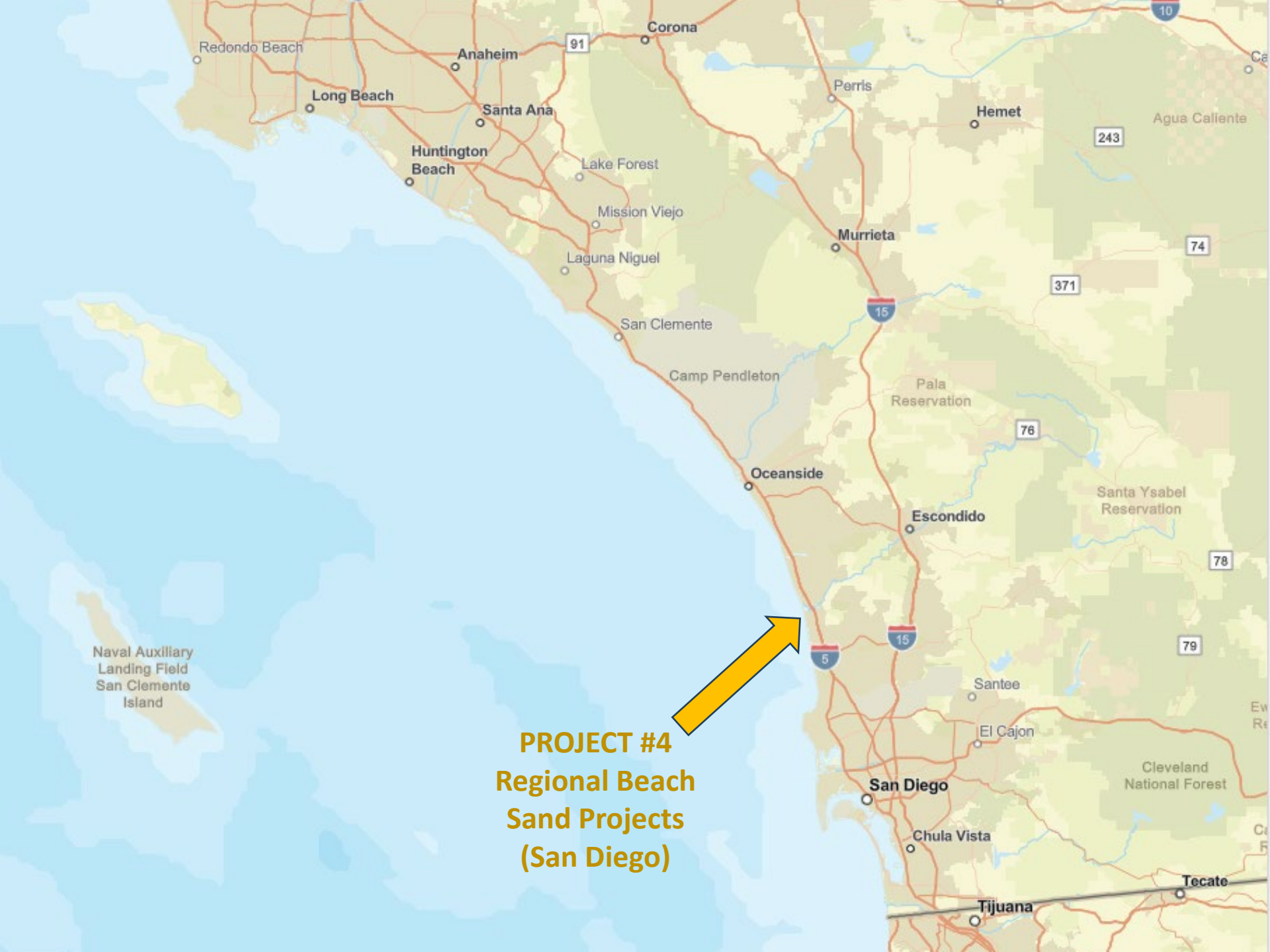


PROJECT #4

Regional Beach Sand Projects

San Diego





PROJECT #4
Regional Beach
Sand Projects
(San Diego)

San Diego Regional Beach Sand Projects (RBSP)



© aftermath of an ocean surge in Imperial Beach, California. Many sea-level rise projections predict the city's coastline. Photo via Scripps Institution of Oceanography, UC San Diego

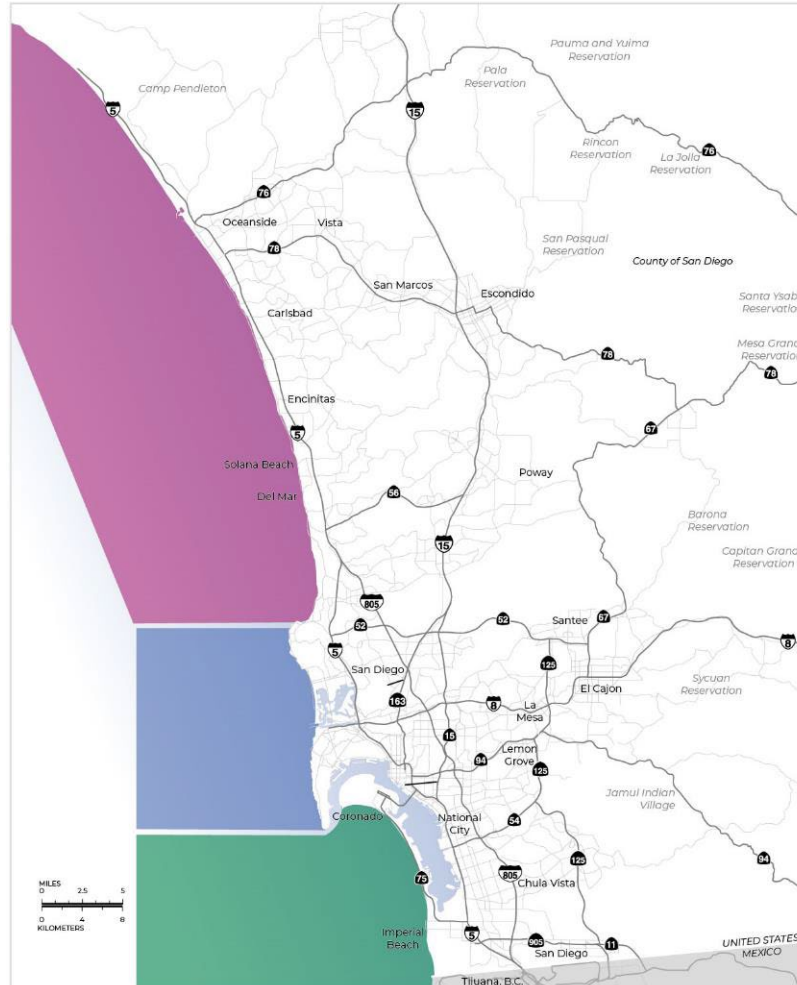
San Diego Region has three littoral cells

A littoral cell is a natural area of the nearshore environment that contains a closed cycle of sedimentation including sources, transport paths, and sinks.

Oceanside Littoral Cell

Mission Bay Littoral Cell

Silver Strand Littoral Cell



Regional Beach Sand Projects (RBSP) I & II

Encinitas



2001 – RBSP

- 2.2 million cubic yards of sand
- 12 beaches in 8 Cities
- Cost \$18 million
- Engineering, Environmental and Construction
 - 60% Federal Funding & 40% State Funding

Imperial Beach



2012 – RBSP II

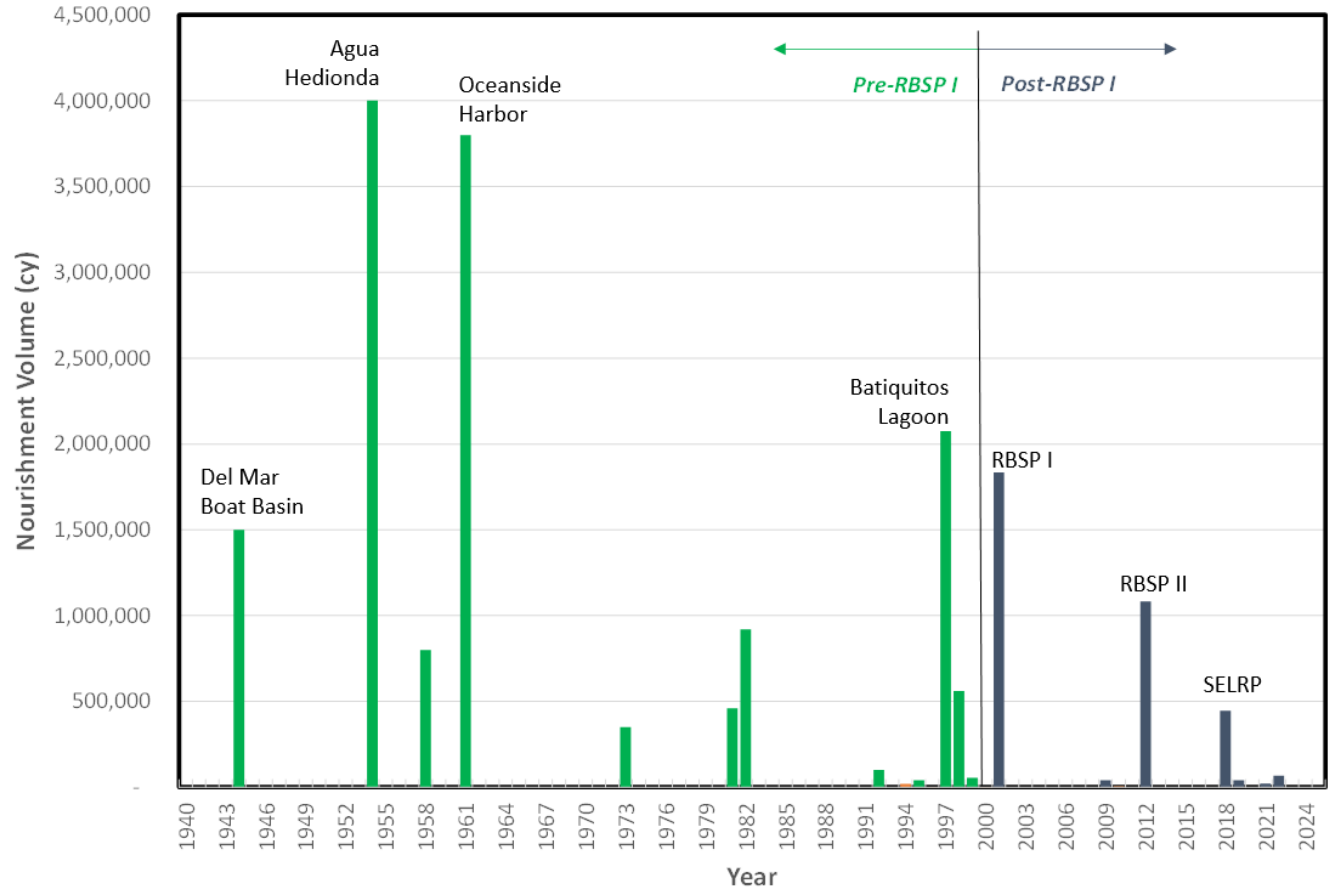
- 1.4 million cubic yards of sand
- 8 Beaches in 5 Cities
- Cost \$26 million
- Engineering, Environmental and Construction
 - 85% State Funding & 15% Local Funding

Beach Nourishment (1940-2023)

RBSP I = 2.2 M cu yds

RBSP II = 1.4 M cu yds

SELRP = 500 K cu yds



Regional Beach Sand Project III – Roadmap



Phase I
**Planning, Feasibility &
Economic Analysis**

Underway
(Complete Winter 2025)



Phase II
**Engineering &
Environmental**

Est. \$3 million



Phase III
**Construction &
Monitoring**

Est. \$37 million

PROJECT #5

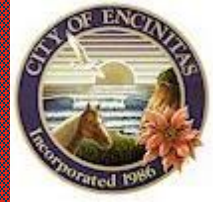
Storm Damage Reduction Project

Encinitas & Solana Beach

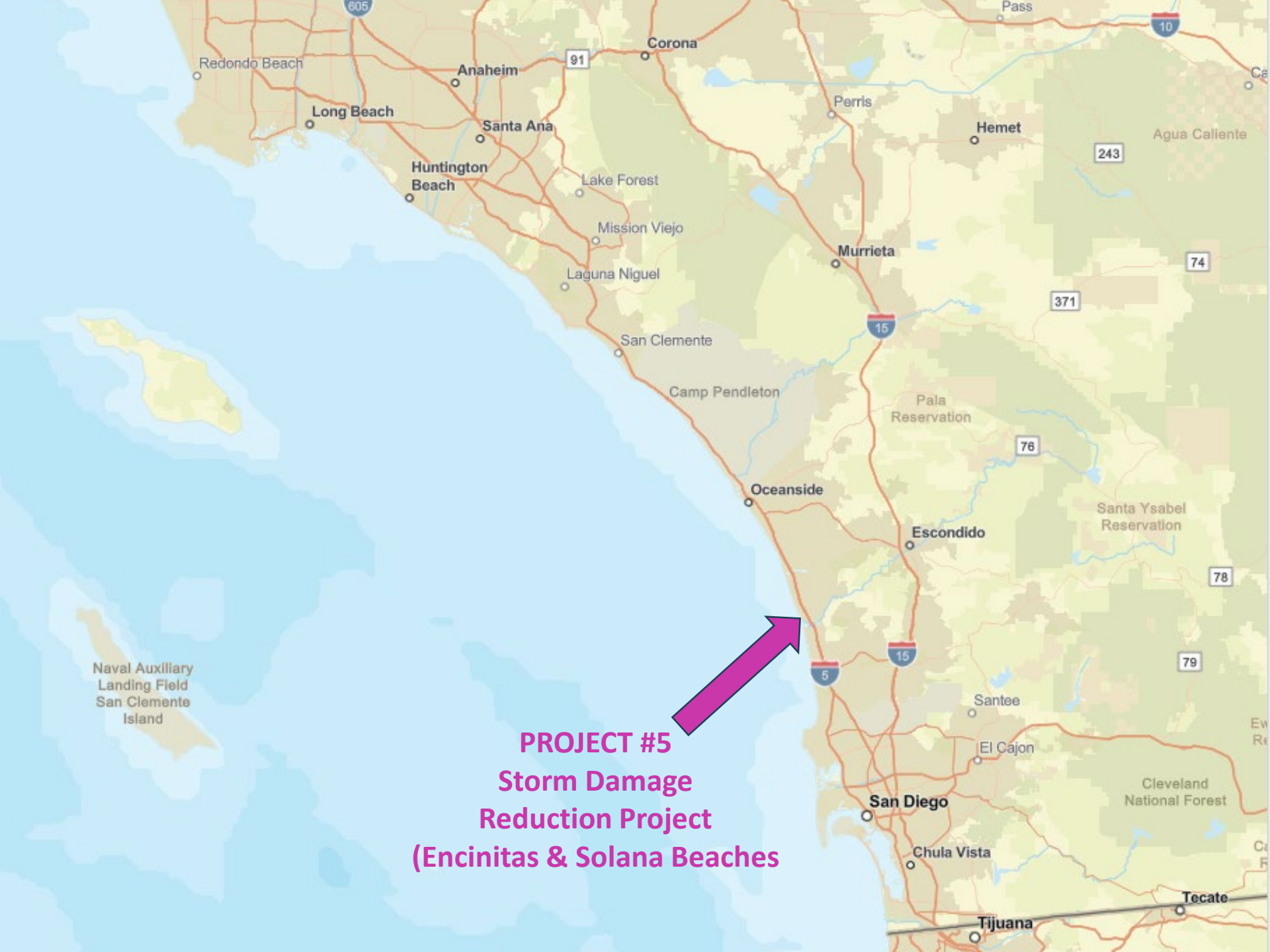
San Diego



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US Army Corps
of Engineers.



PROJECT #5
Storm Damage
Reduction Project
(Encinitas & Solana Beaches)

Encinitas – Solana Beach Storm Damage Reduction Project

Encinitas

- 50-ft wider berm
- 7,800 ft.
- Renourishment Cycle = 5 yrs

- Initial Volume = 340,000 cy
- Renourishment Volume = 220,000 cy

Encinitas Berm Extent



Source: SANGIS, ACOE, AECOM 2012

Solana Beach

- 150-ft wider berm
- 7,200 ft
- Renourishment Cycle = 10 yrs

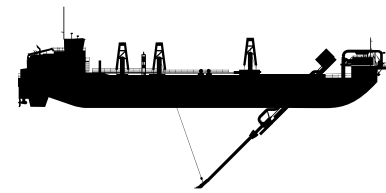
- Initial Volume = 700,000 cy
- Renourishment Volume = 290,000 cy

Solana Beach Berm Extent

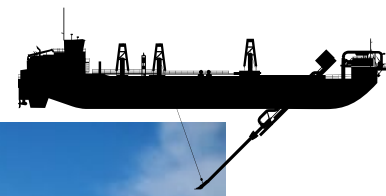


Source: SANGIS, ACOE, AECOM 2012

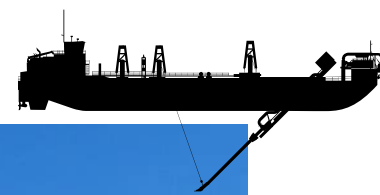
Encinitas (March – April 2024) Borrow Site “SO-5”, 340,000 cy



Solana Beach (Jan – March 2024) Borrow Site “SO-5”, 700,000 cy



Solana Beach (Jan – March 2024) Borrow Site “SO-5”, 700,000 cy



QUESTIONS



Manson Construction Co.

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Manson Construction Co.





