

Merkel & Associates



United States Coast Guard
U.S. Department of Homeland Security



USCG and Navy Collaborate to Develop Multi-Purpose Habitat from Repurposed Pier Demolition Rubble and Maintenance Dredged Sand at Ballast Point, San Diego California

Authors:

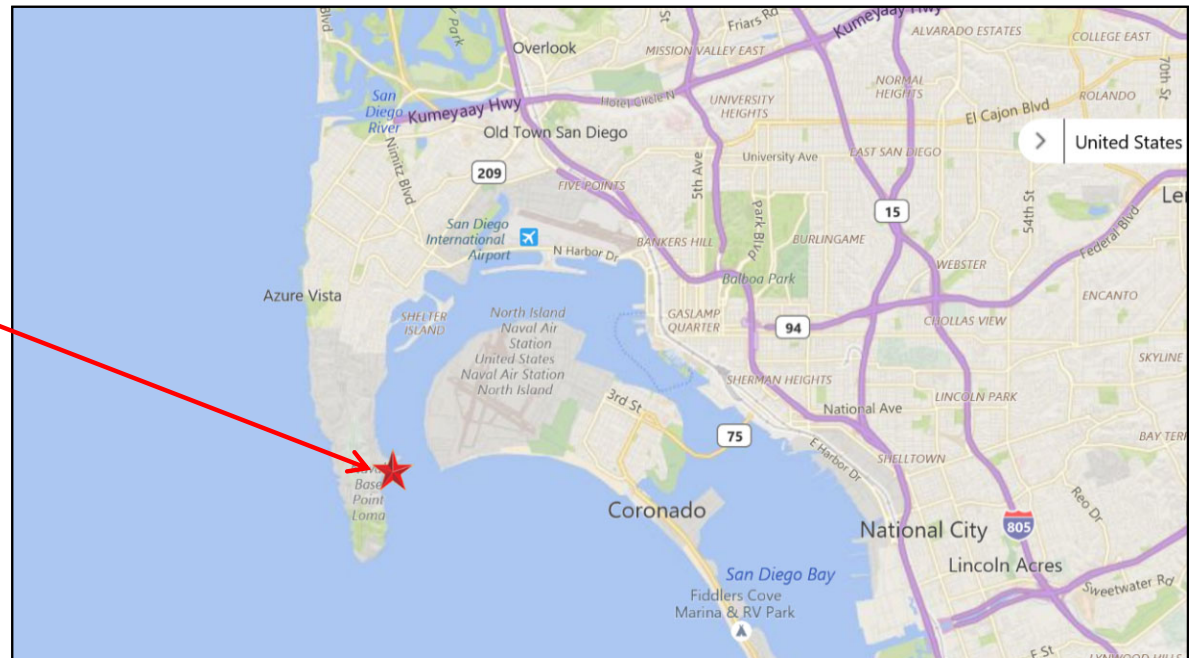
Kimbrie Gobbi (WSP USA Environment & Infrastructure), Ana Gilda Barboza, Erin Hale (United States Coast Guard), Sean Suk (NAVFAC EURAFCENT), and Keith Merkel (Merkel & Associates)

WEDA National Dredging Summit, June 2022

Project Manager: (Erin Hale, formerly with Wood Environment & Infrastructure Solutions)

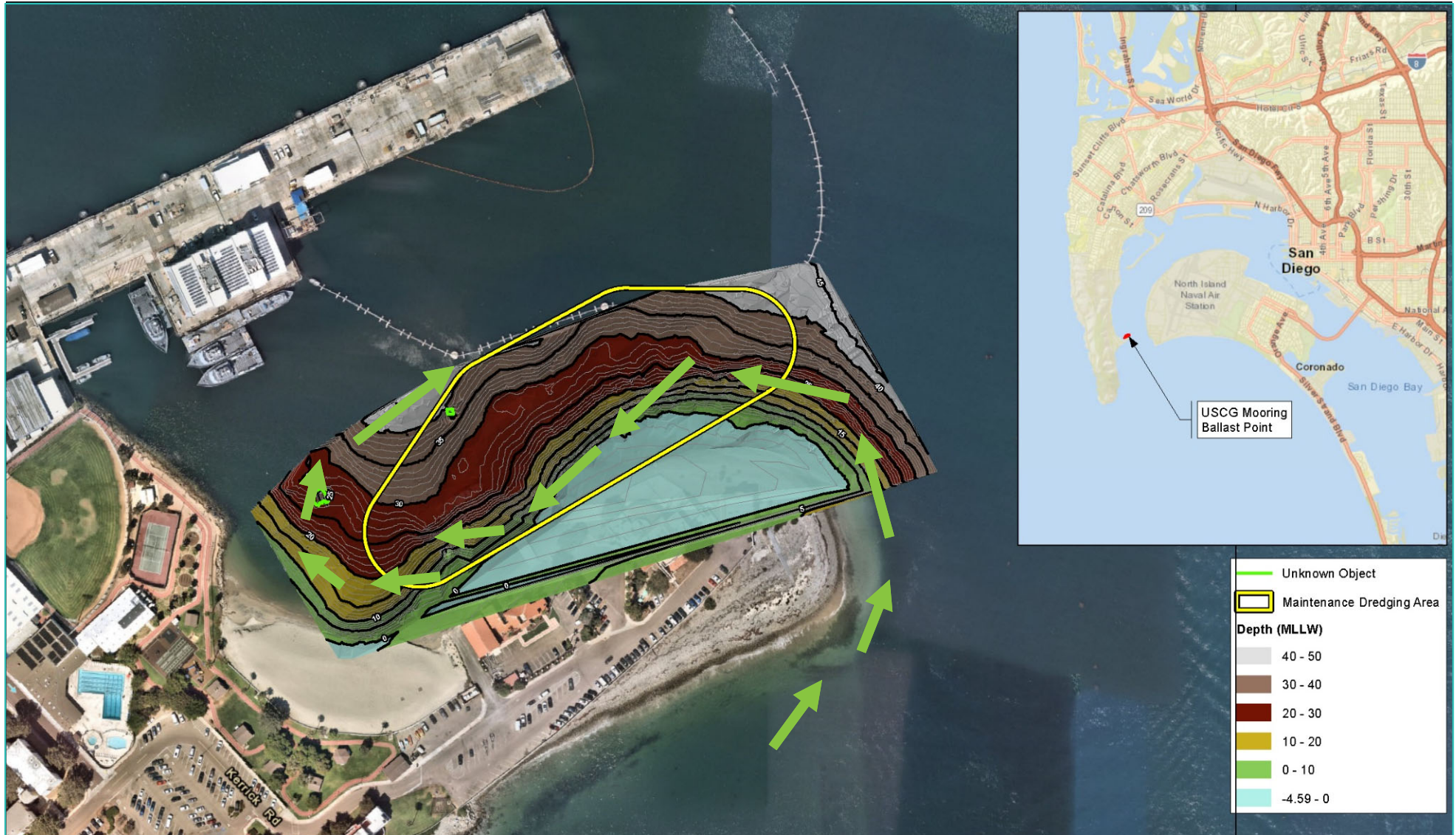
USCG Mooring Ballast Point

Located at Naval Base Point Loma
in San Diego, California



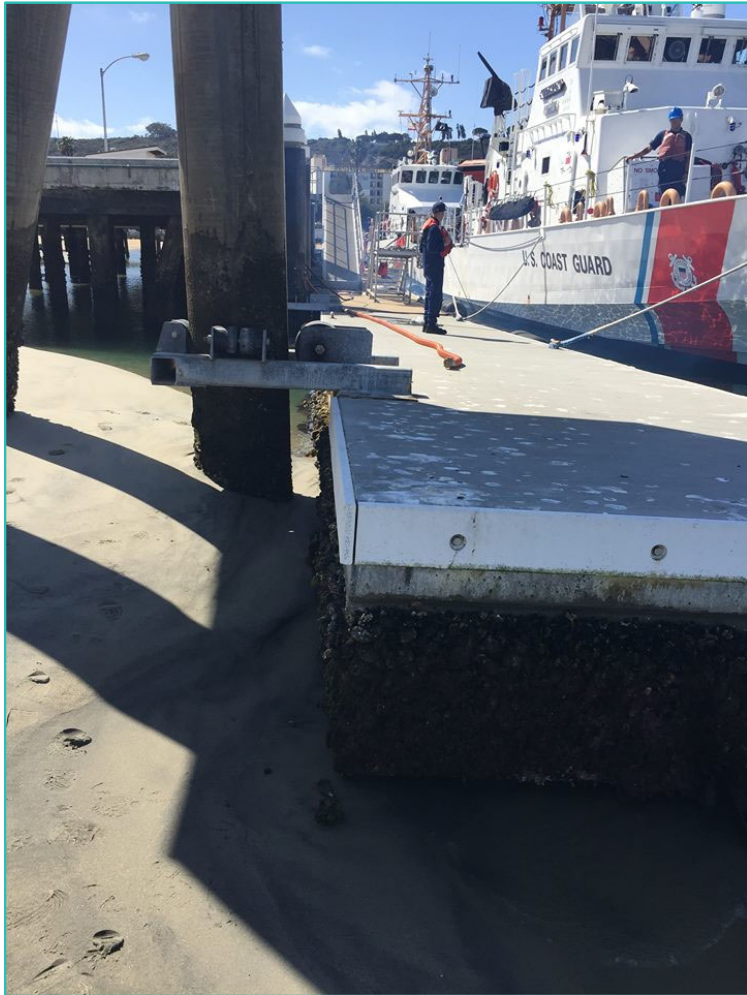
USCG Mooring Ballast Point

Predominant Current Movements



USCG Mooring Ballast Point

Emergency Dredging!

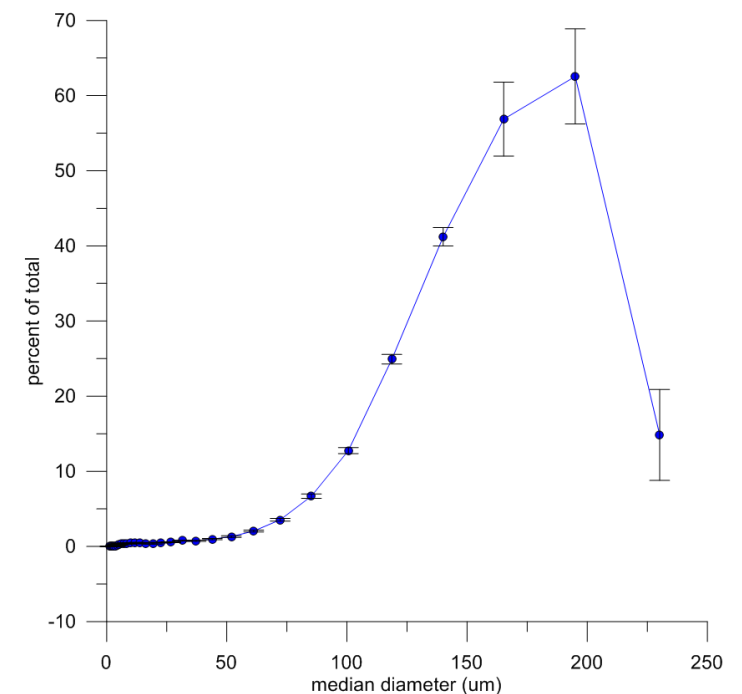


Hey USCG Sand! The Navy has a home for you!

Emergency Dredging - Compatibility Match!



USCG beach sediment grain size and std, based on 250 measurements

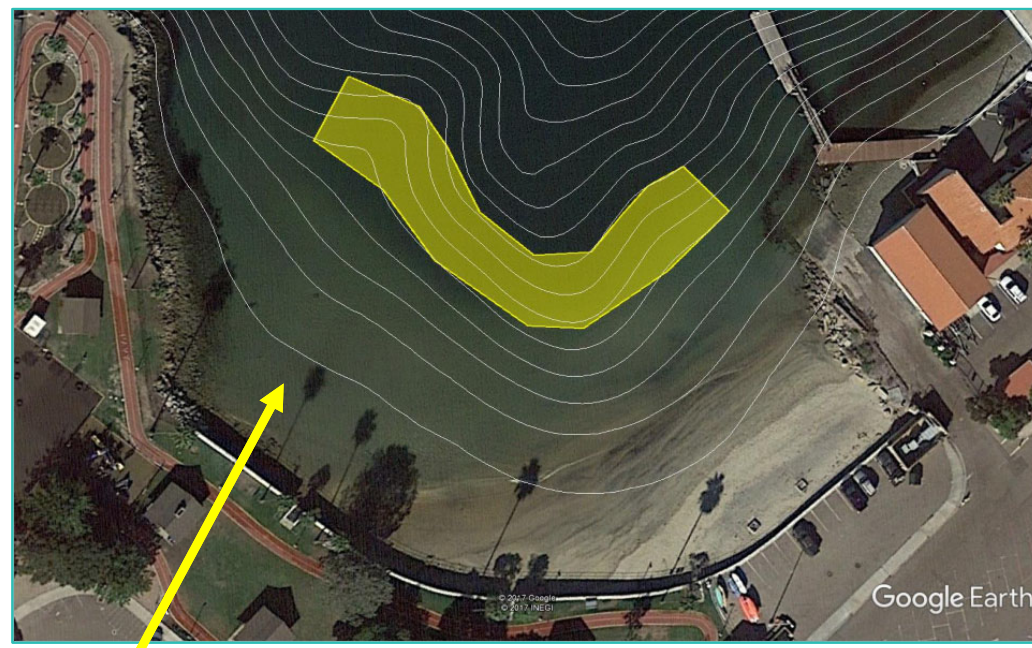
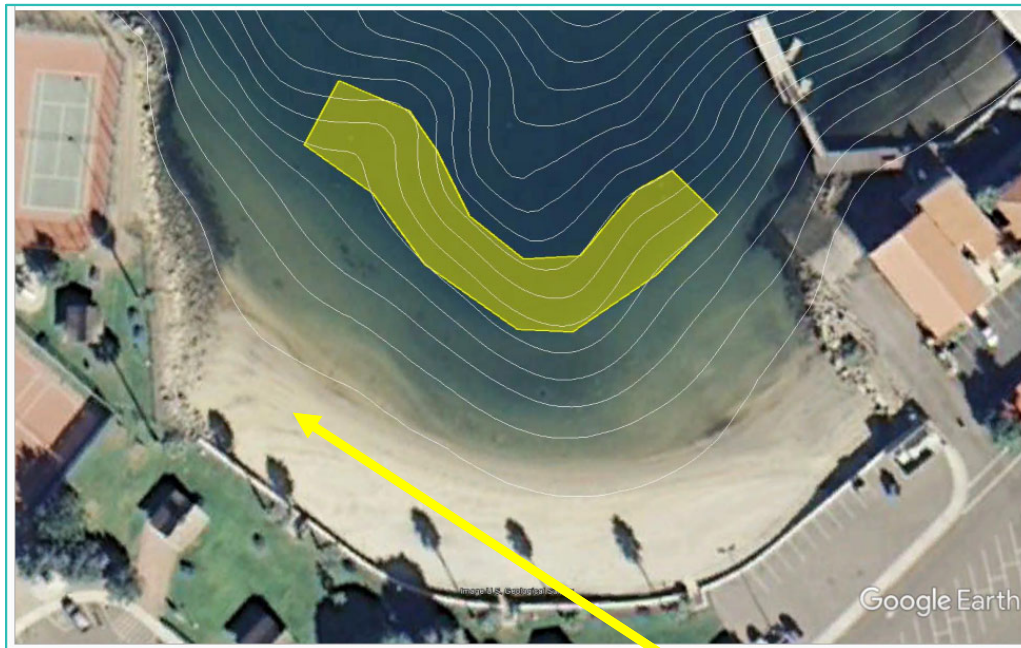


...maybe we can scheme up something more...?

Smugglers Cove Beach Extent 2000 vs 2016

2000

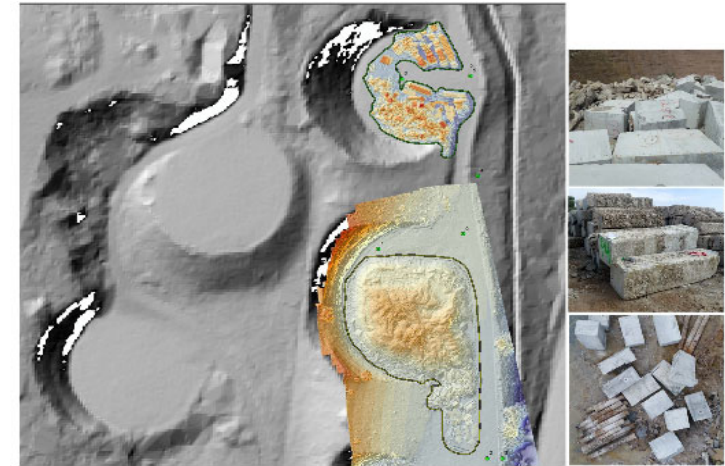
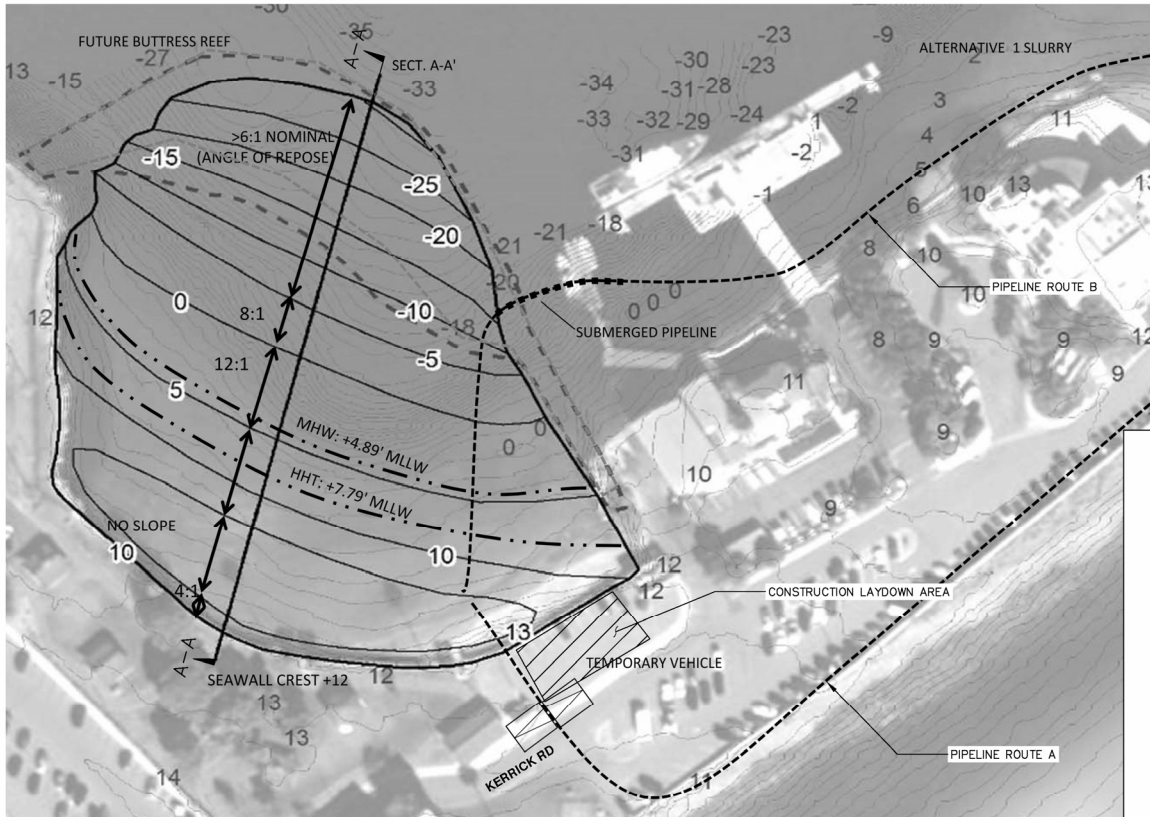
2016



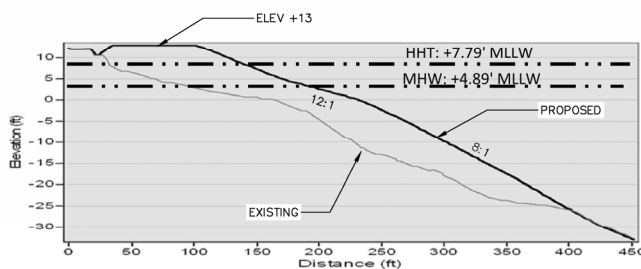
Originally started after 1983 El Niño

Welcome to FeISH Reef!

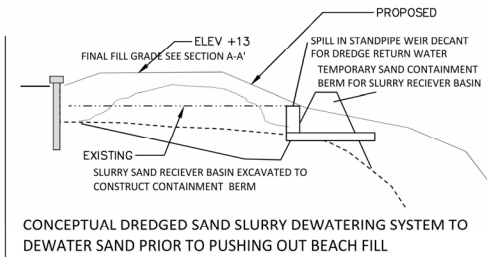
Navy Beneficial Reuse Plans



- Fish, eelgrass, Intertidal, Subtidal Habitat Reef (FeISH Reef)
- Reuse of construction debris (old concrete pier piles) leftover from Pier 180 demolition project & compatible sand from USCG MBP – solid waste diversion from landfill



SECTION A-A (INTERIM FILL)

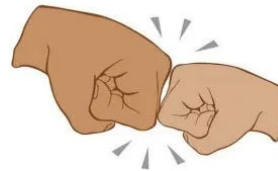


SECTION A-A (FILL)

Collaboration and Consultations

But first...sediment characterization and permits

- USCG seeks a 10-year maintenance dredging permit from the USACE for events totaling 30,000 cy or less to a maximum depth of -30 feet MLLW
- USCG in need of a long-term placement option for future dredging events
- Emergency – quick schedule and turn around necessary for sampling, analysis, and permitting
- Contract for dredging awarded summer of 2018 to conclude before least tern season of March 2019
- Reef construction target 2019-2020
- Eelgrass planting target 2021
- Long term monitoring of reef development necessary to ensure success
- Let's work together!



USCG Mooring Ballast Point – Maintenance Dredging



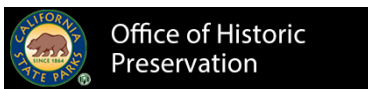
- USCG MBP sediment is perfect for the FeISH Reef!
- The Navy and the USCG are very interested in collaboration.
- Government shutdown presents potential delay in project progress.
- Agencies and teams still working during shutdown do so closely to prevent schedule delays.



Working!



Furloughed!

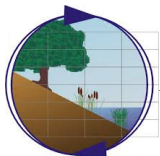


wood.



(haha)

(WSP)



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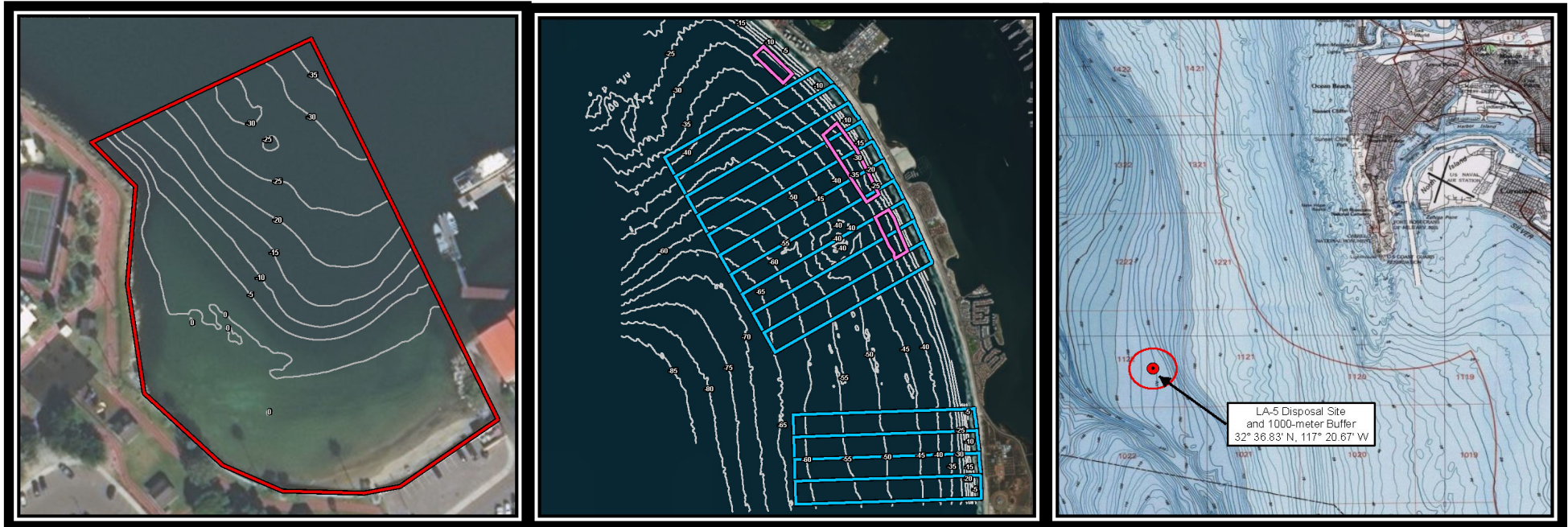
Interagency Hurdles

The Key to a Successful Project is Open and Constant Communication!

- Need Identified and Negotiations Started Early between Parties
- Navy Authorized USCG to place material in the Silver Strand Boatlanes as Back Up
- Lots of Navy, USCG regarding permitting and construction methods and overarching needs
- Lots of discussions with the regulatory agencies
 - Possible joint permit MOU was rejected in favor of synergistic individual permits



USCG Mooring Ballast Point – Maintenance Dredging

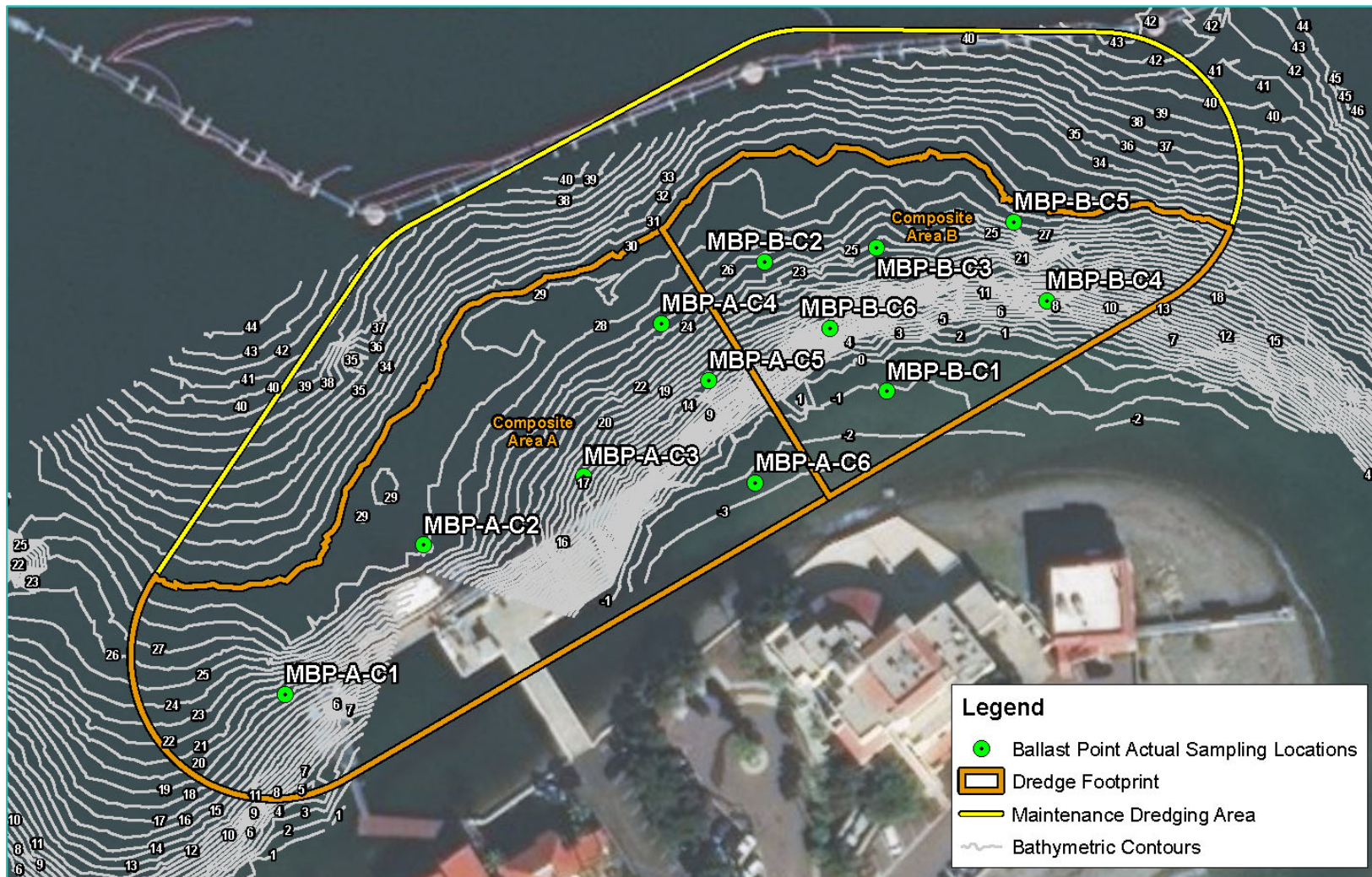


Sediment Investigation Performed in two parts

1. Preferred Disposal Option - Tier II Nearshore Beneficial Reuse
 - Smuggler's Cove (2019)
 - Silver Strand Boatlanes (2019 and future)
2. Backup Plan - Tier III Ocean Disposal

USCG Mooring Ballast Point – Maintenance Dredging

Sediment Characterization Study



USCG Mooring Ballast Point – Maintenance Dredging Permits

Timing Critical to Project Success

- USCG takes over permitting required for sediment dredging and beach construction while US Navy takes over permitting for construction of FeISH Reef
 - USCG plans to stockpile sediment at Smuggler’s Cove for future beneficial reuse in the construction of the FeISH Reef.
 - Dredging and placement activities
 - Shallow depths
 - Structural integrity of pier
 - Underwater rip-rap
 - Beach grading
 - Storm drains



USCG Mooring Ballast Point – Maintenance Dredging Activities



FeISH Reef Construction



FeISH Reef

- Reef was constructed using recycled pier pilings to buttress the sand beach fill creating a shallow lagoon transitioning to a widened beach
- Eelgrass was restored in June 2021 within the shallow lagoon to expand the Navy eelgrass mitigation bank and to further stabilize sand at lower shore margins
- Eelgrass and reef monitoring from 2021-2026



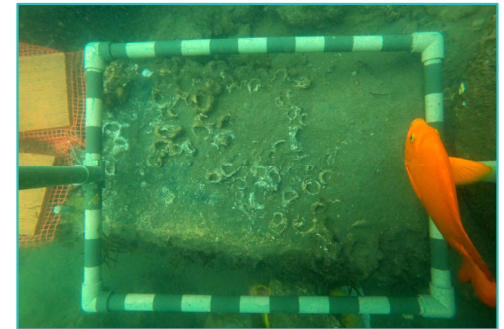
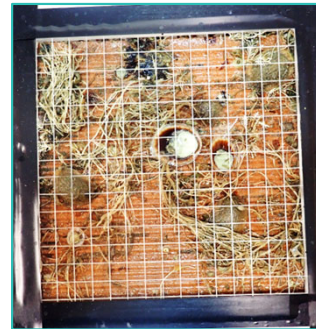
FeISH Reef

- Restored beach at Smuggler's Cove renamed "**La Playa de Perdue**" in memory of Mitch Perdue, architect of the project
- Dedication ceremony held in a COVID world



FeISH Reef

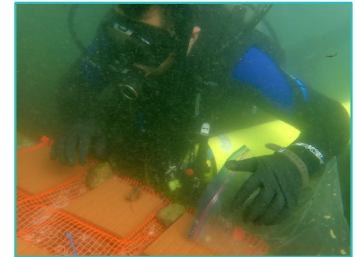
- Monitoring underway 2021-2026
 - Physical site stability and beach deformation studies
 - Reef habitat development and successional processes
 - Avian use investigations
 - Tracking and documenting status of eelgrass habitat as a Navy eelgrass mitigation bank site
 - Rigorous studies on reef by CSU Fullerton Master's student and M&A to support future restoration planning
- Preliminary studies showing non-sequential colonization on the reef substrate and rapid eelgrass establishment



FeISH Reef

Current Status of Reef, Lagoon, and Beach Complex

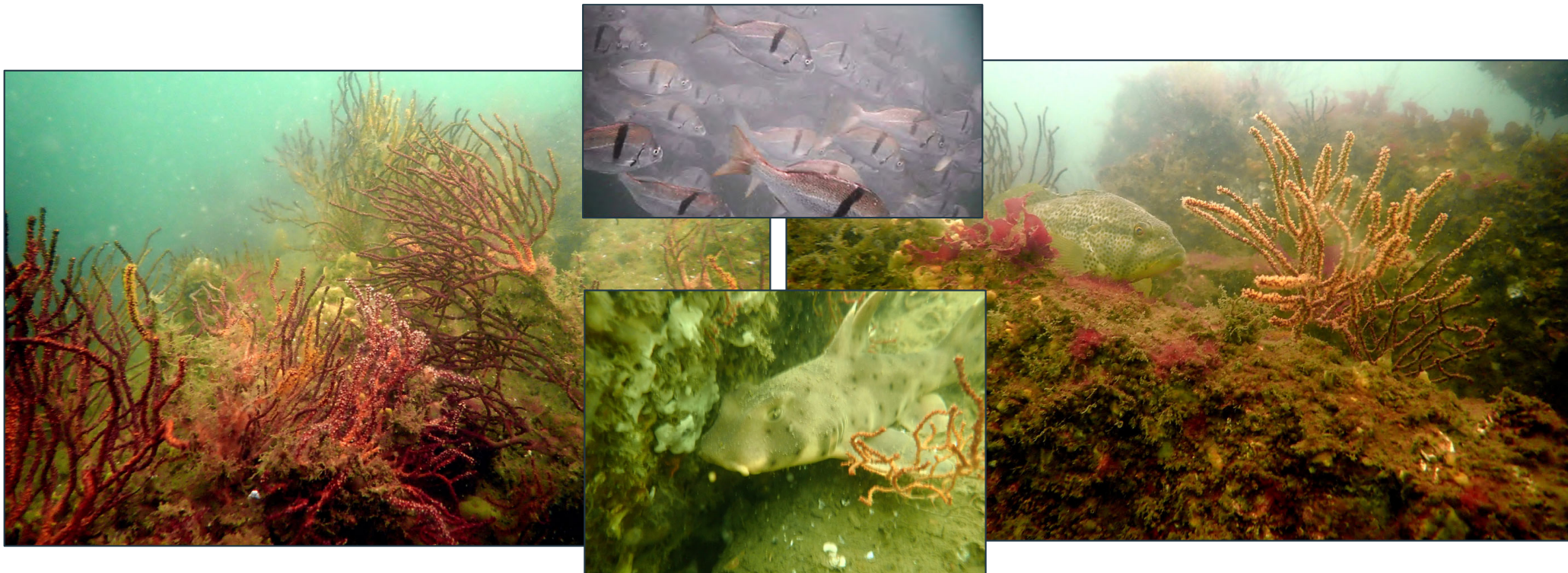
- Eelgrass establishment rapid but total distribution not yet stabilized
- Rapid recruitment of juvenile fish to reef with slower colonization of adult fish
- Expanding recruitment of lobster on reef and in eelgrass
- EFH managed fish species particularly California scorpionfish present on reef as juveniles and adults
- Project benefits two Habitat Areas of Particular Concern under Pacific Groundfish Fisheries Management Plan



FeISH Reef

Where are we hoping to go from here?

- NBSD Pier 12 demolished and used to create reef in San Diego Bay in 2012 and by 2016 Pier 12 supported a diverse reef community
- FeISH is located in a better position to benefit from open coastal influence
- Anticipate diverse community reflecting both open coast and bay species



Acknowledgements



The success of this project utilized a huge and highly skilled team



United States Coast Guard: Gilda Barboza, Erin Hale, Dave Stalter, Guiljohn A. Alcantara

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Agencies: Robert Revo Smith (USACE), Allan Ota (USEPA), Bryant Chesney (NMFS), Eric Chavez (NMFS), Sandy Vissman (USFWS)

Consultants: Keith Merkel (Merkel & Associates), Alan Alcorn (Moffat & Nichol), Aaron Goldschmidt, Matt Sauter, Barry Snyder (Wood)

Subcontractors: Chris Clark and Stephen LaMothe (Six Scientific Service and Leviathan Environmental), EcoAnalysts (Toxicity Evaluations and Bioaccumulation Exposure Testing), Physis Analytical Laboratory (sediment and tissue chemistry),

Dredgers: Rebekah Antoine and team at Curtain Maritime (dredging and material stockpiling), R.E. Staite (reef and final beach construction).

