# Eelgrass Management : Challenges, Opportunities and the Pillar Point Case Study

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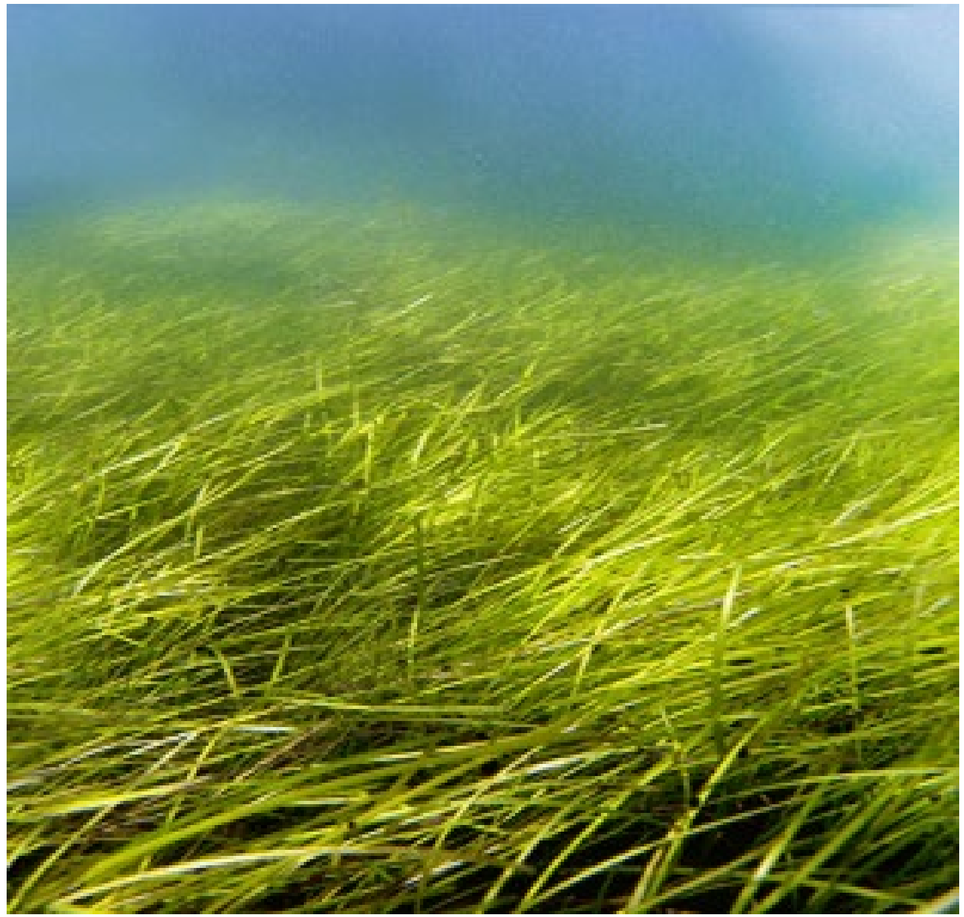
# Eelgrass Ecosystem Services

- Water clarification, sediment trapping, sediment stabilization (de Boer 2007)
- Nutrient transformation and water oxygenation (Yarbro and Carlson 2008)
- Primary producer in detritus-based food webs (Thresher et al. 1992)
- Grazed upon by numerous invertebrates, fish, birds, and sea turtles (Valentine and Heck 1999)
- Provides physical structure habitat component for many species and acts as a nursery habitat for many species (Heck et al. 2003)
- Shoreline protection (Benson et al. 2025)
- Carbon sequestration (Duarte and Krause-Jenson 2017)



# Challenges and Conflicts

- Public Perception – Eelgrass is a weed that fouls propellers, engines, and fishing gear. Eelgrass washes ashore and causes odors and attracts beach hoppers and flies.
- Eelgrass does well in harbors where it is protected
- It needs sufficient hours of sunlight for photosynthesis but marinas, piers, and shoreline structures cause shading and channels diminish light at the bottom

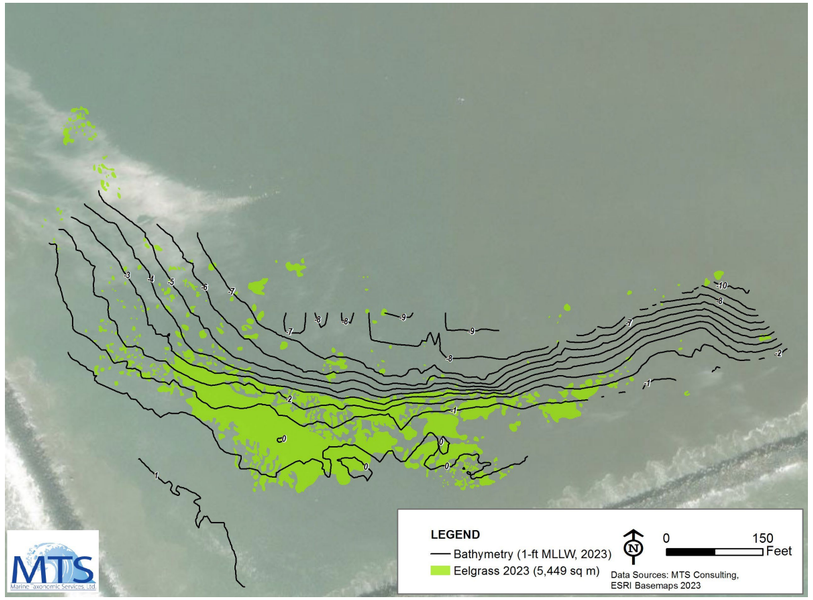

# Pillar Point Eelgrass Story

## Shoaling and Maintenance Needs

- Boat Launch Dredging
- East Basin Navigation Dredging

## Surfers Beach Restoration

- Sand entrained in the harbor could be put back into the littoral cell




# Pillar Point Eelgrass Story

## Preliminary Surveys

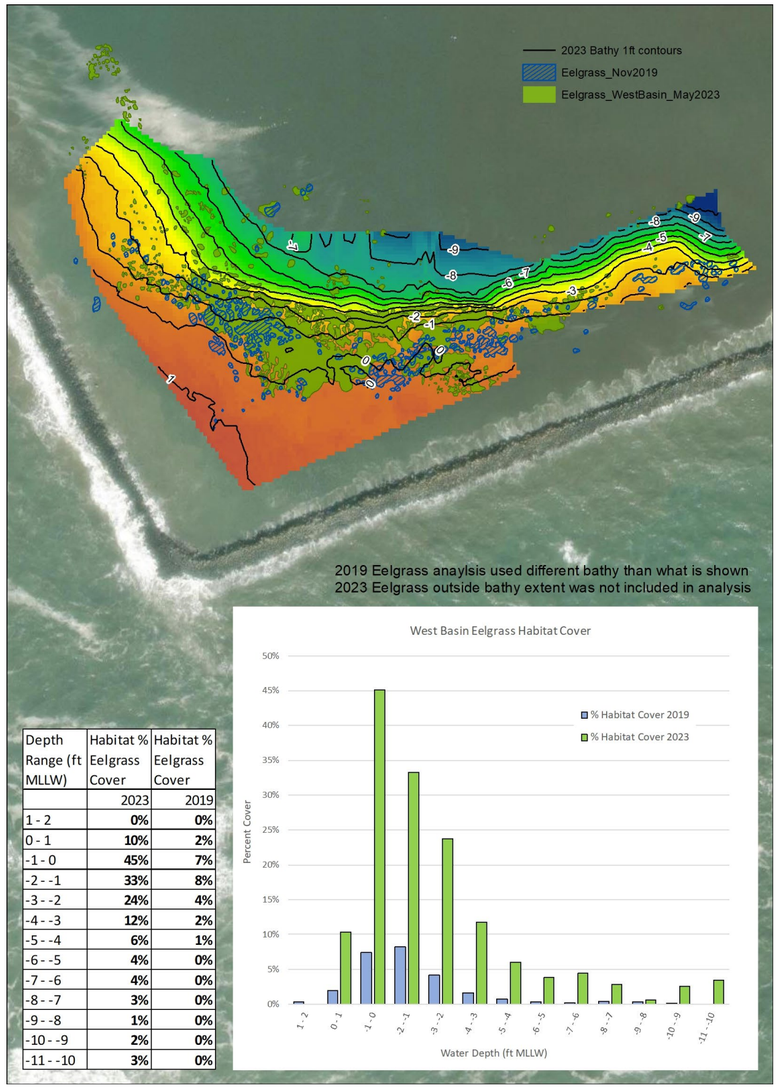
- East Basin eelgrass associated with shoaling
- Relatively concentrated in its occurrence
- Suitable habitat was present in the West Basin far removed from berthing, navigation, and launching areas

# Pillar Point Eelgrass Story

We decided the best course of action

# Pillar Point Eelgrass Story

## We developed a model




| Depth Range (ft MLLW) | Habitat % Eelgrass Cover | Habitat % Eelgrass Cover |
|---|---|---|
| | 2023 | 2019 |
| 1 - 2 | 0% | 0% |
| 0 - 1 | 10% | 2% |
| -1 - 0 | 45% | 7% |
| -2 - -1 | 33% | 8% |
| -3 - -2 | 24% | 4% |
| -4 - -3 | 12% | 2% |
| -5 - -4 | 6% | 1% |
| -6 - -5 | 4% | 0% |
| -7 - -6 | 4% | 0% |
| -8 - -7 | 3% | 0% |
| -9 - -8 | 1% | 0% |
| -10 - -9 | 2% | 0% |
| -11 - -10 | 3% | 0% |

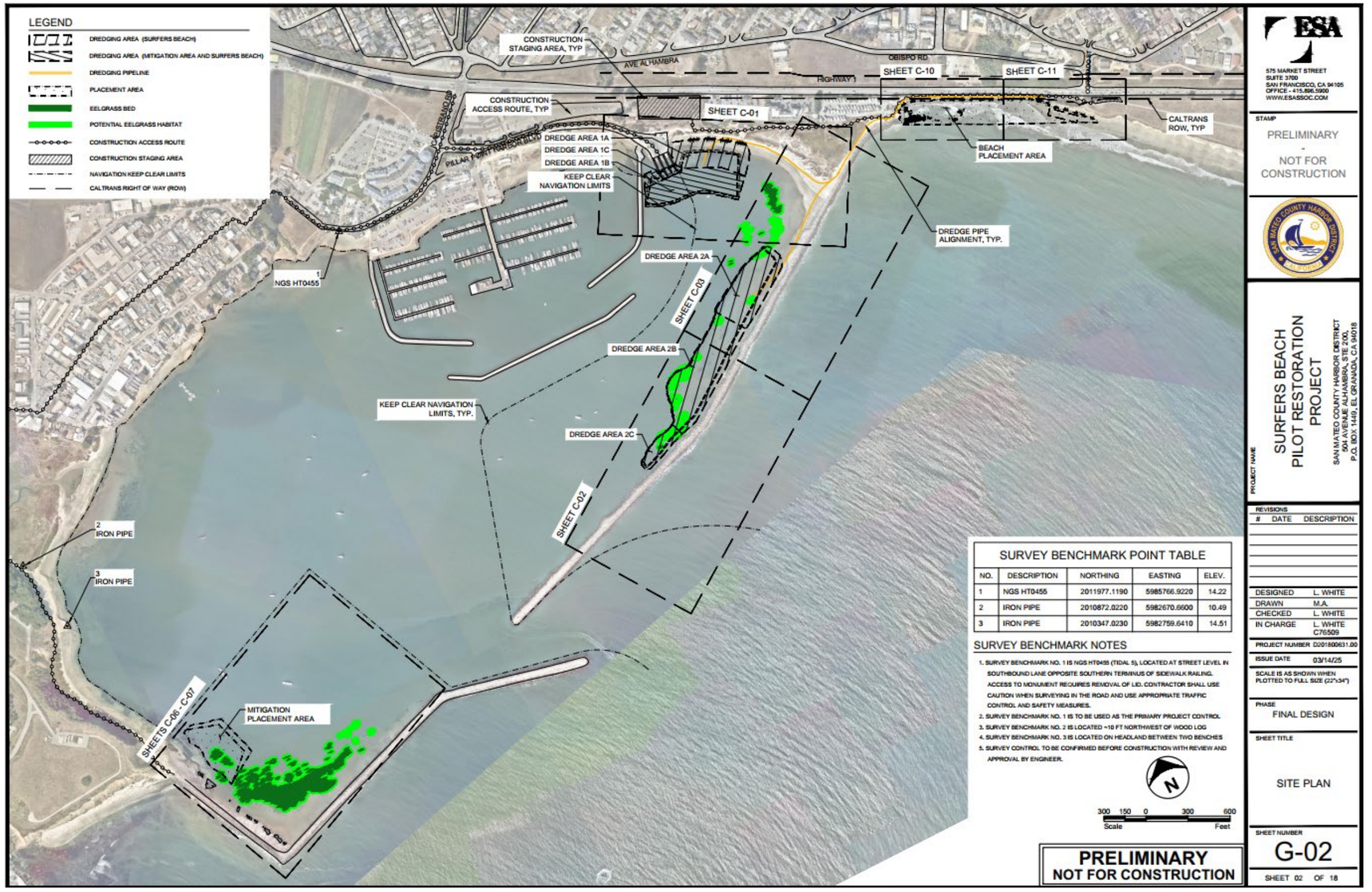



- A fancy way of saying we looked at the combination of where it grew and what the depths were
- In the West Basin it grew very well at shallow depths between 0 and  -3’ MLLW

## Pillar Point Eelgrass Story

# We planned the site

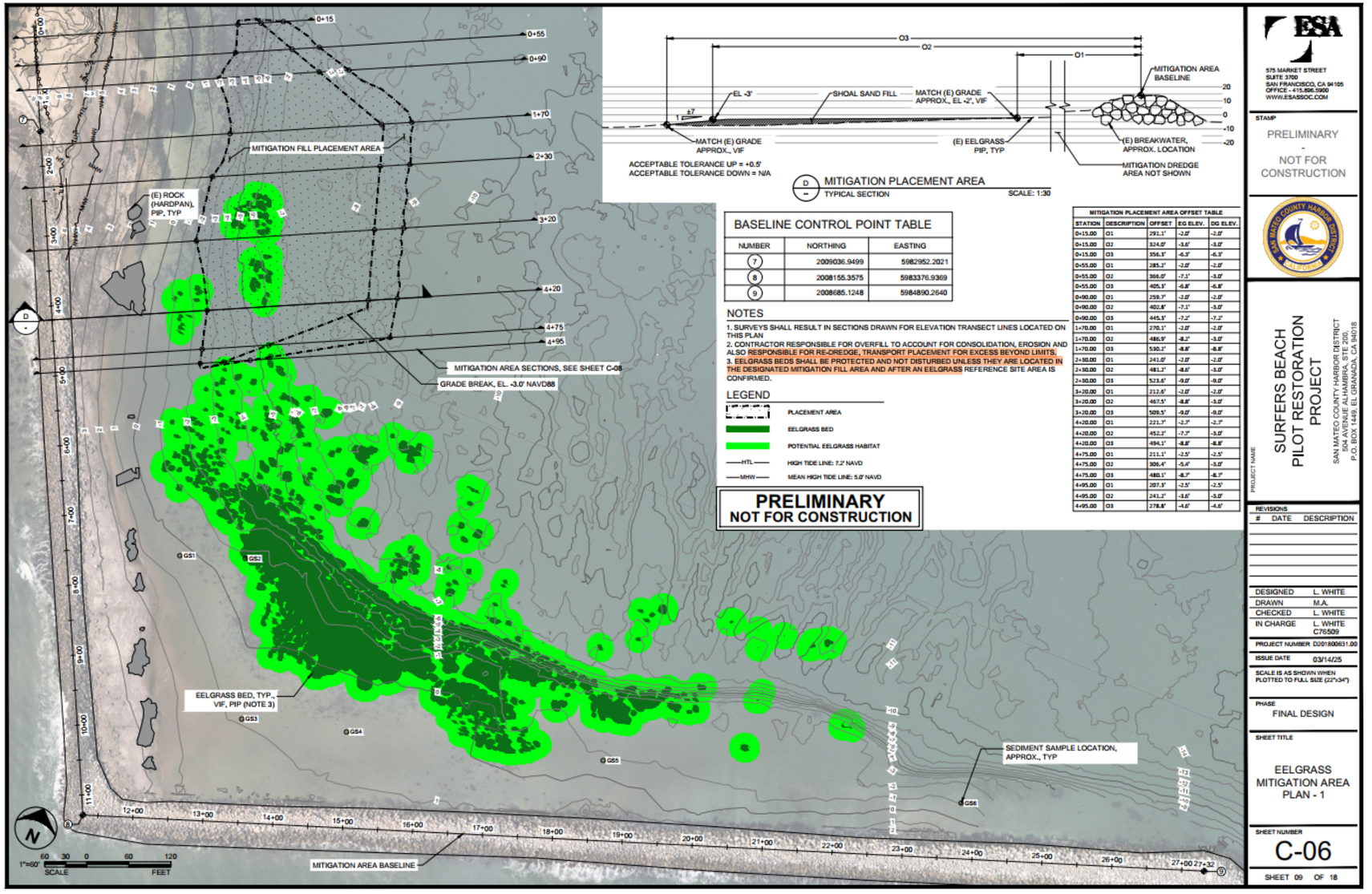
- Specified -2 to -3’ MLLW
- About 1 eelgrass transplant unit per 1.5 square meters



# Pillar Point Eelgrass Story

## We planned the site

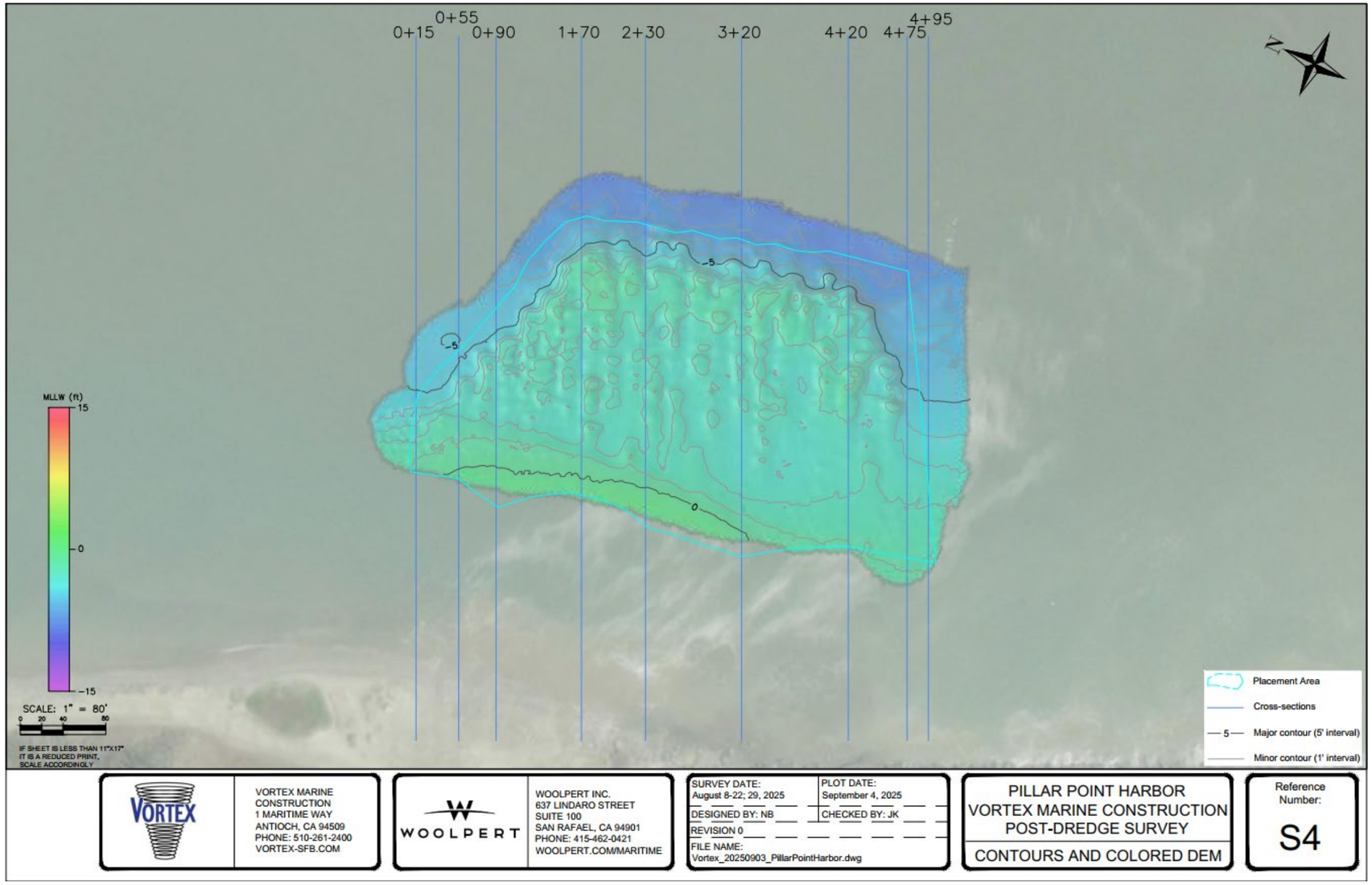
- Planned to move soft sediments not suitable for Surfers beach first, then add sandy material



# Pillar Point Eelgrass Story

## We built the site

- Ended up getting a good mix of -1 to -3’ MLLW



# Pillar Point Eelgrass Story

## We are planting the site

- Eelgrass units are going in as we speak
- First step  - harvest

## Pillar Point Eelgrass Story

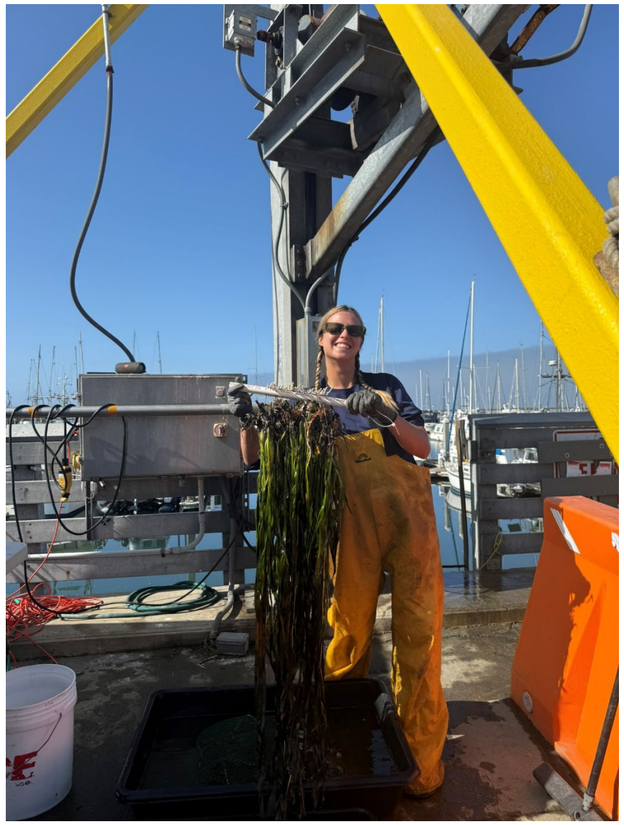
We planted the site

- Second step - bundle

# Pillar Point Eelgrass Story

## We planted the site

- Third step - prep for divers and plant



# Advance & Future Planning Examples:

City of Newport Beach

- Has an adopted eelgrass plan
- Works within the CEMP
- In conjunction with RGP 54 and routine eelgrass monitoring allows for “temporary” impacts to eelgrass associated with maintenance dredging

Port of San Diego

- Developed a strategic document outlining opportunities for eelgrass restoration
- Where restoration has occurred, has often over planted to maintain eelgrass mitigation banks

# What's Next for Pillar Point Harbor?

5 years of performance monitoring

- Once successful may retain surplus as an eelgrass mitigation bank

Future Dredging

- Structure as maintenance and the eelgrass that grows back within the current dredge footprints should not require additional mitigation
- Any new dredge areas that impact eelgrass may be able to be mitigated through surplus held as a mitigation bank in the West Basin

# Questions?

Thank you!

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