# Importance of Recontamination Potential When Considering Remediation of Contaminated Sediment Sites in San Diego Bay

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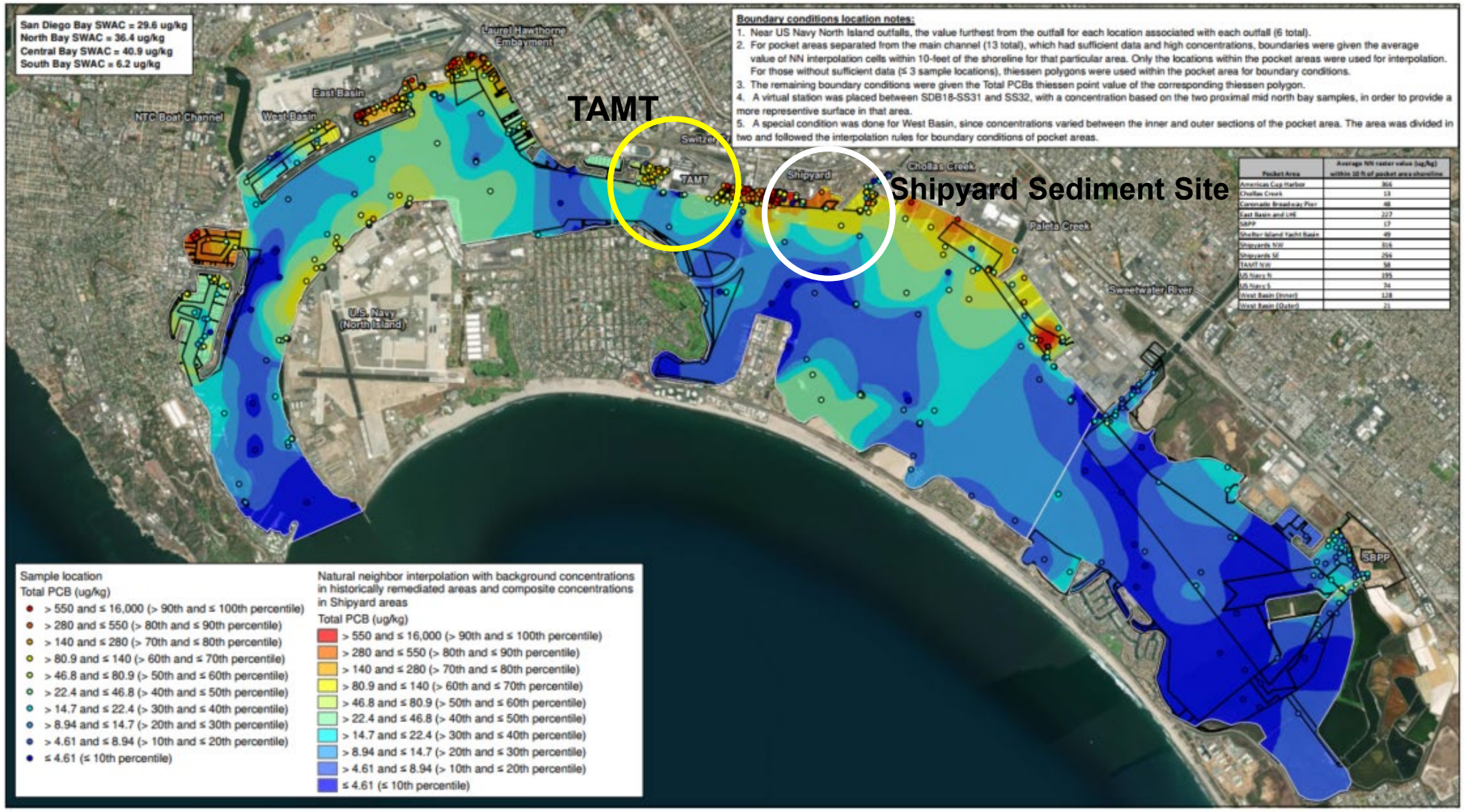
# PCBs in Surface Sediments



# San Diego Bay Cleanup Levels Pursuant to Resolution No. 92-49

- Sediment remediation is conducted to protect beneficial uses like aquatic life, wildlife, and human health
- San Diego Water Board is obligated to have a presumptive cleanup goal to require cleanup to attain background water conditions (the water quality that existed before the discharge)
- San Diego Water Board may establish a cleanup level above background water quality conditions, if the Board determines it is technologically or economically infeasible to achieve background water quality conditions

# Shipyard Sediment Site Background

Cleanup and Abatement Order
No. R9-2012-0024

March 14, 2012

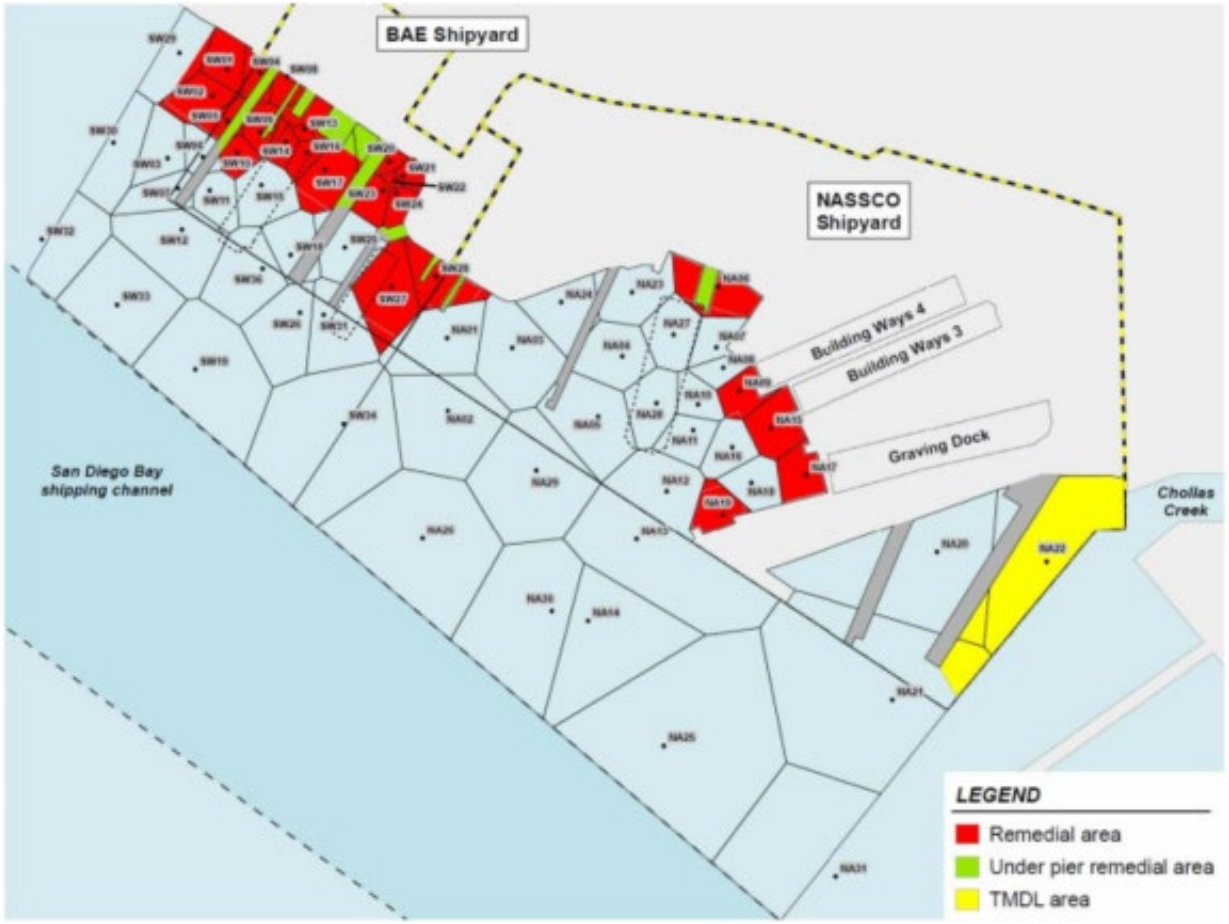
**Table 1. Background Sediment Chemistry Levels**

| Chemicals of Concern | Units (dry weight) | Background Sediment Chemistry Levels[1] |
|---|---|---|
| **Primary COCs** | | |
| Copper | mg/kg | 121 |
| Mercury | mg/kg | 0.57 |
| HPAHs[2] | µg/kg | 663 |
| PCBs[3] | µg/kg | 84 |
| Tributyltin | µg/kg | 22 |
| **Secondary COCs** | | |
| Arsenic | mg/kg | 7.5 |
| Cadmium | mg/kg | 0.33 |
| Lead | mg/kg | 53 |
| Zinc | mg/kg | 192 |

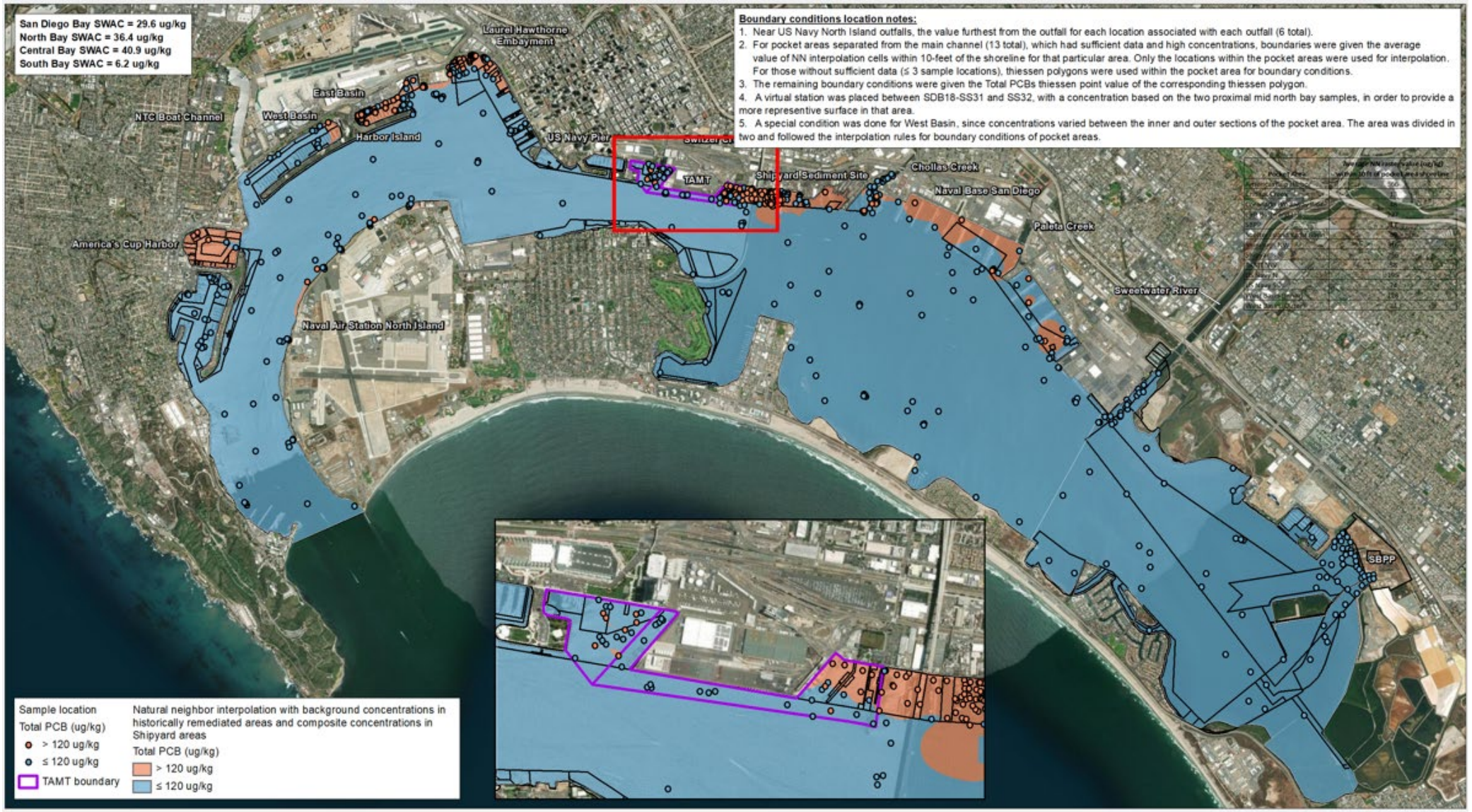
1. Equal to the 2005 Reference Pool's 95% upper predictive limits shown in Section 18 of the *Technical Report for Cleanup and Abatement Order No.R9-2012-0024*. The background levels for metals are based on the %fines:metals regression using 50% fines, which is conservative because the mean fine grain sediment at the Shipyard Investigation Site is 70% fines.
2. HPAHs = sum of 6 PAHs: Fluoranthene, Perylene, Benzo[a]anthracene, Chrysene, Benzo[a]pyrene, and Dibenzo[a,h]anthracene.
3. PCBs = sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.

**Table 2. Alternative Cleanup Levels: Shipyard Sediment Site**

| Aquatic Life | Aquatic Dependent Wildlife and Human Health | |
|---|---|---|
| Remediate all areas determined to have sediment pollutant levels likely to adversely affect the health of the benthic community. | Surface Weighted Average Concentrations (site-wide) | |
| | Copper | 159 mg/kg |
| | Mercury | 0.68 mg/kg |
| | HPAHs[1] | 2,451 µg/kg |
| | PCBs[2] | 194 µg/kg |
| | Tributyltin | 110 µg/kg |



# Distribution of PCBs in Surface Sediment in Relation to 120 µg/kg (84 µg/kg partial sum)



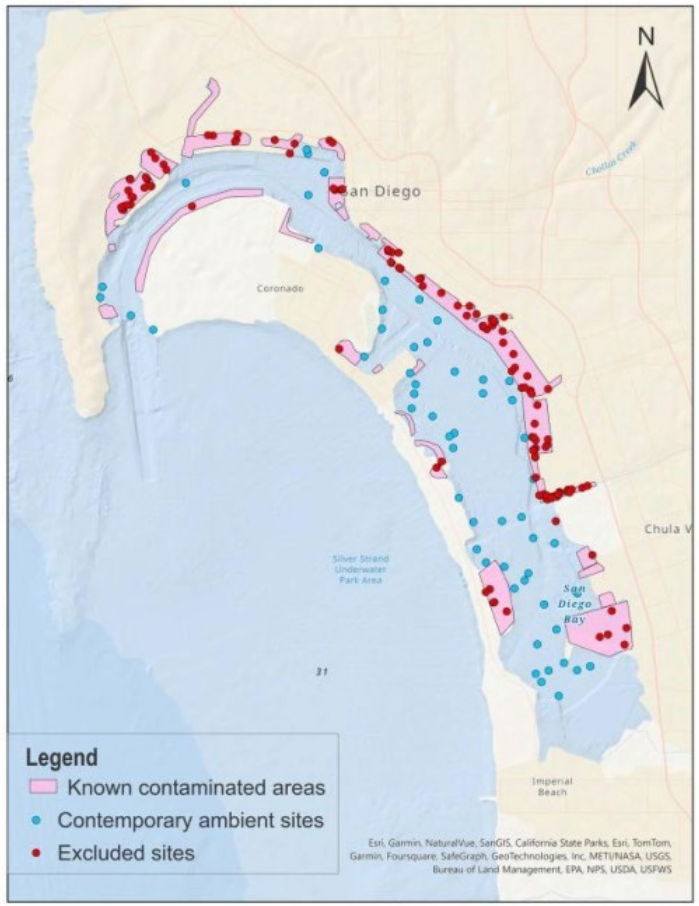
# San Diego Regional Water Quality Control Board

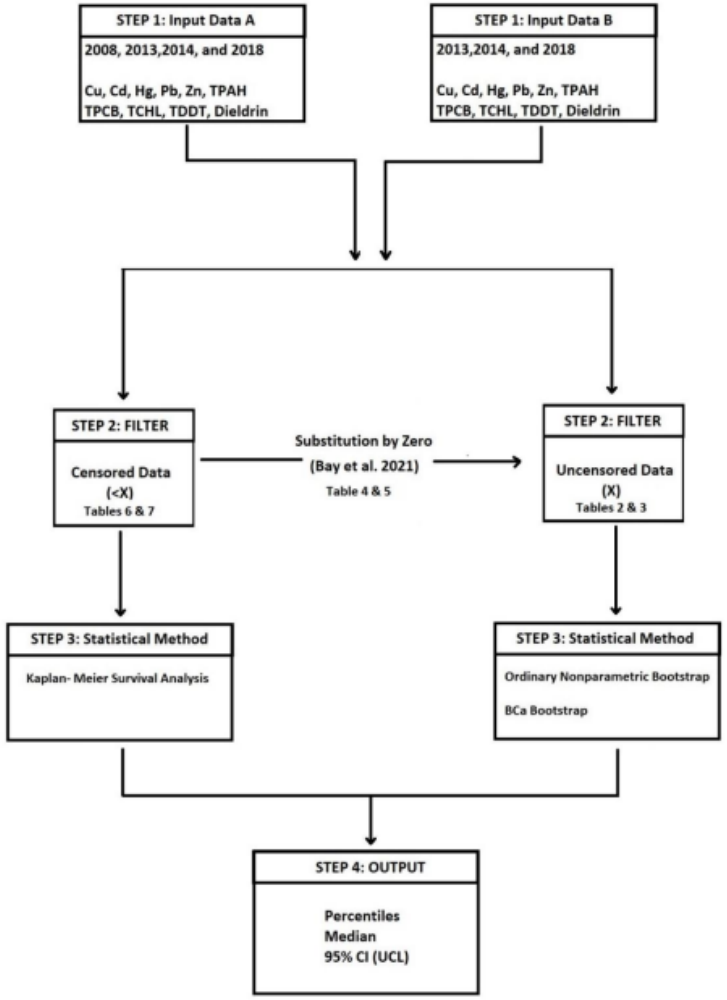
SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

SAN DIEGO BAY SEDIMENT POLLUTANTS: EVALUATION OF CONTEMPORARY AMBIENT CONCENTRATIONS TO INFORM WATER QUALITY MANAGEMENT

January 2024

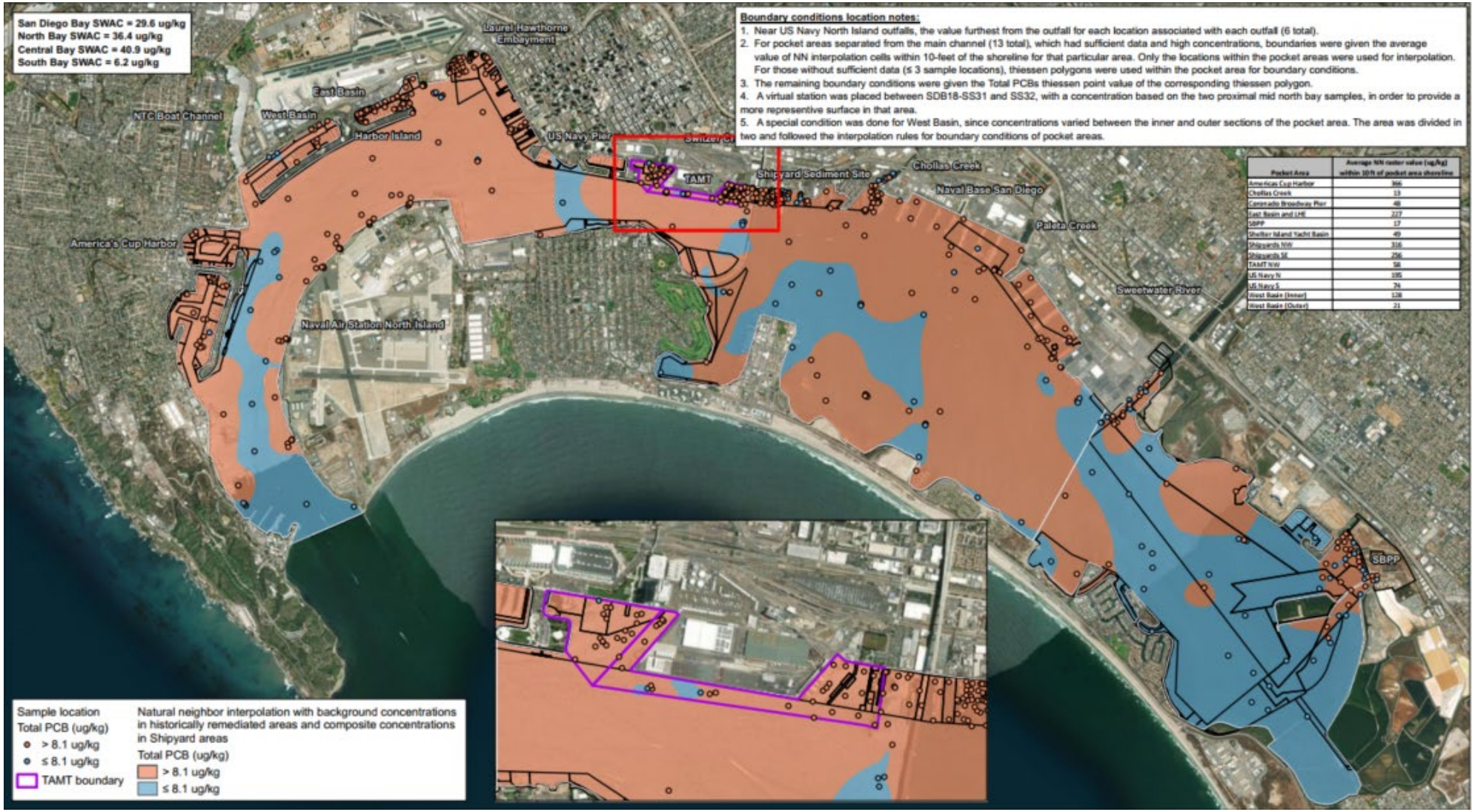
Figure 5. Map of San Diego Bay Depicting Final Contemporary Ambient Sites, Known Contaminated Areas, and Excluded Sites.



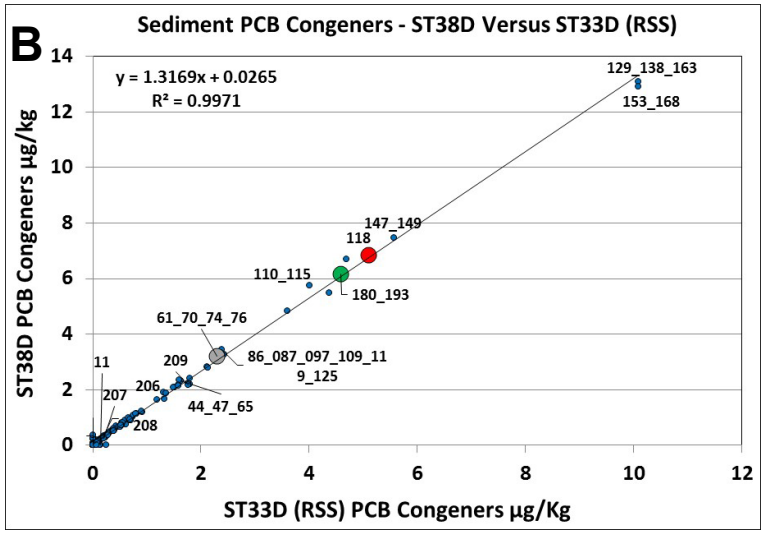



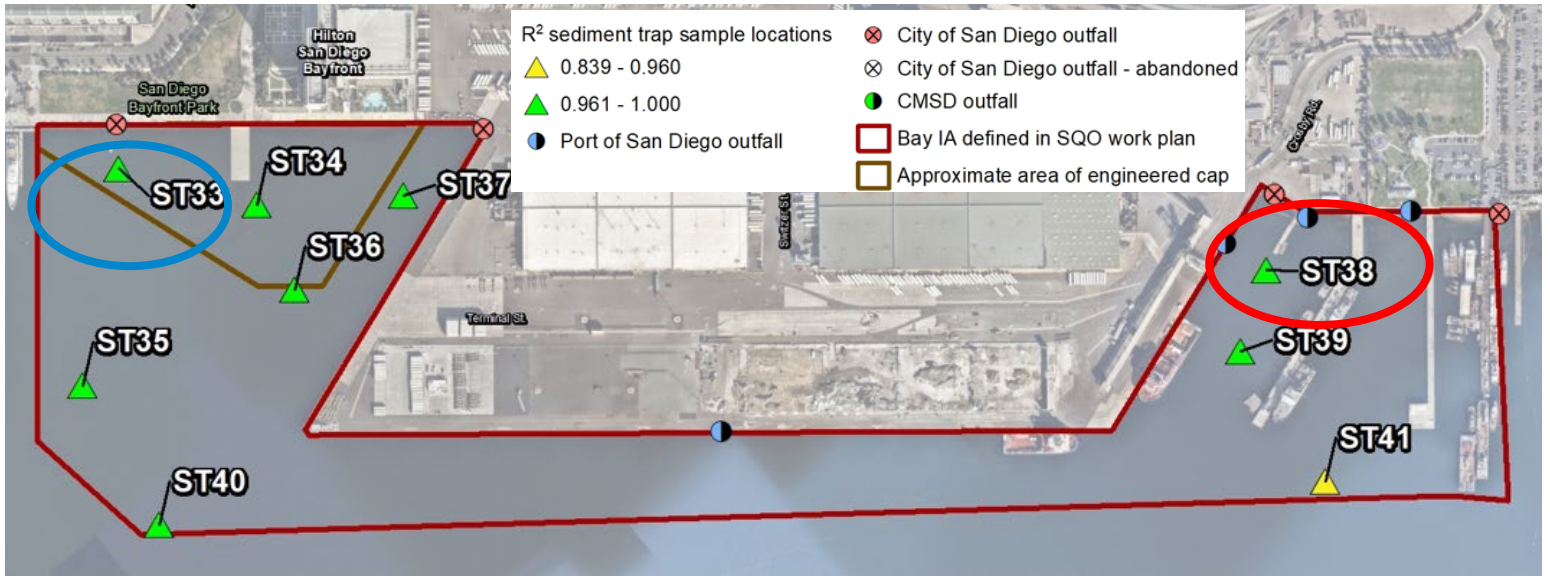

- **Background of 5.27-5.67 µg/kg (subset of congeners), estimated 7.53 to 8.10 µg/kg (all congeners)**
- **Mediation at a site, Water Board used a background PCB value of zero.**

# Distribution of PCBs in Surface Sediment in Relation to 8.10 µg/kg

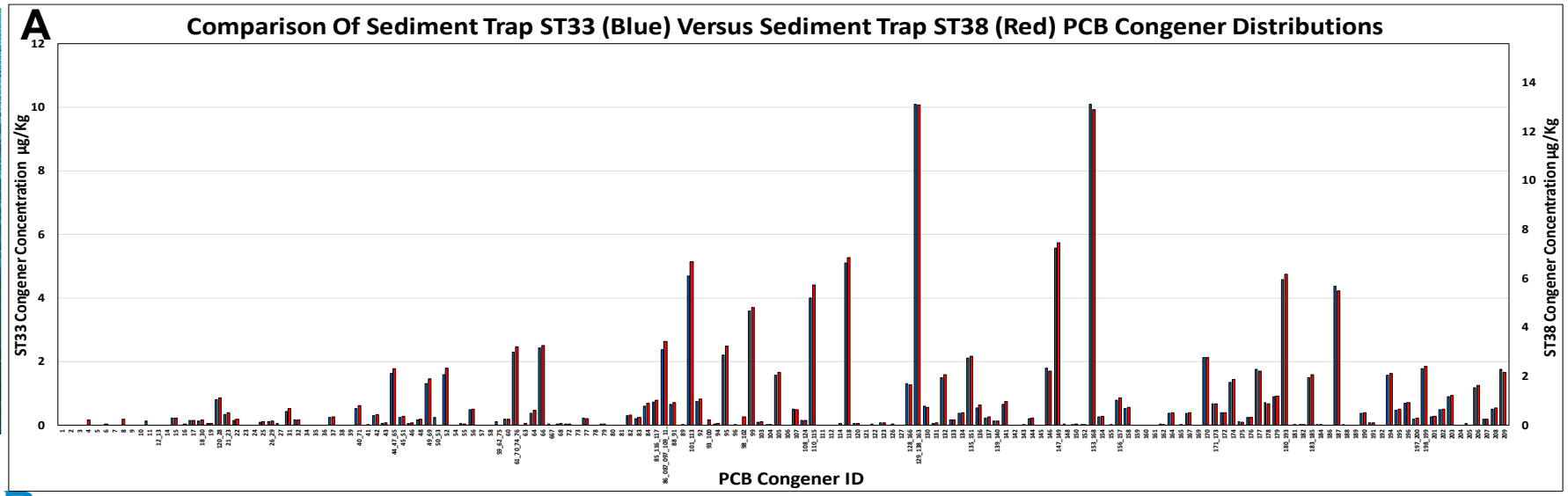


# Use of Forensics to Evaluate PCB Patterns in Sediment Trap Samples

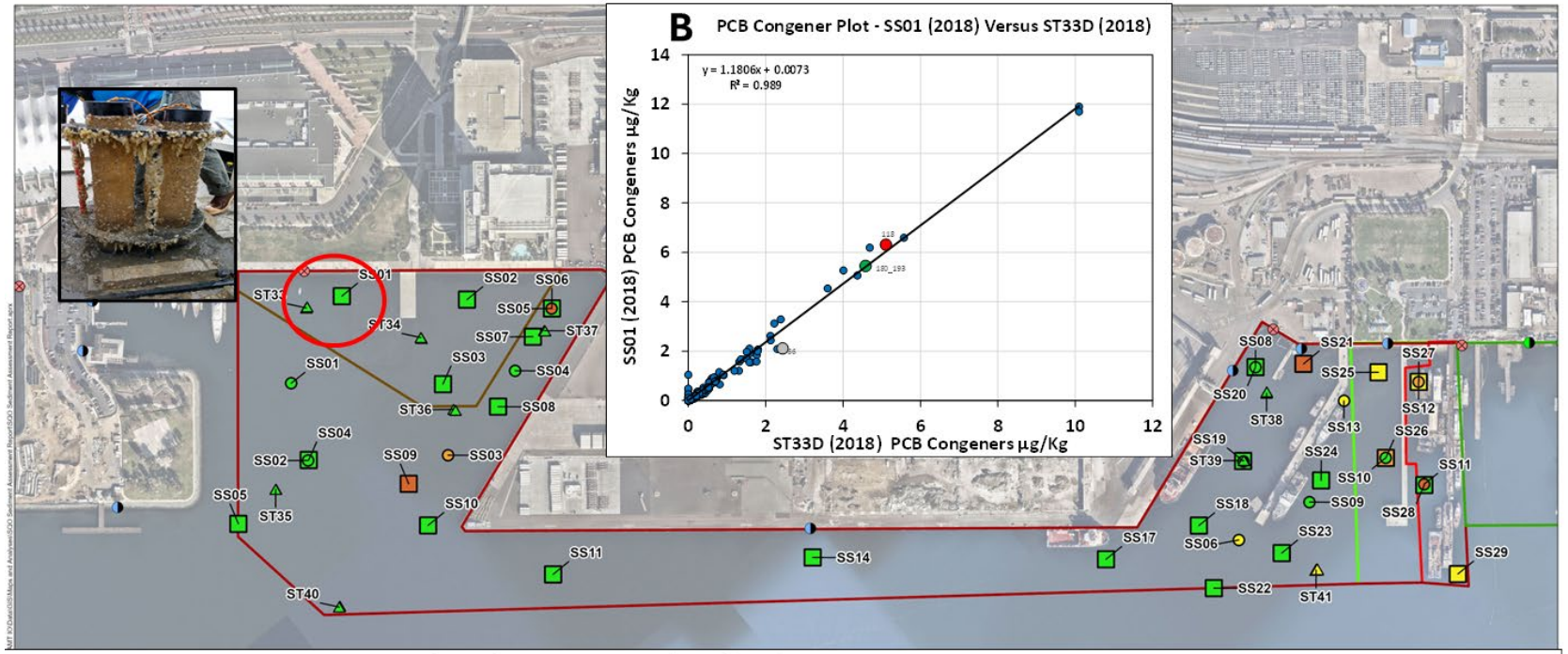


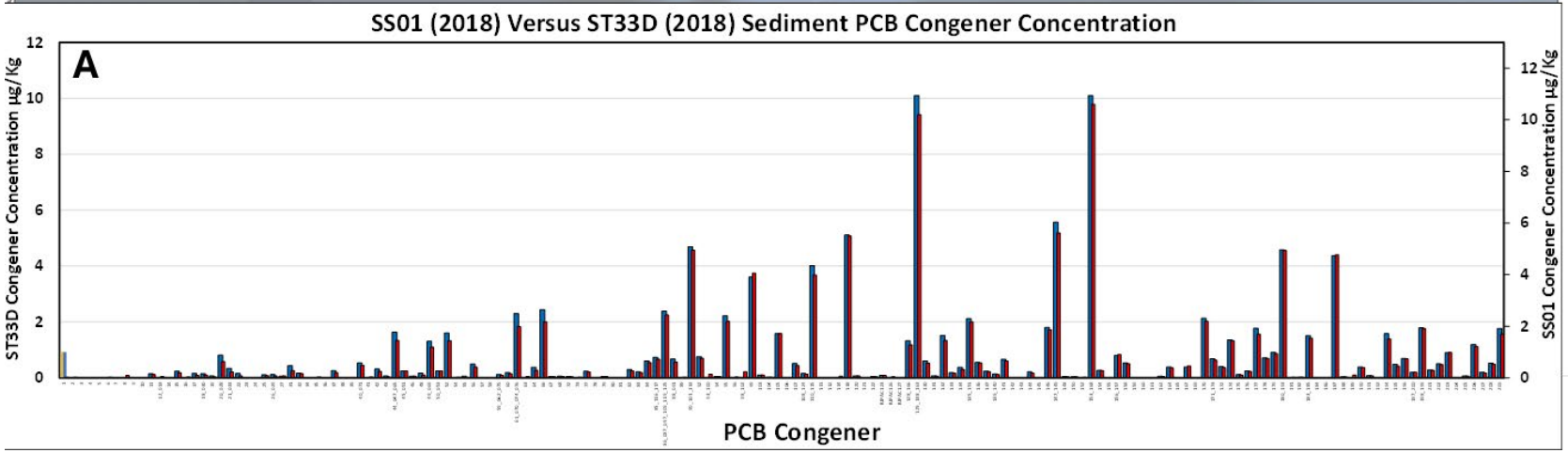





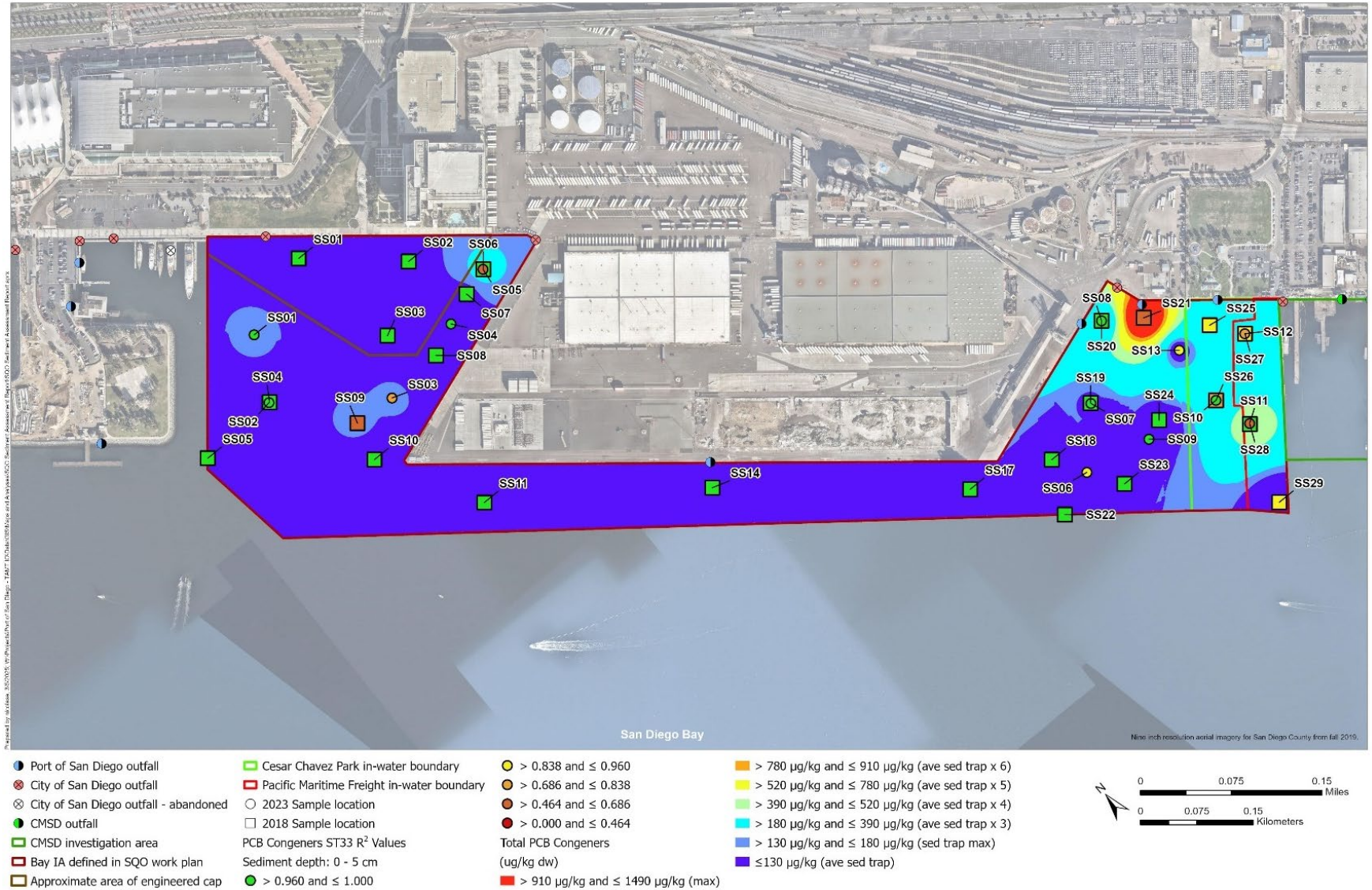



# Comparison of PCB Signatures in Sediment Trap Samples to Surface Sediment



# 2018 and 2023 Total PCB Concentrations and Signatures in Surface Sediment Relative to RSS



# Conclusions

Recommend use of sediment traps to assess site-specific recontamination potential

Offers a more accurate basis for predicting post-remedial sediment concentrations

Sets realistic expectations for long-term remediation outcomes

# Thank you!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