

PSNS&IMF ENVVEST/NPDES Ambient Monitoring

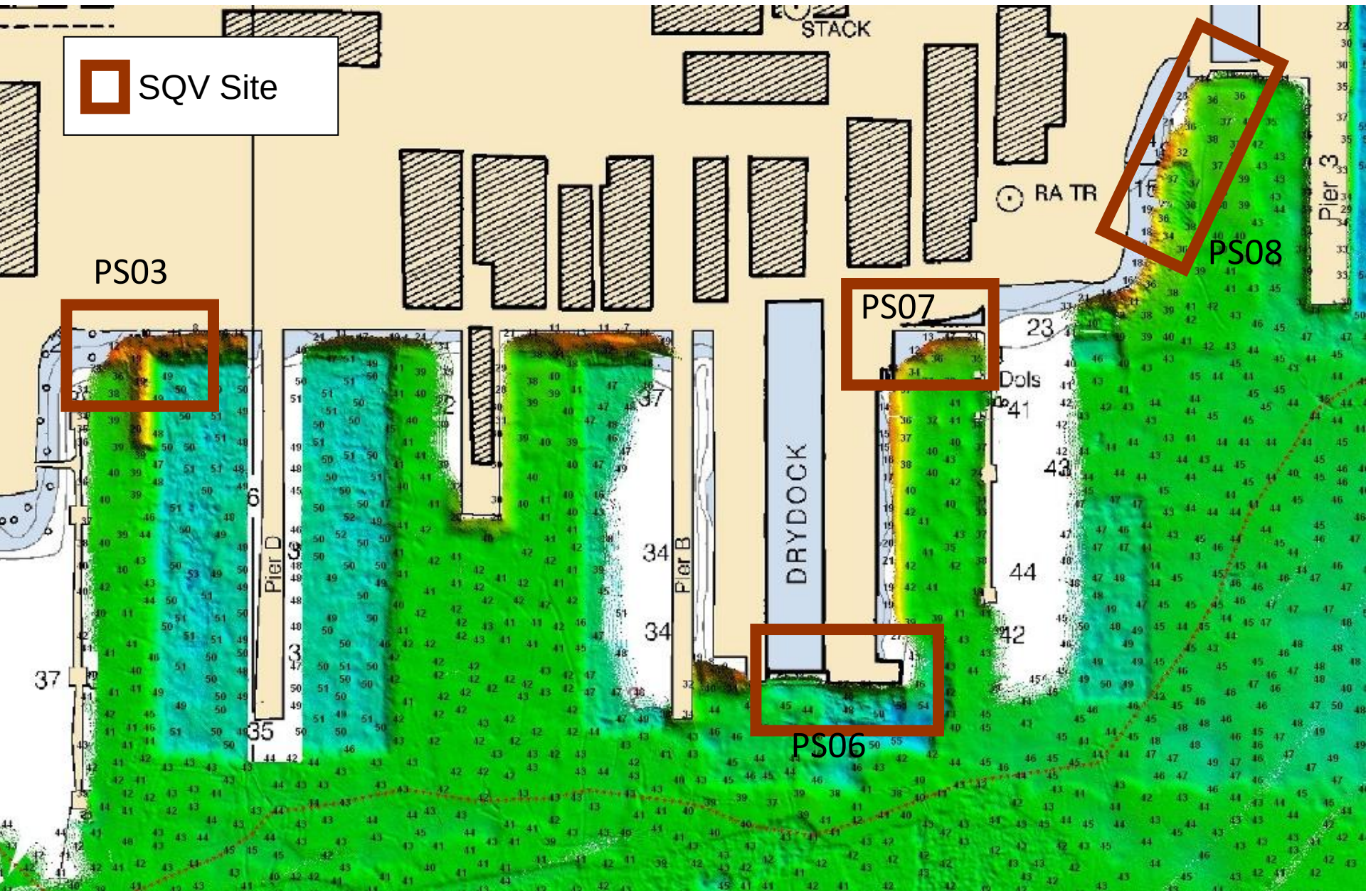
- **Seasonal Sampling of Water and Effluents**
 - Chemistry – Metals (Ag, Al, As, Cd, Cr, Cu, Hg, Pb, Zn), Nutrients, TOC/DOC, TSS, Oceanographic Salinity
 - Toxicity Testing of Effluents & Ambient Water
- **Biota – Mussel Watch (Semi-Annual)**
 - Metals, PAHs, PCBs, $\delta^{13}\text{C}$, $\delta^{15}\text{N}$, Lipids
- **Fecal Coliform**
 - Monthly for ambient marine; Storm Events for Stormwater
- **Stormwater Monitoring - 3 Events/OF (Storm Events >0.25” in 24hr)**
 - Representative Stations within CIA and NBK (6 stations)
 - Auto samplers programmed for rain, conductivity, tide height
 - Event Mean Concentrations – Metals, Nutrients, TOC/DOC, TSS
 - Grab Samples – TPH, FC
- **Sediment Monitoring**
 - Coordination with 2010 OUBM sediment monitoring (metals and PAHs)
 - Sediment Quality Verification (fill data gaps)
 - Support for R&D Studies

Sediment Quality Verification (SQV) Sampling Objectives

- Establish baseline for continuous process improvement
- Characterize silt and sediment in the vicinity of outfalls and dry docks (eg operational areas not included in OUB sediment monitoring)
- Provide data to assess sediment impact zones for NPDES discharges
- Provide data to assess anti-degradation requirements for water quality certifications needed for pier and dry dock infrastructure improvements
- Provide data to support R&D studies of sediment treatability and bioavailability

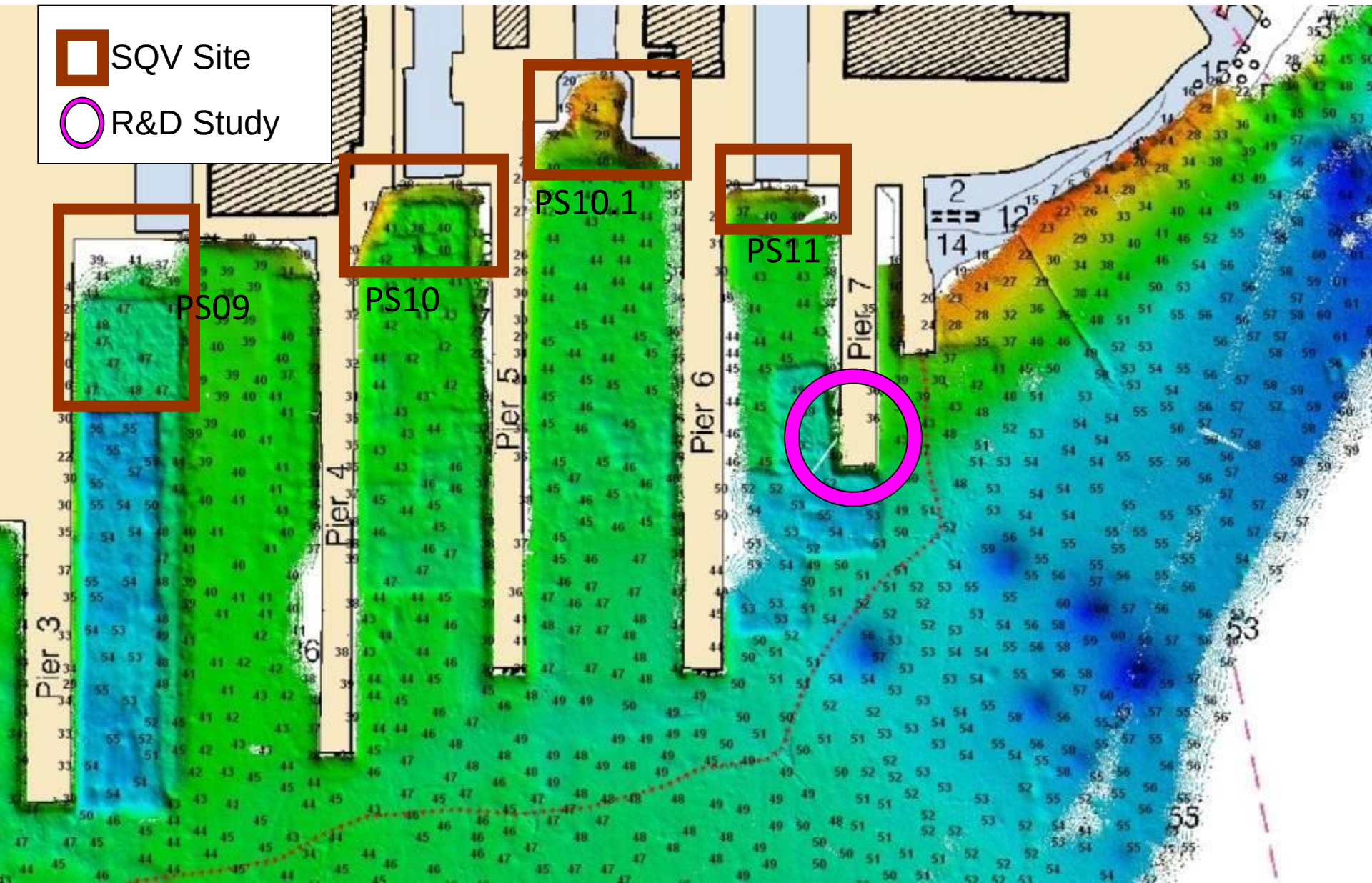
SQV Technical Approach

- Characterize Surface and Deep Sediment Conditions at High Priority Locations
 - All Samples
 - Screening Metals (XRF); PAHs, PCBs (ImmunoAssay)
 - Total Hg Analysis
 - Confirmation for Subset of Samples
 - Metals (ICMP/MS); PAHs, PCBs (GC/MS)
 - Evaluate Bioavailability
 - Pore Water Concentrations
 - Toxicity Assessment
- Support R&D Projects on treatability and bioavailability
 - SPAWAR: Laboratory Reactive Amendment Treatability Studies. Environmental Security Technology Certification Program (ESTCP) Proposal
 - ERDC-ERL. Assessing the bioavailability of contaminated sediments, proposal for the Strategic Environmental Research and Development Program (SERDP).

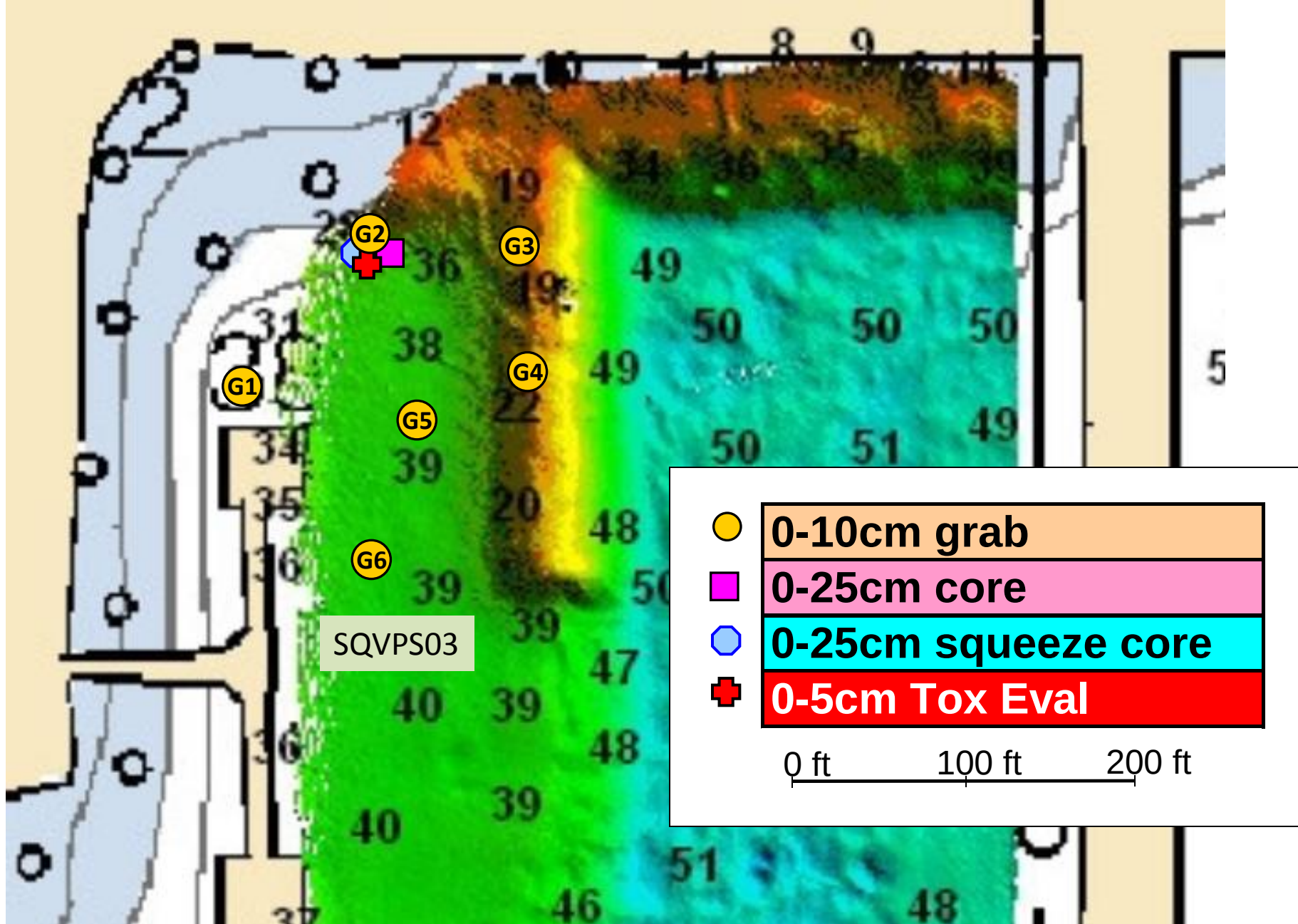


SQV Sampling Areas (West Side)

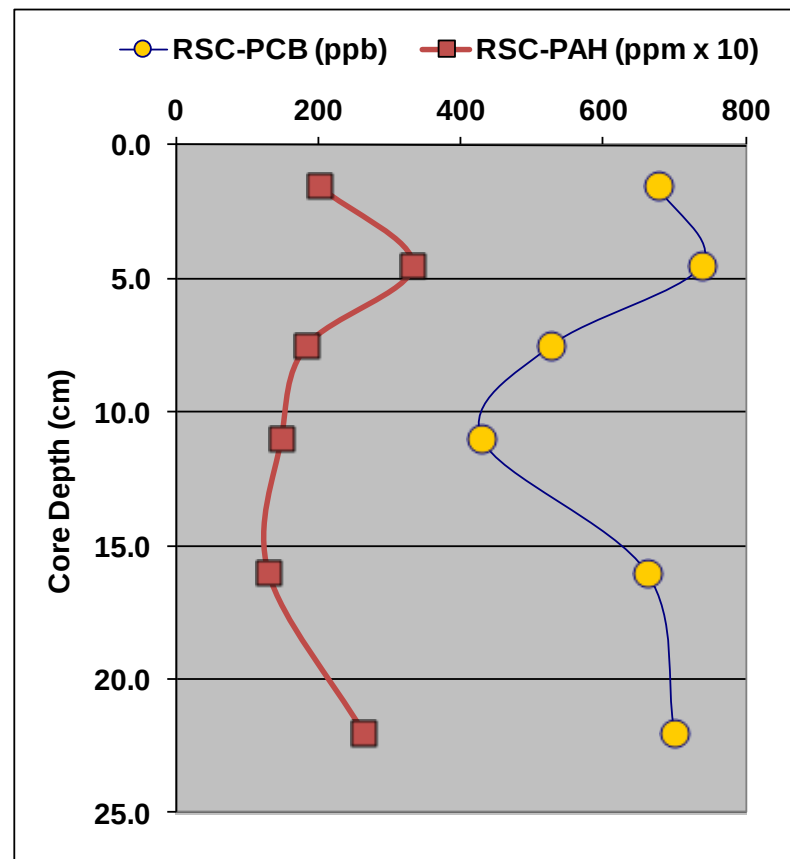
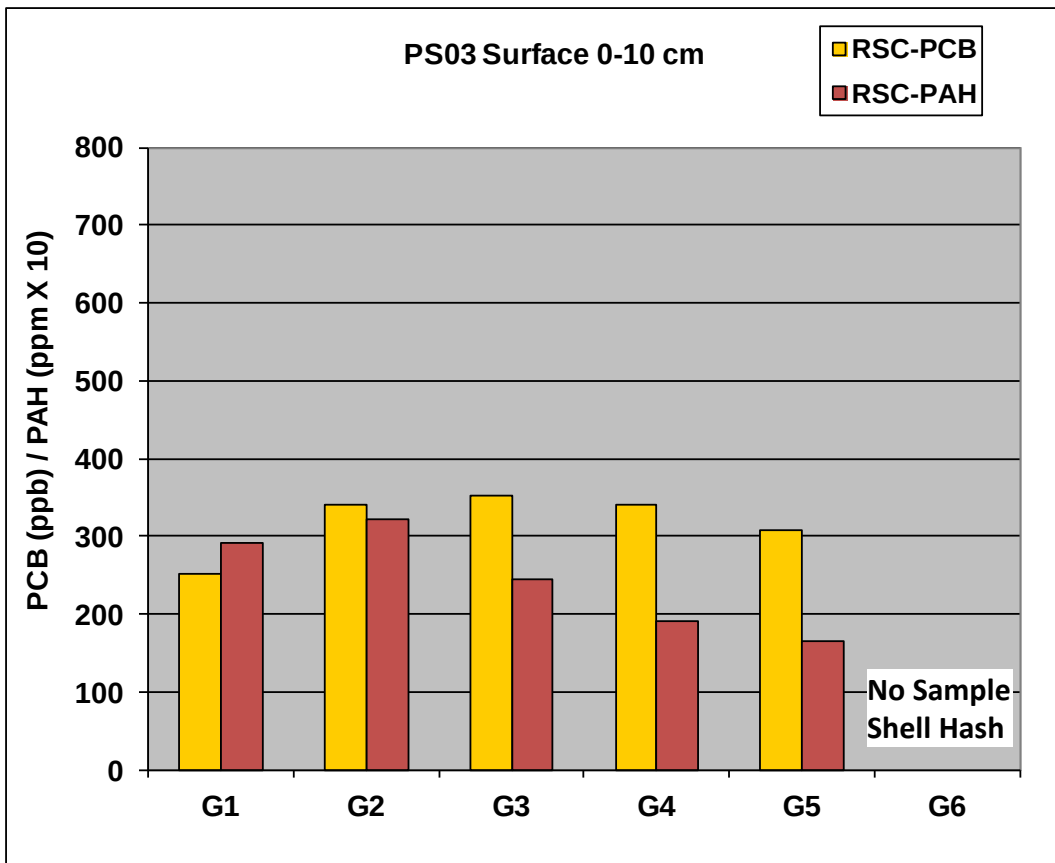
□ SQV Site
○ R&D Study



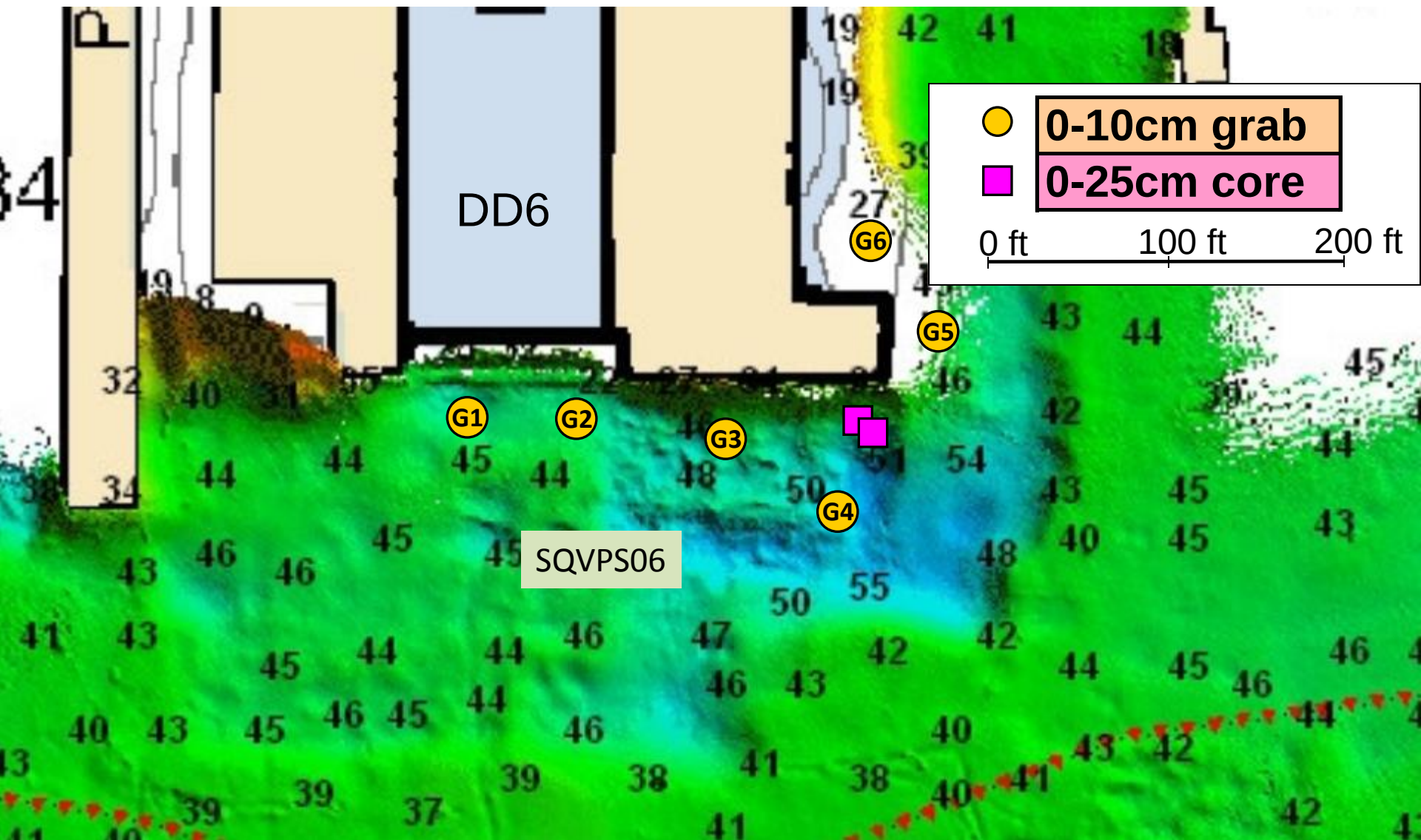
SQV Sampling Areas (East Side)



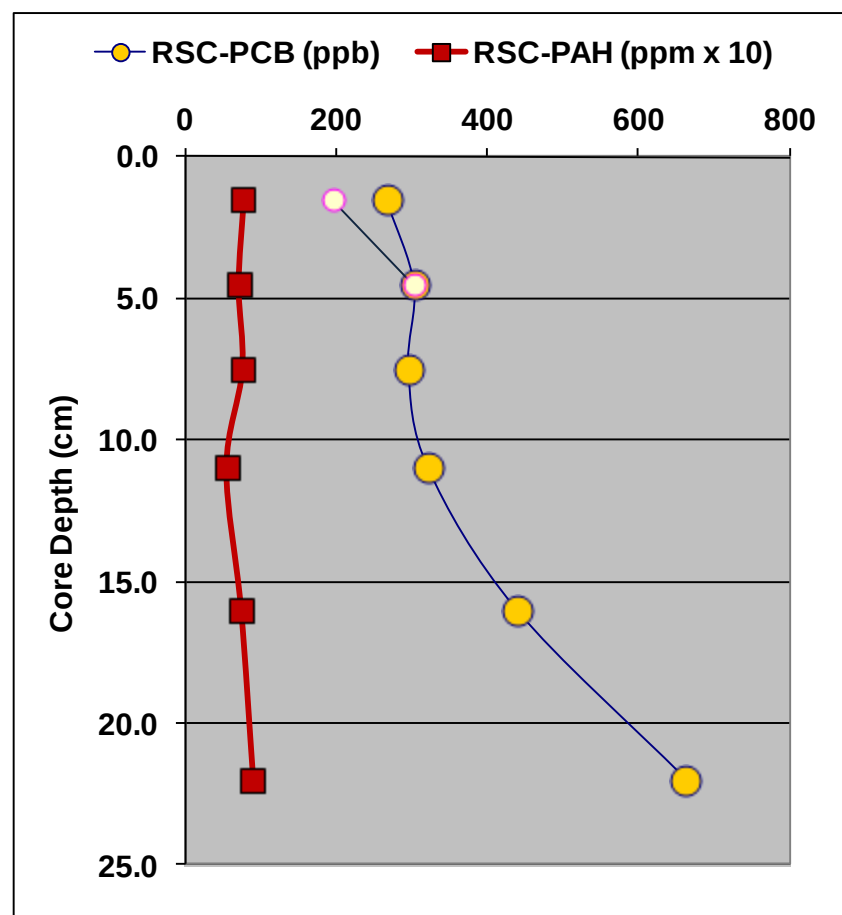
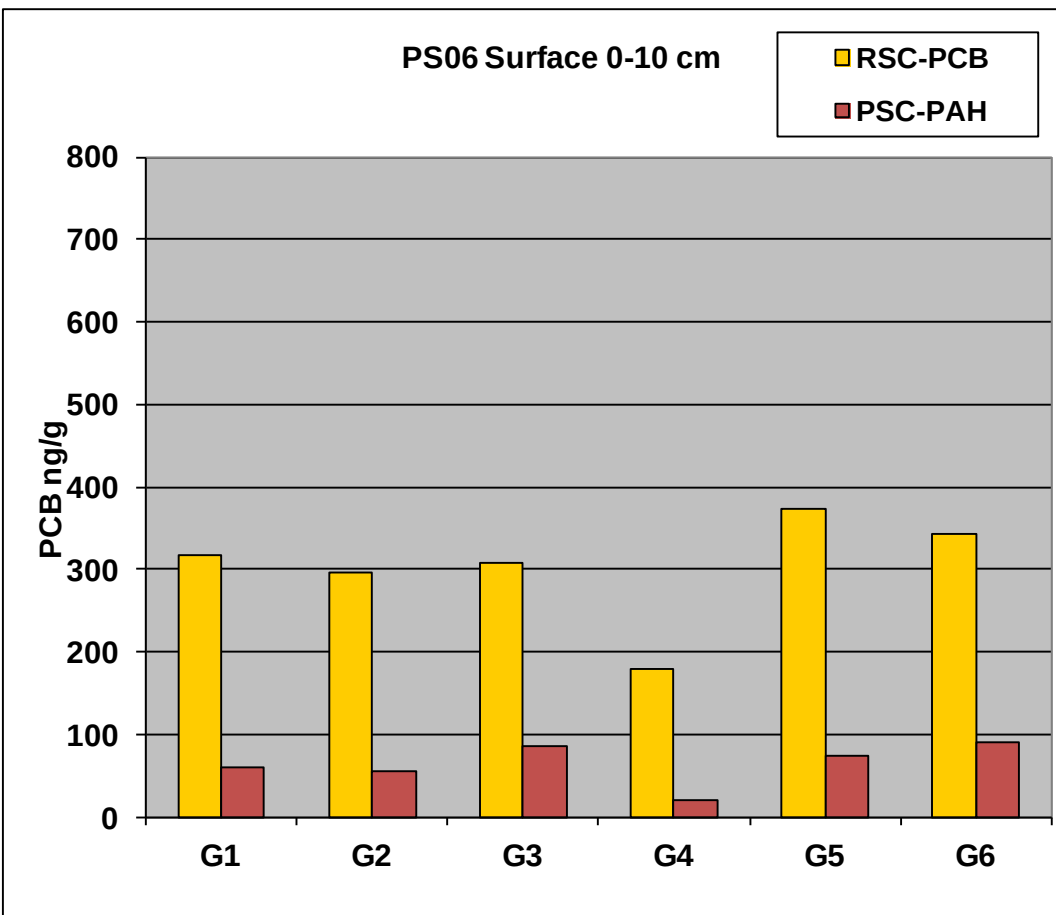
Sample locations for SQVPS03



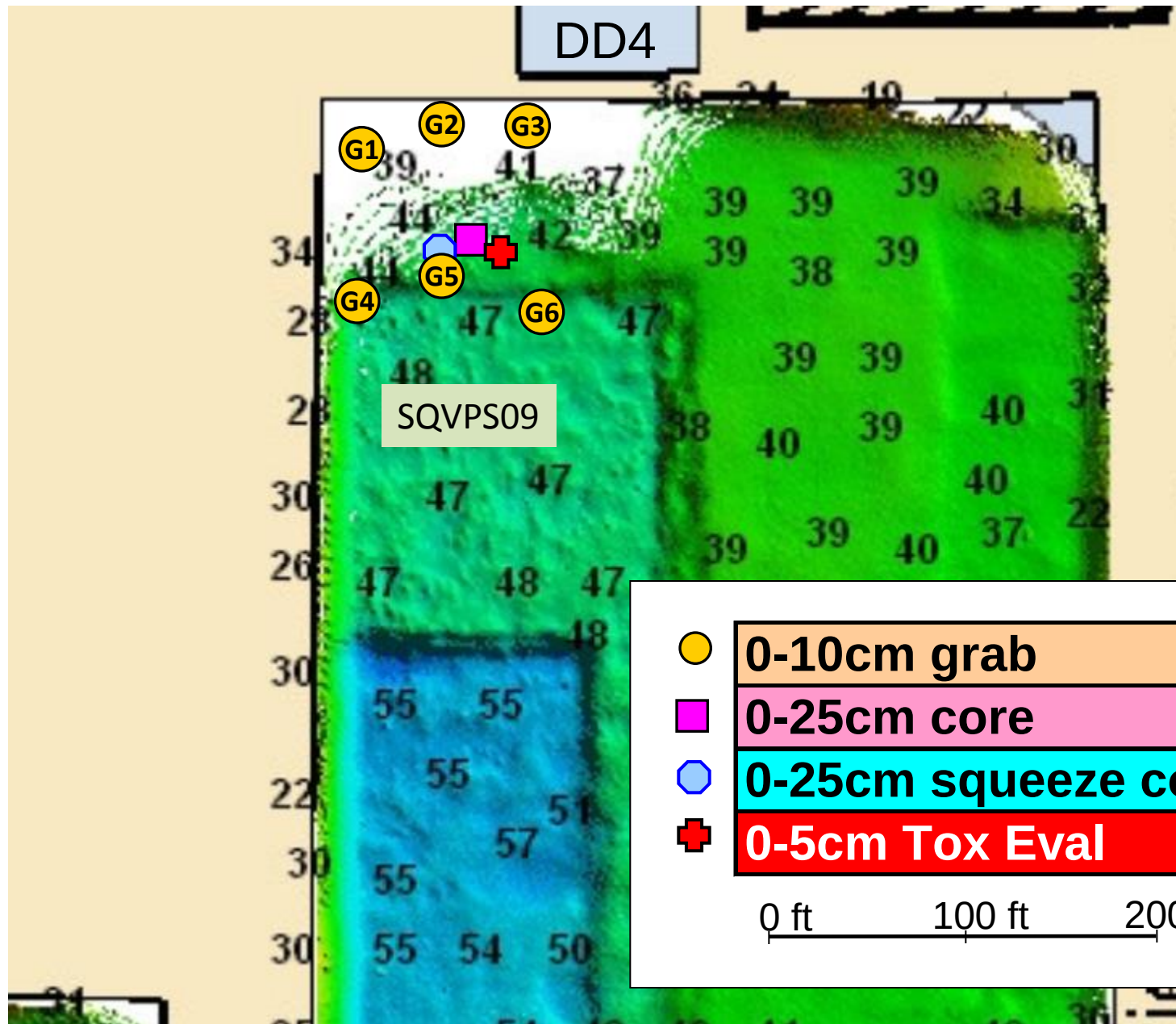
SQVPS03 preliminary Rapid Sediment Characterization (RSC) results for PCBs and PAHs



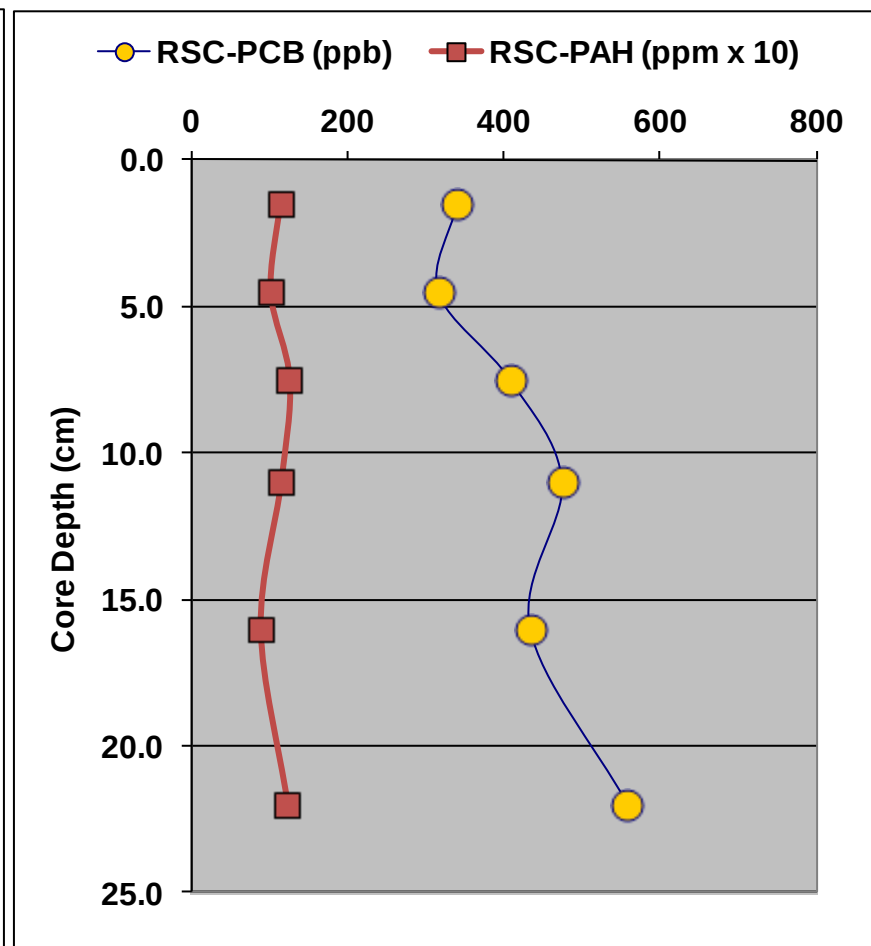
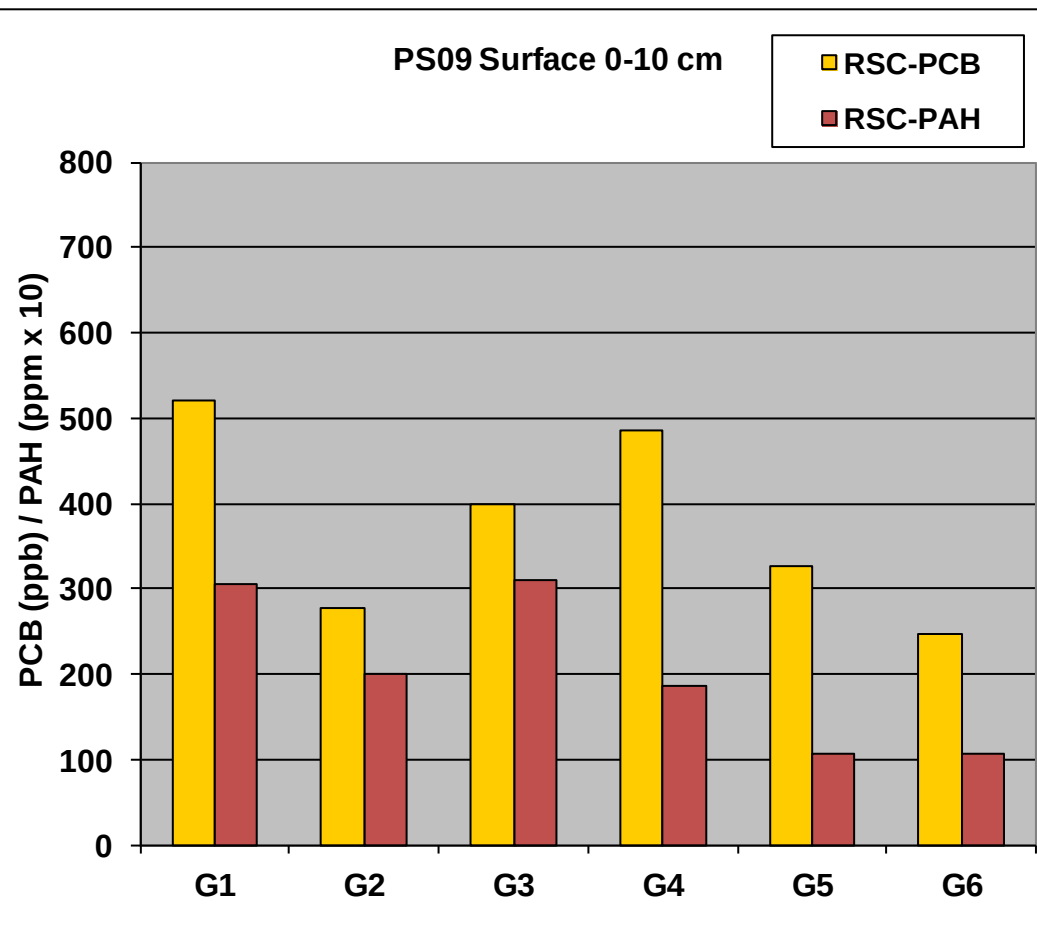
Sampling locations for SQVPS06 (Dry Dock 6 and Pier 9).



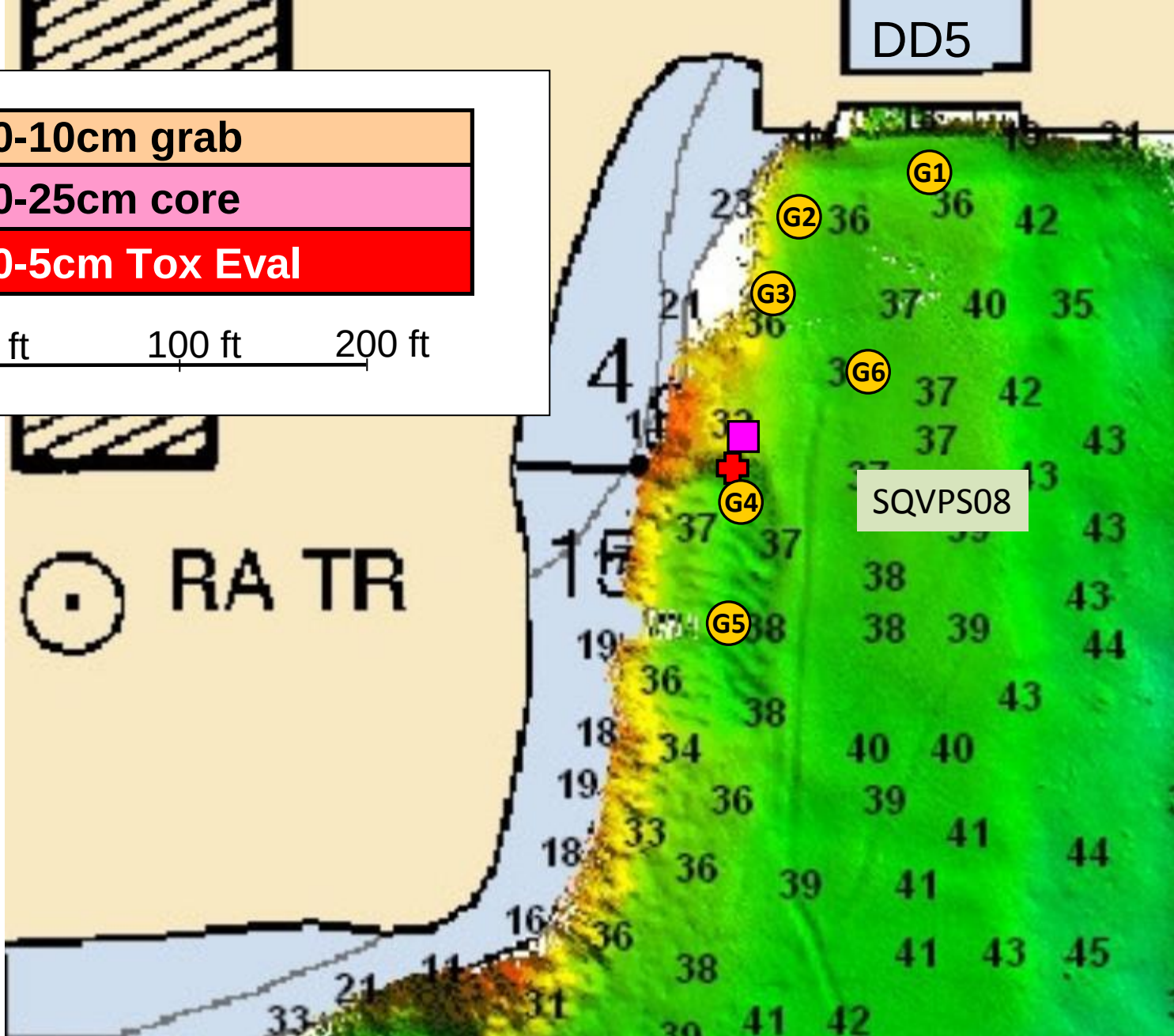
SQVPS06 preliminary RSC results for PCBs and PAHs



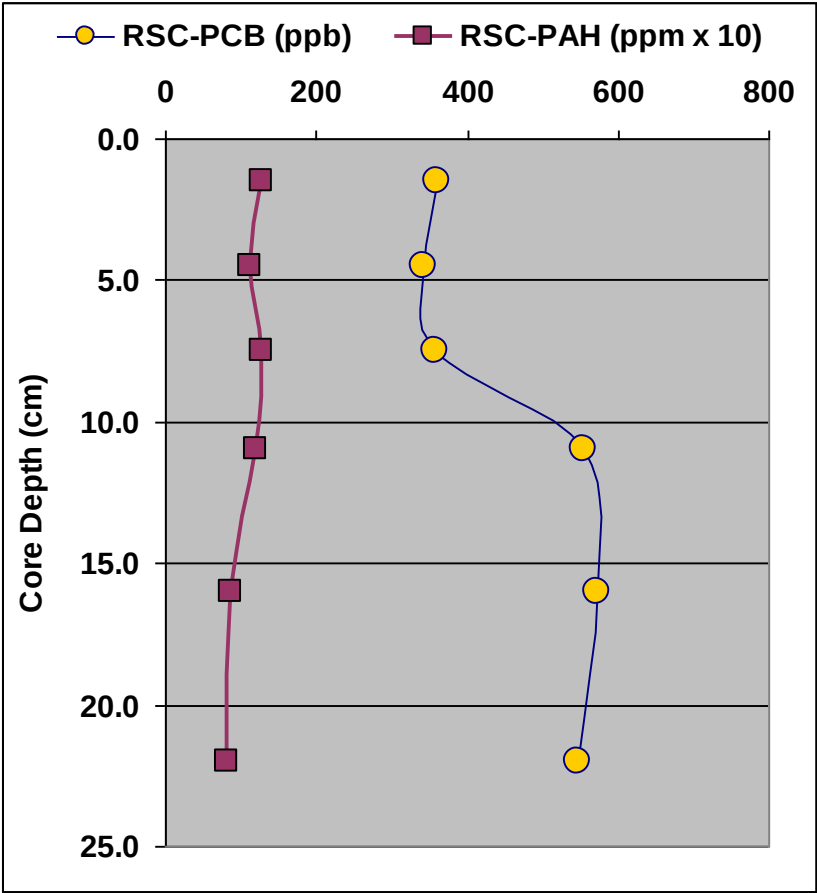
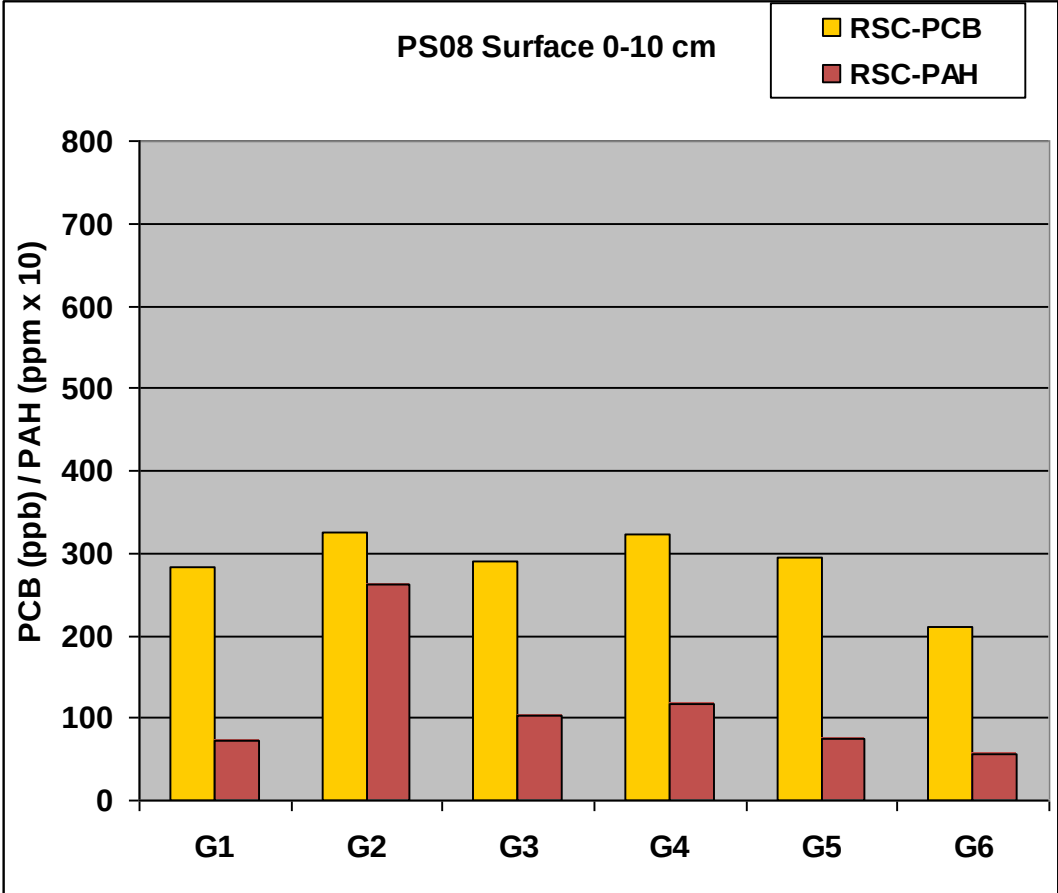
Sample locations for SQVPS09.



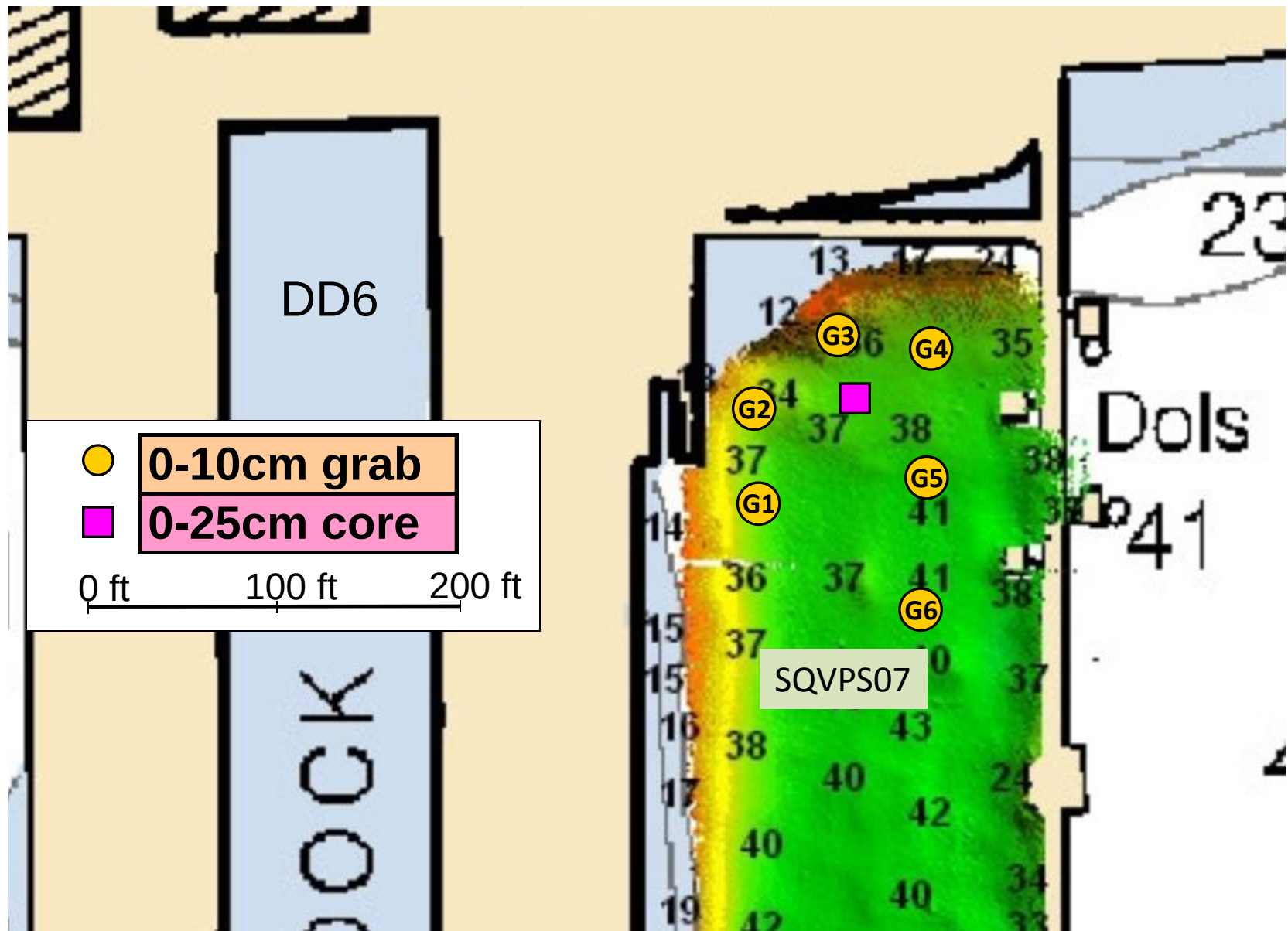
SQVPS09 preliminary RSC results for PCBs and PAHs



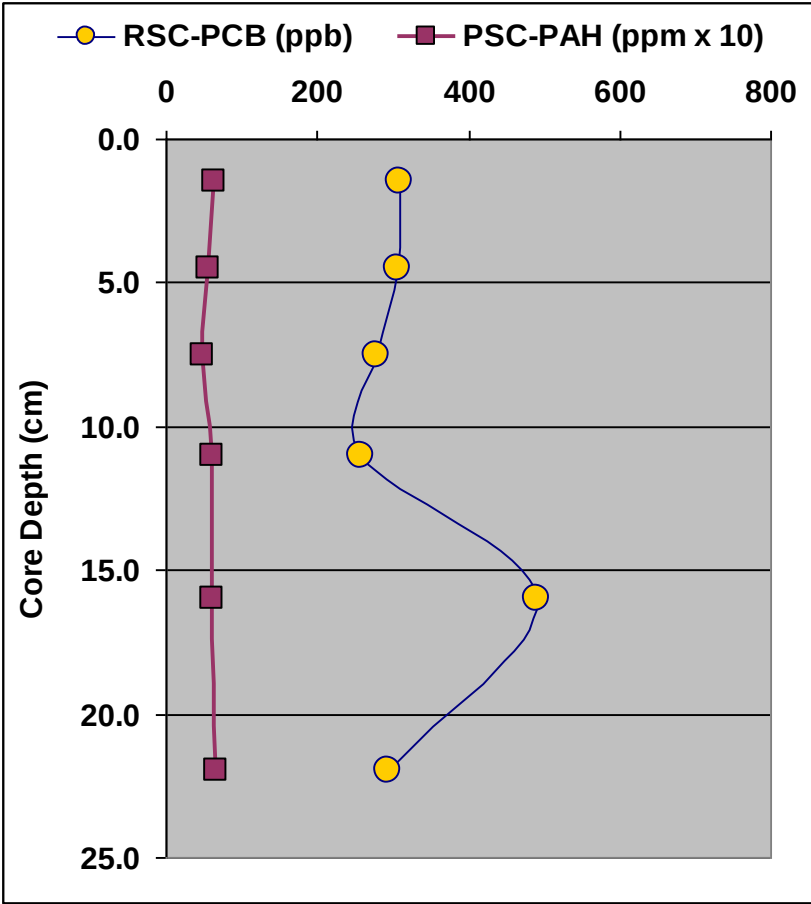
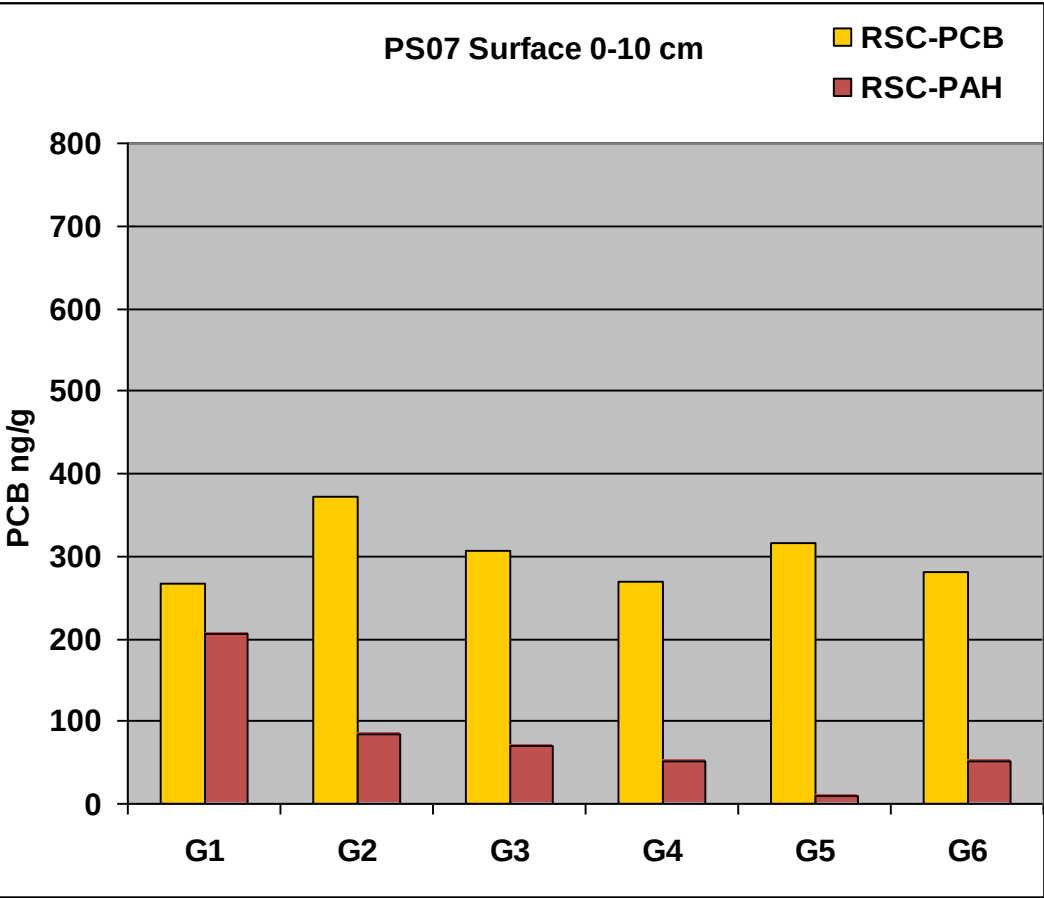
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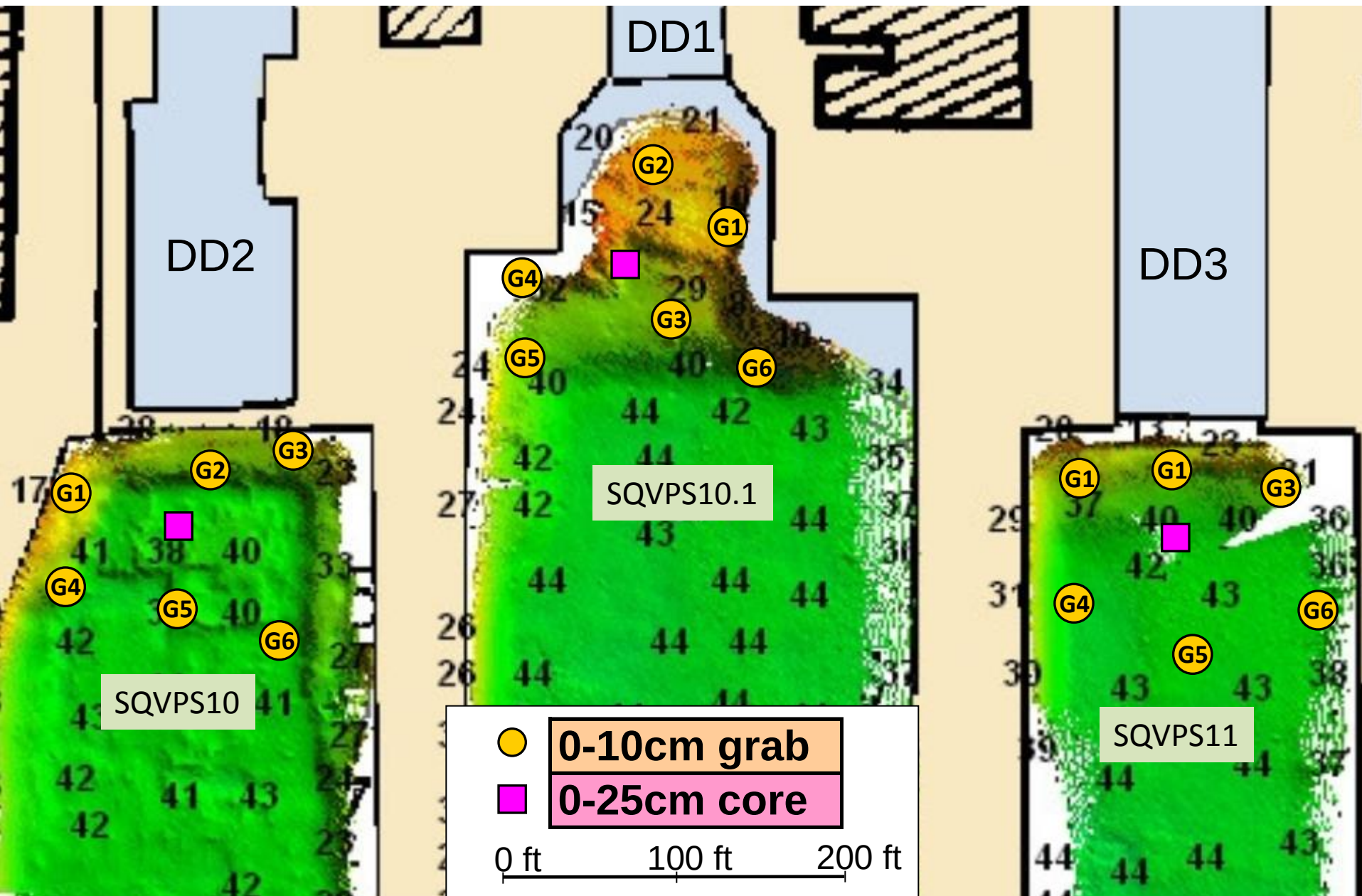
SQVPS08 preliminary RSC results for PCBs and PAHs

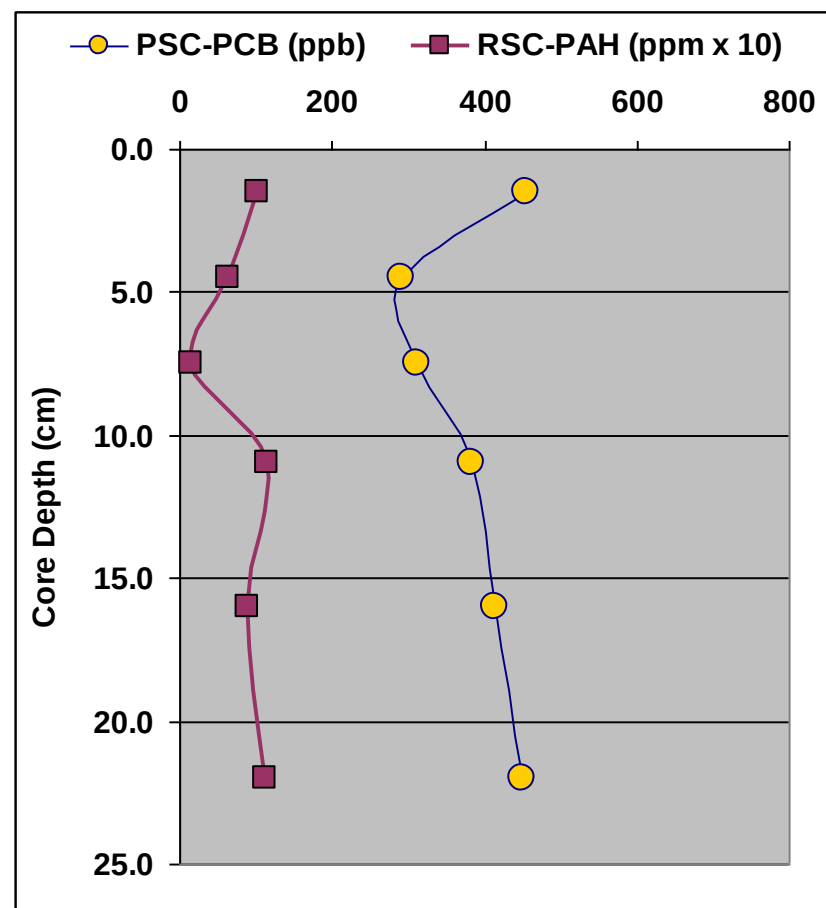
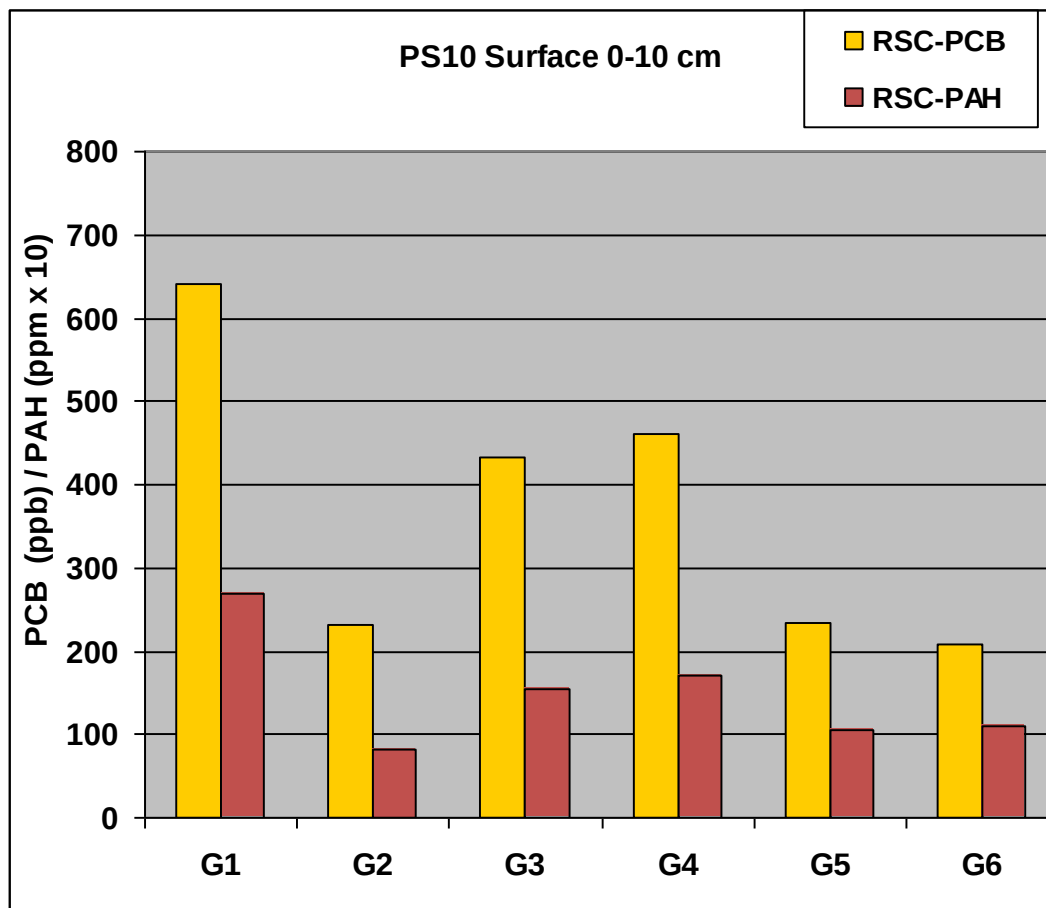


Sampling locations for SQVPS07.

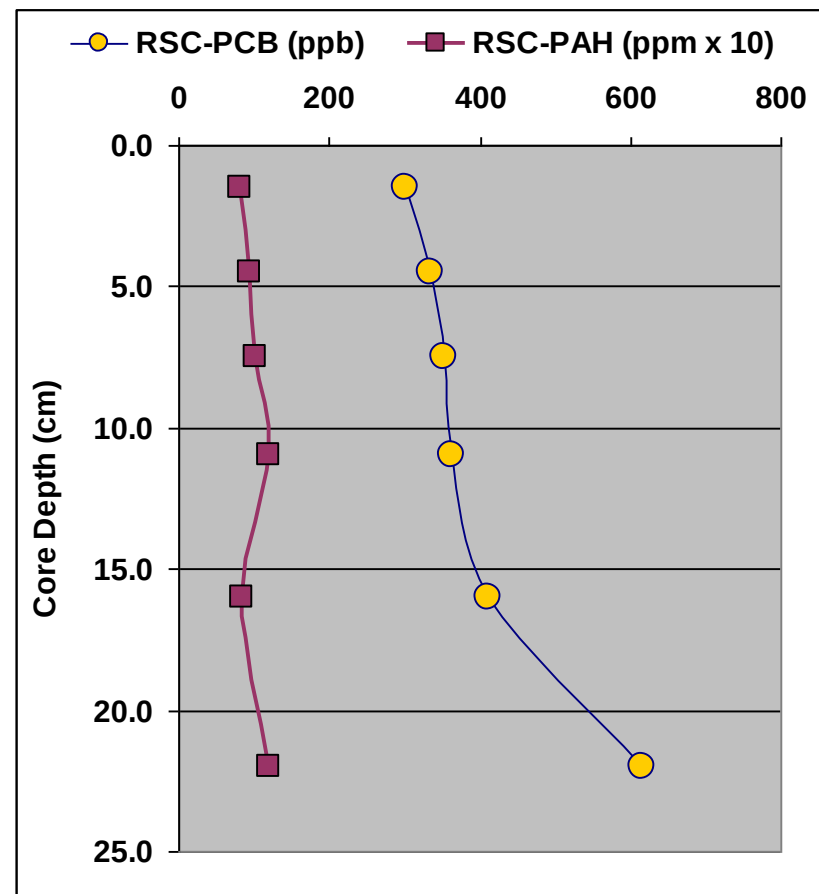
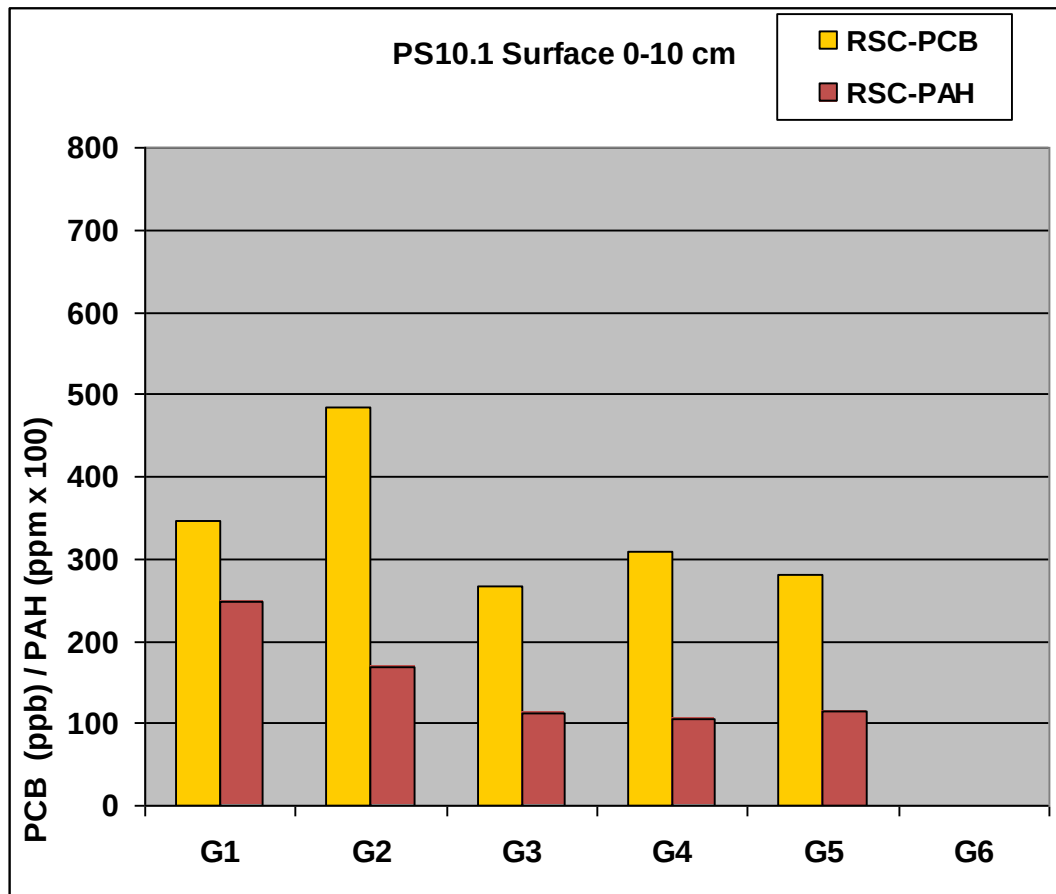


SQVPS07 preliminary RSC results for PCBs and PAHs

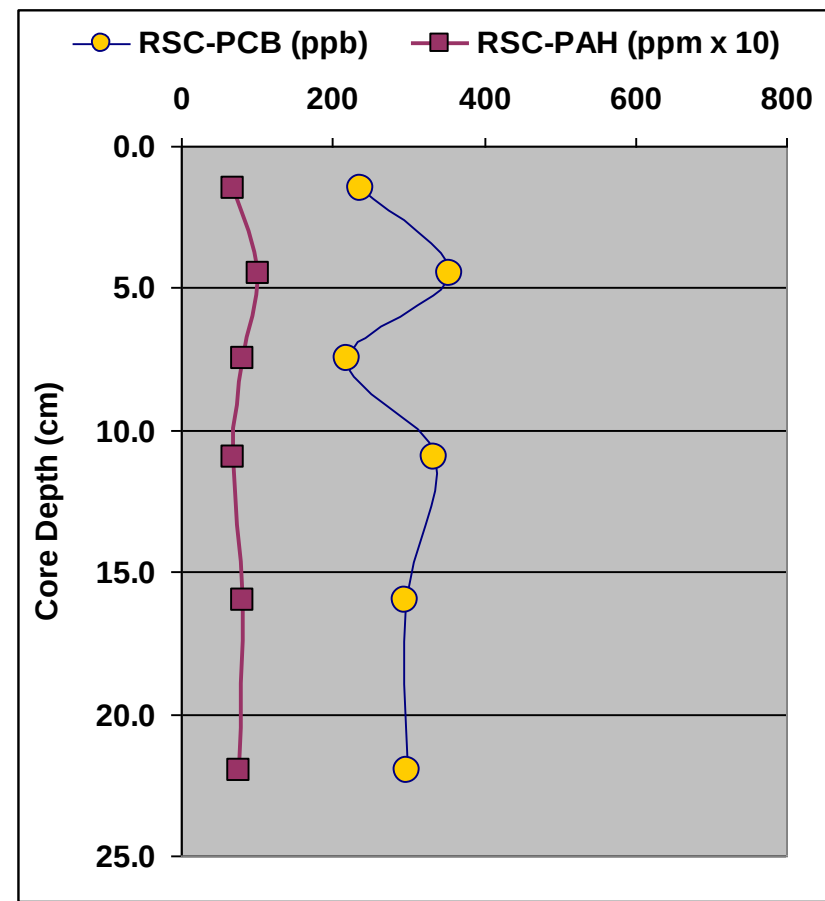
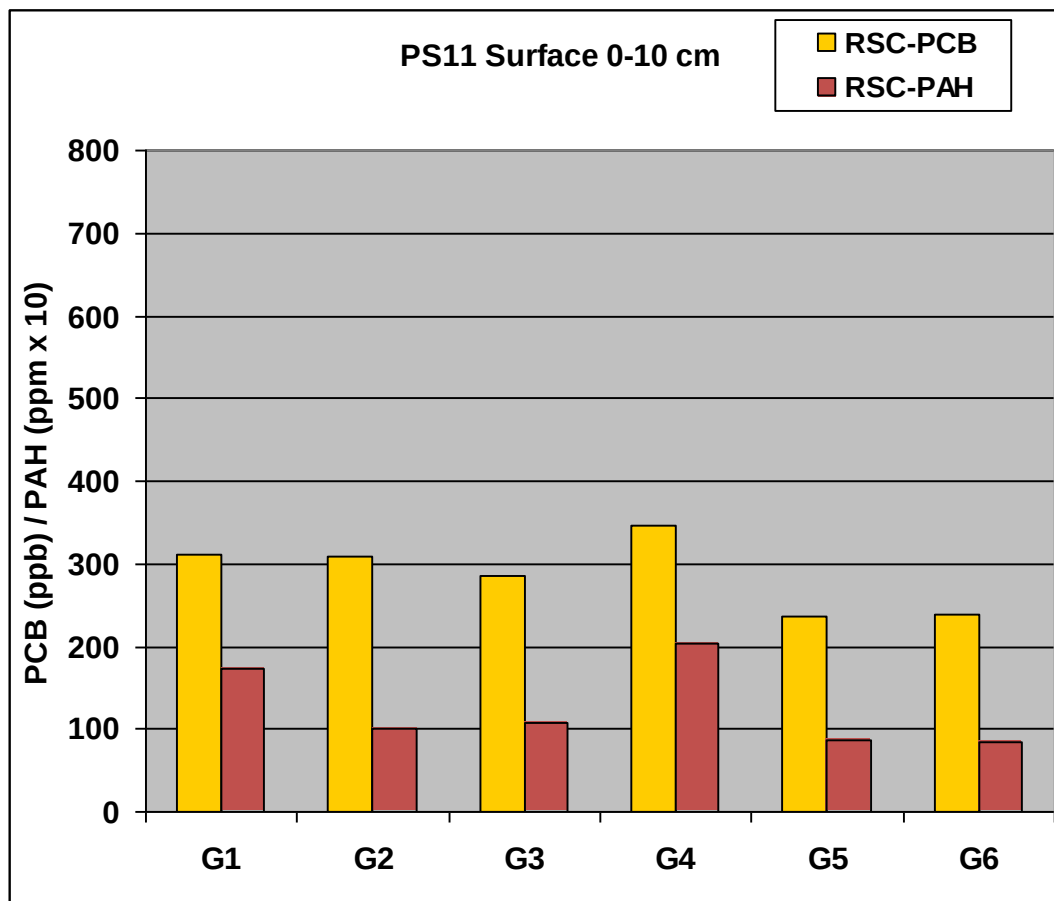




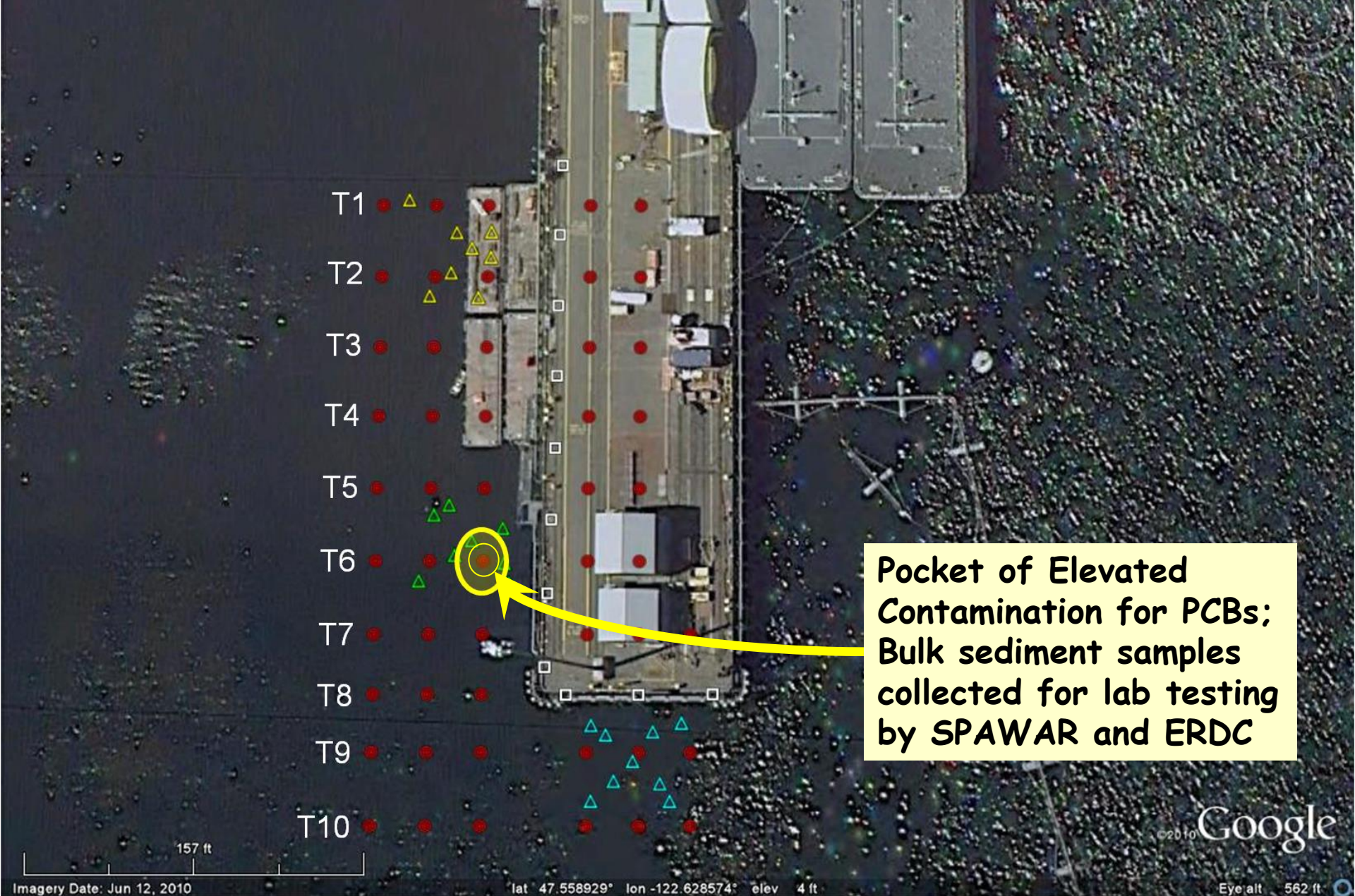
SQVPS10 preliminary RSC results for PCBs and PAHs

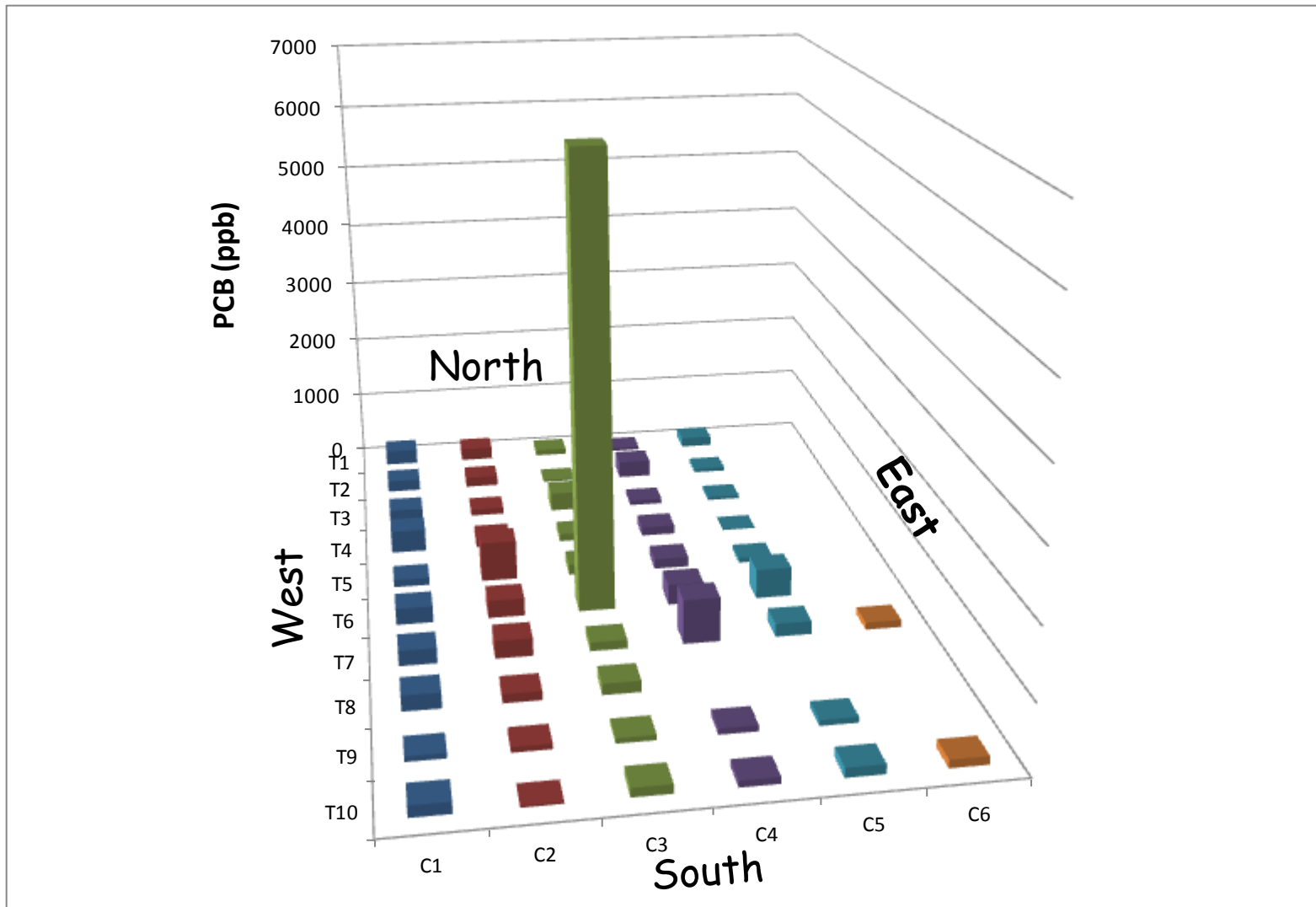


SQVPS10.1 preliminary RSC results for PCBs and PAHs

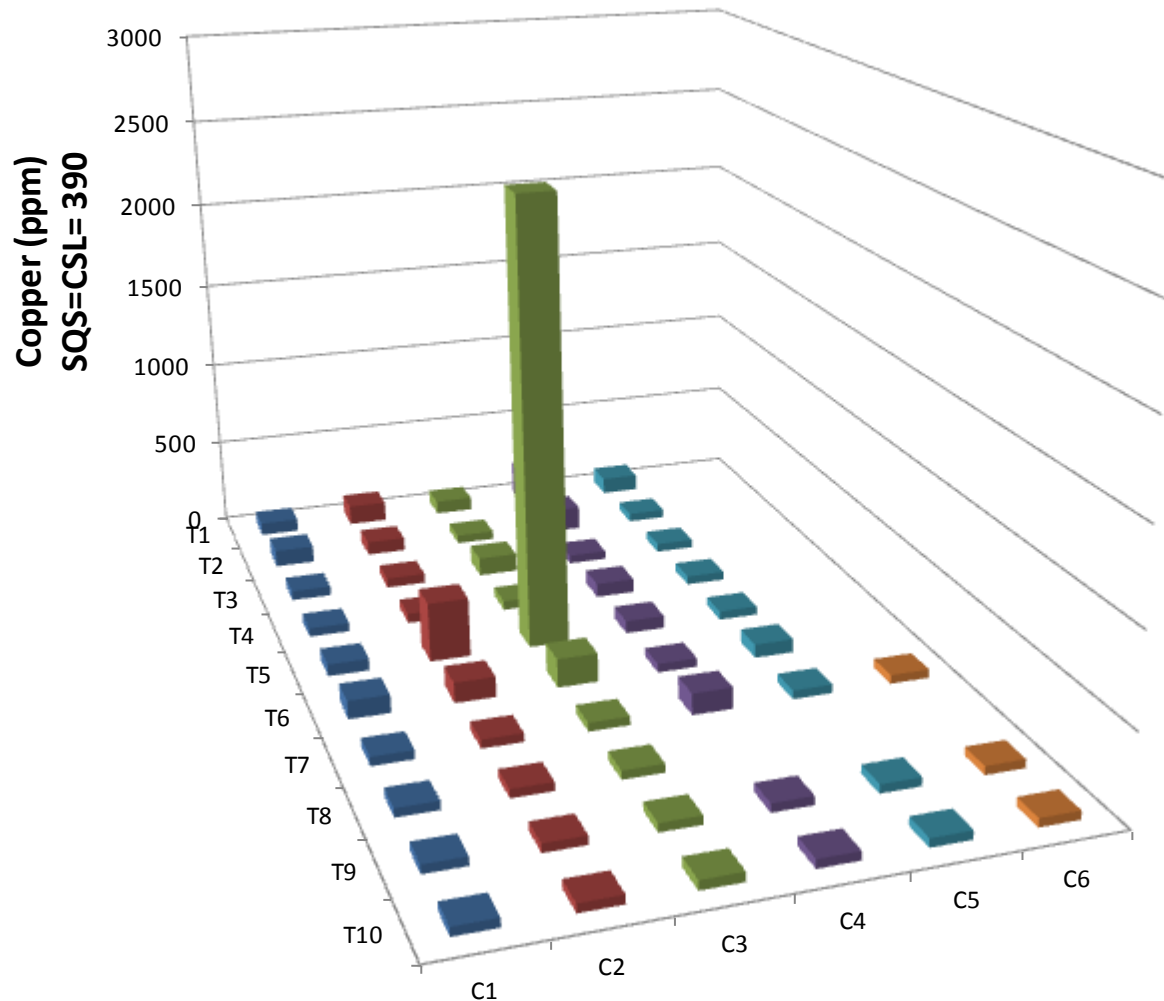


SQVPS11 preliminary RSC results for PCBs and PAHs

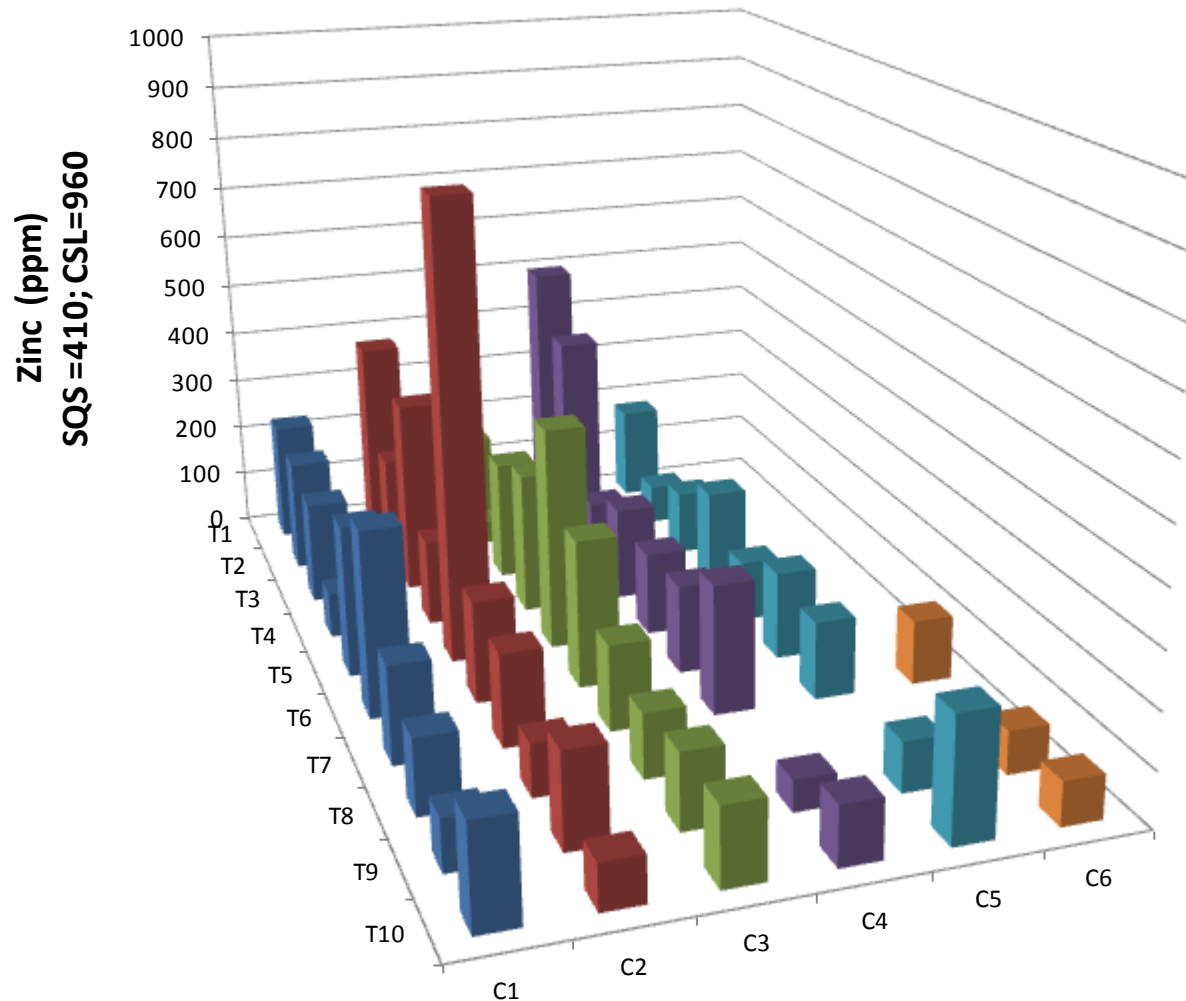




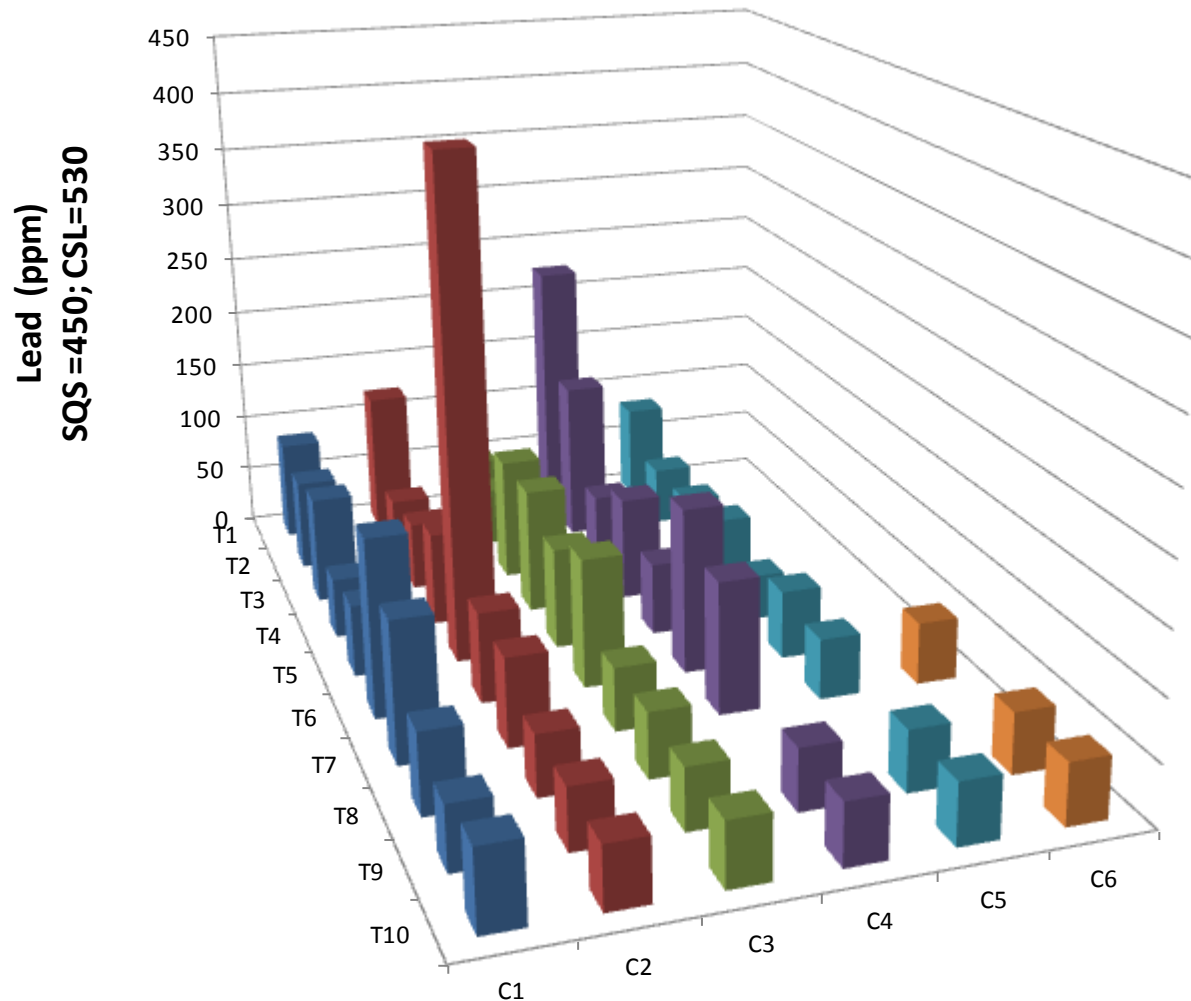
Pier 7 RSC results for PCBs



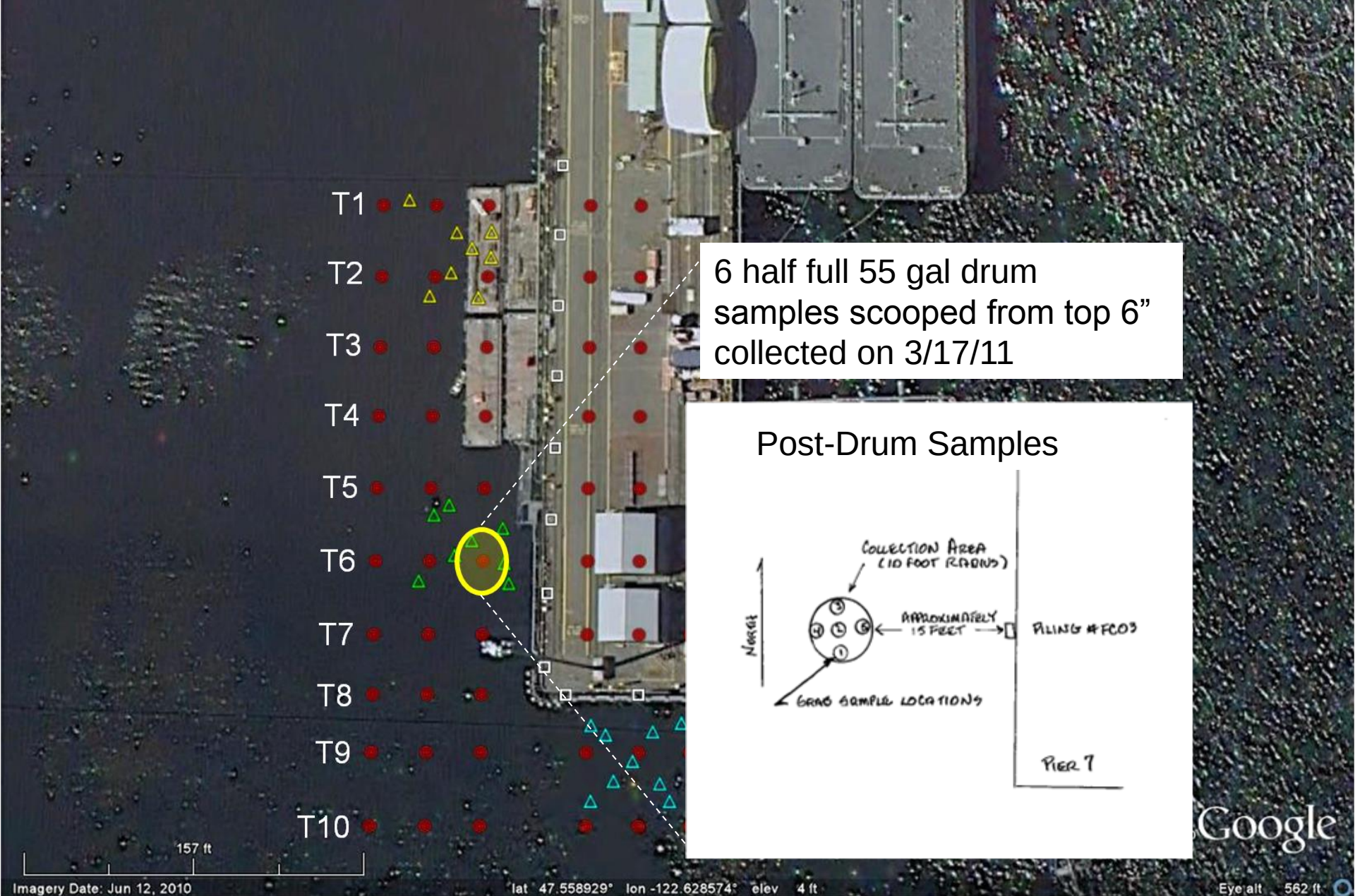
Pier 7 RSC Results for Cu



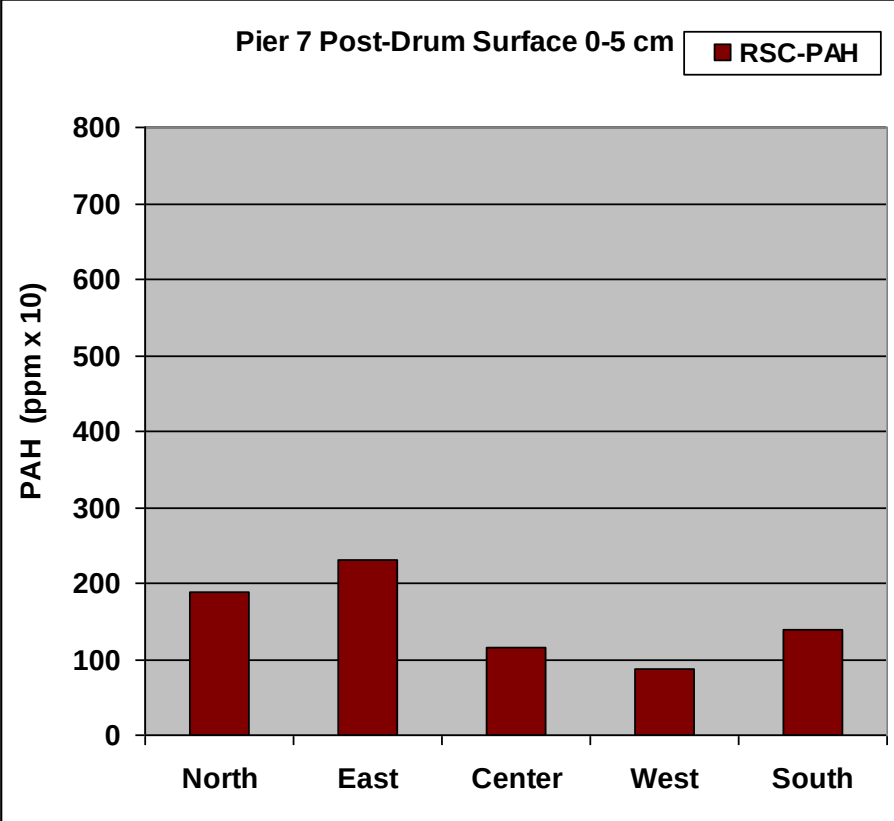
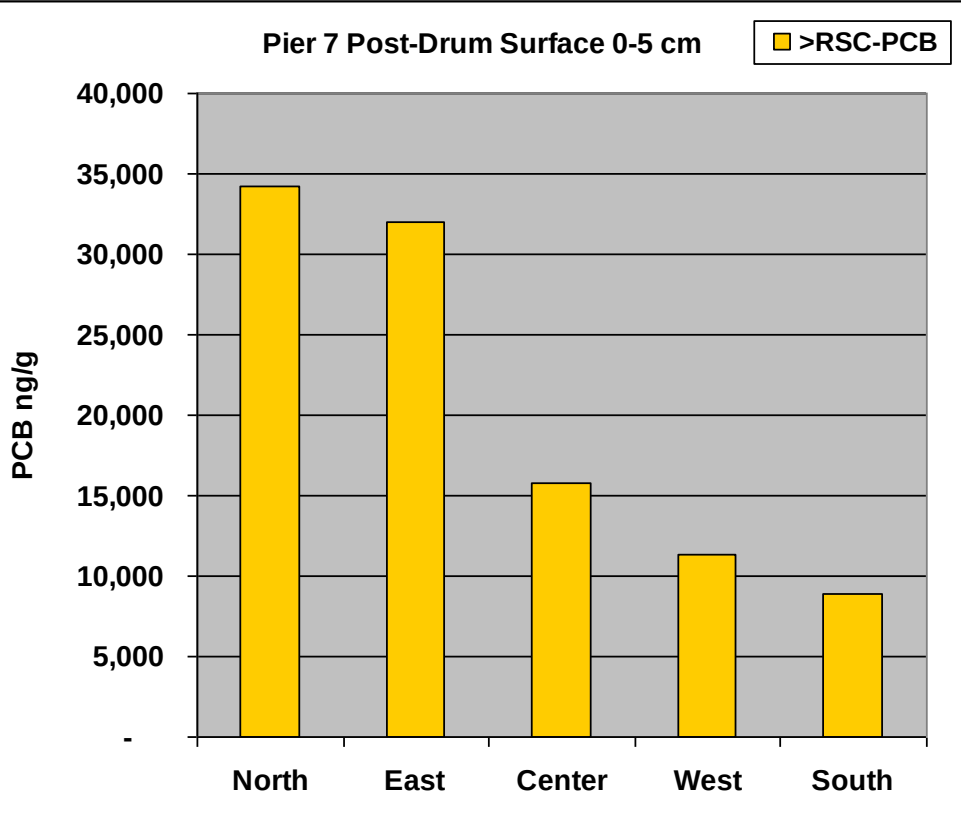
Pier 7 RSC results for Zn



Pier 7 RSC results for Pb

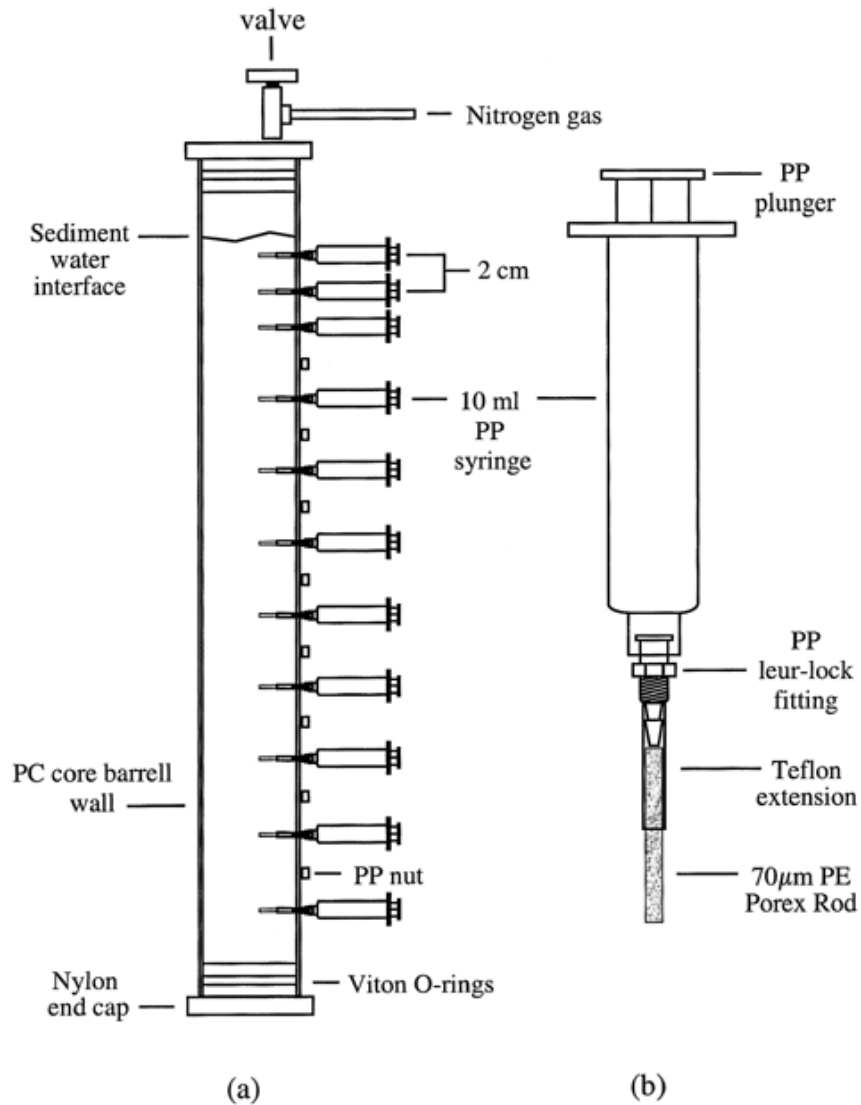


55 Gal Drum Samples collected 3/17/11 for ERDC



Pier 7 Post-Drum Samples (top 2 inches)

Sediment Core and Porewater Sampling



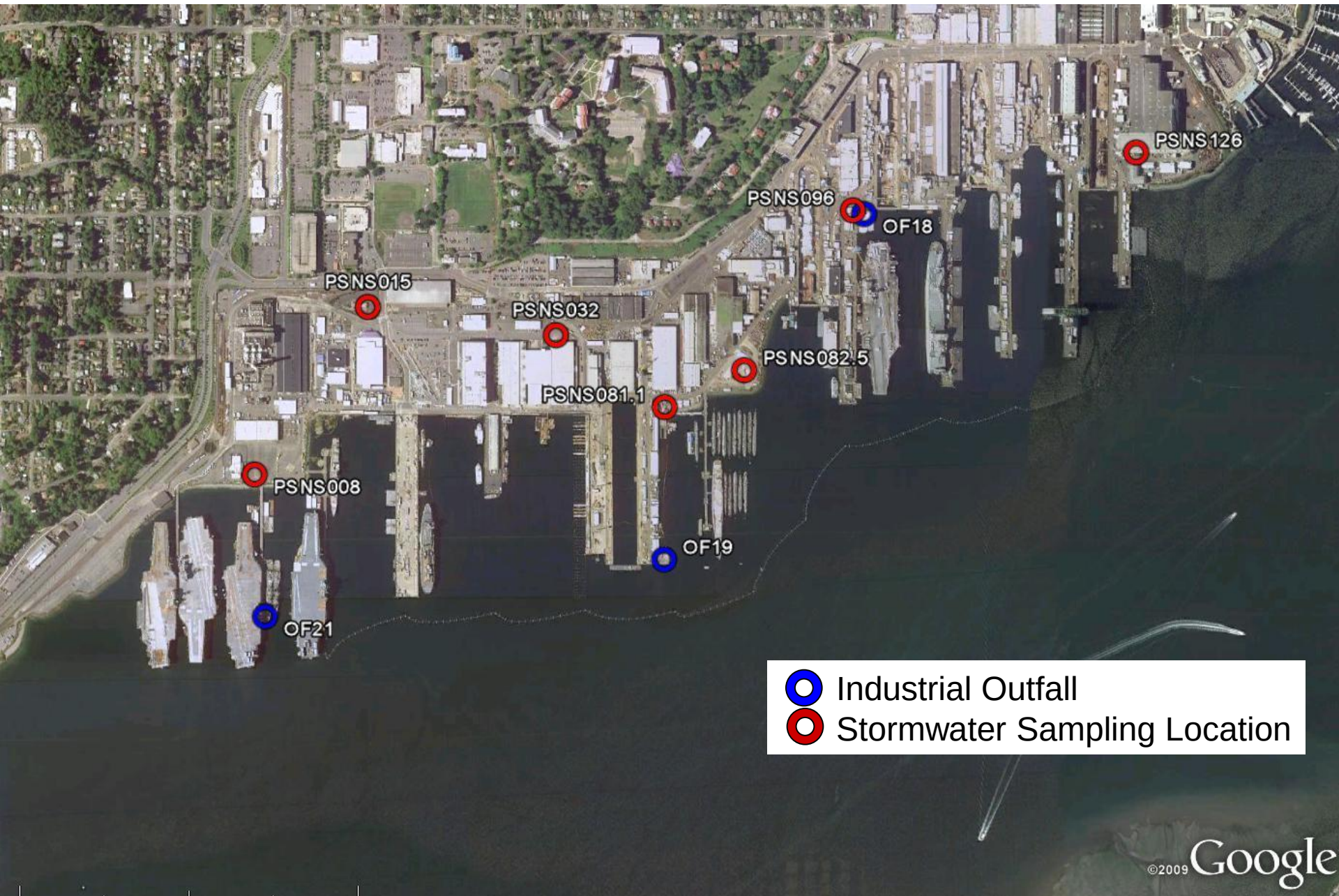
Schedule

Updated Jun. 14, 2011

Task	Spr2010	Sum2010	Fall2010	Wint2011	Spr2011	Sum2011	Fall2011	Wint2012
OUBM sediment monitoring								
Sample Collection								
Screening Analysis								
Confirmation Analysis								
SQV Study								
Sediment Sampling								
Screening Analysis								
Confirmation Analysis								
Toxicity Assessment								
Pier 7 R&D Studies								
Sediment Sampling								
Screening Analysis								
Drum Sampling								
Confirmation Analysis								
Lab Studies								
SSC Pacific								
ERDC-ERL								
Reporting								
QA/QC and Data Report								
EDD								
EIM Submittal								
Draft Report								
Final Report								

 Completed
 Planned

Stormwater Monitoring Locations



-  Industrial Outfall
-  Stormwater Sampling Location

Data and Information

Summary of Winter 2010/2011 Stormwater Sampling										
EVENT				STATION						
Storm	Event Date	Rainfall (in)	PSNS126	PSNS096	PSNS082.5	PSNS081.1	PSNS032	PSNS015	PSNS008	
SW01	11/17/2010	0.7	Y	N1	Y	Y				
SW02	11/29/2010	1.2	Y	Y	Y	Y				
SW03	12/11/2010	4.0	Y	Y	Y	Y				
SW04	3/1/2011	0.5		Y			Y	Y	Y	
SW05	3/7/2011	0.5		N2			Y	Y	Y	
SW06	3/9/2011	0.6		Y1			Y2	N3	N4	
SW07	4/14/2011	0.7		Y3			Y3	Y3	Y3	
Samples not collected due to:										
N1 = no samples due to tidal conditions										
N2 = no sample due to enabling conditions,										
N3 = no sampling due to telem setting misque										
N4 = did not submit nmrl/dup smpl because it did not meet antecedent by 2x the requirement.										
Samples collected but qualified:										
Y1 = submitted but did not meet antecedent by 0.06",										
Y2 = submitted but did not meet antecedent by 0.07"										
Y3 = submitted composite; no grab samples										

