

Sampling and Analysis Report for Surface Sediment Characterization and Polychaete Tissue Collection Program at the Greater Los Angeles and Long Beach Harbor Waters

Prepared for:
Port of Los Angeles
San Pedro, California

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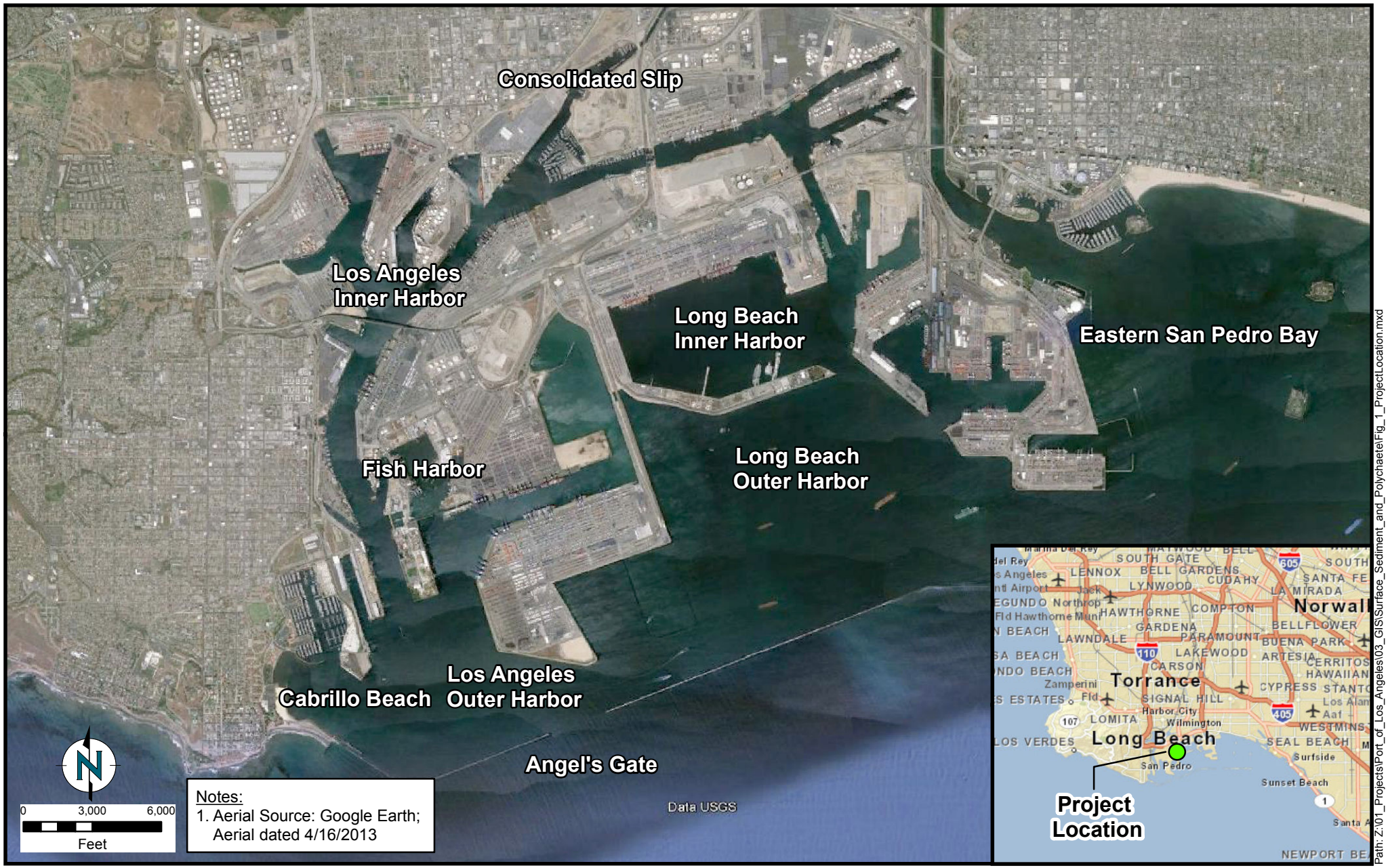
Acronyms and Abbreviations

µg/kg	microgram per kilogram
µg/L	microgram per liter
µm	micrometer
Anchor	Anchor QEA, LLC
BSAF	Biota-Sediment Accumulation Factor
cm	Centimeter
COC	Chain of Custody
DDT	dichlorodiphenyltrichloroethane
DDX	dichlorodiphenyltrichloroethane and derivatives
DOC	dissolved organic carbon
dw	dry weight
ft	feet/foot
g	standard gravity
g	gram
HASP	Health and Safety Plan
HCl	hydrochloric acid
kg	kilogram
L	liter
lw	lipid weight
mL	milliliter
MLLW	mean lower low water
mm	millimeter
OC	organic carbon
PCB	polychlorinated biphenyl
Ports	Ports of Los Angeles and Long Beach

PQAPP	Programmatic Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
R/V	research vessel
Ramboll Environ	Ramboll Environ US Corporation
SAP	Sampling and Analysis Plan
SAR	Sampling and Analysis Report
TMDL	Total Maximum Daily Load
TOC	total organic carbon
Weston	Weston Solutions, Inc.
WRAP	Water Resources Action Plan
δ13C	delta (δ) Carbon ^{13}
δ15N	delta (δ) Nitrogen ^{15}



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Project Location

Port of Los Angeles and Port of Long Beach
San Pedro and Long Beach, California

Figure
1

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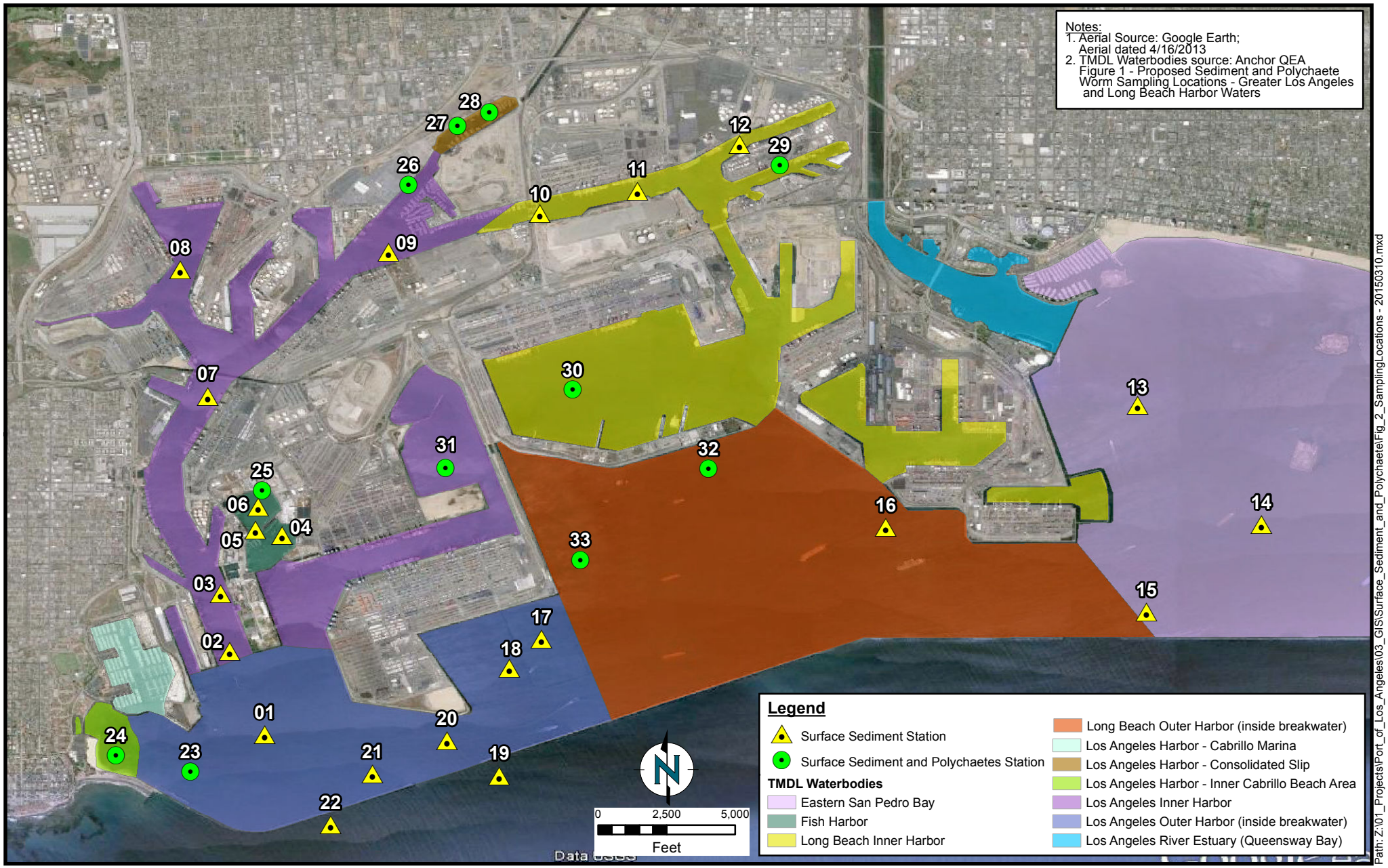

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Sample Locations

Port of Los Angeles and Port of Long Beach
San Pedro and Long Beach, California

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1 Introduction

ENVIRON International Corporation, now known as Ramboll Environ US Corporation (Ramboll Environ), has prepared this Sampling and Analysis Report (SAR) to provide information on the field sampling event and present analytical results for the surface sediment characterization and polychaete tissue collection program aimed at filling data gaps in the Water Resources Action Plan (WRAP) and bioaccumulation models. The WRAP and bioaccumulation models will be used to better understand fate and transport of polychlorinated biphenyls (PCBs) and dichlorodiphenyltrichloroethanes (DDTs) in the Greater Los Angeles and Long Beach Harbor Waters. This improved understanding will be utilized in the management strategy for achieving Harbor Toxics Total Maximum Daily Load (TMDL) targets for total PCB and total DDT as described for fish tissue and sediment in the *Final Basin Plan Amendment to the Water Quality Control Plan – Los Angeles Region to Incorporate the Total Maximum Daily Load for Toxic Pollutants in Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters* (RWQCB 2011).

This SAR details the efforts used to obtain synoptic samples of sediment, sediment porewater, and polychaete tissue for chemical and physical analysis. The sampling and analysis was conducted in accordance with the *Supplemental Sampling and Analysis Plan for Surface Sediment Characterization and Polychaete Tissue Collection Program at the Greater Los Angeles and Long Beach Harbor Waters* (Supplemental SAP) as prepared by Ramboll Environ in association with Weston Solutions, Inc. (ENVIRON in association with Weston, 2014) and *Surface Sediment Characterization and Polychaete Tissue Collection Program, Greater Los Angeles and Long Beach Harbor Waters* as prepared by Anchor QEA, LLC (Anchor, Anchor 2014a), unless otherwise indicated.

1.1 Project Location

The Project location is the greater Los Angeles and Long Beach Harbor waters (Figure 1). The nearby areas are industrial, commercial, and residential uses with a watershed that includes 21 municipalities and 1 million residents (RWQCB and USEPA 2011). The Ports of Los Angeles and Long Beach (Ports) cover 7,500 acres. Ship loading and unloading operation on the piers as well as marinas occupy the Inner Harbors. Discharges from the Dominguez Channel, Los Angeles River, and San Gabriel River flow to San Pedro Bay. The lower portion of the Dominguez Channel is a soft bottom estuary extending approximately 8 miles north of the harbor. The Dominguez Channel, the L.A. River watershed and the San Gabriel watershed are the focus of the Harbor Toxics TMDL, with a total watershed that drains primarily underground storm drains over a dominantly urban area of approximately 133 square miles.

The Project included collection of surface sediment and surface sediment porewater at 33 sample stations. At 11 of the 33 stations, additional surface sediment was collected and sieved to obtain polychaetes. Sample locations are shown in Figure 2. Sample locations include:

- Two stations located at Angel's Gate (outside breakwater),
- One station located at Cabrillo Beach,

- Two stations located in Consolidated Slip,
- Four stations located in Fish Harbor,
- Seven stations located in Los Angeles Inner Harbor,
- Five stations located in Long Beach Inner Harbor,
- Six stations located in Los Angeles Outer Harbor (inside breakwater),
- Three stations located in Long Beach Outer Harbor, and
- Three stations located in Eastern San Pedro Bay.

1.2 Site Access

The Ports, the United States Coast Guard, and the Harbor Police granted site access and security clearance prior to field work. A notification of sampling activities was distributed to appropriate parties prior to sampling. The pre-sampling event notification was provided to the Harbor Police/Patrol offices through client contacts. The notification contained details on the sampling activities including dates, times, locations, boat description and safety information, channel frequency, survey purpose, and points of contact as well as a map of sample locations. The Port of Los Angeles Police Watch Commander and Port of Long Beach Harbor Patrol Dispatch were notified of sampling activities the day before and each morning of sampling.

1.3 Health and Safety

The Health and Safety Plan (HASP) was available prior to and during sampling to inform all personnel of known or reasonably anticipated potential hazards and safety concerns at this site. A safety briefing was conducted by Ramboll Environ and SeaVentures, Inc. for all personnel prior to boat departure and anytime new field staff was present on board. All employees followed guidelines, rules, and procedures contained in the site-specific HASP. No incidents occurred regarding health and safety during the sampling event and no unexpected conditions were encountered.

Each contractor, subcontractor, and visitor had responsibility to review and understand the hazards, risks, and control methods (including emergency procedures) as outlined in the HASP, and signed off on the HASP after their first safety briefing on site. A copy of the HASP was maintained on site for review and reference during all site activities.

2 Sample Collection, Processing, Handling and Analysis

Sample collection, processing, and handling for chemical analysis of sediment was done in accordance with Sediment Quality Assessment Draft Technical Support Manual (Bay et al. 2009) and the Bight '13 Contaminant Impact Assessment Field Operations Manual (Bight '13 2013). Procedures also followed the standard operating procedures for sediment chemistry sample processing and benthic infauna processing as provided in the Supplemental SAP (ENVIRON in association with Weston 2014) and the Harbor Toxics TMDL Programmatic Quality Assurance Project Plan (Anchor QEA, 2014b).

2.1 Sample Collection

Grab samples were collected October 16 to 26, 2014 by Ramboll Environ and Weston from the 39-foot research vessel (R/V) Early Bird II using a double van Veen grab sampler. Differential global positioning system (DGPS) was used to navigate and position the vessel at the station and coordinates were recorded for each grab sample taken. Coordinates for grabs at each station are presented in Table 1, along with water depth in feet and feet relative to Mean Lower Low Water (ft MLLW), tidal elevation and mudline. The collection of the 10 to 15 grab samples for the synoptic stations was performed over an area of 300 feet around the proposed sample locations as necessary to avoid the grab sampler penetrating the same location more than once and to avoid sampling near a fish tracking receiver locations as detailed in the Supplemental SAP (ENVIRON in association with Weston 2014).

Dates, sample times, coordinates, tide (ft), water depth (ft and ft MLLW), and mudline for each grab sample are shown in Table 1. Sediments were characterized for sediment type, color and odor before sampling for physical and chemical analyses (Table 1). A summary of the samples collected and analyses is provided in Table 2. Field daily logs and field grab sample logs are presented in Appendix A-1 and Appendix A-2, respectively. Representative photos from each station are included in Appendix A-3. Also, the chains of custody (COC) completed for submitted to analytical laboratories after sample collection are provided in Appendix A-4.

2.2 Surface Sediment Sample Processing and Handling

Surface sediment samples were obtained from the top 0 to 5 centimeters (cm) from the sediment grab at each station. A 5-cm deep stainless steel scoop was used to remove the aliquots of surface sediment from each side of the double van Veen sampler, avoiding sediment within 1 inch of the sides. These aliquots were combined in a stainless steel bowl and kept on ice between grab samples. After all grabs at a station had been completed (1 or 2 grabs at sediment only stations, and up to 15 grabs at sediment and polychaete stations) the sediment was mixed until even consistency and color was obtained, resulting in a homogenous, composite sediment sample. Portions of the composite sediment samples were placed in the appropriate containers for physical and chemical analysis and retained on ice or frozen on-site and during transport to analytical laboratories. Additionally, two 1-liter (L) Teflon centrifuge tubes were 2/3 filled with sediment and placed on ice until processing for sediment porewater on shore, as described below. For the stations at which polychaetes were also collected, an aliquot of sediment was obtained from each grab sample used to obtain polychaetes as described below.

2.3 Porewater Sample Processing and Handling

A high volume, high capacity centrifuge was used on-site for rapid extraction of sediment porewater for dissolved organic carbon (DOC) analysis. Homogenized sediment was placed into two 1-LTeflon centrifuge tubes, filled approximately 2/3 full and weighed to nearest the 0.1 grams (g). The two centrifuge tubes were balanced to within 1 g of each other, and placed opposite each other in the centrifuge. Samples were centrifuged at 960 *g* for 20 minutes. Following the centrifugation, 120 milliliters (mL) of the supernatant (two 60-mL syringes) was filtered through 45 µm filters (pre-rinsed with laboratory provided de-ionized water), transferred to a 100-mL sample bottles with hydrochloric acid (HCl) preservative and submitted for DOC analysis. Porewater samples were processed within 48 hours of sediment collection. Samples were transported to the analytical laboratory on ice in a cooler with COC.

2.4 Polychaete Tissue Sample Processing

2.4.1 Initial Polychaete Processing Approach

Polychaete and other benthic invertebrate tissues were collected at all 11 polychaete stations. At stations targeted for polychaete sampling (Figure 2), after subsampling aliquots of the surface sediment (0 to 5 cm) for sediment and porewater analysis, sediment from grab samples was retained for polychaete tissue collection. The Supplemental SAP (ENVIRON in association with Weston 2014) called for sampling of polychaetes from the 0 to 10 cm of surface sediment only, however it was quickly noted by field staff that polychaetes were present down to the bottom of the van Veen grab samples (approximately 20 cm deep). Polychaetes could regularly be seen dangling from the jaws from the van Veen as it was lifted from the water, and sediment tubes created by polychaetes were often found to be greater than 10 cm long. Based on these observations, it was determined that all remaining sediment in the van Veen should be sieved to maximize the polychaete mass collected.

A 1.0-millimeter (mm) sieve with 0.45-µm filtered seawater was used to wash, retain, and sort all benthic organisms from the sediment.

During sieving, organisms were sorted into five groups:

1. Polychaetes,
2. Other families of worms (non-polychaetes) of all sizes,
3. All remaining benthic organisms less than 2 cm in total length,
4. All remaining benthic organisms greater than 2 cm in total length, and
5. Other deposit-feeding organisms. This category was used if organisms could not be determined to be deposit feeding in the field, or if the organism was a specific species of crustacean or mollusk present in high abundance.

Polychaetes of all sizes were retained in filtered sea water until all 15 grab samples at a station were completed or the target mass had been obtained. Approximately 70 g of polychaete tissue was required for chemical analysis. If after 10 sediment grab samples less

than 10 g of polychaetes had been obtained, then the station was abandoned and the last 5 grabs were not performed. Polychaetes were weighed to 0.1 g periodically during sample collection to determine if target mass had been obtained. Once 15 grab samples were taken or the target sample mass was reached, polychaete tissues were wrapped in tin foil, placed in Ziploc bags, and frozen in an on-board freezer until delivery to the labs. Other groups of benthic invertebrates were weighted and stored separately in the same manner. Tissues were transported on ice to laboratory with COC. All tissues were archived frozen at Eurofins CalScience until all stations were completed and a compositing scheme could be determined in consultation with Anchor and the Ports. The mass of tissue obtained at each station are summarized in Table 1.

2.4.2 Polychaete and Benthic Invertebrate Compositing

The five groups of organism tissues were held separately by the laboratory until a compositing approach could be established in consultation with Anchor and the Ports after all stations had been sampled and final masses of polychaete and other tissues had been determined. The compositing approach for each station is summarized in Table 1.

A sample mass of 70 g of polychaete tissue was targeted. A polychaete only tissue composite was used as a sample when sufficient polychaete mass was obtained. The target mass of 70 g of polychaete tissue was recovered at 7 stations. Stations varied significantly in the amount of polychaete tissue recovered, and in the diversity of the benthic community. For example, collected benthic organisms at Station CS-27 in Consolidated Slip consisted primarily of polychaetes with few other classes of organisms being recovered. Station CB-24 was dominated by crabs as well as polychaetes. Stations on the outer Long Beach and Los Angeles harbors typically showed more diverse benthic invertebrate communities and higher overall tissue mass. When sufficient polychaete tissue mass was not present, tissues from other organisms categories were included in the composite to ensure adequate tissue mass for subsequent analysis. Two stations had poor tissue recovery for all benthic invertebrates (FH-25 and CS-28). Low tissue mass may result in higher detection limits. Tissues were composited by Eurofins CalScience following the protocol described in Section 2.3.2. Polychaete tissues were subsampled for gut content analysis (see section 2.4.3) before being composited and homogenized with the exception of sample CB-24 due to laboratory error. Tissue which was not homogenized remains archived frozen at Eurofins CalScience.

2.4.3 Polychaete Gut Content Analysis

An important consideration and potentially confounding factor in the interpretation of whole body organism tissue residues is accounting for the fraction of the measured concentration associated with the sediment in the gut of the organism as this may result in an overestimation of contaminant uptake into the organisms tissues as well as the fraction available for transfer via the food web. To account for the potential influence of ingested sediment on measured tissue concentrations, a 5 to 10 g subsample of the polychaete mass was analyzed to determine polychaete sediment gut contents via a gravimetric analysis used by Conder and La Point (2005) when sufficient tissue mass was present.

Samples with the corrected sediment gut content analysis are noted in Table 1.

2.5 Sample Physical and Chemical Analysis

All sediment samples were analyzed for bulk density (API RP40), specific gravity (ASTMD845), total solids (SM 2540B), grain size (ASTM D4464), total organic carbon (EPA 9060A), DDTs (EPA 8270C SIM) and high-resolution PCB congeners (USEPA 1668). Select sediment samples were also analyzed for low-resolution PCB congeners (EPA 8270C SIM) (Table 2). High-resolution PCB analysis was performed by Vista Analytical, bulk density and specific gravity analyses were performed by PTS Laboratories, and all other analyses were performed by Eurofins CalScience. Additionally, all sediment sample were analyzed for stable isotopes of carbon (δ13C) and nitrogen (δ15N) by the University of California – Davis. All sediment porewater samples were analyzed for dissolved organic carbon (EPA 9060A) by Marine Science Institute.

All tissue samples were homogenized and analyzed for total solids (SM 2540B) and DDTs (EPA 8270C SIM) by Eurofins. Tissue samples were analyzed for high-resolution PCBs (EPA 1668), percent lipids (by gravimetric analysis), total solids (SM 2540B) and sediment gut content (as described above and in Conder and La Point, (2005)) by Vista Analytical. Additionally, all tissue samples analyzed for stable isotopes of carbon (δ13C) and nitrogen (δ15N) by the University of California – Davis.

2.6 Calculation of Trophic Level and Biota-Sediment Accumulation Factors

2.6.1 Calculation of Trophic Level

Trophic levels (TL) were estimated from stable isotopes of nitrogen ($\delta^{15}N$) results of sediment and tissue. Δ15N results of sediment were taken as the baseline nitrogen level (approximately δ15N = 7.2). A nitrogen enrichment factor of 3.4% (Minigawa and Wada, 1984) was used to estimate additional trophic levels of 2 (feeding on sediment, approximate δ15N = 10.5 - 12) and 3 (feeding on other invertebrates, approximately δ15N = 14 - 15).

2.6.2 Calculation of Biota-Sediment Accumulation Factors

To evaluate bioaccumulation of total PCBs and total DDXs in tissue samples, Biota-Sediment Accumulation Factors (BSAFs, kilogram [kg] lipid weight (lw)/kg organic carbon [OC]) were calculated as the ratio of lipid normalized concentrations of PCBs and DDXs in tissues and organic carbon normalized concentrations in sediment (Table 3). This method accounts for the preferential partitioning of lipophilic chemicals in organic carbon of sediment and lipids of organisms and provides a simple methodology for calculating BSAFs in sediments with different organic carbon contents and organisms with different lipid contents. When available, the sediment gut content normalized tissue concentration was used for the BSAF calculation, otherwise the non-corrected wet weight concentration was used.

3 Results

3.1 Sediment and Porewater Samples

All sediment samples were analyzed for high resolution PCBs and total solids by Vista Analytical. Dichlorodiphenyltrichloroethane and its derivatives (DDXs), total solids, total organic carbon (TOC), and grain size by Eurofins CalScience; and bulk density and specific gravity by PTS Laboratories (subcontracted by Eurofins CalScience). Additionally, sediment samples from 11 polychaete stations were analyzed for low resolution PCBs by Eurofins Calscience. Vista Analytical prepared and shipped samples to the University of California Davis for stable isotopes of carbon and nitrogen analysis. Porewater samples were analyzed for dissolved organic carbon by the Marine Science Institute (subcontracted by Eurofins CalScience). Sample analyses are outlined in Table 2. Analytical results for sediment, porewater and tissue samples are summarized in Table 3 and all sediment and porewater results are presented in Appendix B-1. Data validated electronic data deliverables are provided in Appendix C.

3.2 Tissue Samples

Samples were composited as described above and homogenized by Eurofins CalScience. Once homogenized, Eurofins Calscience subsampled and shipped tissue for high-resolution PCBs, lipid content, stable isotope sample preparation, and gut content analysis to Vista Analytical. Eurofins Calscience analyzed tissue samples for DDXs and total solids. Vista Analytical prepared and shipped samples to University of California Davis for stable isotope analysis. Analytical results are summarized in Table 3 and all results are provided in Appendix B-2.

3.2.1 Sediment Gut Content Normalization of PCBs and DDXs in Tissue

Using the approach detailed in Conder and La Point (2005), the concentrations of chemicals in the polychaete tissue and co-located sediment sample, coupled with the sediment gut mass were used to express analytical results as the concentration of chemicals in the (sediment-free) tissue. The concentrations of total DDXs and PCBs in tissue corrected for sediment gut content were decreased by an average of 17% (0-34%) and 8% (1-16%) from uncorrected concentrations, respectively. Therefore, the sediment gut content correction reduced overestimation of contaminant uptake into the organism tissues.

3.2.2 Bioaccumulation

Multiple factors play a role in the degree of bioaccumulation from sediments to benthic invertebrates, including the bioavailability of the chemical in sediment and porewater, feeding mechanics and trophic level of the organism. At tissue sampling stations where sufficient polychaete mass was achieved, samples were comprised only of polychaete tissues when analyzed. However, tissue sampling stations with low polychaete mass were analyzed as a benthic invertebrate composite sample with multiple species. Stations with only polychaete tissue were expected to show lower bioaccumulation due to less variation in feeding mechanisms and trophic levels compared to stations with composited tissue samples. Feeding mechanisms for polychaetes and other benthic invertebrate include suspension feeding, deposit feeding and feeding on detritus. These varying mechanisms result in different rates of chemical uptake from porewater and sediment, which are also

influenced by station specific bioavailability in each media. Additionally, tissue samples composed of multiple benthic invertebrates were not normalized for sediment gut, whereas polychaete-only tissues were normalized for sediment gut content reducing the potential for overestimation of tissue concentrations and bioaccumulation in the polychaete only samples.

3.2.2.1 Bioaccumulation of PCBs

BSAFs for total PCBs ranged from 0.01 to 47 kg lw/kg OC (mean of 5.8 kg lw/kg OC). BSAFs for stations where only polychaete tissue was analyzed show much less variability, ranging from 0.01 to 1.8 kg lw/kg OC (average of 0.63 kg lw/kg OC). Tissue samples with multiple benthic organisms composited showed higher BSAFs typically, ranging from 1.06 to 47 kg lw/kg OC (average of 12 kg lw/kg OC). As discussed above, benthic organisms included in the composite samples have varying trophic levels and feeding mechanisms, which likely contributed to variability in the calculated BSAFs. Additionally, these composite samples contained other benthic invertebrates in addition to polychaetes and were not normalized for sediment gut content, which would result in elevated tissue concentrations and higher BSAFs as expected.

Based on calculated BSAFs, organisms collected from all stations with multiple benthic organisms showed bioaccumulation (BSAF > 1). No bioaccumulation was observed at stations with polychaete only tissue samples, with the exception of Station OB-SS-32. BSAFs for Station IA -31 and FH-25 indicated the highest levels of bioaccumulation (average of 32 kg lw/kg OC for primary and field duplicate sample at IA-31 and 2.7 kg lw/kg OC at FH-25). At IA-31 the composite tissue sample from this station mainly consisted of razor clams and a large scale worm. As this sample was not normalized for gut content (not a polychaete-only tissue station), it is likely that the sediment in the gut content of the scale worm led to elevated tissue concentrations. The composite tissue samples at FH-25 consisted mainly of clams (Macoma sp.). Both stations had relatively low DOC (from 2,906 to 3,186 microgram per liter [µg/L]), which would result in elevated bioavailability of PCBs in porewater and increased uptake by filter feeders such as clams.

Trophic levels (TL) of benthic organisms were estimated based on δ15N concentrations, and were classified as generally sediment feeders (TL 2) or consumers (TL 3). Average BSAFs for TL 2 were 1.0 kg lw/kg OC, and average BSAF for TL 3 were 8.0 kg lw/kg OC.

A comparison of the relative proportion of PCBs congeners in both sediment and tissue for all stations were compared as well. With the exception of station IB-29, all stations showed similar distributions of PCB congeners between sediment and tissue. Station IB-29 showed higher proportions of lower chlorinated congeners in tissue compared to sediment, indicating a potential separate source of PCB to tissues in that area.

3.2.3 Bioaccumulation of DDXs

BSAFs for total DDXs were also highly variable, ranging from 0.04 to 2.4 kg lw/kg OC (average of 0.5 kg lw/kg OC). For DDXs, the main source of variability in BSAFs appears to be the make-up of the tissue sample analyzed (e.g. polychaetes only or polychaetes and other benthic invertebrates). For polychaete only tissue samples, BSAFs typically

indicate a lack of significant bioaccumulation ranging from 0.04 to 0.20 kg lw/kg OC (average of 0.12 kg lw/kg OC). For tissues samples that were a composite of polychaete and other benthic invertebrate samples, BSAFs range from 0.17 to 2.4 kg lw/kg OC (average 0.95 kg lw/kg OC).As discussed above, BSAFs were expected to be lower for polychaete only tissues samples due to reduced variability in feeding mechanisms, and the sediment gut content normalization procedure. The results for BSAFs for total DDTs supports this supposition, with increased bioaccumulation observed in non-polychaete only tissue samples. Bioaccumulation was only observed at stations FH-SS-25 and IA-SS-31 (BSAF of 1.5 and 1.7 kg lw/kg OC, respectively).

3.2.4 Ratios of Total DDXs to Total PCBs in Sediment and Tissue

The ratio of the total concentrations of DDXs to the total concentration of PCBs were evaluated for sediment and tissue samples. A clear pattern in DDX: PCB ratio for sediment samples indicates higher concentrations of DDX in the outer harbor stations (DDX: PCB ratio > 1) compared to the inner harbor stations (Figure 3). The pattern suggests that inner harbor sediments are typically dominated by PCBs, and outer harbor sediments dominated by DDX, suggesting the possibility of different sources of contaminants in these areas.

Ratios of DDX: PCBs in tissue samples were all less than one, as benthic invertebrate uptake of PCBs exceeds that of DDXs. Ratios of DDX: PCBs showed a similar pattern, with stations in the outer harbor and Fish Harbor showing higher ratios than those in the inner harbor, with the exception of Consolidated Slip (Figure 4). Tissue samples in Consolidated Slip show higher ratios at the far end, immediately adjacent to the Dominguez Channel inlet, with decreasing ratios toward the inner Los Angeles Harbor. The ratio of DDX: PCB in sediment showed a similar pattern in Consolidated Slip with slightly higher ratio at CS-28.

4 Quality Assurance and Quality Control

Quality Assurance and Quality Control (QA/QC) methods are detailed in the Programmatic Quality Assurance Project Plan (PQAPP; Anchor, 2014b). Two sediment field duplicate samples were collected and analyzed for total organic carbon, total solids, dissolved organic carbon, DDXs, high-resolution PCBs, grain size, bulk density, specific gravity, and stable isotopes to meet the 5% QA/QC frequency specified in the PQAPP. Additionally, one sediment field duplicate was collected and analyzed for low-resolution PCBs. Additional polychaete tissue was collected at CS-27 to allow for a laboratory duplicate sample to be run. Additional field QA/QC included decontamination of all equipment between sampling location with Alconox and water, and an equipment rinsate field blank.

Laboratory QA/QC included calibration, control samples, standard reference materials, replicates, matrix spikes, matrix spike duplicates, surrogate spikes, method blanks, and internal standards. Data validation was performed by Ramboll Environ and data validator flags were added to the electronic data deliverables. The data validation report is provided in Appendix D.

For stable isotope data, six sediment samples required re-analysis due to initial results that were outside of control limits for precision and accuracy. Three samples required re-analysis for δ13C due to carbonate present in the sample. When total carbon in a sample is high due to carbonate, δ13C cannot be measured accurately. Three samples required reanalysis for δ15N, as these samples had less than 20µg total nitrogen, resulting in decreased precision. All reanalyzed samples met QA/QC criteria.

5 References

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Tables

Table 1: Field Notes for Sediment and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Station ID	Grab Number	Date	Time [1]	Latitude [2]	Longitude [2]	Tide (ft)	Water Depth (ft)	MLLW (ft)	Mudline (ft)	Sediment Notes	Sediment Color
OA-SS-01	1	10/16/2014	16:00	33°42.8167	-118°15.9878	4.5	19.68	15.18	24.18	Sand, no odor	10 YR 4/2
	2	10/16/2014	16:06	33°42.8167	-118°15.9878	4.5	19.68	15.18	24.18		
IA-SS-02	1	10/17/2014	15:08	33°43.3167	-118°16.1985	4.5	59.04	54.54	63.54	Silty clay, no odor	10 YR 3/2
	2	10/17/2014	15:14	33°43.2810	-118°16.2285	4.4	57.07	52.67	61.47		
IA-SS-03	1	10/17/2014	14:55	33°43.6625	-118°16.2521	4.6	58.06	53.46	62.66	Silt, no odor	10 YR 3/1
FH-SS-04	1	10/17/2014	15:31	33°44.0095	-118°15.8833	4.3	24.27	19.97	28.57	Silt, no odor	10 YR 3/1
FH-SS-05	1	10/18/2014	13:13	33°44.0438	-118°16.0441	2.5	22.96	20.46	25.46	Silt, no odor	10 YR 4/1
FH-SS-06	1	10/17/2014	13:38	33°44.1805	-118°16.0281	4.8	22.63	17.83	27.43	Silt, no odor	10 YR 3/1
IA-SS-07	1	10/18/2014	13:40	33°44.8461	-118°16.3297	2.5	59.70	57.20	62.20	Silt with fine sand, no odor	10 YR 3/1
IA-SS-08	1	10/18/2014	14:06	33°45.6034	-118°16.4957	2.6	57.07	54.47	59.67	Silt, no odor, coarse shell hash	10 YR 3/1
	2	10/18/2014	14:15	33°45.5987	-118°16.5862	2.6	57.73	55.13	60.33		
IA-SS-09	1	10/20/2014	10:06	33°45.7101	-118°15.2446	4.3	58.06	53.76	62.36	Silt with fine sand, no odor	10 YR 3/1
IB-SS-10	1	10/21/2014	10:17	33°45.9426	-118°14.3394	4.5	52.81	48.31	57.31	Silt, no odor	10 YR 3/1
IB-SS-11 IB-SS-11-DUP	1	10/21/2014	10:40	33°46.0745	-118°13.7530	4.0	51.82	47.82	55.82	Silt, no odor	10 YR 3/1
IB-SS-12	1	10/21/2014	10:57	33°46.3558	-118°13.1407	3.8	49.86	46.11	53.61	Silt, no odor	10 YR 3/1
	2	10/21/2014	10:57	33°46.3558	-118°13.1407	3.8	49.86	46.11	53.61		
SP-SS-13	1	10/16/2014	11:38	NR	NR	3.3	40.34	37.04	43.64	Silty clay, no odor	10 YR 3/1
	2	10/16/2014	11:50	33°44.7908	-118°10.7518	3.4	39.36	35.96	42.76		
SP-SS-14	1	10/16/2014	12:18	33°44.0758	-118°10.0103	3.4	49.20	45.80	52.60	Silt, no odor	10 YR 3/1
	2	10/16/2014	12:25	33°44.0046	-118°10.0092	3.5	49.20	45.70	52.70		
SP-SS-15	1	10/16/2014	13:14	33°43.5500	-118°10.6995	3.6	57.73	54.13	61.33	Sandy silt, no odor	10 YR 3/1
	2	10/16/2014	13:22	33°43.5520	-118°10.7002	3.7	57.73	54.03	61.43		
OB-SS-16	1	10/16/2014	13:44	33°44.0588	-118°12.2638	3.8	93.81	90.01	97.61	Silt w/ very fine sand, no odor	10 YR 3/1
OA-SS-17	1	10/16/2014	14:16	33°43.3883	-118°14.3282	4.0	20.99	16.99	24.99	Sand, no odor	10 YR 4/2
	2	10/16/2014	14:30	33°43.3861	-118°14.3260	4.0	20.99	16.99	24.99		
OA-SS-18	1	10/16/2014	14:46	33°43.5520	-118°14.5453	4.1	42.64	38.54	46.74	Silt, no odor	10 YR 3/1
AG-SS-19	1	10/17/2014	8:11	33°42.5696	-118°14.5823	1.6	53.79	52.19	55.39	Sand, no odor	10 YR 4/2
	2	10/17/2014	8:20	33°42.5813	-118°14.5837	1.7	48.54	46.84	50.24		
OA-SS-20	1	10/16/2014	15:08	33°42.7783	-118°14.8959	3.7	82.00	78.30	85.70	Silt with fine sand, no odor	10 YR 3/1
OA-SS-21	1	10/16/2014	15:22	33°42.5798	-118°15.3419	3.8	22.96	19.16	26.76	Sand, no odor	10 YR 4/2
	2	10/16/2014	15:31	33°42.5798	-118°15.3419	3.9	22.96	19.06	26.86		
	3	10/16/2014	15:39	33°42.5821	-118°15.3419	4.0	22.96	18.96	26.96		
AG-SS-22	1	10/17/2014	8:45	33°42.2742	-118°15.5926	2.0	58.06	56.06	60.06	Sand, no odor	10 YR 2/4
	2	10/17/2014	8:50	33°42.2757	-118°15.6087	2.0	57.07	55.07	59.07		

Table 1: Field Notes for Sediment and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Station ID	Grab Number	Date	Time [1]	Latitude [2]	Longitude [2]	Tide (ft)	Water Depth (ft)	MLLW (ft)	Mudline (ft)	Sediment Notes	Sediment Color
OA-SS-23/ OA-WO-23	1	10/25/2014	7:21	33°42.5933	-118°16.4342	4.2	20.34	16.14	24.54	Silt with sand and clay	GLEY 1, 2.5/10Y
	2	10/25/2014	7:34	33°42.5200	-118°16.4059	4.5	22.30	17.80	26.80		
	3	10/25/2014	8:03	33°42.5224	-118°16.3981	5.0	22.63	17.63	27.63		
	4	10/25/2014	8:25	33°42.5322	-118°16.4153	5.2	23.62	18.42	28.82		
	5	10/25/2014	8:49	33°42.5269	-118°16.3943	5.5	23.62	18.12	29.12		
	6	10/25/2014	9:10	33°42.5268	-118°16.3938	5.8	23.94	18.14	29.74		
	7	10/25/2014	9:22	33°42.5324	-118°16.3944	5.9	23.94	18.04	29.84		
	8	10/25/2014	9:48	33°42.5317	-118°16.3905	6.0	24.27	18.32	30.22		
	9	10/25/2014	10:09	33°42.5089	-118°16.3858	6.0	24.27	18.28	30.26		
	10	10/25/2014	10:30	33°42.5043	-118°16.3795	6.0	24.27	18.32	30.22		
	11	10/25/2014	10:50	33°42.5069	-118°16.3815	5.9	23.94	18.04	29.84		
	12	10/25/2014	11:11	33°42.5059	-118°16.3766	5.8	23.94	18.14	29.74		
	13	10/25/2014	11:29	33°42.5009	-118°16.3748	5.4	23.94	18.54	29.34		
	14	10/25/2014	11:50	33°42.5412	-118°16.3815	5.2	22.63	17.43	27.83		
	15	10/25/2014	11:55	33°42.5112	-118°16.4178	5.0	23.62	18.62	28.62		
CB-SS-24/ CB-WO-24	1	10/22/2014	10:07	33°42.6883	-118°16.8802	5.4	12.46	7.06	17.86	Silt with very slight sand	2.5Y 2.5/1
	2	10/22/2014	10:20	33°42.6905	-118°16.8826	5.2	12.79	7.59	17.99		
	3	10/22/2014	10:42	33°42.6927	-118°16.8811	5.0	12.79	7.79	17.79		
	4	10/22/2014	10:57	33°42.6956	-118°16.8831	4.8	12.46	7.66	17.26		
	5	10/22/2014	11:10	33°42.6966	-118°16.8822	4.6	11.81	7.21	16.41		
	6	10/22/2014	11:26	33°42.7010	-118°16.8784	4.2	12.14	7.94	16.34		
	7	10/22/2014	11:38	33°42.7042	-118°16.8670	3.9	12.46	8.56	16.36		
	8	10/22/2014	11:51	33°42.6798	-118°16.8497	3.6	12.14	8.54	15.74		
	9	10/22/2014	12:45	33°42.6783	-118°16.8453	2.5	10.82	8.32	13.32		
	10	10/22/2014	13:04	33°42.6848	-118°16.8365	2.1	11.48	9.38	13.58		
	11	10/22/2014	13:16	33°42.6835	-118°16.8342	1.7	11.15	9.45	12.85		
	12	10/22/2014	13:30	33°42.6873	-118°16.8299	1.5	11.81	10.31	13.31		
	13	10/22/2014	13:44	33°42.6837	-118°16.8277	1.3	11.48	10.18	12.78		
	14	10/22/2014	13:53	33°42.6849	-118°16.8282	1.0	11.15	10.15	12.15		
	15	10/22/2014	14:10	33°42.6785	-118°16.8248	0.9	10.82	9.92	11.72		
	16	10/25/2014	13:46	33°42.6769	-118°16.8572	3.0	10.82	7.82	13.82		
	17	10/25/2014	14:03	33°42.6927	-118°16.8200	2.5	12.79	10.29	15.29		
	18	10/25/2014	14:15	33°42.6958	-118°16.8232	2.3	12.46	10.21	14.71		
	19	10/25/2014	14:30	33°42.6964	-118°16.8152	2.0	12.46	10.46	14.46		
	20	10/25/2014	14:44	33°42.6960	-118°16.8125	1.5	12.14	10.64	13.64		
	21	10/25/2014	15:00	33°42.6946	-118°16.8319	1.3	10.82	9.57	12.07		
FH-SS-25/ FH-WO-25	1	10/17/2014	9:24	33°44.2780	-118°16.0041	2.3	23.29	20.99	25.59	Silt with fine sand, no odor	10 YR 3/1
	2	10/17/2014	9:52	33°44.2751	-118°16.0061	2.8	24.27	21.47	27.07		
	3	10/17/2014	10:08	33°44.2713	-118°16.0019	2.9	24.60	21.70	27.50		
	4	10/17/2014	10:26	33°44.2340	-118°15.9840	3.1	23.29	20.19	26.39		
	5	10/17/2014	10:40	33°44.2328	-118°15.9801	3.4	22.63	19.23	26.03		
	6	10/17/2014	10:52	33°44.2324	-118°15.9864	3.5	22.96	19.46	26.46		
	7	10/17/2014	11:04	33°44.2362	-118°15.9899	3.7	22.96	19.26	26.66		
	8	10/17/2014	11:25	33°44.2356	-118°15.4738	3.8	22.30	18.50	26.10		
	9	10/17/2014	12:19	33°44.2360	-118°15.9734	4.4	23.62	19.22	28.02		
	10	10/17/2014	12:29	33°44.2347	-118°15.9705	4.4	22.63	18.23	27.03		
	11	10/17/2014	12:43	33°44.2526	-118°16.0144	4.6	22.30	17.70	26.90		

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Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Station ID	Grab Number	Date	Time [1]	Latitude [2]	Longitude [2]	Tide (ft)	Water Depth (ft)	MLLW (ft)	Mudline (ft)	Sediment Notes	Sediment Color
IA-SS-26/ IA-WO-26	1	10/20/2014	10:23	33°46.1114	-118°15.1252	4.0	49.86	45.86	53.86	Silt with fine sand, no odor	10 YR 3/1
	2	10/20/2014	10:48	33°46.1134	-118°15.1371	3.8	47.56	43.76	51.36		
	3	10/20/2014	11:17	33°46.1154	-118°15.1267	3.2	48.87	45.67	52.07		
	4	10/20/2014	11:40	33°46.1261	-118°15.1297	2.8	43.30	40.50	46.10		
	5	10/20/2014	12:43	33°46.0381	-118°15.1343	1.8	43.95	42.15	45.75		
	6	10/20/2014	13:07	33°46.0604	-118°15.1337	1.5	44.61	43.11	46.11		
	7	10/20/2014	13:26	33°46.0571	-118°15.1313	1.2	44.28	43.08	45.48		
	8	10/20/2014	13:49	33°46.0554	-118°15.1282	1.1	44.28	43.18	45.38		
	9	10/20/2014	14:12	33°46.0577	-118°15.1269	1.1	44.28	43.21	45.35		
	10	10/20/2014	14:38	33°46.0735	-118°15.1193	1.2	43.62	42.42	44.82		
	11	10/21/2014	8:02	33°46.0927	-118°15.0886	5.2	47.23	42.03	52.43		
	12	10/21/2014	8:27	33°46.0815	-118°15.1080	5.4	47.89	42.48	53.30		
	13	10/21/2014	8:46	33°46.0815	-118°15.1099	5.2	47.89	42.69	53.09		
	14	10/21/2014	9:15	33°46.0894	-118°15.1114	5.1	47.89	42.79	52.99		
	15	10/21/2014	9:29	33°46.0867	-118°15.1075	5.1	47.23	42.13	52.33		
	16	10/26/2014	15:15	33°46.0742	-118°15.0925	1.8	41.00	39.25	42.75		
	17	10/26/2014	15:45	33°46.0854	-118°15.0885	1.3	41.00	39.75	42.25		
	18	10/26/2014	16:07	33°46.0495	-118°15.1738	0.8	46.25	45.45	47.05		
	19	10/26/2014	16:30	33°46.0457	-118°15.1700	0.5	45.59	45.09	46.09		
	20	10/26/2014	16:45	33°46.0524	-118°15.1737	0.3	45.92	45.62	46.22		
	21	10/26/2014	17:05	33°46.0615	-118°15.1458	0.1	44.28	44.18	44.38		
CS-SS-27/ CS-WO-27	1	10/19/2014	12:30	33°46.4637	-118°14.8313	4.3	23.62	19.32	27.92	Silt with some muck, strong hydrogen sulfide odor, trash and debris abundant	10 YR 2/1
	2	10/19/2014	12:50	33°46.4587	-118°14.8206	4.6	23.29	18.69	27.89		
	3	10/19/2014	13:08	33°46.4619	-118°14.8256	4.8	23.29	18.49	28.09		
	4	10/19/2014	13:32	33°46.4624	-118°14.8229	5.1	23.29	18.19	28.39		
	5	10/19/2014	13:51	33°46.4635	-118°14.8254	5.1	22.96	17.86	28.06		
	6	10/19/2014	14:11	33°46.4618	-118°14.8440	5.3	23.62	18.32	28.92		
	7	10/19/2014	14:33	33°46.4328	-118°14.8170	5.3	21.65	16.35	26.95		
	8	10/19/2014	14:49	33°46.4642	-118°14.8309	5.2	23.94	18.74	29.14		
	9	10/20/2014	8:00	33°46.4532	-118°14.8780	5.2	26.90	21.72	32.08		
	10	10/20/2014	8:16	33°46.4539	-118°14.8636	5.1	26.57	21.47	31.67		
	11	10/20/2014	8:38	33°46.4583	-118°14.8488	5.0	26.57	21.57	31.57		
	12	10/20/2014	8:58	33°46.4599	-118°14.8466	4.9	26.57	21.67	31.47		
CS-WO-27-DUP	1	10/26/2014	7:52	33°46.4413	-118°14.8963	4.2	20.01	15.81	24.21	NA	NA
	2	10/26/2014	8:23	33°46.4477	-118°14.8756	4.8	23.62	18.82	28.42		
	3	10/26/2014	8:48	33°46.4662	-118°14.8209	5.0	26.24	21.24	31.24		
	4	10/26/2014	9:14	33°46.4653	-118°14.8258	5.5	26.90	21.40	32.40		
	5	10/26/2014	9:45	33°46.4673	-118°14.8103	5.7	26.90	21.20	32.60		
	6	10/26/2014	10:17	33°46.4696	-118°14.8158	5.9	27.88	21.98	33.78		
	7	10/26/2014	10:54	33°46.4715	-118°14.8132	5.9	27.88	21.98	33.78		
	8	10/26/2014	11:18	33°46.4409	-118°14.8646	5.7	27.22	21.52	32.92		
	9	10/26/2014	11:43	33°46.4386	-118°14.8619	5.6	27.22	21.62	32.82		
	10	10/26/2014	12:14	33°46.4401	-118°14.8661	5.4	26.90	21.50	32.30		
	11	10/26/2014	13:35	33°46.4679	-118°14.8642	3.8	25.58	21.78	29.38		
	12	10/26/2014	13:54	33°46.4426	-118°14.8612	3.0	24.93	21.93	27.93		
	13	10/26/2014	14:17	33°46.4317	-118°14.8623	2.8	23.94	21.14	26.74		
	14	10/26/2014	14:45	33°46.4415	-118°14.8633	2.3	23.94	21.64	26.24		

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San Pedro and Long Beach, California

Station ID	Grab Number	Date	Time [1]	Latitude [2]	Longitude [2]	Tide (ft)	Water Depth (ft)	MLLW (ft)	Mudline (ft)	Sediment Notes	Sediment Color
CS-SS-28/ CS-WO-28	1	10/19/2014	8:02	33°46.5474	-118°14.6402	1.4	25.91	24.51	27.31	Silt with heavy muck, strong petroleum & hydrogen sulfide odor, trash and debris abundant.	10 YR 2/1
	2	10/19/2014	8:37	33°46.5404	-118°14.6389	1.5	24.93	23.43	26.43		
	3	10/19/2014	8:56	33°46.5474	-118°14.5420	1.5	26.24	24.74	27.74		
	4	10/19/2014	9:18	33°46.5432	-118°14.6433	1.7	25.26	23.56	26.96		
	5	10/19/2014	9:45	33°46.5451	-118°14.6449	1.9	25.58	23.68	27.48		
	6	10/19/2014	9:57	33°46.5120	-118°14.7132	2.0	26.57	24.57	28.57		
	7	10/19/2014	10:09	33°46.5137	-118°14.7136	2.2	28.54	26.34	30.74		
	8	10/19/2014	10:28	33°46.5130	-118°14.7116	2.4	27.22	24.82	29.62		
	9	10/19/2014	10:52	33°46.5455	-118°14.6678	2.8	28.21	25.41	31.01		
	10	10/19/2014	11:11	33°46.5482	-118°14.6057	3.2	28.86	25.66	32.06		
IB-SS-29/ IB-WO-29	1	10/21/2014	11:22	33°46.2298	-118°12.8984	3.7	48.54	44.84	52.24	Silt, no odor	2.5Y 2.5/1
	2	10/21/2014	11:44	33°46.2310	-118°12.9050	3.3	48.87	45.57	52.17		
	3	10/21/2014	11:58	33°46.2324	-118°12.8976	3.0	48.54	45.54	51.54		
	4	10/21/2014	13:00	33°46.2303	-118°12.8979	1.8	47.56	45.81	49.31		
	5	10/21/2014	13:13	33°46.2443	-118°12.8741	1.5	47.89	46.39	49.39		
	6	10/21/2014	13:24	33°46.2052	-118°12.8544	1.3	45.59	44.34	46.84		
	7	10/21/2014	13:49	33°46.2016	-118°12.8518	1.3	45.26	44.01	46.51		
	8	10/21/2014	14:05	33°46.2070	-118°12.8541	1.3	46.58	45.33	47.83		
	9	10/21/2014	14:15	33°46.2046	-118°12.8531	0.9	45.92	45.02	46.82		
	10	10/21/2014	14:32	33°46.2052	-118°12.8547	0.8	45.26	44.46	46.06		
	11	10/22/2014	7:56	33°46.2075	-118°12.8502	5.4	52.15	46.75	57.55		
	12	10/22/2014	8:16	33°46.2082	-118°12.8554	5.5	52.81	47.31	58.31		
	13	10/22/2014	8:32	33°46.2095	-118°12.8512	5.6	53.46	47.86	59.06		
	14	10/22/2014	8:47	33°46.2256	-118°12.8277	5.6	53.14	47.50	58.78		
	15	10/22/2014	9:08	33°46.2223	-118°12.8289	5.6	53.46	47.86	59.06		
IB-SS-30/ IB-WO-30	1	10/23/2014	7:54	33°44.8831	-118°14.1403	5.5	52.81	47.31	58.31	Silt with clay, no odor	GLEY 2.5/10Y
	2	10/23/2014	8:30	33°44.8813	-118°14.1454	5.7	52.48	46.78	58.18		
	3	10/23/2014	9:02	33°44.8809	-118°14.1344	5.8	52.48	46.68	58.28		
	4	10/23/2014	9:34	33°44.9205	-118°14.1462	5.8	53.14	47.34	58.94		
	5	10/23/2014	10:20	33°44.9198	-118°14.1516	5.5	52.81	47.31	58.31		
	6	10/23/2014	11:05	33°44.9238	-118°14.1485	4.8	52.15	47.35	56.95		
	7	10/23/2014	11:40	33°44.9240	-118°14.1465	4.0	51.50	47.50	55.50		
	8	10/23/2014	13:07	33°44.8545	-118°14.1009	2.5	48.87	46.37	51.37		
	9	10/23/2014	13:30	33°44.8528	-118°14.0988	1.8	47.89	46.14	49.64		
	10	10/23/2014	13:59	33°44.8522	-118°14.0979	1.0	47.56	46.56	48.56		
	11	10/23/2014	14:25	33°44.8531	-118°14.0986	0.8	47.23	46.43	48.03		
	12	10/23/2014	14:50	33°44.8606	-118°14.0941	0.6	47.23	46.63	47.83		
	13	10/23/2014	15:19	33°44.8605	-118°14.0897	0.4	46.90	46.50	47.30		
IA-SS-31 IA-SS-31-DUP/ IA-WO-31	1	10/18/2014	8:07	33°44.4158	-118°14.9045	4.9	14.76	9.86	19.66	Silt, no order	10 YR 3/1
	2	10/18/2014	8:22	33°44.4183	-118°14.8939	4.7	14.76	10.06	19.46		
	3	10/18/2014	8:36	33°44.4134	-118°14.9044	4.7	12.79	8.09	17.49		
	4	10/18/2014	8:52	33°44.4132	-118°14.9035	4.5	13.45	8.95	17.95		
	5	10/18/2014	9:05	33°44.4138	-118°14.9046	4.4	14.10	9.70	18.50		
	6	10/18/2014	9:19	33°44.4319	-118°14.8966	4.3	14.43	10.13	18.73		
	7	10/18/2014	9:41	33°44.4335	-118°14.8967	4.1	14.10	10.00	18.20		

Table 1: Field Notes for Sediment and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Station ID	Grab Number	Date	Time [1]	Latitude [2]	Longitude [2]	Tide (ft)	Water Depth (ft)	MLLW (ft)	Mudline (ft)	Sediment Notes	Sediment Color
IA-SS-31 IA-SS-31-DUP/ IA-WO-31 (Continued)	8	10/18/2014	9:54	33°44.4360	-118°14.8999	4.0	14.10	10.10	18.10	Silt, no order	10 YR 3/1
	9	10/18/2014	10:03	33°44.4354	-118°14.8965	3.9	13.78	9.88	17.68		
	10	10/18/2014	10:18	33°44.4328	-118°14.8925	3.8	13.12	9.32	16.92		
	11	10/18/2014	10:34	33°44.4373	-118°14.8917	3.8	13.45	9.65	17.25		
	12	10/18/2014	10:53	33°44.4457	-118°14.8885	3.7	12.46	8.76	16.16		
	13	10/18/2014	10:54	33°44.4459	-118°14.8933	3.6	13.12	9.52	16.72		
	14	10/18/2014	11:06	33°44.4489	-118°14.9090	3.6	20.99	17.39	24.59		
	15	10/18/2014	11:14	33°44.4291	-118°14.8912	3.5	13.12	9.62	16.62		
OB-SS-32/ OB-WO-32	1	10/23/2014	16:15	33°44.4104	-118°13.3271	0.2	47.56	47.36	47.76	Silt with slight sand, no odor	GLEY 1, 2.5/10Y
	2	10/23/2014	16:39	33°44.4114	-118°13.3291	0.7	47.56	46.86	48.26		
	3	10/24/2014	7:40	33°44.4002	-118°13.4028	4.8	52.15	47.35	56.95		
	4	10/24/2014	8:04	33°44.4672	-118°13.3520	5.2	49.86	44.66	55.06		
	5	10/24/2014	8:24	33°44.4708	-118°13.3595	5.5	49.86	44.36	55.36		
	6	10/24/2014	8:59	33°44.4673	-118°13.3441	5.9	50.84	44.94	56.74		
	7	10/24/2014	9:20	33°44.4765	-118°13.3610	6.0	46.90	40.90	52.90		
	8	10/24/2014	9:34	33°44.4855	-118°13.3623	6.0	44.61	38.61	50.61		
	9	10/24/2014	9:58	33°44.4502	-118°13.3765	6.0	53.14	47.14	59.14		
	10	10/24/2014	10:28	33°44.4496	-118°13.3816	5.8	53.14	47.34	58.94		
	11	10/24/2014	11:11	33°44.4558	-118°13.3789	5.3	52.48	47.23	57.73		
OB-SS-33/ OB-WO-33	1	10/24/2014	12:30	33°43.8631	-118°14.0948	3.9	36.74	32.84	40.64	Silty sand, no odor	GLEY 1, 2.5/10Y with black marbling
	2	10/24/2014	12:52	33°43.8646	-118°14.0851	3.4	36.08	32.68	39.48		
	3	10/24/2014	13:17	33°43.8789	-118°14.1659	2.7	23.94	21.24	26.64		
	4	10/24/2014	13:27	33°43.8812	-118°14.1714	2.5	22.30	19.80	24.80		
	5	10/24/2014	13:34	33°43.8843	-118°14.1678	2.4	21.65	19.25	24.05		
	6	10/24/2014	13:39	33°43.8846	-118°14.1675	2.2	20.99	18.79	23.19		
	7	10/24/2014	13:48	33°43.8866	-118°14.1674	2.0	20.99	18.99	22.99		
	8	10/24/2014	13:54	33°43.8983	-118°14.1125	1.8	32.47	30.67	34.27		
	9	10/24/2014	14:13	33°43.8954	-118°14.1072	1.5	32.14	30.64	33.64		
	10	10/24/2014	14:25	33°43.8936	-118°14.1077	1.0	32.47	31.47	33.47		
	11	10/24/2014	14:45	33°43.9016	-118°14.1082	0.9	31.82	30.92	32.72		
	12	10/24/2014	14:59	33°43.8996	-118°14.1076	0.7	31.49	30.79	32.19		
	13	10/24/2014	15:13	33°43.9039	-118°14.1101	0.6	31.16	30.56	31.76		
	14	10/24/2014	15:25	33°43.9045	-118°14.1102	0.5	30.83	30.33	31.33		
	15	10/24/2014	15:38	33°43.9046	-118°14.1089	0.4	30.83	30.43	31.23		

Table 1: Field Notes for Sediment and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Station ID	Grab Number	Total Polychaete (g)	Total Non-polychaete worm (g)	Total < 2cm (g)	Total > 2cm (g)	Total Other Benthic (g)	Tissue Notes	Tissue Homogenization Details
OA-SS-01	1 2	NA	NA	NA	NA	NA	NA	NA
IA-SS-02	1 2	NA	NA	NA	NA	NA	NA	NA
IA-SS-03	1	NA	NA	NA	NA	NA	NA	NA
FH-SS-04	1	NA	NA	NA	NA	NA	NA	NA
FH-SS-05	1	NA	NA	NA	NA	NA	NA	NA
FH-SS-06	1	NA	NA	NA	NA	NA	NA	NA
IA-SS-07	1	NA	NA	NA	NA	NA	NA	NA
IA-SS-08	1 2	NA	NA	NA	NA	NA	NA	NA
IA-SS-09	1	NA	NA	NA	NA	NA	NA	NA
IB-SS-10	1	NA	NA	NA	NA	NA	NA	NA
IB-SS-11 IB-SS-11-DUP	1	NA	NA	NA	NA	NA	NA	NA
IB-SS-12	1 2	NA	NA	NA	NA	NA	NA	NA
SP-SS-13	1 2	NA	NA	NA	NA	NA	NA	NA
SP-SS-14	1 2	NA	NA	NA	NA	NA	NA	NA
SP-SS-15	1 2	NA	NA	NA	NA	NA	NA	NA
OB-SS-16	1	NA	NA	NA	NA	NA	NA	NA
OA-SS-17	1 2	NA	NA	NA	NA	NA	NA	NA
OA-SS-18	1	NA	NA	NA	NA	NA	NA	NA
AG-SS-19	1 2	NA	NA	NA	NA	NA	NA	NA
OA-SS-20	1	NA	NA	NA	NA	NA	NA	NA
OA-SS-21	1 2 3	NA	NA	NA	NA	NA	NA	NA
AG-SS-22	1 2	NA	NA	NA	NA	NA	NA	NA

Table 1: Field Notes for Sediment and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Station ID	Grab Number	Total Polychaete (g)	Total Non-polychaete worm (g)	Total < 2cm (g)	Total > 2cm (g)	Total Other Benthic (g)	Tissue Notes	Tissue Homogenization Details
OA-SS-23/ OA-WO-23	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	71	38	28	258	0	Many razor clams, few shrimp, crabs and other clams; 1 large flat worm.	Homogenized polychaete tissue after subsample for gut analysis. Analyzed for all analytes in SAP. Non-polychaete tissue archived frozen.
CB-SS-24/ CB-WO-24	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	72	0	0	0	109	Other benthic category consists of almost entirely crabs, with a few ghost shrimp.	Homogenized all polychaete tissue. Analyzed for all analytes in SAP. Non-polychaete tissue archived frozen.
FH-SS-25/ FH-WO-25	1 2 3 4 5 6 7 8 9 10 11	1	0	13	10	0	Mainly macoma, overall lack of benthic macroinvertebrates	Homogenized all benthic invertebrate tissue. Analyzed for all analytes in SAP except sediment gut analysis.

Table 1: Field Notes for Sediment and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Station ID	Grab Number	Total Polychaete (g)	Total Non-polychaete worm (g)	Total < 2cm (g)	Total > 2cm (g)	Total Other Benthic (g)	Tissue Notes	Tissue Homogenization Details
IA-SS-26/ IA-WO-26	1	69	0	4	26	0	1 large bull's-eye prawn, few shrimp, clams, and crabs	Homogenized polychaete tissue after subsample for gut analysis. Analyzed for all analytes in SAP. Non-polychaete tissue archived frozen.
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
	19							
	20							
	21							
CS-SS-27/ CS-WO-27	1	74	0	4	10	0	Mostly mid-size glycerids; few other macroinvertebrates	Homogenized polychaete tissue after subsample for gut analysis. Analyzed for all analytes in SAP. Non-polychaete tissue archived frozen.
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
CS-WO-27-DUP	1	78	0	< 1	9	0	Mainly polychaetes, few ghost shrimp, crabs and clams.	Homogenized polychaete tissue after subsample for gut analysis. Analyzed for all analytes in SAP. Non-polychaete tissue archived frozen.
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
	14							

Table 1: Field Notes for Sediment and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Station ID	Grab Number	Total Polychaete (g)	Total Non-polychaete worm (g)	Total < 2cm (g)	Total > 2cm (g)	Total Other Benthic (g)	Tissue Notes	Tissue Homogenization Details
CS-SS-28/ CS-WO-28	1	8	29	3	6	0	Few benthic species; some polychaetes, nemertean and enteropneusta	Homogenized all benthic invertebrate tissue. Analyzed for all analytes in SAP except sediment gut analysis.
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
IB-SS-29/ IB-WO-29	1	30	< 1	4	31	0	Large bull's-eye prawn, sea grape, some shrimp.	Homogenized all benthic invertebrate tissue. Analyzed for all analytes in SAP except sediment gut analysis.
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
	14							
	15							
IB-SS-30/ IB-WO-30	1	76	0	14	17	0	Very small but abundant polychaetes, ghost shrimp, crabs, razor and other clams	Homogenized polychaete tissue after subsample for gut analysis. Analyzed for all analytes in SAP. Non-polychaete tissue archived frozen.
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
IA-SS-31 IA-SS-31-DUP/ IA-WO-31	1	39	1	40	60	0	Abundant razor clams, one large scale worm comprises much of polychaete mass (18g)	Homogenized all benthic invertebrate tissue. Analyzed for all analytes in SAP except sediment gut analysis.
	2							
	3							
	4							
	5							
	6							
	7							

Table 1: Field Notes for Sediment and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Station ID	Grab Number	Total Polychaete (g)	Total Non-polychaete worm (g)	Total < 2cm (g)	Total > 2cm (g)	Total Other Benthic (g)	Tissue Notes	Tissue Homogenization Details
IA-SS-31 IA-SS-31-DUP/ IA-WO-31 (Continued)	8 9 10 11 12 13 14 15	39	1	40	60	0	Abundant razor clams, one large scale worm comprises much of polychaete mass (18g)	Homogenized all benthic invertebrate tissue. Analyzed for all analytes in SAP except sediment gut analysis.
OB-SS-32/ OB-WO-32	1 2 3 4 5 6 7 8 9 10 11	71	0	18	133	0	Many brittle stars; large sea grape and sea cucumber, mollusks clams, shrimp and crabs.	Homogenized polychaete tissue after subsample for gut analysis. Analyzed for all analytes in SAP. Non-polychaete tissue archived frozen.
OB-SS-33/ OB-WO-33	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	31	0	15	42	0	Crabs, shrimp, sea anemone, mollusks, sea grape.	Homogenized all benthic invertebrate tissue. Analyzed for all analytes in SAP except sediment gut analysis.

Notes:
1. Sediment grabs had a duration of approximately 1 minute. Only start time was noted.
2. All coordinates are shown in decimal degrees.
3. Abbreviations:

cm = centimeter	MLLW = mean lower low water
ft = feet	NA = Not applicable
g = grams	NR = Not recorded

Table 2: Sample Collection Summary
San Pedro and Long Beach, California

Media	Station	Sample Type	Sample ID	Analyses												
				Low-Resolution PCBs	High Resolution PCBs	DDX	Total Solids	TOC	Bulk Density	Specific Gravity	Grain Size	DOC	Lipids	C / N Isotopes	Gut Content	Hold
Porewater	01	Sample	OA-PW-01-0-5-20141016									X				
Sediment	01	Sample	OA-SS-01-0-5-20141016-GS								X					
Sediment	01	Sample	OA-SS-01-0-5-20141016-BDSG						X	X						
Sediment	01	Sample	OA-SS-01-0-5-20141016-CHEM			X	X	X								
Sediment	01	Sample	OA-SS-01-0-5-20141016-HPISO		X											
Porewater	02	Sample	IA-PW-02-0-5-20141017									X				
Sediment	02	Sample	IA-SS-02-0-5-20141017-GS								X					
Sediment	02	Sample	IA-SS-02-0-5-20141017-BDSG						X	X						
Sediment	02	Sample	IA-SS-02-0-5-20141017-CHEM			X	X	X								
Sediment	02	Sample	IA-SS-02-0-5-20141017-HPISO		X											
Porewater	03	Sample	IA-PW-03-0-5-20141017									X				
Sediment	03	Sample	IA-SS-03-0-5-20141017-GS								X					
Sediment	03	Sample	IA-SS-03-0-5-20141017-BDSG						X	X						
Sediment	03	Sample	IA-SS-03-0-5-20141017-CHEM			X	X	X								
Sediment	03	Sample	IA-SS-03-0-5-20141017-HPISO		X											
Porewater	04	Sample	FH-PW-04-0-5-20141017									X				
Sediment	04	Sample	FH-SS-04-0-5-20141017-GS								X					
Sediment	04	Sample	FH-SS-04-0-5-20141017-BDSG						X	X						
Sediment	04	Sample	FH-SS-04-0-5-20141017-CHEM			X	X	X								
Sediment	04	Sample	FH-SS-04-0-5-20141017-HPISO		X											
Porewater	05	Sample	FH-PW-05-0-5-20141018									X				
Sediment	05	Sample	FH-SS-05-0-5-20141018-GS								X					
Sediment	05	Sample	FH-SS-05-0-5-20141018-BDSG						X	X						
Sediment	05	Sample	FH-SS-05-0-5-20141018-CHEM			X	X	X								
Sediment	05	Sample	FH-SS-05-0-5-20141018-HPISO		X											
Porewater	06	Sample	FH-PW-06-0-5-20141017									X				
Sediment	06	Sample	FH-SS-06-0-5-20141017-GS								X					
Sediment	06	Sample	FH-SS-06-0-5-20141017-BDSG						X	X						
Sediment	06	Sample	FH-SS-06-0-5-20141017-CHEM			X	X	X								
Sediment	06	Sample	FH-SS-06-0-5-20141017-HPISO		X											
Porewater	07	Sample	IA-PW-07-0-5-20141018									X				
Sediment	07	Sample	IA-SS-07-0-5-20141018-GS								X					
Sediment	07	Sample	IA-SS-07-0-5-20141018-BDSG						X	X						
Sediment	07	Sample	IA-SS-07-0-5-20141018-CHEM			X	X	X								
Sediment	07	Sample	IA-SS-07-0-5-20141018-HPISO		X											
Porewater	08	Sample	IA-PW-08-0-5-20141018									X				
Sediment	08	Sample	IA-SS-08-0-5-20141018-GS								X					
Sediment	08	Sample	IA-SS-08-0-5-20141018-BDSG						X	X						
Sediment	08	Sample	IA-SS-08-0-5-20141018-CHEM			X	X	X								
Sediment	08	Sample	IA-SS-08-0-5-20141018-HPISO		X											

Table 2: Sample Collection Summary
San Pedro and Long Beach, California

Media	Station	Sample Type	Sample ID	Analyses												
				Low-Resolution PCBs	High Resolution PCBs	DDX	Total Solids	TOC	Bulk Density	Specific Gravity	Grain Size	DOC	Lipids	C / N Isotopes	Gut Content	Hold
Porewater	09	Sample	IA-PW-09-0-5-20141020									X				
Sediment	09	Sample	IA-SS-09-0-5-20141020-GS								X					
Sediment	09	Sample	IA-SS-09-0-5-20141020-BDSG						X	X						
Sediment	09	Sample	IA-SS-09-0-5-20141020-CHEM			X	X	X								
Sediment	09	Sample	IA-SS-09-0-5-20141020-HPISO		X											
Porewater	10	Sample	IB-PW-10-0-5-20141021									X				
Sediment	10	Sample	IB-SS-10-0-5-20141021-GS								X					
Sediment	10	Sample	IB-SS-10-0-5-20141021-BDSG						X	X						
Sediment	10	Sample	IB-SS-10-0-5-20141021-CHEM			X	X	X								
Sediment	10	Sample	IB-SS-10-0-5-20141021-HPISO		X											
Porewater	11	Sample	IB-PW-11-0-5-20141021									X				
Porewater	11	Field Duplicate	IB-PW-11-0-5-20141021-DUP									X				
Sediment	11	Sample	IB-SS-11-0-5-20141021-GS								X					
Sediment	11	Field Duplicate	IB-SS-11-0-5-20141021-GS-DUP								X					
Sediment	11	Sample	IB-SS-11-0-5-20141021-BDSG						X	X						
Sediment	11	Field Duplicate	IB-SS-11-0-5-20141021-BDSG-DUP						X	X						
Sediment	11	Sample	IB-SS-11-0-5-20141021-CHEM			X	X	X								
Sediment	11	Field Duplicate	IB-SS-11-0-5-20141021-CHEM-DUP			X	X	X								
Sediment	11	Sample	IB-SS-11-0-5-20141021-HPISO		X											
Sediment	11	Field Duplicate	IB-SS-11-0-5-20141021-HPISO-DUP		X											
Porewater	12	Sample	IB-PW-12-0-5-20141021									X				
Sediment	12	Sample	IB-SS-12-0-5-20141021-GS								X					
Sediment	12	Sample	IB-SS-12-0-5-20141021-BDSG						X	X						
Sediment	12	Sample	IB-SS-12-0-5-20141021-CHEM			X	X	X								
Sediment	12	Sample	IB-SS-12-0-5-20141021-HPISO		X											
Porewater	13	Sample	SP-PW-13-0-5-20141016									X				
Sediment	13	Sample	SP-SS-13-0-5-20141016-GS								X					
Sediment	13	Sample	SP-SS-13-0-5-20141016-BDSG						X	X						
Sediment	13	Sample	SP-SS-13-0-5-20141016-CHEM			X	X	X								
Sediment	13	Sample	SP-SS-13-0-5-20141016-HPISO		X									X		
Porewater	14	Sample	SP-PW-14-0-5-20141016									X				
Sediment	14	Sample	SP-SS-14-0-5-20141016-GS								X					
Sediment	14	Sample	SP-SS-14-0-5-20141016-BDSG						X	X						
Sediment	14	Sample	SP-SS-14-0-5-20141016-CHEM			X	X	X								
Sediment	14	Sample	SP-SS-14-0-5-20141016-HPISO		X									X		
Porewater	15	Sample	SP-PW-15-0-5-20141016									X				
Sediment	15	Sample	SP-SS-15-0-5-20141016-GS								X					
Sediment	15	Sample	SP-SS-15-0-5-20141016-BDSG						X	X						
Sediment	15	Sample	SP-SS-15-0-5-20141016-CHEM			X	X	X								
Sediment	15	Sample	SP-SS-15-0-5-20141016-HPISO		X									X		

Table 2: Sample Collection Summary
San Pedro and Long Beach, California

Media	Station	Sample Type	Sample ID	Analyses												
				Low-Resolution PCBs	High Resolution PCBs	DDX	Total Solids	TOC	Bulk Density	Specific Gravity	Grain Size	DOC	Lipids	C / N Isotopes	Gut Content	Hold
Porewater	16	Sample	OB-PW-16-0-5-20141016									X				
Sediment	16	Sample	OB-SS-16-0-5-20141016-GS								X					
Sediment	16	Sample	OB-SS-16-0-5-20141016-BDSG						X	X						
Sediment	16	Sample	OB-SS-16-0-5-20141016-CHEM			X	X	X								
Sediment	16	Sample	OB-SS-16-0-5-20141016-HPISO		X											
Porewater	17	Sample	OA-PW-17-0-5-20141016									X				
Sediment	17	Sample	OA-SS-17-0-5-20141016-GS								X					
Sediment	17	Sample	OA-SS-17-0-5-20141016-BDSG						X	X						
Sediment	17	Sample	OA-SS-17-0-5-20141016-CHEM			X	X	X								
Sediment	17	Sample	OA-SS-17-0-5-20141016-HPISO		X											
Porewater	18	Sample	OA-PW-18-0-5-20141016									X				
Sediment	18	Sample	OA-SS-18-0-5-20141016-GS								X					
Sediment	18	Sample	OA-SS-18-0-5-20141016-BDSG						X	X						
Sediment	18	Sample	OA-SS-18-0-5-20141016-CHEM			X	X	X								
Sediment	18	Sample	OA-SS-18-0-5-20141016-HPISO		X											
Porewater	19	Sample	AG-PW-19-0-5-20141017									X				
Sediment	19	Sample	AG-SS-19-0-5-20141017-GS								X					
Sediment	19	Sample	AG-SS-19-0-5-20141017-BDSG						X	X						
Sediment	19	Sample	AG-SS-19-0-5-20141017-CHEM			X	X	X								
Sediment	19	Sample	AG-SS-19-0-5-20141017-HPISO		X											
Porewater	20	Sample	OA-PW-20-0-5-20141016									X				
Sediment	20	Sample	OA-SS-20-0-5-20141016-GS								X					
Sediment	20	Sample	OA-SS-20-0-5-20141016-BDSG						X	X						
Sediment	20	Sample	OA-SS-20-0-5-20141016-CHEM			X	X	X								
Sediment	20	Sample	OA-SS-20-0-5-20141016-HPISO		X											
Porewater	21	Sample	OA-PW-21-0-5-20141016									X				
Sediment	21	Sample	OA-SS-21-0-5-20141016-GS								X					
Sediment	21	Lab Duplicate	OA-SS-21-0-5-20141016-GS Particle Size DUP								X					
Sediment	21	Sample	OA-SS-21-0-5-20141016-BDSG						X	X						
Sediment	21	Sample	OA-SS-21-0-5-20141016-CHEM			X	X	X								
Sediment	21	Lab Duplicate	OA-SS-21-0-5-20141016-CHEM LAB DUP			X	X	X								
Sediment	21	Sample	OA-SS-21-0-5-20141016-HPISO		X											
Porewater	22	Sample	AG-PW-22-0-5-20141017									X				
Sediment	22	Sample	AG-SS-22-0-5-20141017-GS								X					
Sediment	22	Sample	AG-SS-22-0-5-20141017-BDSG						X	X						
Sediment	22	Sample	AG-SS-22-0-5-20141017-CHEM			X	X	X								
Sediment	22	Sample	AG-SS-22-0-5-20141017-HPISO		X											

Table 2: Sample Collection Summary
San Pedro and Long Beach, California

Media	Station	Sample Type	Sample ID	Analyses												
				Low-Resolution PCBs	High Resolution PCBs	DDX	Total Solids	TOC	Bulk Density	Specific Gravity	Grain Size	DOC	Lipids	C/N Isotopes	Gut Content	Hold
Porewater	23	Sample	OA-PW-23-0-5-20141025									X				
Sediment	23	Sample	OA-SS-23-0-5-20141025-GS								X					
Sediment	23	Sample	OA-SS-23-0-5-20141025-BDSG						X	X						
Sediment	23	Sample	OA-SS-23-0-5-20141025-CHEM	X		X	X	X								
Sediment	23	Sample	OA-SS-23-0-5-20141025-HPISO		X									X		
Composite Tissue	WO	Sample	OA-WO-PW-23-20141025		X	X	X						X	X	X	
Whole Organism Tissue	23	Sample	OA-WO-PW-23-0-10-20141025-<2CM													X
Whole Organism Tissue	23	Sample	OA-WO-PW-23-0-10-20141025->2CM													X
Whole Organism Tissue	23	Sample	OA-WO-PW-23-0-10-20141025-NPLY													X
Whole Organism Tissue	23	Sample	OA-WO-PW-23-0-10-20141025-PLY													X
Porewater	24	Sample	CB-PW-24-0-5-20141022									X				
Sediment	24	Sample	CB-SS-24-0-5-20141022-GS								X					
Sediment	24	Sample	CB-SS-24-0-5-20141022-BDSG						X	X						
Sediment	24	Sample	CB-SS-24-0-5-20141022-CHEM	X		X	X	X								
Sediment	24	Sample	CB-SS-24-0-5-20141022-HPISO		X									X		
Composite Tissue	WO	Sample	CB-WO-PW-24-20141025		X	X	X						X	X		
Whole Organism Tissue	24	Sample	CB-WO-PW-24-0-10-20141022-BNTC													X
Whole Organism Tissue	24	Sample	CB-WO-PW-24-0-10-20141022-PLY													X
Whole Organism Tissue	24	Sample	CB-WO-PW-24-0-10-20141025-PLY													X
Porewater	25	Sample	FH-PW-25-0-5-20141017									X				
Sediment	25	Sample	FH-SS-25-0-5-20141017-GS								X					
Sediment	25	Sample	FH-SS-25-0-5-20141017-BDSG						X	X						
Sediment	25	Sample	FH-SS-25-0-5-20141017-CHEM	X		X	X	X								
Sediment	25	Sample	FH-SS-25-0-5-20141017-HPISO		X									X		
Composite Tissue	WO	Sample	FH-WO-PW-25-20141017		X	X	X						X	X		
Whole Organism Tissue	25	Sample	FH-WO-PW-25-0-10-20141017-<2CM													X
Whole Organism Tissue	25	Sample	FH-WO-PW-25-0-10-20141017->2CM													X
Whole Organism Tissue	25	Sample	FH-WO-PW-25-0-10-20141017-PLY													X
Porewater	26	Sample	IA-PW-26-0-5-20141021									X				
Sediment	26	Sample	IA-SS-26-0-5-20141021-GS								X					
Sediment	26	Sample	IA-SS-26-0-5-20141021-BDSG						X	X						
Sediment	26	Sample	IA-SS-26-0-5-20141021-CHEM	X		X	X	X								
Sediment	26	Sample	IA-SS-26-0-5-20141021-HPISO		X									X		
Composite Tissue	WO	Sample	IA-WO-PW-26-20141026		X	X	X						X	X	X	
Whole Organism Tissue	26	Sample	IA-WO-PW-26-0-10-20141021-<2CM													X
Whole Organism Tissue	26	Sample	IA-WO-PW-26-0-10-20141021->2CM													X
Whole Organism Tissue	26	Sample	IA-WO-PW-26-0-10-20141021-PLY													X
Whole Organism Tissue	26	Sample	IA-WO-PW-26-0-10-20141026-PLY													X

Table 2: Sample Collection Summary
San Pedro and Long Beach, California

Media	Station	Sample Type	Sample ID	Analyses												
				Low-Resolution PCBs	High Resolution PCBs	DDX	Total Solids	TOC	Bulk Density	Specific Gravity	Grain Size	DOC	Lipids	C / N Isotopes	Gut Content	Hold
Porewater	27	Sample	CS-PW-27-0-5-20141020									X				
Sediment	27	Sample	CS-SS-27-0-5-20141020-GS								X					
Sediment	27	Sample	CS-SS-27-0-5-20141020-BDSG						X	X						
Sediment	27	Sample	CS-SS-27-0-5-20141020-CHEM	X		X	X	X								
Sediment	27	Sample	CS-SS-27-0-5-20141020-HPISO		X									X		
Composite Tissue	WO	Sample	CS-WO-PW-27-20141020		X	X	X						X	X	X	
Composite Tissue	WO	Field Duplicate	CS-WO-PW-27-20141026-DUP		X	X	X						X	X	X	
Whole Organism Tissue	27	Sample	CS-WO-PW-27-0-10-20141020-<2CM													X
Whole Organism Tissue	27	Sample	CS-WO-PW-27-0-10-20141020->2CM													X
Whole Organism Tissue	27	Sample	CS-WO-PW-27-0-10-20141020-PLY													X
Whole Organism Tissue	27	Field Duplicate	CS-WO-PW-27-0-10-20141026-<2CM-DUP													X
Whole Organism Tissue	27	Field Duplicate	CS-WO-PW-27-0-10-20141026->2CM-DUP													X
Whole Organism Tissue	27	Field Duplicate	CS-WO-PW-27-0-10-20141026-PLY-DUP													X
Porewater	28	Sample	CS-PW-28-0-5-20141019									X				
Sediment	28	Sample	CS-SS-28-0-5-20141019-GS								X					
Sediment	28	Sample	CS-SS-28-0-5-20141019-BDSG						X	X						
Sediment	28	Sample	CS-SS-28-0-5-20141019-CHEM	X		X	X	X								
Sediment	28	Sample	CS-SS-28-0-5-20141019-HPISO		X									X		
Composite Tissue	WO	Sample	CS-WO-PW-28-20141019		X	X	X						X	X		
Whole Organism Tissue	28	Sample	CS-WO-PW-28-0-10-20141019-<2CM													X
Whole Organism Tissue	28	Sample	CS-WO-PW-28-0-10-20141019->2CM													X
Whole Organism Tissue	28	Sample	CS-WO-PW-28-0-10-20141019-NPLY													X
Whole Organism Tissue	28	Sample	CS-WO-PW-28-0-10-20141019-PLY													X
Porewater	29	Sample	IB-PW-29-0-5-20141022									X				
Sediment	29	Sample	IB-SS-29-0-5-20141022-GS								X					
Sediment	29	Sample	IB-SS-29-0-5-20141022-BDSG						X	X						
Sediment	29	Sample	IB-SS-29-0-5-20141022-CHEM	X		X	X	X								
Sediment	29	Sample	IB-SS-29-0-5-20141022-HPISO		X									X		
Composite Tissue	WO	Sample	IB-WO-PW-29-20141022		X	X	X						X	X		
Whole Organism Tissue	29	Sample	IB-WO-PW-29-0-10-20141022-<2CM													X
Whole Organism Tissue	29	Sample	IB-WO-PW-29-0-10-20141022->2CM													X
Whole Organism Tissue	29	Sample	IB-WO-PW-29-0-10-20141022-NPLY													X
Whole Organism Tissue	29	Sample	IB-WO-PW-29-0-10-20141022-PLY													X
Porewater	30	Sample	IB-PW-30-0-5-20141023									X				
Sediment	30	Sample	IB-SS-30-0-5-20141023-GS								X					
Sediment	30	Sample	IB-SS-30-0-5-20141023-BDSG						X	X						
Sediment	30	Sample	IB-SS-30-0-5-20141023-CHEM	X		X	X	X								
Sediment	30	Sample	IB-SS-30-0-5-20141023-HPISO		X									X		
Composite Tissue	WO	Sample	IB-WO-PW-30-20141023		X	X	X						X	X	X	
Whole Organism Tissue	30	Sample	IB-WO-PW-30-0-10-20141023-<2CM													X
Whole Organism Tissue	30	Sample	IB-WO-PW-30-0-10-20141023->2CM													X
Whole Organism Tissue	30	Sample	IB-WO-PW-30-0-10-20141023-PLY													X

Table 2: Sample Collection Summary
San Pedro and Long Beach, California

Media	Station	Sample Type	Sample ID	Analyses												
				Low-Resolution PCBs	High Resolution PCBs	DDX	Total Solids	TOC	Bulk Density	Specific Gravity	Grain Size	DOC	Lipids	C/N Isotopes	Gut Content	Hold
Porewater	31	Sample	IA-PW-31-0-5-20141018									X				
Porewater	31	Field Duplicate	IA-PW-31-0-5-20141018-DUP									X				
Sediment	31	Sample	IA-SS-31-0-5-20141018-GS								X					
Sediment	31	Field Duplicate	IA-SS-31-0-5-20141018-GS-DUP								X					
Sediment	31	Sample	IA-SS-31-0-5-20141018-BDSG						X	X						
Sediment	31	Field Duplicate	IA-SS-31-0-5-20141018-BDSG-DUP						X	X						
Sediment	31	Sample	IA-SS-31-0-5-20141018-CHEM	X		X	X	X								
Sediment	31	Field Duplicate	IA-SS-31-0-5-20141018-CHEM-DUP	X		X	X	X								
Sediment	31	Sample	IA-SS-31-0-5-20141018-HPISO		X									X		
Sediment	31	Field Duplicate	IA-SS-31-0-5-20141018-HPISO-DUP		X									X		
Composite Tissue	WO	Sample	IA-WO-PW-31-20141018		X	X	X						X	X		
Whole Organism Tissue	31	Sample	IA-WO-PW-31-0-10-20141018-<2CM													X
Whole Organism Tissue	31	Sample	IA-WO-PW-31-0-10-20141018->2CM													X
Whole Organism Tissue	31	Sample	IA-WO-PW-31-0-10-20141018-NPLY													X
Whole Organism Tissue	31	Sample	IA-WO-PW-31-0-10-20141018-PLY													X
Porewater	32	Sample	OB-PW-32-0-5-20141024									X				
Sediment	32	Sample	OB-SS-32-0-5-20141024-GS								X					
Sediment	32	Sample	OB-SS-32-0-5-20141024-BDSG						X	X						
Sediment	32	Sample	OB-SS-32-0-5-20141024-CHEM	X		X	X	X								
Sediment	32	Sample	OB-SS-32-0-5-20141024-HPISO		X									X		
Composite Tissue	WO	Sample	OB-WO-PW-32-20141024		X	X	X						X	X	X	
Whole Organism Tissue	32	Sample	OB-WO-PW-32-0-10-20141024-<2CM													X
Whole Organism Tissue	32	Sample	OB-WO-PW-32-0-10-20141024->2CM													X
Whole Organism Tissue	32	Sample	OB-WO-PW-32-0-10-20141024-PLY													X
Porewater	33	Sample	OB-PW-33-0-5-20141024									X				
Sediment	33	Sample	OB-SS-33-0-5-20141024-GS								X					
Sediment	33	Sample	OB-SS-33-0-5-20141024-BDSG						X	X						
Sediment	33	Sample	OB-SS-33-0-5-20141024-CHEM	X		X	X	X								
Sediment	33	Sample	OB-SS-33-0-5-20141024-HPISO		X									X		
Composite Tissue	WO	Sample	OB-WO-PW-33-20141024		X	X	X						X	X		
Whole Organism Tissue	33	Sample	OB-WO-PW-33-0-10-20141024-<2CM													X
Whole Organism Tissue	33	Sample	OB-WO-PW-33-0-10-20141024->2CM													X
Whole Organism Tissue	33	Sample	OB-WO-PW-33-0-10-20141024-PLY													X
Rinsate Blank	NA	Blank	EB-20141016-LPDX	X		X										
Rinsate Blank	NA	Blank	EB-20141016-HPCB		X											

Abbreviations:
C/N stable isotope
DDX = dichlorodiphenyltrichloroethane derivatives
DOC = dissolved organic carbon
EDD = electronic data deliverable
NA = not applicable
PCB = polychlorinated biphenyl
TOC = total organic carbon

Table 3: Summary of Analytical Results for Sediment, Porewater and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach

	Sediment										Porewater
Station ID	TOC Content (%)	Sand Content [1] (%)	Silt Content (%)	Clay Content (%)	Concentration of Total DDXs [2] (µg/kg, dw)	Concentration of Total PCBs by Low Resolution [3] (µg/kg, dw)	Concentration of Total PCBs by High Resolution [3] (µg/kg, dw)	Concentration of Total DDXs [2] (µg/kg, OC)	Concentration of Total PCBs by High Resolution [3] (µg/kg, OC)	DDT:PCB Ratio in Sediment [4]	DOC Content (µg/L)
OA-SS-01	0.15	94.55	4.51	0.94	1.96	NA	1.22	1306.7	813.3	1.6	2,578.11
IA-SS-02	3.6	13.83	67.22	18.94	125.5	NA	69	3486.1	1916.7	1.8	4,968.86
IA-SS-03	2.1	12.9	70.29	16.81	96.1	NA	92.9	4576.2	4423.8	1.0	4,290.86
FH-SS-04	2.2	4.3	78.04	17.66	167.3	NA	242	7604.5	11000.0	0.7	3,867.72
FH-SS-05	0.9	36.36	50.31	13.33	80	NA	409	8888.9	45444.4	0.2	5,086.37
FH-SS-06	2.1	24.29	59.25	16.46	239	NA	386	11381.0	18381.0	0.6	3,750.54
IA-SS-07	0.73	27.17	57.07	15.76	24	NA	30.5	3287.7	4178.1	0.8	4,366.70
IA-SS-08	3.3	41.29	46	12.7	11.9	NA	26.6	360.6	806.1	0.4	3,869.67
IA-SS-09	0.65	19.53	63.44	17.03	27.7	NA	75.9	4261.5	11676.9	0.4	4,275.56
IB-SS-10	1.3	11.78	69.82	18.4	37.4	NA	84.2	2876.9	6476.9	0.4	8,238.12
IB-SS-11 [10]	1.5	8.26	72.49	19.25	40.9	NA	87	2726.7	5800.0	0.5	6,009.14
	1.5	*7.33*	*72.8*	*19.87*	*32.5*	*NA*	*76.5*	2166.7	5100.0	0.4	*5,323.65*
IB-SS-12	1.7	19.41	62.4	18.2	43.4	NA	105	2552.9	6176.5	0.4	5,372.47
SP-SS-13	2.3	0.72	79.69	19.59	63.3	NA	200	2752.2	8695.7	0.3	4,487.78
SP-SS-14	1.6	0.21	81.98	17.81	46.9	NA	79.4	2931.3	4962.5	0.6	3,497.31
SP-SS-15	0.82	15.33	69.76	14.91	23.54	NA	18.3	2870.7	2231.7	1.3	3,235.29
OB-SS-16	1.1	21.5	66.68	11.83	39.96	NA	28	3632.7	2545.5	1.4	4,571.11
OA-SS-17	0.094	95.44	3.64	0.92	1.22	NA	0.792	1297.9	842.6	1.5	2,416.02
OA-SS-18	1.5	20.92	66.59	12.5	62.99	NA	30.4	4199.3	2026.7	2.1	2,867.48
AG-SS-19	0.18	96.59	2.66	0.75	7.787	NA	2.18	4326.1	1211.1	3.6	6,992.78
OA-SS-20	1.8	27.93	60.53	11.53	107	NA	32.9	5944.4	1827.8	3.3	3,740.45
OA-SS-21	0.32	86.17	12	1.83	4.52	NA	2.41	1412.5	753.1	1.9	2,085.97
AG-SS-22	0.97	70.8	25.3	3.87	286.7	NA	38.5	29556.7	3969.1	7.4	10,260.41
OA-SS-23	0.87	26.57	61.21	12.21	24.05	20.5	35.3	2764.4	4057.5	0.7	5,144.95
CB-SS-24	1.6	25.79	64.19	10.02	55.5	48.98	48.9	3468.8	3056.3	1.1	3,097.28
FH-SS-25	2.8	14.92	66.81	18.27	285	1132.9	812	10178.6	29000.0	0.4	3,352.46

Table 3: Summary of Analytical Results for Sediment, Porewater and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach

	Sediment										Porewater
Station ID	TOC Content (%)	Sand Content [1] (%)	Silt Content (%)	Clay Content (%)	Concentration of Total DDXs [2] (µg/kg, dw)	Concentration of Total PCBs by Low Resolution [3] (µg/kg, dw)	Concentration of Total PCBs by High Resolution [3] (µg/kg, dw)	Concentration of Total DDXs [2] (µg/kg, OC)	Concentration of Total PCBs by High Resolution [3] (µg/kg, OC)	DDT:PCB Ratio in Sediment [4]	DOC Content (µg/L)
IA-SS-26	2.6	19.06	63.6	17.34	114.8	428.1	454	4415.4	17461.5	0.3	11,328.02
CS-SS-27 [10]	1.2	16.6	65.1	18.3	291	693.3	832	24250.0	69333.3	0.3	7,757.04
CS-SS-28	5.1	29.71	59.28	11.01	274.3	460.6	480	5378.4	9411.8	0.6	5,110.45
IB-SS-29	1.2	16.21	65.79	18	27.9	88.96	84.2	2325.0	7016.7	0.3	11,116.45
IB-SS-30	0.64	0	80.5	19.5	14.83	45.05	108	2317.2	16875.0	0.1	4,527.17
IA-SS-31 [10]	0.62	53.03	38.88	8.1	15.53	17.61	21.4	2504.8	3451.6	0.7	2,906.21
	1.4	*68.02*	*26.31*	*5.67*	*14.25*	*18.52*	*18.3*	*1017.9*	*1307.1*	*0.8*	*3,186.14*
OB-SS-32	0.61	22.01	65.87	12.12	17.31	13.81	27.9	2837.7	4573.8	0.6	7,558.16
OB-SS-33	0.37	33.21	58.49	8.3	10.65	4.822	10.7	2878.4	2891.9	1.0	6,490.87

Table 3: Summary of Analytical Results for Sediment, Porewater and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach

Station ID	Tissue									
	Lipid Content (%)	Total Solids Content (Eurofins CalScience) (%)	Concentration of Total DDX (µg/kg, ww)	Concentration of Total DDXs [2, 5] (µg/kg, dw)	Concentration of Total DDXs Corrected for Sediment Gut Content [6] (µg/kg, dw)	Concentration of Total DDXs Corrected for Sediment Gut Content (µg/kg, ww)	Concentration of Total DDXs [7] (µg/kg, lw)	Total Solids Content by Vista (%)	Concentration of Total PCBs by High Resolution (µg/kg, ww)	Concentration of Total PCBs by High Resolution [3, 5] (µg/kg, dw)
OA-SS-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IA-SS-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IA-SS-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FH-SS-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FH-SS-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FH-SS-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IA-SS-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IA-SS-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IA-SS-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IB-SS-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IB-SS-11 [10]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IB-SS-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SP-SS-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SP-SS-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SP-SS-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OB-SS-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OA-SS-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OA-SS-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AG-SS-19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OA-SS-20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OA-SS-21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AG-SS-22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OA-SS-23	1.72	25.3	4.00	15.81	13.03	3.30	192	22.19	28.4	128
CB-SS-24	0.958	23	6.23	27.09	-- [11]		650	21.36	26.4	124
FH-SS-25	0.151	35.3	23.12	65.50	-- [11]		15,311	36.66	119	325

Table 3: Summary of Analytical Results for Sediment, Porewater and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach

Station ID	Tissue									
	Lipid Content (%)	Total Solids Content (Eurofins CalScience) (%)	Concentration of Total DDX (µg/kg, ww)	Concentration of Total DDXs [2, 5] (µg/kg, dw)	Concentration of Total DDXs Corrected for Sediment Gut Content [6] (µg/kg, dw)	Concentration of Total DDXs Corrected for Sediment Gut Content (µg/kg, ww)	Concentration of Total DDXs [7] (µg/kg, lw)	Total Solids Content by Vista (%)	Concentration of Total PCBs by High Resolution (µg/kg, ww)	Concentration of Total PCBs by High Resolution [3, 5] (µg/kg, dw)
IA-SS-26	2.18	24.8	7.79	31.41	20.11	4.99	229	23.57	219	929
CS-SS-27 [10]	2.00	21.9	17.86	81.55	57.42	12.58	629	23.02	153	665
	1.66	*23.0*	*32.3*	140.43	*140.43*	*32.30*	*1,946*	*25.40*	*154*	*606*
CS-SS-28	1.29	21.9	23.53	107.44	-- [11]		1,824	22.07	129	585
IB-SS-29	0.931	30.6	3.660	11.96	-- [11]		393	17.27	105	608
IB-SS-30	1.29	28.7	5.91	20.59	18.68	5.36	416	22.96	134	584
IA-SS-31 [10]	0.555	30.6	13.5	44.12	-- [11]		2,432	29.07	337	1,159
OB-SS-32	1.53	21.6	8.72	40.37	37.81	8.17	534	22.89	126	550
OB-SS-33	1.01	30.9	9.55	30.91	-- [11]		946	26.69	50.5	189

Table 3: Summary of Analytical Results for Sediment, Porewater and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach

Station ID	Tissue							BSAF (Total DDXs) (kg lipid/kg OC) [9]	BSAF (Total PCBs) (kg lipid/kg OC) [9]	Gut Content Corrected BSAF (Total DDXs) (kg lipid/kg OC) [9]	Gut Content Corrected BSAF (Total PCBs) (kg lipid/kg OC) [9]
	Concentration of Total PCBs Corrected for Sediment Gut Content [6] (µg/kg, dw)	Concentration of Total PCBs Corrected for Sediment Gut Content (µg/kg, ww)	Concentration of Total PCBs [7] (µg/kg, lw)	Ratio of DDT:PCB in Tissue [7]	δ13C	δ15N	Trophic Level [8]				
OA-SS-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IA-SS-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IA-SS-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FH-SS-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FH-SS-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FH-SS-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IA-SS-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IA-SS-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IA-SS-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IB-SS-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IB-SS-11 [10]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IB-SS-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SP-SS-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SP-SS-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SP-SS-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OB-SS-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OA-SS-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OA-SS-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AG-SS-19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OA-SS-20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OA-SS-21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AG-SS-22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OA-SS-23	123.91	27.50	1,599	0.12	-16.59	14.97	3	0.08	0.41	0.07	0.39
CB-SS-24	-- [11]		2,756	0.24	-15.47	15.11	3	0.19	0.90	-- [11]	
FH-SS-25	-- [11]		78,808	0.19	-10.76	11.70	2	1.50	2.72	-- [11]	

Table 3: Summary of Analytical Results for Sediment, Porewater and Tissue Samples
Ports of Los Angeles and Long Beach
San Pedro and Long Beach

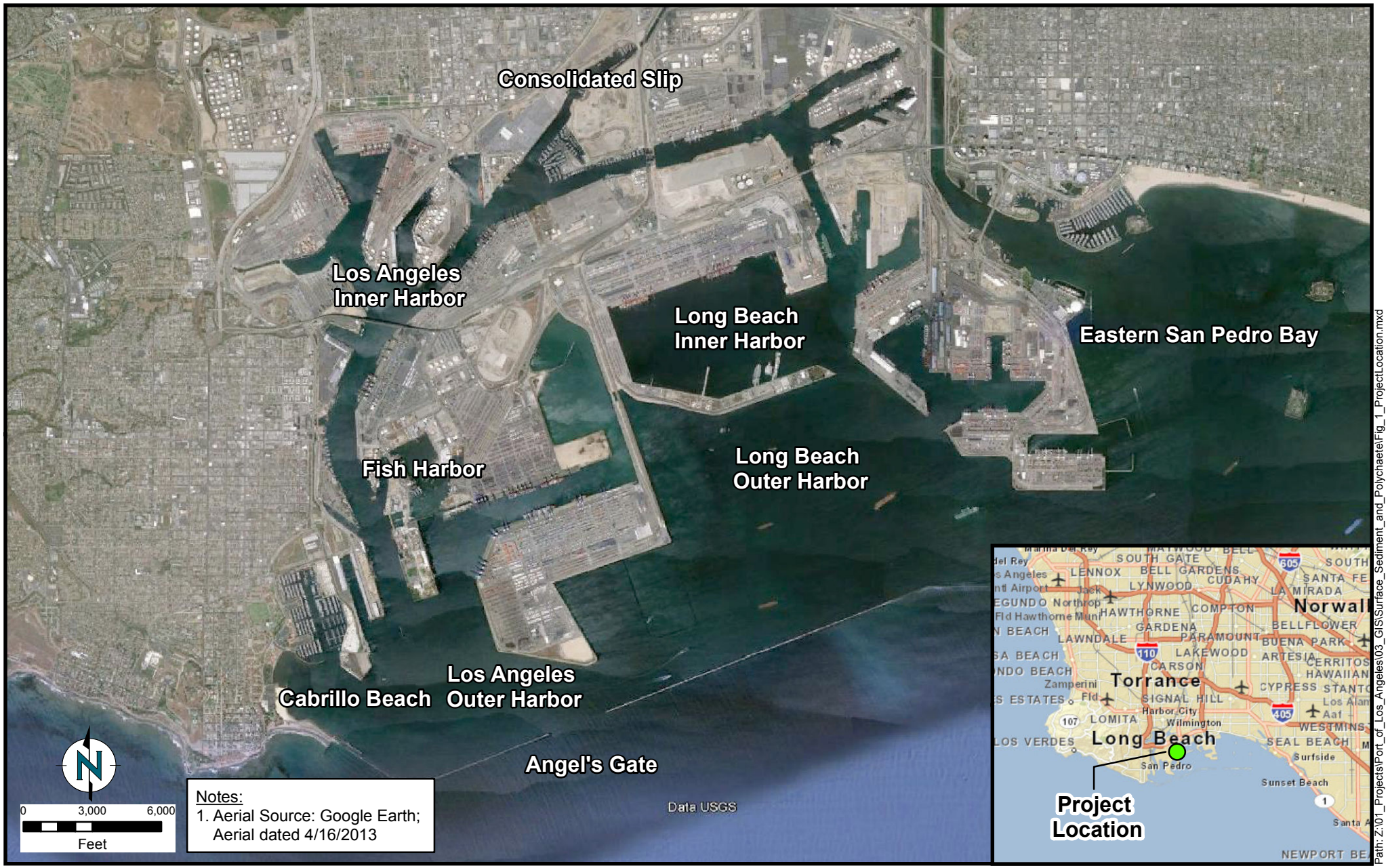
Station ID	Tissue							BSAF (Total DDXs) (kg lipid/kg OC) [9]	BSAF (Total PCBs) (kg lipid/kg OC) [9]	Gut Content Corrected BSAF (Total DDXs) (kg lipid/kg OC) [9]	Gut Content Corrected BSAF (Total PCBs) (kg lipid/kg OC) [9]
	Concentration of Total PCBs Corrected for Sediment Gut Content [6] (µg/kg, dw)	Concentration of Total PCBs Corrected for Sediment Gut Content (µg/kg, ww)	Concentration of Total PCBs [7] (µg/kg, lw)	Ratio of DDT:PCB in Tissue [7]	δ13C	δ15N	Trophic Level [8]				
IA-SS-26	884.44	208.46	9,563	0.02	-19.24	13.40	3	0.08	0.58	0.05	0.55
CS-SS-27 [10]	595.65	137.12	6,856	0.09	-21.42	10.96	2	0.04	0.11	0.03	0.10
	507.82	*128.99*	*7,770*	*0.25*	*-21.39*	*11.16*	*2*	*0.08*	*0.13*	*0.08*	*0.11*
CS-SS-28	-- [11]		10,000	0.18	-21.73	11.23	2	0.34	1.06	-- [11]	
IB-SS-29	-- [11]		11,278	0.03	-17.21	14.61	3	0.17	1.61	-- [11]	
IB-SS-30	569.71	130.81	10,140	0.04	-17.03	15.02	3	0.20	0.62	0.18	0.60
IA-SS-31 [10]	-- [11]		60,721	0.04	-7.93	14.08	3	0.97	17.59	-- [11]	
								2.39	*46.45*		
OB-SS-32	546.33	125.06	8,174	0.07	-16.52	15.58	3	0.20	1.80	0.19	1.79
OB-SS-33	-- [11]		5,000	0.19	-14.73	14.28	3	0.33	1.73	-- [11]	

Notes:

1. Sand is the sum of very fine, fine, medium, coarse and very coarse sand (0.0625 to 2 millimeters).
2. Concentration of total DDX is the sum of the detected 4,4-DDD, 4,4-DDE, 4,4-DDT, 2,4-DDD, 2,4-DDE, 2,4-DDT & 4,4-DDMU concentrations.
3. Concentration of total PCBs is calculated as the sum of the detected congeners.
4. Ratio of DDTs to PCBs is calculated as the concentrations of total DDTs to total PCBs in µg/kg, dw.
5. Concentration was reported by the laboratory in wet weight and converted to dry weight based on the total solids content determined by that laboratory.
6. Concentration of total DDXs or PCBs corrected for sediment gut content was calculated as the mass of total DDXs or PCBs in tissue subtracted by the mass of total DDXs or PCBs in the sediment of the gut divided by the mass of the tissue sample (kg, dw). The mass of total DDXs or PCBs in tissue was calculated as the concentration of total DDXs or PCBs by high resolution in tissue (µg/kg, dw) multiplied by the mass of the tissue sample (kg, dw). The mass of total DDXs or PCBs in sediment was calculated as the concentration of total DDXs or PCBs by high resolution in sediment (µg/kg, dw) multiplied by the ash weight (kg, dw) divided by the ash content in sediment (94.1%; Conder and LaPoint, 2005).
7. Based on sediment gut content corrected concentrations, if available.
8. Trophic Level is estimated assuming 3.4% increase from δN15 in sediment for each trophic level (Minigawa and Wada, 1984)
9. Based on wet weight tissue
10. Field duplicates are shown in italics.
11. Gut content analysis could not be performed due to low tissue mass of sample .
12. Abbreviations:

% - percentage
µg/kg - micrograms per kilogram
µg/L - micrograms per liter
BSAF - Biota-Sediment Accumulation Factor
DDX - dichlorodiphenyltrichloroethane and its derivatives
DOC - dissolved organic carbon
dw - dry weight
lw - lipid weight
NA - not analyzed
PCB - polychlorinated biphenyl
TOC - total organic carbon
ww - wet weight
δC - stable isotopes of carbon
δN - stable isotopes of nitrogen

Figures



RAMBOLL ENVIRON

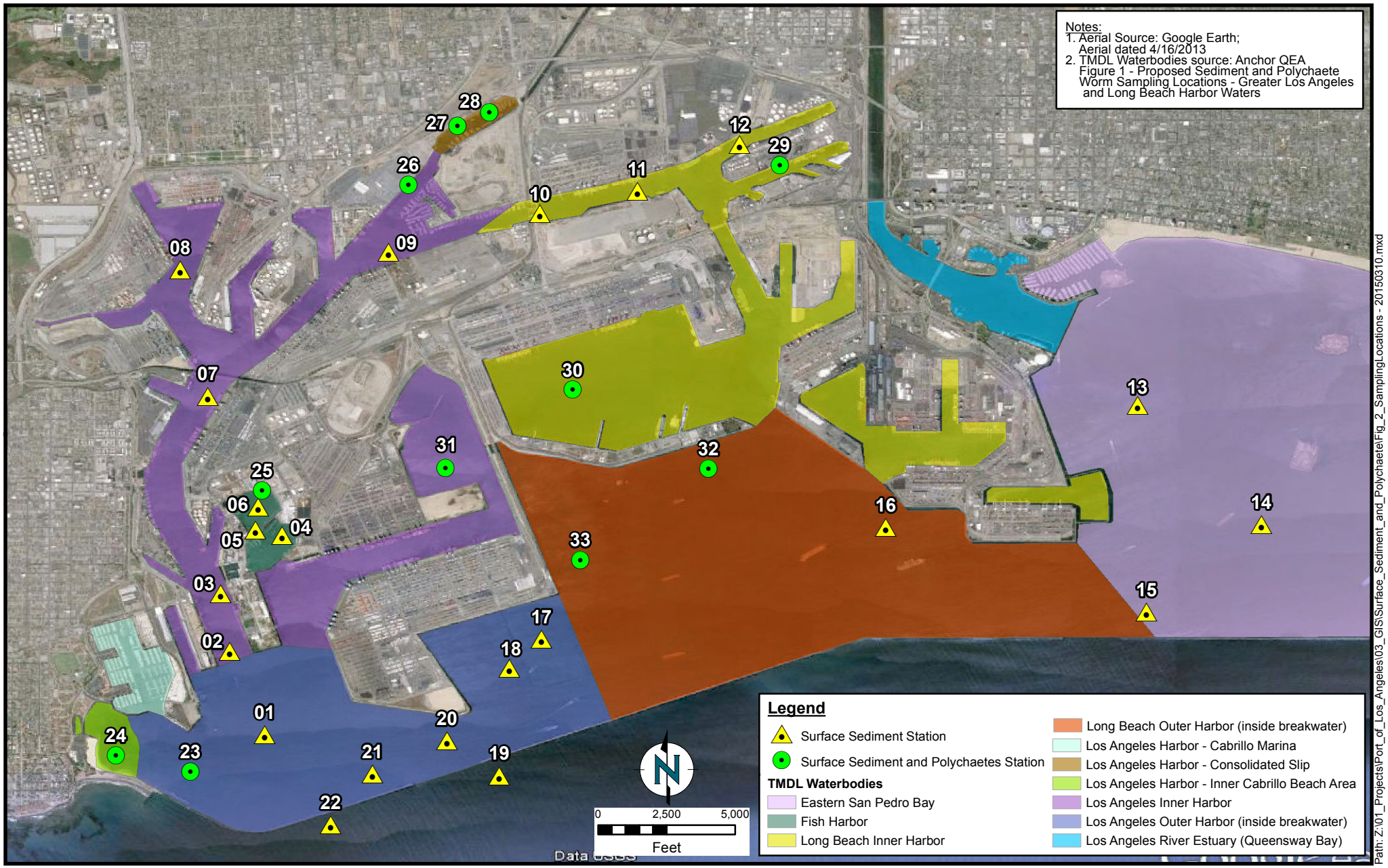
DRAFTED BY: MMG | Date: 6/25/2015

Project Location

Port of Los Angeles and Port of Long Beach
San Pedro and Long Beach, California

Figure
1

PROJECT: 04WUNA



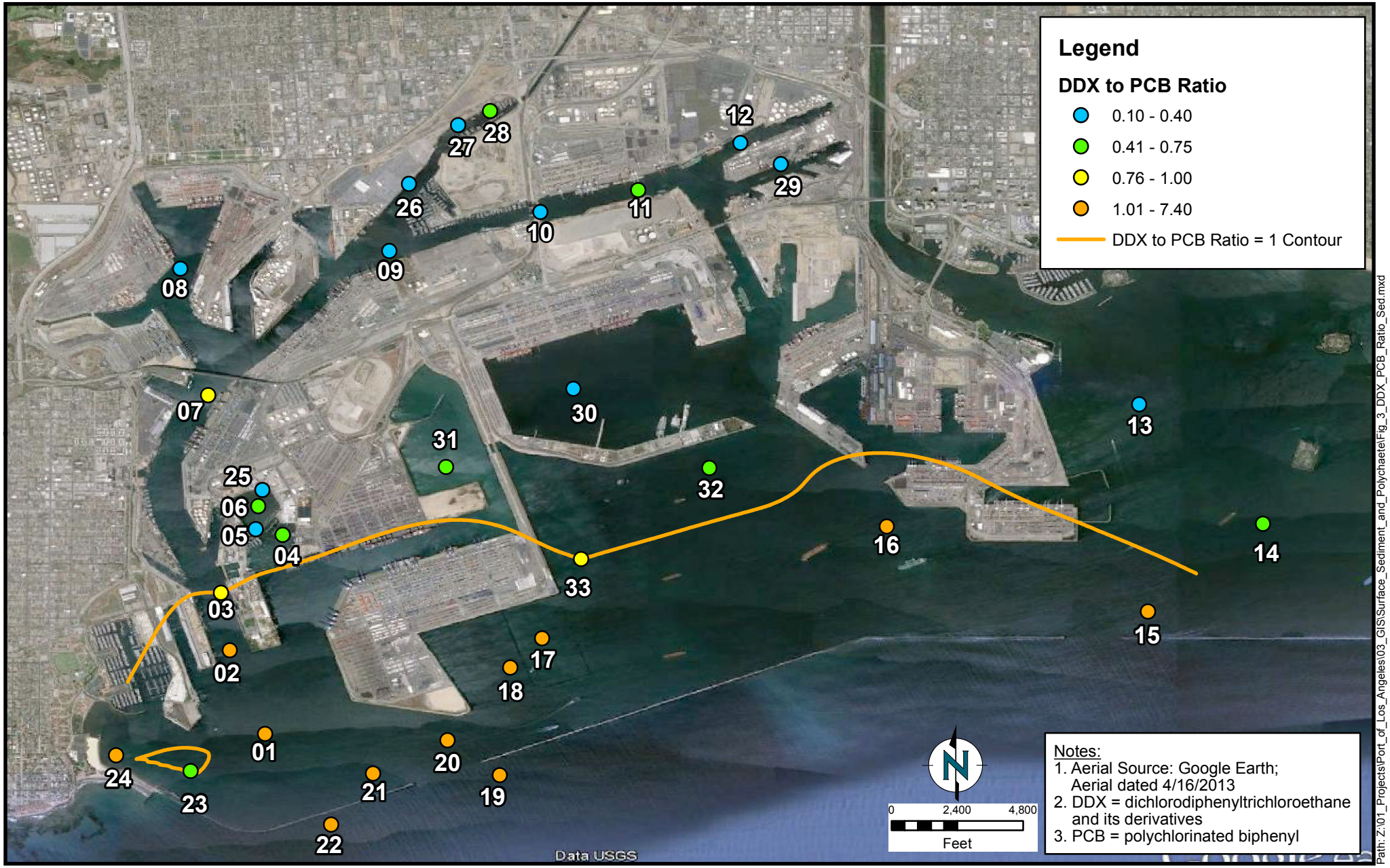
RAMBOLL ENVIRON

Sample Locations

Port of Los Angeles and Port of Long Beach
San Pedro and Long Beach, California

Figure
2

DRAFTED BY: MMG | Date: 6/25/2015 | PROJECT: 0433310A09



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DRAFTED BY: MMG | Date: 6/25/2015

DDX to PCB Ratios - Sediment

Port of Los Angeles and Port of Long Beach
San Pedro and Long Beach, California

Figure
3

PROJECT: 0433310A09

Path: Z:\01_Projects\Port_of_Los_Angeles\03_GIS\Surface_Sediment_and_Polychaete\Fig_4_DDX_PCB_Ratio_Tissue.mxd

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DDX to PCB Ratios - Tissue

Port of Los Angeles and Port of Long Beach
San Pedro and Long Beach, California

Figure
4

PROJECT: 0433310A09

Appendix A

Field Notes and Logs

Appendix A-1

Field Investigation Daily Logs

ENVIRON
18100 Von Karman Ave., Suite 600
Irvine, California 92612
(949) 261-5151
(949) 261-6202 (FAX)

FIELD INVESTIGATION DAILY LOG

PROJECT NAME: POLA/POLB Special Studies
FIELD PERSON: Teagan Loew
PROJECT NUMBER: 004333.10A09
PROJECT MANAGER: Jason Conder
PROJECT LOCATION: POLA/POLB
DATE: 10-16-14

DAILY SUMMARY: Finished sampling 9 stations for sediment / Centrifuge problems
WEATHER CONDITIONS: Mid-High 70's ; 0% cloud cover
VISITORS/SUBCONTRACTORS: Bill Isham, Sheila Holt, (Weston) ; Kenny Nielson Bob Lohrman (Sea Ventures)

MILITARY TIME	ACTIVITIES
0730	Arrive onsite - met David Moore & Weston team (Sheila Bill)
0800	Centrifuge movement w/ Doug Johnson - decide to leave in lot (1000)
1030	Tailgate meeting / 1040 called POLA/POLB
1047	Take off from harbor
1130	Equip blank
1135	Equip blank
1215	Break for Lunch
1230	Return to work from Lunch
1650	Return to marina / 1655 called POLB
1710	Doug Johnson arrives with generator
1730	Testing of generator till 1850 (Doug & David)
1800 - 2000	Cooler prep. for shipping / filling out COCs
2045	Leave site

Prepared By (name/signature): Teagan Loew / Teagan Loew Date: 10-16-14
Reviewed By (name/signature): _____ Date: _____

ENVIRON
18100 Von Karman Ave., Suite 600
Irvine, California 92612
(949) 261-5151
(949) 261-6202 (FAX)

FIELD INVESTIGATION DAILY LOG

PROJECT NAME: POLA/POLB Sed/Poly Study
PROJECT NUMBER: 004133310A09
PROJECT LOCATION: POLA/POLB
FIELD PERSON: T. Loew
PROJECT MANAGER: Jason Conder
DATE: 10-17-14

DAILY SUMMARY: Sampled 7 stations; 6 sed only, 1 poly/sed | Centrifuge up & running
WEATHER CONDITIONS: Mid-high 70's; 25% cc; windy in afternoon
VISITORS/SUBCONTRACTORS: Sheila Holt, Bill Isham (Weston), Kenny Nielsen Bob Lohman (Seaventures)

MILITARY TIME	ACTIVITIES
0700	Arrive onsite
0710	Call POLA/POLB
0730	Tailgate meeting
0745	Loaded boat - left port to head to outer stations (19 & 22)
1150	Lunch break
1250	Resume work
1315	David Moore Calls - confirms generator for centrifuge up & running
1420	Return to port to grab more bottles
1435	Left port to head to two more sediment stations
1600	Return to post
1630-1800	Centrifuge Samples/cleaning centrifuge tubes/sample organizing ~~maintenance~~
1900	Leave Site

Prepared By (name/signature): Teagan Loew / TLoew Date: 10-17-14
Reviewed By (name/signature): _____ Date: _____

ENVIRON
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(949) 261-6202 (FAX)

FIELD INVESTIGATION DAILY LOG

PROJECT NAME: POLA/POLB Sed/Poly Study
FIELD PERSON: Teagan Low
PROJECT NUMBER: 004337310A09
PROJECT MANAGER: Jason Conder
PROJECT LOCATION: POLA/POLB
DATE: 10-18-14

DAILY SUMMARY:
WEATHER CONDITIONS: Mid 70's ; 15% cloud cover ; gusty winds in afternoon
VISITORS/SUBCONTRACTORS: Bill Isham, Melissa Mathis (Weston), Kenny Nielsen, Bob (Seaventures)

MILITARY TIME	ACTIVITIES
0700	Arrive onsite
0710	Called POLB / POLA
0715	Held tailgate Meeting / 0730 leave port to Station 31
1155	Lunch Break
1228	Return from lunch
1505	Return to marina
1530	Started centrifuge w/ samples
1553	Porewater extraction & filter process
1635	Finished work, left site

Prepared By (name/signature): Teagan Low / [signature] Date: 10-18-14
Reviewed By (name/signature): Date:

31, 5

ENVIRON
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(949) 261-6202 (FAX)

FIELD INVESTIGATION DAILY LOG

PROJECT NAME: POLA/POLB Sed/Poly Stdy
FIELD PERSON: Teagan Leew
PROJECT NUMBER: 0043310A09
PROJECT MANAGER: Jason Conder
PROJECT LOCATION: POLA/POLB
DATE: 10-19-14

DAILY SUMMARY: Finished station 28 & 1/2 of Station 27
WEATHER CONDITIONS: Low 70's | 5% cloud cover | low winds
VISITORS/SUBCONTRACTORS: Bill Isham, Melissa Mathis (Weston), Kenny Nielsen, Bob Lohman (Sea Ventures)

MILITARY TIME	ACTIVITIES
655	Arrive onsite
700	Called POLB/POLA
710	Tailgate meeting
715	Left port to head to Station 28
1200	Break for lunch
1220	Return to work - transit to station 27
1402	Return to port/marina
1425	Leave site

Prepared By (name/signature): Teagan Leew / [signature] Date: 10-19-14
Reviewed By (name/signature): _____ Date: _____

ENVIRON
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(949) 261-6202 (FAX)

FIELD INVESTIGATION DAILY LOG

PROJECT NAME: POLA/POLB Seal Poly
FIELD PERSON: T. Low
PROJECT NUMBER: 0043310A09
PROJECT MANAGER: Jason Conder
PROJECT LOCATION: POLA/POLB
DATE: 10-20-14

DAILY SUMMARY: Finish station 27, Station 9, & half of Station 26
WEATHER CONDITIONS:
VISITORS/SUBCONTRACTORS: Melissa Mathis, Bill Isham (weston), Kenny Nielsen Bob Lohman (Seaventures)

MILITARY TIME	ACTIVITIES
650	Called POLA/POLB
706	Arrived onsite
710	Held tailgate briefing
715	Left marina - transit to station 27
1215	Lunch break
1235	Return to work
1610	Return to marina

Prepared By (name/signature): _____ Date: _____
Reviewed By (name/signature): _____ Date: _____

ENVIRON
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(949) 261-6202 (FAX)

FIELD INVESTIGATION DAILY LOG

PROJECT NAME: POLA/POLB Polychaete FIELD PERSON: J. Arblaster
PROJECT NUMBER: 04 33310 A09 PROJECT MANAGER: J. Conder
PROJECT LOCATION: POLA / POLB DATE: Oct 21 2014

DAILY SUMMARY: Polychaete & sediment sampling.
WEATHER CONDITIONS: Clear
VISITORS/SUBCONTRACTORS: Weston Solu, Sea Ventures

MILITARY TIME	ACTIVITIES
0700	Arrive on site. H&S meeting, notify POLA/POLB of sampling activity. Head to St 1A-26
0800	Begin Grabs @ Station 26. Note: discussed w/ Bill that using whole grab for polys as surface sed is pushed to bottom of van veen as evidenced by poly worms hanging from opening.
1060	Done w/ poly station 26. Mobe to sediment stations 10, 11 & 12 → 51 g poly worm.
1130	Done w/ sed stations 10, 11 & 12. Took 2nd Sed Feild Dup @ 1B-11.
1140	Begin poly station 29.
12:20-12 45	Break for lunch. Resume poly sampling @ 29.
1500	Stop after 10 grabs at 29. Head back to dock to centrifuge samples.
1615	Start centrifuge. ~~Et~~ Rinse filters w/ H_2O.
1700	Finish sampling processes. Off site

Prepared By (name/signature): _____ Date: _____
Reviewed By (name/signature): _____ Date: _____

ENVIRON
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FIELD INVESTIGATION DAILY LOG

PROJECT NAME: POLA/POLB Polychaete
PROJECT NUMBER: 04 33310A09
PROJECT LOCATION: San Pedro
FIELD PERSON: J. Addaster
PROJECT MANAGER: J. Conder
DATE: 10/22/14

DAILY SUMMARY: Poly station 29 & start 24
WEATHER CONDITIONS: Clear
VISITORS/SUBCONTRACTORS: Weston, Sea Ventures

MILITARY TIME	ACTIVITIES
0700	On site. Leave for Sta 29. Notify Ports & H&S.
0755	Begin grabs & sorting @ Sta. 1B-29
0930	Finish samples @ 29.
10:00	Begin grabs @ 24 - got as close as possible to desired co-ordinates (within 0.5° but too shallow to hit directly at location. (~100 ft away, within radius).
12:12:30	Lunch, continue sampling @ CB-24
1500	Finished sampling at CB-24. Return to dock to centrifuge & QC samples for pick up.
1600	Done centrifuge & PW samples. QC samples for pick up
1700	Samples picked up.

Prepared By (name/signature): _____ Date: _____
Reviewed By (name/signature): _____ Date: _____

ENVIRON
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Irvine, California 92612
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(949) 261-6202 (FAX)

FIELD INVESTIGATION DAILY LOG

PROJECT NAME: PCL4/PCB Poly Study. FIELD PERSON: J. Arblaster

PROJECT NUMBER: 04 33310A09 PROJECT MANAGER: J. Conder

PROJECT LOCATION: San Pedro. DATE: Oct 26. 2014

DAILY SUMMARY: Last day of sampling.

WEATHER CONDITIONS: Clear.

VISITORS/SUBCONTRACTORS: Weston, SeaVentures

MILITARY TIME	ACTIVITIES
0700	Leave for CS-27 to obtain tissue DUP sample
1500	Done sampling CS-27.
1515	Start sampling 1A-26 for ~~20g~~ Kg extra to have 7kg.
1730	Obtain 18g - stop as getting dark Head back to P&A
1900	Done unloading all supplies, ~~break~~ packing up samples for pick up tomorrow.
1945	Arrive at home.

Prepared By (name/signature): _____ Date: _____

Reviewed By (name/signature): _____ Date: _____

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Irvine, California 92612
(949) 261-5151
(949) 261-6202 (FAX)

FIELD INVESTIGATION DAILY LOG

PROJECT NAME: POLA/POLB Poly Study. FIELD PERSON: J. Ardolester
PROJECT NUMBER: 04 33310A09 PROJECT MANAGER: J. Conder
PROJECT LOCATION: San Pedro DATE: 10/23/14

DAILY SUMMARY: Poly sampling
WEATHER CONDITIONS: Clear
VISITORS/SUBCONTRACTORS: Weston (Nick + Olga), SeaVentures.

MILITARY TIME	ACTIVITIES
0645	On site, unload ice, H+S, Notify ports.
0700	Head to Sta 30.
0800	Begin grabs at IB-30. Measured the
	correction factor for water depth. +1m
	for all depths up to Grab 1 @ Sta 30.
	Bob re-calibrated fetometer so no calibration
	needed going forward.
12-1230	Lunch on boat.
1600	Done sampling IB-30 after 13 grabs.
	Try to get a few grabs in @ OB-32
1700	After 2 grabs, head back to dock
1745	Return to Port.

Prepared By (name/signature): ______________________ Date: ____________
Reviewed By (name/signature): ______________________ Date: ____________

ENVIRON
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(949) 261-5151
(949) 261-6202 (FAX)

FIELD INVESTIGATION DAILY LOG

PROJECT NAME: POLA / PCLB Poly Study. FIELD PERSON: J. Arblaster

PROJECT NUMBER: 04 33310 A09 PROJECT MANAGER: J Conder

PROJECT LOCATION: San Pedro DATE: Oct 24 2014

DAILY SUMMARY: Polysampling in Otter LB.

WEATHER CONDITIONS: Clear.

VISITORS/SUBCONTRACTORS: Weston (Nick + Olga), Seaventures.

MILITARY TIME	ACTIVITIES
0645	On site, loadup boat, notify ports, H&S talk.
0700	Head to Sta 32.
0740	Begin grabs @ 93-32.
1130	Finish @ Station 32. Start @ 33.
1600	Done @ 33. Head to Dock to centrifuge samples.
1700	Begin processing samples
1800	Head off site, catch up on paper work.

Prepared By (name/signature): _____ Date: _____

Reviewed By (name/signature): _____ Date: _____

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(949) 261-6202 (FAX)

FIELD INVESTIGATION DAILY LOG

PROJECT NAME: POLA/POLB Pdy Study
FIELD PERSON: J. Arblaster
PROJECT NUMBER: 04 33310 A09
PROJECT MANAGER: J. Conder
PROJECT LOCATION: San Pedro
DATE: Oct 05 2014

DAILY SUMMARY: Sampling Poly Stations + clean up.
WEATHER CONDITIONS: Clear, windy.
VISITORS/SUBCONTRACTORS: Weston, SeaVentures

MILITARY TIME	ACTIVITIES
0706	Leave for Station 23. Contact Ports to notify of work. H&S talk.
0720	Begin sampling Station 23.
1200	Done sampling w/ 7kg of polychaetes. Move to CB-24 to obtain 20g more of poly mass (~~51 obtained~~ 51g currently)
1545	Finished sampling CB-24.
1600	Centrifuge sample for OA-23
1700	Doug on site to de-mobe centrifuge.
1730	Doug + I off-site. Centrifuge ready for pickup on Monday.

Prepared By (name/signature): _____ Date: _____
Reviewed By (name/signature): _____ Date: _____

Appendix A-2

Surface Sediment and Polychaete Collection Field Logs

Surface Sediment and Polychaete Collection Field Log

Project: POLA1 POLB	Sampler: OA-PW-01 OA-Seal T. Low
Date: 10-16-14	Station ID: OA-PW-01 / OA-SS-01
Coordinate System: NAD83	
Grab 1	Start/End Time: 1600/1602
Lat: 33 42.3167	Long: -118 15.9878
Tide ft: 4.5ft.	Water Depth ft: 5 m. / 16.4 ft.
MLLW (Depth – Tide) ft: 11.9	Mudline (Tide + Depth) ft: 20.9
Grab 2	Start/End Time: 1606/1607
Lat: 33 42.3167	Long: -118 15.9878
Tide ft: 4.5ft.	Water Depth ft: 5 m. / 16.4ft.
MLLW (Depth – Tide) ft: 11.9	Mudline (Tide + Depth) ft: 20.9
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	OA - PW - 01 - 0 - 5 - 141016
Sediment Sample IDs:	OA - SS - 01 - 0 - 5 - 141016 - Chem - BDSG - GS - HPISD
Sediment Notes (Sediment type, odor, color, shell hash): Sand, no odor, 10YR 4/2	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:
Tissue Notes: NA
Tissue Sample IDs:

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB	Sampler: T. Low
Date: 10-17-14	Station ID: IA-PW-02 / IA-SS-02
Coordinate System: NAD83	
Grab 1	Start/End Time: 1508 / 1511
Lat: 33 43. 3167	Long: -118 16.1985
Tide ft: 4.5 ft.	Water Depth ft: 17m. / 55.8 ft.
MLLW (Depth – Tide) ft: 51.3	Mudline (Tide + Depth) ft: 60.3
Grab 2	Start/End Time: 1514 / 1516
Lat: 33 43.2810	Long: -118 16.2285
Tide ft: 4.4 ft.	Water Depth ft: 16.4m / 53.8 ft.
MLLW (Depth – Tide) ft: 49.4	Mudline (Tide + Depth) ft: 58.2
Grab 3	Start/End Time: [illegible]
Lat:	Long:
Tide ft:	Water Depth ft: [illegible]
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

1520

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: IA-PW-02-0-5-20141013	
Sediment Sample IDs: IA-SS-02-0-5-20141017 - Chem " " - BOSO " " - GS " " - TOPISO	
Sediment Notes (Sediment type, odor, color, shell hash): Silty clay, no odor, 10 YR 3/2	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:	NA
Tissue Notes:	NA
Tissue Sample IDs:	NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB	Sampler: T. Law
Date: 10-17-2014	Station ID: IA-PW-08 / IA-SS-08
Coordinate System: NAD 83	
Grab 1	Start/End Time: 1455 / 1459
Lat: 33 43.6625	Long: -118 16.2521
Tide ft: 4.6ft	Water Depth ft: 16.7m / 54.7ft.
MLLW (Depth – Tide) ft: 50.1	Mudline (Tide + Depth) ft: 51.3
Grab 2	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

1502

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	IA-PW-03-0-5-20141017
Sediment Sample IDs:	IA-SS-03-0-5-20141017 -Cham " " " -13DSG " " " -GS " " " -HPISO
Sediment Notes (Sediment type, odor, color, shell hash): Silt, no odor, 10YR 3/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:	NA
Tissue Notes:	NA
Tissue Sample IDs:	NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB	Sampler: T. Low
Date: 10-17-14	Station ID: FH-RW-04 / FH-SS-04
Coordinate System: NAD83	
Grab 1	Start/End Time: 1531 / 1531
Lat: 33° 44.0045	Long: -118 15.8838
Tide ft: 4.3 ft	Water Depth ft: 6.4 m / 20.9 ft.
MLLW (Depth – Tide) ft: 16.6	Mudline (Tide + Depth) ft: 25.2
Grab 2	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

1535

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	FH-PW-04-20140117 0-5-20140117
Sediment Sample IDs:	FH-SS-04-0-5-20140117 - Chem - BDSG - GS - HPISO
Sediment Notes (Sediment type, odor, color, shell hash): Silt, no odor, 10YR 3/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: N/A Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:
Tissue Notes: N/A
Tissue Sample IDs: N/A

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB	Sampler: T. Loew
Date: 10-18-14	Station ID: FH-PW-05 / FH-SS-05
Coordinate System: NAD83	
Grab 1	Start/End Time: 1313 / 1314
Lat: 33 44.0438	Long: -118 16.0441
Tide ft: 2.5 ft.	Water Depth ft: 6m / 19.7 ft.
MLLW (Depth – Tide) ft: 17.2	Mudline (Tide + Depth) ft: 22.2
Grab 2	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

1325

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	FH-PW-05-0-5-20141018
Sediment Sample IDs:	FH-SS-05-0-5-20141018 - Chem " " - BDSG " " - GS " " - HPISD
Sediment Notes (Sediment type, odor, color, shell hash):	Silt, no odor, 10YR 4/1

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:	NA
Tissue Notes:	NA
Tissue Sample IDs:	NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA / POLB	Sampler: T. Loew
Date: 10-17-14	Station ID: FH-PW-6 / FH-SS-6
Coordinate System: NAD83	
Grab 1	Start/End Time: 1338 1339
Lat: 33 34.1805	Long: -118 16.0281
Tide ft: 4.8 ft.	Water Depth ft: 5.9 m / 19.4 ft.
MLLW (Depth – Tide) ft: 14.6	Mudline (Tide + Depth) ft: 24.2
Grab 2	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

1348

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: FH-PW-06-05-20141017	
Sediment Sample IDs: FH-SS-06-000-5-20141017-Chem " " " -BDSG " " " -GS " " " -HPISD	
Sediment Notes (Sediment type, odor, color, shell hash): Silt, no odor, 10YR 3/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length: NA
Tissue Notes: NA
Tissue Sample IDs: NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA | POLB	Sampler: T. Lowe
Date: 10-18-14	Station ID: IA-PW-07 | IA-BMSS-07
Coordinate System: NAD83	
Grab 1	Start/End Time: 1340 / 1348
Lat: 33 44.8461	Long: -118 16.3297
Tide ft: 2.5 ft	Water Depth ft: 17.2m / 56.4 ft.
MLLW (Depth – Tide) ft: 53.9	Mudline (Tide + Depth) ft: 58.9
Grab 2	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

1350

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	JA-PW-07-0-5-20141018
Sediment Sample IDs:	JA-SS-07-0-5-20141018-Chem " " " -BDSG " " " -GS -HPJSD
Sediment Notes (Sediment type, odor, color, shell hash):	Silt w/ fine sands, no odor, 10YR 3/1

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: NA Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:
Tissue Notes: NA
Tissue Sample IDs: NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA / POLB	Sampler: T. Low
Date: 10-18-2014	Station ID: JA-PW-08 / JA-SS-08
Coordinate System: NAD 83	
Grab 1	Start/End Time: 1406 / 1407
Lat: 33 45.6034	Long: -118 16.4957
Tide ft: 2.6 ft.	Water Depth ft: 16.4 m / 53.8 ft.
MLLW (Depth – Tide) ft: 51.2	Mudline (Tide + Depth) ft: 56.4
Grab 2	Start/End Time: 1413 / 1416
Lat: 33 45.5487	Long: -118 16.5862
Tide ft: 2.6 ft.	Water Depth ft: 16.6 m / 54.5 ft.
MLLW (Depth – Tide) ft: 51.9	Mudline (Tide + Depth) ft: 57.1
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

1421

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: IA-PW-08-0-5-20141018	
Sediment Sample IDs: IA-SS-08-0-5-20141018 - Chem " " - BDSG " " - GS " " - HPISO	
Sediment Notes (Sediment type, odor, color, shell hash): Silt, no odor, 10YR 3/2, lots of coarse shell hash	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:	NA
Tissue Notes:	NA
Tissue Sample IDs:	NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA IPOLB	Sampler: T. Low
Date: 10-20-14	Station ID: JA-PW-09 | JA-55-09
Coordinate System: NAD83	
Grab 1	Start/End Time: 1006 | 1007
Lat: 33 45.7101	Long: -118 15.2446
Tide ft:	Water Depth ft: 16.7m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 2	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

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Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: IA-PW-09-0-5- 20141020	
Sediment Sample IDs: IA-SS-09-0-5-20141020 - Chem - BDS6 - GS - HP150	
Sediment Notes (Sediment type, odor, color, shell hash): Silt w/ fine sands, no odor, 10YR 3/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:	NA
Tissue Notes:	NA
Tissue Sample IDs:	NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB Poly.	Sampler: J Ardaster.
Date: 10-21-14	Station ID: 1B-55-10
Coordinate System:	
Grab 1	Start/End Time: 10:17/10:18
Lat: 33°45.9426	Long: 118°14.3394
Tide ft: 4.5A	Water Depth ft: 15.1m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 2	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	
Sediment Sample IDs: IB-SS-10-0-5-20141021-HP150 (NO SI) @ 10:30 -CHEM (NO PCB) -BOSG	
Sediment Notes (Sediment type, odor, color, shell hash): -GS Silt, No odor, no shell hash. 10 YR 3/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:
Tissue Notes:
Tissue Sample IDs:

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB Bly	Sampler:
Date: 10-21-14	Station ID: 1B-11
Coordinate System:	
Grab 1	Start/End Time: 10 40 / 10 41
Lat: 33°46.0745	Long: 118° 13.7536
Tide ft: ~~3.75~~ 4 ft	Water Depth ft: 14.8 m.
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 2	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: IB-PW-11-0-5-20141021 + DUP @	
Sediment Sample IDs: IB-SS-11-0-5-20141021 -CHEM -DUP -BIOG +-DUP -GS +-DUP -HIPISO -DUP @ 11:00	
Sediment Notes (Sediment type, odor, color, shell hash): Silt, no odor 10 YR 3/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:
Tissue Notes:
Tissue Sample IDs:

Surface Sediment and Polychaete Collection Field Log

Project:	Sampler: RA
Date: 10/21/14	Station ID: 13 · 12.
Coordinate System:	
Grab 1	Start/End Time: 1057 / 1058
Lat: 33°46.9558	Long: 118°13.1407
Tide ft: 3.75	Water Depth ft: 14.2
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft: ~~17.65/17.06~~
Grab 2	Start/End Time: 1105/1106
Lat: Same	Long: Same
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	
Sediment Sample IDs: IB-SS-12-0-5-2014 – CHEM (No PCB) – BDSG @ 11:15 – GS – HP 150 (No SI)	
Sediment Notes (Sediment type, odor, color, shell hash): Silt, no odor, 10 YR 3/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:
Tissue Notes:
Tissue Sample IDs:

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB	Sampler: Teagan Loew
Date: 10-16-14	Station ID: SP-PW-13 ~~SP-PW-13~~ SP-SS-13
Coordinate System: NAD 83	
Grab 1	Start/End Time: 11:38/11:42
Lat:	Long:
Tide ft: 3.3 ft.	Water Depth ft: 11.3 m/37ft.
MLLW (Depth – Tide) ft: 33.7.	Mudline (Tide + Depth) ft: 40.3
Grab 2	Start/End Time: 11:50 / 11:54
Lat: 33.49.7908	Long: 118 10.7518
Tide ft: 3.4 ft.	Water Depth ft: 11.0 m /36 ft.
MLLW (Depth – Tide) ft: 32.6	Mudline (Tide + Depth) ft: 39.4
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: SP-PW-13-0-5-20141016	
Sediment Sample IDs: SP-SS-13-0-5-20141016-Chem " " " -13DSG " " " -GS " " " -HPFSO	
Sediment Notes (Sediment type, odor, color, shell hash): Silty clay, no odor, 3/1 10YR	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: NA Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:
Tissue Notes: NA
Tissue Sample IDs: NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA / POLB	Sampler: Teagan Liew
Date: 10-16-14	Station ID: ~~SP-PW-14~~ SP-PW-14 / SP-SS-14
Coordinate System: NAD 83	
Grab 1	Start/End Time: 1218 / 1220
Lat: 33 44.0758	Long: 118 10.0103
Tide ft: 3.4 ft.	Water Depth ft: 14 m / 45.9 ft
MLLW (Depth – Tide) ft: 42.5	Mudline (Tide + Depth) ft: 49.3
Grab 2	Start/End Time: 1225 / 1227
Lat: 33.44 0946	Long: 118 10.0092
Tide ft: 3.5 ft.	Water Depth ft: 14 m / 45.9 ft
MLLW (Depth – Tide) ft: 42.4	Mudline (Tide + Depth) ft: 49.4
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: SP-PW-14-0-5-20141016	
Sediment Sample IDs: SP-SS-14-0-5-20141016-Chem -BDSG -GS -HPISO	
Sediment Notes (Sediment type, odor, color, shell hash): Silt, no odor, 10YR 3/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:	NA
Tissue Notes:	NA
Tissue Sample IDs:	NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA / POLB	Sampler: T. Low
Date: 10-16-14	Station ID: SP-PW-15 / SS-15
Coordinate System: NAD 83	
Grab 1	Start/End Time: 1314 / 1316
Lat: 33 43.5500 (NAD83)	Long: 118 10.6995
Tide ft: 3.6 ft.	Water Depth ft: 16.6 m / 54.5 ft
MLLW (Depth – Tide) ft: 50.9	Mudline (Tide + Depth) ft: 58.1
Grab 2	Start/End Time: 1322 / 1324
Lat: 33 43 5520	Long: 118 10.7002
Tide ft: 3.7 ft.	Water Depth ft: 16.6 m / 54.5 ft.
MLLW (Depth – Tide) ft: 50.8	Mudline (Tide + Depth) ft: 58.2
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: SP-PW-15-0-5-141016	
Sediment Sample IDs: SP-SS-15-0-5-141016-Chem "-BDSG "-GS "-HPISO	
Sediment Notes (Sediment type, odor, color, shell hash): Silty sand, no odor, 10YR 3/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:	NA
Tissue Notes:	NA
Tissue Sample IDs:	NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA) POLB	Sampler: T. Loew
Date: 10-16-14	Station ID: OB-PW-16/OB-S-1
Coordinate System: NAD 83	
Grab 1	Start/End Time: 13:44 / 1350
Lat: 33 44.0588	Long: 118.12 2638
Tide ft: 3.8 ft.	Water Depth ft: 27.6 m / 90.6 ft.
MLLW (Depth – Tide) ft: 86.8	Mudline (Tide + Depth) ft: 94.4
Grab 2	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: OB-PW-16-0-5-141016	
Sediment Sample IDs: OB-SS-16-05-141016-Chem " - BDSG " - GS HPISD	
Sediment Notes (Sediment type, odor, color, shell hash): Silt w/ very fine sands, no odor, 10YR 3/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:	NA
Tissue Notes:	NA
Tissue Sample IDs:	NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB	Sampler: T. Lowe
Date: 10-16-14	Station ID: OA-PW-17 / OA-SS-17
Coordinate System: NAD83	
Grab 1	Start/End Time: [illegible] / [illegible] 1416 / 1418
Lat: 33 43 3883	Long: 118 14.3282
Tide ft: 4.0 ft.	Water Depth ft: 5.4 m / 17.7 ft.
MLLW (Depth – Tide) ft: 13.7	Mudline (Tide + Depth) ft:
Grab 2	Start/End Time: [illegible] 1430 / 1435
Lat: 33 43.3861	Long: 118 14.3260
Tide ft: 4.0 ft.	Water Depth ft: 5.4 m / 17.7 ft.
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft: 21.7
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	OA-PW-17-0-5-141016
Sediment Sample IDs:	OA-SS-17-0-5-14016-Chem " " -BDSG " " -GS " " -HPISO
Sediment Notes (Sediment type, odor, color, shell hash):	Sand, no odor, 10YR 4/2

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: NA Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:
Tissue Notes: NA
Tissue Sample IDs: NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA|POLB	Sampler: T. Loew
Date: 10-16-14	Station ID: OA-PW-18 / OA-SS-18
Coordinate System: NAD83	
Grab 1	Start/End Time: 1446 | 1448
Lat: 33 43.5520	Long: -118 14.5453
Tide ft: 4.1 ft.	Water Depth ft: 12 m / 39.4 ft.
MLLW (Depth – Tide) ft: 35.3	Mudline (Tide + Depth) ft: 43.5
Grab 2	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: OA-PW-18-0-5-141016	
Sediment Sample IDs: OA-SS-18-0-5-141016 - Chem " " " - BDS6 " " " - GS " " " - HPISO	
Sediment Notes (Sediment type, odor, color, shell hash): ~~SM~~ Silt, no odor, 10 YR 3/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: NA Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:
Tissue Notes: NA
Tissue Sample IDs: NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA|POLB	Sampler: AG-PW-14 | AG-SS-14
Date: 10-17-14	Station ID: ↓ ↓ T. Low
Coordinate System: NAD 83	
Grab 1	Start/End Time: 0811 | 0812
Lat: 33. 42 5696	Long: -118 14.5823
Tide ft: 1.6 ft,	Water Depth ft: 15.4 m / 50.5 ft.
MLLW (Depth – Tide) ft: 48.9	Mudline (Tide + Depth) ft: 52.1
Grab 2	Start/End Time: 0820 | 0821
Lat: 33. 42.5813	Long: -118 14.5837
Tide ft: 1.7 ft.	Water Depth ft: 14.8 m / 48.6 ft.
MLLW (Depth – Tide) ft: 46.9	Mudline (Tide + Depth) ft: 50.3
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: AG-PW-14-0-5-20141710	
Sediment Sample IDs: AG-SS-14-0-5-20141710_Chem " " " - BDSG " " " - GS " " " - HPTSO	
Sediment Notes (Sediment type, odor, color, shell hash): Snd, no odor, 10YR 4/2	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: NA Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:
Tissue Notes: NA
Tissue Sample IDs: NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB	Sampler: T. Loew
Date: 10-16-14	Station ID: OA-PW+20 / OA-55-20
Coordinate System: NAD 83	
Grab 1	Start/End Time: 1508 / 1509
Lat: 33 42.7783	Long: -118 14.8959
Tide ft: 3.7 ft	Water Depth ft: 24 m / 78.7 ft.
MLLW (Depth – Tide) ft: 75	Mudline (Tide + Depth) ft: 82.4
Grab 2	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	OA - PW - 20 - 0 - S - 141016
Sediment Sample IDs:	OA - SS - 20 - 0 - S - 141016 - Chem " " " - BDSG " " " - GS " " " - ltpfss
Sediment Notes (Sediment type, odor, color, shell hash): Silt with fine sands, no odor, 10 YR 3/1 •2 large polychaetes	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: NA Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:
Tissue Notes: NA
Tissue Sample IDs: NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA/PGL13	Sampler: T. Loew
Date: 10-16-14	Station ID: OA-PW-21/OA-SS-21
Coordinate System: NAD 83	
Grab 1	Start/End Time: 1522/1523
Lat: 33 42.5798	Long: -118 15 3419
Tide ft: 3.8 Ft	Water Depth ft: 6 m / 19.7ft
MLLW (Depth – Tide) ft: 15.9	Mudline (Tide + Depth) ft: 23.5
Grab 2	Start/End Time: 1531/1532
Lat: 33 42.5798	Long: -118 15 3419
Tide ft: 3.9 Ft	Water Depth ft: 6 m / 19.7ft
MLLW (Depth – Tide) ft: 15.8	Mudline (Tide + Depth) ft: 23.6
Grab 3	Start/End Time: 1539/1540
Lat: 33 42.5821	Long: -118 15 3419
Tide ft: 4.0 ft	Water Depth ft: 6 m / 19.7ft.
MLLW (Depth – Tide) ft: 15.7	Mudline (Tide + Depth) ft: 23.7
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	OA-PW-20-0-5-141016
Sediment Sample IDs:	OA-SS-20-0-5-141016 – Chem – BDSG – GS – HPTSO
Sediment Notes (Sediment type, odor, color, shell hash): Sand, no odor, 10 YR 4/2	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:	NA
Tissue Notes:	NA
Tissue Sample IDs:	NA

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB	Sampler: AG PW-22 / AG-SS-22
Date: 10-17-14	Station ID: T. Low
Coordinate System: NAD83	
Grab 1	Start/End Time: 0845 / 0846
Lat: 33 42.2742	Long: -118 15.5926
Tide ft: 2.8 ft	Water Depth ft: 16.7 m / 54.8 ft
MLLW (Depth – Tide) ft: 52.8	Mudline (Tide + Depth) ft: 56.8
Grab 2	Start/End Time: 0850 / 0851
Lat: 33 42.2757	Long: -118 15.6087
Tide ft: 2.0 ft.	Water Depth ft: 16.4 m / 54.7 ft.
MLLW (Depth – Tide) ft: 52.7	Mudline (Tide + Depth) ft: 56.7
Grab 3	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: AG-PW-22-0-S-20141710	
Sediment Sample IDs: AG-SS-22-0-S-20141710 – Chem – BDSG – GS – HPJSO	
Sediment Notes (Sediment type, odor, color, shell hash): Sand, no odor, 10YR 2/4	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:	NA
Tissue Notes:	NA
Tissue Sample IDs:	NA

Surface Sediment and Polychaete Collection Field Log

No corrected on depth

Project:	Sampler: J. Arblaster
Date: 10/25/14	Station ID: OA-23
Coordinate System:	
Grab 1	Start/End Time: 0721 / 0722
Lat: 33° 42. 5933	Long: 118° 16. 4342
Tide ft: 4.2	Water Depth ft: 6.2
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 2 5260	Start/End Time: 0734 / 0735
Lat: 33° 42. ~~5178 5170~~	Long: 118° 16. 4059
Tide ft: 4.~~5~~	Water Depth ft: 6.8 m.
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time: 0803 / 0804
Lat: 33° 42. 5224	Long: 118° 16. 3981
Tide ft: ~~4.6~~ 5	Water Depth ft: 6.9
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time: 0825 / 0826
Lat: 33° 42. 5322	Long: 118° 16. 4153
Tide ft: ~~4.8~~ 5.2	Water Depth ft: 7.2 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time: 0849 / 0850
Lat: 33° 42. 5269	Long: 118° 16. 3943
Tide ft: ~~5.8~~ 5.5	Water Depth ft: 7.2 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time: 0910 / 0911
Lat: 33° 42. 5268	Long: 118° 16. 3938
Tide ft: 5.8	Water Depth ft: 7.3 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time: 0922 / 0923
Lat: 33° 42. 5324	Long: 118° 16. 3944
Tide ft: 5.9	Water Depth ft: 7.3 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time: 0948
Lat: 33° 42. 5317	Long: 118° 16. 3905
Tide ft: 5.95	Water Depth ft: 7.4
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time: 1009/1010
Lat: 33°42.5089	Long: 118°16.3858
Tide ft: 5.99	Water Depth ft: 7.4
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time: 1030/1031
Lat: 33°42.5043	Long: 118°16.3795
Tide ft: 5.95	Water Depth ft: 7.1
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time: 1050/1051
Lat: 33°42.5069	Long: 118°16.3815
Tide ft: 5.9	Water Depth ft: 7.8m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time: ~~1109~~ 1111/1112
Lat: 33°42.5059	Long: 118°16.3766
Tide ft: 5.8	Water Depth ft: 7.3m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time: 1129/1130
Lat: ~~33~~ 33°42.5009	Long: 118°16.3748
Tide ft: 5.4	Water Depth ft: 7.8m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time: 1150/1151
Lat: 33°42.5412	Long: 118°16.3815
Tide ft: 5.2	Water Depth ft: 6.9m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time: 1155/1156
Lat: 33°42.5112	Long: 118°16.4178
Tide ft: 5	Water Depth ft: 7.2
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	
Sediment Sample IDs: -HASCO OA-SS-23-~~CHEM~~ CHEM -BDSG 65	12:00
Sediment Notes (Sediment type, odor, color, shell hash): Silt w/ some sand & clay GLEY 1, 2.5/4GY No odor, little hash.	

all rock

Surface Sediment and Polychaete Collection Field Log

& 16th grab

Final Tissue Masses (g):
- Polychaete: 71g
- Non-polychaete: 38 g
- Other Deposit Feeding Benthic:
- Other Organisms ≥ 2 cm in length: 258g.
- Other Organisms ≤ 2 cm in length: 28g

Tissue Notes:

-lots of razor clams.
-1 large flatworm.
- some shrimp, crabs, other clams.

Tissue Sample IDs: OA-WO-~~283~~-PW-20141025-PLY
-NPLY
=>2cm
=<2CM

Surface Sediment and Polychaete Collection Field Log

Project: POA/POLB	Sampler: JA
Date: 10/22/14	Station ID: CB-24
Coordinate System:	
Grab 1	Start/End Time: 10:07 / 10:08
Lat: 33° 42.6883	Long: 118° 16.8802
Tide ft: 5.4	Water Depth ft: 2.8m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 2	Start/End Time: 1020/1021
Lat: 33°42.6905	Long: 118° 16.8826
Tide ft: 5.2	Water Depth ft: 2.9m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time: 1042/1043
Lat: 33°42.6927	Long: 118° 16.8811
Tide ft: 5.0	Water Depth ft: 2.9m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time: 1057/1058
Lat: 33° 42.6956	Long: 118° 16.8831
Tide ft: 4.8	Water Depth ft: 2.8m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time: 1110/1111
Lat: 33° 42.6966	Long: 118° 16.8822
Tide ft: 4.6	Water Depth ft: 2.6m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time: 1126/1127
Lat: 33°42.7010	Long: 118° 16.8784
Tide ft: ~~4.8~~ 4.2	Water Depth ft: 2.7m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time: 1138/1139
Lat: 33°42.7042	Long: 118°16.8670
Tide ft: 3.9	Water Depth ft: 2.8m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time: 1151/1152
Lat: 33°42.6798	Long: 118°16.8497
Tide ft: 3.6	Water Depth ft: 2.7m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time: 1245 / 12:46
Lat: 33°42.6783	Long: 118° 16.8453
Tide ft: 2.5	Water Depth ft: 2.3m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time: 1304 / 1305
Lat: 33°42.6848	Long: 118° 16.8865
Tide ft: 2.1	Water Depth ft: 2.5
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time: 13 16 / 13 17
Lat: 33°42.6835	Long: 118° 16.8342
Tide ft: 1.7	Water Depth ft: 2.4m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time: 13 30 / 13 31
Lat: 33°42.6873	Long: 118° 16.8299
Tide ft: 1.5	Water Depth ft: 2.6
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time: 1344 / 1345
Lat: 33°42.6837	Long: 118° 16.8277
Tide ft: 1.3	Water Depth ft: 2.5
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time: 13 53 / 13 54
Lat: 33°42.6849	Long: 118° 16.8282
Tide ft: ~~0.8~~ 1	Water Depth ft: 2.4m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time: 14 10
Lat: 33°42.6785	Long: 118° 16.8248
Tide ft: ~~0.6~~ 0.9	Water Depth ft: 2.3m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: CB-PW-24-~~20141022~~ 0-5-20141022	
Sediment Sample IDs: CB-SS-24-0-5-20141022-CHEM (+ PCB) -BDSG -GS -HPISG (+SI).	
Sediment Notes (Sediment type, odor, color, shell hash): Silt w very slight sand 2.5Y 2.5/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g):
- Polychaete: 51
- Non-polychaete:
- Other Deposit Feeding Benthic: 109g (95% crab, 5% shrimp)
- Other Organisms < 2 cm in length:
- Other Organisms > 2 cm in length:

Tissue Notes:

- lots of crabs
  - too difficult to sort crabs into >2cm & <2cm
  - placed in BNTC sample.

Tissue Sample IDs: CB-WO-PW-24-0-10-20241022-PLY Y - BNTC

~~SUPLY~~
~~->2cm~~
~~-<2cm~~

Surface Sediment and Polychaete Collection Field Log

19 g needed for 7 g.

Project:	Sampler: JA
Date: 10/25/14	Station ID: CS-24
Coordinate System:	
Grab 1 6	Start/End Time: 1346
Lat: 33°42.6769	Long: 118° 16.8572
Tide ft: ~~3.4~~ 3	Water Depth ft: ~~2.1 m.~~ 3.3 m.
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 2 ~~1733°42.69~~	Start/End Time: 1403
Lat: 33°42.6927	Long: 118°16.8200
Tide ft: 2.5	Water Depth ft: 3.9 m.
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3 18	Start/End Time: 1415
Lat: 33°42.6958	Long: 118°16.8232
Tide ft: 2.25	Water Depth ft: 3.8m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4 19	Start/End Time: 1430
Lat: 33°42.6964	Long: 118°16.8152
Tide ft: 2	Water Depth ft: 3.8
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5 20	Start/End Time: 1444
Lat: 33°42.6960	Long: 118°16.8125
Tide ft: 1.5	Water Depth ft: 3.7
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6 21	Start/End Time: 1500
Lat: 33°42.6946	Long: 118°16.8819
Tide ft: 1.25	Water Depth ft: 3.3
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	
Sediment Sample IDs: NA	
Sediment Notes (Sediment type, odor, color, shell hash): NA	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): 21g (Add to 51g for 72g) Polychaete: Non-polychaete: Other Deposit Feeding Benthic: (Pass Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:
Tissue Notes:
Tissue Sample IDs: CS-WO-24-PW-20141005-PLY

Surface Sediment and Polychaete Collection Field Log

Project: POLA | POLB	Sampler: T. Low
Date: 10-17-14	Station ID: FH-PW-25 | FH-SS-25 | FH-WB-PW-25
Coordinate System: NAD 83	
Grab 1	Start/End Time: 0924 | 0926
Lat: 33 44.2780	Long: -118 16.0041
Tide ft: 2.3 ft.	Water Depth ft: 6.1 m / 20 ft.
MLLW (Depth – Tide) ft: 17.7	Mudline (Tide + Depth) ft: 22.3
Grab 2	Start/End Time: 0952 / 954
Lat: 33 44.2751	Long: -118 16.0061
Tide ft: 2.8 ft.	Water Depth ft: 6.4 m / 20 ft.
MLLW (Depth – Tide) ft: 17.2	Mudline (Tide + Depth) ft: 22.8
Grab 3	Start/End Time: 1008 / 1009
Lat: 33 44.2713	Long: -118 16.0019
Tide ft: 2.9 ft.	Water Depth ft: 6.5 m / 20 ft.
MLLW (Depth – Tide) ft: 17.1	Mudline (Tide + Depth) ft: 22.9
Grab 4	Start/End Time: 1026 / 1027
Lat: 33 44.2340	Long: -118 15.9840
Tide ft: 3.1 ft	Water Depth ft: 6.1 m / 20 ft.
MLLW (Depth – Tide) ft: 16.9	Mudline (Tide + Depth) ft: 23.1
Grab 5	Start/End Time: 1040 / 1041
Lat: 33.44 2328	Long: -118.15.9881
Tide ft: 3.4 ft.	Water Depth ft: 5.9m / 20 ft.
MLLW (Depth – Tide) ft: 16.6	Mudline (Tide + Depth) ft: 23.4
Grab 6	Start/End Time: 1052 / 1053
Lat: 33 44.2324	Long: -118. 15.9864
Tide ft: 3.5 ft.	Water Depth ft: 6.0m / 20 ft.
MLLW (Depth – Tide) ft: 16.5	Mudline (Tide + Depth) ft: 23.5
Grab 7	Start/End Time: 1104 / 1104
Lat: 3344.2362	Long: -118 15.9899
Tide ft: 3.7 ft	Water Depth ft: 6.0m / 20ft.
MLLW (Depth – Tide) ft: 16.3	Mudline (Tide + Depth) ft: 23.7
Grab 8	Start/End Time: 1125 / 1126
Lat: 33 44.2356	Long: -118 15.9738
Tide ft: 3.8 ft.	Water Depth ft: 5.8 m / 20ft.
MLLW (Depth – Tide) ft: 16.2	Mudline (Tide + Depth) ft: 23.8

1255

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time: 1219 / 12/20
Lat: 33 42.2360	Long: -118 15.9734
Tide ft: 4.4 ft.	Water Depth ft: 6.2 m 20 ft.
MLLW (Depth – Tide) ft: 15.6	Mudline (Tide + Depth) ft: 24.4
Grab 10	Start/End Time: 1224 / 1230
Lat: 33 44.2347	Long: -118 15.9705
Tide ft: 4.4 ft.	Water Depth ft: 5.9 m / 20 ft.
MLLW (Depth – Tide) ft: 15.6	Mudline (Tide + Depth) ft: 24.4
Grab 11	Start/End Time: 1243 / 1244
Lat: 33 44.2526	Long: -118 16.0144
Tide ft: 4.6 ft.	Water Depth ft: 5.8 m / 20 ft.
MLLW (Depth – Tide) ft: 15.4	Mudline (Tide + Depth) ft: 24.6
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: FH-PW-25-0-5-20141017	
Sediment Sample IDs: FH-SS-25-0-5-20141017 - Chem " " " - BDSG " " " - GS " " " - HP150	
Sediment Notes (Sediment type, odor, color, shell hash): Silt w/ fine sands, no odor, 10YR 3/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: 1.0 gram Non-polychaete: Ø Other Deposit Feeding Benthic: Ø Other Organisms < 2 cm in length: 13 g Other Organisms > 2 cm in length: 10 g	 24 g
Tissue Notes: Overall lack of benthic macroinvertebrates - abundance of Macoma in < 2 cm group.	
Tissue Sample IDs: FH-WO-PW-25-0-10-PLY FH-WO-PW-25-0-10-< 2 cm FH-WO-PW-25-0-10-> 2 cm	

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB	Sampler: T. Low
Date: 10-20-14	Station ID: IA-PW-26 / IA-SS-26 / IA-WQ-PW-26
Coordinate System: NAD83	
Grab 1	Start/End Time: 1023 / 1024
Lat: 33 46.1114	Long: -118 15.1252
Tide ft: 4	Water Depth ft: 14.2m /
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 2	Start/End Time: 1048 / 1049
Lat: 33 46.1134	Long: -118 15.1371
Tide ft: 3.8	Water Depth ft: 13.5m /
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time: 1117 / 1118
Lat: 33 46.1154	Long: -118 15.1267
Tide ft: 3.2	Water Depth ft: 13.9m /
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time: 1140 / 1141
Lat: 33 46.1206 /	Long: -118 15.1247
Tide ft: 2.8	Water Depth ft: 12.9m /
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time: 1243 / 1244
Lat: 33 46.0581	Long: -118 15.1343
Tide ft: 1.8	Water Depth ft: 12.4m /
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft: 12.7m
Grab 6	Start/End Time: 1307 / 1308
Lat: 33 46.0604	Long: -118 15.1337
Tide ft: 1.5	Water Depth ft: 12.6m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time: 1326 / 1327
Lat: 33 46.0571	Long: -118 15.1313
Tide ft: 1.2	Water Depth ft: 12.5m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time: 1349 / 1350
Lat: 33 46.0554	Long: -118 15.1282
Tide ft: 1.1	Water Depth ft: 12.5m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time: 1412 / 1413
Lat: 33 46.0573	Long: -118 15.1269
Tide ft: 1.07	Water Depth ft: 12.5m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time: 1438 / 1439
Lat: 33 46.0735	Long: -118 15.1193
Tide ft: 1.2	Water Depth ft: 12.3m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time: 08:02 / 08:03
Lat: 33 46.0927	Long: 118°15.0886
Tide ft: ~~5.1~~ 5.2	Water Depth ft: 13.4
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time: 0827 / 0828
Lat: 33°46,0815	Long: 118°15.1080
Tide ft: 5.41	Water Depth ft: 13.6
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13 ~~S2~~	Start/End Time: 08:46 / 08:47
Lat: 33°46.0815	Long: 118°15.1099
Tide ft: 5.2	Water Depth ft: ~~16~~ 13.6m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time: 0915
Lat: 33.°46,0894	Long: 118°15.1114
Tide ft: 5.1	Water Depth ft: 13.6m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time: 0929 / 0930
Lat: 33°46.0867	Long: 118°15.1075
Tide ft: 5.1	Water Depth ft: 13.4m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: IA-PW-26-0-5-20141021	
Sediment Sample IDs: IA-SS-26-0-5-20141021 @10:00am	- Chem (w PCB) - BOSO - GS - Helso (w SI)
Sediment Notes (Sediment type, odor, color, shell hash): Silt w/ fine sands, no odor, 10YR 3/1	
Polychaete IDs: IA-WO-PW-26-0-10-20141021	- PLY NPLY ≤2CM >2CM

* Tides estimated by tide chart. 2

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: Non-polychaete: Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: Other Organisms > 2 cm in length:
Tissue Notes: > 2 cm - large bullseye prawn
Tissue Sample IDs: IA-WO-PW-26-0-10-20141021 - PLY @ 10:00am -

10-20-14

PLY = 26 g.
NPLY = 0
< 2cm = 2 g.
> 2cm = 11 g.

10-21-14

PLY: 25g.
NPLY: 0
<2cm: 2g.
>2cm: 15g.

Surface Sediment and Polychaete Collection Field Log

Project:	Sampler: JH
Date: 10/26/14	Station ID: CS-26 (2nd Day)
Coordinate System:	
Grab 16	Start/End Time: 1515
Lat: 33°46.0742	Long: 118° 15.0925
Tide ft: ~~1.5~~ 1.75	Water Depth ft: 12.5
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 17	Start/End Time: 1545
Lat: 33°46.0454	Long: 118° 15.0885
Tide ft: ~~1.25~~ 1.25	Water Depth ft: 12.5
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 18	Start/End Time: 1607
Lat: 33°45.0495	Long: 118°15.1738
Tide ft: 0.8	Water Depth ft: 14.1
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 19	Start/End Time: 1630
Lat: 33°46.0457	Long: 118°15.1700
Tide ft: 0.5	Water Depth ft: 13.9
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 20	Start/End Time: 1645
Lat: 33°46.0524	Long: 118°15.1737
Tide ft: 0.3	Water Depth ft: 14.0
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time: 1705
Lat: 33°46.0615	Long: 118°15.1458
Tide ft: 0.1	Water Depth ft: 13.5
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	
Sediment Sample IDs: NA	
Sediment Notes (Sediment type, odor, color, shell hash): NA	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g):	
Polychaete:	18 g
Non-polychaete:	
Other Deposit Feeding Benthic:	
Other Organisms < 2 cm in length:	
Other Organisms > 2 cm in length:	
Tissue Notes:	
Tissue Sample IDs:	CS-WO-26-PW-20141026-PLY

Surface Sediment and Polychaete Collection Field Log

Project: PolA/PolB	Sampler: T. Low
Date: 10-19-14 - 10-20-14	Station ID: CS-PU-27/CS-SS-27/CS-WO-PW-27
Coordinate System:	
Grab 1	Start/End Time: 1230/1231
Lat: 33 46.4637	Long: -118 14.8313
Tide ft: 4.3 ft	Water Depth ft: 6.2 m / 20.3 ft
MLLW (Depth – Tide) ft: 16	Mudline (Tide + Depth) ft: 24.6
Grab 2	Start/End Time: 1250/1251
Lat: 33 46.4587	Long: -118 14.8206
Tide ft: 4.6 ft.	Water Depth ft: 6.1 m / 20 ft
MLLW (Depth – Tide) ft: 15.4	Mudline (Tide + Depth) ft: 24.6
Grab 3	Start/End Time: 1308/1309
Lat: 34 46.4614	Long: -118 14.8256
Tide ft: 4.8 ft.	Water Depth ft: 6.1 m / 20 ft.
MLLW (Depth – Tide) ft: 15.2	Mudline (Tide + Depth) ft: 24.8
Grab 4	Start/End Time: 1332/1333
Lat: 33 46.4624	Long: -118 14.8229
Tide ft: 5.1 ft.	Water Depth ft: 6.1 m / 20 ft.
MLLW (Depth – Tide) ft: 14.9	Mudline (Tide + Depth) ft: 25.1
Grab 5	Start/End Time: 1351/1352
Lat: 33 46.4635	Long: -118 14.8254
Tide ft: 5.1 ft	Water Depth ft: 6.0 m / 20 ft
MLLW (Depth – Tide) ft: 14.9	Mudline (Tide + Depth) ft: 25.1
Grab 6	Start/End Time: 1411/1412
Lat: 33 46.4618	Long: -118 14.8440
Tide ft: 5.3 ft	Water Depth ft: 6.2 m / 20.3 ft
MLLW (Depth – Tide) ft: 15	Mudline (Tide + Depth) ft: 25.3
Grab 7	Start/End Time: 1433/1434
Lat: 33 46.4528	Long: -118 14.8170
Tide ft: 5.3 ft	Water Depth ft: 5.6 m / 18.4 ft.
MLLW (Depth – Tide) ft: 13.1	Mudline (Tide + Depth) ft: 23.7
Grab 8	Start/End Time: 1449/1450
Lat: 33 46.4642	Long: -118 14.8389
Tide ft: 5.2 ft	Water Depth ft: 6.3 m / 20.7 ft.
MLLW (Depth – Tide) ft: 15.5	Mudline (Tide + Depth) ft: 25.9

10-19-14

Lost 1 20 20 20

10-20-14

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time: 800 / 8048
Lat: 33 46.4532	Long: -118 14.8780
Tide ft: 5.18	Water Depth ft: 7.2 m /
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time: 816/817
Lat: 33 46.4539	Long: -118 14.8636
Tide ft: 5.1	Water Depth ft: 7.1 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time: 838/839
Lat: 33 46.4583	Long: -118 14.8488
Tide ft: 5	Water Depth ft: 7.1 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time: 858/859
Lat: 33 46.4549	Long: -118 14.8466
Tide ft: 4.9	Water Depth ft: 7.1 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	cs-pw-27-0-5-20141020
Sediment Sample IDs:	cs-ss-27-0-5-20141020 -chem -BDSG -GS -HPISD
Sediment Notes (Sediment type, odor, color, shell hash): Silt w/ some muck, strong hydrogen sulfide odor, 10YR 2/1, trash/debris abundant	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): 88 g.	
Polychaete: 74g	
Non-polychaete:	
Other Deposit Feeding Benthic:	
Other Organisms < 2 cm in length: 4g.	
Other Organisms > 2 cm in length: 10 g	
Tissue Notes:	
• Mostly Glycerids, mostly mid-sized	
Tissue Sample IDs: CS-PW-WQ-27-0-10-20141020	-PLY -NPLY -> 2cm -< 2cm

End of grab 8
Poly = 53g + 11 = 64 + 10 = 74
NPLY = —
> 2cm = 3g. + 7
< 2 cm = 3 + 1

Tissue #'s

	Day 1	Day 2
Poly	53	21
NPLY	0	0
> 2cm	3	7
< 2cm	3	1

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB	Sampler: T. Lee
Date: 10-14-14	Station ID: CS-PW-28/CS-SS-28/CS-MO-PW-28
Coordinate System: NAD 83	
Grab 1	Start/End Time: 802/804
Lat: 33 46.5474	Long: -118 14.6402
Tide ft: 1.4 ft	Water Depth ft: 6.9 m / 22.6 ft.
MLLW (Depth – Tide) ft: 21.2	Mudline (Tide + Depth) ft: 24
Grab 2	Start/End Time: 837/838
Lat: 33 46.5404	Long: -118 14.6389
Tide ft: 1.5 ft.	Water Depth ft: 6.6 m / 21.7 ft.
MLLW (Depth – Tide) ft: 20.2	Mudline (Tide + Depth) ft: 23.2
Grab 3	Start/End Time: 856/857
Lat: 33 46.5474	Long: -118 14.6420
Tide ft: 1.5 ft.	Water Depth ft: 7.0 m / 23 ft.
MLLW (Depth – Tide) ft: 21.5	Mudline (Tide + Depth) ft: 24.5
Grab 4	Start/End Time: 918/919
Lat: 33 46.5432	Long: -118 14.6433
Tide ft: 1.7 ft.	Water Depth ft: 6.7 m / 22 ft.
MLLW (Depth – Tide) ft: 20.3	Mudline (Tide + Depth) ft: 23.7
Grab 5	Start/End Time: 945/946
Lat: 33 46.5451	Long: -118 14.6449
Tide ft: 1.9 ft.	Water Depth ft: 6.8 m / 22.3 ft
MLLW (Depth – Tide) ft: 20.4	Mudline (Tide + Depth) ft: 24.2
Grab 6	Start/End Time: 957/958
Lat: 33 46.5126	Long: -118 14.7132
Tide ft: 2.0 ft.	Water Depth ft: 7.1 m / 23.3 ft
MLLW (Depth – Tide) ft: 21.3	Mudline (Tide + Depth) ft: 25.3
Grab 7	Start/End Time: 1009/1010
Lat: 33 46.5137	Long: -118 14.7136
Tide ft: 2.2 ft.	Water Depth ft: 7.7 m / 25.3 ft
MLLW (Depth – Tide) ft: 23.1	Mudline (Tide + Depth) ft: 27.5
Grab 8	Start/End Time: 1028/1029
Lat: 33 46.5130	Long: -118 14.7116
Tide ft: 2.4 ft.	Water Depth ft: 7.3 m / 24 ft
MLLW (Depth – Tide) ft: 21.6	Mudline (Tide + Depth) ft: 26.4

1135

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time: 1052 / 1053
Lat: 33 46.5455	Long: -118 14.6678
Tide ft: 2.8 ft.	Water Depth ft: 7.6m / 25 ft.
MLLW (Depth – Tide) ft: 22.2	Mudline (Tide + Depth) ft: 27.8
Grab 10	Start/End Time: 1111 / 1112
Lat: 33 46.5482	Long: -118 14.6657
Tide ft: 3.0 ft.	Water Depth ft: 7.8m / 25.6 ft.
MLLW (Depth – Tide) ft: 22.4	Mudline (Tide + Depth) ft: 28.8
Grab 11	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: CS-PW-28-0-5-20141018	
Sediment Sample IDs: CS-SS-28-0-5-20141018 - Chem - BOSG - GS - HPISO	
Sediment Notes (Sediment type, odor, color, shell hash): Silt w/ heavy muck, strong petroleum odor / strong hydrogen sulfide odor, 10YR 2/1, trash abundant	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): 46 g. Polychaete: 8 g. Non-polychaete: 29 g. Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: 3 g. Other Organisms > 2 cm in length: 6 g.
Tissue Notes: ~~Red sediment in solution~~ Not many benthic species Nonpolys = Nemertean, Enteropneusta
Tissue Sample IDs: CS-WO-PW-28-0-10-20141019-PLP " " -NPLP " " -<2cm " " ->2cm

Surface Sediment and Polychaete Collection Field Log

Project: POLA1 POLB	Sampler: JA
Date: 10-21-14	Station ID: 1B-29
Coordinate System:	
Grab 1	Start/End Time: 1122 / 1123
Lat: 33°46.2298	Long: 118° 12.8984
Tide ft: 3.7 ft	Water Depth ft: 13.8 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 2	Start/End Time: 1144 / 1145
Lat: 33°46.2310	Long: 118° 12.9050
Tide ft: 3.3 ft	Water Depth ft: 13.9 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time: 1158 / 1159
Lat: 33°46.2324	Long: 118°12.8976
Tide ft: 3 ft	Water Depth ft: 13.8 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time: 1300 / 1301
Lat: 33°46.2303	Long: 118°12.8979
Tide ft: 1.75 ft	Water Depth ft: 13.5 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time: 1313 1314
Lat: 33°46.2443	Long: 118°12.8741
Tide ft: 1.5 ft	Water Depth ft: 13.6
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time: 1324 / 1330
Lat: 33°46.2052	Long: 118°12.8544
Tide ft: 1.25	Water Depth ft: 12.9 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time: 1349 1350
Lat: 33°46.2016	Long: 118°12.8518
Tide ft: 1.25	Water Depth ft: 12.8 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time: 1405 / 1406
Lat: 33°46.2070	Long: 118°12.8541
Tide ft: 1.25	Water Depth ft: 13.2 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time: 14 15 / 14 16
Lat: 33° 46. 2046	Long: 118° 12. 8531
Tide ft: 0.9 ft.	Water Depth ft: 13 m.
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time: 14 32 / 14 33
Lat: 33°46. 2052	Long: 118° 12. 8547
Tide ft: 0. 8 ft	Water Depth ft: 12. 8
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time: 0756 / 0757 (10/22).
Lat: 33°46. 2075	Long: 118° 12. 8502
Tide ft: 5. 4 ft.	Water Depth ft: 14.9 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time: 0816 / 0817
Lat: 33°46. 2082	Long: 118° 12. 8554
Tide ft: 5.5	Water Depth ft: 15.1 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time: 08 32 / 08 33
Lat: 33° 46. 2095	Long: 118° 12. 8518
Tide ft: ~~5.6~~ 5.6	Water Depth ft: 15.3 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time: 0847 / 0848
Lat: 33°46. 2256	Long: 118° 12. 8277
Tide ft: 5. 64	Water Depth ft: 15.2
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time: 0908 / 0901
Lat: 33°46. 2223	Long: 118° 12. 8289
Tide ft: 5 6	Water Depth ft: 15.3
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: IB - PW-~~16~~ 15 - 20141022	
Sediment Sample IDs: IB - SS-~~160~~ 5 - 20141022 – CHEM (+ PCB) – GS – BDSB – HP150 (+SI)	
Sediment Notes (Sediment type, odor, color, shell hash): silt, no odor, ~~10 YR 3/1~~ 2.5 Y 2.5/1	

Low tide
14:47
0.75 ft

High tide
8:50
5.6 ft

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: 30 g Non-polychaete: ~~0~~ < 1 g. Other Deposit Feeding Benthic: Other Organisms < 2 cm in length: 4 g Other Organisms > 2 cm in length: 31 g.
Tissue Notes: - >2CM mostly 1 large bullseye shrimp + seagrape.
Tissue Sample IDs: IB-WO-PW-29-0-10-20141102 – PLY ->2CM <2CM

Mass after 10 grabs (10/21):

PLY → 21 g.

>2CM → 25 g.

<2cm → 3g

10/22

PLY – 9g

NPLY < 1 g.

< 2 cm – 1 g.

>2cm - 6g

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB	Sampler: JA
Date: 10/23/14	Station ID: 1B-55-30
Coordinate System:	
Grab 1	Start/End Time: 0754/0755
Lat: 33°44.8831	Long: 118°14.1403
Tide ft: 5.5ft	Water Depth ft: 15.1m ← stop adding 1m.
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 2	Start/End Time: 0830/0831
Lat: 33°44.8813	Long: 118°14.1454
Tide ft: 5.7ft	Water Depth ft: 16.0m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time: 0902/0903
Lat: 33°44.8809	Long: 118°14.1344
Tide ft: 5.8	Water Depth ft: 16.0m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time: 0934/0935
Lat: 33°44, 9205	Long: 118°14.1462
Tide ft: 5.8	Water Depth ft: 16.2
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time: 1020/1021
Lat: 33°44.9198	Long: 118°14.1516
Tide ft: 5.5	Water Depth ft: 16.1m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time: 1105/1106
Lat: 33°44.9238	Long: 118°14.1485
Tide ft: 4.8	Water Depth ft: 15.9m.
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time: 1140/1141
Lat: 33°44.9240	Long: 118°14.1465
Tide ft: 4 ft	Water Depth ft: 15.7
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time: 1307/1308
Lat: 33°44.8545	Long: 118°14.1069
Tide ft: 2.5	Water Depth ft: 14.9
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time: 1330/1331
Lat: 33° 44.8528	Long: 118° 14.0988
Tide ft: 1.75	Water Depth ft: 14.6 m.
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time: 1359/1400
Lat: 33° 44.8522	Long: 118° 14.0979
Tide ft: 1	Water Depth ft: 14.5
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time: 1425/1426
Lat: 33° 44.8531	Long: 118° 14.0986
Tide ft: 0.8	Water Depth ft: 14.4
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time: 1450/1451
Lat: 33° 44.8606	Long: 118° 14.0941
Tide ft: 0.6	Water Depth ft: 14.4
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time: 1519/1520
Lat: 33° 44.8605	Long: 118° 14.0897
Tide ft: 0.4	Water Depth ft: 14.3m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: IB-PW-30-20147003	
Sediment Sample IDs: IB-SS-30-20141023 -HDISO -CHEM -BOSG -GS	
Sediment Notes (Sediment type, odor, color, shell hash): silt w/ clay, no odor, & no shell. GLEY 2.5/10Y	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g):
- Polychaete: 76 g
- Non-polychaete: ✓
- Other Deposit Feeding Benthic: ✓
- Other Organisms < 2 cm in length: 14
- Other Organisms > 2 cm in length: 17

Tissue Notes:

-much smaller polys, many slower to remove from tubes.

others - ghost shrimp, crabs.
- razor clams
- clams.

Tissue Sample IDs:

1B - 30 - 30-PW-20141023 - PLY
- <2CM
- >2CM

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB	Sampler: T. Low
Date: 10-18-14	Station ID: IA-PW-31/IA-SS-31/IA-WQ-PW-3
Coordinate System: NAD83	
Grab 1	Start/End Time: 0807/0807
Lat: 33 44.4158	Long: -118 14.9045
Tide ft: 4.9 ft.	Water Depth ft: 3.5m/11.5 ft.
MLLW (Depth – Tide) ft: 6.6	Mudline (Tide + Depth) ft: 16.4
Grab 2	Start/End Time: 0822/0823
Lat: 33 44.4183	Long: -118 14.8934
Tide ft: 4.7 ft.	Water Depth ft: 3.5m/11.5 ft.
MLLW (Depth – Tide) ft: 6.8	Mudline (Tide + Depth) ft: 16.2
Grab 3	Start/End Time: 0836/0836
Lat: 33 44.4134	Long: -118 14.9044
Tide ft: 4.7 ft	Water Depth ft: 2.9m/9.5ft.
MLLW (Depth – Tide) ft: 4.8	Mudline (Tide + Depth) ft: 14.2
Grab 4	Start/End Time: 0852/0853
Lat: 33 44.4132	Long: -118 14.9035
Tide ft: 4.5 ft	Water Depth ft: 3.1m/10.2 ft.
MLLW (Depth – Tide) ft: 5.7	Mudline (Tide + Depth) ft: 14.7
Grab 5	Start/End Time: 905/906
Lat: 33 44.4138	Long: -118 14.9046
Tide ft: 4.4 ft.	Water Depth ft: 3.3m/10.8 ft.
MLLW (Depth – Tide) ft: 6.4	Mudline (Tide + Depth) ft: 15.2
Grab 6	Start/End Time: 919/920
Lat: 33 44.4319	Long: -118 14.8966
Tide ft: 4.3 ft	Water Depth ft: 3.4m/11.2 ft.
MLLW (Depth – Tide) ft: 6.9	Mudline (Tide + Depth) ft: 15.5
Grab 7	Start/End Time: 941/942
Lat: 33 44.4335	Long: -118 14.8967
Tide ft: 4.1 ft	Water Depth ft: 3.3m/10.8 ft.
MLLW (Depth – Tide) ft: 6.7	Mudline (Tide + Depth) ft: 14.9
Grab 8	Start/End Time: 954/955
Lat: 33 44.4360	Long: -118 14.8999
Tide ft: 4.0 ft	Water Depth ft: 3.3m/10.8 ft
MLLW (Depth – Tide) ft: 6.8	Mudline (Tide + Depth) ft: 14.8

* Access to Station 31 limited, got within .11 nautical miles.

1135

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time: 1003 / 1004
Lat: 33 44.4354	Long: -118 14.8965
Tide ft: 3.9 ft.	Water Depth ft: 3.2 m / 10.5 ft.
MLLW (Depth – Tide) ft: 6.6	Mudline (Tide + Depth) ft: 14.4
Grab 10	Start/End Time: 1018 / 1019
Lat: 33 44.4328	Long: -118 14.8925
Tide ft: 3.8 ft.	Water Depth ft: 3.0 m / 9.8 ft.
MLLW (Depth – Tide) ft: 6	Mudline (Tide + Depth) ft: 13.6
Grab 11	Start/End Time: 1034/1035
Lat: 33 44.4373	Long: -118 14.8917
Tide ft: 3.8 ft.	Water Depth ft: 3.1 m / 10.2 ft.
MLLW (Depth – Tide) ft: 6.4	Mudline (Tide + Depth) ft: 14
Grab 12	Start/End Time: 1053 / 1054
Lat: 33 44.4457	Long: -118 14.8885
Tide ft: 3.7 ft.	Water Depth ft: 2.8m / 9.2 ft.
MLLW (Depth – Tide) ft: 5.5	Mudline (Tide + Depth) ft: 12.9
Grab 13	Start/End Time: 1054/1059
Lat: 33 44.4459	Long: -118 14.8433
Tide ft: 3.6 ft.	Water Depth ft: 3.0m / 9.8 ft
MLLW (Depth – Tide) ft: 6.2	Mudline (Tide + Depth) ft: 13.4
Grab 14	Start/End Time: 1106/1107
Lat: 33 44.4489	Long: -118 14.9090
Tide ft: 3.6 ft	Water Depth ft: 5.4 m / 17.7 ft.
MLLW (Depth – Tide) ft: 14.1	Mudline (Tide + Depth) ft: 21.3
Grab 15	Start/End Time: 1114 / 1115
Lat: 33 44.4291	Long: -118 14.8912
Tide ft: 3.5 ft.	Water Depth ft: 3.0 m / 9.8 ft.
MLLW (Depth – Tide) ft: 6.3	Mudline (Tide + Depth) ft: 13.3
Porewater Sample ID: IA-PW-31-0-5-20141018 (And duplicate)	
Sediment Sample IDs: IA-SS-31-0-5-20141018 - Chem, - BDSG, - GS, - HPISO (And duplicates)	
Sediment Notes (Sediment type, odor, color, shell hash): Silt, no odor, 10YR 3/1	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): 140 g. Polychaete: 39 g. Non-polychaete: 1 g. Other Deposit Feeding Benthic: NA Other Organisms < 2 cm in length: 40 g. Other Organisms > 2 cm in length: 60 g.	
Tissue Notes: Razor clams abundant, one very large scaleworm (18 grams)	
Tissue Sample IDs:	IA-WO-PW-31-0-10-20141018 - PLP " " " - NPLP " " " - > 2cm " " " - < 2cm

Surface Sediment and Polychaete Collection Field Log

Project: POLA/POLB	Sampler: JA
Date: 10/08/14 + 10/24/14	Station ID: OB-SS-32.
Coordinate System:	
Grab 1	Start/End Time: 16:15 / 1616
Lat: 33°44.4101	Long: 118°13.3271
Tide ft: ~~0.5~~ 0.2	Water Depth ft: 14.5
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 2	Start/End Time: 1639 / 1640
Lat: 33°44.4114	Long: 118°13.3291
Tide ft: 0.7	Water Depth ft: 14.5
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time: 0740 0741
Lat: 33°44.4002	Long: 118°13.4028
Tide ft: 4.8	Water Depth ft: 15.9
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time: 0804 / 0805
Lat: 33°44.4672	Long: 118°13.3520
Tide ft: ~~4~~ 5.2	Water Depth ft: 15.2
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time: 0824/ 0825
Lat: 33°44.4708	Long: 118°13.3595
Tide ft: 5.5	Water Depth ft: ~~12~~ 15.2 m.
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time: 0859 / 0900
Lat: 33°44.4673	Long: 118°13.3441
Tide ft: ~~6~~ 5.9	Water Depth ft: 15.5 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time: 0920/0921
Lat: 33°44.4765	Long: 118013.3610
Tide ft: 6 ft	Water Depth ft: 14.3m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time: 0934/ 0935
Lat: 33°44.4855	Long: 118°13.3623
Tide ft: 6	Water Depth ft: 13.6
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time: 0958 / 0959
Lat: 33°44.4502	Long: 118°13.3765
Tide ft: 6	Water Depth ft: 16.2m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time: 1028 / 1029
Lat: 33°44.4496	Long: 118°13.3816
Tide ft: 5.8	Water Depth ft: 16.2
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time: 1111 / 1112
Lat: 33°44.4558	Long: 118°13.3789
Tide ft: 5.25	Water Depth ft: 16.0
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	
Sediment Sample IDs: OB-SS-32-20141028-CHEM 1130 -HPISO -GS -BDSG	
Sediment Notes (Sediment type, odor, color, shell hash): Silt w/ slight sand, no odor GLEY1 2.5/10Y	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: 7 g. Non-polychaete: — Other Deposit Feeding Benthic: — Other Organisms < 2 cm in length: 18 g Other Organisms > 2 cm in length: 133 g.
Tissue Notes: - many brittle stars, sea cucumber. - gastropods. - sea grape, - many mullocks, clams, few shrimp + crabs. - Brachiopods. + amphipods.
Tissue Sample IDs: OB-WO-32-BOX-20141023 - PLY - <2CM - >2CM

Day 1

POLY 6 g

>2cm 16g

<2cm 1g

Day 2.

POLY 85g.

>2cm 117g.

<2cm 17g.

Surface Sediment and Polychaete Collection Field Log

Project:	Sampler: JA
Date: 10/24/14	Station ID: ~~8~~ OB-SS-33
Coordinate System:	
Grab 1	Start/End Time: 12:30/12 31
Lat: 33°43.8631	Long: 118°14.0948
Tide ft: ~~3~~ 3.9	Water Depth ft: 11.2
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 2	Start/End Time: 12 52/ 12 53
Lat: 33°43.8646	Long: 118°14.0851
Tide ft: 3.4	Water Depth ft: 11 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time: 13:17/ 13/18
Lat: 33°43.8789	Long: 118°14.1659
Tide ft: 2.~~8~~	Water Depth ft: 7.3m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time: 13 27/13 28
Lat: 33°43.8812	Long: 118°14.1714
Tide ft: 2.5	Water Depth ft: 6.8
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time: 13 34/13 35
Lat: 33°43.8843	Long: 118°14.1678
Tide ft: 2.4	Water Depth ft: 6.6
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time: 13 39/13 40
Lat: ~~8846~~ 33°43.8846	Long: 118°14.1675
Tide ft: 2.2	Water Depth ft: 6.4m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time: 13 48/13 49
Lat: 33°43.8866	Long: 118°14.1674
Tide ft: 2.0	Water Depth ft: 6.9
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time: 13 54/ 13 55
Lat: 33°43.8983	Long: 118°14.1125
Tide ft: 1.8	Water Depth ft: 9.9
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time: 14:13 / 14:14
Lat: 33° 43.4954	Long: 118° 14.1072
Tide ft: 1.5	Water Depth ft: 9.8m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10 1.25	Start/End Time: 1425 1426
Lat: 33°43.4936	Long: 118°14.1077
Tide ft: 1.0	Water Depth ft: 9.9m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time: 1445 / 1446
Lat: 33°43.9016	Long: 118°14.1082
Tide ft: 0.9	Water Depth ft: 9.7m.
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12	Start/End Time: 1459 / 1500
Lat: 33°43.8996	Long: 118°14.1076
Tide ft: 0.7	Water Depth ft: 9.6m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time: 15:13 15:14
Lat: 33°43.9039	Long: 118° 14.1161
Tide ft: 0.6	Water Depth ft: 9.5m.
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time: 15 25 / 1526
Lat: 33°43.9045	Long: 118°14.1102
Tide ft: 0.5	Water Depth ft: 9.4m.
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time: 15:37 / 15:39
Lat: 33°43.9096	Long: 118°14.1089
Tide ft: 0.4	Water Depth ft: 9.4m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID: OB-PW-33-20141024	
Sediment Sample IDs: OB-SS-33-20141024-CHEM -BIOS6 @1600 -GS #1150	
Sediment Notes (Sediment type, odor, color, shell hash): silty sand, no odor GLEY 1 2.5/10Y w/ black streaks	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g):
- Polychaete: 31g.
- Non-polychaete: 0
- Other Deposit Feeding Benthic:
- Other Organisms < 2 cm in length: 15g.
- Other Organisms > 2 cm in length: 42g.

Tissue Notes:

- crabs, shrimp, anemone.
- sea pen, mollusks
- sea grape

Tissue Sample IDs: OB-WO-33-PW-20141024-PLY
- >2 cm
- <2 cm

Surface Sediment and Polychaete Collection Field Log

Project: PdA/PdB Pdy.	Sampler: J. Arblaster
Date: Oct 26 2011.	Station ID: CS-27-DUP
Coordinate System:	
Grab 1	Start/End Time: 0752
Lat: 33°46.4413	Long: 118°14.8963
Tide ft: 4.2ft	Water Depth ft: 6.1 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 2	Start/End Time: 0823
Lat: 33°46.4477	Long: 118°14.8756
Tide ft: 4.8	Water Depth ft: 7.2
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 3	Start/End Time: 0848
Lat: 33°46.4662	Long: 118°14.8209
Tide ft: 5	Water Depth ft: 8.0
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 4	Start/End Time: 0914
Lat: 33°46.4653	Long: 118°14.8258
Tide ft: 5.5	Water Depth ft: 8.2
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 5	Start/End Time: 0945
Lat: 33°46.4673	Long: 118°14.8103
Tide ft: 5.8	Water Depth ft: 8.2m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 6	Start/End Time: 1017
Lat: 33°46.4696	Long: 118°14.8158
Tide ft: 5.9	Water Depth ft: 8.5m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 7	Start/End Time: 1054
Lat: 33°46.4715	Long: 118°14.8132
Tide ft: 5.9	Water Depth ft: 8.5 m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 8	Start/End Time: 1118
Lat: 33°46.4409	Long: 118°14.8646
Tide ft: 5.7	Water Depth ft: 8.3
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:

Surface Sediment and Polychaete Collection Field Log

Grab 9	Start/End Time: 1143
Lat: 33°46.4356	Long: 118° 14.8619
Tide ft: 5.6	Water Depth ft: 5.3m
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 10	Start/End Time: 1214
Lat: 33°46.4401	Long: 118°14.8661
Tide ft: 5.4	Water Depth ft: 5.2
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 11	Start/End Time: 1335
Lat: 33°46.4679	Long: 118°14.8642
Tide ft: ~~4ft~~ 3.8	Water Depth ft: 7.8
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 12 ~~8ft~~	Start/End Time: 1354
Lat: 33°46.4426	Long: 118° 14.8612
Tide ft: ~~3ft~~	Water Depth ft: 7.6
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 13	Start/End Time: 1417
Lat: 33°46.4317	Long: ~~14~~ 118° 14.8623
Tide ft: 2.8	Water Depth ft: 7.3
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 14	Start/End Time: 1445
Lat: 33°46.4415	Long: 118°14.8633
Tide ft: ~~2ft~~ 2.3	Water Depth ft: 7.3
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Grab 15	Start/End Time:
Lat:	Long:
Tide ft:	Water Depth ft:
MLLW (Depth – Tide) ft:	Mudline (Tide + Depth) ft:
Porewater Sample ID:	
Sediment Sample IDs: NA	
Sediment Notes (Sediment type, odor, color, shell hash):	

Surface Sediment and Polychaete Collection Field Log

Final Tissue Masses (g): Polychaete: 78 Non-polychaete: Other Deposit Feeding Benthic: Other Organisms ≥2 cm in length: 99 Other Organisms <2 cm in length: <1g
Tissue Notes: - ghost shrimp, crabs, clams
Tissue Sample IDs: CS-WO-27-PW-20141026-PLY-OUP ->2CM-OUP <2CM-OUP

Appendix A-3

Site Photographs Logs

Photo 1: Example of polychaete tissues collected

C p

Photo 2: Largest single polychaete collected during sampling efforts.

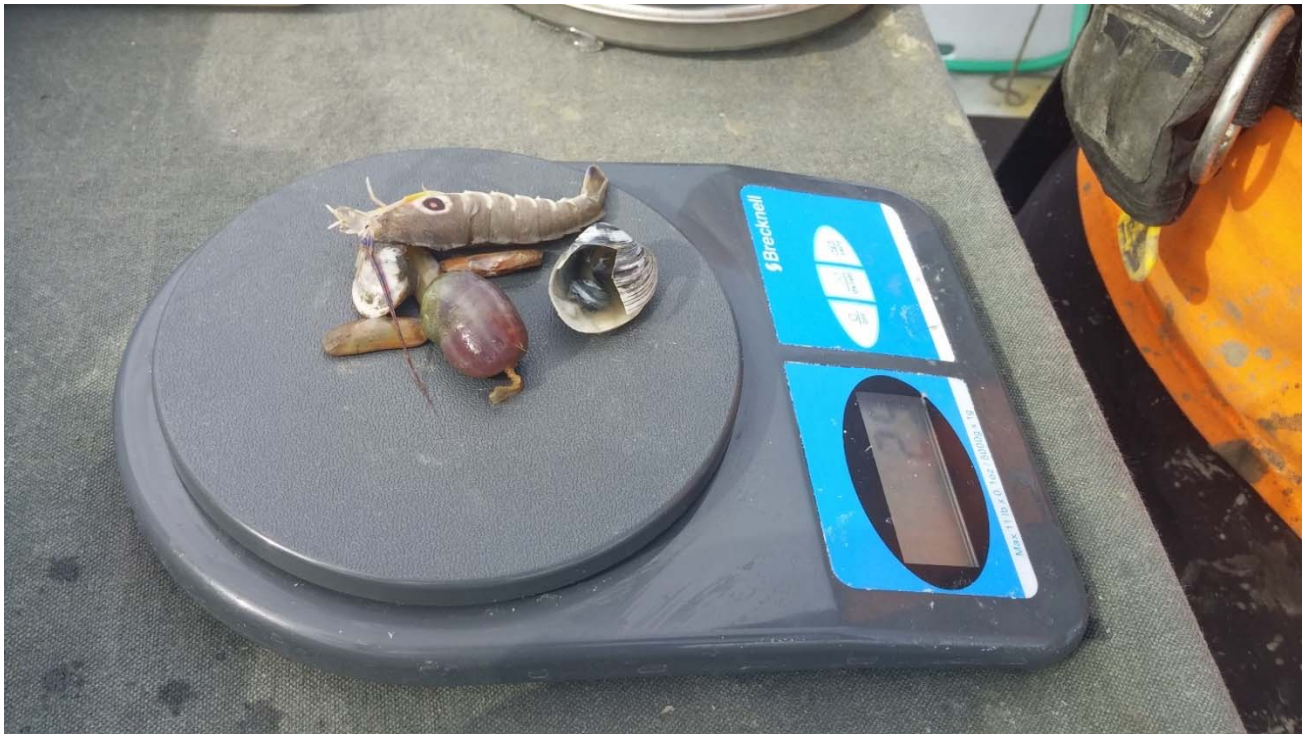

Photo 3: Representation of some other benthic invertebrate species collected.

Photo 4: Field centrifuge and porewater filtering set up.

Photo 5: Grab sample at Station OA-01

Photo 6: Grab sample at Station IA-02

Photo 7: Grab Sample at Station IA-03

Photo 8: Grab sample at Station FH-04.

Photo 9: Grab sample at Station FH-05

Photo 10: Grab sample at Station FH-06

Photo 11: Grab sample at Station IA-07.

Photo 12: Grab sample at Station IA-08.

Photo 13: Grab sample at Station IA-09.

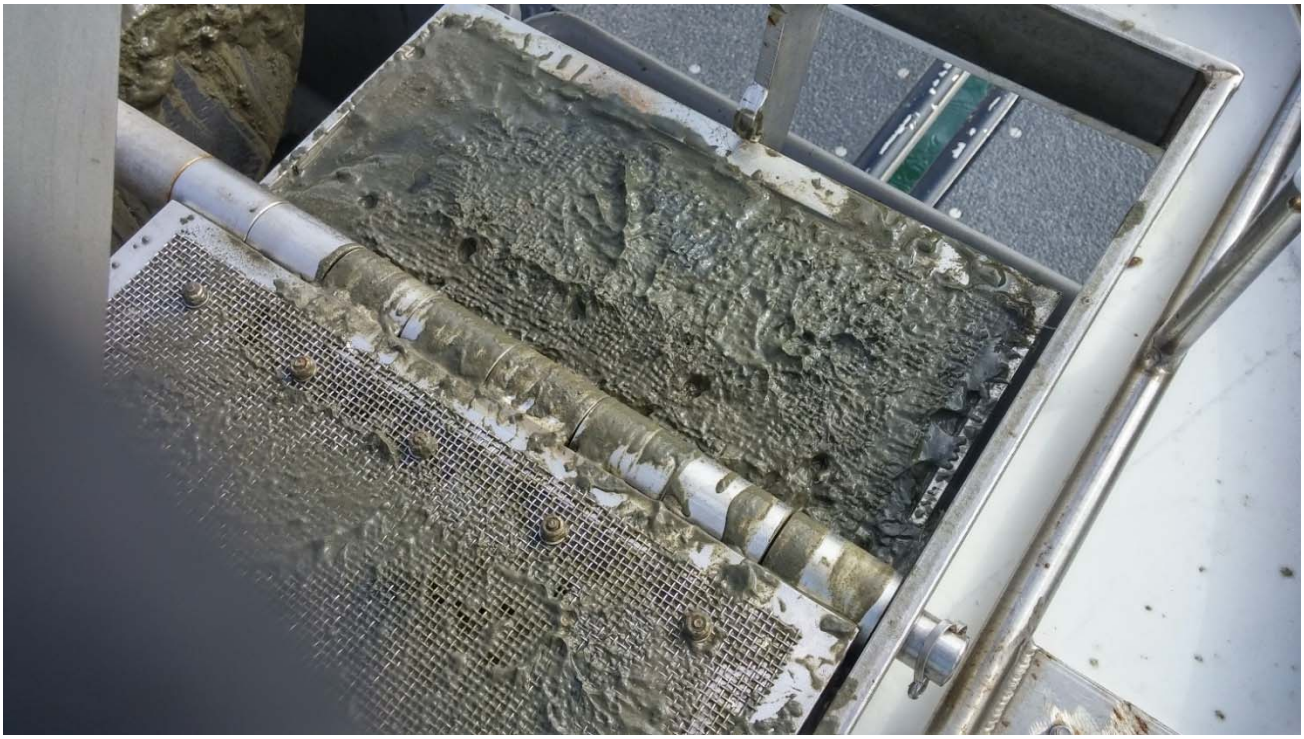

Photo 14: Grab sample at Station IB-10

Photo 15: Grab sample at Station IB-11

Photo 16: Grab sample at Station IB-12

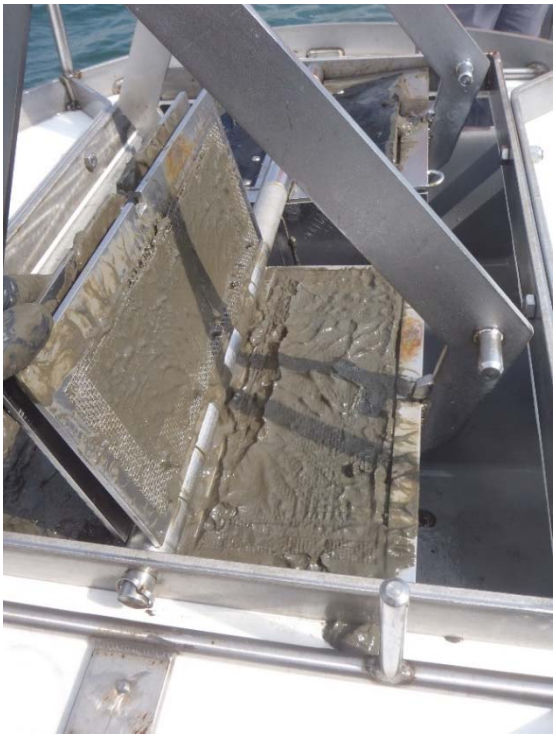

Photo 17: Grab sample at Station SP-13

Photo 18: Grab sample at Station SP-14

Photo 19: Grab sample at Station SP-15

Photo 20: Grab sample at Station OB-16

Photo 21: Grab sample at Station OA-17.

Photo 22: Grab sample at Station OA-18

Photo 23: Grab sample at Station AG-19

Photo 24: Grab sample at Station OA-20

Photo 25: Grab sample at Station OA-21

Photo 26: Grab sample at Station AG-22

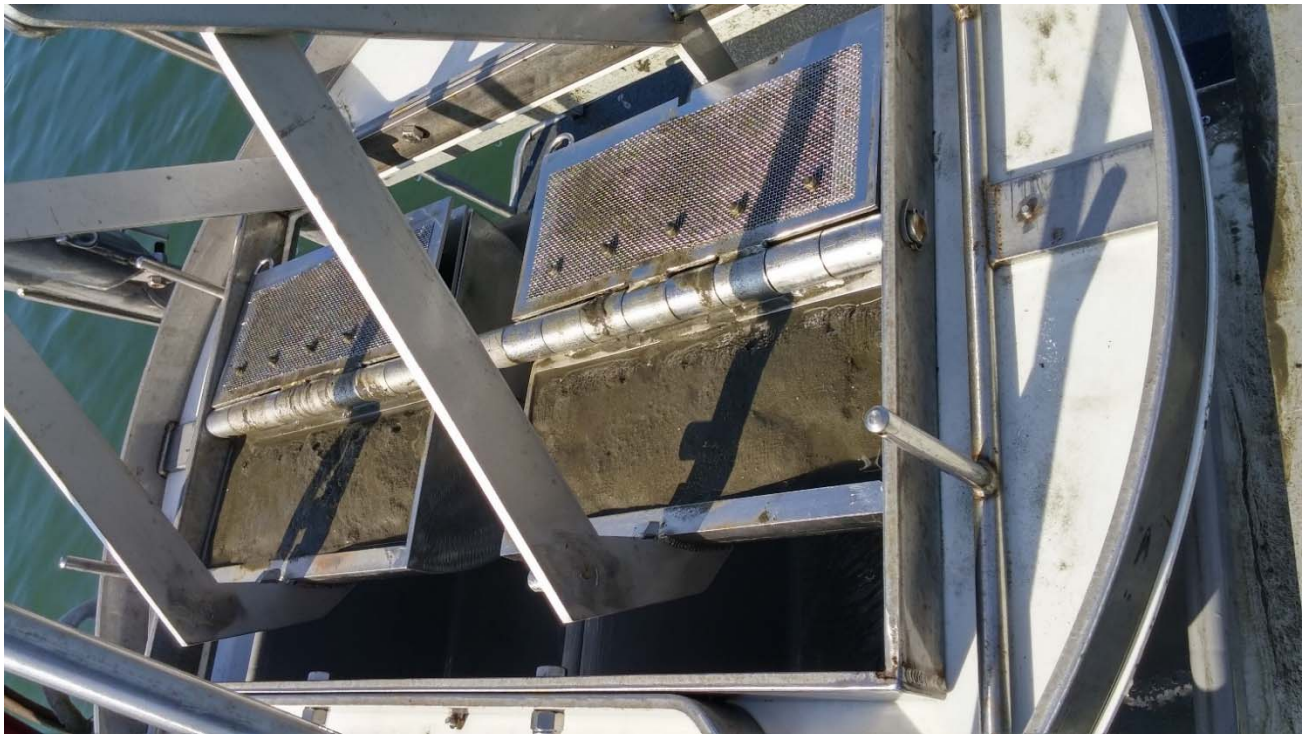

Photo 27: Grab sample at Station CB-24

Photo 28: Grab sample at Station FH-25

Photo 29: Grab sample at Station IA-26

Photo 30: Grab sample at Station CS-27

Photo 31: Grab sample at Station CS-28

Photo 32: Grab sample at Station IB-29

Photo 33: Grab sample at Station IB-30

Photo 34: Grab sample at Station IA-31

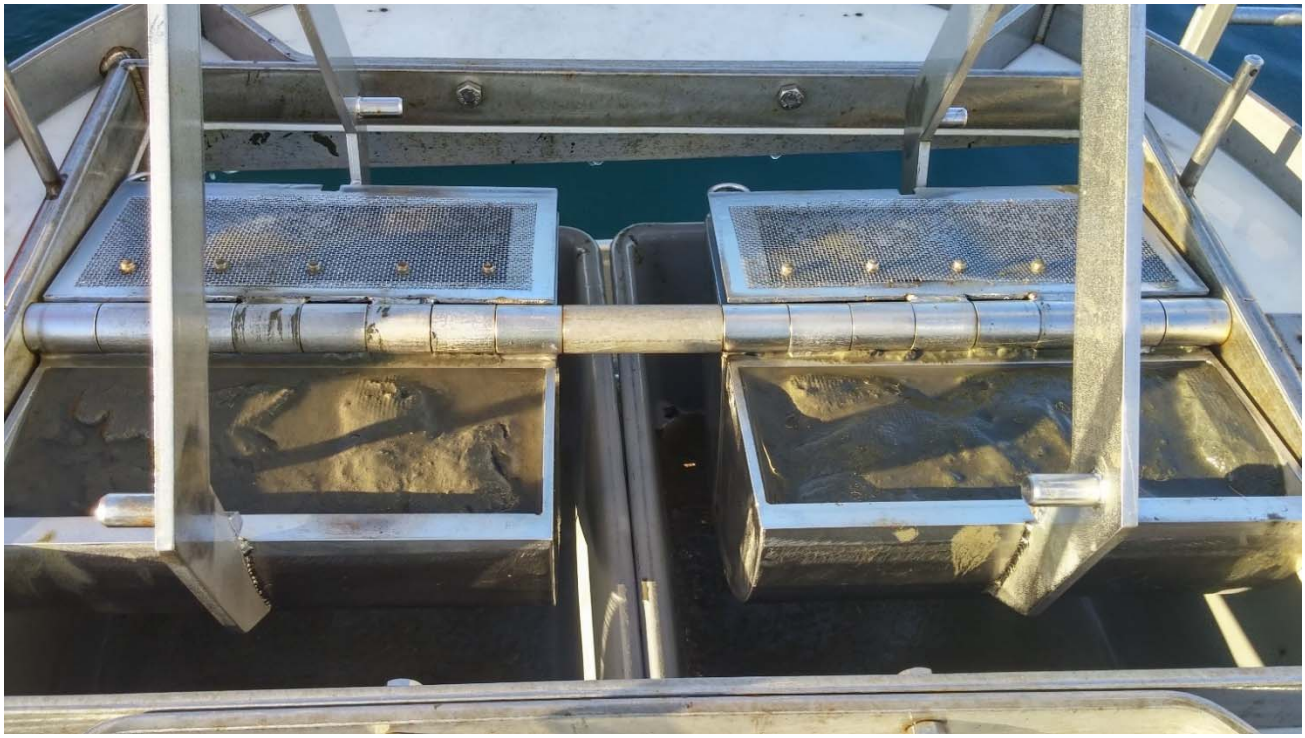

Photo 35: Grab sample at Station OB-32

Photo 36: Grab sample at Station OA-33

Appendix A-4

Ramboll Environ Chains of Custody

ENVIRON — CHAIN OF CUSTODY — No. 10555

18100 Von Karman Ave., Suite 600
Irvine, CA 92612
(949) 261-5151
(949) 261-6202 (fax)

707 Wilshire Blvd., Suite 4950
Los Angeles, Calif. 90017
(213) 943-6300
(213) 943-6301 (fax)

1702 E Highland Avenue, Suite 412
Phoenix, AZ 85016
(602) 734-7700
(602) 734-7701 (fax)

PROJECT NAME / FACILITY ID: POLA/POLB Sed/Poly Study
PROJECT NUMBER: 043310A09 DATE: 10-16-14 & 10-17-14
PROJECT LOCATION: POLA/POLB
IS THIS A UST PROJECT OR IS EDF REQUIRED? Y N IF YES, GLOBAL ID #:

MSA#: WO#:
FIELD PERSON: Teagan Loew
PROJECT MANAGER: Jason Conder
LABORATORY: Cal Science

SAMPLE I.D. NUMBER	SAMPLE DATE (YEAR)	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: Bulk Density	Specific Gravity	Total Solids	[illegible]	TOC	[illegible]	Organochlorine Pesticides	PCB congeners key Low Resolution			COMMENTS
EB-20141016-LPDX	10/16	11:35		/	W	5	U	NO							X	X			* See attached table
OA-SS-01-0-5-141016-BDSG	10/16	1611		/	S	1	U	NO	X	X									
SP-SS-13-0-5-141016-BDSG	10/16	1155		/	S	1	U	NO	X	X									Christians
SP-SS-14-0-5-141016-BDSG	10/16	1220		/	S	1	U	NO	X	X									dmoore@environcorp.com
SP-SS-15-0-5-141016-BDSG	10/16	1325		/	S	1	U	NO	X	X									
OB-SS-16-0-5-141016-BDSG	10/16	1355		/	S	1	U	NO	X	X									
OA-SS-17-0-5-141016-BDSG	10/16	1440		/	S	1	U	NO	X	X									
OA-SS-18-0-5-141016-BDSG	10/16	1501		/	S	1	U	NO	X	X									
OA-SS-20-0-5-141016-BDSG	10/16	1520		/	S	1	U	NO	X	X									
OA-SS-21-0-5-141016-BDSG	10/16	1545		/	S	1	U	NO	X	X									
OA-SS-01-0-5-141016-CHEM	10/16	1611		/	S	1	U	NO			X		X		X				
SP-SS-13-0-5-141016-CHEM	10/16	1155		/	S	1	U	NO			X		X		X				
SP-SS-14-0-5-141016-CHEM	10/16	1220		/	S	1	U	NO			X		X		X				
TOTAL	X	X	X			17			9	9	3		3		4	1			

SAMPLER:
SIGNATURE:

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
Teagan Loew	6:00 AM / 10-17-14		
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY / 24 HOURS / 48 HOURS / 72 HOURS / 5 DAYS / (NORMAL)

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

H = HCL; N = HNO_3; S = H_2SO_4; U = UNKNOWN; NO = NONE; O = OTHER

FILE: LOG FORMS\Chain_of_Custody

ENVIRON — CHAIN OF CUSTODY — No. 10550

18100 Von Karman Ave., Suite 600
Irvine, CA 92612
(949) 261-5151
(949) 261-6202 (fax)

707 Wilshire Blvd., Suite 4950
Los Angeles, Calif. 90017
(213) 943-6300
(213) 943-6301 (fax)

1702 E Highland Avenue, Suite 412
Phoenix, AZ 85016
(602) 734-7700
(602) 734-7701 (fax)

PROJECT NAME / FACILITY ID: POLA/POLB Sed/Poly Study
PROJECT NUMBER: 0433310A09 DATE: 10-16-14
PROJECT LOCATION: POLA/POLB
IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #:

MSA#: WO#:
FIELD PERSON: Teagan Loew
PROJECT MANAGER: Jason Conder
LABORATORY: CalScience

SAMPLER: / SIGNATURE: / SAMPLE I.D. NUMBER	YEAR / SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: Total Solids	TOC	Organochlorine Pesticides	Grain Size							COMMENTS
SP-SS-15-0-5-141016-CHEM	10/16	1325		/	S	1	U	No	X	X	X								* See attached table
DB-SS-16-0-5-141016-CHEM	10/16	1355		/	S	1	U	No	X	X	X								
DA-SS-17-0-5-141016-CHEM	10/16	1440		/	S	1	U	No	X	X	X								Questions
DA-SS-18-0-5-141016-CHEM	10/16	1501		/	S	1	U	No	X	X	X								dmoore Geneiumcorp.com
DA-SS-20-0-5-141016-CHEM	10/16	1520		/	S	1	U	No	X	X	X								
DA-SS-21-0-5-141016-CHEM	10/16	1545		/	S	1	U	No	X	X	X								
DA-SS-01-0-5-141016-GS	10/16	1611		/	S	1	U	No				X							
SP-SS-13-0-5-141016-GS	10/16	1155		/	S	1	U	No				X							
SP-SS-14-0-5-141016-GS	10/16	1220		X	S	1	U	No				X							
SP-SS-15-0-5-141016-GS	10/16	1325		/	S	1	U	No				X							
DB-SS-16-0-5-141016-GS	10/16	1355		/	S	1	U	No				X							
DA-SS-17-0-5-141016-GS	10/16	1440		/	S	1	U	No				X							
DA-SS-18-0-5-141016-GS	10/16	1501		/	S	1	U	No				X							
TOTAL	X	X	X			13			6	6	6	7							

RELINQUISHED BY: Teagan Loew TIME/DATE: 6:00pm / 10-17-14 — RECEIVED BY: (COMPANY): TIME/DATE:
RELINQUISHED BY: TIME/DATE: — RECEIVED BY: (COMPANY): TIME/DATE:
RELINQUISHED BY: TIME/DATE: — RECEIVED BY: (COMPANY): TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY / 24 HOURS / 48 HOURS / 72 HOURS / 5 DAYS / (NORMAL)

SAMPLE INTEGRITY — INTACT: Y N Temp
IF SEALED, SEAL INTEGRITY — INTACT: Y N

O = OTHER; NO = NONE; U = UNKNOWN; S = H_2SO_4; N = HNO_3; H = HCL;

FILE: LOG FORMS\Chain_of_Custody

ENVIRON — CHAIN OF CUSTODY — No. 10672

☐ 18100 Von Karman Ave., Suite 600, Irvine, CA 92612, (949) 261-5151, (949) 261-6202 (fax)
☐ 707 Wilshire Blvd., Suite 4950, Los Angeles, Calif. 90017, (213) 943-6300, (213) 943-6301 (fax)
☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

PROJECT NAME / FACILITY ID: POLA/POLB Seal/Poly Study
PROJECT NUMBER: 043331OA09 DATE: 10-16-14
PROJECT LOCATION: POLA/POLB

MSA#: _____ WO#: _____
FIELD PERSON: Teagan Loew
PROJECT MANAGER: Jason Conder
LABORATORY: CalScience

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #: _____

SAMPLER: _____
SIGNATURE: _____

SAMPLE I.D. NUMBER	YEAR / SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED / UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: Grain Size										COMMENTS
OA-SS-20-0-5-141016-GS	10/16	1520		/	S	1	u	No	X										*See attached table
OA-SS-21-0-5-141016-GS	10/16	1545		/	S	1	u	No	X										
																			Questions?
																			dmoore@environcorp.com
TOTAL	X	X	X			2			2										

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
Teagan Loew	6:00 AM / 10-17-14		
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, (NORMAL)

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

O = OTHER; NO = NONE; U = UNKNOWN; S = H_2SO_4; N = HNO_3; H = HCL;

FILE: LOG FORMS\Chain_of_Custody

ENVIRON — CHAIN OF CUSTODY № 10523

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☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

PROJECT NAME / FACILITY ID: POLA/POLB Sed/Poly Study
PROJECT NUMBER: 04-37310A09 DATE: 10-20-14
PROJECT LOCATION: POLA/POLB
IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #:

MSA#: WO#:
FIELD PERSON: Teagan Low
PROJECT MANAGER: Jon Conder
LABORATORY: Calscience

SAMPLER: Teagan Low
SIGNATURE:

SAMPLE I.D. NUMBER	SAMPLE DATE (YEAR 2014)	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: Bulk density/ ASTM D2937	Specific gravity/ ASTM D854	Total solids/ SM 2540B/USEPA 1663	Total organic carbon SM 5310B/USEPA 9060A	DDX/ USEPA 8081B/8270C	Grain size/ ASTM D422/PSH 2560	DOC in porewater/ SM 5310B	Low resolution TBT/ 8270C/8270D-SIM			COMMENTS
AG-SS-19-0-5-20141017-Chem	10-17	824			S	1	U	N			X	X	X						Level 4
AG-SS-19-0-5-20141017-BDSG	10-17	824			S	1	U	N	X	X									data package
AG-SS-19-0-5-20141017-GS	10-17	824			S	1	U	N						X					Questions
AG-PW-19-0-5-2014 17-	10-17	824			SW	1	F	H							X				Dmoore@environcorp.com
AG-SS-22-0-5-20141017-Chem	10-17	905			S	1	U	N			X	X	X						
AG-SS-22-0-5-20141017-BDSG	10-17	905			S	1	U	N	X	X									
AG-SS-22-0-5-20141017-GS	10-17	905			S	1	U	N						X					
AG-PW-22-0-5-20141017-	10-17	905			W	1	F	H							X				
FH-SS-25-0-5-20141017-Chem	10-17	1255			S	1	U	N			X	X	X			X			
FH-SS-25-0-5-20141017-BDSG	10-17	1255			S	1	U	N	X	X									
FH-SS-25-0-5-20141017-GS	10-17	1255			S	1	U	N						X					
FH-SS-25-0-5-20141017-	10-17	1255			W	1	F	H							X				
TOTAL	X	X	X			12			3	3	3	3	3	3	3	1			

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
	10-21-14		
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, (NORMAL)

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

H = HCL; N = HNO_3; S = H_2SO_4; U = UNKNOWN; NO = NONE; O = OTHER

FILE: LOG FORMS\Chain_of_Custody

ENVIRON — CHAIN OF CUSTODY — № 10524

PAGE 2 of 6

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☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

MSA#: _____ WO#: _____

PROJECT NAME / FACILITY ID: POLA/POLB Sed/Poly Study

PROJECT NUMBER: 043331GA09 DATE: 10-20-14

PROJECT LOCATION: POLA/POLB

FIELD PERSON: Teagan Law

PROJECT MANAGER: Jason Conder

LABORATORY: Calscience

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #: _____

SAMPLER: Teagan Law

SIGNATURE:

SAMPLE I.D. NUMBER	SAMPLE DATE (YEAR 2014)	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: Bulk Density ASTM D2937	Specific gravity ASTM D854	Total Solids SM 2540 B	Total Organic Carbon SM 5310 B / USEPA 1669	DDX / US EPA 8081A	Grain Size ASTM D422	DOC in Porewater SM 5310 B	Lipids / NOAA 1993 Gravimetric	TPH as PCBs / US EPA 1668	COMMENTS
FH-WO-PW-25-0-10-20141017-DUP	10-17	1255	-	-	GT	1	U	N			X		X			X	X	Level 4 data
FH-WO-PW-25-0-10-20141017-72 cm	10-17	1255	-	-	T	1	U	N			X		X			X	X	package
FH-WO-PW-25-0-10-20141017-42 cm	10-17	1255	-	-	T	1	U	N			X		X			X	X	
IA-SS-03-0-5-20141017-Chem		1502			S	1	U	N			X	X	X					Questions:
IA-SS-03-0-5-20141017-BD56		1502			S	1	U	N	X	X								d.moore@environcorp.com
IA-SS-03-0-5-20141017-GS		1502			S	1	U	N						X				* Matrix T = tissue
IA-SS-03-0-5-20141017-		1502			W	1	F	H							X			**HOLD all tissue
FH-SS-06-0-5-20141017-Chem		1348			S	1	U	N			X	X	X					
FH-SS-06-0-5-20141017-BD56		1348			S	1	U	N	X	X								
FH-SS-06-0-5-20141017-GS		1348			S	1	U	N						X				
FH-SS-06-0-5-20141017-		1348			W	1	F	H							X			
FH-SS-04-0-5-20141017-Chem		1535			S	1	U	N			X	X	X					
FH-SS-04-0-5-20141017-BD56		1535			S	1	U	N	X	X								
TOTAL	X	X	X			13			3	3	6	3	6	2	2		3	3	

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
	10-21-14		
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, NORMAL

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

U = UNKNOWN; NO = NONE; O = OTHER; S = H_2SO_4; N = HNO_3; H = HCL;

FILE: LOG FORMS\Chain_of_Custody

ENVIRON

CHAIN OF CUSTODY № 10526

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☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

PROJECT NAME / FACILITY ID: POLA / POLB Sed / Poly Study

PROJECT NUMBER: 0433310A09

DATE: 10-20-14

PROJECT LOCATION: POLA / POLB

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y N IF YES, GLOBAL ID #:

MSA#:

WO#:

FIELD PERSON: Teagan Loew

PROJECT MANAGER: Jason Conder

LABORATORY: Cal Science

SAMPLER: Teagan Loew

SIGNATURE: [signature]

YEAR: 2014

SAMPLE I.D. NUMBER	SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: Bulk density / ASTM D2937	Specific gravity / ASTM D854	Total Solids / SM 2540B / USEPA 160.3	Total organic carbon / SM 5310B / USEPA 9060A	DDX / USEPA 8081A / 8270C	Grain size / ASTM D4464 / SM 2560	DOC in porewater / SM 5310B	Low res PCBs / 8270C / 8270 D-SIM			COMMENTS
FH-SS-04-0-5-20141017-GS	10-17	1535	-		S	1	U	N						X					Level 4 data package
FH-SS-04-0-5-20141017-	10-17	1535		-	W	1	F	H							X				
IA-SS-02-0-5-20141017-Chem	10-17	1520	-	-	S	1	U	N			X	X	X						[illegible]: Dispose @ caution
IA-SS-02-0-5-20141017-BDSG	10-17	1520	-	-	S	1	U	N	X	X									cust. [illegible]
IA-SS-02-0-5-20141017-GS	10-17	1520	-	-	S	1	U	N						X					
IA-SS-02-0-5-20141017	10-17	1520	-	-	W	1	F	H							X				
IA-SS-31-0-5-20141018-	10-18	1135	-	-	W	1	F	H							X				
IA-SS-31-0-5-20141018 - dup	10-18	1135	-	-	W	1	U	N							X				
IA-SS-31-0-5-20141018-Chem	10-18	1135	-	-	S	1	U	N			X	X	X		●	X			
IA-SS-31-0-5-20141018-Chem-dup	10-18	1135	-	-	S	1	U	N			X	X	X			X			
IA-SS-31-0-5-20141018-BDSG	10-18	1135	-	-	S	1	U	N	X	X									
IA-SS-31-0-5-20141017-BDSG dup	10-17	1135	-	-	S	1	U	N	X	X									
TOTAL	X	X	X			12			3	3	3	3	3	2	4	2			

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
[signature]	10-21-14		

TURNAROUND TIME (CIRCLE ONE): SAME DAY / 24 HOURS / 48 HOURS / 72 HOURS / 5 DAYS / NORMAL (circled: NORMAL)

SAMPLE INTEGRITY — INTACT: Y N Temp________

IF SEALED, SEAL INTEGRITY — INTACT: Y N

H = HCL; N = HNO_3; S = H_2SO_4; U = UNKNOWN; NO = NONE; O = OTHER

ENVIRON **CHAIN-OF-CUSTODY** № 10527

PAGE 4 of 6

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PROJECT NAME / FACILITY ID: POLA/POLB Sed/Poly Study

PROJECT NUMBER: 0433310A09 DATE: 10-20-14

PROJECT LOCATION: POLA / POLB

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #:

MSA#: WO#:

FIELD PERSON: Teagan Leew

PROJECT MANAGER: Jason Conder

LABORATORY: Cal Science

SAMPLER: Teagan Leew YEAR 2014

SIGNATURE: [signature]

ANALYSIS REQUIRED: (A1) Bulk density / ASTM D2937; (A2) Specific gravity / ASTM D854; (A3) Total solids / SM 2540B / US EPA 160.3; (A4) Total organic carbon / SM 5310B / EPA 9060A; (A5) DDX / US EPA 8081A / 8270C; (A6) Grain size / ASTM D4464 / SM 2560; (A7) DOC in porewater / SM 5310B; (A8) ~~[crossed out]~~

SAMPLE I.D. NUMBER	SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	A1	A2	A3	A4	A5	A6	A7	A8			COMMENTS
IA-SS-31-0-5-20141018-GS	10-18	1135	-	-	S	1	U	N						X					Level 4 data
IA-SS-31-0-5-20141018-GS-dup	10-18	1135	-	-	S	1	U	N						X					package
FH ~~[struck]~~-PW-05-0-5-20141018	10-18	1325	-	-	W	1	U	N							X				
FH-~~[struck]~~SS-05-0-5-20141018-chem	10-18	1325	-	-	S	1	U	N			X	X	X						Questions -
FH-SS-05-0-.5-20141018-BDSG	10-17	1325	-	-	S	1	U	N	X	X									Dmoore@environcorp.com
FH-SS-05-0-5-20141018-GS	10-18	1325	-	-	S	1	U	N						X					
IA-PW-07-0-5-20141018-	10-18	1350	-	-	W	1	U	N							X				
IA-SS-07-0-5-20141018-chem	10-18	1350	-	-	S	1	U	N			X	X	X						
IA-SS-07-0-5-20141018-BDSG	10-18	1350	-	-	S	1	U	N	X	X									
IA-SS-07-0-5-20141018 GS	10-18	1350	-	-	S	1	U	N						X					
IA-PW-08-0-5-20141018 ~~[struck]~~	10-18	1421	-	-	W	1	U	N							X				
IA-SS-08-0-5-20141018-BDSG	10-18	1421	-	-	S	1	U	N	X	X									
IA-SS-08-0-5-20141018 GS	10-18	1421	-	-	S	1	U	N						X					
TOTAL	X	X	X			13			3	3	2	2	2	5	3				

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
[signature]	10-20-14		

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, (NORMAL)

SAMPLE INTEGRITY: INTACT: Y N Temp______

IF SEALED, SEAL INTEGRITY: INTACT: Y N

H = HCL; N = HNO₃; S = H₂SO₄; U = UNKNOWN; NO = NONE; O = OTHER

ENVIRON — CHAIN-OF-CUSTODY № 10875

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☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

PROJECT NAME / FACILITY ID: POLA/POLB Sed/Poly Study
PROJECT NUMBER: 0433310A09 DATE: 10-20-14
PROJECT LOCATION: POLA/POLB
IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #:

MSA#: WO#:
FIELD PERSON: Teagan Lorr
PROJECT MANAGER: Jason Conder
LABORATORY: CalScience

SAMPLER: Teagan Lorr
SIGNATURE: [signature]
YEAR: 2014

SAMPLE I.D. NUMBER	SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	* MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	Bulk density / ASTM D2937	Specific gravity / ASTM D854	Total Solids / SM 2540B/EPA 160.3	Total organic carbon SM 5310B / EPA 9060A	DDX / EPA 8081A / 8270C	Grain size ASTM D4464	DOC in porewater / SM 5310B	Low-res PCBs / EPA 8270C/8270-DSIM	High-res PCBs / USEPA 1668	Lipids/NOAA 1998	Stable Isotopes / EA IRMS	COMMENTS
IA-SS-08-0-5-20141018-chem	10-18	1421	-	-	S	1	U	N			X	X	X							Level 4 data
CS-PW-28-0-5-20141019	10-19	1135	-	-	W	1	F	H							X					package
CS-SS-28-0-5-20141019-chem	10-19	1135	-	-	S	1	U	N			X	X	X			X				
CS-SS-28-0-5-20141019-BDSG	10-19	1135	-	-	S	1	U	N	X	X										Questions:
CS-SS-28-0-5-20141019-GS	10-19	1135	-	-	S	1	U	N						X						Dmoore@environcorp.com
** CS-WO-PW-28-0-10-20141019-PLY	10-19	1135	-	-	T	1	U	N			X		X				X	X	X	* Matrix, T = tissue
** CS-WO-PW-28-0-10-20141019-NPLY	10-19	1135	-	-	T	1	U	N			X		X					X	X	** HOLD all tissue
** CS-WO-PW-28-0-10-20141019->2cm	10-19	1135	-	-	T	1	U	N			X		X					X	X	
** CS-WO-PW-28-0-10-20141019-<2cm	10-19	1135	-	-	T	1	U	N			X		X					X	X	
** CS-WO-PW-27-0-10-20141020-PLY	10-20	930	-		T	1	U	N			X		X					X	X	
** ~~CS-WO-PW-27-0-10-20141020-NPLY~~	~~10-20~~	~~930~~			~~T~~	~~1~~	~~U~~	~~N~~			~~X~~		~~X~~					~~X~~	~~X~~	
** CS-WO-PW-27-0-10-20141020-<2cm	10-20	930	-	-	T	1	U	N			X		X					X	X	
** CS-WO-PW-27-0-10-20141020->2cm	10-20	930	-	-	T	1	U	N			X		X					X	X	
TOTAL	X	X	X			13			1	1	10	2	10	1	1	1	1	8	8	

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
[signature]	10-21-14		

TURNAROUND TIME (CIRCLE ONE): SAME DAY / 24 HOURS / 48 HOURS / 72 HOURS / 5 DAYS / (NORMAL)

SAMPLE INTEGRITY — INTACT: Y N Temp______

IF SEALED, SEAL INTEGRITY — INTACT: Y N

H = HCL; N = HNO3; S = H2SO4; U = UNKNOWN; NO = NONE; O = OTHER

ENVIRON

CHAIN-OF-CUSTODY № 10528

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(213) 943-6301 (fax)

☐ 1702 E Highland Avenue, Suite 412
Phoenix, AZ 85016
(602) 734-7700
(602) 734-7701 (fax)

PROJECT NAME / FACILITY ID: POLA/POLB Sed/Poly Study

PROJECT NUMBER: 0433310A09 DATE: 10-20-14

PROJECT LOCATION: POLA/POLB

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #:

MSA#: WO#:

FIELD PERSON: Teagan Leew

PROJECT MANAGER: Jason Conder

LABORATORY: Calscience

SAMPLER: Teagan Leew

SIGNATURE: [signature]

YEAR: 2014

SAMPLE I.D. NUMBER	SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: Bulk density / ASTM D2937	Specific gravity / ASTM D854	Total solids / SM 2540 B / EPA 160.3	Total organic carbon / SM 5310 B / EPA 9060A	DOX / EPA 2021A / 8270C	Grain Size / ASTM D4464	DOC in porewater / SM 5310 B	Low-level PCBs / EPA 8270C/8270 - DSIM			COMMENTS
CS-SS-27-0-5-20141020	10-20	930	-	-	W	1	F	H							X				Level 4 data package
CS-SS-27-0-5-20141020-Chem	10-20	930	-	-	S	1	U	N			X	X	X			X			
CS-SS-27-0-5-20141020-BDSG	10-20	930	-	-	S	1	U	N	X	X									Questions:
CS-SS-27-0-5-20141020-GS	10-20	930	-	-	S	1	U	N						X					Dmoore@environcorp.com
IA-PW-09-0-5-20141020	10-20	1011	-	-	W	1	F	H											
IA-SS-09-0-5-20141020-Chem	10-20	1011	-	-	S	1	U	N			X	X	X						
IA-SS-09-0-5-20141020-BDSG	10-20	1011	-	-	S	1	U	N	X	X									
IA-SS-09-0-5-20141020-GS	10-20	1011	-	-	S	1	U	N						X					
TOTAL	X	X	X																

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
[signature]	10-21-14		
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY / 24 HOURS / 48 HOURS / 72 HOURS / 5 DAYS / (NORMAL)

SAMPLE INTEGRITY: INTACT: Y N Temp______

IF SEALED, SEAL INTEGRITY: INTACT: Y N

H = HCL; N = HNO_3; S = H_2SO_4; U = UNKNOWN; NO = NONE; O = OTHER

ENVIRON

CHAIN-of-CUSTODY № 10677

PAGE 1 of 3

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- [ ] 707 Wilshire Blvd., Suite 4950, Los Angeles, Calif. 90017, (213) 943-6300, (213) 943-6301 (fax)
- [ ] 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

MSA#: ______ WO#: ______

PROJECT NAME / FACILITY ID: POLA / POLB Polychaete Study

FIELD PERSON: J. Arblaster

PROJECT NUMBER: 0433310A09 DATE: 10·21·2014

PROJECT MANAGER: J. Conder

PROJECT LOCATION: San Pedro

LABORATORY: Calscience

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #: ______

SAMPLER: JA

SIGNATURE: [signature]

SAMPLE I.D. NUMBER	SAMPLE DATE (YEAR)	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: OCP 8081A	PCBs 8270C	Bulk density ASTM D2937	Specific gravity D854	Total Solids SM 2540B	TOC SM 5310B	DOC in porewater SM 5310B	~~Lipids NOAA 1993~~	~~PCBs HRGC (VISTA) 1668~~	Grain size	COMMENTS
1A-PW-26-0-5-20141021	10/21	1635	0-5	—	W	1	F	HCl							X				
1B-PW-10-0.5-20141021	↓	1635	↓	↓	↓	↓	↓	↓							X				Level 4 data
1B-PW-11-0-5-20141021	↓	1635	↓	↓	↓	↓	↓	↓							X				T = tissue
1B-PW-11-0-5-20141021-DUP	↓	1635	↓	↓	↓	↓	↓	↓							X				
1B-PW-12-0-5-20141021	↓	1635	↓	↓	↓	↓	↓	↓							X				
1A-SS-26-0-5-20141021-CHEM	↓	1000	↓	↓	S	1	U	—	X	X			X	X					
1A-SS-26-0-5-20141021-BDSG	↓	1000	↓	↓	↓	↓	↓	↓			X	X							
1A-SS-26-0-5-20141021-GS	↓	1000	↓	↓	↓	↓	↓	↓										X	
1A-~~WO~~-PW-26-0-10-20141021-PLY	↓	1000	6-10	↓	T	↓	↓	↓					~~X~~						HOLD
1A-WO-PW-26-0-10-20141021->2CM	↓	1000	↓	↓	↓	↓	↓	↓											HOLD
1A-WO-PW-26-0-10-20141021-<2CM	↓	1000	↓	↓	↓	↓	↓	↓											HOLD
1B-SS-10-0-5-20141021-CHEM	↓	1030	0-5	↓	S	1	U	—	X				X	X					
1B-SS-10-0-5-20141021-BDSG	↓	1030	↓	↓	↓	↓	↓	↓			X	X							
TOTAL	X	X	X																

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
[signature]	17:03 10/22/14	[signature] (COMPANY): ECI	1703 10/22/14
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, NORMAL

SAMPLE INTEGRITY: INTACT: Y N Temp______

IF SEALED, SEAL INTEGRITY: INTACT: Y N

PRESERVATION KEY: HCL; N = HNO₃; S = H_2SO_4; U = UNKNOWN; NO = NONE; O = OTHER

ENVIRON

CHAIN-of-CUSTODY № 10678

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MSA#: _____ WO#: _____

PROJECT NAME / FACILITY ID: POLA / POLB Polychaete Study

PROJECT NUMBER: 04 33310A09 DATE: 10/21/2014

PROJECT LOCATION: San Pedro

FIELD PERSON: J Ackblaster

PROJECT MANAGER: J Conder

LABORATORY: Calscience

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #: _____

SAMPLER: JA

SIGNATURE:

SAMPLE I.D. NUMBER	YEAR / SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: OCP Boxm	PCB 8270C	Bulk density ASTM D2937	Specific gravity D854	Total solids SM 2540B	TOC SM 5310B	Grain size				COMMENTS
1B-SS-10-0-5-20141021-GS	10/21	1030	0-5	1	S	1	U	1							X				
1B-SS-11-0-5-20141021-CHEM		1100							X				X	X					Level 4 data pack
1B-SS-11-0-5-20141021-BDSG		1100									X	X							
1B-SS-11-0-5-20141021-GS		1100													X				
1B-SS-11-0-5-20141021-CHEM-DUP		1100							X				X	X					
1B-SS-11-0-5-20141021-BDSG-DUP		1100									X	X							
1B-SS-11-0-5-20141021-GS-DUP		1100													X				
1B-SS-12-0-5-20141021-CHEM		1115							X				X	X					
1B-SS-12-0-5-20141021-BDSG		1115									X	X							
1B-SS-12-0-5-20141021-GS		1115													X				
1B-SS-29-0-5-20141022-CHEM	10/22	0930							X	X			X	X					
1B-SS-29-0-5-20141022-BDSG		0930									X	X							
1B-SS-29-0-5-20141022-GS		0930													X				
TOTAL	X	X	X																

RELINQUISHED BY: _____ TIME/DATE: 17:03 10/22/14

RECEIVED BY: _____ (COMPANY): ECI TIME/DATE: 1703 10/22/14

RELINQUISHED BY: _____ TIME/DATE: _____

RECEIVED BY: _____ (COMPANY): _____ TIME/DATE: _____

RELINQUISHED BY: _____ TIME/DATE: _____

RECEIVED BY: _____ TIME/DATE: _____

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, NORMAL

SAMPLE INTEGRITY: INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY: INTACT: Y N

U = UNKNOWN; NO = NONE; O = OTHER; S = H_2SO_4; N = HNO_3; = HCL;

ENVIRON CHAIN-of-CUSTODY № 10822

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MSA#: _____ WO#: _____

PROJECT NAME / FACILITY ID: POLA/PDLB Polychaete Study

FIELD PERSON: J. Arblaster

PROJECT NUMBER: 04-33310A09 DATE: 10/21/14 & 10/22/14

PROJECT MANAGER: J. Conder

PROJECT LOCATION: San Pedro

LABORATORY: Calscience

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y N IF YES, GLOBAL ID #: _____

SAMPLER: JA

SIGNATURE: A

SAMPLE I.D. NUMBER	YEAR / SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED / UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: Porewater DOC SM 5310B	DCP/DDTs 8081A	TCLP 8270C	Bulk density ASTM D2937	Specific gravity D854	Total solids SM 2540B	TOC SM 5310B	Grain size			COMMENTS
1B-PW-29-0-5-20141022	10/22	1530	0-5	—	W	1	F	HCl	X										
1B-WO-PW-29-0-10-20141022-PLY		0930	0-10	—	T	2	U	—		HOLD									Level 4 data
1B-WO-PW-29-0-10-20141022-NPLY		0930	0-10			1				HOLD									T = tissue
1B-WO-PW-29-0-10-20141022->2CM		0930	0-10			2				HOLD									
1B-WO-PW-29-0-10-20141022-<2CM		0930	0-10			2				HOLD									
CB-PW-24-0-5-20141022	10/22	1530	0-5	—	W	1	F	HCl	X										dmoore@environcorp.com
CB-SS-24-0-5-20141022-CHEM		1430			S	1	U	—		X	X			X	X				if questions.
CB-SS-24-0-5-20141022-BDSG												X	X						
CB-SS-24-0-5-20141022-GS																X			
CB-WO-PW-24-0-10-20141022-PLY			0-10		T	1	U	—		HOLD									
CB-WO-PW-24-0-10-20141022-ENTC			6-10		T	1	U	-		HOLD									
TOTAL	X	X	X																

RELINQUISHED BY: TIME/DATE: 17:03 10/22/14

RECEIVED BY: (COMPANY): TIME/DATE: 17:03 10/22/14

RELINQUISHED BY: TIME/DATE:

RECEIVED BY: (COMPANY): TIME/DATE:

RELINQUISHED BY: TIME/DATE:

RECEIVED BY: TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, NORMAL

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

O = OTHER; NO = NONE; U = UNKNOWN; S = H_2SO_4; N = HNO_3; HCL;

ENVIRON CHAIN-of-CUSTODY

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☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

MSA#: _____ WO#: _____

PROJECT NAME / FACILITY ID: POLA/POLB Sed/Poly Study

FIELD PERSON: Teagan Loew

PROJECT NUMBER: 0433310A09 DATE: 10/22/2014

PROJECT MANAGER: Jason Conder

PROJECT LOCATION: POLA/POLB

LABORATORY: CalScience

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y N IF YES, GLOBAL ID #: _____

SAMPLER: Teagan Loew

SIGNATURE:

SAMPLE I.D. NUMBER	YEAR 2014 SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED / UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: DOC in Porewater SM 5310B	COMMENTS
SP-PW-13-0-5-141016	10-16	1155			W	1	F	H	X	Level 4 Data Package
SP-PW-14-0-5-141016	10-16	1220			W	1	F	H	X	
OA-PW-17-0-5-141016	10-16	1322			W	1	F	H	X	*Hold PW-20-dup - do not analyze
SP-PW-15-0-5-141016	10-16	1325			W	1	F	H	X	until further notice
OB-PW-16-0-5-141016	10-16	1355			W	1	F	H	X	
OA-PW-18-0-5-141016	10-16	1501			W	1	F	H	X	
OA-PW-20-0-5-141016	10-16	1520			W	1	F	H	X	
*PW-20-dup	10-16	1520			W	1	F	H	X	
OA-PW-21-0-5-141016	10-16	1545			W	1	F	H	X	
OA-PW-01-0-5-141016	10-16	1611			W	1	F	H	X	
TOTAL	X	X	X			10			10	

RELINQUISHED BY: TIME/DATE: 10-21-2014 | RECEIVED BY: (COMPANY): TIME/DATE:

RELINQUISHED BY: TIME/DATE: | RECEIVED BY: (COMPANY): TIME/DATE:

RELINQUISHED BY: TIME/DATE: | RECEIVED BY: (COMPANY): TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, X-- NORMAL

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

H = HCL; N = HNO_3; S = H_2SO_4; U = UNKNOWN; NO = NONE; O = OTHER

ENVIRON CHAIN-of-CUSTODY № 10823

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☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

PROJECT NAME / FACILITY ID: POLA / POLB Polychaete Study
PROJECT NUMBER: 04-33310A09 DATE: Oct 23 - 26, 2014
PROJECT LOCATION: San Pedro
IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #:

MSA#: WO#:
FIELD PERSON: J. Arblaster
PROJECT MANAGER: J. Conder
LABORATORY: Calscience

SAMPLER: JA
SIGNATURE:

SAMPLE I.D. NUMBER	YEAR 2014 SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: OCP/DDX 8081A	PCB 8270C	TOC SM 5310B/9060A	Total Solids SM 2540B	Bulk density/ 160.3 ASTM D2937	Specific Gravity ASTM D854	Grain size ASTM D4464/D422	DOC in porewater SM 5310B			COMMENTS
1B-PW-30-0-5-20141023	10/23	~~1700~~ 1545	0-5		W	1	F	HCl								X			
1B-SS-30-0-5-20141023-CHEM		15/15			S	1	U	—	X	X	X	X							Level 4 data pack
1B-SS-30-0-5-20141023-BDSG					S	1							X	X					
1B-SS-30-0-5-20141023-GS					S	1									X				
1B-WO-PW-30-0-10-20141023-PLY			0-10		T	2			HOLD										T=tissue.
1B-WO-PW-30-0-10-20141023-72CM			↓		T	2			HOLD										
1B-WO-PW-30-0-10-20141023-<2CM			↓		T	2	↓	↓	HOLD										
OB-PW-32-0-5-20141024	10/24	~~1700~~ 1140	0-5		W	1	F	HCl								X			
OB-SS-32-0-5-20141024-CHEM		1100			S	1	U	—	X	X	X	X							
OB-SS-32-0-5-20141024-BDSG					S	1													
OB-SS-32-0-5-20141024-GS			↓		S	1													
OB-WO-PW-32-0-10-20141024-PLY		↓	0-10		T	2	↓	↓	HOLD										
~~OB-WO-PW-32-0-10-20141024-MPLY~~																			
TOTAL	X	X	X																

RELINQUISHED BY: TIME/DATE: 12:45 10/27/14
RECEIVED BY: (COMPANY): ECS TIME/DATE: 1245 10/27/14
RELINQUISHED BY: TIME/DATE:
RECEIVED BY: (COMPANY): TIME/DATE:
RELINQUISHED BY: TIME/DATE:
RECEIVED BY: TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, (NORMAL)

SAMPLE INTEGRITY: INTACT: Y N Temp
IF SEALED, SEAL INTEGRITY: INTACT: Y N

KEY: H = HCl; N = HNO_3; S = H_2SO_4; U = UNKNOWN; NO = NONE; O = OTHER

ENVIRON CHAIN-of-CUSTODY № 10824

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☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

MSA#: _____ WO#: _____

PROJECT NAME / FACILITY ID: POLA/POLB Polychaete Study

FIELD PERSON: J. Ablaster

PROJECT NUMBER: 04-33310A09 DATE: Oct 23-26, 2014

PROJECT MANAGER: J. Conder

PROJECT LOCATION: San Pedro

LABORATORY: Calscience

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #: _____

SAMPLER:

SIGNATURE:

SAMPLE I.D. NUMBER	YEAR / SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: DDT	PCB'S IN KG 8270 C	TOC SM 5310B/9060A	Total Solids SM2540B/160.3	Bulk density ASTM D2937	Specific gravity ASTM D854	Grain size ASTM D4464/D2560	DOC in Porewater SM 5310B			COMMENTS
OB-WO-PW-32-0-10-20141024-72CM	10/24	1100	0-10	—	T	2	U	—	HOLD										
OB-WO-PW-32-0-10-20141024-C2CM		↓	0-10		T	2	↓	↓	HOLD										
OB-PW-33-0-5-20141024		1100	0-5		W	1	F	HCl							X				
OB-SS-33-0-5-20141024-CHEM		1600			S		U	—	X	X	X	X							
OB-SS-33-0-5-20141024-BDSG					S								X	X					
OB-SS-33-0-5-20141024-GS			↓		S										X				
OB-WO-PW-33-0-10-20141024-PLY			6-10		T				HOLD										
OB-WO-PW-33-0-10-20141024-72CM					T				HOLD										
OB-WO-PW-33-0-10-20141024-C2CM		↓	↓		T		↓	↓	HOLD										
OA-PW-23-0-5-20141025		1600	0-5		W		F	HCl							X				
OA-SS-23-0-5-20141025-CHEM	10/25	1200			S		U	—	X	X	X	X							
OA-SS-23-0-5-20141025-BDSG					S								X	X					
OA-SS-23-0-5-20141025-GS	↓	↓	↓	↓	S	↓	↓	↓							X				
TOTAL	X	X	X																

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
	12:45 10/27/14	(COMPANY): Alpha ECE	1245 10/27/14
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
		(COMPANY):	
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, (NORMAL)

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

T = TUBE; P = PLASTIC; J = JAR; A = AMBER; G = GLASS; V = VOA; C = CAN; O = OTHER
U = UNKNOWN; NO = NONE; S = H_2SO_4; N = HNO_3; H = HCL;

ENVIRON

CHAIN-of-CUSTODY № 10825

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☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

MSA#: _____ WO#: _____

PROJECT NAME / FACILITY ID: POLA/POLB Polychaete Study

PROJECT NUMBER: 04.33310A09 DATE: Oct 23-26, 2014

PROJECT LOCATION: San Pedro

FIELD PERSON: J. Arblaster

PROJECT MANAGER: J. Conder

LABORATORY: Calscience

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #: _____

SAMPLER: JA

SIGNATURE:

SAMPLE I.D. NUMBER	YEAR 2014 SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED	COMMENTS
OA-WO-PW-~~23~~-0-10-20141025-PLY	10/25	1200	0-10	—	T	1	U	—	HOLD	
OA-WO-PW-23-0-10-20141025-NPLY					T				HOLD	
OA-WO-PW-23-0-10-20141025->2CM					T				HOLD	T = tissue.
OA-WO-PW-23-0-10-20141025-<2CM		↓			T				HOLD	
OA-WO-PW-24-0-10-20141025-PLY		1660			T				HOLD	Additional mass for previous sample.
CS-WO-PW-27-0-10-20141026-PLY -DUP	10/26	1500			T				HOLD	
CS-WO-PW-27-0-10-20141026->2CM -DUP	10/26	1500			T				HOLD	
CS-WO-PW-27-0-10-20141026-<2CM -DUP	10/26	1500			T				HOLD	
IAWO-PW-26-0-10-20141026-PLY	10/26	1730			T				HOLD	Additional mass for previous sample.
TOTAL	X	X	X							

RELINQUISHED BY: _____ TIME/DATE: 12:45 10/27/14

RECEIVED BY: _____ (COMPANY): Fedex TIME/DATE: 1245 10/27/14

RELINQUISHED BY: _____ TIME/DATE: _____

RECEIVED BY: _____ (COMPANY): _____ TIME/DATE: _____

RELINQUISHED BY: _____ TIME/DATE: _____

RECEIVED BY: _____ TIME/DATE: _____

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, (NORMAL)

SAMPLE INTEGRITY

INTACT: Y N Temp _____

IF SEALED, SEAL INTEGRITY

INTACT: Y N

C = HCL; N = HNO_3; S = H_2SO; U = UNKNOWN; NO = NONE; O = OTHER

ENVIRON — CHAIN OF CUSTODY — No. 10552

18100 Von Karman Ave., Suite 600
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Los Angeles, Calif. 90017
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(213) 943-6301 (fax)

1702 E Highland Avenue, Suite 412
Phoenix, AZ 85016
(602) 734-7700
(602) 734-7701 (fax)

PROJECT NAME / FACILITY ID: POLA/POLB Sed/Polychaete Study
PROJECT NUMBER: 043331 0A09 DATE: 10-16-14
PROJECT LOCATION: POLA/POLB
IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #:

MSA#: WO#:
FIELD PERSON: Teagan Loew
PROJECT MANAGER: Jason Condor
LABORATORY: Vista

SAMPLER: Teagan Loew
SIGNATURE:

SAMPLE I.D. NUMBER	YEAR 2014 SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: High Resolution PCBs	DDX	Stable Isotopes	COMMENTS
EB-20141016-HPCB	10/16	1130	-	-	W	3	U	N	X	X		* See attached table
[illegible]												
OA-SS-[illegible]												
OA-SS-18-0-5-141016-HPISO	10/16	1501	-	-	SO	1	U	N	X			
SP-SS-14-0-5-141016-HPISO	10/16	1220	-	-	SO	1	U	N	X		X	
SP-SS-15-0-5-141016-HPISO	10/16	1335	-	-	SO	1	U	N	X		X	
OA-SS-01-0-5-141016-HPISO	10/16	1611	-	-	SO	1	U	N	X			
OA-SS-21-0-5-141016-HPISO	10/16	1545	-	-	SO	1	U	N	X			
SP-SS-13-0-5-141016-HPISO	10/16	1155	-	-	SO	1	U	N	X		X	
OA-SS-20-0-5-141016-HPISO	10/16	1520	-	-	SO	1	U	N	X			
OA-SS-17-0-5-141016-HPISO	10/16	1440	-	-	SO	1	U	N	X			
OB-SS-16-0-5-141016-HPISO	10/16	1355	-	-	SO	1	U	N	X			
TOTAL	X	X	X			9			10	1	3	

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
[signature]	6:00AM / 10-17-14		
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, (NORMAL)

SAMPLE INTEGRITY — INTACT: Y N Temp

IF SEALED, SEAL INTEGRITY — INTACT: Y N

O = OTHER; NO = NONE; U = UNKNOWN; S = H_2SO_4; N = HNO_3; H = HCL;

FILE: LOG FORMS\Chain_of_Custody

ENVIRON

CHAIN OF CUSTODY

№ 10521

PAGE 1 of 1

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MSA#: _____ WO#: _____

PROJECT NAME / FACILITY ID: POLA/POLB Scd/Poly Stdy

PROJECT NUMBER: _____ DATE: 10-21-14

PROJECT LOCATION: POLA/POLB

FIELD PERSON: Teagan Law

PROJECT MANAGER: Jason Conder

LABORATORY: Vista

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y N IF YES, GLOBAL ID #: _____

SAMPLER: Teagan Law

SIGNATURE:

SAMPLE I.D. NUMBER	YEAR 2014 SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	* MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED * Archived *	COMMENTS
IA-WO-PW-31-6-10-20141013 - PLY	10-13	1135	-	-	T	1	U	N		* Archive *
IA-WO-PW-31-6-10-20141013 - NPLY	10-13	1135	-	-	T	1	U	N		
IA-WO-PW-31-6-10-20141013 - > 2cm	10-13	1135	-	-	T	1	U	N		* Matrix T = tissue
IA-WO-PW-31-6-10-20141013 - < 2cm	10-13	1135	-	-	T	1	U	N		Level 4 Data Package
										@ucsb.us;
										Dmoore@environcorp.com
TOTAL	X	X	X			4				

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
	10-21-14		
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, NORMAL

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

H = HCL; N = HNO_3; S = H_2SO_4; U = UNKNOWN; NO = NONE; O = OTHER

FILE: LOG FORMS\Chain_of_Custody

ENVIRON — CHAIN OF CUSTODY

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Phoenix, AZ 85016
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(602) 734-7701 (fax)

MSA#: _____ WO#: _____

PROJECT NAME / FACILITY ID: POLA/POLB Sed/Poly Study

FIELD PERSON: Teagan Low

PROJECT NUMBER: _____ DATE: 10-21-14

PROJECT MANAGER: Jason Conder

PROJECT LOCATION: POLA/POLB

LABORATORY: Vista

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y N IF YES, GLOBAL ID #: _____

SAMPLER: Teagan Low

SIGNATURE:

YEAR 2014

SAMPLE I.D. NUMBER	SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: High Resolution PCBs/Cs EPA 1668	Stable Isotopes EA-IRMS										COMMENTS
AG-SS-19-0-5-20141017-HP1SO	10-17	0824			S	2	U	N	X											Level 4
AG-SS-22-0-5-20141017-HP1SO	10-17	905			S	2	U	N	X											data package.
FH-SS-25-0-5-20141017-HP1SO	10-17	1255	-	-	S	1	U	N	X	X										
IA-SS-03-0-5-20141017-HP1SO	10-17	1502	-	-	S	2	U	N	X											Qurstons
FH-SS-06-0-5-20141017-HP1SO	10-17	1348	-	-	S	1	U	N	X											Dmoore@environcorp.com
FH-SS-04-0-5-20141017-HP1SO	10-17	1535	-	-	S	1	U	N	X											
IA-SS-02-0-5-20141017-HP1SO	10-17	1520	-	-	S	1	U	N	X											
IA-SS-31-0-5-20141018-HP1SO	10-18	1135	-	-	S	1	U	N	X	X										
IA-SS-31-0-5-20141018-HP1SO-dup	10-18	1135		-	S	1	U	N	X	X										
FH-SS-05-0-5-20141018-HP1SO	10-18	1325	-	-	S	1	U	N	X											
IA-SS-07-0-5-20141018-HP1SO	10-18	1350	-	-	S	1	U	N	X											
IA-SS-08-0-5-20141018-HP1SO	10-18	1421	-	-	S	1	U	N	X											
FS-SS-28-0-5-20141019-HP1SO	10-19	1135	-	-	S	1	U	N	X	X										
TOTAL	X	X	X			16			12	4										

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
	10-21-14		
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, (NORMAL)

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

O = OTHER; U = UNKNOWN; NO = NONE; S = H_2SO_4; N = HNO_3; H = HCL;

FILE: LOG FORMS\Chain_of_Custody

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Phoenix, AZ 85016
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(602) 734-7701 (fax)

MSA#: _____ WO#: _____

PROJECT NAME / FACILITY ID: PGLA / PGLS Study

PROJECT NUMBER: _____ DATE: 10-21-14

PROJECT LOCATION: PGLA / PGLS

FIELD PERSON: Teagan Law

PROJECT MANAGER: Susan Carter

LABORATORY: Vista

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #: _____

SAMPLER: Teagan Law

SIGNATURE: [signature]

SAMPLE I.D. NUMBER	YEAR 2014 SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: High res PCBs EPA 1668	Stable Isotopes EA-IRMS								COMMENTS
CS-SS-27-0-0.5-20141070-HPISO	10.20	930	-	-	S	1	U	N	X	X								Level 4 data package
IA-SS-09-0-5-20141070-HPISO	1020	1011	-	-	S	1	U	N	X									
																		Dmoore@environcorp.com
TOTAL	X	X	X															

KEY: H = HCL; N = HNO_3; S = H_2SO_4; U = UNKNOWN; NO = NONE; O = OTHER

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
[signature]	10-21-14		
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY: (COMPANY):	TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, (NORMAL)

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

ENVIRON CHAIN-of-CUSTODY № 10820

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(602) 734-7701 (fax)

MSA#: _____ WO#: _____

PROJECT NAME / FACILITY ID: POLA/POLB Polychaete Study

PROJECT NUMBER: 04-33310A09 DATE: 9+21-25 2014

PROJECT LOCATION: San Pedro

FIELD PERSON: J. Ambuter

PROJECT MANAGER: J. Sanders

LABORATORY: Vista Analytical

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y N IF YES, GLOBAL ID #: _____

SAMPLER: J. Ambuter

SIGNATURE:

SAMPLE I.D. NUMBER	YEAR / SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: Hi-Res PCB 1668	ANALYSIS REQUIRED: Stable Isotope C/N									COMMENTS
1A-SS-26-0-5-20141021-HP150	10/21	1000	0-5	–	S	1	U	–	X	X									
1B-SS-10-0-5-20141021-HP150		1030							X										
1B-SS-11-0-5-20141021-HP150		1100							X										
1B-SS-11-0-5-20141021-HP150-DUP		1100							X										
1B-SS-12-0-5-20141021-HP150		1115							X										
1B-SS-29-0-5-20141022-HP150	10/22	0930							X	X									
CB-SS-24-0-5-20141022-HP150	10/22	1430							X	X									
1B-SS-30-0-5-20141023-HP150	10/23	1515							X	X									
0B-SS-32-0-5-20141024-HP150	10/24	1100							X	X									
0B-SS-33-0-5-20141024-HP150	10/24	1600							X	X									
1A-SS-23-0-5-20141025-HP150	10/25	1200							X	X									
TOTAL	X	X	X																

O = OTHER; U = UNKNOWN; NO = NONE; S = H_2SO_4; N = HNO_3; HCL;

RELINQUISHED BY: TIME/DATE: 1200 10/27/14

RECEIVED BY: (COMPANY): TIME/DATE:

RELINQUISHED BY: TIME/DATE:

RECEIVED BY: (COMPANY): TIME/DATE:

RELINQUISHED BY: TIME/DATE:

RECEIVED BY: TIME/DATE:

TURNAROUND TIME (CIRCLE ONE)
SAME DAY
24 HOURS
48 HOURS
72 HOURS
5 DAYS
NORMAL

SAMPLE INTEGRITY
INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY
INTACT: Y N

Appendix B

Analytical Data

Appendix B-1

Analytical Results for Sediment and Porewater Analyses

Appendix B-1: Analytical Results for Sediment and Porewater Analysis
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Analyte	Units	Analytical Results [2]																	
		OA-17	OA-18	AG-19	OA-20	OA-21	AG-22	OA-23	CB-24	FH-25	IA-26	CS-27	CS-28	IB-29	IB-30	IA-31	IA-31 (Duplicate)	OB-32	OB-33
		Conventional																	
Carbon, Total Organic	%	0.094	1.5	0.18	1.8	0.32	0.97	0.87	1.6	2.8	2.6	1.2	5.1	1.2	0.64	0.62	1.4	0.61	0.37
Carbon, Dissolved Organic	mg/L	2.41	2.87	6.99	3.74	2.09	10.26	5.14	3.10	3.35	11.32	7.75	5.11	11.11	4.52	2.90	3.19	7.56	6.49
Solids, Total	%	74.7	55.4	72.5	57.0	72.3	67.0	57.3	59.3	41.2	48.2	38.2	40.3	54.9	53.2	65.8	65.8	61.3	70.0
Clay (less than 0.00391mm)	%	0.92	12.50	0.75	11.53	1.83	3.87	12.21	10.02	18.27	17.34	18.30	11.01	18.00	19.50	8.10	5.67	12.12	8.30
Silt (0.00391 to 0.0625mm)	%	3.64	66.59	2.66	60.53	12.00	25.30	61.21	64.19	66.81	63.60	65.10	59.28	65.79	80.50	38.88	26.31	65.87	58.49
Total Silt and Clay (0 to 0.0625mm)	%	4.56	79.08	3.41	72.07	13.83	29.17	73.42	74.22	85.08	80.94	83.40	70.29	83.79	100.0	46.98	31.98	77.98	66.79
Very Fine Sand (0.0625 to 0.125mm	%	10.30	13.50	9.09	16.31	35.09	39.10	16.90	17.40	7.97	11.30	13.60	16.19	15.10	<0.010	18.29	19.00	18.46	22.40
Fine Sand (0.125 to 0.25mm)	%	40.89	6.31	48.19	9.39	39.39	26.70	9.08	8.29	6.93	7.67	3.00	13.30	1.11	<0.010	29.79	39.61	3.55	10.80
Medium Sand (0.25 to 0.5mm)	%	38.19	1.11	35.40	2.23	10.80	3.38	0.59	0.10	0.020	0.090	<0.010	0.22	<0.010	<0.010	4.87	8.30	<0.010	0.010
Coarse Sand (0.5 to 1mm)	%	6.06	<0.010	3.91	<0.010	0.89	1.61	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.080	1.11	<0.010	<0.010
Very Coarse Sand (1 to 2mm)	%	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Gravel (greater than 2mm)	%	<0.010	<0.010	<0.010	<0.010	<0.010	0.040	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Specific Gravity[1]	--	2.68	2.60	2.68	2.53	2.70	2.65	2.67	2.63	2.49	2.46	2.39	2.39	2.56	2.60	2.68	2.64	2.63	2.71
Bulk Density	g/cc	1.48	0.81	1.53	0.78	1.31	1.07	0.86	0.95	0.47	0.65	0.50	0.49	0.79	0.78	1.14	1.18	0.92	1.18
		Stable Isotopes																	
d13C	--	--	--	--	--	--	--	-21.62	-21.2	-22.6	-24.56	-25.48	-25.71	-23.13	-22.68	-21.63	-21.7	-22.85	-22.00
d15N	--	--	--	--	--	--	--	6.71	6.55	8.45	6.7	6.72	6.36	7.12	7.33	8.49	8.15	7.6	6.54
		Chlorinated Pesticides (EPA 8270C PEST-SIM)																	
2,4'-DDD	µg/kg, dw	<0.065	0.59	0.097	1.3	<0.068	2.3	0.55	<0.81	<0.59	9.5	19	18	<0.89	<0.048	<0.37	<0.37	<0.049	<0.049
2,4'-DDE	µg/kg, dw	0.14	11	0.83	12	0.58	24	4.2	7.6	25	15	13	8.6	2.8	2.7	1.7	1.7	2.0	1.4
2,4'-DDT	µg/kg, dw	<0.043	<0.057	<0.044	<0.056	<0.045	<0.047	<0.032	<0.53	<0.39	<0.066	<0.42	<0.40	<0.59	<0.032	<0.24	<0.24	<0.032	<0.032
4,4'-DDD	µg/kg, dw	0.12	1.9	0.24	4.4	0.21	9.2	1.9	2.3	<0.51	30	77	70	1.9	0.93	0.85	0.69	0.81	0.31
4,4'-DDE	µg/kg, dw	0.86	42	5.9	80	3.4	230	15	42	260	57	170	170	21	9.3	12	11	13	8.0
4,4'-DDT	µg/kg, dw	<0.11	<0.15	<0.11	<0.14	<0.11	2.2	<0.082	<1.4	<0.99	<0.17	<1.1	<1.0	<1.5	<0.081	<0.62	<0.62	<0.081	<0.081
4,4'-DDMU	µg/kg, dw	0.10	7.5	0.72	9.3	0.33	19	2.4	3.6	<0.69	3.3	12	7.7	2.2	1.9	0.98	0.86	1.5	0.94
		High-Resolution PCBs (EPA 1668A)																	
PCB-1	pg/g, dw	<1.39	13.4	3.3	34.9	<0.653	15.7	5.61	4.81	674	36.9	96.4	243	34.3	25.8	10.2	7.47	12.9	4.28
PCB-2	pg/g, dw	2.77	22.2	5.51	29.9	3.54	11.5	17	17.1	88.6	65.7	251	179	22.1	18	10.4	11.9	19	6.77
PCB-3	pg/g, dw	<0.66	7.36	2.78	9.7	<0.929	5.07	4.61	4.66	161	50.2	131	99.6	32.7	18.2	7.39	5.3	8.64	2.59
PCB-4/10	pg/g, dw	<2.92	20.1	2.04	28.3	<4.85	27.5	16.7	34.7	307	78.3	175	158	35.7	41	12.5	15.1	17	6.21
PCB-5/8	pg/g, dw	3.91	204	17.5	266	9.35	314	96.3	134	1070	491	1010	954	198	329	76.2	84	181	70
PCB-6	pg/g, dw	<0.815	28.3	2.44	33.1	<3.57	31.2	15.6	21.2	304	86.6	208	158	34.8	56.1	13	13.9	23.5	9.68
PCB-7/9	pg/g, dw	<2.29	11.6	1.21	12.7	<3.85	13.4	5.97	8.85	117	42	107	91.9	<19.4	21	5.99	6.25	11.3	4.19
PCB-11	pg/g, dw	4.13	109	7.27	84.5	10.3	62.5	101	142	159	382	2260	1700	49.9	48.8	40.4	37.6	47.2	23.5
PCB-12/13	pg/g, dw	<1.99	15.5	<1.27	14.8	<3.44	9.41	10.8	17.7	286	117	267	224	36.4	38.5	9.95	9.52	19.8	5.65
PCB-14	pg/g, dw	<2.14	<5	<1.36	<4.79	<3.7	<1.5	<2.96	<2.57	<23.6	<21	<51.3	<19.3	<18.9	<0.605	<1.49	<2.01	<1.61	<1.56
PCB-15	pg/g, dw	3.17	122	7.54	126	7.25	92.2	101	164	1980	932	1610	1890	289	303	66.7	66.3	119	44.3
PCB-16/32	pg/g, dw	3.93	161	14	210	10.9	260	143	301	2720	1160	2920	1930	212	284	62	69.1	101	44.7
PCB-17	pg/g, dw	1.96	86.9	6.38	97.9	5.09	119	76.6	152	1580	428	1140	892	110	161	33.2	36.7	57.6	25.9
PCB-18	pg/g, dw	3.74	176	12	203	12.8	243	189	424	4340	1080	2770	2250	285	366	75.6	85.8	115	48.6
PCB-19	pg/g, dw	<0.669	17.2	1.75	26.8	<1.7	29.7	19.1	43.6	343	150	385	239	36.7	36.7	7.45	8.89	14.1	4.3
PCB-20/21/33	pg/g, dw	4.89	175	16.1	168	10.3	222	174	255	3700	889	2600	2310	219	451	91.3	94.7	161	68.5
PCB-22	pg/g, dw	<2.2	98.1	7.17	94	5.3	132	97	188	2060	670	2050	1530	127	221	45.3	50.6	72.2	32.6
PCB-23	pg/g, dw	<0.522	<0.655	<0.483	<0.951	<0.594	<0.318	<0.729	<1.05	<8.3	32.8	66.7	<2.73	<3.61	0.447	<0.557	<0.534	<0.725	<0.412
PCB-24/27	pg/g, dw	<0.359	18.7	1.56	24.1	1.55	26.8	18.7	38.3	288	148	402	228	38	37.9	7.61	7.79	16.3	4.9
PCB-25	pg/g, dw	<0.529	36	2.75	36.2	2.64	51.5	33.3	52.4	1590	137	487	322	48.4	87.4	17.5	16.6	28.6	13.7

Appendix B-1: Analytical Results for Sediment and Porewater Analysis
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Analyte	Units	Analytical Results [2]																	
		OA-17	OA-18	AG-19	OA-20	OA-21	AG-22	OA-23	CB-24	FH-25	IA-26	CS-27	CS-28	IB-29	IB-30	IA-31	IA-31 (Duplicate)	OB-32	OB-33
PCB-26	pg/g, dw	1.51	51	2.65	49.5	3.24	64.6	53.2	77.9	2940	325	1280	757	76	125	24.6	26.7	35.3	16.3
PCB-28	pg/g, dw	9.23	365	31.9	483	22.5	640	384	630	6250	1410	3130	3230	406	742	177	164	313	144
PCB-29	pg/g, dw	<0.618	2.27	<0.572	<2.36	<0.703	2.42	1.34	2.1	18.1	<10	21.4	21.2	<4.28	4.91	1.08	<1.12	1.8	<0.764
PCB-30	pg/g, dw	<0.408	<0.368	<0.343	<0.474	<0.427	<0.342	<0.376	<0.492	<4.05	<4.14	<7.25	<2.9	<2.09	0.207	<0.199	<0.274	<0.272	<0.311
PCB-31	pg/g, dw	6.31	242	17.7	285	17	349	245	504	10800	1160	3010	3490	366	564	113	123	206	73.8
PCB-34	pg/g, dw	<0.587	3.72	<0.986	4.49	<0.669	6.42	2.53	3.07	52.4	<9.52	<18.6	33.1	<4.06	4.71	1.3	<1.28	2.87	1.25
PCB-35	pg/g, dw	<0.639	12.4	<0.928	11.3	<0.758	12.8	15.4	23.5	207	62.3	148	150	19.6	26.4	6.8	6.36	13.1	5.05
PCB-36	pg/g, dw	<0.69	5.32	<0.631	3.58	<0.818	3.31	4.88	7.43	<19	<12.6	35.3	29.4	<2.93	2.73	2.04	<0.826	2.65	1.49
PCB-37	pg/g, dw	3.78	118	8.61	124	7.53	123	128	188	2170	833	1950	2240	239	300	58	63.8	125	45.7
PCB-38	pg/g, dw	<0.657	11.1	<0.953	14.8	<0.778	17.2	10.8	12.9	271	201	352	144	23.7	12.3	5.62	4.59	6.87	3.04
PCB-39	pg/g, dw	<0.706	<1.84	<0.646	<1.47	<0.837	2.36	2.01	2.75	23.5	<12.9	17.7	15.3	<4.74	2.61	0.779	<0.847	1.8	<0.524
PCB-40	pg/g, dw	1.97	83.7	4.81	71.3	4.93	91.3	122	183	2120	633	1590	860	201	158	22.3	18.7	59.6	27
PCB-41/64/71/72	pg/g, dw	13	577	38.4	597	37.7	685	548	971	14300	5020	10800	6560	974	979	179	141	338	152
PCB-42/59	pg/g, dw	5.99	237	19.1	274	15	338	197	380	5360	1310	2720	2070	351	369	82.2	74.4	140	68.1
PCB-43/49	pg/g, dw	15.1	731	54.6	837	47.7	1110	683	1230	19700	7300	21400	9740	1220	937	318	299	478	230
PCB-44	pg/g, dw	12.8	567	39	659	37.4	840	530	1160	16700	3340	7640	5830	888	1010	279	231	343	159
PCB-45	pg/g, dw	<1.28	69.7	4.66	89.5	4.6	131	75.5	155	1900	456	1020	834	140	112	28.2	28.6	39.4	20.5
PCB-46	pg/g, dw	<0.648	34.9	2.66	46.1	2.52	74.2	35.2	72.3	1060	337	876	476	72.7	57.6	14.2	13	22.9	8.8
PCB-47	pg/g, dw	7.63	296	22.4	344	20.2	442	261	456	7610	3570	7690	3830	493	503	121	116	190	94.9
PCB-48/75	pg/g, dw	2.88	122	9.46	148	8.04	205	106	198	2670	622	1310	1000	173	182	47.5	45.7	73.4	36.3
PCB-50	pg/g, dw	<0.616	2.55	0.29	2.83	<0.731	3.54	1.91	3.73	45.7	<30.3	63.4	25.3	6.82	2.93	<0.755	0.904	1.65	<0.56
PCB-51	pg/g, dw	0.926	36.4	3.15	46.8	3.65	60.8	43.4	69.7	1180	4180	13700	3600	78.8	61.3	13.3	14.1	22.2	10.2
PCB-52/69	pg/g, dw	14	643	40	706	51.9	924	750	1500	23500	8270	28300	12200	1420	1450	408	325	452	192
PCB-53	pg/g, dw	1.91	87	6.64	116	7.78	171	107	194	2780	2830	8710	2910	208	163	37.9	37.5	66	24.7
PCB-54	pg/g, dw	<0.492	2.32	0.273	5.22	0.616	4.93	5.05	6.26	69.7	675	1550	412	7.95	5.16	1.02	0.993	2.98	<0.809
PCB-55	pg/g, dw	<0.334	17.6	1.3	17	1.41	24.4	17.7	25.8	442	200	447	224	40.9	36.9	8.94	8.31	11.2	4.69
PCB-56/60	pg/g, dw	11.7	536	39.6	675	38.5	936	478	883	15100	3200	6000	5230	828	807	213	206	348	154
PCB-57	pg/g, dw	<0.449	5.27	0.504	5.54	<0.519	2.41	4.94	7.91	156	92.2	341	106	10.9	10.7	0.751	0.861	3.15	1.48
PCB-58	pg/g, dw	<0.474	4.27	0.418	5.08	<0.549	5.53	4.17	5.05	82.2	21.6	26	23.2	6.2	6.72	1.96	1.52	4.48	1.26
PCB-61/70	pg/g, dw	22.5	1030	68.6	1150	74.5	1630	985	1750	29800	5760	11500	9960	1700	1950	540	465	719	312
PCB-62	pg/g, dw	<0.493	<1.05	<0.58	<1.65	<0.569	<1.53	<0.882	<0.865	<11.2	<6.47	<18.3	<6.99	<4.24	<1.11	<0.669	<0.665	<0.855	<0.738
PCB-63	pg/g, dw	1.24	41.7	3.76	52.8	2.91	70.8	35.1	66.7	1040	215	421	339	59.1	66.3	17.9	17.6	30.4	13.5
PCB-65	pg/g, dw	<0.491	<1.04	<0.579	<1.64	<0.568	<1.53	<0.879	<0.863	<11.2	<6.45	<18.2	<6.96	<4.23	<1.1	<0.667	<0.297	<0.852	<0.736
PCB-66/76	pg/g, dw	26.2	1150	93.2	1390	80.4	1880	957	1560	26400	5810	10900	8950	1740	1980	474	455	852	372
PCB-67	pg/g, dw	0.835	26.8	2.15	32	1.79	33.9	22.7	42.6	685	203	466	268	41	48.8	11.6	11.7	18.5	8.09
PCB-68	pg/g, dw	<0.446	7.19	0.493	4.76	<0.516	4.6	6.56	9.15	117	63.3	149	50	17.4	14.6	1.77	1.64	6.47	2.58
PCB-73	pg/g, dw	<0.449	<2.09	<0.533	2.15	<0.524	2.46	<1.68	2.91	<9.9	159	411	109	4.37	<0.972	<0.622	<0.586	1.3	0.6
PCB-74	pg/g, dw	8.76	400	31.1	482	29.2	679	345	636	10800	2190	4150	3530	637	633	173	154	280	120
PCB-77	pg/g, dw	2.67	107	7.5	117	9.8	139	102	166	2570	837	1650	1350	219	172	49.3	48.8	74.8	33.5
PCB-78	pg/g, dw	<0.399	<0.818	<0.42	<1.32	<0.437	<0.984	<0.735	<0.695	<5.92	<5.35	<14.1	<6.21	<4.22	<0.848	<0.457	<0.428	<0.698	<0.528
PCB-79	pg/g, dw	1.01	27.7	2.47	32.1	2.55	33.7	22.5	37.3	670	336	685	288	69.8	55.1	16.1	14.8	19.4	8.11
PCB-80	pg/g, dw	<0.377	<0.808	<0.425	<1.33	<0.406	<0.94	<0.707	<0.699	<6.55	<5.04	<14	<5.34	<3.84	<0.752	<0.432	<0.439	<0.683	<0.513
PCB-81	pg/g, dw	0.927	4.38	0.279	5.69	0.581	10.3	6.55	7.34	341	65.2	89.9	105	17	19.4	2.77	3.13	3.6	1.37
PCB-82	pg/g, dw	4.56	168	12.9	201	13.6	264	205	299	5650	1340	2220	1930	456	440	111	83.5	127	53.1
PCB-83	pg/g, dw	<0.705	<0.637	<0.468	<2.12	<0.726	1.31	<0.82	0.932	<5.37	<9.99	10.7	<6.44	<5.06	1.36	<0.887	<0.515	<0.747	<0.731
PCB-84/92	pg/g, dw	13.3	515	37.9	571	43.7	711	677	1010	16900	5570	11100	6870	1540	1580	387	297	425	173
PCB-85/116	pg/g, dw	<6.64	281	22.2	309	21.6	383	288	421	7580	1870	3060	2650	660	671	169	139	213	89.1
PCB-86	pg/g, dw	<1.27	4.51	<0.844	7.38	<0.645	11	6.04	11.1	514	56.1	130	<11.6	<9.13	<1.87	<1.6	2.33	3.69	<1.32

Appendix B-1: Analytical Results for Sediment and Porewater Analysis
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Analyte	Units	Analytical Results [2]																	
		OA-17	OA-18	AG-19	OA-20	OA-21	AG-22	OA-23	CB-24	FH-25	IA-26	CS-27	CS-28	IB-29	IB-30	IA-31	IA-31 (Duplicate)	OB-32	OB-33
PCB-87/117/125	pg/g, dw	10.5	426	29.7	469	35	619	546	821	15400	3860	6590	5560	1250	1270	343	255	327	133
PCB-88/91	pg/g, dw	5.39	219	18.1	237	17.6	314	256	364	7890	3320	8510	3820	601	639	139	110	180	68.3
PCB-89	pg/g, dw	<0.838	12.3	1.36	17.4	1.07	22.5	15.2	21.5	420	112	156	134	31.8	30.2	6.62	6.1	9.34	3.81
PCB-90/101	pg/g, dw	39.2	1520	107	1630	130	2000	1960	2850	50300	20000	36700	22900	4550	4990	1210	990	1260	519
PCB-93	pg/g, dw	<1.25	<1.12	<0.867	<3.72	<1.23	<1.2	<1.49	<2.07	<10.9	<16.7	<32.1	<11.8	<8.53	<1.81	<1.48	<0.952	<1.4	<1.27
PCB-94	pg/g, dw	<0.999	8.66	1.22	10.7	<0.985	13.9	10.5	14.8	253	727	1490	467	28.2	20.5	5.09	3.46	6.89	2.53
PCB-95/98/102	pg/g, dw	23.3	873	62.7	965	77.6	1180	1220	1810	30400	15900	35300	17100	2780	2780	721	525	771	293
PCB-96	pg/g, dw	<0.770	7.72	<0.529	<2.38	<0.780	<0.917	11	15.5	257	383	1430	322	38.7	19.8	<1.11	<0.751	6.92	2.27
PCB-97	pg/g, dw	11.5	485	35.7	554	39.5	691	551	811	15400	3350	5630	4820	1300	1300	331	266	381	164
PCB-99	pg/g, dw	20.8	783	63.5	886	61.4	1050	833	1200	22400	9760	20000	10500	1960	2180	487	423	641	268
PCB-100	pg/g, dw	<0.935	9.72	1.19	11.2	1.54	12.8	14.7	16.1	376	1570	4020	1520	29.3	36.1	5.94	5.94	8.32	3.77
PCB-103	pg/g, dw	<0.916	19.2	1.96	22.4	1.02	<1.09	24.5	32.4	517	1270	3810	1260	50.3	66.6	<1.32	<0.893	18.3	6.94
PCB-104	pg/g, dw	<0.741	0.706	<0.509	<2.29	<0.749	<0.882	1.29	1.48	23	399	959	306	<4.68	1.35	<0.699	<0.722	<0.842	<0.858
PCB-105	pg/g, dw	15.4	635	46.8	756	54.4	897	698	1010	19500	4210	7020	7260	1560	1790	420	349	505	203
PCB-106/118	pg/g, dw	41.4	1550	119	1760	130	2130	1700	2420	46900	11700	19200	15200	4190	4630	1090	907	1270	533
PCB-107/109	pg/g, dw	<3.14	126	9.27	136	9.94	158	130	179	2930	852	1620	1070	301	325	80.5	67.4	99.8	41.8
PCB-108/112	pg/g, dw	1.95	71.6	6.03	83.4	6.39	101	84.6	122	2090	503	877	712	192	184	47.5	38.5	54.6	23
PCB-110	pg/g, dw	37.6	1430	103	1520	120	1920	1850	2500	46200	13500	23200	17400	4620	4350	1110	862	1210	462
PCB-111/115	pg/g, dw	<0.548	16.4	1.63	18.9	<1.57	36.8	27.3	31.8	864	215	338	241	61.4	57.5	14	13.4	14.6	5.2
PCB-113	pg/g, dw	<0.672	<0.634	<0.470	4.49	<0.693	<0.646	<0.846	5.94	<5.79	66.1	206	46	<4.96	<0.994	<0.836	2.49	3.16	<0.729
PCB-114	pg/g, dw	0.762	27	1.63	33.5	2.23	41.4	33.1	45.7	999	219	391	340	65.5	83.8	22.3	16.5	20.4	8.38
PCB-119	pg/g, dw	1.49	48.9	4.29	56.4	3.95	59.7	51.8	65.9	1210	1360	3050	1240	135	143	28.4	26.3	41.3	16.3
PCB-120	pg/g, dw	0.588	8.18	0.807	7.2	<0.772	7.36	7.44	7.3	<32.7	134	185	40.5	20.6	10.7	5.83	5.77	6.04	3.31
PCB-121	pg/g, dw	<0.654	<0.585	<0.453	<1.94	<0.644	<0.626	<0.777	<1.08	<5.66	<8.73	<16.7	<6.15	<4.45	<0.944	<0.771	<0.497	<0.728	<0.664
PCB-122	pg/g, dw	0.592	19.4	1.39	24.2	1.27	30.9	21.2	29.5	509	120	234	203	42.2	47.2	12.1	9.64	15.6	6.93
PCB-123	pg/g, dw	<0.415	30	2.77	38.4	2.61	48.1	30.1	43.8	817	177	326	215	78.4	74.5	18.4	15.6	23.8	10
PCB-124	pg/g, dw	1.54	48.1	3.34	52.3	4.66	65.7	58.7	84.1	1510	525	837	609	152	161	40.4	31.9	40.6	16.5
PCB-126	pg/g, dw	0.812	12.3	0.871	13.3	1.48	11.9	15.4	21.2	302	144	286	241	40.9	31.9	9.22	7.9	12.6	4.51
PCB-127	pg/g, dw	<0.437	<1.96	<0.699	<0.986	<0.599	<0.409	<1.22	<0.669	<23.6	<5.94	<36.6	<11.9	<4.24	<1.83	<0.511	<0.924	<1.01	<0.52
PCB-128/162	pg/g, dw	8.34	282	20.5	294	23.6	313	362	427	7590	2460	3950	3370	839	1050	211	174	269	103
PCB-129	pg/g, dw	1.95	68.3	4.1	69.9	5.89	80.4	103	129	2340	686	1140	947	213	271	58	42.8	60.8	23.1
PCB-130	pg/g, dw	3.27	121	7.73	127	10.8	143	156	192	3010	1260	1920	1320	369	434	89.5	82.9	122	44.2
PCB-131	pg/g, dw	<0.649	<3.24	<0.384	<1.27	<0.840	<0.895	0.382	<1.6	<76.2	<4.9	<13.9	<21	<2.89	<1.46	<0.79	0.345	<1.09	<0.607
PCB-132/161	pg/g, dw	10.2	414	26.1	390	34.6	444	556	694	10900	5860	7820	6320	1260	1760	351	269	400	142
PCB-133/142	pg/g, dw	1.72	55	3.59	52.5	4.71	53.6	70.6	88.6	1380	849	1520	903	167	209	42.6	36.4	51.2	18.8
PCB-134/143	pg/g, dw	2.81	86	5.87	86.9	7.6	90.5	115	147	2250	1250	2060	1390	259	344	73	56.2	81.5	31.4
PCB-135	pg/g, dw	<5.34	204	16.2	233	19.7	272	285	315	4700	4520	7380	3730	703	853	190	142	203	72.5
PCB-136	pg/g, dw	4.4	150	11.6	150	13	169	223	256	3850	4490	8170	3700	520	660	157	117	151	57.3
PCB-137	pg/g, dw	2.01	72	4.35	73.2	4.62	75.6	96.8	134	2160	687	1400	1090	222	270	57.3	43.7	59.5	24
PCB-138/163/164	pg/g, dw	49.9	1720	117	1770	146	1840	2170	2640	41700	24400	37700	26100	5250	7460	1390	1170	1710	649
PCB-139/149	pg/g, dw	35.9	1290	92	1280	111	1450	1840	2110	32000	36400	67300	28800	4820	6000	1290	1030	1320	503
PCB-140	pg/g, dw	<0.929	11.7	0.739	11.4	1.12	10.2	12.8	14.3	100	170	258	115	38	38.1	9.4	6.96	11.6	4.14
PCB-141	pg/g, dw	6.49	209	11.3	204	18.4	230	323	400	6580	5370	7510	4980	781	1180	215	174	218	78.9
PCB-144	pg/g, dw	1.53	57	2.91	56.3	5.59	69.7	95.7	117	1650	1630	2580	1120	263	308	69.4	57.5	61.3	24.1
PCB-145	pg/g, dw	<0.558	<0.439	<0.470	0.98	<0.568	<0.627	<0.706	<0.522	13.8	<7.39	<16.7	<5.55	<4.4	1.58	<0.427	<0.359	<0.755	<0.737
PCB-146/165	pg/g, dw	7.02	255	16.9	246	21.5	247	301	369	5210	4500	7520	4270	726	1020	188	168	250	97.6
PCB-147	pg/g, dw	<0.993	40.6	2.92	41.6	3.85	44.3	59.2	66.5	1100	2300	6630	1930	143	154	35.3	25.5	36.8	15.2
PCB-148	pg/g, dw	<0.901	2.23	<0.758	3.07	<0.917	<1.09	<2.23	2.1	57.9	244	621	174	<7.11	11	<0.689	1.13	3.07	1.14

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Analyte	Units	Analytical Results [2]																	
		OA-17	OA-18	AG-19	OA-20	OA-21	AG-22	OA-23	CB-24	FH-25	IA-26	CS-27	CS-28	IB-29	IB-30	IA-31	IA-31 (Duplicate)	OB-32	OB-33
PCB-150	pg/g, dw	<0.672	4.86	0.61	5.62	<0.683	4.76	<7.02	6.88	136	524	1500	490	16	22.9	<2.89	2.76	5.53	1.79
PCB-151	pg/g, dw	9.72	322	21.4	308	29.3	342	465	536	7300	12000	22100	9040	1260	1670	337	266	329	126
PCB-152	pg/g, dw	<0.601	1.21	<0.506	<1.71	<0.612	2.04	<2.46	2.95	49.7	295	803	231	<5.76	4.96	1.28	1.11	1.07	<0.793
PCB-153	pg/g, dw	46.6	1510	110	1590	133	1610	1870	2280	34800	32900	55300	30600	4890	7170	1230	1100	1560	597
PCB-154	pg/g, dw	0.984	33.1	2.65	34.3	3.46	28.7	45.7	49.1	914	3210	8850	2920	119	156	22.8	20.8	36.6	12.5
PCB-155	pg/g, dw	<0.602	1.33	<0.507	1.48	<0.613	1.25	<0.924	0.674	16.8	74.2	184	74.7	<4.76	2.3	<0.461	<0.431	<0.697	<0.795
PCB-156	pg/g, dw	4.79	170	11.5	176	14.2	193	212	260	4620	1830	2850	2130	511	719	143	117	159	63.2
PCB-157	pg/g, dw	1.65	42.2	3.17	44	4.02	45	51.1	58	1040	300	560	419	111	152	30.8	23.8	41.9	15.8
PCB-158/160	pg/g, dw	4.53	152	9.84	160	13.2	181	224	258	4560	2380	3790	2580	552	683	140	111	150	57
PCB-159	pg/g, dw	<0.482	<2.37	<0.289	<2.46	<0.610	<0.64	<1.22	<1.15	<38	<35.4	<53.5	<16.8	<2.13	<1.69	<0.6	<1.91	<0.79	<0.747
PCB-166	pg/g, dw	<0.452	5.24	<0.271	5.6	<0.572	6.27	7.8	9.9	191	41	66.9	67.8	15.4	19.8	3.77	3.51	4.54	1.82
PCB-167	pg/g, dw	2.11	69.3	4.68	73.4	6.29	74.6	86.9	104	1760	787	1460	914	207	278	54.2	42.2	65.9	26.3
PCB-168	pg/g, dw	<0.407	2.36	<0.241	2.75	<0.526	2.35	3.77	4.11	40.8	87.8	213	71.6	8.62	10.3	1.51	1.43	2.58	0.92
PCB-169	pg/g, dw	0.524	<0.885	<0.281	<1.49	<0.545	0.529	<1.55	<1.18	<18.8	9.44	24	<26.1	<5.32	<1.86	<0.583	<1.71	<1.54	<0.672
PCB-170	pg/g, dw	11.8	374	23.4	371	29.1	351	484	487	6990	8910	12800	8020	1280	2220	364	324	485	157
PCB-171	pg/g, dw	2.94	85.8	5.43	88.7	7.52	83.8	119	117	1930	2170	3060	2060	332	564	87.6	76.1	108	35.6
PCB-172	pg/g, dw	1.94	56.1	3.78	55.2	4.98	51.2	71.1	73.1	1170	1380	2060	1270	177	337	51.2	44.7	69.4	23.6
PCB-173	pg/g, dw	<0.534	8.39	<0.700	8.89	<0.644	8.64	12	11.5	165	216	271	174	32.8	47.4	8.77	6.75	9.34	3.13
PCB-174	pg/g, dw	10.8	342	21.3	329	26.8	329	476	466	7420	10500	14000	9220	1210	2360	351	303	449	144
PCB-175	pg/g, dw	<0.450	16.6	1.06	15.4	<1.33	15.9	22.4	24.9	248	521	786	401	69.7	90	16.8	14.6	19.8	7.7
PCB-176	pg/g, dw	1.37	39.6	2.76	39.1	3.74	40.7	58.3	57.4	884	1490	2110	1140	161	283	41.7	38.9	45.9	16.6
PCB-177	pg/g, dw	8.32	262	18.2	261	20.4	241	322	315	4690	6310	8380	5720	871	1570	244	216	327	108
PCB-178	pg/g, dw	3.36	95.4	7.24	98.9	7.57	90.9	118	119	1720	3210	5660	2550	325	556	81.4	75.4	113	41.4
PCB-179	pg/g, dw	6.52	182	13.1	182	15.2	180	238	233	3150	6900	11600	5370	648	1140	163	149	223	75.3
PCB-180	pg/g, dw	25.9	808	46.9	787	65.3	789	1140	1140	17800	26300	37000	21700	3250	5590	850	766	1120	353
PCB-181	pg/g, dw	<0.429	<1.84	<0.563	2.65	<0.471	2.16	<0.908	<1.08	113	26.9	62.5	<8.87	7.82	<0.636	<0.544	1.59	<1.03	<0.566
PCB-182/187	pg/g, dw	17.9	541	39.3	547	44.9	519	652	649	10200	18400	32700	14400	1950	3270	451	422	659	222
PCB-183	pg/g, dw	6.48	197	12.8	194	17.3	199	275	275	4360	6750	10400	5120	840	1400	198	181	255	85.6
PCB-184	pg/g, dw	<0.280	<1.22	0.157	2.05	<0.316	1.83	1.14	0.754	11.6	<13	44.2	32.1	2.17	2.66	0.576	<0.333	0.717	0.302
PCB-185	pg/g, dw	0.978	27.3	1.75	27.6	2.23	27.1	37.9	39.8	608	979	1320	873	106	207	27.6	24.5	37.9	11.3
PCB-186	pg/g, dw	<0.314	<0.614	<0.413	<0.989	<0.355	<0.587	<0.674	<0.74	<7.53	<7.26	<10.1	7.95	<4.16	<0.428	<0.382	<0.437	<0.711	<0.414
PCB-188	pg/g, dw	<0.288	2.22	0.224	1.89	<0.327	1.7	2.38	2.48	80.3	163	405	163	<9.98	9.96	1.07	1.14	2.63	0.988
PCB-189	pg/g, dw	<0.897	16.5	0.896	15.5	1.35	15.3	20.8	20.9	313	345	579	299	59.6	88.7	15.3	13.5	23.7	7.29
PCB-190	pg/g, dw	<2.38	64.2	4.86	69.1	5.85	65.5	87.2	83.7	1200	1910	2650	1590	258	421	67.3	61.9	94.1	29.2
PCB-191	pg/g, dw	<0.722	13.2	1.08	13.3	1.4	13.6	20.1	18.6	304	418	612	355	53	89.9	13.9	12.2	17.1	6.18
PCB-192	pg/g, dw	<0.340	<0.702	<0.447	<1.15	<0.373	<0.616	<0.720	<0.855	<9.65	<7.13	<9.23	<7.03	<4.13	<0.505	<0.431	<0.469	<0.817	<0.449
PCB-193	pg/g, dw	1.76	47.6	3.45	47	3.92	44.4	59.6	59.1	862	1430	2250	1220	159	287	44.7	39.8	60.8	19.9
PCB-194	pg/g, dw	8.25	253	16.7	249	19.9	216	283	276	5350	5860	9090	6120	844	1610	217	200	408	110
PCB-195	pg/g, dw	3.16	90.8	6.46	88.4	6.64	78.6	98.9	91.1	1690	2190	3310	2060	259	585	82.4	73.1	132	36.4
PCB-196/203	pg/g, dw	9.47	272	17.5	258	24.9	234	324	312	5450	8450	12000	5560	1280	1750	228	216	422	128
PCB-197	pg/g, dw	0.627	9.07	<0.825	8.27	<0.632	7.95	11.1	10.2	194	262	398	219	40.8	61.5	7.69	7.66	14.4	3.84
PCB-198	pg/g, dw	<0.652	10.1	0.934	7.89	1.26	9.43	10.7	9.28	192	340	512	<151	38	57.8	8.97	8.32	16.9	4.99
PCB-199	pg/g, dw	9.76	286	19.9	269	24.1	233	320	313	5240	7430	10200	4990	1250	1680	219	190	412	130
PCB-200	pg/g, dw	1.05	28.2	1.85	25	2.51	25.7	31.8	31.4	534	855	1190	599	114	179	22.2	21.5	41.2	11.6
PCB-201	pg/g, dw	<0.729	32.6	1.88	30.2	2.4	26.8	37.6	36.5	776	851	1250	761	135	208	25.6	24.7	46.1	13.6
PCB-202	pg/g, dw	2.47	67.7	5.22	66.5	5.89	53.2	71	68.9	1640	1430	2230	1340	256	378	47	43.6	91.9	28.5
PCB-204	pg/g, dw	<0.432	0.662	<0.778	<1.31	<0.596	<0.519	<0.813	<1.17	6.16	4.59	<12	<8.99	<5.16	1.12	<0.617	<0.430	<0.673	<0.803
PCB-205	pg/g, dw	0.656	10.7	0.913	11.5	1.15	8.51	11	11.7	179	282	417	278	37.5	69.5	9.21	8.06	17.6	5

Appendix B-1: Analytical Results for Sediment and Porewater Analysis
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Analyte	Units	Analytical Results [2]																	
		OA-17	OA-18	AG-19	OA-20	OA-21	AG-22	OA-23	CB-24	FH-25	IA-26	CS-27	CS-28	IB-29	IB-30	IA-31	IA-31 (Duplicate)	OB-32	OB-33
PCB-206	pg/g, dw	6.78	197	11.7	168	15.1	119	187	172	6390	2480	3740	2960	916	1420	106	110	313	86.4
PCB-207	pg/g, dw	0.896	20.5	1.02	17.8	1.49	12.3	19.8	18.5	602	309	489	355	94.2	130	10.9	11.7	32.9	8.48
PCB-208	pg/g, dw	2.79	69	4.03	59.2	5.31	41.4	66.8	61.8	2290	682	1010	762	353	522	34.7	36.5	105	32.4
PCB-209	pg/g, dw	7.8	209	13.6	189	13.1	137	166	127	5350	1400	1720	1660	1200	2250	83	84.1	355	95.8
Total monoCB	pg/g, dw	2.77	43	11.6	74.5	3.54	32.2	27.2	26.6	924	153	478	522	89.1	62	28	24.7	40.6	13.6
Total diCB	pg/g, dw	11.2	511	38	565	26.9	550	347	522	4220	2130	5640	5180	644	838	225	233	419	164
Total triCB	pg/g, dw	35.4	1580	123	1840	98.8	2310	1600	2910	39300	8690	22800	19800	2210	3430	730	759	1270	533
Total tetraCB	pg/g, dw	152	6850	497	7920	484	10500	6450	11800	187000	57700	145000	80900	11600	11800	3060	2730	4600	2060
Total pentaCB	pg/g, dw	231	9360	697	10400	780	12800	11300	16300	298000	103000	199000	125000	26700	27900	6820	5460	7700	3110
Total hexaCB	pg/g, dw	207	7350	507	7490	636	8020	9740	11700	182000	151000	263000	140000	24300	32900	6390	5280	7360	2790
Total heptaCB	pg/g, dw	100	3180	208	3160	258	3070	4220	4200	64200	98300	149000	81700	11800	20500	3080	2770	4120	1350
Total octaCB	pg/g, dw	35.5	1060	71.4	1010	88.8	893	1200	1160	21300	28000	40600	21900	4250	6580	867	793	1600	472
Total nonaCB	pg/g, dw	10.5	286	16.8	245	21.9	173	274	252	9280	3470	5240	4080	1360	2070	152	158	451	127
DecaCB	pg/g, dw	7.8	209	13.6	189	13.1	137	166	127	5350	1400	1720	1660	1200	2250	83	84.1	355	95.8
Total PCB	pg/g, dw	792	30400	2180	32900	2410	38500	35300	48900	812000	454000	832000	480000	84200	108000	21400	18300	27900	10700
		Low-Resolution PCBs by EPA 8270C																	
PCB-3	µg/kg, dw	--	--	--	--	--	--	<0.046	<0.079	<0.11	<0.096	<0.12	<0.12	<0.085	<0.046	<0.072	<0.072	<0.047	<0.047
PCB-5/8	µg/kg, dw	--	--	--	--	--	--	<0.046	<0.079	<0.11	<0.096	<0.12	<0.12	<0.085	<0.046	<0.071	<0.071	<0.047	<0.047
PCB-15	µg/kg, dw	--	--	--	--	--	--	<0.023	<0.04	<0.057	<0.048	<0.061	<0.058	<0.042	<0.023	<0.036	<0.036	<0.023	<0.023
PCB-18	µg/kg, dw	--	--	--	--	--	--	<0.039	<0.066	<0.095	<0.08	<0.1	9	<0.071	<0.039	<0.06	<0.06	<0.039	<0.039
PCB-27	µg/kg, dw	--	--	--	--	--	--	<0.028	<0.048	<0.069	<0.058	<0.074	<0.07	<0.051	<0.028	<0.043	<0.043	<0.028	<0.028
PCB-28	µg/kg, dw	--	--	--	--	--	--	0.2	1.1	33	2.7	5.8	4.3	0.76	<0.055	<0.084	<0.084	<0.055	<0.055
PCB-29	µg/kg, dw	--	--	--	--	--	--	<0.034	<0.059	<0.084	<0.071	<0.09	<0.085	<0.063	<0.034	<0.053	<0.053	<0.035	<0.034
PCB-31	µg/kg, dw	--	--	--	--	--	--	<0.029	0.81	<0.071	3.9	8.6	8.8	<0.053	<0.029	<0.045	<0.045	<0.029	<0.029
PCB-33	µg/kg, dw	--	--	--	--	--	--	<0.034	0.93	<0.084	<0.071	4.3	<0.085	<0.063	<0.034	<0.053	<0.053	<0.035	<0.034
PCB-37	µg/kg, dw	--	--	--	--	--	--	<0.035	<0.06	16	<0.073	6.9	5.6	<0.064	<0.035	<0.054	<0.054	<0.035	<0.035
PCB-44	µg/kg, dw	--	--	--	--	--	--	0.6	1.5	23	6.2	12	14	1.7	<0.091	<0.14	<0.14	<0.092	<0.091
PCB-49	µg/kg, dw	--	--	--	--	--	--	0.36	0.91	18	6.8	19	7.6	<0.16	<0.085	- [4]	- [4]	<0.086	<0.086
PCB-52	µg/kg, dw	--	--	--	--	--	--	0.65	1.8	31	11	37	17	<0.093	<0.051	<0.078	<0.078	<0.051	<0.051
PCB-56	µg/kg, dw	--	--	--	--	--	--	<0.047	0.47	17	<0.098	4.5	3.7	<0.087	<0.047	<0.073	<0.073	<0.048	<0.048
PCB-60	µg/kg, dw	--	--	--	--	--	--	<0.062	0.36	8.3	<0.13	1.3	1.6	<0.11	<0.062	<0.096	<0.096	<0.063	<0.062
PCB-66	µg/kg, dw	--	--	--	--	--	--	0.55	1.4	42	6.1	12	11	2.3	0.81	0.5	0.65	0.46	0.24
PCB-70	µg/kg, dw	--	--	--	--	--	--	0.69	1.9	33	5.5	13	11	1.5	0.71	0.41	0.47	0.39	0.27
PCB-74	µg/kg, dw	--	--	--	--	--	--	0.32	1.1	32	5.5	11	7	1.1	0.44	0.33	0.4	0.29	0.19
PCB-77	µg/kg, dw	--	--	--	--	--	--	<0.085	<0.14	17	6.1	12	8.8	<0.15	<0.085	<0.13	<0.13	<0.085	<0.085
PCB-81	µg/kg, dw	--	--	--	--	--	--	<0.063	<0.11	<0.16	<0.13	<0.17	<0.16	<0.12	<0.063	<0.098	<0.098	<0.064	<0.064
PCB-87	µg/kg, dw	--	--	--	--	--	--	0.74	1.9	28	6	14	- [4]	2	<0.041	- [4]	- [4]	<0.041	<0.041
PCB-95	µg/kg, dw	--	--	--	--	--	--	0.95	2.4	42	18	37	21	3.8	1.4	0.9	0.89	0.45	0.31
PCB-97	µg/kg, dw	--	--	--	--	--	--	<0.043	2.4	24	<0.089	<0.11	<0.11	<0.078	<0.043	<0.066	<0.066	<0.043	<0.043
PCB-99	µg/kg, dw	--	--	--	--	--	--	0.84	1.7	46	12	23	15	2.8	1.5	0.84	0.93	0.52	0.23
PCB-101	µg/kg, dw	--	--	--	--	--	--	1.4	3.6	81	22	40	27	6.3	2.7	1.6	1.6	0.99	0.42
PCB-105	µg/kg, dw	--	--	--	--	--	--	0.88	1.8	55	9.3	17	13	4.3	1.7	0.63	1.1	0.51	<0.042
PCB-110	µg/kg, dw	--	--	--	--	--	--	1.5	2.9	72	14	24	19	4.6	2.4	1.4	1.2	0.72	0.47
PCB-114	µg/kg, dw	--	--	--	--	--	--	<0.035	<0.06	<0.087	<0.073	<0.093	<0.088	<0.065	<0.035	<0.054	<0.054	<0.036	<0.035
PCB-118	µg/kg, dw	--	--	--	--	--	--	1.5	3.2	77	16	24	19	5.4	2.7	1.7	2.2	0.91	0.45
PCB-119	µg/kg, dw	--	--	--	--	--	--	<0.045	<0.078	<0.11	1.1	3.6	<0.11	<0.083	<0.045	<0.07	<0.07	<0.046	<0.046
PCB-123	µg/kg, dw	--	--	--	--	--	--	<0.046	<0.08	<0.11	<0.096	<0.12	<0.12	<0.085	<0.046	<0.072	<0.072	<0.047	<0.047
PCB-126	µg/kg, dw	--	--	--	--	--	--	<0.034	<0.058	<0.082	<0.07	<0.088	<0.084	<0.062	<0.034	<0.052	<0.052	<0.034	<0.034

Appendix B-1: Analytical Results for Sediment and Porewater Analysis
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Analyte	Units	Analytical Results [2]																	
		OA-17	OA-18	AG-19	OA-20	OA-21	AG-22	OA-23	CB-24	FH-25	IA-26	CS-27	CS-28	IB-29	IB-30	IA-31	IA-31 (Duplicate)	OB-32	OB-33
PCB-128	µg/kg, dw	--	--	--	--	--	--	0.45	0.92	18	3	<0.1	<0.097	1.2	0.48	<0.06	<0.06	0.32	<0.039
PCB-132/153	µg/kg, dw	--	--	--	--	--	--	2.1	4.4	94	55	79	53	11	5.8	2.4	2.7	1.6	0.69
PCB-137	µg/kg, dw	--	--	--	--	--	--	<0.048	<0.082	11	<0.099	<0.13	<0.12	<0.087	<0.048	<0.074	<0.074	<0.048	<0.048
PCB-138/158	µg/kg, dw	--	--	--	--	--	--	1.8	3.3	80	33	46	37	9.5	4.3	1.9	1.9	1.4	0.56
PCB-141	µg/kg, dw	--	--	--	--	--	--	0.53	0.85	14	8.5	12	9.1	2.6	0.92	<0.15	<0.15	0.16	<0.097
PCB-149	µg/kg, dw	--	--	--	--	--	--	0.98	1.9	46	32	50	30	5.6	2.6	1.1	1.4	0.69	0.34
PCB-151	µg/kg, dw	--	--	--	--	--	--	0.52	0.76	21	12	21	12	1.7	1.1	0.42	0.51	0.23	0.092
PCB-156	µg/kg, dw	--	--	--	--	--	--	0.27	0.28	13	3.6	<0.17	<0.16	<0.12	0.38	<0.1	<0.1	<0.066	<0.066
PCB-157	µg/kg, dw	--	--	--	--	--	--	<0.051	<0.087	<0.12	<0.11	<0.13	<0.13	<0.093	<0.051	<0.079	<0.079	<0.051	<0.051
PCB-167	µg/kg, dw	--	--	--	--	--	--	<0.041	<0.07	<0.1	<0.085	<0.11	<0.1	<0.075	0.15	<0.063	<0.063	<0.042	<0.041
PCB-168	µg/kg, dw	--	--	--	--	--	--	<0.044	<0.076	<0.11	<0.092	<0.12	<0.11	<0.081	<0.044	<0.068	<0.068	<0.045	<0.044
PCB-169	µg/kg, dw	--	--	--	--	--	--	<0.032	<0.056	<0.08	2.7	<0.085	<0.081	<0.059	<0.032	<0.05	<0.05	<0.033	<0.033
PCB-170	µg/kg, dw	--	--	--	--	--	--	0.52	1	13	14	22	14	2.5	1.8	0.68	0.63	0.31	<0.05
PCB-174	µg/kg, dw	--	--	--	--	--	--	0.38	0.79	19	14	15	9.4	3	1.5	<0.059	<0.059	0.32	<0.039
PCB-177	µg/kg, dw	--	--	--	--	--	--	0.2	<0.067	6.7	6.4	7.6	5	1.5	0.82	<0.061	<0.061	0.16	<0.039
PCB-180	µg/kg, dw	--	--	--	--	--	--	0.82	1.5	35	29	36	23	5.7	3.2	1.1	1.1	0.78	0.42
PCB-183	µg/kg, dw	--	--	--	--	--	--	0.26	<0.054	7.9	6.9	9.5	6.1	1.5	0.81	0.82	0.32	0.2	<0.032
PCB-184	µg/kg, dw	--	--	--	--	--	--	<0.04	<0.069	<0.099	<0.084	<0.11	<0.1	<0.074	<0.04	<0.062	<0.062	<0.041	<0.041
PCB-187	µg/kg, dw	--	--	--	--	--	--	0.49	1.1	17	21	30	16	2.9	2.1	0.88	0.52	0.45	0.14
PCB-189	µg/kg, dw	--	--	--	--	--	--	<0.025	<0.043	<0.061	<0.052	<0.066	<0.063	<0.046	<0.025	<0.039	<0.039	<0.025	<0.025
PCB-194	µg/kg, dw	--	--	--	--	--	--	<0.041	<0.07	7.3	10	5.3	<0.1	<0.074	1.1	<0.063	<0.063	<0.041	<0.041
PCB-195	µg/kg, dw	--	--	--	--	--	--	<0.032	<0.054	<0.078	3.5	<0.083	<0.079	<0.058	0.07	<0.049	<0.049	<0.032	<0.032
PCB-200	µg/kg, dw	--	--	--	--	--	--	<0.059	<0.1	2.4	1.3	1.4	1.3	<0.11	<0.059	<0.09	<0.09	<0.059	<0.059
PCB-201	µg/kg, dw	--	--	--	--	--	--	<0.044	<0.074	2.1	1.2	2.2	1.3	<0.08	0.17	<0.067	<0.067	0.11	<0.044
PCB-203	µg/kg, dw	--	--	--	--	--	--	<0.034	<0.059	8.2	9.7	13	9.3	<0.063	1.1	<0.053	<0.053	0.29	<0.035
PCB-206	µg/kg, dw	--	--	--	--	--	--	<0.044	<0.076	12	6.2	7.4	6.7	1.7	0.89	<0.068	<0.068	0.35	<0.045
PCB-209	µg/kg, dw	--	--	--	--	--	--	<0.066	<0.11	10	2.9	5.9	4	2	1.4	<0.1	<0.1	1.2	<0.066
Total PCB [3]	µg/kg, dw	--	--	--	--	--	--	20.5	48.98	1132.9	428.1	693.3	460.6	88.96	45.05	17.61	18.52	13.81	4.822

Notes:

[1]Specific Gravity results measured at 20°C

[2]Non-detect values are shown as < the detection limit or the estimated maximum possible concentration, as reported by Vista Analytical

[3] Total PCBs is the sum of all detected congeners and co-eluting congeners. Non-detect values are treated as zeros.

[4] Data were rejected upon validation.

Abbreviations:

PCB: Polychlorinated biphenyl

DDD: Dichlorodiphenyldichloroethane

DDE: Dichlorodiphenyldichloroethylene

DDT: Dichlorodiphenyltrichloroethane

DDMU: 1-chloro-2,2-6w(p-chlorophenyl)ethene

Appendix B-2

Analytical Results for Tissue Analysis

Appendix B-2. Analytical Results for Tissue Analysis
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Analyte	Units	Analytical Results [1]											
		OA-23	CB-24	FH-25	IA-26	CS-27	CS-27-DUP	CS-28	IB-29	IB-30	IA-31	OB-32	OB-33
Conventional													
Polychaete Sample Weight	g	71	72	24 [2]	69	74	78	46 [2]	65 [2]	76	140 [2]	71	88 [2]
Solids, Total - reported by Eurofin	%	25.3	23.0	35.3	24.8	21.9	23.0	21.9	30.6	28.7	30.6	21.6	30.9
Solids, Total - reported by Vista	%	22.19	21.36	36.66	23.57	23.02	25.4	22.07	17.27	22.96	29.07	22.89	26.69
Gut Content: Sample Wet Weight	g	6.1338	-	-	5.0469	5.0011	4.3397	-	-	5.1548	-	5.0177	-
Gut Content: Sample Dry Weight	g	1.4414	-	-	1.1149	1.0333	1.1042	-	-	1.2485	-	1.2369	-
Gut Content: Ash Weight	g	0.2552	-	-	0.1963	0.1596	0.2834	-	-	0.2936	-	0.3465	-
Lipids	%	1.72	0.958	0.151	2.18	2.00	1.66	1.29	0.931	1.29	0.555	1.53	1.01
Stable Isotopes													
d13C	--	-16.59	-15.47	-10.76	-19.24	-21.42	-21.39	-21.73	-17.21	-17.03	-7.93	-16.52	-14.73
d15N	--	14.97	15.11	11.70	13.40	10.96	11.16	11.23	14.61	15.02	14.08	15.58	14.28
Chlorinated Pesticides (EPA 8270C PEST-SIM)													
2,4'-DDD	µg/kg, ww	< 0.2	< 0.2	< 0.2	0.43	0.9	2.9	1.4	- [3]	<0.20	<0.20	<0.20	<0.20
2,4'-DDE	µg/kg, ww	0.3	0.5	1.2	- [3]	0.48	2.1	0.84	- [3]	0.52	0.42	0.42	0.56
2,4'-DDT	µg/kg, ww	< 0.2	0.11	< 0.2	< 0.2	< 0.2	<0.20	<0.20	<0.20	- [3]	0.1	<0.20	<0.20
4,4'-DDD	µg/kg, ww	- [3]	0.17	0.95	1.2	4.3	7.4	5.6	0.26	<0.20	0.38	- [3]	0.18
4,4'-DDE	µg/kg, ww	3.7	5.3	20	5.8	10	17	13	3.4	5.1	12	8	8.5
4,4'-DDT	µg/kg, ww	- [3]	< 0.2	0.97	0.36	2	<0.20	1.9	- [3]	<0.20	0.6	<0.20	<0.20
4,4'-DDMU	µg/kg, ww	- [3]	0.15	- [3]	- [3]	0.18	2.9	0.79	<0.20	0.29	<0.20	0.3	0.31
High Resolution PCBs (EPA 1668A)													
PCB-1	pg/g, ww	1.01	<2.10	<3.97	2.20	3.17	2.43	3.96	2.17	2.98	1.07	5.63	1.53
PCB-2	pg/g, ww	1.25	1.85	<4.58	3.36	4.59	3.39	7.51	<1.62	<1.29	<1.51	1.62	1.51
PCB-3	pg/g, ww	0.658	<2.25	<2.96	3.91	5.21	3.3	5.01	1.46	2.01	0.838	0.954	0.584
PCB-4/10	pg/g, ww	7.63	9.71	14.8	<18.9	22.5	15.9	29.3	7.15	10.4	3.90	19.1	6.95
PCB-5/8	pg/g, ww	49	38.7	72.3	87.8	159	110	149	70.0	112	17.1	160	55.4
PCB-6	pg/g, ww	6.57	6.52	23.3	13.6	29.3	18.2	28.7	31.9	14.1	3.40	19.5	7.86
PCB-7/9	pg/g, ww	<4.03	<7.32	<21.4	<15.7	<6.01	8.97	12.5	5.22	<3.79	<3.02	13.7	4.19
PCB-11	pg/g, ww	51.7	35.4	22.9	81.7	205	157	209	24.1	21.6	37.7	33.3	31.6
PCB-12/13	pg/g, ww	4.37	<7.99	18.8	14.5	27.5	17	19.4	49.5	9.98	3.36	<4.16	<2.64
PCB-14	pg/g, ww	<3.78	<7.13	<21.3	<15.2	<5.89	<3.79	<7.12	<3.38	<3.62	<2.94	<3.72	<2.35
PCB-15	pg/g, ww	43.8	37.6	142	176	220	153	159	1350	89.6	29.5	46.4	40.3
PCB-16/32	pg/g, ww	83.4	89.7	295	516	658	459	318	652	210	25.9	218	87.3
PCB-17	pg/g, ww	47.3	51.9	161	132	258	165	187	43.9	95.5	16.7	130	56.5
PCB-18	pg/g, ww	88.9	117	334	226	413	267	434	89.6	139	31.5	189	86.1
PCB-19	pg/g, ww	7.89	10.3	27.1	34.1	44.1	35.3	31.8	11.0	13.0	2.45	17.4	7.73
PCB-20/21/33	pg/g, ww	58.3	60.0	255	254	370	376	354	440	126	25.4	157	79.1
PCB-22	pg/g, ww	63.7	58.4	188	335	526	539	290	2180	132	24.0	96.0	44.7
PCB-23	pg/g, ww	<0.368	<1.56	<3.42	<0.816	<2.89	5.78	<1.09	<1.78	<0.892	<0.824	1.05	<1.83
PCB-24/27	pg/g, ww	9.48	12.3	32.8	49.2	62.3	43.9	43.7	23.3	21.4	3.60	24.9	11.0
PCB-25	pg/g, ww	15.7	15.1	152	67.4	135	148	72.6	332	45.3	10.2	38.1	22.4
PCB-26	pg/g, ww	29.4	25.0	249	147	306	367	177	939	64.9	14.5	43.7	28.1
PCB-28	pg/g, ww	510	399	983	2000	2100	2540	1150	9060	1230	145	1110	379
PCB-29	pg/g, ww	1.04	<0.772	1.76	2.44	3.96	4.58	4.05	5.49	2.22	<0.813	2.61	0.958
PCB-30	pg/g, ww	<0.351	<0.687	<1.55	<1.30	<1.04	<1.04	<1.20	<0.866	<0.773	<0.236	<0.266	<0.604
PCB-31	pg/g, ww	127	111	783	455	607	740	743	9580	239	64.6	191	124
PCB-34	pg/g, ww	1.51	1.73	3.58	<6.02	9.03	<1.06	<4.24	14.4	3.18	<0.859	10.1	2.99
PCB-35	pg/g, ww	6.11	5.68	32.4	26.1	23.7	29.8	20.4	19.3	11.8	2.76	7.31	5.77
PCB-36	pg/g, ww	3.43	<2.70	<3.57	6.23	5.95	7.05	3.39	3.11	3.81	1.87	4.71	3.57
PCB-37	pg/g, ww	44.1	37.3	215	327	368	328	387	1470	104	39.8	65.5	67.5
PCB-38	pg/g, ww	6.8	5.67	63.0	56.8	89.8	46.2	44.3	61.4	18.7	5.63	26.3	10.8
PCB-39	pg/g, ww	0.905	<1.54	<2.90	<2.20	2.50	2.98	2.26	5.19	2.11	<1.42	2.50	0.948
PCB-40	pg/g, ww	48.9	62.5	297	242	194	197	169	244	87.6	21.6	129	64.9

Appendix B-2. Analytical Results for Tissue Analysis
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Analyte	Units	Analytical Results [1]											
		OA-23	CB-24	FH-25	IA-26	CS-27	CS-27-DUP	CS-28	IB-29	IB-30	IA-31	OB-32	OB-33
PCB-41/64/71/72	pg/g, ww	323	299	2220	1850	1660	1820	1420	2960	677	161	947	405
PCB-42/59	pg/g, ww	113	127	732	597	550	526	423	530	250	45.2	392	156
PCB-43/49	pg/g, ww	499	460	2730	4590	4700	5580	2520	3780	1380	250	1590	711
PCB-44	pg/g, ww	322	392	1790	1330	1330	1450	1020	1340	574	141	797	367
PCB-45	pg/g, ww	35.8	39.9	222	155	120	109	125	47.8	56.1	10.3	86.3	38.1
PCB-46	pg/g, ww	15.1	17.0	97.3	101	98.1	119	65.2	24.8	30.9	4.64	44.1	17.3
PCB-47	pg/g, ww	273	212	1590	2900	2170	2380	1130	2380	751	118	1000	464
PCB-48/75	pg/g, ww	92.6	92.4	434	416	361	331	259	253	185	44.5	274	113
PCB-50	pg/g, ww	1.7	2.28	7.07	17.3	14.0	<16.7	5.57	2.37	2.83	<0.886	6.35	2.19
PCB-51	pg/g, ww	24	20.4	137	1690	1850	2210	538	28.8	50.8	6.17	57.3	20.6
PCB-52/69	pg/g, ww	626	679	4070	4820	6430	7810	4300	5800	1440	268	1450	782
PCB-53	pg/g, ww	60.2	73.3	307	1050	1000	1280	545	102	110	17.0	163	65.2
PCB-54	pg/g, ww	3.66	<2.42	7.27	234	186	231	57.1	3.63	4.63	<0.555	5.06	2.02
PCB-55	pg/g, ww	8.25	9.43	70.6	65.4	65.6	50.7	56.2	15.7	26.4	8.54	26.4	14.3
PCB-56/60	pg/g, ww	313	290	2140	2100	1660	1620	1480	522	720	188	586	441
PCB-57	pg/g, ww	3.96	3.97	19.1	50.6	66.2	60.5	27.8	26.4	10.8	3.19	13.0	5.38
PCB-58	pg/g, ww	2.18	2.72	10.6	20.8	22.7	27.5	10.1	7.06	8.27	2.20	10.5	3.15
PCB-61/70	pg/g, ww	603	564	3720	3090	2480	2370	2480	1680	1670	427	1710	761
PCB-62	pg/g, ww	<0.931	<2.52	<4.00	<4.07	<2.81	<1.24	<3.56	<1.46	<1.06	<1.48	<1.09	<0.607
PCB-63	pg/g, ww	27.9	23.3	157	129	113	103	113	137	75.5	34.9	125	56.7
PCB-65	pg/g, ww	<0.901	<2.44	<3.87	<3.95	<2.73	<1.29	<3.45	<1.42	<1.03	<1.43	<1.06	<0.588
PCB-66/76	pg/g, ww	664	549	3930	3660	2800	2680	2210	1910	1970	365	2150	914
PCB-67	pg/g, ww	19.5	20.3	114	119	113	98.4	83.5	102	50.7	14.6	47.7	25.1
PCB-68	pg/g, ww	6.81	5.59	29.4	47.5	36.5	34.3	16.2	33.2	23.8	7.85	38.4	13.6
PCB-73	pg/g, ww	1.53	1.50	<4.36	89.6	81.7	127	26.9	3.93	<1.14	<2.35	4.20	1.86
PCB-74	pg/g, ww	330	288	2330	1730	1440	1400	1410	1160	866	346	945	639
PCB-77	pg/g, ww	54.1	46.3	363	421	339	294	342	166	142	47.8	113	74.0
PCB-78	pg/g, ww	<0.782	<2.03	<3.55	<3.85	<3.01	<1.16	<2.86	<1.30	<1.00	<1.37	<0.925	<0.581
PCB-79	pg/g, ww	27.9	25.5	153	238	190	163	116	75.9	109	33.8	120	47.2
PCB-80	pg/g, ww	<0.702	<1.79	<3.34	<32.0	<2.26	<0.985	<2.49	<1.14	<0.861	<1.16	<0.772	<0.434
PCB-81	pg/g, ww	4.74	5.82	18.2	17.7	21.0	14.1	15.0	7.63	16.4	3.22	18.5	5.88
PCB-82	pg/g, ww	85.3	118	660	495	385	400	342	176	259	44.3	230	108
PCB-83	pg/g, ww	<0.903	<2.00	<3.98	<2.75	<2.21	<8.17	1.34	<1.56	<0.743	<1.85	<0.777	<0.993
PCB-84/92	pg/g, ww	452	484	2190	2560	2340	2470	1620	935	1510	372	1540	647
PCB-85/116	pg/g, ww	294	252	1600	1310	903	789	781	681	972	221	1210	520
PCB-86	pg/g, ww	<1.34	4.02	<25.3	28.7	24.2	23.4	13.0	<2.32	<1.10	<2.75	<1.16	<1.48
PCB-87/117/125	pg/g, ww	396	443	2150	1970	1500	1390	1240	765	1210	331	1160	504
PCB-88/91	pg/g, ww	177	169	1100	1490	1340	1280	980	292	586	132	703	277
PCB-89	pg/g, ww	6.36	9.64	60.2	31.9	33.5	34	23.0	12.6	17.3	3.90	21.2	7.15
PCB-90/101	pg/g, ww	1390	1800	7370	10100	7940	7860	7120	3720	5270	1840	5460	2340
PCB-93	pg/g, ww	<1.13	<2.78	<5.11	<4.01	<3.08	<13.1	<3.50	<1.99	<1.06	<1.23	<0.912	<1.31
PCB-94	pg/g, ww	5.87	7.53	29.3	280	256	264	83.2	14.0	17.1	2.78	23.7	7.08
PCB-95/98/102	pg/g, ww	812	846	3640	5770	4990	5020	4200	1630	2300	424	2000	1110
PCB-96	pg/g, ww	7.47	6.81	37.5	119	140	184	52.4	12.4	15.5	2.70	18.1	8.81
PCB-97	pg/g, ww	306	411	1780	1620	1320	1160	1120	724	1040	314	1290	451
PCB-99	pg/g, ww	976	843	4710	8410	6600	6890	3800	2860	4250	1020	4660	1740
PCB-100	pg/g, ww	18	14.8	61.2	1160	1120	1380	366	34.3	58.0	7.84	56.9	18.9
PCB-103	pg/g, ww	27.5	22.6	75.8	990	896	1050	361	71.1	94.1	18.6	119	39.7
PCB-104	pg/g, ww	0.966	<1.80	4.54	126	145	177	55.4	<1.02	0.683	<0.849	1.79	<0.917
PCB-105	pg/g, ww	475	428	3570	2800	1890	1330	2140	1250	2080	801	1750	1150
PCB-106/118	pg/g, ww	1540	1420	9480	8170	5270	5180	5250	4200	7090	2660	6350	3560
PCB-107/109	pg/g, ww	132	128	583	638	398	405	410	375	575	232	620	330

Appendix B-2. Analytical Results for Tissue Analysis
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Analyte	Units	Analytical Results [1]											
		OA-23	CB-24	FH-25	IA-26	CS-27	CS-27-DUP	CS-28	IB-29	IB-30	IA-31	OB-32	OB-33
PCB-108/112	pg/g, ww	50.6	62.8	257	231	181	172	144	117	152	46.2	184	76.5
PCB-110	pg/g, ww	889	1010	5550	3970	2790	2680	3520	1860	3070	968	3470	1320
PCB-111/115	pg/g, ww	20.6	19.5	145	137	86.7	85.2	75.5	53.4	94.6	35.2	69.5	27.7
PCB-113	pg/g, ww	<0.893	3.15	<3.61	20.9	68.5	46.7	23.4	<1.60	<0.824	<3.92	<0.780	<0.997
PCB-114	pg/g, ww	26.6	26.0	175	153	111	75.3	129	66.3	109	45.5	92.0	54.9
PCB-119	pg/g, ww	52.8	38.5	200	809	815	761	304	116	204	59.2	232	88.2
PCB-120	pg/g, ww	8.83	7.80	22.3	89.3	47.4	58.2	31.8	23.1	40.0	13.5	43.1	16.1
PCB-121	pg/g, ww	<0.671	<1.65	<3.04	<2.38	716	<7.86	<2.08	<1.18	<0.631	<0.730	<0.542	<0.777
PCB-122	pg/g, ww	12	14.8	54.5	78.8	60.3	46.4	46.4	32.0	42.6	9.76	30.4	17.5
PCB-123	pg/g, ww	29.5	26.1	149	142	94.3	98.1	92.3	96.8	134	36.5	135	60.0
PCB-124	pg/g, ww	64.7	61.5	236	339	218	239	201	142	273	50.6	238	94.9
PCB-126	pg/g, ww	7.86	8.81	43.7	62.8	56.1	44.7	46.3	28.0	31.6	13.3	31.2	13.5
PCB-127	pg/g, ww	<1.92	<2.19	<8.38	<12.5	<5.56	<4.69	<6.63	<1.44	<2.06	<2.76	<2.08	<1.30
PCB-128/162	pg/g, ww	293	246	1030	1360	841	778	884	765	1320	424	1430	640
PCB-129	pg/g, ww	46.1	66.8	191	263	176	164	170	92.4	157	51.7	159	51.9
PCB-130	pg/g, ww	147	143	528	612	367	349	401	397	656	205	773	301
PCB-131	pg/g, ww	<2.51	<6.95	<13.3	<6.76	<5.32	<4.25	<3.65	<1.79	<6.00	<1.03	<4.48	<1.77
PCB-132/161	pg/g, ww	210	257	953	1100	699	712	1140	373	972	211	1050	340
PCB-133/142	pg/g, ww	54.7	50.0	197	393	301	316	223	139	247	75.5	265	100
PCB-134/143	pg/g, ww	54.6	71.2	224	294	252	234	273	115	186	65.6	256	90.9
PCB-135	pg/g, ww	242	212	514	2000	1010	1160	883	410	995	160	1100	349
PCB-136	pg/g, ww	150	143	437	1490	776	948	826	251	576	94.0	364	202
PCB-137	pg/g, ww	99.3	79.3	330	487	334	283	306	244	422	123	357	136
PCB-138/163/164	pg/g, ww	2200	1880	7150	13800	7830	7170	8230	5930	12000	3480	11300	4730
PCB-139/149	pg/g, ww	1130	1250	3300	11800	5960	7360	7270	2170	5320	1320	6390	1860
PCB-140	pg/g, ww	11.5	11.2	32.7	86.4	40.6	50.9	32.0	24.0	43.6	16.1	77.6	18.3
PCB-141	pg/g, ww	255	279	947	2860	1690	1390	1540	575	1410	342	1130	348
PCB-144	pg/g, ww	61.5	79.4	226	764	254	415	334	149	335	74.9	234	75.4
PCB-145	pg/g, ww	<1.39	<2.18	<3.62	<2.18	<2.46	<4.39	<2.79	<1.35	1.83	<1.24	2.18	0.676
PCB-146/165	pg/g, ww	405	326	1250	3270	2060	2120	1580	1150	2080	648	2110	861
PCB-147	pg/g, ww	66.9	50.6	251	1080	824	1110	620	156	254	84.9	319	126
PCB-148	pg/g, ww	6.75	<3.21	8.53	195	129	120	42.6	11.9	18.9	5.20	25.9	8.57
PCB-150	pg/g, ww	5.95	<4.33	18.0	184	159	186	111	8.61	21.8	3.82	33.3	7.96
PCB-151	pg/g, ww	429	361	990	4640	2390	3010	2050	869	1930	411	1540	591
PCB-152	pg/g, ww	2.39	2.28	5.69	98.7	84.4	95.9	38.0	2.41	<3.04	1.36	5.71	1.12
PCB-153	pg/g, ww	2590	2070	7440	26900	16900	15400	11900	7290	15700	4530	13300	5750
PCB-154	pg/g, ww	77.4	50.7	161	2420	1830	2380	809	156	342	69.6	362	114
PCB-155	pg/g, ww	1.89	<2.10	<5.07	57.1	51.7	61.9	24.3	2.41	7.00	1.53	9.71	2.74
PCB-156	pg/g, ww	163	158	610	1090	573	549	633	412	972	348	859	367
PCB-157	pg/g, ww	44.8	36.9	135	225	143	113	139	127	241	74.6	233	106
PCB-158/160	pg/g, ww	192	177	663	1130	582	580	716	374	1040	322	864	299
PCB-159	pg/g, ww	<1.76	<4.51	<9.75	<5.04	<4.34	<10.7	<15.1	<1.34	<4.28	<3.01	<3.13	<1.23
PCB-166	pg/g, ww	7.73	7.09	28.6	22.6	16.8	13.8	18.5	19.8	27.6	13.0	31.0	15.3
PCB-167	pg/g, ww	114	90.1	302	693	437	369	328	277	641	152	545	231
PCB-168	pg/g, ww	3.14	2.98	<11.2	66.6	70.3	67.2	28.6	7.66	15.2	6.10	21.5	6.12
PCB-169	pg/g, ww	<1.59	<4.62	1.91	<8.29	<6.93	<2.85	<5.55	1.28	<4.20	<2.56	<3.34	<1.22
PCB-170	pg/g, ww	416	319	796	3910	2230	1870	2240	1060	3150	649	2560	836
PCB-171	pg/g, ww	106	90.8	223	1070	517	433	524	206	877	168	720	182
PCB-172	pg/g, ww	91.6	72.1	213	904	488	380	412	206	650	133	533	181
PCB-173	pg/g, ww	3.27	6.43	15.5	<18.2	30.9	32.3	31.8	8.28	21.1	<5.62	27.3	6.32
PCB-174	pg/g, ww	241	271	696	4050	2170	1950	2110	537	1690	277	1800	417
PCB-175	pg/g, ww	22.7	18.0	44.4	224	96.7	92.5	94.0	45.8	172	32.3	148	33.3
PCB-176	pg/g, ww	35.7	41.9	107	360	195	182	292	60.9	235	48.0	225	58.5
PCB-177	pg/g, ww	278	210	670	2480	1100	974	1350	672	1950	425	1830	638
PCB-178	pg/g, ww	140	109	391	1380	762	780	741	367	951	217	902	324
PCB-179	pg/g, ww	175	162	416	1770	1040	1020	1060	328	1160	189	888	331

Appendix B-2. Analytical Results for Tissue Analysis
Ports of Los Angeles and Long Beach
San Pedro and Long Beach, California

Analyte	Units	Analytical Results [1]											
		OA-23	CB-24	FH-25	IA-26	CS-27	CS-27-DUP	CS-28	IB-29	IB-30	IA-31	OB-32	OB-33
PCB-180	pg/g, ww	1010	785	2640	12400	6640	5880	5510	2610	8400	1640	5690	1960
PCB-181	pg/g, ww	2.97	<2.07	5.29	<15.5	<5.94	13.2	<5.09	<0.731	<0.980	4.52	<0.838	4.37
PCB-182/187	pg/g, ww	945	697	2170	7540	4100	4070	4990	2360	6470	1450	5890	2250
PCB-183	pg/g, ww	328	257	661	2960	1320	1220	1480	713	2690	452	1880	559
PCB-184	pg/g, ww	1.36	1.74	<2.44	9.61	10.1	9.65	12.7	<2.23	5.64	2.11	13.1	3.26
PCB-185	pg/g, ww	34	36.8	89.8	561	314	237	253	65.6	234	46.7	173	51.4
PCB-186	pg/g, ww	<1.80	<1.67	<2.37	<1.79	<2.30	<2.14	<2.79	<0.621	<0.840	<1.33	<0.664	<0.508
PCB-188	pg/g, ww	4.36	3.24	12.5	61.4	61.7	76.2	47.9	10.7	21.5	<4.29	25.9	8.34
PCB-189	pg/g, ww	16.9	14.1	35.4	173	93.6	75.5	75.4	45.2	135	29.0	108	35.8
PCB-190	pg/g, ww	78.6	63.0	171	581	358	314	397	182	572	151	488	172
PCB-191	pg/g, ww	19.2	14.2	32.2	204	108	91.1	85.7	38.4	148	23.6	97.4	29.2
PCB-192	pg/g, ww	<1.94	<1.85	<2.38	<13.8	<5.30	<2.28	<3.54	<0.652	<0.874	<1.42	<0.748	<0.529
PCB-193	pg/g, ww	65.9	48.3	141	592	359	322	310	161	454	105	371	140
PCB-194	pg/g, ww	183	136	471	1820	1220	893	1100	429	1450	254	1270	367
PCB-195	pg/g, ww	70.1	51.8	125	639	427	305	361	131	598	98.2	509	133
PCB-196/203	pg/g, ww	293	221	691	1520	926	1150	1180	606	2290	372	1920	547
PCB-197	pg/g, ww	10.9	<8.18	19.4	88.2	45.1	40.8	51.9	19.4	95.8	14.6	72.8	21.8
PCB-198	pg/g, ww	8.82	8.27	21.6	94.1	63.9	51.3	40.3	22.1	79.6	12.1	74.5	15.7
PCB-199	pg/g, ww	313	230	816	1630	954	1250	1250	782	2520	387	2200	693
PCB-200	pg/g, ww	16.7	19.2	62.9	181	103	<98.1	123	37.4	135	22.0	149	33.9
PCB-201	pg/g, ww	39.1	29.9	74.1	261	134	134	185	72.2	315	48.2	246	71.5
PCB-202	pg/g, ww	77.4	63.2	250	489	306	328	317	185	509	120	522	204
PCB-204	pg/g, ww	<1.79	<2.27	<3.50	<3.38	<2.77	<3.25	<3.52	1.37	<1.49	<1.13	3.47	<0.860
PCB-205	pg/g, ww	9.01	6.79	16.1	73.7	59.2	38.8	44.8	18.6	68.7	12.4	54.1	15.5
PCB-206	pg/g, ww	108	82.8	387	564	318	322	472	314	953	102	719	214
PCB-207	pg/g, ww	14.6	12.2	43.9	73.5	54.7	38.3	71.3	33.7	129	15.5	110	27.5
PCB-208	pg/g, ww	45.6	33.3	171	157	91.6	75.3	125	126	426	43.9	344	95.3
PCB-209	pg/g, ww	77	48.5	239	228	111	82.3	132	283	924	52.1	533	146
Total monoCB	pg/g, ww	2.92	1.85	<3.97	9.48	13.0	9.12	16.5	3.63	4.99	1.91	8.21	3.62
Total diCB	pg/g, ww	163	128	294	374	664	480	607	1540	258	94.9	292	146
Total triCB	pg/g, ww	1100	1000	3780	4630	5980	6110	4260	24900	2460	414	2330	1020
Total tetraCB	pg/g, ww	4500	4310	27700	31800	30100	33100	21000	23300	11300	2570	12900	6210
Total pentaCB	pg/g, ww	8270	8700	45900	54100	42700	41600	34600	20300	31500	9700	31800	14600
Total hexaCB	pg/g, ww	9060	8100	27900	79500	46800	47500	41600	22500	48000	13300	45200	17700
Total heptaCB	pg/g, ww	4020	3220	9540	41200	22000	20000	22000	9680	30000	6040	24400	8220
Total octaCB	pg/g, ww	1020	766	2550	6800	4240	4190	4650	2300	8060	1340	7020	2100
Total nonaCB	pg/g, ww	168	128	602	794	464	435	668	473	1510	161	1170	337
DecaCB	pg/g, ww	77	48.5	239	228	111	82.3	132	283	924	52.1	533	146
Total PCB	pg/g, ww	28400	26400	119000	219000	153000	154000	129000	105000	134000	33700	126000	50500

Notes:
[1]Non-detect values are shown as < the reporting limit for DDXs or < the method detection limit or the estimated maximum possible concentration, as reported by Vista Analytical for PCBs
[2]Polychaete sample mass represents composite sample of all benthic invertebrates collected
[3]Data were rejected upon validation.

Abbreviations:
PCB: Polychlorinated biphenyl
DDD: Dichlorodiphenyldichloroethane
DDE: Dichlorodiphenyldichloroethylene
DDT: Dichlorodiphenyltrichloroethane
DDMU: 1-chloro-2,2-6w(p-chlorophenyl)ethene
g: gram
µg/kg: micrograms per kilogram
pg/g: picogram per gram
%: percent
ww: wet weight

Appendix C

Field and Analytical Electronic Data Deliverables

Provided Via Electronic Mail

Appendix D

QA/QC Data Validation Reports

Validation of Analytical Laboratory Data

ENVIRON reviewed analytical data for sediment, tissue, and pore water samples collected from the Los Angeles and Long Beach waters and Eastern San Pedro Bay. This data validation summary presents the results of the data review and validation process for samples collected on October 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, and 27, 2014. The following samples/matrices were evaluated as part of this review:

- OA-SS-01-0-5-141016-BDSG / sediment
- OA-SS-01-0-5-141016-HPISO / sediment
- OA-SS-01-0-5-141016-CHEM / sediment
- OA-SS-01-0-5-141016-GS / sediment
- IS-SS-02-0-5-20141017-BDSG / sediment
- IS-SS-02-0-5-20141017-HPISO / sediment
- IS-SS-02-0-5-20141017-CHEM / sediment
- IS-SS-02-0-5-20141017-GS / sediment
- IA-SS-03-0-5-20141017-BDSG / sediment
- IA-SS-03-0-5-20141017-HPISO / sediment
- IA-SS-03-0-5-20141017-CHEM / sediment
- IA-SS-03-0-5-20141017-GS / sediment
- FH-SS-04-0-5-20141017-BDSG / sediment
- FH-SS-04-0-5-20141017-HPISO / sediment
- FH-SS-04-0-5-20141017-CHEM / sediment
- FH-SS-04-0-5-20141017-GS / sediment
- FH-SS-05-0-5-20141018-BDSG / sediment
- FH-SS-05-0-5-20141018-HPISO / sediment
- FH-SS-05-0-5-20141018-CHEM / sediment
- FH-SS-05-0-5-20141018-GS / sediment
- FH-SS-06-0-5-20141017-BDSG / sediment
- FH-SS-06-0-5-20141017-HPISO / sediment
- FH-SS-06-0-5-20141017-CHEM / sediment
- FH-SS-06-0-5-20141017-GS / sediment
- IA-SS-07-0-5-20141018-BDSG / sediment
- IA-SS-07-0-5-20141018-HPISO / sediment
- IA-SS-07-0-5-20141018-CHEM / sediment
- IA-SS-07-0-5-20141018-GS / sediment
- IA-SS-08-0-5-20141018-BDSG / sediment
- IA-SS-08-0-5-20141018-HPISO / sediment
- IA-SS-08-0-5-20141018-CHEM / sediment
- IA-SS-08-0-5-20141018-GS / sediment
- IA-SS-09-0-5-20141020-BDSG / sediment
- IA-SS-09-0-5-20141020-HPISO / sediment
- IA-SS-09-0-5-20141020-CHEM / sediment
- IA-SS-09-0-5-20141020-GS / sediment
- IB-SS-10-0-5-20141021-BDSG / sediment
- IB-SS-10-0-5-20141021-HPISO / sediment
- IB-SS-10-0-5-20141021-CHEM / sediment

- IB-SS-10-0-5-20141021-GS / sediment
- IB-SS-11-0-5-20141021-BDSG / sediment
- IB-SS-11-0-5-20141021-BDSG-DUP / sediment
- IB-SS-11-0-5-20141021-CHEM / sediment
- IB-SS-11-0-5-20141021-CHEM-DUP / sediment
- IB-SS-11-0-5-20141021-GS / sediment
- IB-SS-11-0-5-20141021-GS-DUP / sediment
- IB-SS-11-0-5-20141021-HPISO / sediment
- IB-SS-11-0-5-20141021-HPISO-DUP / sediment
- IB-SS-12-0-5-20141021-BDSG / sediment
- IB-SS-12-0-5-20141021-CHEM / sediment
- IB-SS-12-0-5-20141021-GS / sediment
- IB-SS-12-0-5-20141021-HPISO / sediment
- SP-SS-13-0-5-141016-BDSG / sediment
- SP-SS-13-0-5-141016-HPISO / sediment
- SP-SS-13-0-5-141016-CHEM / sediment
- SP-SS-13-0-5-141016-GS / sediment
- SP-SS-14-0-5-141016-BDSG / sediment
- SP-SS-14-0-5-141016-HPISO / sediment
- SP-SS-14-0-5-141016-CHEM / sediment
- SP-SS-14-0-5-141016-GS / sediment
- SP-SS-15-0-5-141016-BDSG / sediment
- SP-SS-15-0-5-141016-HPISO / sediment
- SP-SS-15-0-5-141016-CHEM / sediment
- SP-SS-15-0-5-141016-GS / sediment
- OB-SS-16-0-5-141016-BDSG / sediment
- OB-SS-16-0-5-141016-HPISO / sediment
- OB-SS-16-0-5-141016-CHEM / sediment
- OB-SS-16-0-5-141016-GS / sediment
- OA-SS-17-0-5-141016-BDSG / sediment
- OA-SS-17-0-5-141016-HPISO / sediment
- OA-SS-17-0-5-141016-CHEM / sediment
- OA-SS-17-0-5-141016-GS / sediment
- OA-SS-18-0-5-141016-BDSG / sediment
- OA-SS-18-0-5-141016-HPISO / sediment
- OA-SS-18-0-5-141016-CHEM / sediment
- OA-SS-18-0-5-141016-GS / sediment
- AG-SS-19-0-5-20141017-BDSG / sediment
- AG-SS-19-0-5-20141017-HPISO / sediment
- AG-SS-19-0-5-20141017-CHEM / sediment
- AG-SS-19-0-5-20141017-GS / sediment
- OA-SS-20-0-5-141016-BDSG / sediment
- OA-SS-20-0-5-141016-HPISO / sediment
- OA-SS-20-0-5-141016-CHEM / sediment
- OA-SS-20-0-5-141016-GS / sediment
- OA-SS-21-0-5-0141016-BDSG / sediment
- OA-SS-21-0-5-0141016-HPISO / sediment
- OA-SS-21-0-5-0141016-CHEM / sediment

- OA-SS-21-0-5-0141016-GS / sediment
- AG-SS-22-0-5-20141017-BDSG / sediment
- AG-SS-22-0-5-20141017-HPISO / sediment
- AG-SS-22-0-5-20141017-CHEM / sediment
- AG-SS-22-0-5-20141017-GS / sediment
- OA-SS-23-0-5-20141025-BDSG / sediment
- OA-SS-23-0-5-20141025-HPISO / sediment
- OA-SS-23-0-5-20141025-CHEM / sediment
- OA-SS-23-0-5-20141025-GS / sediment
- CB-SS-24-0-5-20141022-BDSG / sediment
- CB-SS-24-0-5-20141022-CHEM / sediment
- CB-SS-24-0-5-20141022-GS / sediment
- CB-SS-24-0-5-20141022-HPISO / sediment
- FH-SS-25-0-5-20141017-BDSG / sediment
- FH-SS-25-0-5-20141017-HPISO / sediment
- FH-SS-25-0-5-20141017-CHEM / sediment
- FH-SS-25-0-5-20141017-GS / sediment
- IA-SS-26-0-5-20141021-BDSG / sediment
- IA-SS-26-0-5-20141021-CHEM / sediment
- IA-SS-26-0-5-20141021-GS / sediment
- IA-SS-26-0-5-20141021-HPISO / sediment
- CS-SS-27-0-5-20141020-HPISO / sediment
- CS-SS-27-0-5-20141020-BDSG / sediment
- CS-SS-27-0-5-20141020-CHEM / sediment
- CS-SS-27-0-5-20141020-GS / sediment
- CS-SS-28-0-5-20141019-BDSG / sediment
- CS-SS-28-0-5-20141019-HPISO / sediment
- CS-SS-28-0-5-20141019-CHEM / sediment
- CS-SS-28-0-5-20141019-GS / sediment
- IB-SS-29-0-5-20141022-BDSG / sediment
- IB-SS-29-0-5-20141022-CHEM / sediment
- IB-SS-29-0-5-20141022-GS / sediment
- IB-SS-29-0-5-20141022-HPISO / sediment
- IB-SS-30-0-5-20141023-BDSG / sediment
- IB-SS-30-0-5-20141023-HPISO / sediment
- IB-SS-30-0-5-20141023-CHEM / sediment
- IB-SS-30-0-5-20141023-GS / sediment
- IA-SS-31-0-5-20141018-BDSG / sediment
- IA-SS-31-0-5-20141018-BDSG-DUP / sediment
- IA-SS-31-0-5-20141018-HPISO / sediment
- IA-SS-31-0-5-20141018-HPISO-DUP / sediment
- IA-SS-31-0-5-20141018-CHEM / sediment
- IA-SS-31-0-5-20141018-CHEM-DUP / sediment
- IA-SS-31-0-5-20141018-GS / sediment
- IA-SS-31-0-5-20141018-GS-DUP / sediment
- OB-SS-32-0-5-20141024-BDSG / sediment
- OB-SS-32-0-5-20141024-HPISO / sediment
- OB-SS-32-0-5-20141024-CHEM / sediment

- OB-SS-32-0-5-20141024-GS / sediment
- CB-SS-33-0-5-20141024-BDSG / sediment
- CB-SS-33-0-5-20141024-HPISO / sediment
- CB-SS-33-0-5-20141024-CHEM / sediment
- CB-SS-33-0-5-20141024-GS / sediment
- CB-24 / tissue
- CS-27 / tissue
- CS-27-DUP / tissue
- CS-28 / tissue
- FH-25 / tissue
- IA-26 / tissue
- IA-31 / tissue
- IB-29 / tissue
- IB-30 / tissue
- OA-23 / tissue
- OB-32 / tissue
- OB-33 / tissue
- OA-PW-01-0-5-141016 / pore water
- IS-PW-02-0-5-20141017 / pore water
- IA-PW-03-0-5-20141017 / pore water
- FH-PW-04-0-5-20141017 / pore water
- FH-PW-05-0-5-20141018 / pore water
- FH-PW-06-0-5-20141017 / pore water
- IA-PW-07-0-5-20141018 / pore water
- IA-PW-08-0-5-20141018 / pore water
- IA-PW-09-0-5-20141020 / pore water
- IB-PW-10-0-5-20141021 / pore water
- IB-PW-11-0-5-20141021 / pore water
- IB-PW-11-0-5-20141021-DUP / pore water
- IB-PW-12-0-5-20141021 / pore water
- SP-PW-13-0-5-141016 / pore water
- SP-PW-14-0-5-141016 / pore water
- SP-PW-15-0-5-141016 / pore water
- OB-PW-16-0-5-141016 / pore water
- OA-PW-17-0-5-141016 / pore water
- OA-PW-18-0-5-141016 / pore water
- AG-PW-19-0-5-20141017 / pore water
- OA-PW-20-0-5-141016 / pore water
- OA-PW-21-0-5-0141016 / pore water
- AG-PW-22-0-5-20141017 / pore water
- OA-PW-23-0-5-20141025 / pore water
- CB-PW-24-0-5-20141022 / pore water
- FH-PW-25-0-5-20141017 / pore water
- IA-PW-26-0-5-20141021 / pore water
- CS-PW-27-0-5-20141020 / pore water
- CS-PW-28-0-5-20141019 / pore water
- IB-PW-29-0-5-20141022 / pore water
- IB-PW-30-0-5-20141023 / pore water

- IA-PW-31-0-5-20141018 / pore water
- IA-PW-31-0-5-20141018-DUP / pore water
- OB-PW-32-0-5-20141024 / pore water
- CB-PW-33-0-5-20141024 / pore water

Vista Analytical Laboratory (Vista), located in El Dorado Hills, California, performed the analyses on the sediment and tissue samples in laboratory reports 1400786, 1400779, 1400803, 1400853, and 1500156. The samples were analyzed for:

- Polychlorinated biphenyls (PCB) 209 congeners by United States Environmental Protection Agency (EPA) Method 1668C

Eurofins Calscience (Calscience), located in Garden Grove, California, performed the analyses on the sediment samples. The samples were reported in laboratory reports 14-10-1357s1, 14-10-1654, 14-10-1800, 14-10-2081, and 14-11-0562s4. The samples were analyzed for one or more of the following analyses:

- PCB congeners by EPA Method 8270C SIM
- Organochlorine Pesticides by EPA Method 8270C SIM
- Total Organic Carbon (TOC) by EPA Method 9060A
- Total Solids (TS) by SM 2540 B (M)
- Grain Size by ASTM D4464 (M)

Marine Science Institute, located in Redwood City, California, was subcontracted by Eurofin's Calscience to perform the analysis on the pore water samples. The samples were analyzed for:

- Dissolved Organic Carbon (SM 5310 B)

PTS Laboratories (PTS), located in Santa Fe Springs, California, performed the analyses on the sediment samples. The samples were reported in laboratory reports 14-10-1357s1, 14-10-1654, 14-10-1800, and 14-10-2081. The samples were analyzed for one or more of the following analyses:

- Dry bulk density by API RP40,
- Specific gravity by ASTM D854

The University of California at Davis (UCD), located in Davis, California, performed stable isotope analysis on the sediment and tissue samples.

The data were evaluated in general conformance of project objectives specified in the *Draft Programmatic Quality Assurance Project Plan Supporting Compliance Monitoring and Special Studies Related to the Harbor Toxics Total Maximum Daily Load* (Anchor QEA, 2014).

ENVIRON's validation review was based on procedures published by the EPA Contract Laboratory Program in their National Functional Guidelines for organic data review (USEPA 2008). The guidelines provide the criteria to review laboratory and field quality control information and apply the appropriate data qualifiers to the laboratory data. The QC information checked by ENVIRON included case narratives, chain-of-custody (COC) forms, dilutions, holding times, reporting limits, blank spikes, matrix spike/matrix spike duplicate (MS/MSD) analyses, laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses,

internal standards, surrogate recoveries, duplicates, and blanks, as available. Instrument calibration data was assumed to be acceptable unless the laboratory noted otherwise.

Two Standard Reference Method samples (SRMs) spiked with known amounts of PCBs were analyzed as part of this data set, SRM 1944 and SRM 1946.

The following sections summarize findings for each analysis based on the review.

Chain of Custody Anomalies

For some samples, the Chain of Custody contained errors or anomalies such as sample IDs which deviated from the Supplemental Sampling and Analysis Plan, missing samples, or incorrect numbers of containers indicated. These anomalies are listed below.

Sample ID	Anomaly
OA-PW-01-0-5-20141016	Sample received; however, the sample was not indicated on the COC. Sample ID on revised COC was OA-PW-01-0-5-141016
OA-SS-01-0-5-20141016-GS	Sample ID on COC incorrect: OA-SS-01-0-5-141016-GS
OA-SS-01-0-5-20141016-BDSG	Sample ID on COC incorrect: OA-SS-01-0-5-141016-BDSG
OA-SS-01-0-5-20141016-CHEM	Sample ID on COC incorrect: OA-SS-01-0-5-141016-CHEM
OA-SS-01-0-5-20141016-HPISO	Sample ID on COC incorrect: OA-SS-01-0-5-141016-HPISO
IA-PW-02-0-5-20141017	Sample ID on COC incorrect: IA-SS-02-0-5-20141017
IA-SS-02-0-5-20141017-GS	Sample ID incorrect in analytical results: IA-SS-02-0-5-20141017-GW
IA-SS-02-0-5-20141017-HPISO	COC lists one jar shipped; however, lab received two jars.
IA-PW-03-0-5-20141017	Sample ID on COC incorrect: IA-SS-03-0-5-20141017
FH-PW-04-0-5-20141017	Sample ID on COC incorrect: FH-SS-04-0-5-20141017
FH-SS-04-0-5-20141017-HPISO	COC lists one jar shipped; however, lab received two jars.
FH-PW-05-0-5-20141018	Filtered and preservative entry error on COC
FH-PW-06-0-5-20141017	Sample ID on COC incorrect: FH-SS-06-0-5-20141017
FH-SS-06-0-5-20141017-HPISO	Sample container cracked; however, the sample does not appear to be compromised
IA-PW-07-0-5-20141018	Filtered and preservative entry error on COC
IA-PW-08-0-5-20141018	Filtered and preservative entry error on COC
IA-PW-09-0-5-20141020	Analysis not indicated on COC
SP-PW-13-0-5-20141016	Sample received; however, the sample was not indicated on the COC. Sample ID on revised COC incorrect: SP-PW-13-0-5-141016
SP-SS-13-0-5-20141016-GS	Sample ID on COC incorrect: SP-SS-13-0-5-141016-GS
SP-SS-13-0-5-20141016-BDSG	Sample ID on COC incorrect: SP-SS-13-0-5-141016-BDSG
SP-SS-13-0-5-20141016-CHEM	Sample ID on COC incorrect: SP-SS-13-0-5-141016-CHEM
SP-SS-13-0-5-20141016-HPISO	Sample ID on COC incorrect: SP-SS-13-0-5-141016-HPISO
SP-PW-14-0-5-20141016	Sample received; however, the sample was not indicated on the COC. Sample ID on revised COC incorrect: SP-PW-14-0-5-141016

Sample ID	Anomaly
SP-SS-14-0-5-20141016-GS	Sample ID on COC incorrect: SP-SS-14-0-5-141016-GS
SP-SS-14-0-5-20141016-BDSG	Sample ID on COC incorrect: SP-SS-14-0-5-141016-BDSG
SP-SS-14-0-5-20141016-CHEM	Sample ID on COC incorrect: SP-SS-14-0-5-141016-CHEM
SP-SS-14-0-5-20141016-HPISO	Sample ID on COC incorrect: SP-SS-14-0-5-141016-HPISO
SP-PW-15-0-5-20141016	Sample received; however, the sample was not indicated on the COC. Sample ID on revised COC incorrect: SP-PW-15-0-5-141016
SP-SS-15-0-5-20141016-GS	Sample ID on COC incorrect: SP-SS-15-0-5-141016-GS
SP-SS-15-0-5-20141016-BDSG	Sample ID on COC incorrect: SP-SS-15-0-5-141016-BDSG
SP-SS-15-0-5-20141016-CHEM	Sample ID on COC incorrect: SP-SS-15-0-5-141016-CHEM
SP-SS-15-0-5-20141016-HPISO	Sample ID on COC incorrect: SP-SS-15-0-5-141016-HPISO
OB-PW-16-0-5-20141016	Sample received; however, the sample was not indicated on the COC. Sample ID on revised COC incorrect: OB-PW-16-0-5-141016
OB-SS-16-0-5-20141016-GS	Sample ID on COC incorrect: OB-SS-16-0-5-141016-GS
OB-SS-16-0-5-20141016-BDSG	Sample ID on COC incorrect: OB-SS-16-0-5-141016-BDSG
OB-SS-16-0-5-20141016-CHEM	Sample ID on COC incorrect: OB-SS-16-0-5-141016-CHEM
OB-SS-16-0-5-20141016-HPISO	Sample ID on COC incorrect: OB-SS-16-0-5-141016-HPISO; Sample ID error on analytical results: OA-SS-16-0-5-141016
OA-PW-17-0-5-20141016	Sample received; however, the sample was not indicated on the COC. Sample ID on revised COC incorrect: OA-PW-17-0-5-20141016
OA-SS-17-0-5-20141016-GS	Sample ID on COC incorrect: OA-SS-17-0-5-141016-GS
OA-SS-17-0-5-20141016-BDSG	Sample ID on COC incorrect: OA-SS-17-0-5-141016-BDSG
OA-SS-17-0-5-20141016-CHEM	Sample ID on COC incorrect: OA-SS-17-0-5-141016-CHEM
OA-SS-17-0-5-20141016-HPISO	Sample ID on COC incorrect: OA-SS-17-0-5-141016-HPISO
OA-PW-18-0-5-20141016	Sample received; however, the sample was not indicated on the COC. Sample ID on revised COC incorrect: OA-PW-18-0-5-141016
OA-SS-18-0-5-20141016-GS	Sample ID on COC incorrect: OA-SS-18-0-5-141016-GS
OA-SS-18-0-5-20141016-BDSG	Sample ID on COC incorrect: OA-SS-18-0-5-141016-BDSG
OA-SS-18-0-5-20141016-CHEM	Sample ID on COC incorrect: OA-SS-18-0-5-141016-CHEM
OA-SS-18-0-5-20141016-HPISO	Sample ID on COC incorrect: OA-SS-18-0-5-141016-HPISO
AG-SS-19-0-5-20141017-HPISO	Sample ID on container label incorrect: AG-SS-17-0-5-20141710
OA-PW-20-0-5-20141016	Sample received; however, the sample was not indicated on the COC. Sample ID on revised COC incorrect: OA-

Sample ID	Anomaly
	PW-20-0-5-141016
OA-SS-20-0-5-20141016-GS	Sample ID on COC incorrect: OA-SS-20-0-5-141016-GS
OA-SS-20-0-5-20141016-BDSG	Sample ID on COC incorrect: OA-SS-20-0-5-141016-BDSG
OA-SS-20-0-5-20141016-CHEM	Sample ID on COC incorrect: OA-SS-20-0-5-141016-CHEM
OA-SS-20-0-5-20141016-HPISO	Sample ID on COC incorrect: OA-SS-20-0-5-141016-HPISO
OA-PW-21-0-5-20141016	Sample received; however, the sample was not indicated on the COC. Sample ID on revised COC incorrect: OA-PW-21-0-5-141016
OA-SS-21-0-5-20141016-GS	Sample ID on COC incorrect: OA-SS-21-0-5-141016-GS
OA-SS-21-0-5-20141016-GS Particle Size DUP	Sample ID on COC incorrect: OA-SS-21-0-5-141016-GS
OA-SS-21-0-5-20141016-BDSG	Sample ID on COC incorrect: OA-SS-21-0-5-141016-BDSG
OA-SS-21-0-5-20141016-CHEM	Sample ID on COC incorrect: OA-SS-21-0-5-141016-CHEM
OA-SS-21-0-5-20141016-CHEM LAB DUP	Sample ID on COC incorrect: OA-SS-21-0-5-141016-CHEM
OA-SS-21-0-5-20141016-HPISO	Sample ID on COC incorrect: OA-SS-21-0-5-141016-HPISO
AG-SS-22-0-5-20141017-HPISO	Sample ID on container label incorrect: AG-SS-22-19-20141710. COC lists one jar shipped; however, lab received two jars.
OA-PW-23-0-5-20141025	
OA-SS-23-0-5-20141025-GS	Sample ID incorrect in analytical results: OB-SS-23-20141025-GS
OA-SS-23-0-5-20141025-BDSG	Sample ID incorrect in analytical results: OB-SS-23-20141025-BDSG
OA-SS-23-0-5-20141025-CHEM	Sample ID incorrect in analytical results: OB-SS-23-20141025-CHEM
OA-WO-PW-23-20141025	Samples received in clear glass jar.
OA-WO-PW-23-0-10-20141025-NPLY	Sample ID incorrect in analytical results: OA-WO-PW-23-0-10-20141025-WPLY
CB-SS-24-0-5-20141022-GS	Number of containers not indicated on COC
CB-SS-24-0-5-20141022-BDSG	Number of containers not indicated on COC
CB-WO-PW-24-20141025	Tissue was homogenized prior to allocation of whole polychaetes for gut content analysis; therefore, sediment gut content analysis was not possible. Samples received in clear glass jar.
CB-WO-PW-24-0-10-20141025-PLY	Sample ID on COC incorrect - OA-WO-PW-24-0-10-20141025-PLY
FH-PW-25-0-5-20141017	Sample ID on COC incorrect - FH-SS-25-0-5-20141017
FH-SS-25-0-5-20141017-HPISO	Sample container cracked; however, the sample does not appear to be compromised
FH-WO-PW-25-20141017	Samples received in clear glass jar.
FH-WO-PW-25-0-10-20141017-<2CM	Analyses marked on COC; however, samples were placed on hold upon receipt by lab.
FH-WO-PW-25-0-10-20141017->2CM	Analyses marked on COC; however, samples were placed on hold upon receipt by lab.
FH-WO-PW-25-0-10-20141017-	Analyses marked on COC; however, samples were placed

Sample ID	Anomaly
PLY	on hold upon receipt by lab.
IA-WO-PW-26-20141026	Samples received in clear glass jar.
CS-PW-27-0-5-20141020	Sample ID on COC incorrect: CS-SS-27-0-5-20141020
CS-WO-PW-27-20141020	Samples received in clear glass jar.
CS-WO-PW-27-20141026-DUP	Samples received in clear glass jar.
CS-WO-PW-27-0-10-20141020-<2CM	Analyses marked on COC; however, samples were placed on hold upon receipt by lab.
CS-WO-PW-27-0-10-20141020->2CM	Analyses marked on COC; however, samples were placed on hold upon receipt by lab.
CS-WO-PW-27-0-10-20141020-PLY	Analyses marked on COC; however, samples were placed on hold upon receipt by lab.
CS-WO-PW-27-0-10-20141026-PLY-DUP	Sample ID error on COC
CS-SS-28-0-5-20141019-GS	Sample ID incorrect in analytical results - CS-PW-28-0-5-20141019-GS
CS-SS-28-0-5-20141019-BDSG	Sample ID incorrect in analytical results - CS-PW-28-0-5-20141019-BDSG
CS-SS-28-0-5-20141019-CHEM	Sample ID incorrect in analytical results - CS-PW-28-0-5-20141019-CHEM
CS-WO-PW-28-20141019	Samples received in clear glass jar.
CS-WO-PW-28-0-10-20141019-<2CM	Analyses marked on COC; however, samples were placed on hold upon receipt by lab.
CS-WO-PW-28-0-10-20141019->2CM	Analyses marked on COC; however, samples were placed on hold upon receipt by lab.
CS-WO-PW-28-0-10-20141019-NPLY	Analyses marked on COC; however, samples were placed on hold upon receipt by lab.
CS-WO-PW-28-0-10-20141019-PLY	Analyses marked on COC; however, samples were placed on hold upon receipt by lab.
IB-PW-29-0-5-20141022	Sample analysis was not marked on COC
IB-WO-PW-29-20141022	Samples received in clear glass jar.
IB-SS-30-0-5-20141023-GS	Sample time on COC inconsistent with sample label on container
IB-SS-30-0-5-20141023-BDSG	Sample time on COC inconsistent with sample label on container
IB-SS-30-0-5-20141023-CHEM	Sample time on COC inconsistent with sample label on container
IB-WO-PW-30-20141023	Samples received in clear glass jar.
IB-WO-PW-30-0-10-20141023-<2CM	Sample time on COC inconsistent with sample label on container
IB-WO-PW-30-0-10-20141023->2CM	Sample time on COC inconsistent with sample label on container
IA-PW-31-0-5-20141018	Sample ID on COC incorrect: IA-SS-31-0-5-20141018
IA-PW-31-0-5-20141018-DUP	Sample ID on COC incorrect: IA-SS-31-0-5-20141018, filtered entry, and preservative entry error on COC
IA-WO-PW-31-20141018	Samples received in clear glass jar.
IA-WO-PW-31-0-10-20141018-<2CM	COC dated 10/21/14 noted Vista as laboratory; however, Eurofins CalScience was receiving laboratory.
IA-WO-PW-31-0-10-20141018->2CM	COC dated 10/21/14 noted Vista as laboratory; however, Eurofins CalScience was receiving laboratory.
IA-WO-PW-31-0-10-20141018-NPLY	COC dated 10/21/14 noted Vista as laboratory; however, Eurofins CalScience was receiving laboratory.

Sample ID	Anomaly
IA-WO-PW-31-0-10-20141018-PLY	COC dated 10/21/14 noted Vista as laboratory; however, Eurofins CalScience was receiving laboratory.
OB-SS-32-0-5-20141024-GS	Analysis not indicated on the COC. Sample time on COC inconsistent with sample label on container
OB-SS-32-0-5-20141024-BDSG	Analysis not indicated on the COC. Sample time on COC inconsistent with sample label on container
OB-SS-32-0-5-20141024-CHEM	Sample time on COC inconsistent with sample label on container
OB-WO-PW-32-20141024	Samples received in clear glass jar.
OB-WO-PW-32-0-10-20141024-<2CM	Sample time on COC inconsistent with sample label on container
OB-WO-PW-32-0-10-20141024->2CM	Sample time on COC inconsistent with sample label on container
OB-WO-PW-32-0-10-20141024-PLY	Sample time on COC inconsistent with sample label on container
OB-WO-PW-33-20141024	Samples received in clear glass jar.
EB-20141016-HPCB	Samples received in clear glass jar. COC lists high resolution DDX analysis; however, sample was not analyzed for high resolution DDX.

General

For the October 27, 2014 sampling date, the samples arrived at Vista at 6.4°C, slightly above the acceptable temperature of 4 ± 2°C. Because the samples were received on ice, and because the temperature exceedance was not significant, no data qualification is necessary.

For several sampling dates for several analyses, the sample size was not large enough to perform MS/MSD analyses. In these cases, LCS/LCSD analyses were performed. No data qualification is necessary solely based on lack of MS/MSD data for these samples.

PCBs

The laboratory case narratives indicated that initial and continuing calibration verifications met the method acceptance criteria. Labeled standard recoveries were reviewed, and recoveries were within method acceptance criteria for all QC and field samples. The Ongoing Precision and Recovery (OPR) sample recoveries were within the method acceptance criteria.

The laboratory noted that the concentrations of PCB-28, PCB-31, PCB-153, and PCB-180 in several samples exceeded the High Calibration Limit. The results for the affected samples were qualified “J” as estimated.

Method blank results were evaluated for potential laboratory contamination. The PCB congener PCB-11 was detected in Method Blank B5B0051-BLK-1, associated with tissue samples collected on February 9, 2015. The analytes in associated samples in Report 1500156 were evaluated to determine if the results in the associated samples may have been biased by associated laboratory contamination. PCB-11 was detected in the associated sample at greater than five times the concentration in the associated method blank, and was not qualified.

Method blank results were evaluated for potential contamination. The PCB congeners PCB-11, PCB-90/101, PCB-95/98/102, PCB-105, PCB-126, PCB-127, PCB-132/161, PCB-139/149, PCB-153, PCB-189, and PCB-206 were detected in the Method Blanks in QC Batches B4J0148 B4J0155, and B4K0008 associated with sediment samples collected on October 16 and 21,

2014. The analytes in associated samples in Report 1400779, 1400786, and 1400803 were evaluated to determine if the results in the associated samples may have been biased by associated laboratory contamination. PCBs were detected in the associated sample at greater than five times the concentration in the associated blank or less than the reporting limit, and were not qualified.

Equipment blanks were evaluated for detections. The following congeners were detected in one or more equipment blank related to sediment samples: PCB-1, PCB-2, PCB-5/8, PCB-11, PCB-16/32, PCB-17, PCB-18, PCB-19, PCB-20/21/33, PCB-26, PCB-28, PCB-43/49, PCB-44, PCB-48/75, PCB-52/69,PCB-56/60, PCB-61/70, and PCB-66/76. Results that were not detected above the reporting limit were qualified "U" as analyte not detected. The concentrations were compared to results reported for the field samples. Any detections that were within five times the detections in the equipment blank were qualified "J" as estimated and may be biased due to contamination present during processing, sampling, and/or transport of the samples. Results that were greater than five times were determined not to be impacted by potential sources of contamination and those data were not qualified.

Sample containers were evaluated for possible effect on sample degradation. Several samples were submitted to the laboratory not in amber jars, but in clear glass jars. The results for these samples were qualified "J" as estimated.

Samples were evaluated for possible matrix effects. The Relative Percent Difference (RPD) value for PCB-018 exceeded the upper acceptable laboratory limit in QC Batch 141101S02. Because the associated analytes were not detected above the reporting limit, no data qualification is necessary.

SRMs were evaluated for detections. The following congeners were detected below the acceptable range: PCB-49, PCB-87, PCB-99, and PCB-183. Results that were not detected above the reporting limit were qualified "R" as unusable. Results that were detected greater than the reporting limit were qualified "J" as estimated.

The laboratory reported some congener results that did not meet the method ion abundance ratio criteria with estimated maximum possible concentrations (EMPCs). These results are considered estimated and were qualified "J".

Organochlorine Pesticides

Samples were evaluated for possible matrix effects. The Percent Recovery (%R) values for 4,4'-DDE exceeded the upper acceptable laboratory limit in QC Batch 141101S01. The results for these samples above the reporting limits were qualified "J" as estimated.

Method blank results were evaluated for potential contamination. The 4,4'-DDT was detected in Method Blank 141023L13 and 141101L01, associated with sediment samples collected on October 17 and 22, 2014. The analytes in associated samples in Reports 14-10-1357s1 and 14-10-1800 were evaluated to determine if the results in the associated samples may have been biased by associated laboratory contamination. Results that were detected above the detection limit but not detected above the reporting limit and qualified "J" as estimated by the laboratory, were qualified "U" as analyte not detected.

Samples were evaluated for possible matrix effects. The %R values for 4,4'-DDT were below the lower acceptable laboratory limit in QC Batch 141025S03. The results for these samples above the reporting limits were qualified "J" as estimated, and those samples below the reporting limit were qualified "UJ" as estimated with approximate reporting limits.

Samples were evaluated for possible matrix effects. The %R value for 4,4'-DDE were below the lower acceptable laboratory limit in QC Batch 141116S02. The results for these samples above the reporting limits were qualified "J" as estimated.

Samples were evaluated for possible matrix effects. The %R value for 4,4'-DDE exceeded the upper acceptable laboratory limit in QC Batch 14101S01. The results for these samples above the reporting limits were qualified "J" as estimated.

Samples were evaluated for possible matrix effects. The RPD value for 4,4'-DDE exceeded the upper acceptable laboratory limit in QC Batch 141101S01. Because the associated analytes were not detected above the reporting limit, no data qualification is necessary.

SRMs were evaluated for detections. 4,4'-DDT was detected above the acceptable range. Results that were detected greater than the reporting limit were qualified "J" as estimated.

Samples were evaluated for surrogate recovery. The surrogate dibutylchlorendate exceeded the upper acceptable range in two samples. Results that were detected greater than the reporting limit were qualified "J" as estimated.

Samples were evaluated for surrogate recovery. The following surrogates were detected below the acceptable range: dibutylchlorendate and 2,4,5,6-tetrachloro-m-xylene. Results in the associated samples that were not detected above the reporting limit were qualified "R" as unusable. Results that were detected greater than the reporting limit were qualified "J" as estimated.

Chemical and Physical Parameters

Data reported for general chemistry analyses, TS and physical parameters, did not require any qualification based on the data validation.

Samples were evaluated for possible matrix effects. The %R values for TOC were below the lower acceptable laboratory limit in QC Batches E1031TOCS1 and E1104TOCS2. The results for these samples above the reporting limits were qualified "J-" as estimated with potential low bias.

Summary

Data evaluated for this report were qualified "J", "UJ"," U", "J-", and "R". Based on ENVIRON's evaluation, the analytical data included in this data set are usable as qualified, except for those results that were "R" qualified.