

1.0 Introduction

In order to maintain accessibility to its boat launching facilities, the Port San Luis Harbor District (the Port) must periodically dredge the approaches to its Mobile Hoist Pier and Sport Launch. Dredging activities, and the subsequent deposition of the dredge spoils, are regulated by the U. S. Army Corps of Engineers (USACE) as specified in Dredging Permit # SPL-2014-00063-CLH, and by the California Coastal Commission (CCC) as set forth in Coastal Development Permit No. 3-19-0106 (and as amended in CDP No. 3-19-0106-A1).

The Port submitted a Sediment Sampling and Analysis Plan (SSAP) for the testing of sediments to be collected from the Port San Luis dredge site to the USACE and CCC in February 2024 and the list of analytes was amended by USACE in February 2025. The SSAP was assembled in accordance with the U. S. Environmental Protection Agency (EPA) 1998 “Evaluation of Dredged Material Proposed for Discharge in the Waters of the U.S. – Testing Manual (Inland Testing Manual)” (EPA 1998) and the USACE’s 2021 “Sampling and Analysis Plan/Results (SAP/R) Guidance” (USACE 2021). In February 2024 sediment samples were collected from sampling locations identified in the SSAP. These sampling locations inside the proposed dredge area are located at the Sport Launch and Mobile Hoist Pier—the main areas of necessary dredging activity—and two nourishment sites currently intended for use by the Port. The samples were submitted for physical and chemical analysis in accordance with the SSAP. This report documents the collection and analysis of those samples. Chemical analysis results will be compared to the NOAA Effects Range Low (ERL) values, the published levels in which concentrations below the ERL rarely have adverse biological effects, listed in the USACE SAP/R Guidance document (USACE 2021). Grain size results are summarized and compared between the dredge sites and the nourishment sites. All laboratory reports are included in Appendix B.



2.0 Project Description

The Port proposes to dredge bottom sediments from the basins adjacent to the Mobile Hoist Pier and the Sport Launch (also commonly referred to as the Trailer Boat Basin) down to a depth of 10 feet below Mean Lower Low Water (MLLW). The proposed dredge area and two nourishment sites are shown in **Figure 1**. Fisherman's Beach and West Bluff Beach are both identified as nourishment sites, although Fisherman's Beach has been used exclusively since 2014 as the primary nourishment site.

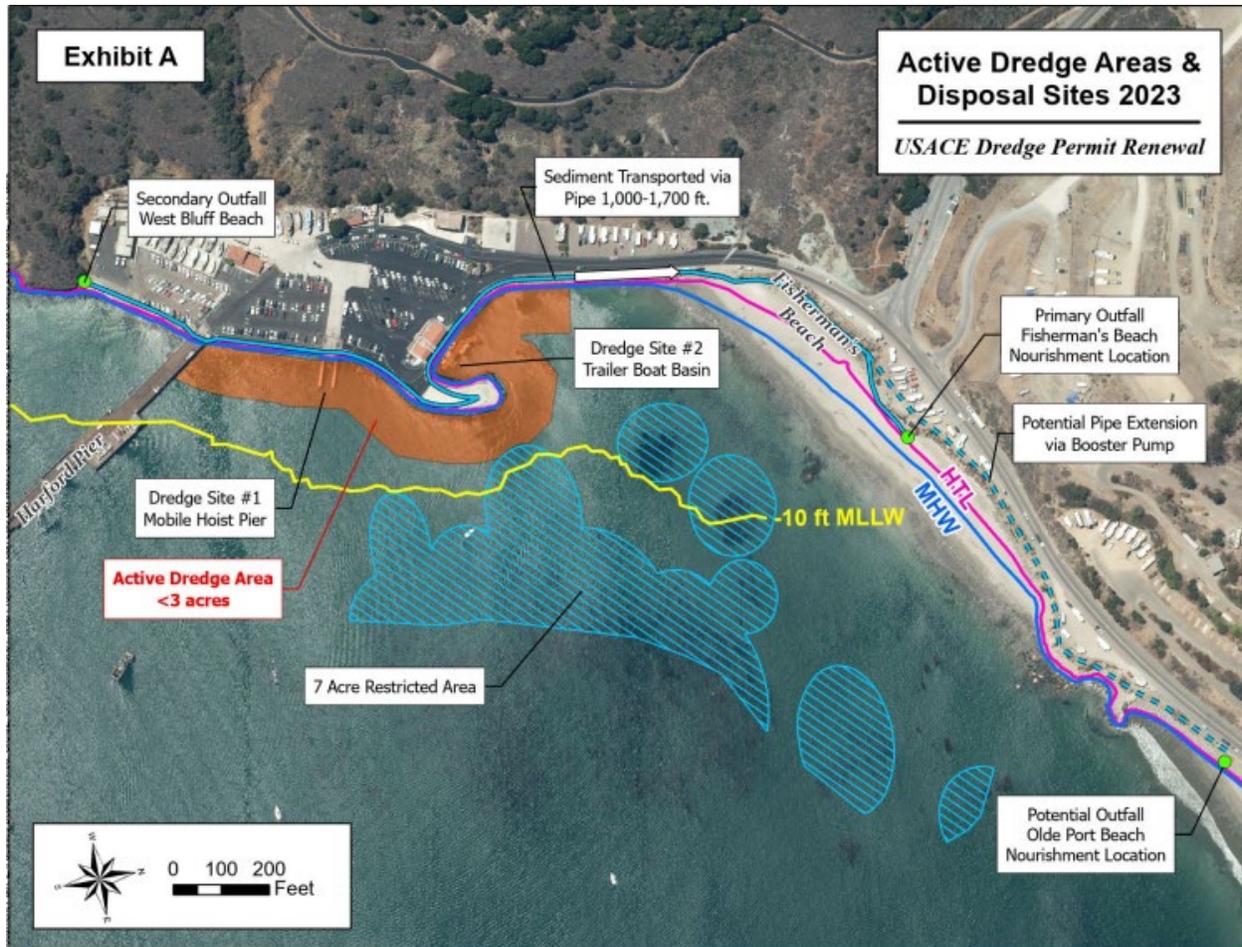


Figure 1. Proposed Port San Luis Harbor District dredging location surrounding the Sport Launch and Mobile Hoist Pier (red area) and the three nourishment sites (green dots) in San Luis Obispo Bay.



According to the existing USACE permit and the CDP permit, the maximum dredge depth permitted is 10 feet below MLLW, with an additional foot to allow for over-dredging. Sand in the vicinity of the Mobile Hoist Pier will be removed to the maximum depth allowed. Dredging in the vicinity of the Sport Launch, however, is limited by the nature of the bottom substrate. Dredging in the area immediately adjacent to the Sport Launch is limited to about 5 to 7 feet below MLLW due to the presence of an underlying rocky bottom. The depth to which dredgeable material can be found increases as one moves away from the Sport Launch, and dredging will extend to the maximum depth of 10 feet below MLLW where it can be achieved.

The Port anticipates that the volume of sediment to be removed annually from the entire dredged area will not exceed the maximum 75,000 cubic yards of material allowed by the existing CDP dredge permit, No. 3-19-0106-A1. Over the past ten years (2014 through 2023) the average annual volume of material removed during maintenance dredging has been 17,209 cubic yards (**Table 1**). The Port anticipates that a similar volume of material will be removed annually for the foreseeable future.

Dredged material will be used for beach nourishment at any of the three proposed sites shown in **Figure 1**. Fisherman's Beach is currently being used exclusively for beach nourishment. West Bluff Beach (secondary nourishment site) and Olde Port Beach are also alternative beach nourishment sites.



3.0 Site History

Port San Luis Harbor is a small craft harbor located in the lee of Point San Luis in the small town of Avila Beach, which is about 8 miles southwest of the city of San Luis Obispo, California. The harbor is protected by a rock rubble breakwater that extends southeast from Point San Luis for a distance of about 2,000 feet. While the point and breakwater provide adequate protection from the majority of the predominantly northwesterly swells, the high-energy nature of the ocean along this section of coastline can still produce significant water movement within the harbor. This is most notable during southerly and southwesterly swells, or during the larger northwesterly swells generated by winter storms. Wave action, combined with non-wave driven currents, is responsible for the transport of sand and other suspended particles from San Luis Creek and the outer coastal areas into the quieter waters of the harbor where they are deposited. Sand deposited in the lee of the breakwater is later transported within the harbor and contributes to the shoaling in areas like the Mobile Hoist Pier and the Sport Launch basins. This ongoing process necessitates the periodic dredging of these areas to allow their continued access by boats.

The volume of material dredged from the vicinity of the Sport Launch and Mobile Hoist Pier basins during the past ten years is shown in **Table 1**. From 2014 through 2023, the average amount dredged per year was 17,209 cubic yards.

Table 1. Dredge activity from the past 10 years at Port San Luis, California.

Period of Dredge Activity	Sport Launch (Trailer Boat Basin) Dredge Vol. (yds ³)	Mobile Hoist Pier Basin Dredge Vol. (yds ³)	Total Dredge Vol. (yds ³)
03/14-06/14	11,699	6,414	18,113
03/15-07/15	10,999	6,674	17,673
03/16-06/16	8,505	5,395	13,900
03/17-08/17	17,579	5,549	23,127
03/18-06/18	9,383	5,549	14,931
03/19-07/19	14,200	6,282	20,482
03/20-07/15/20	11,527	4,153	15,680
3/1/21-7/1/21	9,741	4,243	13,984
3/1/22-6/15/22	10,075	6,322	16,397
3/1/23-8/31/23	12,451	5,353	17,804



5.0 Methods

This section describes the sediment sampling and sample analysis that was conducted on February 15, 2024. Sediment samples were collected from four different stations: the two main dredge sites and the two nourishment sites (**Figure 2**). All four stations were analyzed for grain size while the dredge stations were also analyzed for chemical constituents. Maps and a table are used to describe sample locations. Sample collection, sample handling, Quality Control/Quality Assurance, and sample storage requirement procedures are included below.

Two dredge sediment sampling stations (PSL-1 and PSL-2) were established within the PSL dredge zone as shown in **Figure 2**. The locations of the sampling stations were chosen at the primary dredging areas (Sport Launch and Mobile Hoist Pier). Each of the stations specified has been sampled at least five times previously during the period from 1996 through 2019.



Figure 2. Locations of sediment cores taken for Dredge Site samples (green dots) and grab samples taken for nourishment site samples (yellow dots, “Disposal Station”).

To accurately characterize the sediments at the two dredge sampling stations, three individual cores were collected along a line running perpendicular to the shoreline and proceeding down the natural slope of the bottom as shown in **Figure 3**. Individual cores were capped and extruded, then combined to produce a composite sample representative of the mixed material that will be deposited on the beach by the dredge. The sediment samples were collected using a diver-operated coring device. The device utilizes a 2-inch diameter stainless steel tube with a removable plastic liner. Each individual core was driven into the sediment achieving a nominal core length of 3 feet. The composited samples cover the entire depth range of the area to be dredged, extending down to 12 feet below MLLW. The three core samples were composited



using a stainless-steel bowl and stainless spoon. Samples were collected for grain size and an additional sample for archiving. Archive samples are stored in a chest freezer.

The locations of the nourishment sampling stations relative to the dredge site sampling stations are shown in **Figure 2**. At each of the nourishment sites, three shallow (approximately one foot deep) cores were collected. The three cores are approximately equal intervals along a visual transect running parallel along the beach. The three cores from each site were combined into a single composite sample representative of the sediments at each nourishment site. An additional sample for each station was collected for archive and stored in a chest freezer. The two resultant composite samples were analyzed for particle grain size to determine their compatibility with sediments collected from the dredge area sampling stations. Current UCACE guidance requires that the percentage of dredge area and nourishment site sediments that are retained by a #200 sieve be within 10% of each other to be considered compatible (UCACE 2021).

The date and time of the sample collection, water depth where each core is taken, the depth of the core, and field notes was recorded on the field datasheet during field sampling. Information from the core samples is summarized in **Table 2**. The locations of the individual cores are shown in **Figure 4**.

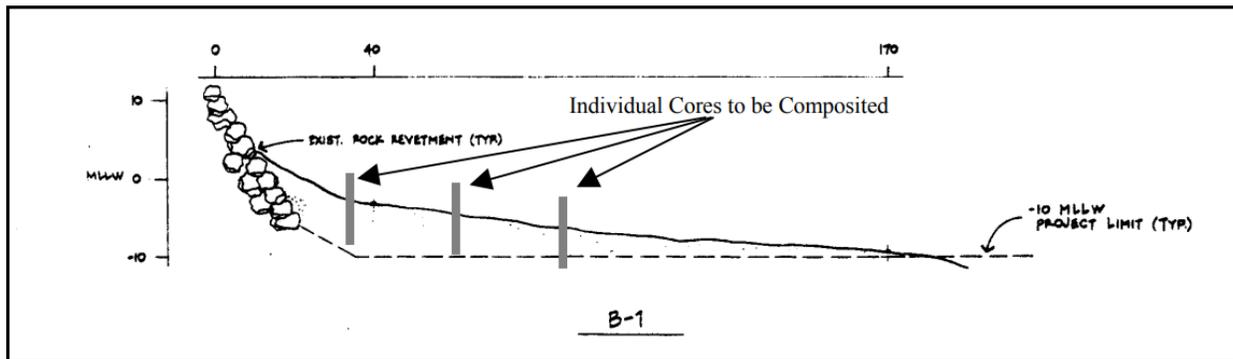


Figure 3. Profile of core sampling technique.



Table 2. Field data for core samples taken at Port San Luis Harbor on February 15, 2024.

Station	Core #	Latitude	Longitude	Time (PDT)	Water Depth (ft)	Depth of Core (ft)	Tide (ft MLLW)	Tide adjusted core depth (ft MLLW)	Composite Core Depths (ft MLLW)
PSL-1a	1	35°10.357	120°45.330	11:27	6	3.0	1.5	-4.5 to -7.5	-4.5 to -12.2
PSL-1b	2	35°10.364	120°45.332	11:40	8	3.0	1.7	-6.3 to -9.3	
PSL-1c	3	35°10.370	120°45.314	11:50	11	3.0	1.8	-9.2 to -12.2	
PSL-2a	1	35°10.301	120°45.328	10:32	5	3.0	1.0	-4.0 to -7.0	-3.9 to -11.8
PSL-2b	2	35°10.303	120°45.325	10:49	5	3.0	1.1	-3.9 to -6.9	
PSL-2c	3	35°10.291	120°45.305	10:55	10	3.0	1.2	-8.8 to -11.8	
DSP-1a	1	35°10.460	120°45.311	09:52	-	1.0	0.8	+2 to +3	+2 to +3
DSP-1b	2	35°10.463	120°45.304	09:53	-	1.0	0.8	+2 to +3	
DSP-1c	3	35°10.465	120°45.300	09:54	-	1.0	0.8	+2 to +3	
DSP-2a	1	35°10.234	120°45.376	09:28	-	1.0	0.7	+2 to +3	+2 to +3
DSP-2b	2	35°10.237	120°45.373	09:29	-	1.0	0.7	+2 to +3	
DSP-2c	3	35°10.240	120°45.370	09:30	-	1.0	0.7	+2 to +3	

All samples were taken for particle grain size analysis and PSL-1 and PSL-2 (dredge sites) were also sampled for chemical analysis. Constituents and associated laboratory methods are shown in **Table 3**. The methods used for chemical analyses are specified in the USACE’s 2021 “Sampling and Analysis Plan/Results (SAP/R) Guidance” (USACE 2021) document. In some cases, newer EPA approved methods or EPA methods resulting in lower Reporting Limits have been substituted at the direction of the laboratories.

Nourishment sites were collected from approximately 3 feet above MLLW elevation (**Figure 4**). The two resultant samples were analyzed for grain size distribution to determine their compatibility with sediments collected from the dredge area sampling stations. Chemical analysis results of dredge sites were compared to the NOAA Effects Range Low (ERL) values, the published levels in which concentrations below the ERL rarely have adverse biological effects, listed in the USACE SAP/R Guidance document (USACE 2021).



Table 3. Chemical constituents tested and methods of analysis.

Constituent	Method
Conventionals	
Grain Size	ASTM D 422
Non-polar oil and grease (TRPH)	EPA 1664B
Oil and grease	EPA 1664M
Sulfides, Total	EPA 376.2
Metals	
Arsenic (As)	EPA 6010B
Cadmium (Cd)	EPA 6010B
Chromium (Cr)	EPA 6010B
Copper (Cu)	EPA 6010B
Lead (Pb)	EPA 6010B
Mercury (Hg)	SW846 7471A
Nickel (Ni)	EPA 6010B
Selenium (Se)	EPA 6010B
Silver (Ag)	EPA 6010B
Zinc (Zn)	EPA 6010B
Organo-Chloride Pesticides	EPA 8081A
Organotins	Organotins SIM
PCBs	8270C SIM CON
PAHs	EPA 8270C





Figure 4. Locations of Dredge Site (red dots) and Nourishment Site (green dots) sediment cores.



6.0 Results

Samples were analyzed for grain size at potential dredging sites (PSL-1 and PSL-2) and potential nourishment sites (DSP-1 and DSP-2) to distinguish site compatibility. Chemical analysis was conducted at the dredging sites to determine potential contaminants in dredged material. These two locations were also sampled in 2013 and 2019 as part of previous permit renewals; however, the constituent list was less extensive in previous years. Copies of laboratory results are included in Appendix B.

The results of the grain size analysis are shown in **Table 3**. The grain analysis indicates that all four locations mainly consisted of sandy material and had comparable percentages of fine sediments as required by USACE guidance. The gravel fraction is the proportion of sediment retained by a #8 US Standard sieve. The sand fraction is the proportion of sediment passing through a #8 and retained by a #200 US Standard sieve. The silt-and-clay fraction is the proportion of sediment passing through a #200 US Standard sieve. All samples were found to be primarily sand with some gravel and minimal silt/clay. The 2024 dredge sample sites are comprised of 84.4 - 97.6% sand, 0-11% gravel, and 2.4 – 4.6% silt/clay. Nourishment site samples were found to be 92.7 – 96.4% sand, 3-7% gravel, and 0.3 – 0.6% silt/clay. The Earth Systems laboratory report, including particle size analysis data and sample gradation curves, are included in Appendix B.

Table 4. Grain size analysis results for 2024, 2019, and 2013.

Site	2024			2019			2013		
	Gravel	Sand	Silt and Clay	Gravel	Sand	Silt and Clay	Gravel	Sand	Silt and Clay
Sport Launch (PSL-1)	11.0%	84.4%	4.6%	0.0%	97.1%	2.9%	1.0%	94.9%	4.1%
Mobile Hoist Pier (PSL-2)	0.0%	97.6%	2.4%	0.0%	97.3%	2.7%	0.0%	96.7%	3.3%
Fisherman's Beach (DSP-1)	3.0%	96.4%	0.6%	0.0%	98.9%	1.1%	0.0%	98.0%	2%
West Bluff Beach (DSP-2)	7.0%	92.7%	0.3%	1.0%	98.2%	0.8%	6.0%	92.6%	1.4%

Chemical analysis results are shown in **Table 5**. Many constituents did not have a listed ERL and/or ERM. There are six constituents whose laboratory detection limits are higher than the published NOAA ERL, indicated by an asterisk in **Table 5**. These six constituents are: dieldrin, acenaphthene, acenaphthylene, anthracene, fluorene, and, 2-Methylnaphthalene. Samples of constituents resulted in detection levels that were well below the listed ERM; none of the samples were found to exceed the NOAA ERL or ERM (USACE 2021).



Table 5. Results of laboratory analysis of chemical constituents and Effects Range Low (ERL) and Effects Range Medium (ERM) guidelines (USACE 2021). Results below the ERL are indicated in green; above the ERL indicated in red (none present).

Constituent	Method	Detection limit ¹ (ug/kg)	PSL-1 Sport Launch (ug/kg)	PSL-2 Mobile Hoist (ug/kg)	ERL ² (ug/kg)	ERM ³ (ug/kg)
Conventionals						
Non-polar oil and grease (TRPH)	EPA 1664B	278,000	ND	ND		
Oil and grease	EPA 1664M	278,000	ND	ND		
Sulfides, Total	EPA 376.2	1,100	14,400	17,400		
Metals						
Arsenic (As)	EPA 6010B	2,000	ND	ND	8,200	70,000
Cadmium (Cd)	EPA 6010B	300	ND	ND	1,200	9,600
Chromium (Cr)	EPA 6010B	500	17,500	16,900	81,000	370,000
Copper (Cu)	EPA 6010B	500	6,000	3,800	34,000	270,000
Lead (Pb)	EPA 6010B	1,000	1,000	1,000	46,700	218,000
Mercury (Hg)	SW846 7471A	7	61	74	150	710
Nickel (Ni)	EPA 6010B	300	12,400	12,700	20,900	51,600
Selenium (Se)	EPA 6010B	300	ND	ND		
Silver (Ag)	EPA 6010B	1,000	ND	ND	1,000	3,700
Zinc (Zn)	EPA 6010B	500	12,300	12,100	150,000	410,000
Organo-Chlorine Pesticides						
4,4'-DDD	EPA 8081A	0.88	ND	ND	2	20
4,4'-DDE	EPA 8081A	0.39	ND	ND	2.2	27
4,4'-DDT	EPA 8081A	0.82	ND	ND	1	7
Aldrin	EPA 8081A	0.39	ND	ND		
Alpha-BHC	EPA 8081A	0.53	ND	ND		
Beta-BHC	EPA 8081A	0.38	ND	ND		
Delta-BHC	EPA 8081A	0.59	ND	ND		
Dieldrin	EPA 8081A	0.41	ND*	ND*	0.02	8
Endosulfan I	EPA 8081A	0.43	ND	ND		
Endosulfan II	EPA 8081A	0.76	ND	ND		
Endosulfan sulfate	EPA 8081A	0.73	ND	ND		



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Constituent	Method	Detection limit ¹ (ug/kg)	PSL-1 Sport Launch (ug/kg)	PSL-2 Mobile Hoist (ug/kg)	ERL ² (ug/kg)	ERM ³ (ug/kg)
Endrin	EPA 8081A	0.39	ND	ND		
Endrin aldehyde	EPA 8081A	0.71	ND	ND		
Endrin ketone	EPA 8081A	0.86	ND	ND		
Heptachlor	EPA 8081A	0.35	ND	ND		
Heptachlor epoxide	EPA 8081A	0.36	ND	ND		
Methoxychlor	EPA 8081A	0.71	ND	ND		
Toxaphene	EPA 8081A	13.4	ND	ND		
Gamma-BHC (Lindane)	EPA 8081A	0.44	ND	ND		
Chlordane (Technical)	EPA 8081A	0.44	ND	ND		
Organotins						
Tetrabutyltin	Organotins SIM	2.3	2.3	ND		
Tributyltin	Organotins SIM	2.0	ND	ND		
Dibutyltin	Organotins SIM	1.8	ND	ND		
Monobutyltin	Organotins SIM	0.76	ND	ND		
PCBs						
PCB-18	8270C SIM CON	0.13	ND	ND		
PCB-28	8270C SIM CON	0.14	ND	ND		
PCB-37	8270C SIM CON	0.11	ND	ND		
PCB-44	8270C SIM CON	0.17	ND	ND		
PCB-49	8270C SIM CON	0.16	ND	ND		
PCB-52	8270C SIM CON	0.11	ND	ND		
PCB-66	8270C SIM CON	0.16	0.20	ND		
PCB-70	8270C SIM CON	0.13	0.29	ND		
PCB-74	8270C SIM CON	0.15	ND	ND		
PCB-77	8270C SIM CON	0.14	ND	ND		
PCB-81	8270C SIM CON	0.12	ND	ND		
PCB-87	8270C SIM CON	0.18	0.26	ND		
PCB-99	8270C SIM CON	0.12	0.39	ND		
PCB-101	8270C SIM CON	0.15	0.27	ND		
PCB-105	8270C SIM CON	0.15	ND	ND		



Constituent	Method	Detection limit ¹ (ug/kg)	PSL-1 Sport Launch (ug/kg)	PSL-2 Mobile Hoist (ug/kg)	ERL ² (ug/kg)	ERM ³ (ug/kg)
PCB-110	8270C SIM CON	0.13	0.19	ND		
PCB-114	8270C SIM CON	0.15	ND	ND		
PCB-118	8270C SIM CON	0.11	0.14	ND		
PCB-119	8270C SIM CON	0.18	ND	ND		
PCB-123	8270C SIM CON	0.14	ND	ND		
PCB-126	8270C SIM CON	0.13	ND	ND		
PCB-128	8270C SIM CON	0.20	ND	ND		
PCB-132/153	8270C SIM CON	0.34	0.36	ND		
PCB-138/158	8270C SIM CON	0.35	ND	ND		
PCB-149	8270C SIM CON	0.15	ND	ND		
PCB-151	8270C SIM CON	0.13	ND	ND		
PCB-156	8270C SIM CON	0.14	ND	ND		
PCB-157	8270C SIM CON	0.13	ND	ND		
PCB-167	8270C SIM CON	0.16	ND	ND		
PCB-168	8270C SIM CON	0.15	ND	ND		
PCB-169	8270C SIM CON	0.13	ND	ND		
PCB-170	8270C SIM CON	0.15	ND	ND		
PCB-177	8270C SIM CON	0.13	ND	ND		
PCB-180	8270C SIM CON	0.12	ND	ND		
PCB-183	8270C SIM CON	0.17	ND	ND		
PCB-187	8270C SIM CON	0.13	ND	ND		
PCB-189	8270C SIM CON	0.11	ND	ND		
PCB-194	8270C SIM CON	0.16	ND	ND		
PCB-201	8270C SIM CON	0.20	ND	ND		
PCB-206	8270C SIM CON	0.16	ND	ND		
Total PCBs	8270C SIM CON	0.34	2.3	ND	22.7	180
Polynuclear Aromatic Hydrocarbons (PAHs)						
Acenaphthene	SW846 8270C	132	ND*	ND*	16	500
Acenaphthylene	SW846 8270C	142	ND*	ND*	44	640
Anthracene	SW846 8270C	99	ND*	ND*	85.8	1100



Constituent	Method	Detection limit ¹ (ug/kg)	PSL-1 Sport Launch (ug/kg)	PSL-2 Mobile Hoist (ug/kg)	ERL ² (ug/kg)	ERM ³ (ug/kg)
Benzo(a)anthracene	SW846 8270C	56	ND	ND	261	1600
Benzo(a)pyrene	SW846 8270C	47	ND	ND	430	1600
Benzo(b)fluoranthene	SW846 8270C	62	ND	ND		
Benzo(ghi)perylene	SW846 8270C	31	ND	ND		
Benzo(k)fluoranthene	SW846 8270C	51	ND	ND		
Chrysene	SW846 8270C	58	ND	ND	384	2800
Dibenz(a,h)anthracene	SW846 8270C	46	ND	ND	63.4	260
Fluoranthene	SW846 8270C	155	ND	ND	600	5100
Fluorene	SW846 8270C	160	ND*	ND*	19	540
Indo(1,2,3-cd)pyrene	SW846 8270C	52	ND	ND		
Naphthalene	SW846 8270C	139	ND	ND	160	2100
Phenanthrene	SW846 8270C	107	ND	ND	240	1500
Pyrene	SW846 8270C	153	ND	ND	665	2600
1-Methylnaphthalene	SW846 8270C	176	ND	ND		
2-Methylnaphthalene	SW846 8270C	222	ND*	ND*	70	670

¹ Detection limits vary by parameter and test. Either Method Detection Limit (MDL), or where MDL is absent, Reporting Limit (RL). Highest value is listed for MDL or RL when value differs between PSL-1 and PSL-2 result. See laboratory reports in appendices.

² ERL = NOAA Effects Range Low values, the published levels in which concentrations below the ERL rarely have adverse biological effects (USACE 2021). Lowest ERL values are listed for broad category constituents.

³ ERM= NOAA Effects Range Medium, concentrations above which effects frequently occur (USACE 2021). Lowest ERM values are listed for broad category constituents.

ND = Non-Detect. The result is lower than the Detection Limit.

* Results which have Detection Limits higher than the ERL.



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7.0 Discussion

The Sport Launch and Mobile Hoist Pier proposed dredge locations are exposed coastal locations subject to wind-, wave- and tide-driven circulation within San Luis Bay. The persistent circulation of water, regular dredging activity, and the very low percentage of fine grain (silt-and-clay) particles results in a very low likelihood of contaminant accumulation at these locations. The Sport Launch is the most likely location to experience a risk of contaminant accumulation due to the high levels of recreational boating activity at this location. Furthermore, the short artificial breakwater that protects the Sport Launch basin would be expected to reduce water circulation and subsequently increase retention times for contaminants and smaller grain particles. Increasing contaminant residence times increases the potential for the accumulation of fine grain sediments and of contaminants that bind more readily with grains of smaller sizes. However, it is apparent from the grain size analysis that the breakwater does not result in detectable increase of fine grain sediments (silt-and-clay) at this site. Instead, the grain size analysis indicates that the material at the Sport Launch, Mobile Hoist Pier and the adjacent beach locations are very similar. The material collected was predominantly sandy sediments with very small proportions of silt-and-clay and even less gravel. It is highly likely that the material accumulating in the Sport Launch and Mobile Hoist Pier basins between periods of regular annual dredging originate from the adjacent beach areas.

Grain size results, are compared between the dredge sites and the proposed dredge nourishment sites. The sand content and grain size distribution are compared to distinguish compatibility between the sites. The grain size results indicate that the material at the Sport Launch, Mobile Hoist Pier and the adjacent beach locations are similar (**Figure 5**). All material collected was predominantly sandy sediments with small proportions of gravel and minimal silts/clays.



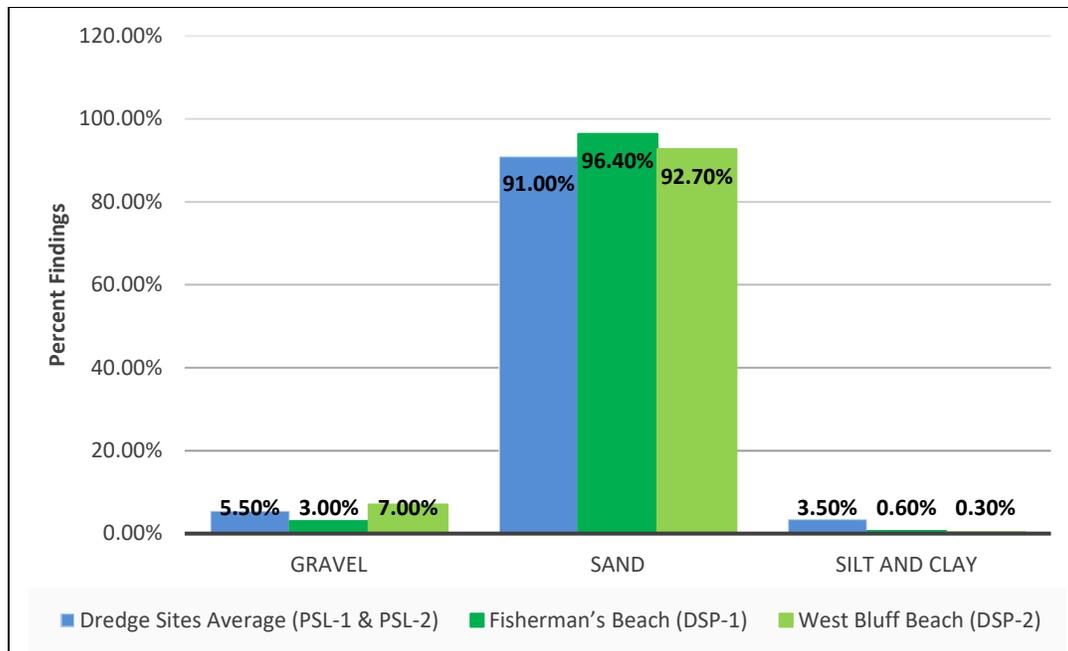


Figure 5. Grain size findings of Dredge Sites averaged together (blue) and Nourishment Sites (light and dark green).

The grain size results align with findings in the last two previous studies conducted in 2019 and 2013. Similar sediment ratios are found across all four stations for all three studies. It is highly likely that the material accumulating in the Sport Launch and Mobile Hoist Pier basins between periods of regular annual dredging originate from the adjacent beach areas (refer to **Figure 4**). The slightly elevated gravel results found in 2024 at PSL-1 and DSP-2 may be due to recent storm events carrying courser gravel onshore and higher intensity waves from storm surge causing acute, but rapid shoreline erosion.

Chemistry analysis of the dredge samples (PSL-1 and PSL-2) showed the majority of results were Non-Detect (ND) and none exceeded USACE environmental thresholds (ERL or ERM), indicating likely no potential for environmental harm based on those measures. Six constituents, all with ND results, had laboratory detection levels higher than the ERL. These constituents (dieldrin, acenaphthene, acenaphthylene, anthracene, 2-Methylnaphthalene, and fluorene) are inconclusive as to whether the result was below the ERL threshold. These constituents are PAHs with the exception of dieldrin, an Organo-Chlorine Pesticide. The laboratory method of analysis followed the listed method in the 2021 USACE SAP/R Guidance document (USACE 2021). For all six constituents, detection levels were well below the ERM. The ERL is the lowest threshold limit and therefore the most conservative measure of potential harm.

Contaminants bind more readily with grains of smaller sizes. The sandy nature of the sediments at both the Sport Launch and Mobile Hoist Pier locations reduces the likelihood of accumulation of contaminants that may enter the water due to activities in and around these port facilities. The results indicate that the sediments are relatively clean of contaminants.

