

## Memorandum for Record

July 27, 2023

### **Subject: Suitability Determination Memorandum for the Swinomish Commercial Fish Dock Maintenance Dredging, Swinomish Channel, Washington**

#### **Introduction**

This suitability determination memorandum (SDM) documents the consensus regarding the suitability of the proposed dredged material for unconfined aquatic disposal as determined by the Dredged Material Management Program (DMMP) agencies (U.S. Army Corps of Engineers, Washington Departments of Ecology and Natural Resources, and the U.S. Environmental Protection Agency).

#### **Project Description**

The Swinomish Indian Tribal Community (SITC) proposes to dredge accumulated sediments at their commercial fishing docks near La Conner, Washington (Figure 1). Sedimentation has caused these areas to be unusable during low tides and have created unsafe, non-navigable conditions for vessels. These docks are essential for the tribe's fishing operations and allow the tribe to exercise their treaty rights.

The proposed plan is to dredge -8 ft MLLW plus 1 ft of overdepth for a design depth of -9 ft MLLW (Figure 2) with an estimated 7,800 cy to be removed. Dredged material will either be disposed at a DMMP managed open-water disposal site or at an upland location. If open-water disposal is chosen, the dredged material will be moved north through Swinomish Channel to the Rosario Strait disposal site. In the case that upland disposal is chosen, the dredged material will be transferred to a nearby location on the SITC reservation.

#### **Project Summary**

Waterbody	Swinomish Channel
Water classification	Marine
Project rank	Moderate
Total proposed dredging volume	7,800 cy
Max. proposed dredging depth	-8 MLLW + 1 ft over-dredge allowance (to -9 ft MLLW)
Proposed disposal location(s)	Rosario Strait Disposal Site or unidentified upland
Dredged Material Management Units (DMMUs): No. of samples	One DMMU: 3 core samples
DMMP tracking number	SWCFD-1-A-F-449
EIM Study ID	SWCFD23
USACE Regulatory Reference Number	pending
Sampling and Analysis Plan (SAP) Approval Date	December 15, 2022
Sampling Date	January 2, 2023
Testing Parameters	DMMP standard freshwater COCs; no dioxins/furans or TBT required, however these COCs are included
Biological Testing	Not required

Suitability Outcome	All material found suitable for in-water disposal at any DMMP disposal site
Recency Expiration (Moderate = 5 years)	January 2028

**Sampling Design Considerations**

No previous sediment sampling is known to have occurred at the site. The shoreline near the docks is steep and armored with riprap, some of which has rolled into the dredge area. There is also some marine debris visible at the site (Gravity 2022). There is a strong tidal exchange that affects the Swinomish Channel, which is adjacent to the project area.

As a marina with no known previous data, the site was ranked “moderate.” DMMP guidelines for a 7,800-cy project in a moderate area require one dredged material management unit (DMMU) represented by at least two field samples. For this project, three core samples were proposed for compositing into one sample for analysis of DMMU 1, which included the entire dredge prism (Gravity 2022).

**Sampling and Analysis Description**

Sediment cores were collected by vibracore on January 2, 2023, from aboard the Gravity Marine Consulting sampling vessel R/V Tieton. Three cores were collected, though only one core (SW-3) penetrated into the Z-layer (Table 1 & Figure 2). Multiple unsuccessful attempts were made to achieve target penetration at coring stations SW-1 and SW-2; however, angular cobble observed in the bottom of core tubes appeared to underlie much of the dredge prism at approximately two feet below the mudline (Gravity 2023). Thus, at SW-1 only 23 inches of penetration was achieved for the target depth of 7.4 feet, and at SW-2 only 24 inches of penetration was achieved for the target depth of 10.6 feet. All target depths included a 2-foot Z-layer.

Dredge prism material recovered from the three core samples was composited into one sample for dredge prism analysis; material from the Z-layer at SW-3 was archived pending results from the analysis of the dredge prism material. Sample SW-COMP (DMMU 1) was submitted to Analytical Resources, LLC in Tukwila, WA for analysis of all DMMP marine chemicals of concern and most conventionals. Analyses for TBT and dioxins/furans were not required by the DMMP, but the SITC chose to include those analyses as well. Grain size testing was done by AmTest Laboratories in Kirkland, WA.

**Data Validation**

No outside data validation was performed. All analyses were performed within the recommended holding times. The ARI laboratory report documented only minor issues that did not affect data quality. All data were considered usable by the DMMP for use in this determination.

**Analytical Testing Results**

Table 3 summarizes the analytical results for the single DMMU composite sample (DMMU 1) alongside the DMMP marine guidelines. The material was primarily sand (89.1%). Total organic carbon (TOC) was relatively low at 0.36%.

No detected or non-detected exceedances of the marine screening levels (SLs) occurred. There were also no exceedances of DMMP screening levels for TBT or dioxins/furans.

## Biological Results

No biological testing was required for this project.

## DMMP Determinations

### Suitability Determination

Chemical concentrations in the dredge prism composite sample were below the DMMP marine SLs as described above. The DMMP agencies have concluded that all material from the Swinomish Commercial Fish Dock DMMU 1 is suitable for in-water disposal at any DMMP disposal site, including the Rosario Strait dispersive site. Upland placement of material may be subject to other permitting authorities depending on the disposal site selected.

This suitability determination is valid through January 2028. Coordination with the DMMO and a new suitability determination will be required prior to dredging past that date, or if proposed dredging volumes exceed the 7,800-cy covered by this SDM.

### Antidegradation Determination

The sediment to be exposed by dredging must either meet the State of Washington Sediment Management Standards (SMS) or the State's Antidegradation Standard (Ecology, 2013) as outlined by DMMP guidance (DMMP, 2008). Concentrations of all DMMP chemicals of concern were below the DMMP SLs, and there is no reason to believe that a new exposed surface would be contaminated relative to the overlying materials; therefore, analysis of the Z-sample was not required, and this project is in compliance with the State of Washington Antidegradation Standard.

### Debris Management

The DMMP agencies require debris management to prevent the disposal of solid waste and debris at open-water disposal sites in Puget Sound (DMMP, 2015). Due to the visible debris at this location, and due to the lack of information regarding materials deeper in the prism than approximately 2 ft below mudline at sampling locations SW-1 and SW-2, debris screening using a 12" x 12" grid will be required prior to disposal at a DMMP open-water disposal site.

### Notes and Clarifications

The decisions documented in this memorandum do **not** constitute final agency approval of the project. During the public comment period that follows a public notice, resource agencies will provide input on the overall project. A final decision will be made after full consideration of agency input, and after an alternatives analysis is done under section 404(b)(1) of the Clean Water Act.

*A pre-dredge meeting with the WQC preparers, DNR and the Corps of Engineers is required at least 7 days prior to dredging. A dredging quality control plan must be developed and submitted to the USACE Seattle District's Regulatory Branch, to the tribal WQC preparer, to Ecology and to DNR. Refer to the USACE permit and tribe/Ecology 401 certifications for project-specific submittal requirements and timelines.*

The DMMP does not make specific beneficial use determinations. However, these data are available for the assessment of project-specific beneficial use by the project proponent, permitting agencies, local health jurisdictions and/or the owner of a receiving property. Any use of these data for assessment of beneficial use should carefully consider core penetration depths and be aware that portions of this prism may include angular cobble per the Sampling and Analysis section discussion.

## References

DMMP 2021. *Dredged Material Evaluation and Disposal Procedures (User Manual)*. Dredged Material Management Program, July 2021.

DMMP 2008. *Quality of Post-Dredge Surfaces (Updated)*. Prepared by David Fox (U.S. Army Corps of Engineers), Erika Hoffman (U.S. Environmental Protection Agency) and Tom Gries (Washington Department of Ecology) for the Dredged Material Management Program (DMMP) agencies. June 2008.

Ecology 2013. *Sediment Management Standards – Chapter 173-204 WAC*. Washington State Department of Ecology, February 2013.

Gravity 2022. *Sampling and Analysis Plan: Sediment Quality Study – Swinomish Commercial Fish Dock Dredge Project, La Conner, Washington*. Prepared for the Skagit River System Cooperative by Gravity Marine Consulting. December 2022.

Gravity 2023. *Sediment Sampling & Analysis Data Report: Swinomish Dock Dredging Project, La Conner, Washington*. Prepared for the Skagit River System Cooperative by Gravity Marine Consulting. July 2023.

**Agency Signatures**

Signed document available from USACE Seattle District,  
Dredged Material Management Office

\_\_\_\_\_  
Date Luran Warner – U.S. Army Corps of Engineers, Seattle District

\_\_\_\_\_  
Date Justine Barton – U.S. Environmental Protection Agency, Region 10

\_\_\_\_\_  
Date Laura Inouye, PhD. – Washington State Department of Ecology

\_\_\_\_\_  
Date Shannon Soto – Washington State Department of Natural Resources

**Copies Furnished:**

- DMMP agencies
- Kristin Murray, USACE Regulatory Project Manager
- Shawn Hinz, Gravity Marine Consulting
- Eric Mickelson, Skagit River System Cooperative
- DMMO File



Figure 1. Vicinity Map of Swinomish Indian Tribal Community Fish Dock



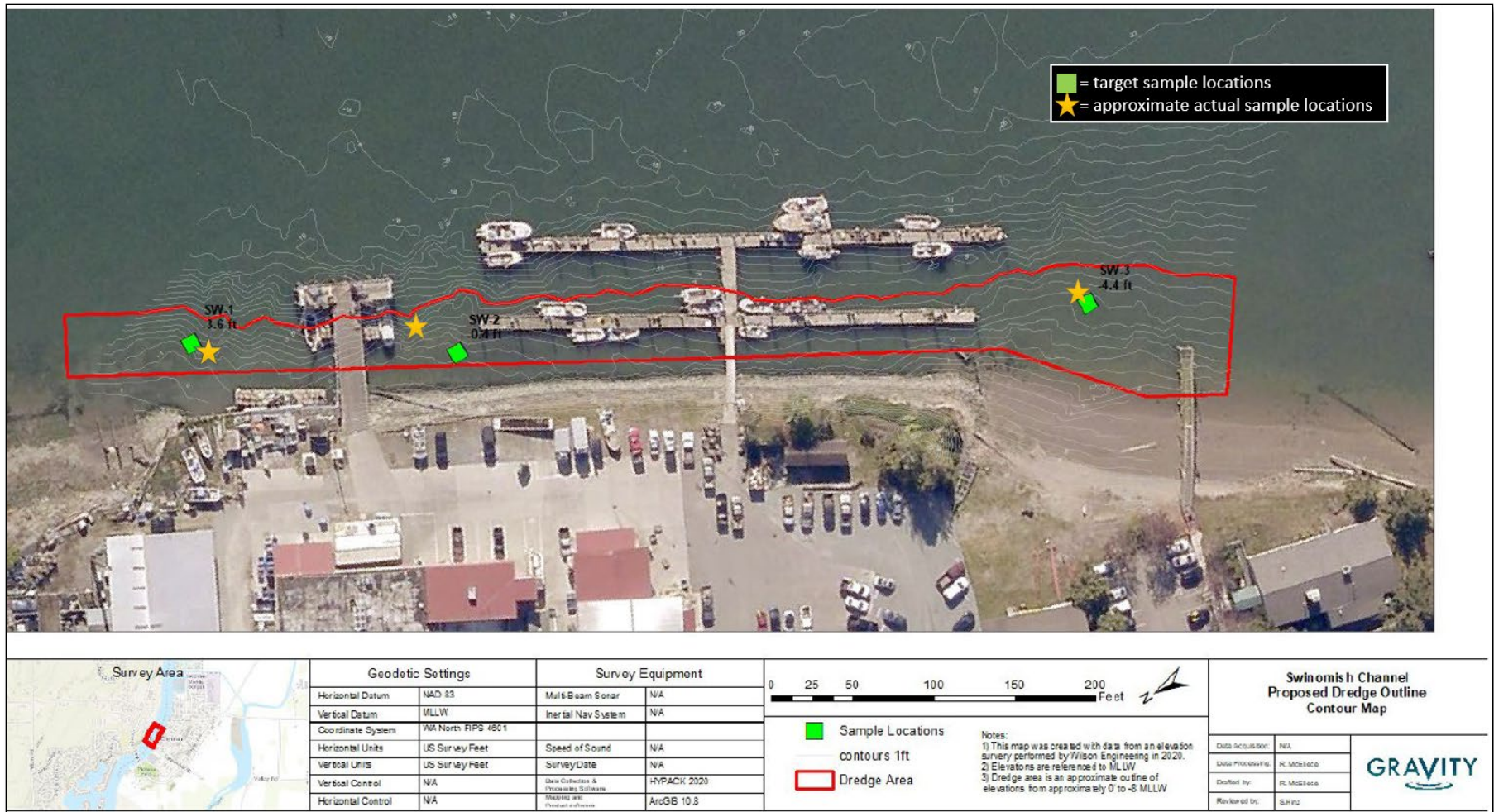


Figure 2. Proposed dredge area and sampling locations. Adapted from Gravity 2023.

**Table 1. Sampling summary. Adapted from Gravity 2023.**

<b>Name</b>	<b>Date/Time</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Mudline Elevation (MLLW ft)</b>	<b>Target Penetration to Z-Layer (ft)</b>	<b>Actual Penetration (inches)</b>	<b>Recovery (inches)</b>	<b>Recovery (Percent)</b>	<b>Geological observations</b>
SW-1	1/2/2023 9:45	48 23 26.00 N	122 29 57.47 W	-3.8	7.2	24	16.5	68.8%	Sands with some silt to 12" followed by shell hash with sand and angular cobble at bottom
SW-2	1/2/2023 10:50	48 23 24.62 N	122 29 58.14 W	-0.6	10.4	23	18	78.3%	Sands with some silt lenses and angular cobble at bottom
SW-3	1/2/2023 11:30	48 23 21.05 N	122 30 0.81 W	-5.9	5.1	60	56	93.3%	Sand to 12"; 12"-13" wood debris followed by sand with some silts to 56"; some large angular cobble at bottom of core



SEDIMENT SAMPLING AND ANALYSIS DATA REPORT  
SWINOMISH BOAT DOCK

**Table 2. Analytical Results for Swinomish Commercial Fish Dock**

	DMMU 1		DMMP Guidelines		
	Result/RL	Q	SL	BT	ML
<b>CONVENTIONALS</b>					
Gravel (%)	3.7				
Sand (%)	89.1				
Silt (%)	1.8				
Clay (%)	5.5				
Fines (silt + clay) (%)	7.3				
Ammonia as N (mg/kg dry wt)	0.48	U			
Sulfide (mg/kg dry wt)	251				
Total Organic Carbon (%)	0.36	D			
Total Solids (%)	79.06				
Total Volatile Solids (%)	1.14				
<b>METALS (mg/kg dry weight)</b>					
Antimony	0.24	U	150	---	200
Arsenic	2.87		57	507.1	700
Cadmium	0.07	J	5.1	---	14
Chromium	20.2		260	---	---
Copper	9.76		390	---	1,300
Lead	2.54		450	975	1,200
Mercury	0.0161	J	0.41	1.5	2.3
Selenium	0.46	J	---	3	---
Silver	0.24	U	6.1	---	8.4
Zinc	30.6		410	---	3,800
<b>ORGANOMETALLICS (µg/kg dry weight)</b>					
TBT ion (bulk)	11.6	U	---	73	---
<b>PAHs (µg/kg dry weight)</b>					
Naphthalene	22.9		2,100	---	2,400
Acenaphthylene	11	J	560	---	1,300
Acenaphthene	20.0	U	500	---	2,000
Fluorene	20.0	U	540	---	3,600
Phenanthrene	97.9		1,500	---	21,000
Anthracene	20.6		960	---	13,000
2-Methylnaphthalene <sup>(1)</sup>	9.4	J	670	---	1,900
<b>Total LPAH</b>	<b>152.4</b>	<b>J</b>	<b>5,200</b>	<b>---</b>	<b>29,000</b>
Fluoranthene	151		1,700	4,600	30,000
Pyrene	162		2,600	11,980	16,000
Benzo(a)anthracene	59.6		1,300	---	5,100
Chrysene	77.5		1,400	---	21,000
Benzofluoranthenes (b, j, k)	93.3		3,200	---	9,900
Benzo(a)pyrene	44		1,600	---	3,600
Indeno(1,2,3-c,d)pyrene	22		600	---	4,400
Dibenz(a,h)anthracene	20.0	U	230	---	1,900
Benzo(g,h,i)perylene	22.7		670	---	3,200
<b>Total HPAH</b>	<b>632.1</b>		<b>12,000</b>	<b>---</b>	<b>69,000</b>

SEDIMENT SAMPLING AND ANALYSIS DATA REPORT  
SWINOMISH BOAT DOCK

	DMMU 1		DMMP Guidelines		
	Result/RL	Q	SL	BT	ML
<b>CHLORINATED HYDROCARBONS (µg/kg dry weight)</b>					
1,4-Dichlorobenzene (SIM)	1.6	J	110	---	120
1,2-Dichlorobenzene (SIM)	1.5	J	35	---	110
1,2,4-Trichlorobenzene (SIM)	5.0	U	31	---	64
Hexachlorobenzene (HCB) (SIM)	1.4	J	22	168	230
<b>PHTHALATES (µg/kg dry weight)</b>					
Dimethyl phthalate	21.2		71	---	1,400
Diethyl phthalate	50.0	U	200	---	1,200
Di-n-butyl phthalate	20.0	U	1,400	---	5,100
Butyl benzyl phthalate	20.0	U	63	---	970
Bis(2-ethylhexyl) phthalate	50.0	U	1,300	---	8,300
Di-n-octyl phthalate	20.0	U	6,200	---	6,200
<b>PHENOLS (µg/kg dry weight)</b>					
Phenol (SIM)	6.3		420	---	1,200
2-Methylphenol (SIM)	2.0	J	63	---	77
4-Methylphenol (SIM)	4.7	J	670	---	3,600
2,4-Dimethylphenol (SIM)	4.0	J	29	---	210
Pentachlorophenol (SIM)	5.4	J	400	504	690
<b>MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)</b>					
Benzyl alcohol (SIM)	3.7	J	57	---	870
Benzoic acid (SIM)	22.8	J	650	---	760
Dibenzofuran	20.0	U	540	---	1,700
Hexachlorobutadiene (SIM)	1.4	J	11	---	270
N-Nitrosodiphenylamine (SIM)	1.6	J	28	---	130
<b>PESTICIDES &amp; PCBs (µg/kg dry weight)</b>					
4,4'-DDD	1.00	U	16	---	---
4,4'-DDE	1.00	U	9	---	---
4,4'-DDT	1.00	U	12	---	---
sum of 4,4'-DDD, 4,4'-DDE and 4,4'-DDT	1.00	U	---	50	69
Aldrin	0.50	U	9.5	---	---
Total Chlordane (sum of cis-chlordane, trans-chlordane, cis-nonachlor, trans-nonachlor, oxychlordane)	1.00	U	2.8	37	---
Dieldrin	1.00	U	1.9	---	1,700
Heptachlor	0.50	U	1.5	---	270
Total PCBs Aroclors (Sum of 1016, 1221, 1242, 1248, 1254, 1260, 1268)	4.0	U	130	--	3,100
<b>DIOXINS/FURANS</b>					
Dioxin/furan TEQ - (U/EMPC = ½ EDL)	0.35		4	10	---

**Notes**

(1) 2-Methylnaphthalene is not included in LPAH sum

J = Estimated concentration when the value is less than ARI's established reporting limits

D = The reported value is from a dilution.

U = Undetected at the limit of quantitation