

**LTMS Programmatic Essential Fish Habitat
Consultation Implementation
“Cheat Sheet”**

Agreement	Implementation
Soft Bottom Habitat Disturbance	
A1. Benthic invertebrate re-colonization study	A multi-year study to evaluate differences in soft bottom benthic communities for different areas, sediment types and depths. Initiate in 2012.
A2. Reduce area and frequency of disturbance	<ol style="list-style-type: none"> 1. Dredge to full project depth in a single episode 2. Initiate episode when completion is assured 3. Rotate dredge units when entire project cannot be completed in one episode
Indirect Effects to Eelgrass (Loss of Refugia)	
B. Reduce turbidity within 250 meters of eelgrass	<p>Refer to attached flow chart</p> <ol style="list-style-type: none"> 1. Equipment selection (hydraulic dredge) 2. Sediment type fines = BMPs 3. Physical or hydrodynamic barriers 4. Silt curtains or light monitoring 5. Operational controls
Direct Effects to Eelgrass (Loss of Refugia)	
C. Direct take of eelgrass via plants in the project footprint	<ol style="list-style-type: none"> 1. Mitigate on a project-by-project basis for direct loss of eelgrass 2. Pre- and post-dredging eelgrass surveys of the <u>project footprint</u> required where project footprints intersect the 45 meter eelgrass bed buffer 3. LTMS will pursue concept/feasibility of mitigation bank for eelgrass
Turbidity	
D. Reduce turbidity from disposal	<ol style="list-style-type: none"> 1. Continue to reduce in-Bay disposal per LTMS program 2. Encourage upland placement of material, including retrofit of the Essayons for upland offloading
Contaminants	
E. Reduce exposure to bioaccumulative contaminants	<ol style="list-style-type: none"> 1. Using new “reference ambient” 2. Bioaccumulation triggers for in-Bay disposal –Mercury, PCB, PAH, Chlordane, Dieldrin and Dioxin/Furan 3. Collect and test “z-layers” when appropriate <p>http://www.sfei.org/content/dmno-ambient-sediment-conditions</p>
Invasive Species	
F. Acknowledge issue, uncertain to degree of impact	<ol style="list-style-type: none"> 1. Held in abeyance until benthic recovery study is complete
Other Submerged Aquatic Vegetation	
G. Assess projects for potential impacts to submerged aquatic vegetation (other than eelgrass)	<ol style="list-style-type: none"> 1. Identify native submerged vegetation in San Francisco Bay via a San Francisco State survey contract from NOAA 2. Conduct follow up surveys as needed 3. Avoid, minimize or mitigate as appropriate
Reporting Requirements	
H. Reporting requirements	<ol style="list-style-type: none"> 1. Provide information regarding projects using this programmatic consultation by March 31st of each year 2. LTMS will provide NOAA notification of projects with indirect and direct impacts to eelgrass, mitigation provided, and projects with bioaccumulation trigger exceedances and resulting actions

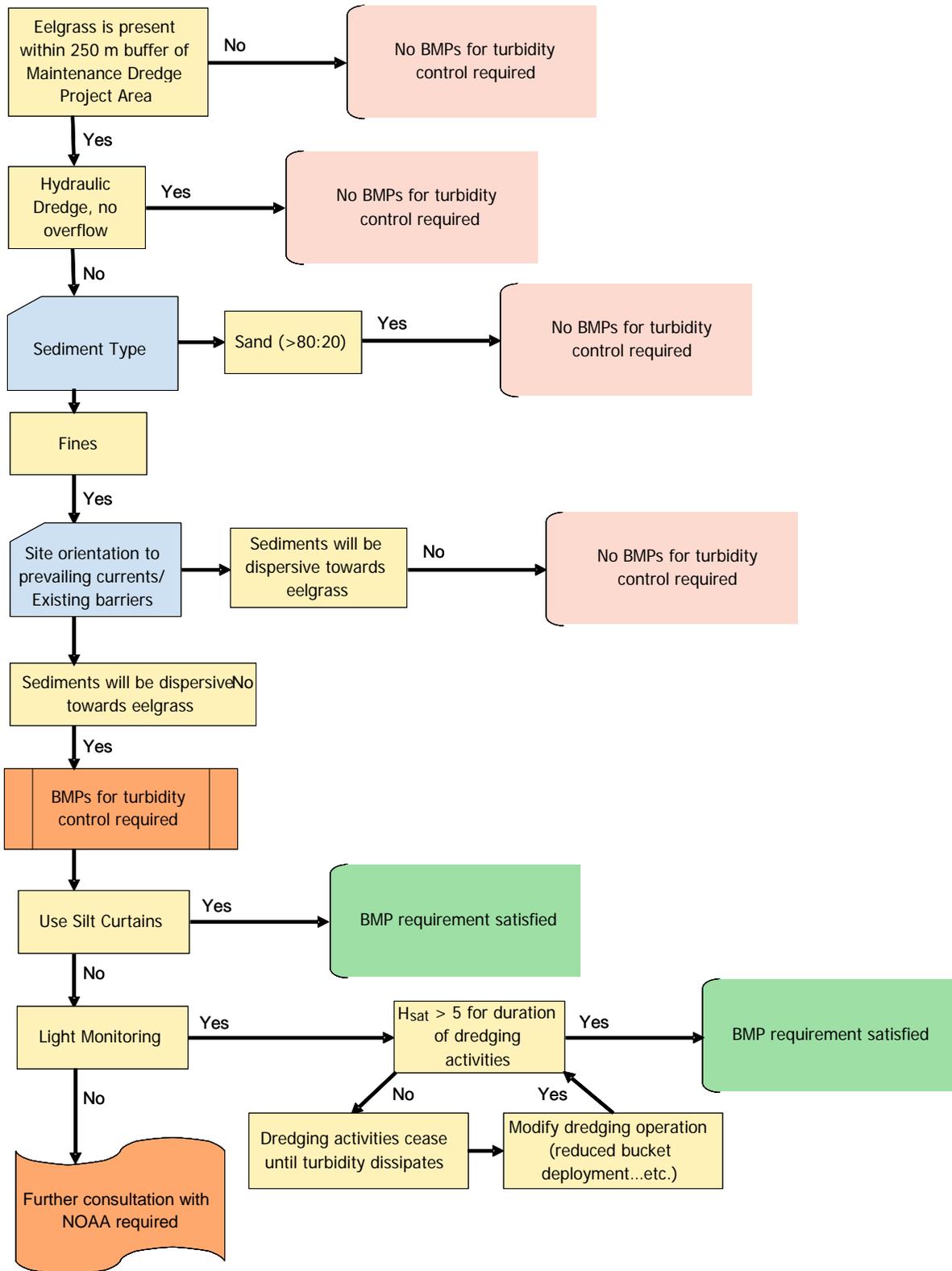


Table 1. Initial (2011) Sediment Chemistry Bioaccumulation Trigger (BT) Levels, for Unconfined in-Bay Placement at Designated San Francisco Bay Disposal Sites

	Mercury (mg/kg)	Total PAHs (µg/kg)	Total PCBs (µg/kg)	Total DDTs (µg/kg)	Total Chlordane (µg/kg)	Dieldrin (µg/kg)	Dioxins/ Furans (pg/g)
Bioaccumulation Trigger (Initial)	0.33	4800	16	50	37	1.9	10
Basis	a	a	a	b	b	c	d

Notes:

- a) Ambient sediment concentration for total mercury in *mg/kg* (parts per million) dry wt, and for PAHs and PCBs in *µg/kg* (parts per billion) dry wt, defined as the 90th upper CL of the 90th percentile of the most recent 10 years of data from the RMPs randomized Bay-wide sediment sampling (currently for the years 2002-2009), after removal of statistical outliers.
- b) Published bioaccumulation trigger for the chemical class for Puget Sound marine sediments, in *µg/kg* (parts per billion) dry wt.
- c) Published marine SL value from the Pacific Northwest Sediment Evaluation Framework, in *µg/kg* (parts per billion) dry wt.
- d) Toxicity Equivalency Quotient (TEQ), in *pg/g* (parts per trillion) dry wt calculated based on WHO 1998 Toxicity Equivalency Factors (TEFs). Value is consistent with the published Puget Sound limit for unconfined aquatic disposal, and is ½ the established limit for placement at the Hamilton Wetlands Restoration Project site.

Name	Type	Potential Direct Effects		Potential Indirect Effects
		Acres of Direct Overlap with Eelgrass	Acres of Direct Overlap with 45m Buffer	Eelgrass within 250m of Project
Richmond Harbor	Dredge (USACE)	0	0.003	yes
San Francisco Harbor	Dredge (USACE)	0	0	yes
Oakland Harbor	Dredge (USACE)	0	0	yes
Glen Cove Marina	Dredge (non-USACE)	0.01	2.94	yes
C&H Sugar Company	Dredge (non-USACE)	0	0	yes
San Rafael Rock Quarry	Dredge (non-USACE)	0	0	yes
Coast Guard Station, Golden Gate	Dredge (non-USACE)	0	0.51	yes
Sausalito Yacht Club	Dredge (non-USACE)	0	1.44	yes
Schoonmaker Point Marina	Dredge (non-USACE)	0	0.83	yes
Galilee Harbor	Dredge (non-USACE)	0	0.38	yes
Kappas Marina	Dredge (non-USACE)	0.01	1.66	yes
Strawberry Recreation District	Dredge (non-USACE)	0.29	1.03	yes
Clipper Yacht Harbor	Dredge (non-USACE)	0	0.35	yes
Paradise Cay Yacht Club	Dredge (non-USACE)	0	0	yes
Paradise Cay Homeowners Assoc	Dredge (non-USACE)	0	0	yes
Timmers Landing	Dredge (non-USACE)	0	0	yes
Corinthian Yacht Club	Dredge (non-USACE)	0	0	yes
San Francisco Yacht Club	Dredge (non-USACE)	0.01	4.32	yes
Belvedere Land Company	Dredge (non-USACE)	0.25	0.88	yes
Port of San Francisco	Dredge (non-USACE)	0	0	yes
CG Station, Yerba Buena Island	Dredge (non-USACE)	0.47	1.85	yes
Point San Pablo Yacht Club	Dredge (non-USACE)	0	0.39	yes
Berkeley Marina	Dredge (non-USACE)	0	0	yes
Richmond Yacht Club	Dredge (non-USACE)	0	0.18	yes
Aeolian Yacht Club	Dredge (non-USACE)	0	0.12	yes
Emery Cove Marina	Dredge (non-USACE)	0	0	yes
Port of Oakland	Dredge (non-USACE)	0	0	yes
Ballena Isla Townhomes	Dredge (non-USACE)	0.01	1.36	yes
Ron Valantine Boat Dock	Dredge (non-USACE)	0	0	yes
Redwood City Marina	Dredge (non-USACE)	0	0	yes
Coyote Point Marina	Dredge (non-USACE)	0	0	yes
Ballena Isla Marina	Dredge (non-USACE)	0	0	yes
Harbor Bay Ferry Channel	Dredge (non-USACE)	0	0.18	yes
Bellevue Channel	Dredge (non-USACE)	0.36	0.68	yes
Johnson Property	Dredge (non-USACE)	0.66	0.66	yes
Sausalito Marina Properties	Dredge (non-USACE)	0.08	0.83	yes
CA Maritime Academy	Dredge (non-USACE)	0.03	0.9	yes
Marina Bay Yacht Harbor	Dredge (non-USACE)	0	0.01	yes
Emery Access Chanel	Dredge (non-USACE)	0	0	yes
Chevron Rod and Gun	Dredge (non-USACE)	0	0	yes