

Magnuson-Stevens Fishery Conservation and
Management Act (MSA)

Essential Fish Habitat (EFH)

Programmatic Consultation for Maintenance Dredging in San Francisco Bay



LTMS Programmatic Consultation

- Planning began in 2004
- Formal consultation initiated in 2009
 - Included two rounds of stakeholder review
- Consultation completed in 2011
- Covers all maintenance dredging projects
 - New work projects will have their own consultations
- Good for approximately 39 years
 - New information may re-open consultation



LTMS Conservation Measures

- Soft bottom habitat
- Reduce frequency of dredging
- Turbidity
- Invasive species
- Other submerged aquatic vegetation
- **Contaminants**
 - Bioaccumulation trigger levels
 - Residual surface (z-layer)
- **Eelgrass**
 - Indirect effects (250 meters)
 - Direct effects (45 meters)
- Reporting requirements



Contaminant Measures

DMMO Testing Program Changes

- Worked with San Francisco Estuary Institute (SFEI) to determine “regulatory” ambient conditions for Bay sediments
- Mercury, PCB, and PAH “ambient” will be calculated annually through the SFEI Regional Monitoring Program
- Bioaccumulation triggers for in-Bay disposal for:
 - Mercury
 - PAH
 - PCB
 - DDT
 - Chlordane
 - Dieldrin
 - Dioxins
- Inclusion of “z-layer” sampling and testing where warranted



Initial (2011) Sediment Chemistry Bioaccumulation Trigger 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:

- 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.
- Published bioaccumulation trigger for the chemical class for Puget Sound marine sediments, in *µg/kg* (parts per billion) dry wt.
- Published marine SL value from the Pacific Northwest Sediment Evaluation Framework, in *µg/kg* (parts per billion) dry wt.
- 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.

Dredger Webpage:

<http://www.sfei.org/content/dmmo-ambient-sediment-conditions>



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Dredged Material Testing Thresholds for Sediment

SUMMARY OF RMP AMBIENT SEDIMENT CALCULATIONS FOR USE IN DREDGED MATERIAL MANAGEMENT AND TESTING

This page describes how statistics on contaminant concentrations in San Francisco Bay sediments are compiled and updated for use in the dredged material testing program.

RMP sediment data collected since 2002 form the basis for calculating both the Dredged Material Management Office (DMMO) bioaccumulation testing trigger concentrations (BTs) for mercury, PCBs and PAHs, and the TMDL-based in-Bay disposal limits for mercury and PCBs. The BTs are calculated using the 90% Upper Tolerance Limit (UTL) of the 90th percentile concentrations of mercury, PCBs, and PAHs, while the TMDL-based limits for mercury and PCBs are calculated using the 90% Upper Tolerance Limit of the 99th percentile concentrations. These values are intended to be based on the most recent 10 years of RMP sediment data. However, prior to 2002, the RMP sampling design consisted of repeated sampling of fixed stations along the spine of the Estuary. In 2002 the RMP adopted a probabilistic (random, spatially balanced) sampling design to obtain a more representative characterization of conditions throughout the Bay. Therefore the current BTs and TMDL-based limits are based on only eight years of data (2002-2009). As new data become available, the BTs and TMDL-based limits will be recalculated on a regular basis, using the most recent 10 years of data.

The summary table below presents the current BTs for mercury, PCBs, and PAHs and the current TMDL-based in-Bay disposal limits for mercury and PCBs, after removal of statistical outliers. Further details on the calculation of these thresholds are provided in the links below. Note: the actual BTs used by DMMO agencies are based on the concentrations shown, rounded to the nearest two significant figures.

Contaminant	90% UTL of 90th percentile	DMMO BTs	90% UTL of 99th percentile (TMDL Disposal Limits)	Notes
Hg (mg/kg dry wt.)	0.334	0.33	0.472	Total Mercury
PCB (µg/kg dry wt.)	15.7	16	19.5	Sum of 40 congeners
PAH (µg/kg dry wt.)	4,847	4,800		Sum of 25 PAHs

- [How calculations are performed](#)
- [Essential Fish Habitat Agreement between USACE, USEPA, and NMFS](#)
- [Download RMP sediment data](#)
- [Maps of the stations sampled](#)
- [San Francisco Bay TMDL for mercury](#)
- [San Francisco Bay TMDL for PCBs](#)
- [More information on the DMMO](#)
- [Statistical Report: Recommended Methods for Outlier Detection and Calculations of Tolerance Intervals and Percentiles](#)
- [Full list of Analytes included in RMP analyses](#)

SEARCH

FOCUS AREAS

- ▶ [What is the RMP?](#)
- ▶ [Committees and Workgroups](#)
- ▶ [Status & Trends Monitoring](#)
- ▶ [Pilot & Special Studies](#)
- [RMP Projects](#)
- ▼ [RMP Data](#)
 - [USGS Monthly Water Quality Data](#)
 - [Changes to the RMP](#)
 - [RMP Target Analyte List](#)
 - [Reportable Analytes](#)
 - [Sample Area Weights](#)
 - [Web Query Tool](#)
 - [Dredged Material Testing Thresholds for Sediment](#)
- ▶ [Annual Reports and Publications](#)
- ▶ [Annual Meetings](#)
- [Glossary](#)

RMP SPOTLIGHT



Eelgrass – Direct Effects

- Project-by-project mitigation requirements:
 - Pre- and post-dredge surveys for projects within 45 meters of an eelgrass bed
 - NMFS-approved mitigation plan
 - LTMS will examine potential for developing an eelgrass mitigation bank



Eelgrass – Indirect Effects

- Approximately 40 projects within 250 meter of eelgrass would require:
 - Use of silt curtains on a case-by-case basis
 - Use of light monitoring where silt curtains will not work
 - Follow-up review of all light monitoring results by LTMS in three years





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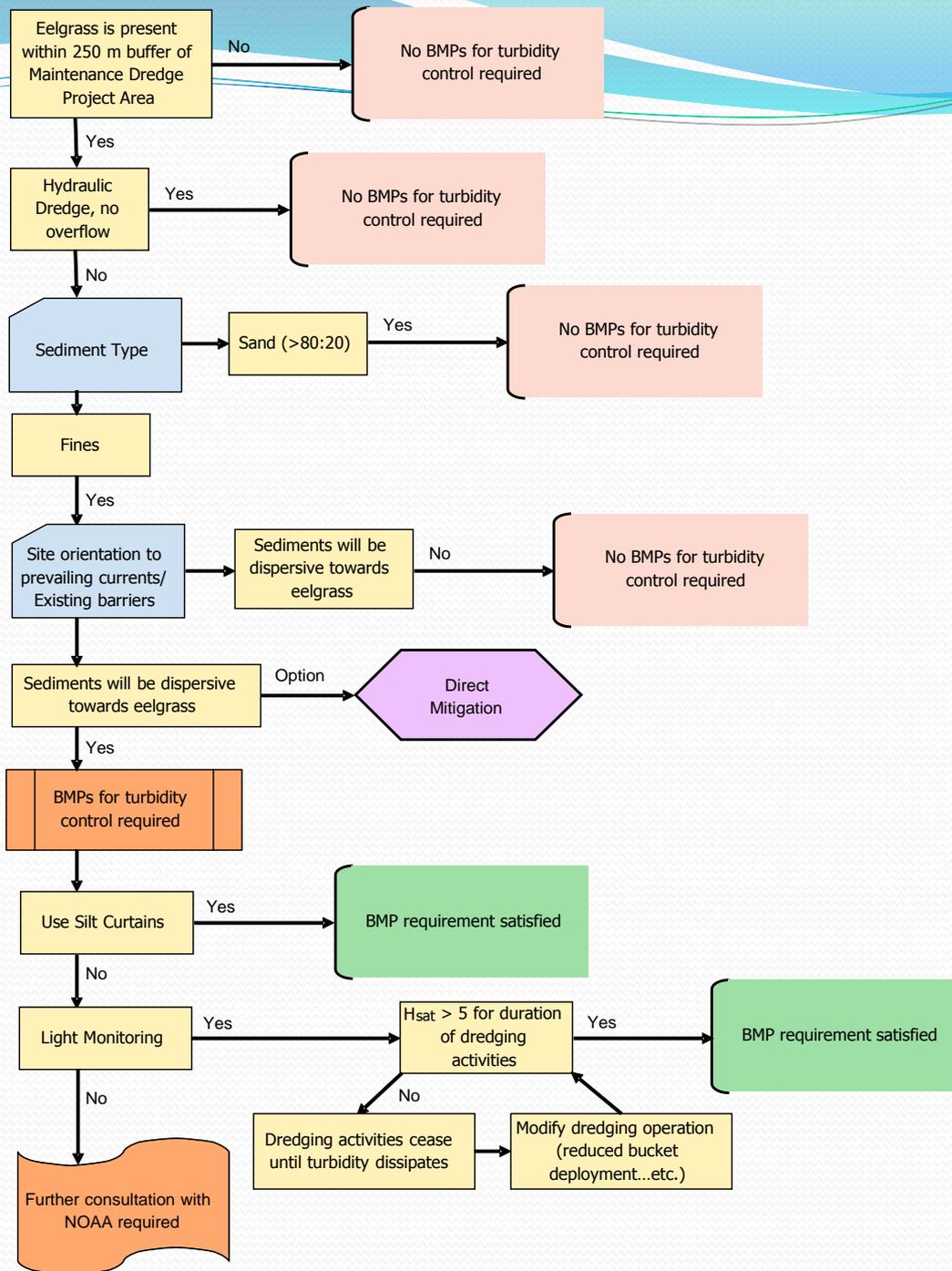
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Reporting Requirements

- DMMO Annual Reports will address activities conducted under this programmatic consultation
- In addition, NMFS must be notified right away when:
 - Direct eelgrass impacts will occur
 - Indirect eelgrass impacts will occur
 - Contaminant thresholds are exceeded in sediments

