

# **Tables**

## **Assessment of Environmental Contaminants Associated with the National Defense Reserve Fleet In Suisun Bay, California**

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**National Oceanic and Atmospheric Administration,  
Office of Response and Restoration**

**Table 1.** Summary of Sampling Stations, Media Sampled, and Analytes Measured for NOAA Suisun Bay Reserve Fleet Study

Station	Sampling Area	Latitude <sup>2</sup>	Longitude <sup>2</sup>	Sediment										Tissue	
				Surface Sediment					Subsurface Sediment <sup>3</sup>					Mytilus	Corbula
				Metals	TBT <sup>4</sup>	Conventionals	PAH	PCB	Metals	TBT <sup>4</sup>	Conventionals	PAH	PCB		
RF01	Reserve Fleet	38.09705	-122.07536	X	X	X	X	X							
RF02	Reserve Fleet	38.09412	-122.07975	X	X	X									
RF03	Reserve Fleet	38.09401	-122.07472	X	X	X									
RF04	Reserve Fleet	38.09393	-122.07008	X	X	X									
RF05	Reserve Fleet	38.09007	-122.08675	X	X	X									
RF06	Reserve Fleet	38.09025	-122.08230	X	X	X									
RF07	Reserve Fleet	38.09024	-122.07732	X	X	X	X	X	X	X	X	X	X		
RF08	Reserve Fleet	38.09012	-122.07253	X	X	X									
RF09	Reserve Fleet	38.08530	-122.08891	X	X	X	X	X	X	X	X	X	X		
RF10	Reserve Fleet	38.08637	-122.08460	X	X	X									
RF11	Reserve Fleet	38.08633	-122.07983	X	X	X									
RF12	Reserve Fleet	38.08619	-122.07505	X	X	X									
RF13	Reserve Fleet	38.08201	-122.09300	X	X	X	X	X						X	
RF14	Reserve Fleet	38.08263	-122.08714	X	X	X	X	X	X	X	X	X	X		
RF15	Reserve Fleet	38.08254	-122.08234	X	X	X									
RF16	Reserve Fleet	38.07882	-122.09932	X	X	X	X	X							
RF17	Reserve Fleet	38.07883	-122.09457	X	X	X			X	X	X	X	X		
RF18	Reserve Fleet	38.07876	-122.08951	X	X	X									
RF19	Reserve Fleet	38.07878	-122.08459	X	X	X	X	X							
RF19T	Reserve Fleet	38.08091	-122.08414	X	X	X									X
RF20	Reserve Fleet	38.07502	-122.10181	X	X	X									
RF21	Reserve Fleet	38.07498	-122.09692	X	X	X	X	X	X	X	X	X	X		
RF22	Reserve Fleet	38.07495	-122.09209	X	X	X	X	X							
RF23	Reserve Fleet	38.07505	-122.08724	X	X	X									
RF24	Reserve Fleet	38.07121	-122.10915	X	X	X									
RF25	Reserve Fleet	38.07119	-122.10438	X	X	X	X	X	X	X	X	X	X		
RF26	Reserve Fleet	38.07132	-122.09937	X	X	X									
RF27	Reserve Fleet	38.07107	-122.09457	X	X	X									
RF28	Reserve Fleet	38.07108	-122.08941	X	X	X									
RF29	Reserve Fleet	38.06756	-122.11017	X	X	X	X	X	X	X	X	X	X		
RF30	Reserve Fleet	38.06743	-122.10678	X	X	X									

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				Surface Sediment					Subsurface Sediment <sup>3</sup>					Mytilus	Corbula
				Metals	TBT <sup>4</sup>	Conventionals	PAH	PCB	Metals	TBT <sup>4</sup>	Conventionals	PAH	PCB		
RF31	Reserve Fleet	38.06732	-122.10180	X	X	X									
RF32	Reserve Fleet	38.06724	-122.09699	X	X	X	X	X							X
RF33	Reserve Fleet	38.06353	-122.11403	X	X	X									
RF34	Reserve Fleet	38.06358	-122.10915	X	X	X	X	X	X	X	X	X	X		
RF35	Reserve Fleet	38.06347	-122.10444	X	X	X									
RF36	Reserve Fleet	38.06332	-122.09949	X	X	X									
RF37	Reserve Fleet	38.05962	-122.11652	X	X	X	X	X							
RF38	Reserve Fleet	38.05972	-122.11161	X	X	X			X	X	X				
RF39	Reserve Fleet	38.05968	-122.10712	X	X	X									
RF40	Reserve Fleet	38.05960	-122.10206	X	X	X									
RF41	Reserve Fleet	38.05594	-122.11910	X	X	X	X	X	X	X	X	X	X		
RF42	Reserve Fleet	38.05599	-122.11417	X	X	X									
RF43	Reserve Fleet	38.05553	-122.10952	X	X	X	X	X							
RF44	Reserve Fleet	38.05206	-122.12161	X	X	X	X	X	X	X	X			X	
RF45	Reserve Fleet	38.05200	-122.11651	X	X	X									
RF46	Reserve Fleet	38.05196	-122.11182	X	X	X									
RF48 <sup>5</sup>	Reserve Fleet	38.04816	-122.11894	X	X	X	X	X	X	X	X				
RF49	Reserve Fleet	38.04822	-122.11407	X	X	X									X
RF51 <sup>5</sup>	Reserve Fleet	38.05125	-122.12462	X	X	X	X	X	X	X	X	X	X		
RF52	Reserve Fleet	38.08334	-122.08488	X	X	X	X	X						X	
RF53	Reserve Fleet	38.06438	-122.10634	X	X	X	X	X						X	
CS01 <sup>1</sup>	Reference	38.04874	-122.18001	X	X	X	X	X	X	X	X				
GB01 <sup>1</sup>	Reference	38.11499	-122.01622	X	X	X	X	X	X	X	X	X	X		
GB01T	Reference	38.10206	-122.00629	X	X	X	X	X						X	
GB02 <sup>1</sup>	Reference	38.09869	-122.02553	X	X	X	X	X	X	X	X				X
GB02T	Reference	38.09462	-122.03828	X	X	X	X	X						X	
SB04 <sup>1</sup>	Reference	38.08707	-122.04034	X	X	X	X	X	X	X	X	X	X		
SB07 <sup>1</sup>	Reference	38.06855	-122.04516	X	X	X	X	X	X	X	X	X	X		
SB08 <sup>1</sup>	Reference	38.07040	-121.98498	X	X	X	X	X	X	X	X	X	X		
SB09T	Reference	38.08068	-121.99748	X	X	X									X
CS01T	Potential Source	38.04217	-122.15711	X	X	X	X	X						X	

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Station	Sampling Area	Latitude <sup>2</sup>	Longitude <sup>2</sup>	Sediment						Tissue					
				Surface Sediment			Subsurface Sediment <sup>3</sup>			Mytilus	Corbula				
				Metals	TBT <sup>4</sup>	Conventionals	PAH	PCB	Metals	TBT <sup>4</sup>	Conventionals	PAH	PCB		
CS03	Potential Source	38.02558	-122.14845	X	X	X	X	X	X	X	X	X	X		
CS03T	Potential Source	38.02755	-122.16232	X	X	X	X	X						X	X
SB03	Potential Source	38.04209	-122.10588	X	X	X	X	X	X	X	X	X	X		
SB06	Potential Source	38.05814	-122.00523	X	X	X	X	X							
CS02	Near Fleet	38.04456	-122.12887	X	X	X	X	X	X	X	X	X	X		
GB03	Near Fleet	38.10514	-122.04588	X	X	X	X	X							
SB01	Near Fleet	38.09989	-122.06844	X	X	X	X	X	X	X	X	X	X		
SB02	Near Fleet	38.08252	-122.07699	X	X	X	X	X							
SB09	Near Fleet	38.07135	-122.08566	X	X	X	X	X	X	X	X	X	X		
SB10	Near Fleet	38.05777	-122.09774	X	X	X	X	X							
SB11	Near Fleet	38.09242	-122.05228	X	X	X	X	X							
SB12T	Near Fleet	38.10815	-122.05617	X	X	X	X	X						X	

Notes:

- <sup>1</sup> Reference station with 3 replicates for surface sediment samples (designated A, B, C).
- <sup>2</sup> Coordinates are in Decimal Degrees with datum NAD83.
- <sup>3</sup> Subsurface sediment sample intervals analyzed for PAHs and PCBs were 0-15 cm, 30-45 cm and 60-90 cm. Intervals 15-30 cm and 45-60 cm were analyzed for Metals/TBT/Conventionals.
- <sup>4</sup> TBT includes mono, di and tributyltins.

**Table 2.** Analytical Methods Used for NOAA Suisun Bay Reserve Fleet Study

	Sediment			Tissue	
	Analyte	Analytical Method	Detection Limit (ppm) <sup>3</sup>	Analytical Method	Detection Limit (ppm) <sup>3</sup>
<b>Conventionals<sup>1</sup></b>	Total Solids (%)	EPA Method 160.3	0.01	N/A	N/A
	Total Organic Carbon	Plumb 1981	200	N/A	N/A
	Grain size (%)	PSEP/ASTM	0.1	N/A	N/A
	%Moisture				
	Lipid (%)	N/A	N/A	Bligh/Dyer	0.02
<b>Metals<sup>2</sup></b>	Aluminum	EPA Method 1638, mod	2.3	EPA Method 1638, mod	0.20
	Antimony	EPA Method 1638, mod	0.05	EPA Method 1638, mod	0.003
	Arsenic	EPA Method 1638, mod	0.10	EPA Method 1638, mod	0.015
	Barium	EPA Method 1638, mod	0.30	EPA Method 1638, mod	0.03
	Cadmium	EPA Method 1638, mod	0.010	EPA Method 1638, mod	0.004
	Chromium	EPA Method 1638, mod	0.67	EPA Method 1638, mod	0.07
	Copper	EPA Method 1638, mod	0.17	EPA Method 1638, mod	0.04
	Iron	EPA Method 1638, mod	6.5	EPA Method 1638, mod	1.4
	Lead	EPA Method 1638, mod	0.05	EPA Method 1638, mod	0.008
	Manganese	EPA Method 1638, mod	0.07	EPA Method 1638, mod	0.01
	Mercury	EPA Method 1631	0.00005	EPA Method 1631	0.00004
	Nickel	EPA Method 1638, mod	0.30	EPA Method 1638, mod	0.06
	Selenium	EPA Method 1638, mod	0.20	EPA Method 1638, mod	0.040
	Silver	EPA Method 1638, mod	0.030	EPA Method 1638, mod	0.010
	Thallium	EPA Method 1638, mod	0.010	EPA Method 1638, mod	0.002
	Tin	EPA Method 1638, mod	0.040	EPA Method 1638, mod	0.05
	Vanadium	EPA Method 1638, mod	3.0	EPA Method 1638, mod	0.03
Zinc	EPA Method 1638, mod	0.25	EPA Method 1638, mod	0.28	
<b>Butyltins<sup>1</sup></b>	Butyltin Ion	EPA Method 8270/Krone	0.004	EPA Method 8270/Krone	0.008
	Dibutyltin	EPA Method 8270/Krone	0.006	EPA Method 8270/Krone	0.012
	Tributyltin	EPA Method 8270/Krone	0.004	EPA Method 8270/Krone	0.008
<b>Polycyclic Aromatic Hydrocarbons (PAHs)<sup>2</sup></b>	1,6,7-Trimethylnaphthalene	GC/MS SIM	0.0001	GC/MS SIM	0.00032
	1-Methylnaphthalene	GC/MS SIM	0.0001	GC/MS SIM	0.00071
	1-Methylphenanthrene	GC/MS SIM	0.0002	GC/MS SIM	0.00019
	2,6-Dimethylnaphthalene	GC/MS SIM	0.0002	GC/MS SIM	0.00034
	2-Methylnaphthalene	GC/MS SIM	0.0002	GC/MS SIM	0.00146
	Acenaphthene	GC/MS SIM	0.0001	GC/MS SIM	0.00024
	Acenaphthylene	GC/MS SIM	0.0002	GC/MS SIM	0.00022
	Anthracene	GC/MS SIM	0.0002	GC/MS SIM	0.00011
	Benzo(a) anthracene	GC/MS SIM	0.0001	GC/MS SIM	0.00017
	Benzo(a) pyrene	GC/MS SIM	0.0002	GC/MS SIM	0.00022
	Benzo(g,h,i)perylene	GC/MS SIM	0.0001	GC/MS SIM	0.00015
	Benzo(k) fluoranthene	GC/MS SIM	0.0002	GC/MS SIM	0.00021
	Biphenyl	GC/MS SIM	0.0001	GC/MS SIM	0.00015
	C1-Chrysenes	GC/MS SIM	0.0003	GC/MS SIM	0.00087
	Carbazole	GC/MS SIM	0.0003	GC/MS SIM	0.00030
	Chrysene	GC/MS SIM	0.0002	GC/MS SIM	0.00043
	Dibenzo(a,h)anthracene	GC/MS SIM	0.0002	GC/MS SIM	0.00014
	Dibenzofuran	GC/MS SIM	0.0002	GC/MS SIM	0.00016
	Dibenzothiophene	GC/MS SIM	0.0002	GC/MS SIM	0.00017
	Fluoranthene	GC/MS SIM	0.0002	GC/MS SIM	0.00098
	Fluorene	GC/MS SIM	0.0002	GC/MS SIM	0.00021
	Indeno(1,2,3-c,d)pyrene	GC/MS SIM	0.0003	GC/MS SIM	0.00017
	Perylene	GC/MS SIM	0.0014	GC/MS SIM	0.00055
Phenanthrene	GC/MS SIM	0.0001	GC/MS SIM	0.00039	
Pyrene	GC/MS SIM	0.0002	GC/MS SIM	0.00087	

**Table 2.** Analytical Methods Used for NOAA Suisun Bay Reserve Fleet Study

	Sediment			Tissue	
	Analyte	Analytical Method	Detection Limit (ppm) <sup>3</sup>	Analytical Method	Detection Limit (ppm) <sup>3</sup>
Polychlorinated Biphenyls (PCBs) <sup>1</sup>	PCB 8	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB18	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 28/31	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 33	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 44	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 49	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 52	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 56/60	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 66	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 70	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 74	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 87	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 95	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 97	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 99	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 101	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 105/132	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 110	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 118	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 128	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 138	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 141	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 149	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 151	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 153	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 156	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 158	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 170	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 174	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
	PCB 177	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001
PCB 180	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001	
PCB 183	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001	
PCB 187	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001	
PCB 194	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001	
PCB 195	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001	
PCB 201	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001	
PCB 203	EPA Method 8082, mod	0.001	EPA Method 8082, mod	0.001	

Notes:

<sup>1</sup> Detection limits for conventionals, butyltins, and PCBs are Method Reporting Limits (MRLs), which are the minimum concentrations of analytes that the laboratory can routinely identify and quantify.

<sup>2</sup> Detection limits for metals and PAHs are Method Detection Limits (MDLs), which are statistically derived values that represent a “best case” sensitivity, lower than the MRLs, yet with inherently higher associated uncertainty than the MRLs.

<sup>3</sup> Detection limits (MRLs and MDLs) are listed in parts per million (ppm), unless otherwise indicated (e.g., conventionals); and provided in wet weight, except for sediment PAHs, which are in dry weight.  
N/A = not applicable.

**Table 3.** Sediment Quality Guidelines (SQG) Used for NOAA Suisun Bay Reserve Fleet Study

Analyte	ERL <sup>1</sup>	ERM <sup>1</sup>	Meador <i>et al.</i> 2002	Units
As	8.2	70		mg/kg
Cd	1.2	9.6		mg/kg
Cr	81	370		mg/kg
Cu	34	270		mg/kg
Pb	46.7	218		mg/kg
Hg	0.15	0.71		mg/kg
Ni	20.9	51.6		mg/kg
Ag	1	3.7		mg/kg
Zn	150	410		mg/kg
Tributyltin ng/g organic carbon			6000	ng/g
2-Methylnaphthalene	70	670		ug/kg
Acenaphthene	16	500		ug/kg
Acenaphthylene	44	640		ug/kg
Anthracene	85.3	1100		ug/kg
Benzo(a)anthracene	261	1600		ug/kg
Benzo(a)pyrene	430	1600		ug/kg
Chrysene	384	2800		ug/kg
Dibenz(a,h)anthracene	63.4	260		ug/kg
Fluoranthene	600	5100		ug/kg
Fluorene	19	540		ug/kg
Naphthalene	160	2100		ug/kg
Phenanthrene	240	1500		ug/kg
Pyrene	665	2600		ug/kg
LPAH	552	3160		ug/kg
HPAH	1700	9600		ug/kg
Total PAH	4022	44792		ug/kg
Total PCB	22.7	180		ug/kg

Notes:

<sup>1</sup> Source: Long *et al.* 1995.

**Table 4.** Classification of Sediments by Mean  $\Sigma$ ERMq from NOAA Suisun Bay Reserve Fleet Study

Potential for Toxicity <sup>1</sup>	$\Sigma$ ERMq <sup>1</sup>	National Database, n=1068	
		Percent Highly Toxic Samples <sup>2</sup>	Average Control-Adjusted Amphipod Survival <sup>2</sup>
Category 1- Low	< 0.11	11	93
Category 2-Medium Low	0.11-0.50	30	81
Category 3-Medium High	0.51-1.50	46	74
Category 4--High	>1.5	75	43

Notes:

<sup>1</sup> Classification summarized from Long and Macdonald (1998).

<sup>2</sup> Long *et al.* (2000)



**Table 5.** Summary of Surface Sediment (0-5cm) Concentrations <sup>2</sup> from NOAA Suisun Bay Reserve Fleet Study

Analyte <sup>1</sup>	ERL	ERM	SF Ambient <sup>3</sup>	SBRF Study Area Stations						Near Fleet Stations						Reference Stations						Potential Source Stations					
				Detected/ Count <sup>5</sup>	Min	Max	Mean	Standard Deviation	95% UCL <sup>6</sup>	Detected/ Count <sup>5</sup>	Min	Max	Mean	Standard Deviation	95% UCL <sup>6</sup>	Detected/ Count <sup>5</sup>	Min	Max	Mean	Standard Deviation	95% UCL <sup>6</sup>	Detected/ Count <sup>5</sup>	Min	Max	Mean	Standard Deviation	95% UCL <sup>6</sup>
% fines				51/51	1.50	98.30	63.75	32.67	72.72	8/8	2.90	95.30	58.10	40.23	85.98	20/20	1.50	94.70	47.67	40.84	65.57	5/5	21.70	88.60	54.50	27.95	79.00
TOC (%)				51/51	0.09	2.04	1.08	0.42	1.20	8/8	0.22	1.42	0.78	0.39	1.05	20/20	0.14	3.05	0.86	0.68	1.16	5/5	0.60	1.53	1.05	0.35	1.36
Al				51/51	18,600.00	76,300.00	48,256.86	15,245.06	52,440.87	8/8	24,400.00	64,900.00	47,500.00	15,633.94	58,333.57	20/20	16,000.00	66,000.00	40,878.75	17,366.11	48,489.64	5/5	33,750.00	69,550.00	46,200.00	14,114.49	58,571.67
Sb				51/51	0.21	1.71	0.59	0.32	0.68	8/8	0.15	0.93	0.53	0.25	0.71	20/20	0.16	0.76	0.46	0.23	0.56	5/5	0.31	0.77	0.56	0.18	0.72
As	8.2	70	15.3	51/51	5.23	25.60	11.37	4.12	12.51	8/8	5.21	15.60	10.55	3.60	13.05	20/20	5.43	13.10	9.81	2.88	11.08	5/5	5.76	13.30	10.37	3.47	13.41
Ba				51/51	76.70	261.00	146.30	48.87	159.71	8/8	89.50	248.00	168.31	46.61	200.61	20/20	60.70	247.50	153.11	52.50	176.11	5/5	136.50	213.00	164.10	29.37	189.84
Cd	1.2	9.6	0.330	51/51	0.07	0.68	0.24	0.14	0.28	8/8	0.07	0.40	0.21	0.10	0.29	20/20	0.05	0.31	0.19	0.10	0.23	5/5	0.10	0.32	0.19	0.08	0.26
Cr	81	370	112.0	51/51	74.60	187.00	122.73	22.91	129.02	8/8	60.70	133.00	107.28	23.98	123.89	20/20	72.90	178.00	113.55	25.90	124.90	5/5	80.60	131.00	102.24	18.48	118.44
Cu	34	270	68.1	51/51	11.70	81.90	46.82	19.28	52.11	8/8	14.90	71.50	45.08	20.38	59.20	20/20	9.90	67.50	39.12	22.94	49.18	5/5	37.15	72.35	48.16	14.66	61.01
Fe				51/51	26,000.00	58,400.00	45,044.12	7,449.10	47,088.52	8/8	28,000.00	49,600.00	41,362.50	7,247.25	46,384.50	20/20	27,800.00	51,500.00	40,467.50	8,640.07	44,254.11	5/5	32,050.00	50,950.00	40,140.00	6,932.12	46,216.16
Pb	46.7	218	43.2	51/51	5.24	276.00	22.03	40.16	33.05	8/8	6.44	27.20	14.64	6.68	19.27	20/20	5.43	23.90	12.63	6.56	15.51	5/5	7.71	24.75	15.31	6.35	20.88
Mn				51/51	490.00	1,370.00	827.24	229.32	890.17	8/8	566.00	1,340.00	894.75	265.46	1,078.70	20/20	479.00	1,080.00	733.83	207.68	824.84	5/5	515.00	867.00	714.20	180.03	872.00
Hg	0.15	0.71	0.430	51/51	0.02	0.79	0.21	0.17	0.25	8/8	0.03	0.31	0.18	0.11	0.25	20/20	0.01	0.95	0.18	0.21	0.28	5/5	0.05	0.37	0.20	0.13	0.31
Ni	20.9	51.6	112.0	51/51	68.10	121.00	94.15	14.47	98.12	8/8	74.20	113.00	93.78	13.31	103.00	20/20	68.30	116.00	93.24	16.10	100.29	5/5	64.90	107.50	82.87	15.50	96.45
Se				49/51	0.36	1.23	0.77	0.26	0.84	8/8	0.22	1.42	0.77	0.38	1.03	18/20	0.23	1.30	0.65	0.28	0.78	5/5	0.54	1.22	0.82	0.27	1.06
Ag	1	3.7	0.580	49/51	0.04	0.67	0.20	0.12	0.23	7/8	0.03	0.32	0.18	0.10	0.25	16/20	0.03	0.38	0.16	0.11	0.21	5/5	0.07	0.30	0.18	0.11	0.27
Tl				51/51	0.07	0.30	0.19	0.06	0.21	8/8	0.10	0.27	0.20	0.06	0.24	20/20	0.05	0.29	0.17	0.07	0.20	5/5	0.15	0.29	0.20	0.05	0.24
Sr				51/51	0.55	8.83	1.94	1.59	2.38	8/8	0.47	3.75	1.78	1.05	2.50	20/20	0.36	3.56	1.61	1.03	2.06	5/5	1.08	3.48	1.93	0.94	2.76
V				51/51	69.60	158.00	122.37	22.92	128.66	8/8	64.40	150.00	112.35	27.36	131.31	20/20	64.10	149.50	111.54	29.18	124.32	5/5	84.35	143.00	109.27	21.15	127.81
Zn	150	410	158	51/51	55.60	167.00	107.89	29.73	116.05	8/8	61.00	153.00	109.10	29.90	129.82	20/20	52.80	188.00	105.29	38.44	122.14	5/5	66.00	140.00	100.10	26.53	123.35
monobutyltin				1/51	3.50	55.00	4.83	7.17	6.80	0/8	3.30	3.90	3.74	0.21	3.88	0/20	3.50	4.10	3.80	0.15	3.87	0/5	3.60	4.00	3.82	0.20	4.00
dibutyltin				1/51	4.90	420.00	13.57	58.05	29.50	0/8	4.60	5.60	5.31	0.31	5.53	0/20	5.00	5.80	5.39	0.20	5.48	0/5	5.00	5.70	5.38	0.31	5.65
tributyltin				1/51	3.30	430.00	11.99	59.70	28.37	0/8	3.10	3.70	3.55	0.20	3.69	0/20	3.30	3.80	3.62	0.13	3.67	0/5	3.40	3.80	3.62	0.20	3.80
Total PAH <sup>4</sup>	4022	44792	3390	21/21	120.40	784.30	464.50	171.52	537.86	6/6	17.60	753.80	414.80	309.10	662.13	20/20	9.60	544.40	234.96	207.46	325.88	5/5	102.20	707.00	464.98	245.25	679.95
LPAH <sup>4</sup>	532	3160	434	21/21	20.25	113.30	67.56	29.50	80.18	6/6	5.40	197.90	85.17	70.93	141.92	20/20	2.20	100.80	43.42	38.47	60.28	5/5	20.70	114.70	79.24	37.62	112.22
HPAH <sup>4</sup>	1700	9600	3060	21/21	100.15	684.30	396.94	144.63	458.80	6/6	12.20	634.00	329.63	247.63	527.77	20/20	7.40	443.60	191.54	172.42	267.11	5/5	81.50	597.30	385.74	207.78	567.87
ΣPAH <sup>4</sup>				21/21	234.50	2,092.00	893.83	440.00	1,082.02	6/6	36.80	1,493.00	787.13	589.55	1,258.86	20/20	16.40	1,195.00	475.40	432.89	665.12	5/5	202.00	1,297.00	885.20	452.65	1,281.95
Total PCB <sup>4</sup>	22.7	180	21.6	4/21	0.90	1.80	1.09	0.26	1.21	0/6	1.00	1.00	1.00	0.00	---	4/19	0.90	2.00	1.07	0.26	1.19	2/5	0.90	7.70	2.40	2.97	5.00

Notes:

- All concentrations dry weight; metals concentrations in ppm (mg/kg); all organotin, PAH, PCB concentrations in ppb (ug/kg).
- Field duplicates are averaged.
- SF Estuary Sediment Ambient Concentrations from SPEI (1997).
- Total PCB, LPAH, HPAH, Total PAH and ΣPAH calculations are from Query Manager with field replicates averaged.
- Detected indicates number of samples with results above detection limit; Count represents total number of samples including U qualified results (non-detection) where full detection limit used.
- Bolded values are greater than SF Estuary Ambient Concentrations.

**Table 6.** Summary of Subsurface <sup>4</sup> Sediment (0-120 cm) Concentrations<sup>2</sup> from NOAA Suisun Bay Reserve Fleet Study

Analyte <sup>1</sup>	ERL	ERM	SF Ambient <sup>3</sup>	SBRR Study Area Stations										Near Fleet Stations										Reference Stations										Potential Source Stations									
				Detected/ Count <sup>6</sup>	Min	Max	Mean	Standard Deviation	95% UCL <sup>7</sup>	Detected/ Count <sup>6</sup>	Min	Max	Mean	Standard Deviation	95% UCL <sup>7</sup>	Detected/ Count <sup>6</sup>	Min	Max	Mean	Standard Deviation	95% UCL <sup>7</sup>	Detected/ Count <sup>6</sup>	Min	Max	Mean	Standard Deviation	95% UCL <sup>7</sup>																
% Fines				74/74	11.20	98.30	89.64	15.10	93.08	20/20	1.50	98.40	59.24	38.11	75.94	28/28	1.80	97.90	71.64	31.54	83.32	11	69.60	93.90	83.19	9.90	89.04																
TOC (%)				74/74	0.58	2.49	1.34	0.33	1.41	20/20	0.12	2.45	1.05	0.58	1.30	28/28	0.20	3.34	1.26	0.91	1.59	11	0.90	1.65	1.24	0.29	1.41																
Al				76/76	26,800.00	86,100.00	64,557.24	11,039.89	67,039.26	21/21	20,000.00	78,050.00	54,240.48	19,523.28	62,590.57	28/28	18,200.00	93,400.00	61,300.00	20,112.91	68,749.79	12	50,800.00	71,100.00	58,650.00	6,773.68	62,482.50																
Sb				76/76	0.23	3.37	1.02	0.59	1.15	21/21	0.13	0.87	0.59	0.22	0.69	28/28	0.15	1.81	0.76	0.52	0.95	12	0.55	1.47	0.89	0.29	1.06																
As				76/76	7.68	33.10	16.85	6.33	18.27	21/21	5.12	15.15	11.43	3.10	12.76	28/28	6.18	30.80	15.45	7.33	18.16	12	9.04	21.80	13.02	3.86	15.21																
Ba				76/76	102.00	312.00	198.53	46.62	209.31	21/21	87.50	307.00	171.10	56.30	195.19	28/28	75.20	302.00	199.47	56.46	220.38	12	143.00	254.00	194.33	35.30	214.41																
Cd				76/76	0.11	0.85	0.44	0.24	0.50	21/21	0.06	0.38	0.24	0.08	0.27	28/28	0.04	0.75	0.29	0.22	0.37	12	0.20	0.65	0.40	0.18	0.50																
Cr				76/76	82.30	165.00	128.11	15.16	131.52	21/21	73.10	152.50	115.59	22.97	125.41	28/28	49.30	154.00	122.21	24.17	131.16	12	103.00	138.00	116.92	12.02	123.72																
Cu				76/76	18.70	104.00	68.74	19.53	73.13	21/21	13.50	84.10	53.00	22.16	62.48	28/28	9.23	84.10	52.02	22.34	60.29	12	49.20	85.40	65.61	14.00	73.53																
Fe				76/76	30,100.00	60,300.00	49,676.64	6,497.30	51,137.39	21/21	27,800.00	61,250.00	44,228.57	9,973.28	48,494.14	28/28	22,900.00	56,700.00	45,000.00	8,773.96	48,249.86	12/12	39,700.00	53,300.00	45,533.33	4,933.44	48,524.64																
Pb				76/76	6.99	55.60	27.97	14.61	31.25	21/21	6.12	23.15	17.13	5.83	19.63	28/28	4.52	50.15	16.40	14.39	21.73	12/12	16.10	41.60	25.34	9.18	30.53																
Mn				76/76	472.00	1,720.00	1,038.64	216.78	1,087.38	21/21	400.00	1,340.00	875.71	338.69	1,020.57	28/28	406.00	899.00	584.75	148.72	639.84	12/12	512.00	942.00	679.58	128.72	752.41																
Hg				76/76	0.05	0.93	0.44	0.26	0.50	21/21	0.02	0.37	0.22	0.11	0.27	28/28	0.02	0.89	0.27	0.25	0.36	12/12	0.20	0.61	0.35	0.14	0.43																
Ni				76/76	63.40	123.00	102.77	12.29	105.54	21/21	68.80	127.00	96.92	18.95	105.02	28/28	57.10	114.00	89.49	14.04	94.69	12/12	80.90	115.00	95.74	12.49	102.81																
Se				75/76	0.40	1.67	0.90	0.27	0.96	21/21	0.28	1.41	0.74	0.29	0.87	28/28	0.29	1.65	0.81	0.31	0.92	12/12	0.82	1.33	1.04	0.20	1.15																
Ag				76/76	0.06	0.57	0.28	0.12	0.31	18/21	0.03	0.28	0.19	0.08	0.23	22/28	0.03	0.42	0.15	0.12	0.19	12/12	0.22	0.55	0.42	0.36	0.62																
Tl				76/76	0.10	0.37	0.26	0.05	0.27	21/21	0.08	0.35	0.21	0.07	0.24	28/28	0.06	0.38	0.24	0.08	0.27	12/12	0.21	0.31	0.25	0.04	0.27																
Sn				76/76	0.78	13.50	3.60	2.69	4.20	21/21	0.49	4.93	2.25	1.08	2.71	28/28	0.35	8.29	1.93	2.08	2.70	12/12	1.88	6.10	3.16	1.27	3.87																
V				76/76	78.40	169.00	133.82	18.48	137.97	21/21	71.70	167.50	118.74	28.53	130.94	28/28	55.90	175.00	130.33	30.55	141.65	12/12	109.00	145.00	124.17	12.31	131.13																
Zn				76/76	63.70	217.00	142.61	35.36	150.56	21/21	59.60	161.50	116.26	29.13	128.72	28/28	43.80	182.50	102.56	42.02	118.13	12/12	105.00	169.00	130.75	23.70	144.16																
monobuythin				0/76	3.60	4.10	3.84	0.12	3.87	0/21	3.30	4.00	3.74	0.22	3.83	0/28	3.20	4.00	3.72	0.15	3.77	0/12	3.50	4.00	3.82	0.15	3.90																
dibuythin				0/76	5.00	5.80	5.44	0.18	5.48	0/21	4.70	5.70	5.29	0.29	5.42	0/28	4.60	5.60	5.27	0.21	5.35	0/12	5.00	5.60	5.42	0.20	5.53																
tribuythin				0/76	3.40	3.80	3.64	0.11	3.66	4/21	3.10	53.00	6.49	10.95	11.17	0/28	3.00	3.80	3.52	0.15	3.58	2/12	3.40	17.00	4.76	3.86	6.94																
Total PAH <sup>5</sup>				24/24	88.00	944.40	607.52	201.48	688.12	9/9	14.30	720.40	465.77	268.81	641.39	8/8	17.40	948.30	496.50	342.88	705.09	6/6	571.70	943.80	784.65	141.07	865.18																
LPAH <sup>5</sup>				24/24	14.10	164.80	96.90	38.72	112.39	9/9	5.80	119.10	79.79	44.46	108.83	8/8	6.40	161.90	75.22	61.01	113.91	6/6	84.80	153.20	124.48	25.90	139.32																
HPAH <sup>5</sup>				24/24	73.90	787.00	510.62	165.49	576.83	9/9	8.5	601.30	385.98	224.77	532.83	8/8	11.00	786.40	421.28	286.68	594.51	6/6	486.90	790.60	660.18	116.48	726.91																
Σ PAH <sup>5</sup>				24/24	192.00	3012.00	1336.21	737.11	1,631.11	9/9	30.50	1369.00	904.49	509.07	1,237.08	8/8	29.90	2099.00	969.78	775.74	1,438.17	6/6	1192.00	2800.00	1806.75	606.51	2120.80																
Total PCB <sup>5</sup>				5/24	1.00	13.50	1.65	2.55	2.67	2/9	1.00	2.40	1.18	0.46	1.48	2/8	1.00	2.70	1.34	0.61	1.62	0/6	1.00	1.00	1.00	0.00	---																

Notes:

- <sup>1</sup> All concentrations dry weight; metals concentrations in ppm (mg/kg); all organotin, PAH, PCB concentrations in ppb (ug/kg).
- <sup>2</sup> Field duplicates are averaged.
- <sup>3</sup> SF Estuary Sediment Ambient Concentrations from SFEI (1997).
- <sup>4</sup> Subsurface intervals are: 0-15 cm, 15-30 cm, 30-45 cm, 45-60 cm, 60-90 cm, 90-120 cm.
- <sup>5</sup> Total PCB, LPAH, HPAH, Total PAH and ΣPAH calculations are from Query Manager with field replicates averaged.
- <sup>6</sup> Detected indicates number of samples with results above detection limit; Count represents total number of samples including U qualified results (non-detection) where full detection limit used
- <sup>7</sup> Bolded values are greater than SF Estuary Sediment Ambient concentrations.

**Table 7.** Probability Values<sup>1</sup> (p-values) from Statistical Tests from NOAA Suisun Bay Reserve Fleet Study

Analyte	Surface Sediment			Subsurface Sediment			Tissue Mytilus			
	0 - 5 cm	0-15 cm <sup>4</sup>	15-30 cm	30-45 cm	45-60 cm	60-90 cm		90-120 cm		
Bartlett's (crit value =12.6)	Bartlett's p-value	K-W <sup>2</sup> p-value <sup>2</sup>	Multi Contrast <sup>3</sup>	K-W <sup>2</sup> p-value <sup>2</sup>	Multi Comparison <sup>4</sup>	K-W <sup>2</sup> p-value <sup>2</sup>	Multi Comparison <sup>4</sup>	K-W <sup>2</sup> p-value <sup>2</sup>	Multi Comparison <sup>4</sup>	K-W <sup>2</sup> p-value <sup>2</sup>
Al	40.7	3E-07	0.0090	ns	0.952	0.299	0.293	0.242	0.293	0.293
Sb	41.1	3E-07	0.0005	ns	0.293	0.293	0.293	0.242	0.293	0.293
As	34.3	6E-06	0.0160	ns	0.184	0.184	0.184	0.226	0.226	0.226
Ba	24.8	4E-04	0.0060	ns	0.690	0.539	0.539	0.226	0.226	0.226
Cd	34.8	5E-06	0.0005	ns	0.305	0.214	0.214	0.214	0.214	0.214
Cr	24.2	5E-04	0.0260	ns	0.703	0.237	0.237	0.237	0.237	0.237
Cu	34.2	6E-06	0.0003	ns	0.438	0.359	0.359	0.359	0.359	0.359
Fe	21.0	2E-03	0.0010	ns	0.418	0.124	0.124	0.124	0.124	0.124
Pb	69.4	5E-13	0.0010	ns	0.399	0.118	0.118	0.118	0.118	0.118
Mn	29.1	6E-05	0.0050	ns	0.012	Fleet vs Ref	0.012	Fleet vs Ref	0.012	Fleet vs Ref
Hg	44.7	5E-08	0.0020	ns	0.215	0.515	0.515	0.515	0.515	0.515
Ni	20.2	3E-03	0.0030	ns	0.412	0.295	0.295	0.295	0.295	0.295
Se	7.0	0.33	0.0450	ns	0.899	0.321	0.321	0.321	0.321	0.321
Ag	∞	0	0.0006	ns	0.260	0.123	0.123	0.123	0.123	0.123
Tl	22.7	9E-04	0.0030	ns	0.797	0.415	0.415	0.415	0.415	0.415
Sn	34.8	5E-06	0.0007	ns	0.636	0.179	0.179	0.179	0.179	0.179
V	24.6	4E-04	0.0020	ns	0.987	0.122	0.122	0.122	0.122	0.122
Z	27.8	1E-04	0.0030	ns	0.343	0.123	0.123	0.123	0.123	0.123
SEET Total PAHs	40.0	5E-07	0.0003	ns	0.866	0.470	0.470	0.470	0.470	0.470
SFEET Total PAHs- organic carbon normalized						0.758	0.758	0.758	0.758	0.758
Total PCBs	∞	0	0.4600	ns	0.670	0.780	0.780	0.780	0.780	0.780
Total PCBs- organic carbon normalized						0.403	0.403	0.403	0.403	0.403
Organothins					0.174	0.205	0.205	0.205	0.205	0.205
Organothins-organic carbon normalized						0.223	0.223	0.223	0.223	0.223
TOC	23.7	6E-04	0.003	ns	0.257	0.799	0.799	0.799	0.799	0.799
% Fines			0.003	ns	0.061	ns	ns	0.244	0.244	0.244
Lipid			ns	ns	ns	ns	ns	0.159	0.159	0.159

Notes:

- 1 A p-value < 0.1 indicates rejection of the hypothesis of homogeneous variances. Significant results are indicated **in bold**. Nonsignificant results are indicated by ns.
- 2 Kruskal Wallis (K-W) tests examine the likelihood of differences among any of the groups tested, including potential differences among reference envelope sites.
- 3 Multiple contrasts (follow-up tests to a K-W test) tests for differences between the SBRF study area and the reference envelope of six reference stations: ns indicated no significant difference.
- 4 Multiple comparisons (follow-up tests to a K-W test) tests for differences between the SBRF study area, the reference stations, and all other areas.

**Table 8.** Samples Exceeding the ERM for Mercury or Lead from the NOAA Suisun Bay Reserve Fleet Study

Station	Sample	Sample Type	Depth Range (cm)	Hg ERM Quotient <sup>1</sup>	Pb ERM Quotient <sup>1</sup>
RF17	RF17CO000015	core	0 - 15	1.28	
RF17	RF17CO015030	core	15 - 30	1.25	
RF17	RF17CO030045	core	30 - 45	1.12	
RF17	RF17CO045060	core	45 - 60	1.1	
RF17	RF17CO060090	core	60 - 90	1.09	
RF25	RF25SS000005	grab	0 - 5	0.33	1.27
RF25	RF25CO045060	core	45 - 60	1.03	
RF25	RF25CO060090	core	60 - 90	1.01	
RF34	RF34SS000005	grab	0 - 5	1.11	
RF34	RF34CO015030	core	15 - 30	1.04	
RF34	RF34CO030045	core	30 - 45	1.1	
RF34	RF34CO045060	core	45 - 60	1.21	
RF34	RF34CO060090	core	60 - 90	1.06	
RF34	RF34CO090120	core	90 - 120	1.31	
RF41	RF41CO030045	core	30 - 45	1.07	
RF41	RF41CO090120	core	90 - 120	1.06	
RF44	RF44CO000015	core	0 - 15	1.11	
RF44	RF44CO015030	core	15 - 30	1.06	
RF44	RF44CO045060	core	45 - 60	1.04	
RF44	RF44CO090120	core	90 - 120	1.07	
SB04	SB04CO030045	core	30 - 45	1.25	
SB04	SB04CO045060	core	45 - 60	1.04	

Notes:

<sup>1</sup> ERM quotient= observed contaminant concentration divided by it's ERM value.

**Table 9.** Sediment Samples with Tributyltin Above Detection Limits<sup>1</sup> from NOAA Suisun Bay Reserve Fleet Study

Station ID	Sample	Sample Type	Depth Range (cm)	TBT Concentration (ppb)	TBT OC Normalized Concentration (ppb)
RF26	RF26SS000005	grab	0 - 5	430.0	43,000.00
CS02	CS02CO060090	core	60 - 90	15.0	1,744.19
CS02	CS02CO090120	core	90 - 120	53.0	4,862.39
SB01	SB01CO000015	core	0 - 15	3.8	380.00
SB01	SB01CO030045	core	30 - 45	4.6	368.00
SB03	SB03CO015030	core	15 - 30	3.7	284.62
SB03	SB03CO045060	core	45 - 45	17.0	1,734.69

Notes:

<sup>1</sup> Detection limits for tributyltin were 3.0 to 3.8 ppb.

**Table 10.**  $\Sigma$ ERM Quotient<sup>1</sup> Statistics from NOAA Suisun Bay Reserve Fleet Study

Parameter	$\Sigma$ ERMq Calculated for Metals Only		$\Sigma$ ERMq Calculated for Metals & Organics	
	Samples analyzed for metals only	Samples analyzed for metals, PAHs, PCBs	Samples analyzed for metals only <sup>2</sup>	Samples analyzed for metals, PAHs, PCBs
<b>Number of Records</b>	87	209	87	209
<b>Median <math>\Sigma</math>ERMq</b>	0.39	0.39	0.15	0.15
<b>Mean <math>\Sigma</math>ERMq</b>	0.39	0.39	0.15	0.15
<b>Standard Deviation</b>	0.09	0.1	0.04	0.04
<b>Coefficient of Variation</b>	0.24	0.26	0.25	0.26
<b>Minimum <math>\Sigma</math>ERMq</b>	0.22	0.17	0.08	0.07
<b>Maximum <math>\Sigma</math>ERMq</b>	0.6	0.63	0.23	0.25
<b>90 Percentile <math>\Sigma</math>ERMq</b>	0.5	0.55	0.2	0.22

Notes

<sup>1</sup>  $\Sigma$ ERM Quotient is the mean effects range median quotient as defined in Long *et al.* (1998).

<sup>2</sup>  $\Sigma$ ERMq for stations without PAH and PCB analytical data were estimated as described in Section 6.3.4.

**Table 11.** Summary of Paint Chip/Metal Debris Analysis<sup>1</sup> from NOAA Suisun Bay Reserve Fleet study

Station ID	Date Collected	Archived	Paint Present	Metal Debris Present	Lab Comment	Lab Review Date	Microscope Photo	ERM or Meador <i>et al.</i> (2002) exceedance in surface (0-5 cm) sample <sup>2</sup>
RF01	7/8/2008	No	No	No				
RF02	7/8/2008	No	No	No				
RF03	7/7/2008	No	No	No				
RF04	7/7/2008	No	No	No				
RF05	7/7/2008	No	No	No				
RF06	7/7/2008	No	No	No				
RF07	7/17/2008	No	No	No				
RF08	7/7/2008	No	No	No				
RF09	7/17/2008	No	No	No				
RF10	7/7/2008	Yes	No	Yes	Hard metal debris/ no red paint	9/25/2008	Yes	
RF11	7/7/2008	No	No	No				
RF12	7/7/2008	No	No	No				
RF13	7/7/2008	No	No	No				
RF14	7/17/2008	Yes	No	Yes	Hard metal debris/ ferric/ rusted	9/15/2008		
RF15	7/7/2008	Yes	No	No	Crystalline structure, likely mica or quartz, not man made metal or paint	9/25/2008		
RF16	7/7/2008	No	No	No				
RF17	7/15/2008	No	No	No				
RF18	7/7/2008	No	No	No				
RF19	7/7/2008	No	No	No				
RF20	7/8/2008	No	No	No				
RF21	7/14/2008	No	No	No				
RF22	7/8/2008	No	No	No				
RF23	7/7/2008	No	No	No				
RF24	7/7/2008	No	No	No				
RF25	7/15/2008	Yes	Yes	Yes	Hard metal debris/ red paint potentially	9/15/2008	Yes	Pb
RF26	7/8/2008	Yes	Yes	Yes	Hard metal debris/ red paint potentially	9/15/2008	Yes	TBT
RF27	7/15/2008	Yes	Yes	Yes	Hard metal debris/ red paint potentially	9/15/2008	Yes	
RF28	7/7/2008	Yes	No	No	Crystalline structure, likely mica or quartz, no man made metal or paint	9/15/2008	Yes	
RF29	7/14/2008	Yes	No	Yes	Hard metal debris/ no red paint	9/25/2008	Yes	
RF30	7/9/2008	No	No	No				
RF31	7/8/2008	Yes	No	Yes	Hard metal debris/ no red paint	9/25/2008		
RF32	7/8/2008	No	No	No				
RF33	7/9/2008	No	No	No				
RF34	7/16/2008	No	No	No				Hg
RF35	7/10/2008	No	No	No				
RF36	7/8/2008	No	No	No				
RF37	7/9/2008	No	No	No				
RF38	7/15/2008	No	No	No				
RF39	7/9/2008	Yes	Yes	Yes	Hard metal debris/ red paint potentially	9/25/2008	Yes	
RF40	7/8/2008	Yes	No	No	No metal/ hard stone/ hollow tube present	9/25/2008	Yes	
RF41	7/15/2008	No	No	No				
RF42	7/9/2008	Yes	Yes	Yes	Hard metal debris/ red paint potentially	9/25/2008	Yes	
RF43	7/9/2008	No	No	No				
RF44	7/16/2008	No	No	No				
RF45	7/9/2008	Yes	No	Yes	Hard metal debris/ no red paint	9/25/2008	Yes	
RF46	7/9/2008	Yes	No	No	Crystalline structure, likely mica or quartz, no man made metal or paint	9/25/2008	Yes	
RF48 <sup>3</sup>	7/16/2008	No	No	No				
RF49	7/9/2008	Yes	No	No	No metal/ hard stone	9/25/2008	Yes	

**Table 11.** Summary of Paint Chip/Metal Debris Analysis<sup>1</sup> from NOAA Suisun Bay Reserve Fleet study

Station ID	Date Collected	Archived	Paint Present	Metal Debris Present	Lab Comment	Lab Review Date	Microscope Photo	ERM or Meador <i>et al.</i> (2002) exceedance in surface (0-5 cm) sample <sup>2</sup>
RF51 <sup>3</sup>	7/16/2008	No	No	No				
RF52	7/7/2008	No	No	No				
RF52-1	7/7/2008	Yes	Yes	No	Large grey paint chip with layers of paint intact	9/25/2008	Yes	
RF53	7/9/2008	No	No	No				
CS01A	7/10/2008	Yes	No	Yes	Hard metal debris/ no red paint	9/15/2008		
CS01T	7/10/2008	No	No	No				
CS02	7/16/2008	No	No	No				
CS03	7/16/2008	No	No	No				
CS03T	7/10/2008	No	No	No				
GB01A	7/10/2008	No	No	No				
GB01T	7/8/2008	No	No	No				
GB02A	7/10/2008	No	No	No				
GB02T	7/8/2008	No	No	No				
GB03	7/8/2008	No	No	No				
SB01	7/17/2008	No	No	No				
SB02	7/14/2008	No	No	No				
SB03	7/16/2008	No	No	No				
SB04A	7/10/2008	No	No	No				
SB06	7/15/2008	Yes	No	Yes	Hard metal debris/ no red paint	9/15/2008		
SB07A	7/10/2008	No	No	No				
SB08A	7/10/2008	No	No	No				
SB09	7/15/2008	No	No	No				
SB10	7/8/2008	No	No	No				
SB11	7/8/2008	No	No	No				
SB12T	7/8/2008	No	No	No				

Notes:

<sup>1</sup> Refer to Appendix 10.5 for paint chip photo documentation.

<sup>2</sup> Surface sample summary only provided because these were collocated with paint chip samples.



Table 12. Summary of *Mytilus* Tissue Concentrations from NOAA Suisun Bay Reserve Fleet Study

Control Sample						SBRF Study Area Stations <sup>2</sup>						Near Fleet Stations						Reference Stations						Potential Source Stations						
Analyte <sup>1</sup>	Detected/ Count	Min	Max	Mean	Standard Deviation	95 <sup>th</sup> % UCL <sup>3</sup>	Detected/ Count	Min	Max	Mean	Standard Deviation	95 <sup>th</sup> % UCL <sup>3</sup>	Detected/ Count	Min	Max	Mean	Standard Deviation	95 <sup>th</sup> % UCL <sup>3</sup>	Detected/ Count	Min	Max	Mean	Standard Deviation	95 <sup>th</sup> % UCL <sup>3</sup>	Detected/ Count	Min	Max	Mean	Standard Deviation	95 <sup>th</sup> % UCL <sup>3</sup>
% Lipid	3/3	1.10	1.40	1.20	0.17	1.40	12/12	0.70	1.00	0.85	0.10	0.91	3/3	0.50	0.80	0.70	0.17	0.90	3/3	0.80	-0.80	0.80	0.00	0.80	6/6	0.60	0.90	0.70	0.11	0.79
Al	3/3	66.70	106.00	81.90	21.11	105.79	12/12	52.70	130.00	91.94	22.09	104.44	3/3	116.00	141.00	128.00	12.53	142.18	3/3	65.00	115.00	93.77	25.63	122.77	6/6	38.60	72.50	53.87	14.15	65.19
Sb	0/3	0.00	0.00	0.00	0.00	0.00	0/12	0.00	0.02	0.00	0.00	0.01	0/3	0.00	0.01	0.00	0.00	0.01	0/3	0.00	0.00	0.00	0.00	0/6	0.00	0.01	0.00	0.00	0.01	
As	3/3	0.66	0.89	0.75	0.13	0.89	12/12	0.74	1.04	0.84	0.07	0.88	3/3	0.67	1.14	0.92	0.23	1.18	3/3	0.67	0.72	0.69	0.02	0.72	6/6	0.79	0.95	0.84	0.07	0.90
Ba	3/3	0.23	0.35	0.27	0.07	0.35	12/12	0.21	0.48	0.37	0.08	0.41	3/3	0.43	0.61	0.54	0.10	0.65	3/3	0.32	0.44	0.40	0.07	0.47	6/6	0.19	0.30	0.24	0.04	0.28
Cd	3/3	0.39	0.46	0.43	0.04	0.47	12/12	0.56	1.05	0.86	0.17	0.95	3/3	0.72	1.20	1.03	0.27	1.34	3/3	0.62	0.76	0.69	0.07	0.77	6/6	0.67	1.03	0.87	0.14	0.98
Cr	3/3	0.53	0.82	0.64	0.16	0.82	12/12	0.33	1.55	0.64	0.31	0.81	3/3	0.72	1.14	0.86	0.24	1.13	3/3	0.57	0.63	0.60	0.03	0.64	6/6	0.29	0.59	0.39	0.12	0.49
Cu	3/3	0.94	0.98	0.95	0.02	0.98	12/12	1.01	1.49	1.20	0.17	1.29	3/3	1.38	1.55	1.47	0.09	1.57	3/3	0.95	1.08	1.03	0.07	1.12	6/6	0.81	1.33	1.07	0.20	1.23
Fe	3/3	116.00	182.00	141.00	35.79	181.50	12/12	76.90	195.00	136.90	36.14	157.35	3/3	171.00	214.00	195.00	21.93	219.82	3/3	95.40	160.00	131.80	33.07	169.22	6/6	59.40	108.00	80.77	20.17	96.90
Pb	3/3	0.05	0.09	0.07	0.02	0.09	12/12	0.05	0.38	0.10	0.09	0.15	3/3	0.09	0.12	0.10	0.01	0.12	3/3	0.06	0.09	0.08	0.01	0.09	6/6	0.04	0.07	0.06	0.01	0.07
Mn	3/3	5.77	8.07	6.58	1.29	8.04	12/12	2.65	5.99	4.31	1.00	4.88	3/3	3.60	6.95	5.29	1.68	7.19	3/3	4.17	4.62	4.44	0.24	4.71	6/6	2.31	3.68	2.95	0.60	3.43
Hg	3/3	0.02	0.03	0.03	0.00	0.03	12/12	0.02	0.04	0.03	0.00	0.03	3/3	0.02	0.03	0.03	0.00	0.03	3/3	0.03	0.04	0.04	0.00	0.04	6/6	0.03	0.04	0.03	0.01	0.04
Ni	3/3	0.72	1.02	0.86	0.15	1.03	12/12	0.78	1.37	1.05	0.17	1.15	3/3	1.16	1.54	1.33	0.19	1.55	3/3	0.97	1.12	1.04	0.08	1.12	6/6	0.73	1.02	0.87	0.12	0.97
Se	3/3	0.35	0.40	0.38	0.03	0.41	12/12	0.44	0.90	0.59	0.11	0.66	3/3	0.45	0.64	0.58	0.11	0.70	3/3	0.31	0.44	0.36	0.07	0.43	6/6	0.48	0.81	0.60	0.13	0.71
Ag	2/3	0.01	0.02	0.01	0.00	0.01	0/12	0.01	0.02	0.01	0.00	0.01	0/3	0.01	0.02	0.01	0.00	0.01	0/3	0.01	0.02	0.01	0.00	0.01	0/6	0.01	0.02	0.01	0.00	0.02
Tl	0/3	0.00	0.00	0.00	0.00	---	0/12	0.00	0.00	0.00	0.00	0.00	0/3	0.00	0.00	0.00	0.00	---	0/3	0.00	0.00	0.00	0.00	---	0/6	0.00	0.00	0.00	0.00	---
Sn	0/3	0.01	0.02	0.02	0.01	0.02	0/12	0.01	0.02	0.02	0.00	0.02	0/3	0.01	0.02	0.02	0.01	0.02	0/3	0.01	0.02	0.02	0.01	0.02	0/6	0.01	0.02	0.02	0.01	0.02
V	3/3	0.26	0.37	0.30	0.06	0.37	12/12	0.23	0.47	0.36	0.07	0.40	3/3	0.39	0.70	0.53	0.16	0.71	3/3	0.28	0.40	0.35	0.06	0.42	6/6	0.21	0.35	0.26	0.06	0.30
Zn	3/3	12.80	14.20	13.30	0.78	14.18	12/12	14.05	23.50	17.09	2.61	18.56	3/3	15.10	20.60	18.43	2.93	21.75	3/3	12.60	16.60	14.43	2.02	16.72	6/6	11.50	21.00	16.18	3.28	18.80
monobuythn	1/3	7.90	44.00	29.97	19.34	51.86	1/12	8.10	43.00	15.43	13.51	23.07	0/3	8.00	8.20	8.07	0.12	8.20	1/3	8.00	27.00	18.67	9.71	29.66	3/6	8.10	45.00	23.02	12.74	33.21
dibuythn	0/3	10.00	11.00	10.67	0.58	11.33	0/12	10.00	12.00	11.33	0.62	11.68	0/3	11.00	12.00	11.33	0.58	11.99	0/3	11.00	12.00	11.33	0.58	11.99	0/6	10.00	11.00	10.83	0.41	11.16
tribuythn	0/3	7.00	7.50	7.23	0.25	7.52	0/12	6.70	7.70	7.53	0.30	7.70	0/3	7.60	7.70	7.63	0.06	7.70	0/3	7.40	7.70	7.57	0.15	7.74	0/6	6.90	7.70	7.42	0.33	7.68
Total PAH <sup>4</sup>	3/3	29.90	31.70	30.60	0.96	31.69	12/12	21.30	35.50	26.94	4.01	29.21	3/3	12.60	23.70	18.17	5.55	24.45	3/3	21.10	23.40	22.60	1.30	24.07	6/6	26.80	34.50	31.35	3.04	33.78
ZPAH <sup>4</sup>	3/3	47.60	53.30	50.73	2.89	54.01	12/12	44.00	74.40	55.07	9.03	60.18	3/3	20.40	48.60	34.53	14.10	50.49	3/3	48.00	49.70	49.10	0.95	50.18	6/6	51.50	67.90	61.23	6.02	66.05
LPAH <sup>4</sup>	3/3	12.90	13.10	13.03	0.12	13.16	12/12	5.50	8.90	6.97	1.02	7.55	3/3	4.30	6.80	5.37	1.29	6.83	3/3	6.10	6.70	6.43	0.31	6.78	6/6	7.40	9.60	8.45	0.90	9.17
HPAH <sup>4</sup>	3/3	16.80	18.60	17.57	0.93	18.62	12/12	15.60	28.40	19.97	3.58	22.00	3/3	8.30	16.90	12.80	4.31	17.68	3/3	15.00	16.90	16.17	1.02	17.32	6/6	19.40	25.50	22.90	2.23	24.68
Total PCB <sup>4</sup>	0/3	0.90	1.00	0.97	0.06	1.03	3/12	0.90	1.20	1.05	0.26	1.11	0/3	1.00	1.00	1.00	0.00	---	0/3	1.00	1.00	1.00	0.00	---	0/6	0.90	1.00	0.98	0.04	1.02

Notes:

<sup>1</sup> All concentrations wet weight; metals concentrations in ppm (mg/kg); all organotin, PAH, PCB concentrations in ppb (ug/kg).

<sup>2</sup> Field duplicates at Station RF52 are averaged.

<sup>3</sup> Maximum 95% UCL across sampling areas per contaminant is in bold.

<sup>4</sup> Total PCB, LPAH, HPAH, Total PAH and ZPAH calculations are from Query Manager.

**Table 13.** Contaminant Concentrations in Mussels from NOAA Suisun Bay Reserve Fleet Study Compared to NS&T (1984-1993) and RMP (1997-2002;2004-2005) Data Taken from Query Manager (NOAA 2008a)

	NOAA Suisun Bay Reserve Fleet Study Mussel Concentration n=24	San Francisco Bay Mussel Concentrations from Query Manager n=104			Ratio of Suisun Bay Max over SF Bay Mean <sup>1</sup>	Ratio of Suisun Bay Max over SF Bay Minimum <sup>1</sup>	Ratio of Suisun Bay Max over SF Bay 10th percentile <sup>1</sup>
	Maximum	Mean	Minimum	10th percentile			
Percent lipid	1.0	9.43	2.8	4.1	0.1	0.4	0.2
<b>Metals ppm (mg/kg) wet weight</b>							
Al	141.0	860.0	70.0	360.0	0.2	<b>2.0</b>	0.4
As	1.1	6.9	1.5	2.8	0.2	0.8	0.4
Cd	1.2	6.3	2.8	4.0	0.2	0.4	0.3
Cr	1.6	3.3	0.6	1.7	0.5	<b>2.8</b>	0.9
Cu	1.6	10.0	5.7	7.3	0.2	0.3	0.2
Fe	214.0	894.0	180.0	324.0	0.2	<b>1.2</b>	0.7
Pb	0.4	1.7	0.3	0.6	0.4	<b>2.7</b>	<b>1.1</b>
Mn	7.0	65.0	21.0	28.0	0.1	0.4	0.3
Hg	0.0	0.3	0.1	0.2	0.1	0.5	0.2
Ni	1.5	4.3	1.2	2.6	0.4	<b>1.3</b>	0.6
Se	0.9	4.5	1.6	3.0	0.2	0.6	0.3
Zn	23.5	172.0	54.0	83.0	0.1	0.4	0.3
<b>Organics ppb (µg/kg) wet weight</b>							
1-Methylnaphthalene	1.4	17.0	1.7	2.9	0.1	<b>1.4</b>	0.5
1-Methylphenanthrene	0.5	32.0	1.3	2.5	0.0	0.2	0.1
1,6,7-Trimethylnaphthalene	0.4	3.8	0.8	1.3	0.1	0.3	0.3
2,6-Dimethylnaphthalene	0.8	4.4	1.5	2.2	0.1	0.2	0.2
2-Methylnaphthalene	1.9	32.0	3.8	5.0	0.1	0.5	0.4
Acenaphthene	0.8	14.0	0.9	3.1	0.0	0.3	0.2
Acenaphthylene	0.3	7.8	1.7	4.3	0.0	0.2	0.1
Anthracene	0.5	29.0	2.9	5.0	0.0	0.2	0.1
Benzo(a)anthracene	1.8	57.0	3.6	5.0	0.0	0.4	0.3
Benzo(a)pyrene	0.9	40.0	3.9	5.0	0.0	0.1	0.1
Benzo(b)fluoranthene	3.1	52.0	3.7	5.0	0.1	0.8	0.5
Benzo(e)pyrene	4.1	69.0	2.5	5.0	0.1	<b>1.6</b>	0.7
Benzo(g,h,i)perylene	1.3	46.0	16.0	26.0	0.0	0.1	0.1
Benzo(k)fluoranthene	1.1	23.0	0.9	2.6	0.0	0.3	0.2
Biphenyl	0.8	6.1	1.3	2.4	0.1	0.4	0.3
Chrysene	3.6	77.0	4.8	5.2	0.0	0.8	0.5
Dibenzo(a,h)anthracene	0.1	3.6	0.1	0.7	0.0	0.2	0.1
Dibenzothiophene	0.3	3.8	0.6	1.0	0.1	0.3	0.2
Fluoranthene	7.2	219.0	0.3	11.0	0.0	<b>28.8</b>	0.6
Fluorene	1.0	18.0	1.9	3.4	0.0	0.5	0.3
Indeno(1,2,3-c,d)pyrene	0.5	13.0	1.5	4.6	0.0	0.3	0.1
Naphthalene	1.2	24.0	4.8	5.8	0.0	0.2	0.2
Perylene	5.7	17.0	1.9	5.0	0.2	<b>2.0</b>	<b>1.1</b>
Phenanthrene	4.4	93.0	5.0	11.0	0.1	0.6	0.4
Pyrene	6.8	188.0	5.0	11.0	0.0	<b>1.3</b>	0.6
Total PAH <sup>1</sup>	41.9	797.0	21.0	46.0	0.1	<b>2.0</b>	0.9
Total PCB <sup>1</sup>	1.4	276.0	24.0	69.0	0.0	0.1	0.0

<sup>1</sup>Total PAH and Total PCB calculated from Query Manager.<sup>2</sup> **Bolded** number indicates ratio > 1, i.e., Suisun Bay Reserve Fleet study maximum value exceeds given San Francisco Bay value

**Table 14.** Summary of *Corbula* Tissue Concentrations from NOAA Suisun Bay Reserve Fleet Study

SBRF Study Area- NOAA July 2008 Samples										All Other Areas NOAA July 2008 Samples (Reference + Potential source areas)										SBRF Study Area-NOAA and USGS (Sept. 2008)										All Other Areas NOAA and USGS Sept. 2008 Samples (Reference + Potential source areas)									
Analyte <sup>1</sup>	Count	Min	Max	Mean	Standard Deviation	95% UCL	Count	Min	Max	Mean	Standard Deviation	95% UCL	Count	Min	Max	Mean	Standard Deviation	95% UCL	Count	Min	Max	Mean	Standard Deviation	95% UCL	Count	Min	Max	Mean	Standard Deviation	95% UCL									
Al	3/3	443.00	537.00	482.67	48.69	<b>537.76</b>	3/3	335.00	479.00	405.67	72.04	487.18	3/3	69.20	219.00	136.07	76.18	222.27	3/3	62.10	264.00	193.03	113.52	<b>321.50</b>	3/3	62.10	264.00	193.03	113.52	<b>321.50</b>									
Sb	3/3	0.01	0.02	0.02	0.01	0.02	3/3	0.01	0.02	0.02	0.01	0.02	2/3	0.00	0.01	0.01	0.00	0.01	2/3	0.00	0.01	0.01	0.00	0.01	3/3	0.00	0.01	0.01	0.00	0.01									
As	3/3	0.93	1.36	1.10	0.23	<b>1.36</b>	3/3	0.65	0.87	0.74	0.11	0.87	3/3	0.51	0.84	0.62	0.19	0.83	3/3	0.46	0.85	0.70	0.22	<b>0.95</b>	3/3	0.46	0.85	0.70	0.22	<b>0.95</b>									
Ba	3/3	2.95	3.57	3.31	0.32	3.68	3/3	2.14	3.92	3.24	0.96	<b>4.33</b>	3/3	0.60	1.62	1.05	0.52	1.64	3/3	0.58	2.62	1.84	1.10	<b>3.09</b>	3/3	0.58	2.62	1.84	1.10	<b>3.09</b>									
Cd	3/3	0.38	0.48	0.42	0.05	<b>0.48</b>	3/3	0.31	0.35	0.33	0.02	0.35	3/3	0.38	0.62	0.46	0.14	0.62	3/3	0.29	0.65	0.48	0.18	<b>0.68</b>	3/3	0.29	0.65	0.48	0.18	<b>0.68</b>									
Cr	3/3	1.76	2.53	2.16	0.39	<b>2.60</b>	3/3	1.42	2.24	1.85	0.41	2.32	3/3	0.53	1.08	0.79	0.28	1.11	3/3	0.51	1.10	0.90	0.34	<b>1.29</b>	3/3	0.51	1.10	0.90	0.34	<b>1.29</b>									
Cu	3/3	7.22	21.50	12.74	7.67	21.42	3/3	4.19	21.90	15.10	9.54	<b>25.89</b>	3/3	2.12	3.13	2.49	0.55	3.12	3/3	1.56	4.20	3.30	1.51	<b>5.01</b>	3/3	1.56	4.20	3.30	1.51	<b>5.01</b>									
Fe	3/3	774.00	1090.00	912.33	161.63	<b>1095.23</b>	3/3	581.00	750.00	657.33	85.68	754.28	3/3	110.00	340.00	215.00	116.30	346.60	3/3	120.00	420.00	310.00	165.23	<b>496.97</b>	3/3	120.00	420.00	310.00	165.23	<b>496.97</b>									
Pb	3/3	0.72	1.61	1.04	0.49	1.60	3/3	0.39	1.42	1.01	0.55	<b>1.63</b>	3/3	0.10	0.23	0.17	0.06	0.24	3/3	0.09	0.31	0.23	0.13	<b>0.38</b>	3/3	0.09	0.31	0.23	0.13	<b>0.38</b>									
Mn	3/3	36.60	48.70	42.20	6.10	49.10	3/3	33.40	51.50	39.47	10.42	<b>51.26</b>	3/3	9.55	31.80	18.85	11.57	31.94	3/3	22.50	49.10	32.53	14.45	<b>48.89</b>	3/3	22.50	49.10	32.53	14.45	<b>48.89</b>									
Hg	3/3	0.03	0.04	0.04	0.01	0.04	3/3	0.02	0.04	0.03	0.01	0.04	3/3	0.02	0.03	0.02	0.00	0.03	3/3	0.02	0.04	0.03	0.01	<b>0.05</b>	3/3	0.02	0.04	0.03	0.01	<b>0.05</b>									
Ni	3/3	2.98	3.35	3.13	0.20	<b>3.35</b>	3/3	2.01	2.96	2.54	0.49	3.09	3/3	0.99	1.49	1.25	0.25	1.53	3/3	0.87	1.66	1.39	0.45	<b>1.89</b>	3/3	0.87	1.66	1.39	0.45	<b>1.89</b>									
Se	3/3	1.41	1.67	1.52	0.13	<b>1.67</b>	3/3	0.74	1.29	0.93	0.31	1.28	3/3	1.14	1.98	1.44	0.47	<b>1.97</b>	3/3	1.05	1.40	1.25	0.18	1.45	3/3	1.05	1.40	1.25	0.18	1.45									
Ag	3/3	0.07	0.11	0.08	0.02	0.11	3/3	0.04	0.14	0.08	0.05	<b>0.14</b>	3/3	0.03	0.07	0.05	0.02	<b>0.07</b>	3/3	0.03	0.06	0.04	0.02	0.06	3/3	0.03	0.06	0.04	0.02	0.06									
Tl	3/3	0.00	0.01	0.00	0.00	0.00	3/3	0.00	0.00	0.00	0.00	0.00	1/3	0.00	0.00	0.00	---	---	1/3	0.00	0.01	0.00	---	---	3/3	0.00	0.01	0.00	---	---									
Sn	3/3	0.14	0.52	0.29	0.20	0.52	3/3	0.08	0.52	0.36	0.24	<b>0.64</b>	2/3	0.02	0.04	0.03	0.01	0.04	2/3	0.02	0.06	0.04	0.02	<b>0.07</b>	3/3	0.02	0.06	0.04	0.02	<b>0.07</b>									
V	3/3	1.75	2.29	1.95	0.30	2.28	3/3	1.14	1.63	1.39	0.25	1.67	3/3	0.34	0.82	0.55	0.25	0.83	3/3	0.33	0.97	0.75	0.36	<b>1.16</b>	3/3	0.33	0.97	0.75	0.36	<b>1.16</b>									
Zn	3/3	15.40	23.60	19.20	4.13	23.88	3/3	12.10	26.70	19.17	7.31	<b>27.44</b>	3/3	6.79	11.50	8.71	2.47	11.51	3/3	6.90	13.00	10.73	3.34	<b>14.51</b>	3/3	6.90	13.00	10.73	3.34	<b>14.51</b>									
monobutyltin	0/1	7.40	7.40	7.40	---	---	0/1	7.40	7.40	7.40	---	---	0/3	8.00	8.10	8.07	---	---	0/3	7.70	8.10	7.83	---	---	3/3	7.70	8.10	7.83	---	---									
dibutyltin	0/1	10.00	10.00	10.00	---	---	0/1	10.00	10.00	10.00	---	---	0/3	11.00	12.00	11.33	---	---	0/3	11.00	11.00	11.00	---	---	3/3	11.00	11.00	11.00	---	---									
tributyltin	1/1	9.30	9.30	9.30	---	---	0/1	9.30	9.30	9.30	---	---	1/3	7.60	8.70	7.97	---	---	1/3	7.30	7.70	7.53	---	---	3/3	7.30	7.70	7.53	---	---									
Total PCB <sup>2</sup>	0/1	1.00	1.00	1.00	---	---	0/1	1.00	1.00	1.00	---	---	2/3	1.00	1.40	1.23	0.21	1.47	1/2	1.00	2.40	1.70	576.36	986.67	3/3	1.00	2.40	1.70	576.36	986.67									

Notes:

<sup>1</sup> All concentrations wet weight; metals concentrations in ppm (mg/kg); all organotin and PCB concentrations in ppb (ug/kg).

<sup>2</sup> Sufficient tissue mass was not available at all stations to analyze for lipids, PAHs and PCBs.

**Table 15.** Summary Statistics for *Corbula* Contaminant Data from NOAA Suisun Bay Reserve Fleet Study and USGS Data for Suisun Bay, San Pablo Bay, Carquinez Strait and South San Francisco Bay

Concentrations ppm, dry weight <sup>1</sup>								
	Ag	Cd	Cr	Cu	Ni	Pb	V	Zn
<b>NOAA Suisun Bay Study 2008-- All</b>								
Count	14	14	14	14	12	14	14	14
Mean	0.56	3.50	11.99	76.46	17.71	5.40	9.51	126.55
Standard Deviaton	0.29	0.87	5.56	74.02	6.47	4.95	4.86	58.91
90th percentile	1.04	4.71	18.99	189.11	25.81	12.20	15.41	217.58
<b>NOAA Suisun Bay Study 2008-- July 2008, nondeperated<sup>3</sup></b>								
Count	8	8	8	8	6	8	8	8
Mean	0.68	2.90	15.22	114.33	23.20	8.13	12.37	154.82
Standard Deviation	0.34	0.44	5.36	79.64	4.17	5.05	4.58	65.60
90th percentile	1.08	3.47	19.41	190.98	26.60	12.94	16.20	223.96
<b>NOAA Suisun Bay Study 2008-- September 2008, deperated<sup>3</sup></b>								
Count	6	6	6	6	6	6	6	6
Mean	0.41	4.31	<b>7.70</b>	25.97	<b>12.21</b>	1.75	<b>5.69</b>	88.85
Standard Deviation	0.10	0.60	1.12	3.68	1.55	0.46	1.24	3.89
90th percentile	0.52	4.80	8.79	29.72	13.74	2.19	6.80	92.32
<b>USGS<sup>2</sup> Suisun Bay and Carquinez Strait data-- January 1991-February 1992</b>								
Count	40	46	46	46	46	12	46	46
Mean	2.10	<b>4.52</b>	7.22	26.70	9.65	2.44	3.69	<b>97.24</b>
Standard Deviation	1.11	1.80	3.86	6.06	3.79	1.27	1.99	17.59
90th Percentile	3.59	6.67	13.07	35.66	13.24	4.25	5.57	119.30
<b>USGS<sup>2</sup> San Pablo Bay data-- January 1991-February 1992</b>								
Count	12	11	12	12	12	2	12	12
Mean	1.32	1.98	2.90	20.68	4.37	0.69	1.43	77.41
Standard Deviation	0.60	0.39	1.39	3.74	1.40	0.84	0.55	11.35
90th Percentile	1.94	2.47	5.19	23.71	5.91	1.16	2.17	88.61
<b>USGS<sup>2</sup> South San Francisco Bay data-- January 1991-February 1992</b>								
Count	7	7	7	7	7	2	7	7
Mean	<b>4.38</b>	2.57	2.93	<b>27.22</b>	7.32	<b>2.56</b>	1.27	81.21
Standard Deviation	1.56	0.47	1.05	8.19	2.54	1.55	0.65	17.98
90th Percentile	6.02	3.05	4.15	36.45	10.51	3.43	2.17	97.65

Notes:

<sup>1</sup> Bolded values are the maximums of the mean values for that contaminant.

<sup>2</sup> Data source USGS (personal communication, 2009).

<sup>3</sup> Clams are deperated by holding in jars of water from the collection site for 48 hours to purge sediment from gut.