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for
Tentative Cleanup and Abatement
Order No. R9-2011-0001

APPENDIX FOR SECTION 32

ALTERNATIVE CLEANUP LEVELS

September 15, 2010

APPENDIX FOR SECTION 32

ALTERNATIVE CLEANUP LEVELS

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SECTION I

SUPPORTING CALCULATIONS FOR PRE AND POST REMEDIAL SWACS

Station	Area (ft^2)	Mercury (mg/kg)	Copper (mg/kg)	TBT (µg/kg)	HPAH (µg/kg)[a]	PCBs (µg/kg)	Concentration x Area Product: Mercury ($mg*ft^2/kg$)	Copper ($mg*ft^2/kg$)	Tributyltin ($µg*ft^2/kg$)	HPAH ($µg*ft^2/kg$)	PCBs ($µg*ft^2/kg$)
NA01	99,788	1.1	252.5	157.0	6,575.0	375.0	106,025	25,196,505	15,666,738	656,107,021	37,420,553
NA02	164,015	0.7	170.0	82.0	2,800.0	208.0	114,811	27,882,596	13,449,252	459,242,756	34,115,176
NA03	118,384	1.1	220.0	180.0	6,100.0	370.0	130,223	26,044,515	21,309,149	722,143,376	43,802,139
NA04	72,669	1.1	260.0	300.0	3,500.0	250.0	79,936	18,893,982	21,800,748	254,342,060	18,167,290
NA05	112,824	0.6	170.0	110.0	2,800.0	180.0	68,823	19,180,116	12,410,663	315,907,788	20,308,358
NA06	61,035	2.4	395.0	225.0	3,800.0	640.0	143,433	24,108,975	13,732,961	231,934,444	39,062,643
NA07	30,298	1.5	225.0	110.5	15,850.0	495.0	43,931	6,816,944	3,347,877	480,215,851	14,997,277
NA08	20,352	0.8	270.0	110.0	3,500.0	310.0	16,689	5,495,056	2,238,727	71,232,210	6,309,139
NA09	29,521	1.2	260.0	120.0	2,800.0	290.0	35,425	7,675,398	3,542,491	82,658,128	8,561,020
NA10	29,136	0.6	160.0	91.0	1,800.0	160.0	16,899	4,661,755	2,651,373	52,444,746	4,661,755
NA11	37,813	0.9	180.0	38.0	2,800.0	190.0	32,141	6,806,407	1,436,908	105,877,436	7,184,540
NA12	91,096	0.6	150.0	80.0	2,000.0	150.0	56,479	13,664,337	7,287,646	182,191,160	13,664,337
NA13	255,727	0.6	185.0	68.0	1,800.0	173.0	164,944	47,309,514	17,389,443	460,308,780	44,240,788
NA14	208,687	0.6	130.0	45.0	1,100.0	128.0	114,778	27,129,365	9,390,934	229,556,162	26,711,990
NA15	47,633	1.0	250.0	670.0	3,300.0	340.0	46,680	11,908,160	31,913,869	157,187,712	16,195,098
NA16	38,254	1.1	252.5	175.0	3,200.0	590.0	41,793	9,659,244	6,694,525	122,414,176	22,570,114
NA17	36,471	0.8	510.0	1,350.0	2,950.0	550.0	30,818	18,600,404	49,236,363	107,590,571	20,059,259
NA18	40,452	0.8	230.0	210.0	2,400.0	350.0	31,957	9,304,036	8,494,989	97,085,592	14,158,316
NA19	32,043	0.8	270.0	570.0	3,000.0	990.0	24,994	8,651,691	18,264,681	96,129,900	31,722,867
NA20	311,465	0.2	96.0	280.0	2,900.0	120.0	74,752	29,900,659	87,210,256	903,249,080	37,375,824
NA21	476,122	0.5	150.0	410.0	2,100.0	177.0	242,822	71,418,296	195,210,008	999,856,137	84,273,589
NA22	54,670	0.4	150.0	120.0	3,600.0	180.0	20,775	8,200,502	6,560,401	196,812,036	9,840,602
NA23	68,000	1.1	350.0	120.0	3,400.0	510.0	74,799	23,799,839	8,159,945	231,198,436	34,679,765
NA24	65,314	0.9	200.0	59.0	2,100.0	290.0	58,783	13,062,864	3,853,545	137,160,072	18,941,153
NA25	521,664	0.4	85.0	25.0	1,100.0	83.0	219,099	44,341,428	13,041,597	573,830,246	43,298,100
NA26	302,544	0.5	80.0	37.0	850.0	180.0	145,221	24,203,487	11,194,113	257,162,052	54,457,846
NA27	53,889	1.2	390.0	100.0	2,800.0	210.0	64,667	21,016,823	5,388,929	150,890,012	11,316,751
NA28	54,262	0.9	290.0	90.0	3,400.0	180.0	48,293	15,735,968	4,883,576	184,490,664	9,767,153
NA29	202,964	0.6	110.0	58.0	1,900.0	190.0	111,630	22,326,022	11,771,903	385,631,296	38,563,130
NA30	240,838	0.7	140.0	22.0	1,000.0	100.0	170,995	33,717,281	5,298,430	240,837,720	24,083,772
NA31	229,185	0.4	71.0	20.0	530.0	68.0	80,215	16,272,164	4,583,708	121,468,267	15,584,608
SW01	33,394	1.5	560.0	450.0	7,525.0	1,600.0	48,421	18,700,478	15,027,170	251,287,668	53,429,936
SW02	39,162	4.5	580.0	167.0	14,500.0	5,450.0	174,270	22,713,850	6,540,022	567,846,245	213,431,865
SW03	48,811	1.2	190.0	53.0	6,800.0	410.0	58,573	9,274,071	2,586,978	331,914,120	20,012,469
SW04	22,682	1.8	1,500.0	3,250.0	14,000.0	4,000.0	39,693	34,022,550	73,715,525	317,543,800	90,726,800
SW05	24,163	1.0	230.0	170.0	13,000.0	1,200.0	23,196	5,557,375	4,107,625	314,112,500	28,995,000
SW06	25,751	0.8	170.0	100.0	12,000.0	380.0	19,313	4,377,636	2,575,080	309,009,600	9,785,304

[a] The following stations includes HPAHs from the the sediment fraction of porewater samples: NA01, NA06, NA13, NA16, NA17, SW01, SW02, SW04, SW08, SW24, SW25, and SW28.

Station	Area (ft^2)	Mercury (mg/kg)	Copper (mg/kg)	TBT (µg/kg)	HPAH (µg/kg)[a]	PCBs (µg/kg)	Concentration x Area Product: Mercury ($mg*ft^2/kg$)	Copper ($mg*ft^2/kg$)	Tributyltin ($µg*ft^2/kg$)	HPAH ($µg*ft^2/kg$)	PCBs ($µg*ft^2/kg$)
SW07	40,947	0.5	150.0	44.0	3,800.0	170.0	21,293	6,142,122	1,801,689	155,600,424	6,961,072
SW08	16,829	2.3	920.0	1,850.0	25,500.0	2,100.0	37,864	15,482,303	31,132,892	429,129,045	35,340,039
SW09	24,479	1.0	660.0	910.0	17,000.0	710.0	23,500	16,155,922	22,275,590	416,137,390	17,379,856
SW10	21,608	0.6	160.0	250.0	16,000.0	610.0	12,533	3,457,315	5,402,055	345,731,520	13,181,014
SW11	36,689	0.8	170.0	140.0	8,000.0	200.0	27,517	6,237,188	5,136,508	293,514,720	7,337,868
SW12	112,942	0.5	119.5	36.0	3,000.0	155.0	59,294	13,496,546	4,065,905	338,825,430	17,505,981
SW13	38,257	0.9	800.0	790.0	12,000.0	490.0	32,901	30,605,288	30,222,722	459,079,320	18,745,739
SW14	16,732	1.0	280.0	450.0	8,400.0	400.0	16,732	4,684,940	7,529,369	140,548,212	6,692,772
SW15	55,766	0.9	230.0	170.0	7,700.0	380.0	50,189	12,826,150	9,480,198	429,397,199	21,191,031
SW16	17,835	1.0	430.0	1,100.0	5,700.0	430.0	17,835	7,668,930	19,618,192	101,657,904	7,668,930
SW17	55,898	1.0	270.0	440.0	10,000.0	540.0	54,780	15,092,544	24,595,256	558,983,100	30,185,087
SW18	52,601	0.8	220.0	130.0	8,100.0	440.0	39,451	11,572,326	6,838,192	426,071,988	23,144,651
SW19	214,747	2.1	110.0	37.0	1,100.0	94.0	450,968	23,622,121	7,945,622	236,221,205	20,186,176
SW20	28,175	1.0	290.0	130.0	11,000.0	1,600.0	27,893	8,170,709	3,662,732	309,923,460	45,079,776
SW21	11,896	1.4	260.0	170.0	9,700.0	2,400.0	16,655	3,093,043	2,022,374	115,394,304	28,551,168
SW22	3,762	1.1	260.0	190.0	12,000.0	900.0	4,138	978,063	714,738	45,141,360	3,385,602
SW23	30,077	1.0	280.0	210.0	11,000.0	1,000.0	30,077	8,421,630	6,316,223	330,849,750	30,077,250
SW24	21,179	1.9	300.0	165.0	52,000.0	950.0	40,241	6,353,766	3,494,571	1,101,319,440	20,120,259
SW25	69,690	0.8	230.0	230.5	8,150.0	350.0	54,010	16,028,656	16,063,501	567,971,952	24,391,434
SW26	86,923	0.4	120.0	49.0	1,600.0	293.0	37,377	10,430,809	4,259,247	139,077,456	25,468,559
SW27	78,889	0.7	210.0	250.0	12,000.0	200.0	53,644	16,566,600	19,722,143	946,662,840	15,777,714
SW28	51,554	0.9	265.0	150.0	17,000.0	2,100.0	45,110	13,661,791	7,733,090	876,416,810	108,263,253
SW29	62,497	0.9	220.0	190.0	4,600.0	820.0	58,122	13,749,338	11,874,428	287,486,154	51,247,532
SW30	72,231	1.1	240.0	200.0	4,900.0	380.0	79,454	17,335,430	14,446,192	353,931,704	27,447,765
SW31	83,498	0.2	54.0	36.0	1,200.0	66.0	19,205	4,508,909	3,005,940	100,197,984	5,510,889
SW32	78,477	0.5	92.0	30.0	820.0	160.0	40,023	7,219,867	2,354,305	64,350,992	12,556,291
SW33	151,872	0.5	100.0	19.0	1,000.0	100.0	80,492	15,187,214	2,885,571	151,872,140	15,187,214
SW34	304,572	0.8	320.0	38.0	1,400.0	130.0	228,429	97,463,046	11,573,737	426,400,828	39,594,363
SW36	90,730	0.8	240.0	49.0	4,000.0	200.0	68,047	21,775,106	4,445,751	362,918,440	18,145,922
Total	6,232,430						4,704,069	1,165,617,965	1,012,586,877	21,869,682,889	1,918,801,529

	Mercury (mg/kg)	Copper (mg/kg)	Tributyltin (µg/kg)	HPAH (µg/kg)	PCBs (µg/kg)
SWAC	**0.75**	**187**	**162**	**3,509**	**308**

[a] The following stations includes HPAHs from the the sediment fraction of porewater samples: NA01, NA06, NA13, NA16, NA17, SW01, SW02, SW04, SW08, SW24, SW25, and SW28.

Table A32-2 Data Used for Table A32-1

Station	Pre-Remedy Average Surface Sediment Concentration																								
	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn	Total HPAH (half DL)	TPAH	Fairey 13 TPAH (half DL)	TOC	Total PCB Congeners (half DL)	Total PCB Homologs (half DL)	Fairey 15 of 18 PCB Congeners (half DL)	Fairey estimated 18 PCB Congeners (*1.21)	Fairey estimate Total PCBs (*2)	TBT
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	%	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
NA01	10.2	0.24	69.75	252.5	84	1.06	14.75	1.08	1.33	298	6575	7050	5580	2.18	375	533	240	290	580	157
NA02	10.0	0.21	67.00	170	76	0.70	18.00	1.00	1.00	240	2800	3000	2422	2.00	208	299	134	162	324	82
NA03	11.0	0.29	69.00	220	94	1.10	18.00	1.10	1.40	260	6100	6600	5244	2.33	370	520	237	287	574	180
NA04	12.0	0.27	73.00	260	93	1.10	19.00	1.10	1.20	310	3500	3700	2819	2.04	250	350	158	191	381	300
NA05	9.5	0.17	57.00	170	65	0.61	15.00	0.43	0.89	210	2800	3000	2277	1.60	180	250	116	140	280	110
NA06	10.5	0.27	61.50	395	130	2.35	14.50	1.05	1.02	335	3800	4050	3235	2.14	640	935	400	484	969	225
NA07	13.5	0.27	60.50	225	100	1.45	16.00	0.90	1.15	255	15850	16500	13734	2.02	495	710	310	375	749	111
NA08	18.0	0.31	79.00	270	96	0.82	21.00	1.20	1.00	330	3500	3800	2928	2.18	310	430	197	238	476	110
NA09	13.0	0.40	75.00	260	97	1.20	20.00	1.20	1.10	330	2800	3000	2248	2.26	290	410	188	228	455	120
NA10	6.9	0.22	52.00	160	59	0.58	14.00	1.00	0.78	190	1800	1900	1438	1.18	160	230	100	120	241	91
NA11	9.3	0.28	59.00	180	73	0.85	15.00	1.00	1.10	230	2800	3000	2391	1.69	190	270	121	147	294	38
NA12	9.5	0.18	54.00	150	59	0.62	15.00	1.10	0.79	210	2000	2200	1700	1.48	150	220	97	118	235	80
NA13	10.8	0.24	59.00	185	75	0.65	15.50	1.00	0.94	295	1800	1950	1511	1.92	173	265	113	137	273	68
NA14	9.0	0.25	56.00	130	66	0.55	15.00	1.10	0.78	200	1100	1200	963	1.82	128	183	82	99	199	45
NA15	12.0	0.25	62.00	250	83	0.98	16.00	1.00	1.30	310	3300	3600	2714	1.95	340	480	214	259	517	670
NA16	10.5	0.36	70.25	252.5	90	1.09	15.75	1.03	1.35	313	3200	3500	2676	2.00	590	665	368	445	890	175
NA17	14.5	0.41	74.00	510	115	0.85	17.50	1.10	1.30	620	2950	3200	2496	2.03	550	620	339	410	821	1350
NA18	14.0	0.36	67.00	230	97	0.79	17.00	1.00	1.00	380	2400	2600	1957	2.04	350	490	221	268	536	210
NA19	14.0	0.37	65.00	270	100	0.78	17.00	1.00	1.10	450	3000	3200	2415	1.84	990	1400	607	734	1469	570
NA20	6.6	0.44	26.00	96	53	0.24	8.40	1.00	0.53	190	2900	3200	2639	1.42	120	170	74	89	178	280
NA21	11.0	0.39	51.00	150	83	0.51	14.00	1.10	0.88	250	2100	2200	1829	2.15	177	257	114	137	275	410
NA22	8.5	0.46	39	150	95	0.38	12.00	1.10	0.91	230	3600	4000	3317	1.65	180	250	112	135	270	120
NA23	12.0	0.26	77.00	350	120	1.10	18.00	1.30	1.30	430	3400	3700	2988	2.21	510	730	320	387	774	120
NA24	9.6	0.20	60.00	200	88	0.90	11.00	1.10	0.90	280	2100	2300	1812	2.12	290	410	183	222	443	59
NA25	6.0	0.11	33.00	85	41	0.42	8.50	1.10	0.72	130	1100	1100	906	1.24	83	120	55	66	133	25
NA26	6.2	0.11	32.00	80	41	0.48	8.00	1.00	0.66	140	850	910	707	1.22	180	250	115	139	278	37
NA27	13.0	0.29	100.00	390	110	1.20	27.00	1.30	1.50	500	2800	3000	2465	2.01	210	290	137	166	332	100
NA28	10.0	0.31	86.00	290	84	0.89	23.00	1.20	1.40	390	3400	3700	2993	1.87	180	260	118	143	286	90
NA29	6.9	0.14	39.00	110	56	0.55	11.00	1.10	0.86	170	1900	2000	1559	1.70	190	260	119	144	289	58
NA30	7.5	0.22	37.00	140	59	0.71	9.30	1.00	1.00	170	1000	1100	835	1.38	100	150	70	84	168	22
NA31	5.3	0.13	29.00	71	34	0.35	7.50	1.10	0.57	110	530	580	447	0.92	68	96	44	53	107	20
SW01	13.5	0.71	78.50	560	145	1.45	98.00	0.88	1.07	520	7525	8725	7351	2.24	1600	2400	950	1150	2300	450
SW02	13.8	3.18	118.75	580	170	4.45	106.00	1.26	3.90	585	14500	21250	19460	5.98	5450	8325	3312	4008	8015	167
SW03	11.0	0.70	52.00	190	79	1.20	18.00	0.80	1.20	230	6800	7500	6134	3.11	410	580	257	310	621	53
SW04	73.0	1.95	87.50	1500	430	1.75	18.00	1.50	1.60	3450	14000	16000	14109	2.28	4000	5200	2476	2996	5992	3250
SW05	11.0	0.86	53.00	230	120	0.96	19.00	0.75	1.20	280	13000	17000	15067	1.55	1200	1800	769	930	1861	170
SW06	15.0	0.85	56.00	170	81	0.75	20.00	0.83	1.10	280	12000	14000	12641	1.82	380	580	235	284	567	100
SW07	8.1	0.19	43.00	150	57	0.52	13.00	0.81	0.74	170	3800	4100	3450	1.73	170	230	107	129	258	44
SW08	24.0	0.73	82.50	920	225	2.25	21.00	1.20	1.45	830	25500	28500	24759	3.80	2100	2700	1308	1583	3166	1850

Table A32-2 Data Used for Table A32-1, Continued

Station	Pre-Remedy Average Surface Sediment Concentration																							
	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn	Total HPAH (half DL)	TPAH	Fairey 13 TPAH (half DL)	TOC	Total PCB Congeners (half DL)	Total PCB Homologs (half DL)	Fairey 15 of 18 PCB Congeners (half DL)	Fairey estimated 18 PCB Congeners (*1.21)	Fairey estimate Total PCBs (*2)	TBT
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	%	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SW09	27.0	1.10	56.00	660	220	0.96	18.00	0.84	1.30	1200	17000	20000	17383	1.94	710	1100	446	540	1079	910
SW10	13.0	0.87	45.00	160	79	0.58	17.00	0.84	0.82	360	16000	25000	23410	1.21	610	930	380	459	918	250
SW11	9.6	0.24	62.00	170	74	0.75	17.00	0.39	1.10	240	8000	8500	7001	1.81	200	280	127	153	307	140
SW12	7.4	0.14	39.00	119.5	52	0.53	10.80	0.90	0.76	160	3000	3300	2742	1.47	155	231	100	121	243	36
SW13	15.0	0.42	72.00	800	93	0.86	24.00	1.10	1.40	580	12000	14000	12507	2.33	490	710	312	377	754	790
SW14	10.0	0.31	63.00	280	88	1.00	17.00	1.00	1.20	300	8400	9100	7659	2.13	400	570	257	310	621	450
SW15	11.0	0.45	67.00	230	90	0.90	19.00	1.10	1.30	290	7700	8400	7137	2.31	380	540	237	287	573	170
SW16	12.0	0.66	68.00	430	97	1.00	16.00	1.10	1.90	370	5700	6100	4847	2.24	430	610	273	330	661	1100
SW17	12.0	0.37	73.00	270	93	0.98	20.00	0.44	1.50	310	10000	11000	9199	2.53	540	880	333	403	805	440
SW18	11.0	0.33	74.00	220	86	0.75	20.00	0.44	1.30	280	8100	8800	7471	2.19	440	660	276	334	668	130
SW19	7.1	0.15	42.00	110	51	2.10	12.00	0.70	0.78	150	1100	1200	938	1.15	94	135	61	74	148	37
SW20	14.0	0.41	68.00	290	110	0.99	18.00	1.10	1.10	390	11000	12000	9736	2.14	1600	2600	1023	1238	2476	130
SW21	11.0	0.51	70.00	260	120	1.40	14.00	1.00	1.30	330	9700	10000	8480	2.10	2400	3600	1491	1804	3608	170
SW22	13.0	0.35	70.00	260	110	1.10	21.00	1.10	1.30	310	12000	13000	10684	2.46	900	1400	577	698	1396	190
SW23	15.0	0.37	89.00	280	110	1.00	25.00	1.10	1.30	330	11000	12000	9880	2.52	1000	1500	640	775	1550	210
SW24	10.0	0.33	52.50	300	88	1.90	16.00	0.95	1.15	300	52000	57000	50225	1.75	950	1500	588	711	1423	165
SW25	11.5	0.36	64.50	230	86	0.78	16.50	1.00	1.20	345	8150	8800	7505	2.15	350	500	221	268	535	231
SW26	9.0	0.14	45.00	120	58	0.43	12.00	0.90	0.46	160	1600	1700	1345	1.31	293	418	184	222	444	49
SW27	10.0	0.27	63.00	210	80	0.68	18.00	0.42	1.10	250	12000	14000	12055	2.08	200	320	128	155	311	250
SW28	14.0	0.32	65.50	265	100	0.88	15.00	1.20	1.10	330	17000	19000	16165	2.52	2100	2600	1388	1679	3359	150
SW29	8.3	0.49	44.00	220	72	0.93	37.00	1.10	1.20	230	4600	4900	4142	1.34	820	1200	504	610	1220	190
SW30	8.9	0.23	72.00	240	72	1.10	13.00	1.00	1.20	300	4900	5200	4311	2.05	380	540	240	291	581	200
SW31	4.0	0.06	18.00	54	21	0.23	4.90	1.20	0.36	80	1200	1300	1031	0.66	66	93	42	51	101	36
SW32	9.4	0.06	43.00	92	57	0.51	11.00	1.10	0.33	160	820	900	719	1.56	160	230	101	122	245	30
SW33	10.0	0.07	41.00	100	58	0.53	11.00	1.20	0.24	170	1000	1100	826	2.09	100	150	68	82	164	19
SW34	8.3	0.21	53.00	320	99	0.75	11.00	1.10	0.95	310	1400	1500	1155	1.68	130	180	82	99	198	38
SW36	9.9	0.21	70.00	240	79	0.75	13.00	1.00	1.20	300	4000	4300	3607	2.23	200	282	131	159	318	49

Predicted Post-Remedial SWAC Calculations

Station		Area (ft2)	Mercury (mg/kg)	Copper (mg/kg)	TBT (µg/kg)	HPAH (µg/kg)[c]	PCBs (µg/kg)	Concentration x Area Product: Mercury (mg*ft²/kg)	Copper (mg*ft²/kg)	Tributyltin (µg*ft²/kg)	HPAH (µg*ft²/kg)	PCBs (µg*ft²/kg)
Areas To Be Remediated [a]												
NA01	[b]	7,450	0.57	121	22	663	84	4,247	901,506	163,910	4,939,655	625,839
NA06	[b]	41,012	0.57	121	22	663	84	23,377	4,962,411	902,257	27,190,731	3,444,979
NA09	[b]	27,339	0.57	121	22	663	84	15,583	3,308,027	601,460	18,125,803	2,296,482
NA12	[b]	4,925	0.57	121	22	663	84	2,807	595,958	108,356	3,265,454	413,723
NA15	[b]	46,309	0.57	121	22	663	84	26,396	5,603,335	1,018,788	30,702,569	3,889,918
NA16	[b]	436	0.57	121	22	663	84	249	52,778	9,596	289,187	36,639
NA17	[b]	34,490	0.57	121	22	663	84	19,659	4,173,303	758,782	22,866,943	2,897,169
NA18	[b]	8,707	0.57	121	22	663	84	4,963	1,053,539	191,552	5,772,695	731,382
NA19	[b]	27,444	0.57	121	22	663	84	15,643	3,320,686	603,761	18,195,166	2,305,270
NA23	[b]	4,229	0.57	121	22	663	84	2,411	511,747	93,045	2,804,033	355,262
NA27	[b]	175	0.57	121	22	663	84	100	21,217	3,858	116,257	14,729
SW01		33,394	0.57	121	22	663	84	19,034	4,040,639	734,662	22,140,030	2,805,072
SW02	[b]	39,162	0.57	121	22	663	84	22,322	4,738,550	861,555	25,964,121	3,289,572
SW03	[b]	197	0.57	121	22	663	84	112	23,879	4,342	130,843	16,577
SW04	[b]	15,943	0.57	121	22	663	84	9,088	1,929,124	350,750	10,570,322	1,339,226
SW05	[b]	16,584	0.57	121	22	663	84	9,453	2,006,634	364,843	10,995,026	1,393,035
SW06	[b]	3,445	0.57	121	22	663	84	1,964	416,841	75,789	2,284,015	289,377
SW08	[b]	12,303	0.57	121	22	663	84	7,013	1,488,634	270,661	8,156,730	1,033,432
SW09	[b]	21,044	0.57	121	22	663	84	11,995	2,546,302	462,964	13,952,053	1,767,681
SW10	[b]	19,663	0.57	121	22	663	84	11,208	2,379,173	432,577	13,036,297	1,651,658
SW13	[b]	21,649	0.57	121	22	663	84	12,340	2,619,512	476,275	14,353,194	1,818,504
SW14		16,732	0.57	121	22	663	84	9,537	2,024,564	368,102	11,093,270	1,405,482
SW15	[b]	6,892	0.57	121	22	663	84	3,928	833,944	151,626	4,569,462	578,936
SW16	[b]	17,459	0.57	121	22	663	84	9,952	2,112,554	384,101	11,575,397	1,466,566
SW17	[b]	48,027	0.57	121	22	663	84	27,375	5,811,275	1,056,596	31,841,947	4,034,274
SW20	[b]	9,224	0.57	121	22	663	84	5,258	1,116,109	202,929	6,115,539	774,819
SW21		11,896	0.57	121	22	663	84	6,781	1,439,455	261,719	7,887,260	999,291
SW22		3,762	0.57	121	22	663	84	2,144	455,175	82,759	2,494,060	315,990
SW23	[b]	22,032	0.57	121	22	663	84	12,558	2,665,872	484,704	14,607,216	1,850,688
SW24	[b]	16,399	0.57	121	22	663	84	9,348	1,984,301	360,782	10,872,656	1,377,531
SW25	[b]	7,243	0.57	121	22	663	84	4,128	876,399	159,345	4,802,089	608,409
SW27	[b]	71,021	0.57	121	22	663	84	40,482	8,593,569	1,562,467	47,087,075	5,965,783
SW28	[b]	41,116	0.57	121	22	663	84	23,436	4,974,994	904,544	27,259,676	3,453,715
SW29	[b]	18,649	0.57	121	22	663	84	10,630	2,256,579	410,287	12,364,559	1,566,550
SW31	[b]	5,049	0.57	121	22	663	84	2,878	610,906	111,074	3,347,361	424,100

[a] Concentration in areas to be remediated is set to background for SWAC calculations.

[b] Only portion of the polygon to be remediated.

[c] The following stations includes HPAHs from the the sediment fraction of porewater samples: NA01, NA06, NA13, NA16, NA17, SW01, SW02, SW04, SW08, SW24, SW25, and SW28.

Predicted Post-Remedial SWAC Calculations

Station	Area (ft2)	Mercury (mg/kg)	Copper (mg/kg)	TBT (µg/kg)	HPAH (µg/kg)[c]	PCBs (µg/kg)	Concentration x Area Product: Mercury (mg*ft²/kg)	Copper (mg*ft²/kg)	Tributyltin (µg*ft²/kg)	HPAH (µg*ft²/kg)	PCBs (µg*ft²/kg)
Areas Outside of Remediation Footprint											
NA01	92,338	1.0625	252.5	157	6575	375	98,109	23,315,264	14,497,016	607,120,246	34,626,630
NA02	164,015	0.7	170	82	2800	208	114,811	27,882,596	13,449,252	459,242,756	34,115,176
NA03	118,384	1.1	220	180	6100	370	130,223	26,044,515	21,309,149	722,143,376	43,802,139
NA04	72,669	1.1	260	300	3500	250	79,936	18,893,982	21,800,748	254,342,060	18,167,290
NA05	112,824	0.61	170	110	2800	180	68,823	19,180,116	12,410,663	315,907,788	20,308,358
NA06	20,024	2.35	395	225	3800	640	47,056	7,909,369	4,505,337	76,090,136	12,815,181
NA07	30,298	1.45	225	110.5	15850	495	43,931	6,816,944	3,347,877	480,215,851	14,997,277
NA08	20,352	0.82	270	110	3500	310	16,689	5,495,056	2,238,727	71,232,210	6,309,139
NA09	2,182	1.2	260	120	2800	290	2,618	567,239	261,803	6,108,732	632,690
NA10	29,136	0.58	160	91	1800	160	16,899	4,661,755	2,651,373	52,444,746	4,661,755
NA11	37,813	0.85	180	38	2800	190	32,141	6,806,407	1,436,908	105,877,436	7,184,540
NA12	86,170	0.62	150	80	2000	150	53,426	12,925,547	6,893,625	172,340,620	12,925,547
NA13	255,727	0.645	185	68	1800	173	164,944	47,309,514	17,389,443	460,308,780	44,240,788
NA14	208,687	0.55	130	45	1100	128	114,778	27,129,365	9,390,934	229,556,162	26,711,990
NA15	1,324	0.98	250	670	3300	340	1,298	331,023	887,140	4,369,497	450,191
NA16	37,818	1.0925	252.5	175	3200	590	41,316	9,549,108	6,618,194	121,018,400	22,312,768
NA17	1,981	0.845	510	1350	2950	550	1,674	1,010,448	2,674,715	5,844,747	1,089,699
NA18	31,745	0.79	230	210	2400	350	25,079	7,301,442	6,666,534	76,188,960	11,110,890
NA19	4,600	0.78	270	570	3000	990	3,588	1,241,895	2,621,778	13,798,830	4,553,614
NA20	311,465	0.24	96	280	2900	120	74,752	29,900,659	87,210,256	903,249,080	37,375,824
NA21	476,122	0.51	150	410	2100	177	242,822	71,418,296	195,210,008	999,856,137	84,273,589
NA22	54,670	0.38	150	120	3600	180	20,775	8,200,502	6,560,401	196,812,036	9,840,602
NA23	63,770	1.1	350	120	3400	510	70,147	22,319,581	7,652,428	216,818,782	32,522,817
NA24	65,314	0.9	200	59	2100	290	58,783	13,062,864	3,853,545	137,160,072	18,941,153
NA25	521,664	0.42	85	25	1100	83	219,099	44,341,428	13,041,597	573,830,246	43,298,100
NA26	302,544	0.48	80	37	850	180	145,221	24,203,487	11,194,113	257,162,052	54,457,846
NA27	53,714	1.2	390	100	2800	210	64,457	20,948,437	5,371,394	150,399,032	11,279,927
NA28	54,262	0.89	290	90	3400	180	48,293	15,735,968	4,883,576	184,490,664	9,767,153
NA29	202,964	0.55	110	58	1900	190	111,630	22,326,022	11,771,903	385,631,296	38,563,130
NA30	240,838	0.71	140	22	1000	100	170,995	33,717,281	5,298,430	240,837,720	24,083,772
NA31	229,185	0.35	71	20	530	68	80,215	16,272,164	4,583,708	121,468,267	15,584,608
SW02	0.24	4.45	580	167	14500	5450	1.068	139	40.08	3,480	1,308
SW03	48,614	1.2	190	53	6800	410	58,336	9,236,575	2,576,518	330,572,140	19,931,556
SW04	6,739	1.75	1500	3250	14000	4000	11,792	10,107,795	21,900,223	94,339,420	26,954,120
SW05	7,579	0.96	230	170	13000	1200	7,276	1,743,113	1,288,388	98,523,750	9,094,500
SW06	22,306	0.75	170	100	12000	380	16,729	3,791,991	2,230,583	267,669,960	8,476,215

[a] Concentration in areas to be remediated is set to background for SWAC calculations.

[b] Only portion of the polygon to be remediated.

[c] The following stations includes HPAHs from the the sediment fraction of porewater samples: NA01, NA06, NA13, NA16, NA17, SW01, SW02, SW04, SW08, SW24, SW25, and SW28.

Predicted Post-Remedial SWAC Calculations

							Concentration x Area Product				
Station	Area (ft2)	Mercury (mg/kg)	Copper (mg/kg)	TBT (µg/kg)	HPAH (µg/kg)[c]	PCBs (µg/kg)	Mercury (mg*ft^2/kg)	Copper (mg*ft^2/kg)	Tributyltin (µg*ft^2/kg)	HPAH (µg*ft^2/kg)	PCBs (µg*ft^2/kg)
SW07	40,947	0.52	150	44	3800	170	21,293	6,142,122	1,801,689	155,600,424	6,961,072
SW08	4,526	2.25	920	1850	25500	2100	10,183	4,163,764	8,372,786	115,408,665	9,504,243
SW09	3,435	0.96	660	910	17000	710	3,297	2,267,001	3,125,714	58,392,450	2,438,744
SW10	1,946	0.58	160	250	16000	610	1,128	311,301	486,408	31,130,080	1,186,834
SW11	36,689	0.75	170	140	8000	200	27,517	6,237,188	5,136,508	293,514,720	7,337,868
SW12	112,942	0.525	119.5	36	3000	155	59,294	13,496,546	4,065,905	338,825,430	17,505,981
SW13	16,608	0.86	800	790	12000	490	14,283	13,286,200	13,120,123	199,293,000	8,137,798
SW15	48,874	0.9	230	170	7700	380	43,986	11,240,967	8,308,541	376,328,029	18,572,033
SW16	376	1	430	1100	5700	430	376	161,508	413,160	2,140,920	161,508
SW17	7,871	0.98	270	440	10000	540	7,714	2,125,235	3,463,346	78,712,400	4,250,470
SW18	52,601	0.75	220	130	8100	440	39,451	11,572,326	6,838,192	426,071,988	23,144,651
SW19	214,747	2.1	110	37	1100	94	450,968	23,622,121	7,945,622	236,221,205	20,186,176
SW20	18,951	0.99	290	130	11000	1600	18,761	5,495,738	2,463,607	208,459,020	30,321,312
SW23	8,045	1	280	210	11000	1000	8,045	2,252,670	1,689,503	88,497,750	8,045,250
SW24	4,780	1.9	300	165	52000	950	9,082	1,434,012	788,707	248,562,080	4,541,038
SW25	62,447	0.775	230	230.5	8150	350	48,396	14,362,773	14,393,997	508,941,746	21,856,394
SW26	86,923	0.43	120	49	1600	293	37,377	10,430,809	4,259,247	139,077,456	25,468,559
SW27	7,867	0.68	210	250	12000	200	5,350	1,652,141	1,966,835	94,408,080	1,573,468
SW28	10,438	0.875	265	150	17000	2100	9,133	2,766,144	1,565,742	177,450,760	21,920,388
SW29	43,848	0.93	220	190	4600	820	40,778	9,646,468	8,331,040	201,698,868	35,955,016
SW30	72,231	1.1	240	200	4900	380	79,454	17,335,430	14,446,192	353,931,704	27,447,765
SW31	78,450	0.23	54	36	1200	66	18,043	4,236,274	2,824,182	94,139,412	5,177,668
SW32	78,477	0.51	92	30	820	160	40,023	7,219,867	2,354,305	64,350,992	12,556,291
SW33	151,872	0.53	100	19	1000	100	80,492	15,187,214	2,885,571	151,872,140	15,187,214
SW34	304,572	0.75	320	38	1400	130	228,429	97,463,046	11,573,737	426,400,828	39,594,363
SW36	90,730	0.75	240	49	4000	200	68,047	21,775,106	4,445,751	362,918,440	18,145,922
Total	6,232,430						4,217,962	990,031,345	687,735,546	15,277,092,744	1,209,877,565
Max		2.1	320	410	15850	495					
							Mercury (mg/kg)	Copper (mg/kg)	Tributyltin (µg/kg)	HPAH (µg/kg)	PCBs (µg/kg)
SWAC							**0.68**	**159**	**110**	**2,451**	**194**

[a] Concentration in areas to be remediated is set to background for SWAC calculations.

[b] Only portion of the polygon to be remediated.

[c] The following stations includes HPAHs from the the sediment fraction of porewater samples: NA01, NA06, NA13, NA16, NA17, SW01, SW02, SW04, SW08, SW24, SW25, and SW28.

Table A32-4 Data used for Table A32-3

Station	Pre-Remedy Average Surface Sediment Concentration																							
	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn	Total HPAH (half DL)	TPAH	Fairey 13 TPAH (half DL)	TOC	Total PCB Congeners (half DL)	Total PCB Homologs (half DL)	Fairey 15 of 18 PCB Congeners (half DL)	Fairey estimated 18 PCB Congeners (*1.21)	Fairey estimate Total PCBs (*2)	TBT
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	%	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
NA01	10.2	0.24	69.75	252.5	84	1.06	14.75	1.08	1.33	298	6575	7050	5580	2.18	375	533	240	290	580	157
NA02	10.0	0.21	67.00	170	76	0.70	18.00	1.00	1.00	240	2800	3000	2422	2.00	208	299	134	162	324	82
NA03	11.0	0.29	69.00	220	94	1.10	18.00	1.10	1.40	260	6100	6600	5244	2.33	370	520	237	287	574	180
NA04	12.0	0.27	73.00	260	93	1.10	19.00	1.10	1.20	310	3500	3700	2819	2.04	250	350	158	191	381	300
NA05	9.5	0.17	57.00	170	65	0.61	15.00	0.43	0.89	210	2800	3000	2277	1.60	180	250	116	140	280	110
NA06	10.5	0.27	61.50	395	130	2.35	14.50	1.05	1.02	335	3800	4050	3235	2.14	640	935	400	484	969	225
NA07	13.5	0.27	60.50	225	100	1.45	16.00	0.90	1.15	255	15850	16500	13734	2.02	495	710	310	375	749	111
NA08	18.0	0.31	79.00	270	96	0.82	21.00	1.20	1.00	330	3500	3800	2928	2.18	310	430	197	238	476	110
NA09	13.0	0.40	75.00	260	97	1.20	20.00	1.20	1.10	330	2800	3000	2248	2.26	290	410	188	228	455	120
NA10	6.9	0.22	52.00	160	59	0.58	14.00	1.00	0.78	190	1800	1900	1438	1.18	160	230	100	120	241	91
NA11	9.3	0.28	59.00	180	73	0.85	15.00	1.00	1.10	230	2800	3000	2391	1.69	190	270	121	147	294	38
NA12	9.5	0.18	54.00	150	59	0.62	15.00	1.10	0.79	210	2000	2200	1700	1.48	150	220	97	118	235	80
NA13	10.8	0.24	59.00	185	75	0.65	15.50	1.00	0.94	295	1800	1950	1511	1.92	173	265	113	137	273	68
NA14	9.0	0.25	56.00	130	66	0.55	15.00	1.10	0.78	200	1100	1200	963	1.82	128	183	82	99	199	45
NA15	12.0	0.25	62.00	250	83	0.98	16.00	1.00	1.30	310	3300	3600	2714	1.95	340	480	214	259	517	670
NA16	10.5	0.36	70.25	252.5	90	1.09	15.75	1.03	1.35	313	3200	3500	2676	2.00	590	665	368	445	890	175
NA17	14.5	0.41	74.00	510	115	0.85	17.50	1.10	1.30	620	2950	3200	2496	2.03	550	620	339	410	821	1350
NA18	14.0	0.36	67.00	230	97	0.79	17.00	1.00	1.00	380	2400	2600	1957	2.04	350	490	221	268	536	210
NA19	14.0	0.37	65.00	270	100	0.78	17.00	1.00	1.10	450	3000	3200	2415	1.84	990	1400	607	734	1469	570
NA20	6.6	0.44	26.00	96	53	0.24	8.40	1.00	0.53	190	2900	3200	2639	1.42	120	170	74	89	178	280
NA21	11.0	0.39	51.00	150	83	0.51	14.00	1.10	0.88	250	2100	2200	1829	2.15	177	257	114	137	275	410
NA22	8.5	0.46	39	150	95	0.38	12.00	1.10	0.91	230	3600	4000	3317	1.65	180	250	112	135	270	120
NA23	12.0	0.26	77.00	350	120	1.10	18.00	1.30	1.30	430	3400	3700	2988	2.21	510	730	320	387	774	120
NA24	9.6	0.20	60.00	200	88	0.90	11.00	1.10	0.90	280	2100	2300	1812	2.12	290	410	183	222	443	59
NA25	6.0	0.11	33.00	85	41	0.42	8.50	1.10	0.72	130	1100	1100	906	1.24	83	120	55	66	133	25
NA26	6.2	0.11	32.00	80	41	0.48	8.00	1.00	0.66	140	850	910	707	1.22	180	250	115	139	278	37
NA27	13.0	0.29	100.00	390	110	1.20	27.00	1.30	1.50	500	2800	3000	2465	2.01	210	290	137	166	332	100
NA28	10.0	0.31	86.00	290	84	0.89	23.00	1.20	1.40	390	3400	3700	2993	1.87	180	260	118	143	286	90
NA29	6.9	0.14	39.00	110	56	0.55	11.00	1.10	0.86	170	1900	2000	1559	1.70	190	260	119	144	289	58
NA30	7.5	0.22	37.00	140	59	0.71	9.30	1.00	1.00	170	1000	1100	835	1.38	100	150	70	84	168	22
NA31	5.3	0.13	29.00	71	34	0.35	7.50	1.10	0.57	110	530	580	447	0.92	68	96	44	53	107	20
SW01	13.5	0.71	78.50	560	145	1.45	98.00	0.88	1.07	520	7525	8725	7351	2.24	1600	2400	950	1150	2300	450
SW02	13.8	3.18	118.75	580	170	4.45	106.00	1.26	3.90	585	14500	21250	19460	5.98	5450	8325	3312	4008	8015	167
SW03	11.0	0.70	52.00	190	79	1.20	18.00	0.80	1.20	230	6800	7500	6134	3.11	410	580	257	310	621	53

Table A32-4 Data used for Table A32-3, Continued

Station	Pre-Remedy Average Surface Sediment Concentration																					
	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn	Total HPAH (half DL)	TPAH	Fairey 13 TPAH (half DL)	TOC	Total PCB Congeners (half DL)	Total PCB Homologs (half DL)	Fairey 15 of 18 PCB Congeners (half DL)	Fairey estimated 18 PCB Congeners (*1.21)	Fairey estimate Total PCBs (*2)	TBT
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	%	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SW04	73.0	1.95	87.50	1500	430	1.75	18.00	1.50	1.60	3450	14000	16000	14109	2.28	4000	5200	2476	2996	5992	3250
SW05	11.0	0.86	53.00	230	120	0.96	19.00	0.75	1.20	280	13000	17000	15067	1.55	1200	1800	769	930	1861	170
SW06	15.0	0.85	56.00	170	81	0.75	20.00	0.83	1.10	280	12000	14000	12641	1.82	380	580	235	284	567	100
SW07	8.1	0.19	43.00	150	57	0.52	13.00	0.81	0.74	170	3800	4100	3450	1.73	170	230	107	129	258	44
SW08	24.0	0.73	82.50	920	225	2.25	21.00	1.20	1.45	830	25500	28500	24759	3.80	2100	2700	1308	1583	3166	1850
SW09	27.0	1.10	56.00	660	220	0.96	18.00	0.84	1.30	1200	17000	20000	17383	1.94	710	1100	446	540	1079	910
SW10	13.0	0.87	45.00	160	79	0.58	17.00	0.84	0.82	360	16000	25000	23410	1.21	610	930	380	459	918	250
SW11	9.6	0.24	62.00	170	74	0.75	17.00	0.39	1.10	240	8000	8500	7001	1.81	200	280	127	153	307	140
SW12	7.4	0.14	39.00	119.5	52	0.53	10.80	0.90	0.76	160	3000	3300	2742	1.47	155	231	100	121	243	36
SW13	15.0	0.42	72.00	800	93	0.86	24.00	1.10	1.40	580	12000	14000	12507	2.33	490	710	312	377	754	790
SW14	10.0	0.31	63.00	280	88	1.00	17.00	1.00	1.20	300	8400	9100	7659	2.13	400	570	257	310	621	450
SW15	11.0	0.45	67.00	230	90	0.90	19.00	1.10	1.30	290	7700	8400	7137	2.31	380	540	237	287	573	170
SW16	12.0	0.66	68.00	430	97	1.00	16.00	1.10	1.90	370	5700	6100	4847	2.24	430	610	273	330	661	1100
SW17	12.0	0.37	73.00	270	93	0.98	20.00	0.44	1.50	310	10000	11000	9199	2.53	540	880	333	403	805	440
SW18	11.0	0.33	74.00	220	86	0.75	20.00	0.44	1.30	280	8100	8800	7471	2.19	440	660	276	334	668	130
SW19	7.1	0.15	42.00	110	51	2.10	12.00	0.70	0.78	150	1100	1200	938	1.15	94	135	61	74	148	37
SW20	14.0	0.41	68.00	290	110	0.99	18.00	1.10	1.10	390	11000	12000	9736	2.14	1600	2600	1023	1238	2476	130
SW21	11.0	0.51	70.00	260	120	1.40	14.00	1.00	1.30	330	9700	10000	8480	2.10	2400	3600	1491	1804	3608	170
SW22	13.0	0.35	70.00	260	110	1.10	21.00	1.10	1.30	310	12000	13000	10684	2.46	900	1400	577	698	1396	190
SW23	15.0	0.37	89.00	280	110	1.00	25.00	1.10	1.30	330	11000	12000	9880	2.52	1000	1500	640	775	1550	210
SW24	10.0	0.33	52.50	300	88	1.90	16.00	0.95	1.15	300	52000	57000	50225	1.75	950	1500	588	711	1423	165
SW25	11.5	0.36	64.50	230	86	0.78	16.50	1.00	1.20	345	8150	8800	7505	2.15	350	500	221	268	535	231
SW26	9.0	0.14	45.00	120	58	0.43	12.00	0.90	0.46	160	1600	1700	1345	1.31	293	418	184	222	444	49
SW27	10.0	0.27	63.00	210	80	0.68	18.00	0.42	1.10	250	12000	14000	12055	2.08	200	320	128	155	311	250
SW28	14.0	0.32	65.50	265	100	0.88	15.00	1.20	1.10	330	17000	19000	16165	2.52	2100	2600	1388	1679	3359	150
SW29	8.3	0.49	44.00	220	72	0.93	37.00	1.10	1.20	230	4600	4900	4142	1.34	820	1200	504	610	1220	190
SW30	8.9	0.23	72.00	240	72	1.10	13.00	1.00	1.20	300	4900	5200	4311	2.05	380	540	240	291	581	200
SW31	4.0	0.06	18.00	54	21	0.23	4.90	1.20	0.36	80	1200	1300	1031	0.66	66	93	42	51	101	36
SW32	9.4	0.06	43.00	92	57	0.51	11.00	1.10	0.33	160	820	900	719	1.56	160	230	101	122	245	30
SW33	10.0	0.07	41.00	100	58	0.53	11.00	1.20	0.24	170	1000	1100	826	2.09	100	150	68	82	164	19
SW34	8.3	0.21	53.00	320	99	0.75	11.00	1.10	0.95	310	1400	1500	1155	1.68	130	180	82	99	198	38
SW36	9.9	0.21	70.00	240	79	0.75	13.00	1.00	1.20	300	4000	4300	3607	2.23	200	282	131	159	318	49

SECTION II

SUPPORTING CALCULATIONS FOR ALTERNATIVE CLEANUP LEVELS PROTECTIVE OF AQUATIC DEPENDENT WILDLIFE BENEFICIAL USES

Table A32-5

Table A32-5A SWACs and Exposure Calculation

Primary COC	Units	Pre-Remedy SWAC	Post-Remedy SWAC	Background Conc	Exposure Reduction[a]	% Exposure Reduction[b]
Copper	mg/kg	187	159	121	28	42
Mercury	mg/kg	0.75	0.68	0.57	0.07	38.9
HPAH	mg/kg	3.509	2.451	0.663	1.1	37.2
PCB	µg/kg	308	194	84	114	50.9
TBT	µg/kg	na	na	na	na	na
Secondary COC	**Units**	**Pre-Remedy SWAC**	**Post-Remedy SWAC**	**Background Conc**	**Exposure Reduction[a]**	**% Exposure Reduction[b]**
Lead	mg/kg	73	66	53	7	35.0

[a] Exposure reduction = current SWAC minus post-remedy SWAC

[b] Percent exposure reduction relative to background = (current SWAC - final SWAC)/(current SWAC - background) x 100 SWAC - spatially weighted average concentrations

Table A32-5B Average Prey concentration for each aquatic-dependent wildlife receptor *inside NASSCO*

		Average Prey Concentration For Each Receptor				
Primary COC	**Units**	**Brown Pelican**	**Least Tern**	**Western Grebe**	**Surf Scoter**	
Copper	mg/kg	3.9	4.1	4.1	65	
Mercury	mg/kg	0.62	0.088	0.088	0.11	
HPAH[a]	mg/kg	na	na	na	1.58	
PCB	mg/kg	3.763	1.505	1.505	0.6	
TBT	mg/kg	na	na	na	na	
Secondary COC	**Units**					**Green Turtle**
Lead	mg/kg					19

Source for average detected prey concentrations is Appendix for Section 24

[a] Only surf scoter was identified as a wildlife risk driver in the Tier II ecological risk assessment for HPAH, identified as Benzo[a]pyrene (BAP).

Table A32-5C Average Prey concentration for each aquatic-dependent wildlife receptor *inside SWM*

		Average Prey Concentration For Each Receptor				
Primary COC	**Units**	**Brown Pelican**	**Least Tern**	**Western Grebe**	**Surf Scoter**	
Copper	mg/kg	9	9.9	9.9	48	
Mercury	mg/kg	0.52	0.088	0.088	0.1	
HPAH[a]	mg/kg	na	na	na	4.35	
PCB	mg/kg	4.009	2.273	2.273	0.861	
TBT	mg/kg	na	na	na	na	
Secondary COC	**Units**					**Green Turtle**
Lead	mg/kg					25

Source for average detected prey concentrations is Appendix for Section 24

[a] Only surf scoter was identified as a wildlife risk driver in the Tier II ecological risk assessment for HPAH, identified as Benzo[a]pyrene (BAP).

Table A32-5D Shipyard wide average prey concentration for each aquatic-dependent wildlife receptor and associated BAF

			Average Prey Concentration For Each Receptor[a]			BAF (using pre-remedy SWAC)[b]		
Primary COC	**Units**	**Pre-Remedy SWAC**	**Brown Pelican, CA Sea lion**	**Least Tern, Western Grebe**	**Surf Scoter**	**Brown Pelican, CA Sea lion**	**Least Tern, Western Grebe**	**Surf Scoter**
Copper	mg/kg	187	5.99	7.04	56.53	0.0320	0.0376	0.3023
Mercury	mg/kg	0.75	0.57	0.09	0.11	0.75623085	0.1232875	0.1443163
HPAH	mg/kg	3.509	na	na	2.97	na	na	0.8461
PCB	mg/kg	0.308	2.22	1.89	0.57	7.221	6.123	1.862
TBT	mg/kg	na	na	na	na	na	na	na
Secondary COC	**Units**	**Pre-Remedy SWAC**			**Green Turtle**			**Green Turtle**
Lead	mg/kg	73			22.00			0.3014

[a] Shipyard wide average concentration = average prey concentration across entire shipyard
b BAF = average chemical level in prey tissue / pre-remedy SWAC
BAF - bioaccumulation factor

Table A32-5E Future prey concentrations for each aquatic-dependent wildlife receptor

			BAF (using pre-remedy SWAC)			New Average Prey Concentration[a]		
Primary COC	**Units**	**Post-Remedy SWAC**	**Brown Pelican, CA Sea lion**	**Least Tern, Western Grebe**	**Surf Scoter**	**Brown Pelican, CA Sea lion**	**Least Tern, Western Grebe**	**Surf Scoter**
Copper	mg/kg	159	0.0320	0.0376	0.3023	5.09	5.99	48.07
Mercury	mg/kg	0.68	0.75623085	0.123	0.1443	0.51	0.084	0.098
HPAH	mg/kg	2.451	na	na	0.8461	na	na	2.074
PCB	mg/kg	0.194	7.221	6.123	1.8618	1.40	1.19	0.36
TBT	mg/kg	na	na	na	na	na	na	na
Secondary COC	**Units**	**Post-Remedy SWAC**			**Green Turtle**			**Green Turtle**
Lead	mg/kg	66			0.3014			19.89

[a] Future prey concentration = BAF * post-remedy SWAC
BAF - bioaccumulation factor

Table A32-5F Daily chemical intake

Receptor	Exposure Parameters				New Average Prey Concentration (mg/kg dw)							Daily Chemical Intake (mg/kg)[a]				
	Body Weight (kg)	Food Ingestion Rate (kg/day dw)	Sediment Ingestion Rate (kg/day dw)	Area Use Factor	Absorption Efficiency	Copper	Mercury	HPAH	PCB	TBT	Lead	Copper	Mercury	HPAH	PCB	TBT	Lead
Brown Pelican	3.174	0.25	0.005	1	1	5.09	0.51	na	1.40	na	na	0.6517	0.0416	na	0.1107	na	na
Least Tern	0.045	0.0053	0.00011	1	1	5.99	0.08	na	1.19	na	na	1.0936	0.0115	na	0.1404	na	na
Western Grebe	1.2	0.062	0.0031	1	1	5.99	0.08	na	1.19	na	na	0.7200	0.0061	na	0.0619	na	na
Surf Scoter	1.05	0.056	0.0028	1	1	48.07	0.10	2.07	0.36	na	na	2.988	0.0070	0.1173	0.0198	na	na
Green Turtle	95	0.35	0.0186	1	1	na	na	na	na	na	19.89	na	na	na	na	na	0.0862

Post-Remedy SWAC (mg/kg)				
159	0.68	2.5	0.194	na	66

Source of exposure parameters is from Section 24

[a] **Daily Intake**$_{chemical}$ = [(CM * IR * FI * AE)$_{prey}$ + (CM * IR * FI * AE)$_{sediment}$]/BW

where:

CM = post-remedial concentration of the chemical in prey tissue or sediment (mg/kg). Prey tissue concentrations used in this equation were derived using the equation in Table 5, while the sediment concentration was based on the predicted post-remediation SWAC for the COC.

IR = ingestion rate of prey or sediment (kg/day)

FI = fraction of the daily intake of prey or sediment derived from the site (unitless area-use factor)

AE = relative gastrointestinal absorption efficiency for the chemical in a given prey or sediment (fraction)

BW = body weight of receptor species (kg)

Table A32-5G Hazard quotient based on 100% area use

	Daily Chemical Intake (mg/kg)					
Receptor	**Copper**	**Mercury**	**HPAH**	**PCB**	**TBT**	**Lead**
Brown Pelican	0.652	0.042	na	0.111	na	na
Least Tern	1.094	0.012	na	0.140	na	na
Western Grebe	0.720	0.0061	na	0.062	na	na
Surf Scoter	2.988	0.0070	0.117	0.020	na	na
Green Turtle	na	na	na	na	na	0.086
Bird Low TRV	2.3	0.039	0.14	0.09	na	0.014
Bird High TRV	52.3	0.18	1.4	1.27	na	8.75
Bird Geometric Mean TRV (mg/kg-day)	10.9677	0.0837854	0.44271887	0.33808283	na	0.35

	HQ (calculation based on geometric mean)[a]					
Receptor	**Copper**	**Mercury**	**HPAH[b]**	**PCB**	**TBT**	**Lead**
Brown Pelican	0.0594	0.4962	na	0.3273	na	na
Least Tern	0.0997	0.1377	na	0.4153	na	na
Western Grebe	0.0656	0.0727	na	0.1830	na	na
Surf Scoter	0.2724	0.0841	0.2649	0.0585	na	na
Green Turtle	na	na	na	na	na	0.2463

	HQ (calculation based on low TRV)					
Receptor	**Copper**	**Mercury**	**HPAH**	**PCB**	**TBT**	**Lead**
Brown Pelican	0.283	1.066	na	1.2295	na	na
Least Tern	0.475	0.296	na	1.5599	na	na
Western Grebe	0.313	0.156	na	0.6875	na	na
Surf Scoter	1.299	0.181	0.838	0.2198	na	na
Green Turtle	na	na	na	na	na	6.1573

	HQ (calculation based on high TRV)					
Receptor	**Copper**	**Mercury**	**HPAH**	**PCB**	**TBT**	**Lead**
Brown Pelican	0.0125	0.2310	na	0.0871	na	na
Least Tern	0.0209	0.0641	na	0.1105	na	na
Western Grebe	0.0138	0.0338	na	0.0487	na	na
Surf Scoter	0.0571	0.0392	0.0838	0.0156	na	na
Green Turtle	na	na	na	na	na	0.0099

Source of TRVs is from Section 24

[a] HQ = daily chemical intake / geometric mean TRV

[b] Only surf scoter was identified as a wildlife risk driver in the Tier II ecological risk assessment for HPAH, identified as Benzo[a]pyrene (BAP).

A yellow cell notes that the HQ value is greater than a HQ threshold value of 1

Table A32-5H Selected hazard quotient

	HQ[a]					
Receptor	**Copper**	**Mercury**	**HPAH[b]**	**PCB**	**TBT**	**Lead**
Brown Pelican	0.0594	0.4962	na	0.3273	na	na
Least Tern	0.0997	0.1377	na	0.4153	na	na
Western Grebe	0.0656	0.0727	na	0.1830	na	na
Surf Scoter	0.2724	0.0841	0.2649	0.0585	na	na
Green Turtle	na	na	na	na	na	0.2463

[a] The selected HQ is based on the geometric mean TRVs

[b] Only surf scoter was identified as a wildlife risk driver in the Tier II ecological risk assessment for HPAH, identified as Benzo[a]pyrene (BAP).

Table A32-6 Data used for Tables A32–5A to A32-5G

Station	Sample Type	FIELD REP	Copper (mg/kg wet)	Mercury (mg/kg wet)	Total PCB Congeners (ug/kg wet)	Tributyltin (µg/kg wet)	HPAH (µg/kg wet)	Total solids (% wet)	Copper (mg/kg dry wt)	Mercury (mg/kg dry wt)	Total PCB Congeners (ug/kg dry wt)	Tributyltin (µg/kg dry wt)	HPAH (µg/kg dry wt)	Lead (mg/kg dry wt)
NA-EG-1	EELGRASS	0	30	0.02	11	0.98		15.5	193.55	0.13	70.97	6.32		19
SW-EG-1	EELGRASS	0	32	0.04	8.1	3.1		15.5	206.45	0.26	52.26	20.00		25
Average mg/kg									200.00	0.19	0.06	0.01		22
NAFI01	Forage Fish-Whole Body	0	1.3	0.028	430	9		31.9	4.08	0.09	1347.96	28.21		
NAFI02	Forage Fish-Whole Body	1	1.4	0.025	500	13		25.3	5.53	0.10	1976.28	51.38		
NAFI02	Forage Fish-Whole Body	2	1.5	0.025	450	14		27.6	5.43	0.09	1630.43	50.72		
NAFI02	Forage Fish-Whole Body	3	1.5	0.025	470	8.2		25.2	5.95	0.10	1865.08	32.54		
NAFI02	Forage Fish-Whole Body	4	1.6	0.024	440	8.8		29.6	5.41	0.08	1486.49	29.73		
SWFI01	Forage Fish-Whole Body	1	2.8	0.028	680	23		30.1	9.30	0.09	2259.14	76.41		
SWFI01	Forage Fish-Whole Body	2	3.3	0.03	700	22		29	11.38	0.10	2413.79	75.86		
SWFI01	Forage Fish-Whole Body	3	2.7	0.02	700	13		29.4	9.18	0.07	2380.95	44.22		
SWFI02	Forage Fish-Whole Body	0	1.8	0.028	410	31		25.4	7.09	0.11	1614.17	122.05		
Average mg/kg									7.04	0.09	1.89	0.06		
NA19	Mussel	0	16	0.024	84	94	220	19.7	81.22	0.12	426.40	477.16	1117	
NA24	Mussel	0	9.7	0.02	110	75	410	20	48.50	0.10	550.00	375.00	2050	
SW18	Mussel	0	7.7	0.017	100	82	640	14.8	52.03	0.11	675.68	554.05	4324	
SW27	Mussel	0	8.3	0.018	120	94	820	18.7	44.39	0.10	641.71	502.67	4385	
Average mg/kg									56.53	0.11	0.57	0.48	2.97	
NAFI01	Sand Bass-Whole Body	1	0.58	0.12	1100	5.3		25.6	2.27	0.47	4296.88	20.70		
NAFI01	Sand Bass-Whole Body	2	0.8	0.15	1200	11		25.9	3.09	0.58	4633.20	42.47		
NAFI01	Sand Bass-Whole Body	3	2.1	0.18	360	11		23.8	8.82	0.76	1512.61	46.22		
NAFI01	Sand Bass-Whole Body	4	0.69	0.16	730	37		25.4	2.72	0.63	2874.02	145.67		
NAFI01	Sand Bass-Whole Body	5	0.73	0.17	410	39		24.3	3.00	0.70	1687.24	160.49		
NAFI02	Sand Bass-Whole Body	1	2.4	0.2	650	34		25.1	9.56	0.80	2589.64	135.46		
NAFI02	Sand Bass-Whole Body	2	0.81	0.12	540	55		26.3	3.08	0.46	2053.23	209.13		
NAFI02	Sand Bass-Whole Body	3	0.6	0.17	560	32		31.8	1.89	0.53	1761.01	100.63		
NAFI02	Sand Bass-Whole Body	4	1	0.1	330	54		25.4	3.94	0.39	1299.21	212.60		
NAFI02	Sand Bass-Whole Body	5	1.2	0.17	640	37		25	4.80	0.68	2560.00	148.00		
SWFI01	Sand Bass-Whole Body	1	1.2	0.093	440	8.6		27	4.44	0.34	1629.63	31.85		
SWFI01	Sand Bass-Whole Body	2	0.54	0.14	230	63		24.4	2.21	0.57	942.62	258.20		
SWFI01	Sand Bass-Whole Body	3	0.86	0.13	540	33		23.4	3.68	0.56	2307.69	141.03		
SWFI01	Sand Bass-Whole Body	4	1.9	0.17	640	16		25.2	7.54	0.67	2539.68	63.49		
SWFI01	Sand Bass-Whole Body	5	6.1	0.11	300	34		22.4	27.23	0.49	1339.29	151.79		
SWFI02	Sand Bass-Whole Body	1	0.98	0.17	370	24		23.7	4.14	0.72	1561.18	101.27		
SWFI02	Sand Bass-Whole Body	2	1.2	0.13	750	21		24.1	4.98	0.54	3112.03	87.14		
SWFI02	Sand Bass-Whole Body	3	0.97	0.1	730	48		26.4	3.67	0.38	2765.15	181.82		
SWFI02	Sand Bass-Whole Body	4	3.3	0.14	480	35		28.5	11.58	0.49	1684.21	122.81		
SWFI02	Sand Bass-Whole Body	5	2.1	0.17	390	40		29.2	7.19	0.58	1335.62	136.99		
Average mg/kg									5.99	0.57	2.22	0.12		

SECTION III

Supporting Calculations for Alternative Cleanup Levels Protective of Human Health Beneficial Uses

Table A32-7 Supporting Calculations for Tables 32-14, 32-15, and 32-16

Post-remedial Human Health Risk Calculations for Primary COCs

Exposure Scenario	BAF Calculation			Post-Cleanup Risk Calculation												
	Pre-remedial SWAC	Avg. Tissue Conc.	Measured BAF	SWAC	C_{PR}	CR	FI	ED	EF	BW	AT	CF	RfD	CSF	Cancer Exposure	Non-Cancer Exp	Cancer Probability	Non-Cancer Probability
	(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)	(kg/day)		(years)	(days/year)	(kg)	(years)	(µg/mg)	(mg/kg-day)	(mg/kg-day)-1	(mg/kg-day)	(mg/kg-day)		
PCBs																		
Avg. Recreational Angler (fillet)	308	106.7	0.35	194	67.2	0.021	1.0	30	365	70	30/70	1000	0.00002	2	8.64E-06	2.02E-05	1.73E-05	1.0
Avg. Recreational Lobster	308	7.9	0.03	194	5.0	0.021	1.0	30	365	70	30/70	1000	0.00002	2	6.40E-07	1.49E-06	1.28E-06	0.1
Avg. Subsistence Sand Bass	308	569.5	1.85	194	358.7	0.161	1.0	30	365	70	30/70	1000	0.00002	2	3.54E-04	8.25E-04	7.07E-04	41.3
Avg. Subsistence Lobster	308	43.6	0.14	194	27.5	0.161	1.0	30	365	70	30/70	1000	0.00002	2	2.71E-05	6.32E-05	5.41E-05	3.2
Copper	(mg/kg)	(mg/kg)		(mg/kg)	(mg/kg)													
Avg. Subsistence Lobster	187	52	0.28	159	44.2	0.161	1.00	30	365	70	30/70	1	0.037	na	na	0.102	na	2.7
Mercury	(mg/kg)	(mg/kg)		(mg/kg)	(mg/kg)													
Avg. Recreational Lobster	0.75	0.153	0.20	0.68	0.14	0.021	1.0	30	365	70	30/70	1	0.0001	na	na	4.16E-05	na	0.4
Avg. Subsistence Sand Bass	0.75	0.14	0.19	0.68	0.13	0.161	1.00	30	365	70	30/70	1	0.0001	na	na	2.92E-04	na	2.9

Exposure Scenario	Tissues and Sediment Concentration Thresholds											
	Cancer Risk									Non-Cancer Risk		
	1.0E-04		1.0E-05			1.0E-06				HI = 1.0		
	C_{TEP}	SWAC	C_{TEP}	SWAC		C_{TEP}	SWAC			C_{TEP}	SWAC	
	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)			(µg/kg)	(µg/kg)	
PCBs												
Avg. Recreational Angler (fillet)	388.9	1,122.6	38.9	112.3		3.88889	11.2			66.7	192.4	
Avg. Recreational Lobster	388.9	15,161.7	38.9	1,516.2		3.88889	151.6			66.7	2,599.2	
Avg. Subsistence Sand Bass	50.7	27.4	5.1	2.7		0.50725	0.3			8.7	4.7	
Avg. Subsistence Lobster	50.7	358.3	5.1	35.8		0.50725	3.6			8.7	61.4	
Copper										(mg/kg)	(mg/kg)	
Avg. Subsistence Lobster		na		na			na			16.1	57.9	
Mercury										(mg/kg)	(mg/kg)	
Avg. Recreational Lobster		na		na			na			0.3	1.6	
Avg. Subsistence Sand Bass		na		na			na			0.04	0.23	

Notes:

Only primary COCs and pathways identified as human health risk drivers in Tier II risk assessment are shown

Exposure = (C x CR x FI x ED x EF) / (BW x AT x CF)

Cancer Risk = Exposure x CSF

Non-cancer Risk = Exposure / RfD

SWAC = Surface area weighted average concentration

BAF = Bioaccumulation factor (unitless ratio of average tissue concentration to pre-remedial SWAC)

C = Tissue concentration

C_{PR} = Predicted post-remedial average tissue concentration at shipyards (based on BAF)

C_{Th} = Tissue concentration associated with a given risk threshold

CR = Consumption rate

FI = Fractional intake

ED = Exposure duration

EF = Exposure frequency

BW = Body weight

AT = Averaging time (30 yr. for non-cancer, 70 yr. for cancer)

CF = Unit conversion factor (only necessary for organic COCs)

RfD = Reference dose (non-cancer risk)

CSF = Cancer slope factor

SECTION IV

Supporting Calculations for Alternative Cleanup Levels Protective of Aquatic Life Beneficial Uses

Table A32-8 Supporting Calculations for Table 32-17

Site	Date	Depth	Cadmium	Chlordane	Copper	DDTs	Fines	HPAH	Lead	LPAH	Mercury	PAHs	PCBs	TOC	Zinc	PctControl	NormSigEffect	Pmax	Pmax_Cat	mCSI	mCSI_Cat	RIVScore	RIV_Cat	BRIScore	BRI_Cat	RBIScore	RBI_Cat	IBI_Score	IBI_Cat	ChemLOE	BenthicLOE	ToxLOE	MLOE	NOAAMERMQ
B03_4028	7/16/2003	6	0.05	5.70	36.30	11.00	25.94	52.80	14.20	24.40	0.19	77.20	3.10	0.29	65.00	104.87	NSC	0.322	1	1.303	1	1.222	2	41.445	2	0.59	1	0	1	1	2	1	1	0.077
B03_4052	7/16/2003	3	0.10	5.70	130.00	11.00	64.30	381.30	19.40	560.00	0.15	941.30	3.10	1.03	168.00	101.62	NSC	0.563	3	1.683	1	0.827	2	59.137	3	0.09	3	1	2	2	3	1	2	0.104
B03_4076	7/18/2003	4	0.01	5.70	209.00	11.00	77.02	866.00	41.70	195.70	1.78	1061.70	3.10	1.30	181.00	81.32	SC	0.648	3	2.473	3	0.702	3	48.763	2	0.17	2	0	1	3	2	3	3	0.267
B03_4084	7/31/2003	8	0.20	0.20	160.00	0.20	72.75	353.90	32.20	142.90	0.35	496.80	0.59	1.00	170.00	66.32	SC	0.566	3	1.729	2	0.961	1	43.835	2	0.18	2	0	1	3	2	3	3	0.155
B03_4092	7/16/2003	3	0.10	5.70	42.00	11.00	22.56	291.40	15.30	104.90	0.21	396.30	3.10	0.38	90.40	97.30	NSC	0.402	2	1.523	1	1.066	1	32.983	1	0.75	1	0	1	2	1	1	1	0.109
B03_4108	7/18/2003	10	0.27	5.70	146.00	11.00	85.25	3282.70	59.10	1076.70	0.81	4359.40	3.10	1.75	194.00	61.54	SC	0.600	3	2.637	3	0.863	2	39.164	1	0.12	3	1	2	3	3	3	3	0.229
B03_4116	7/16/2003	4	0.15	5.70	67.10	11.00	58.53	66.80	22.60	95.60	0.29	162.40	3.10	0.67	125.00	77.84	NSC	0.490	2	2.079	2	0.978	1	44.565	2	0.25	2	1	2	2	2	2	2	0.341
B03_4140	7/18/2003	4	0.01	5.70	268.00	11.00	88.63	116.70	36.10	391.10	2.14	507.80	3.10	1.39	203.00	73.63	SC	0.695	4	2.422	3	0.815	2	50.045	3	0.16	2	0	1	4	2	3	4	0.269
B03_4148	7/16/2003	6	0.22	5.70	62.70	11.00	31.42	84.00	18.00	706.50	0.09	790.50	3.10	0.61	100.00	97.30	NSC	0.427	2	1.913	2	1.052	1	43.380	2	0.17	2	0	1	2	2	1	1	0.258
B03_4156	7/16/2003	8	0.30	5.70	67.40	11.00	55.71	1095.20	27.20	232.10	0.30	1327.30	3.10	0.93	125.00	102.70	NSC	0.485	2	2.000	2	0.096	4	39.971	2	0.04	4	2	3	2	4	1	2	0.129
B03_4212	7/17/2003	3	0.10	5.70	122.00	11.00	66.60	83.05	15.30	219.90	0.13	293.95	3.10	0.71	156.00	89.73	NSC	0.544	3	2.190	2	0.920	1	57.793	3	0.11	3	1	2	3	3	1	3	0.143
B03_4236	7/16/2003	5	0.19	5.70	106.00	11.00	74.72	284.10	32.90	462.00	0.52	746.10	3.10	1.08	166.00	95.95	NSC	0.560	3	2.611	3	0.797	2	47.342	2	0.10	3	0	1	3	2	1	1	0.146
B03_4268	7/18/2003	2	0.13	5.70	22.10	11.00	15.42	98.10	6.68	105.50	0.10	203.60	3.10	0.21	33.40	104.40	NSC	0.191	1	1.183	1	0.810	2	29.274	1	0.87	1	0	1	1	1	1	1	0.261
B03_4284	7/18/2003	3	0.22	5.70	327.00	11.00	77.73	385.50	52.20	221.80	0.76	607.30	3.10	1.45	264.00	70.33	SC	0.714	4	2.087	2	0.531	3	55.904	3	0.08	4	0	1	3	3	3	4	0.059
B03_4308	7/17/2003	3.5	0.14	5.70	55.60	11.00	59.60	100.30	23.40	484.05	0.18	584.35	3.10	0.92	133.00	78.92	SC	0.502	3	1.639	1	0.851	2	45.437	2	0.22	2	0	1	2	2	3	3	0.197
B03_4340	7/31/2003	10	2.65	0.20	263.00	1.90	79.33	1570.50	95.80	399.55	1.34	1954.05	24.30	2.17	325.00	53.68	SC	0.837	4	2.217	2	0.987	1	44.908	2	0.12	3	1	2	3	4	3	3	0.108
B03_4348	7/18/2003	12	0.23	5.70	58.90	11.00	44.24	571.30	22.30	474.80	0.34	1046.10	3.10	0.54	104.00	75.82	SC	0.437	2	2.083	2	0.654	3	30.382	1	0.44	1	0	1	2	1	3	2	0.537
B03_4364	7/16/2003	5	0.24	5.70	127.00	11.00	83.83	583.90	42.70	186.60	0.73	770.50	3.10	1.34	185.00	90.81	NSC	0.588	3	2.498	3	0.843	2	43.591	2	0.14	3	0	1	3	2	1	1	0.205
B03_4418	7/16/2003	5	0.20	5.70	174.00	11.00	79.81	254.35	52.30	334.90	1.09	589.25	3.10	1.46	232.00	71.35	SC	0.644	3	2.826	3	0.655	3	50.419	3	0.10	3	1	2	3	3	3	4	0.219
B03_BRI-15	7/18/2003	3	0.32	5.00	190.00	5.00	59.45	10.20	48.90	16.20	0.59	26.40	5.00	1.06	294.00	76.92	SC	0.699	4	2.609	3	0.628	3	56.194	3	0.11	3	1	2	4	3	3	5	0.210
B03_BRI-16	7/17/2003	5	0.13	5.00	156.00	5.00	88.33	128.00	69.90	36.30	0.40	164.30	5.00	1.05	249.00	69.19	SC	0.661	3	2.525	3	0.568	3	53.510	3	0.10	3	2	3	3	3	3	4	0.175
B03_BRI-17	7/17/2003	7	0.34	5.00	294.00	5.00	82.08	186.60	94.80	9.90	0.78	196.50	5.00	2.47	352.00	76.76	SC	0.737	4	2.933	3	0.851	2	48.386	2	0.18	2	1	2	4	2	3	4	0.413
B03_BRI-18	7/31/2003	3	1.04	5.00	457.00	5.00	69.24	539.60	120.00	49.50	1.33	589.10	14.40	3.62	491.00	70.53	SC	0.799	4	3.115	4	0.626	3	46.732	2	0.20	2	1	2	4	2	3	4	0.534
B03_BRI-19	7/31/2003	9	0.43	5.00	381.00	5.00	84.63	515.00	75.50	32.30	0.94	547.30	5.00	1.94	363.00	56.84	SC	0.748	4	2.959	3	0.742	2	46.271	2	0.15	3	1	2	4	2	4	4	0.406
B03_BRI-20	7/31/2003	7	1.13	5.00	190.00	5.00	71.59	2885.00	80.40	179.30	0.42	3064.30	461.60	2.50	350.00	81.58	SC	0.736	4	3.031	4	0.756	2	47.481	2	0.14	3	1	2	4	2	2	3	0.512
B98_2221	7/27/1998	3.8	0.07	0.64	130.00	0.94	53.00	187.60	39.20	46.00	0.47	187.60	9.60	0.86	197.00	82.30	SC	0.604	3	2.025	2	0.821	2	48.890	2	0.14	3	1	2	3	2	2	3	0.251
B98_2222	7/27/1998	4.8	0.19	0.64	171.00	0.94	60.00	324.90	36.80	46.00	1.69	324.90	9.60	0.99	180.00	82.30	SC	0.633	3	2.052	2	0.750	2	58.030	3	0.17	2	1	2	3	2	2	3	0.230
B98_2223	7/27/1998	3.6	0.06	0.64	128.00	0.94	67.00	180.70	36.70	46.00	1.03	180.70	9.60	1.11	153.00	88.50	SC	0.539	3	2.025	2	0.908	1	53.615	3	0.17	2	0	1	3	2	2	3	0.159
B98_2224	7/27/1998	4.5	0.08	0.64	58.30	0.94	33.00	39.00	12.90	46.00	0.40	46.00	9.60	0.65	82.60	96.90	NSC	0.379	2	1.507	1	0.935	1	37.328	1	0.46	1	0	1	2	1	1	1	0.111
B98_2225	7/27/1998	3.6	0.05	0.64	127.00	0.94	51.00	199.60	22.10	46.00	0.69	199.60	9.60	1.03	130.00	88.50	SC	0.496	3	1.970	2	1.099	1	43.139	2	0.36	1	1	2	3	2	2	3	0.179
B98_2226	7/27/1998	4.8	0.13	0.64	220.00	0.94	79.00	531.50	47.10	46.00	1.02	531.50	9.60	1.73	216.00	86.50	SC	0.626	3	2.224	2	0.982	1	45.744	2	0.46	1	1	2	3	2	2	3	0.191
B98_2227	7/27/1998	8.8	0.20	0.64	53.90	0.94	41.00	398.00	17.90	46.00	0.23	398.00	9.60	0.93	112.00	97.90	NSC	0.457	2	1.525	1	1.137	2	32.705	1	0.66	1	0	1	2	1	1	1	0.095
B98_2228	7/28/1998	5.2	0.23	0.64	68.80	0.94	30.00	520.10	36.70	46.00	0.45	520.10	16.20	0.73	131.00	101.00	NSC	0.498	3	1.986	2	1.148	2	43.985	2	0.45	1	0	1	3	2	1	1	0.144
B98_2229	7/28/1998	11.5	0.09	0.64	58.90	0.94	41.00	766.80	24.50	271.80	0.32	1038.60	9.60	0.92	99.30	97.90	NSC	0.426	2	1.542	1	1.059	1	31.715	1	0.64	1	0	1	2	1	1	1	0.119
B98_2230	8/5/1998	3.5	0.50	0.64	16.10	0.94	8.00	39.00	10.80	46.00	0.38	46.00	9.60	0.20	38.30	65.70	NSC	0.240	1	1.155	1	1.202	2	35.577	1	1.00	1	0	1	1	1	2	1	0.151
B98_2231	7/28/1998	13.1	0.04	0.64	58.10	0.94	29.00	337.80	21.60	46.00	0.22	337.80	9.60	0.64	92.50	93.75	NSC	0.407	2	1.525	1	1.154	2	34.311	1	0.67	1	0	1	2	1	1	1	0.125
B98_2233	7/29/1998	8.8	0.02	0.64	52.00	0.94	33.00	39.00	26.80	46.00	0.32	46.00	9.60	0.45	106.00	99.00	NSC	0.442	2	1.290	1	0.722	3	39.292	1	0.35	1	0	1	2	1	1	1	0.077
B98_2235	7/30/1998	3.6	0.09	0.64	58.20	0.94	39.00	39.00	21.30	46.00	0.24	46.00	9.60	0.64	136.00	71.40	SC	0.508	3	1.762	2	0.854	2	46.199	2	0.12	3	1	2	3	2	3	3	0.226
B98_2238	7/30/1998	3.3	0.17	0.64	55.10	0.94	49.00	39.00	18.10	46.00	0.17	46.00	9.60	0.96	143.00	86.70	SC	0.521	3	1.569	1	1.180	2	48.194	2	0.17	2	1	2	2	2	2	2	0.232
B98_2239	7/29/1998	11.2	0.08	0.64	75.10	0.94	29.00	429.30	34.00	46.00	0.42	429.30	9.60	0.71	121.00	100.00	NSC	0.477	2	1.743	2	0.884	2	47.215	2	0.09	3	0	1	2	2	1	1	0.107
B98_2240	8/4/1998	3.3	0.08	0.64	47.40	0.94	42.00	100.70	22.50	46.00	0.26	100.70	9.60	0.55	103.00	88.80	SC	0.435	2	1.331	1	1.000	1	41.683	2	0.47	1	0	1	2	1	2	1	0.107
B98_2241	7/29/1998	3.9	0.09	0.64	59.17	0.94	15.00	39.00	26.33	46.00	0.21	46.00	9.60	0.52	103.73	97.90	NSC	0.437	2	1.507	1	1.077	1	44.585	2	0.41	1	0	1	2	1	1	1	0.113
B98_2242	8/4/1998	3.7	0.10	0.64	42.00	2.57	26.00	112.30	17.80	46.00	0.30	112.30	9.60	0.74	89.80	91.80	NSC	0.400	2	1.359	1	0.811	2	44.883	2	0.12	3	1	2	2	2	1	1	0.106
B98_2243	8/4/1998	3.9	0.10	0.64	38.80	0.94	30.00	39.00	19.90	46.00	0.24	46.00	9.60	0.49	81.20	95.90	SC	0.375	2	1.331	1	1.074	1	46.135	2	0.55	1	1	2	2	2	1	1	0.081

Table A32-8 Supporting Calculations for Table 32-17, Continued

Site	Date	Depth	Cadmium	Chlordane	Copper	DDTs	Fines	HPAH	Lead	LPAH	Mercury	PAHs	PCBs	TOC	Zinc	PctControl	NormSigEffect	Pmax	Pmax_Cat	mCSI	mCSI_Cat	RIVScore	RIV_Cat	BRIScore	BRI_Cat	RBIScore	RBI_Cat	IBI_Score	IBI_Cat	ChemLOE	BenthicLOE	ToxLOE	MLOE	NOAAMERMq
B98_2244	7/30/1998	3.3	0.10	0.64	41.80	0.94	15.00	39.00	15.40	46.00	0.18	46.00	9.60	0.30	82.40	100.00	NSC	0.378	2	1.331	1	1.288	3	45.051	2	0.82	1	1	2	2	2	1	1	0.068
B98_2245	8/4/1998	3.9	0.13	0.64	69.00	0.94	57.00	69.60	24.60	46.00	0.33	69.60	9.60	0.78	145.50	65.70	SC	0.525	3	1.661	1	0.714	3	49.126	2	0.10	3	0	1	2	3	3	4	0.214
B98_2247	7/30/1998	3.3	0.11	0.64	53.40	1.00	39.00	39.00	17.40	46.00	0.16	46.00	9.60	0.58	103.00	89.80	SC	0.435	2	1.406	1	0.855	2	43.437	2	0.15	3	0	1	2	2	1	1	0.075
B98_2249	7/30/1998	3	0.21	0.64	84.30	0.94	61.00	186.30	29.10	46.00	0.22	186.30	9.60	1.35	197.00	75.50	SC	0.604	3	1.625	1	1.012	1	45.787	2	0.15	3	0	1	2	2	3	3	0.104
B98_2251	7/28/1998	8.5	0.22	0.64	196.00	0.94	61.00	3364.60	82.50	382.00	0.57	3746.60	17.70	1.99	259.00	76.00	SC	0.673	4	2.498	3	0.842	2	43.470	2	0.11	3	1	2	4	2	3	4	0.282
B98_2252	7/29/1998	10.9	0.04	0.64	31.10	0.94	15.00	39.00	13.80	46.00	0.11	46.00	9.60	0.59	64.20	104.20	NSC	0.319	1	1.331	1	0.788	2	32.793	1	0.75	1	0	1	1	1	1	1	0.061
B98_2253	8/5/1998	7.4	0.50	0.64	252.00	3.20	56.00	1102.45	68.70	97.40	0.79	1176.85	123.80	1.57	314.00	88.90	SC	0.713	4	2.515	3	0.851	2	51.023	3	0.13	3	1	2	4	3	2	4	0.283
B98_2254	8/5/1998	4.5	0.50	0.64	74.90	0.94	33.00	7984.00	24.90	733.00	0.36	8717.00	9.60	0.66	113.00	98.00	NSC	0.459	2	1.732	2	0.795	2	49.599	3	0.09	3	1	2	2	3	1	2	0.297
B98_2255	7/29/1998	10.6	0.17	0.64	146.00	1.40	51.00	1473.35	52.80	102.65	0.70	1556.50	16.50	1.18	206.00	96.90	NSC	0.615	3	2.342	3	0.960	1	44.219	2	0.14	3	1	2	3	2	1	1	0.182
B98_2256	7/29/1998	8.2	0.20	0.64	128.00	0.94	57.00	192.90	54.10	46.00	0.63	196.40	9.60	1.26	197.00	100.00	NSC	0.604	3	2.117	2	0.771	2	45.954	2	0.14	3	1	2	3	2	1	1	0.174
B98_2257	7/29/1998	8.3	0.17	0.64	157.00	0.94	67.00	246.15	64.10	46.00	0.51	249.65	9.60	1.63	233.00	90.80	SC	0.645	3	2.454	3	1.060	1	44.708	2	0.32	1	0	1	3	1	1	1	0.174
B98_2258	7/29/1998	11.2	0.16	0.64	143.00	0.94	62.00	230.15	53.00	46.00	0.66	230.15	9.60	1.44	211.00	91.80	SC	0.621	3	2.280	2	0.933	1	46.170	2	0.15	3	1	2	3	2	1	1	0.204
B98_2259	7/30/1998	10.9	0.14	0.64	145.00	0.94	63.00	1586.20	44.40	153.20	0.40	1739.40	9.90	1.24	180.00	96.90	NSC	0.581	3	2.129	2	0.885	2	48.825	2	0.27	2	1	2	3	2	1	1	0.187
B98_2260	7/30/1998	3.6	0.09	0.64	50.80	0.94	23.00	39.00	20.40	46.00	0.22	46.00	9.60	0.51	87.50	73.50	SC	0.390	2	1.155	1	1.007	1	46.058	2	0.53	1	1	2	2	2	3	3	0.103
B98_2262	7/30/1998	10.3	0.16	0.64	200.00	0.94	63.00	320.30	45.60	46.00	0.32	320.30	9.60	1.64	232.00	78.50	SC	0.644	3	2.165	2	0.840	2	45.759	2	0.12	3	1	2	3	2	3	3	0.179
B98_2263	7/28/1998	13.1	0.21	0.64	118.00	0.94	63.00	1702.40	41.60	312.05	0.69	2011.80	10.30	1.25	180.00	88.20	SC	0.581	3	2.188	2	1.057	1	32.901	1	0.44	1	0	1	3	1	2	2	0.260
B98_2264	8/5/1998	10.1	0.50	0.64	247.00	7.30	63.00	2283.80	193.00	210.10	0.62	2474.40	24.20	2.01	420.00	89.80	SC	0.854	4	2.752	3	0.861	2	47.224	2	0.10	3	1	2	4	2	1	2	0.368
B98_2265	7/29/1998	11.2	0.07	0.64	18.00	0.94	12.00	39.00	12.00	46.00	0.06	46.00	9.60	0.35	43.20	84.90	SC	0.236	1	1.281	1	1.279	3	40.265	2	0.58	1	0	1	1	2	2	2	0.169
B98_2433	7/27/1998	9.1	0.25	0.64	71.60	0.94	59.00	318.40	21.00	46.00	0.26	318.40	9.60	1.17	126.00	96.90	NSC	0.488	2	1.596	1	1.013	1	30.538	1	0.81	1	0	1	2	1	1	1	0.097
B98_2434	7/28/1998	3.3	0.17	0.64	68.90	0.94	31.00	701.70	31.60	46.00	0.03	737.80	9.60	0.71	132.00	101.00	NSC	0.500	3	1.702	2	1.213	2	41.505	2	1.00	1	0	1	3	2	1	1	0.099
B98_2435	7/27/1998	12.1	0.14	0.64	28.40	0.94	39.00	39.00	7.10	46.00	0.12	46.00	9.60	0.55	64.40	102.10	NSC	0.320	1	1.240	1	1.050	1	21.407	1	0.61	1	0	1	1	1	1	1	0.071
B98_2436	7/28/1998	11	0.21	0.64	85.83	0.94	51.00	308.13	34.40	46.00	0.52	308.13	9.60	1.36	145.33	100.00	NSC	0.525	3	1.794	2	1.084	1	37.025	1	0.59	1	0	1	3	1	1	1	0.124
B98_2438	7/30/1998	3.4	0.18	0.64	101.00	0.94	64.00	39.00	20.20	46.00	0.10	46.00	9.60	0.92	163.00	79.60	SC	0.555	3	1.836	2	0.900	2	53.251	3	0.09	3	0	1	3	3	3	4	0.143
B98_2439	7/28/1998	3	0.16	0.64	133.00	0.94	42.00	386.00	45.20	46.00	0.47	386.00	49.60	1.03	203.00	84.40	SC	0.611	3	2.307	2	0.871	2	47.406	2	0.36	1	1	2	3	2	2	3	0.157
B98_2440	7/28/1998	10	0.04	0.64	41.80	0.94	32.00	39.00	20.60	46.00	0.23	46.00	9.60	0.50	81.10	103.10	NSC	0.375	2	1.050	1	1.067	1	39.071	1	0.56	1	0	1	2	1	1	1	0.053
B98_2441	8/5/1998	15.6	0.50	0.64	71.80	0.94	66.00	997.90	21.90	186.25	0.19	1184.15	9.60	1.97	123.00	87.90	SC	0.481	2	1.705	2	1.110	2	22.762	1	0.73	1	0	1	2	1	2	1	0.228
B98_2442	8/5/1998	13.3	0.50	0.64	77.70	0.94	67.00	4570.75	21.10	747.35	0.18	5318.10	9.60	1.99	139.00	80.80	SC	0.513	3	1.732	2	0.841	2	29.559	1	0.39	1	0	1	3	1	3	2	0.238
N_2231	8/8/2001	13.1	0.10		81.70		45.35	398.00	41.65	39.00	0.42	437.00	82.39	1.30	121.00	84.00	SC	0.477	2	2.116	2			24.788	1	0.37	1	1	2	2	1	2	1	0.105
N_2243	8/14/2001	3.9	0.12		47.30		28.00	103.00	20.80	7.80	0.25	103.00	23.76	0.51	93.30	92.00	SC	0.410	2	1.287	1			47.376	2	0.24	2	0	1	2	2	1	1	0.062
N_2433	8/12/2001	9.1	0.29		39.85		41.20	288.50	18.90	28.00	0.21	316.50	22.25	0.67	91.50	96.00	NSC	0.405	2	1.413	1			23.344	1	0.40	1	0	1	2	1	1	1	0.062
N_2440	8/13/2001	10	0.33		48.00		31.60	2052.00	76.60	380.00	0.29	2432.00	126.00	1.62	122.00	100.00	NSC	0.652	3	2.239	2			38.545	1	0.42	1	0	1	3	1	1	1	0.145
N_2441	8/11/2001	15.6	0.29		37.20		40.80	193.00	13.10	27.00	0.16	220.00	11.28	1.10	80.30	95.00	SC	0.372	2	1.248	1			18.600	1	0.19	2	0	1	2	1	1	1	0.054
N_NA03	8/11/2001	6.76	0.29		215.00		74.70	3870.00	93.60	440.00	1.05	4310.00	368.51	2.33	261.00	84.00	SC	0.706	4	3.000	4			48.437	2	0.17	2	1	2	4	2	2	3	0.356
N_NA04	8/11/2001	10.3	0.27		257.00		79.30	2072.00	92.70	170.00	1.14	2242.00	245.00	2.04	307.00	80.00	SC	0.708	4	2.988	3			43.236	2	0.15	3	1	2	4	2	3	4	0.307
N_NA05	8/13/2001	9.07	0.17		166.00		74.70	1730.00	64.80	159.00	0.61	1889.00	179.31	1.60	207.00	89.00	SC	0.616	3	2.899	3			46.966	2	0.12	3	1	2	3	2	2	3	0.213
N_NA06	8/9/2001	10.3	0.28		410.00		75.10	2849.00	133.00	214.00	3.18	3063.00	637.76	2.31	328.00	78.00	SC	0.787	4	3.418	4			44.752	2	0.16	2	1	2	4	2	3	4	0.539
N_NA09	8/14/2001	6.46	0.40		259.00		89.00	1694.00	97.10	143.00	1.23	1837.00	292.92	2.26	326.00	88.00	SC	0.721	4	2.988	3			44.689	2	0.14	3	1	2	4	2	2	3	0.312
N_NA11	8/9/2001	9.72	0.28		180.00		73.50	1786.00	73.00	220.00	0.85	2006.00	189.29	1.69	230.00	70.00	SC	0.642	3	2.988	3			50.801	3	0.11	3	1	2	3	3	3	4	0.239
N_NA12	8/10/2001	14.9	0.18		153.00		66.70	1264.00	59.10	143.00	0.62	1407.00	154.88	1.48	208.00	82.00	SC	0.617	3	2.694	3			43.587	2	0.16	2	1	2	3	2	2	3	0.192
N_NA15	8/12/2001	7	0.25		250.00		89.10	2010.00	82.90	181.00	0.98	2191.00	337.18	1.95	306.00	97.00	NSC	0.707	4	2.988	3			53.605	3	0.07	4	1	2	4	3	1	4	0.303
N_NA16	8/12/2001	7.4	0.35		258.00		86.70	2327.00	93.40	379.00	1.10	2706.00	585.90	1.88	312.00	90.00	SC	0.712	4	3.128	4			46.247	2	0.18	2	1	2	4	2	1	2	0.372
N_NA17	8/12/2001	5.68	0.54		659.00		81.15	2605.00	128.00	230.00	0.93	2835.00	547.05	2.33	766.00	95.00	SC	0.864	4	3.587	4			43.290	2	0.18	2	1	2	4	2	1	2	0.480
N_NA19	8/12/2001	7.38	0.37		266.00		79.30	1766.00	101.00	144.00	0.78	1910.00	988.94	1.84	448.00	89.00	SC	0.783	4	3.116	4			41.020	2	0.14	3	1	2	4	2	2	3	0.408
N_NA20	8/10/2001	8.79	0.44		95.90		42.70	1977.00	53.10	202.00	0.24	2179.00	117.43	1.42	191.00	90.00	SC	0.596	3	2.254	2			49.632	3	0.08	4	1	2	3	3	1	3	0.154

Table A32-8 Supporting Calculations for Table 32-17, Continued

Site	Date	Depth	Cadmium	Chlordane	Copper	DDTs	Fines	HPAH	Lead	LPAH	Mercury	PAHs	PCBs	TOC	Zinc	PctControl	NormSigEffect	Pmax	Pmax_Cat	mCSI	mCSI_Cat	RIVScore	RIV_Cat	BRIScore	BRI_Cat	RBIScore	RBI_Cat	IBI_Score	IBI_Cat	ChemLOE	BenthicLOE	ToxLOE	MLOE	NOAAMERMq
N_NA22	8/14/2001	10.2	0.46		154.00		60.40	2330.00	94.60	324.00	0.38	2654.00	176.36	1.65	229.00	95.00	NSC	0.709	4	2.930	3			49.970	3	0.09	3	1	2	4	3	1	4	0.217
N_SW03	8/7/2001	7.74	0.70		192.00		79.60	4440.00	78.80	619.00	1.19	5059.00	411.50	3.11	226.00	92.00	SC	0.660	3	3.000	4			39.365	1	0.12	3	1	2	4	2	1	2	0.381
N_SW04	8/7/2001	1.04	2.35		1880.00		31.80	9730.00	482.00	2330.00	1.19	12060.00	4043.23	1.59	4550.00	94.00	NSC	0.976	4	3.918	4			53.659	3	0.11	3	1	2	4	3	1	4	2.006
N_SW08	8/8/2001	1.98	0.67		1030.00		68.80	18750.00	248.00	3363.00	2.53	22113.00	2110.58	3.35	859.00	91.00	SC	0.901	4	3.911	4			51.764	3	0.17	2	1	2	4	2	1	2	1.362
N_SW09	8/6/2001	4.81	1.07		659.00		57.60	12890.00	215.00	2320.00	0.96	15210.00	711.72	1.94	1240.00	88.00	SC	0.913	4	3.829	4			43.937	2	0.17	2	1	2	4	2	2	3	0.870
N_SW11	8/13/2001	10.2	0.24		173.00		71.80	5210.00	73.70	506.00	0.75	5716.00	196.47	1.81	237.00	77.00	SC	0.649	3	3.000	4			40.618	2	0.22	2	1	2	4	2	3	4	0.319
N_SW13	8/9/2001	10.3	0.42		799.00		71.50	8860.00	93.00	1897.00	0.86	10757.00	494.50	2.33	581.00	92.00	SC	0.872	4	3.360	4			44.290	2	0.18	2	1	2	4	2	1	2	0.630
N_SW15	8/10/2001	15.2	0.45		227.00		89.80	5430.00	90.20	629.00	0.90	6059.00	375.05	2.31	287.00	92.00	SC	0.697	4	3.000	4			40.366	2	0.21	2	1	2	4	2	1	2	0.386
N_SW17	8/13/2001	19.3	0.37		271.00		94.20	6930.00	93.40	713.00	0.98	7643.00	544.26	2.53	313.00	95.00	SC	0.712	4	3.128	4			39.807	1	0.13	3	0	1	4	1	1	2	0.474
N_SW18	8/13/2001	15.9	0.33		215.00		87.60	5570.00	86.30	598.00	0.75	6168.00	437.49	2.19	280.00	74.00	SC	0.688	4	3.000	4			40.453	2	0.17	2	1	2	4	2	3	4	0.384
N_SW21	8/9/2001	6.66	0.51		261.00		67.60	6190.00	117.00	681.00	1.44	6871.00	2380.87	2.10	326.00	91.00	SC	0.760	4	3.128	4			43.444	2	0.14	3	1	2	4	2	1	2	0.745
N_SW22	8/15/2001	8.98	0.35		262.00		86.15	7930.00	106.00	972.00	1.13	8902.00	895.97	2.46	314.50	90.00	SC	0.737	4	3.128	4			44.176	2	0.13	3	1	2	4	2	1	2	0.566
N_SW23	8/15/2001	9.59	0.37		282.00		82.30	7320.00	111.00	970.00	1.02	8290.00	1015.39	2.52	325.00	91.00	SC	0.748	4	3.128	4			46.663	2	0.15	3	1	2	4	2	1	2	0.576
N_SW25	8/15/2001	10.3	0.47		233.00		71.90	7140.00	92.70	768.00	0.80	7908.00	345.93	2.03	369.00	86.00	SC	0.746	4	3.000	4			48.713	2	0.17	2	1	2	4	2	2	3	0.441
N_SW27	8/13/2001	9.71	0.27		208.00		74.30	8620.00	79.70	1983.00	0.68	10603.00	196.20	2.08	249.00	73.00	SC	0.663	3	3.128	4			43.571	2	0.19	2	1	2	4	2	3	4	0.495
S_C01	7/17/2001	10.6	0.43	29.00	139.00	28.70		2814.00	77.30	277.20	0.42	3091.20	189.60		235.00	59.00	SC	0.802	4	3.122	4	0.759	2	46.871	2	0.13	3	1	2	4	2	3	4	0.634
S_C02	7/17/2001	10.5	0.42	31.00	130.00	44.30		2720.00	73.70	285.20	0.53	3005.20	421.39		212.00	72.00	SC	0.826	4	3.178	4	0.708	3	47.789	2	0.12	3	1	2	4	3	3	5	0.700
S_C03	7/17/2001	10.8	1.30	37.00	155.00	38.90		3430.00	148.00	546.30	0.54	3976.30	319.66		418.00	76.00	SC	0.846	4	3.178	4	0.739	3	54.817	3	0.07	4	1	2	4	3	3	5	0.822
S_C04	7/17/2001	10.1	0.40	20.90	97.40	21.90		2247.00	67.70	230.90	0.27	2477.90	144.50		270.00	71.00	SC	0.695	4	2.895	3	0.709	3	54.163	3	0.07	4	1	2	4	3	3	5	0.483
S_C05	7/17/2001	10.1	0.51	36.00	108.00	33.40		2493.00	73.30	254.90	0.40	2747.90	233.32		207.00	80.00	SC	0.876	4	3.122	4	0.557	3	49.102	2	0.05	4	1	2	4	3	3	5	0.710
S_C06	7/17/2001	9.4	0.40	29.00	141.00	30.20		2936.00	78.40	321.00	0.43	3257.00	189.52		233.00	62.00	SC	0.802	4	3.130	4	0.963	1	45.234	2	0.12	3	1	2	4	2	3	4	0.645
S_C07	7/17/2001	8.6	0.29	4.60	47.90	4.99		920.00	43.10	118.30	0.10	1038.30	58.30		225.00	94.00	SC	0.636	3	2.295	2	0.793	2	44.122	2	0.06	4	1	2	3	2	1	1	0.174
S_C08	7/17/2001	7.4	0.32	7.90	68.00	7.87		949.00	41.25	101.28	0.13	1050.28	52.30		204.00	96.00	NSC	0.612	3	2.477	3	0.142	4	50.107	3	0.01	4	3	4	3	4	1	3	0.222
S_C09	7/17/2001	9.1	0.45	20.30	119.00	22.70		6980.00	65.40	2962.00	0.38	9942.00	154.24		206.00	80.00	SC	0.666	4	2.911	3	0.761	2	45.663	2	0.13	3	1	2	4	2	3	4	0.666
S_C10	7/17/2001	11.1	0.38	21.75	314.00	25.25		3670.00	72.30	368.00	0.43	4038.00	201.52		217.00	69.00	SC	0.705	4	2.953	3	0.760	2	46.372	2	0.11	3	2	3	4	3	3	5	0.584
S_C10	11/6/2001	10.8	1.10	8.70	149.00	46.50	57.90	2265.00	81.70	281.80	0.38	2546.80	124.20		232.00	97.00	NSC	0.709	4	2.967	3	0.658	3	43.766	2	0.13	3	1	2	4	3	1	4	0.402
S_C10	2/11/2002	11.1	1.00	14.00	146.00	9.20	53.70	1969.00	57.20	240.10	0.34	2209.10	107.50		211.00	82.00	SC	0.621	3	2.757	3	0.557	3	54.523	3	0.08	4	1	2	3	3	2	4	0.380
S_C10	6/10/2002		0.90	6.50	153.00	3.90		1493.00	70.00	183.20	0.39	1676.20	90.10		350.00	89.00	NSC	0.736	4	2.823	3	0.760	2	49.349	3	0.11	3	1	2	4	3	1	4	0.275
S_C11	7/17/2001	7.5	1.07	10.40	104.00	9.58		1195.00	96.10	105.30	0.22	1300.30	73.69		273.00	91.00	NSC	0.713	4	2.819	3	0.142	4	38.021	1	0.02	4	3	4	4	4	1	4	0.281
S_C12	7/17/2001	6.4	0.50	30.00	78.50	33.30		38240.00	57.60	7154.00	0.21	45394.00	166.31		166.00	92.00	SC	0.774	4	2.629	3	0.340	3	47.965	2	0.04	4	1	2	4	3	1	4	1.351
S_C13	7/17/2001	3.7	0.96	89.00	103.00	78.30		12710.00	87.20	1912.00	0.22	14622.00	254.88		248.00	78.00	SC	0.975	4	3.155	4	0.387	3	57.578	3	0.10	3	1	2	4	3	3	5	1.719
S_C14	7/17/2001	2.4	1.37	119.00	94.90	122.80		5894.00	103.00	1164.00	0.23	7058.00	211.57		347.00	53.00	SC	0.987	4	3.121	4	0.096	4	80.455	4	-0.01	4	2	3	4	4	4	5	2.039
S_C14	11/6/2001		1.10	14.00	101.00	20.00	71.40	4449.00	73.80	685.50	0.24	5134.50	88.80		384.00	79.00	SC	0.846	4	3.288	4	0.432	3	73.355	4	0.05	4	1	2	4	4	3	5	0.757
S_C14	2/11/2002	8.1	1.10	60.00	104.00	29.00	82.20	5278.00	76.00	977.20	0.14	6255.20	77.30		473.00	2.00	SC	0.876	4	3.130	4	0.096	4	69.114	3	0.00	4	3	4	4	4	4	5	0.958
S_C14	6/10/2002		2.00		107.00	26.00		4306.00	101.00	886.20	0.15	5192.20	53.80		536.00	9.00	SC	0.813	4	3.015	4	0.096	4	77.056	4	-0.01	4	3	4	4	4	4	5	0.441
S_C14	10/9/2002	3.5	1.90	65.00	119.00	55.00	91.30	7360.00	107.00	893.80	0.16	8253.80	35.19		543.00	41.00	SC	0.968	4	2.987	3	0.145	4	71.825	3	-0.01	4	2	3	4	4	4	5	1.367
S_CP2238	8/27/2001	2.5	0.13	0.18	71.00	1.24		125.60	28.79	14.80	0.26	140.40	11.20		214.30	90.00	SC	0.624	3	1.709	2	0.551	3	43.436	2	0.15	3	1	2	3	3	1	3	0.093
S_CP2243	7/17/2001	4.7	0.14	0.20	56.40	1.43		154.10	30.70	14.37	0.33	168.47	20.37		125.00	84.00	NSC	0.485	2	1.642	1	0.795	2	45.609	2	0.16	2	1	2	2	2	1	1	0.086
S_CP2243	11/6/2001	4.8	1.00	1.50	56.30	1.50	33.30	95.70	18.20	12.77	0.26	108.47	8.30		107.00	96.00	NSC	0.445	2	1.737	2	0.374	3	58.363	3	0.06	4	1	2	2	3	1	2	0.115
S_CP2243	2/11/2002	8.4	0.90	1.50	57.40	2.29	32.40	91.80	16.20	11.36	0.28	103.16	10.59		114.00	70.00	SC	0.461	2	1.906	2	0.935	1	40.869	2	0.50	1	1	2	2	2	3	3	0.129
S_CP2243	6/10/2002		0.70	1.70	57.50	2.07		95.60	22.30	12.02	0.27	107.62	5.33		115.00	95.00	NSC	0.464	2	1.906	2	1.169	2	47.099	2	0.42	1	0	1	2	2	1	1	0.121
S_CP2243	10/9/2002	4.9	0.80	18.00	57.90	18.00	36.50	141.00	25.85	10.74	0.29	151.74	6.57		116.50	100.00	NSC	0.467	2	2.005	2	0.982	1	43.422	2	0.49	1	1	2	2	2	1	1	0.231
S_CP2433	11/6/2001	9.7	1.20	1.70	45.50	1.70	41.50	248.70	12.80	21.80	0.19	270.50	8.79		99.30	97.00	NSC	0.426	2	1.526	1	0.758	2	22.693	1	0.53	1	0	1	2	1	1	1	0.119
S_CP2433	2/11/2002	8.2	1.20	1.70	42.80	1.70	40.00	228.70	11.20	21.74	0.20	250.44	5.56		93.10	96.00	NSC	0.409	2	1.549	1	0.657	3	25.275	1	0.44	1	0	1	2	1	1	1	0.098

Table A32-8 Supporting Calculations for Table 32-17, Continued

Site	Date	Depth	Cadmium	Chlordane	Copper	DDTs	Fines	HPAH	Lead	LPAH	Mercury	PAHs	PCBs	TOC	Zinc	PctControl	NormSigEffect	Pmax	Pmax_Cat	mCSI	mCSI_Cat	RIVScore	RIV_Cat	BRIScore	BRI_Cat	RBIScore	RBI_Cat	IBI_Score	IBI_Cat	ChemLOE	BenthicLOE	ToxLOE	MLOE	NOAAMERMq
S_CP2433	6/10/2002		0.90	1.50	40.30	1.50		183.50	16.10	17.72	0.20	201.22	7.77		99.30	98.00	NSC	0.536	3	1.536	1	0.859	2	26.882	1	0.60	1	0	1	2	1	1	1	0.128
S_CP2433	10/9/2002	9.3	0.50	18.00	47.80	18.00	44.90	356.00	20.30	22.55	0.22	378.55	4.67		114.00	100.00	NSC	0.461	2	1.573	1	0.859	2	32.171	1	0.45	1	0	1	2	1	1	1	0.097
S_CP2440	7/17/2001	12.4	0.31	16.20	44.40	21.40		3479.00	63.80	1004.20	0.26	4483.20	282.62		115.00	95.00	NSC	0.600	3	2.486	3	1.060	1	35.756	1	0.46	1	0	1	3	1	1	1	0.438
S_P01	8/27/2001	12.7	0.14	0.62	80.20	4.82		603.00	33.65	79.26	0.38	682.26	39.88		161.70	96.00	NSC	0.553	3	1.828	2	0.753	2	43.802	2	0.16	2	1	2	3	2	1	1	0.121
S_P02	8/27/2001	12.6	0.17	1.82	170.00	4.65		2064.00	55.19	200.70	0.63	2264.70	78.25		260.60	87.00	SC	0.671	4	2.443	3	0.702	3	44.965	2	0.10	3	1	2	4	3	2	4	0.233
S_P03	8/27/2001	12.7	0.02	1.17	98.10	3.24		1111.00	36.13	135.40	0.34	1246.40	50.55		165.20	98.00	NSC	0.558	3	1.999	2	0.602	3	48.781	2	0.11	3	1	2	3	3	1	3	0.142
S_P04	8/27/2001	12	0.07	3.70	203.00	7.15		1859.00	64.13	228.70	0.65	2087.70	101.14		274.20	88.00	SC	0.683	4	2.613	3	0.754	2	49.316	3	0.08	4	1	2	4	3	2	4	0.273
S_P05	8/27/2001	9.6	0.10	3.90	227.00	25.40		2980.00	72.83	338.50	0.71	3318.50	750.99		293.50	93.00	NSC	0.698	4	2.977	3	0.607	3	54.264	3	0.07	4	1	2	4	3	1	4	0.413
S_P06	8/27/2001	12.2	0.18	2.80	247.00	9.90		2990.00	68.31	315.90	0.72	3305.90	121.58		286.50	94.00	NSC	0.693	4	2.707	3	0.603	3	54.183	3	0.05	4	2	3	4	3	1	4	0.310
S_P07	8/27/2001	11.5	0.13	4.20	237.00	12.20		2660.00	73.02	298.70	0.75	2958.70	113.58		288.20	97.00	NSC	0.694	4	2.793	3	0.737	3	51.364	3	0.06	4	1	2	4	3	1	4	0.333
S_P09	8/27/2001	8.3	0.02	0.26	22.10	1.93		142.90	11.29	18.68	0.07	161.58	9.86		89.27	98.00	NSC	0.398	2	1.000	1	0.531	3	50.890	3	0.09	3	1	2	2	3	1	2	0.048
S_P10	8/27/2001	7.9	0.35	5.80	105.00	8.63		1656.00	44.37	163.00	0.30	1819.00	71.57		242.40	89.00	SC	0.654	3	2.634	3	0.676	3	51.101	3	0.11	3	1	2	3	3	2	4	0.228
S_P11	8/27/2001	8.9	1.39	21.50	127.00	54.30		6400.00	115.95	385.00	1.08	6785.00	368.80		303.90	50.00	SC	0.758	4	2.998	4	0.579	3	52.794	3	0.11	3	1	2	4	3	4	5	0.712
S_P11	11/6/2001	8.7	1.00	9.20	127.00	3.90	46.30	5223.00	46.80	356.50	0.39	5579.50	157.20		225.00	93.00	NSC	0.636	3	2.654	3	0.579	3	41.510	2	0.13	3	1	2	3	3	1	3	0.421
S_P11	2/11/2002	8.6	1.00	7.70	123.00	1.60	41.10	4802.00	62.40	1234.00	0.56	6036.00	166.55		226.00	47.00	SC	0.637	3	2.914	3	0.482	3	55.551	3	0.09	3	1	2	3	3	4	4	0.399
S_P11	6/10/2002		2.30	19.00	152.00	32.00		3914.00	129.00	361.00	0.72	4275.00	318.40		380.00	47.00	SC	0.808	4	3.166	4	0.434	3	55.538	3	0.03	4	1	2	4	3	4	5	0.854
S_P11	10/9/2002	8.6	1.10	37.00	134.00	37.00	44.10	6350.00	65.00	338.90	0.48	6688.90	108.50		246.00	96.00	NSC	0.658	3	3.000	4	0.386	3	51.452	3	0.05	4	3	4	4	3	4	1	0.495
S_P12	8/27/2001	8.7	0.20	9.80	134.00	17.80		4210.00	52.26	377.00	0.34	4587.00	128.61		180.10	93.00	NSC	0.581	3	2.501	3	0.868	2	44.268	2	0.17	2	0	1	3	2	1	1	0.363
S_P13	8/27/2001	8.3	0.17	3.20	71.90	6.31		818.00	40.68	81.53	0.25	899.53	52.62		174.40	84.00	SC	0.572	3	2.152	2	0.773	2	46.510	2	0.14	3	1	2	3	2	2	3	0.150
S_P14	8/27/2001	9.1	0.57	16.60	138.00	28.50		3440.00	67.21	448.60	0.46	3888.60	195.53		246.40	92.00	NSC	0.658	3	2.925	3	0.840	2	51.190	3	0.18	2	1	2	3	2	1	1	0.480
S_P15	8/27/2001	8.7	1.59	34.00	157.00	51.10		6460.00	159.10	325.70	0.61	6785.70	374.10		373.60	85.00	SC	0.822	4	3.179	4	0.434	3	56.366	3	0.08	4	1	2	4	3	2	4	0.815
S_P16	8/27/2001	9.5	0.89	20.20	181.00	40.10		4395.00	91.42	414.65	0.56	4809.65	180.97		313.80	84.00	SC	0.713	4	2.925	3	0.456	3	62.621	3	0.07	4	1	2	4	3	2	4	0.579
S_P17	11/6/2001	12.5	1.10	6.60	150.00	9.40	54.70	4015.00	77.60	400.80	0.32	4415.80	201.20		339.00	87.00	SC	0.729	4	2.948	3	0.803	2	42.642	2	0.21	2	0	1	4	2	2	3	0.558
S_P17	2/11/2002	8.5	1.20	19.80	181.00	20.10	61.10	4104.00	84.60	429.40	0.39	4533.40	219.20		361.00	33.00	SC	0.742	4	2.951	3	0.662	3	54.753	3	0.12	3	0	1	4	3	4	5	0.545
S_P17	6/10/2002		1.70	21.20	173.00	31.80		16240.00	104.00	4903.00	0.41	21143.00	186.20		364.00	74.00	SC	0.744	4	3.046	4	0.756	2	55.202	3	0.14	3	1	2	4	3	3	5	0.946
W_CA99-0047	8/18/1999	5.5	0.22	5.00	68.50	5.00	60.72	354.00	35.80	19.00	0.28	373.00	14.80	0.91	127.00	93.90	SC	0.490	2	1.716	2	0.614	3	37.100	1	0.36	1	1	2	2	2	1	1	0.104
W_CA99-0048	8/17/1999	4.5	0.42	5.00	50.60	6.70	47.02	375.00	53.80	13.00	0.33	375.00	90.30	0.68	123.00	92.90	NSC	0.548	3	2.125	2	0.487	3	51.426	3	0.27	2	0	1	3	3	1	3	0.228
W_CA99-0049	8/17/1999	4.3	0.18	5.00	69.20	5.00	49.47	99.00	36.00	13.00	0.27	99.00	5.00	0.80	133.00	60.60	SC	0.502	3	2.091	2	0.653	3	46.439	2	0.39	1	0	1	3	2	3	3	0.120
W_CA99-0050	8/17/1999	3.6	0.24	5.00	75.00	5.00	62.45	67.00	41.50	13.00	0.35	67.00	5.00	0.92	173.00	74.70	SC	0.570	3	2.134	2	0.663	3	49.153	3	0.11	3	0	1	3	3	3	4	0.159

Table A32-9 Supporting Calculations for Table 32-19

Station	Sediment CoC Concentration					Triad Likely Effects
	Cu	Hg	HPAH	TPCB	TBT	
	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	
NA01	252.5	1.0625	6575	375	157	0
NA03	220	1.1	6100	370	180	0
NA04	260	1.1	3500	250	300	0
NA05	170	0.61	2800	180	110	0
NA06	395	2.35	3800	640	225	0
NA07	225	1.45	15850	495	110.5	0
NA09	260	1.2	2800	290	120	0
NA11	180	0.85	2800	190	38	0
NA12	150	0.62	2000	150	80	0
NA15	250	0.98	3300	340	670	0
NA16	253	1.09	3200	590	175	0
NA17	510	0.85	2950	550	1350	0
NA19	270	0.78	3000	990	570	1
NA20	96	0.24	2900	120	280	0
NA22	150	0.38	3600	180	120	1
SW02	580	4.45	14500	5450	167	0
SW03	190	1.20	6800	410	53	0
SW04	1500	1.75	14000	4000	3250	1
SW08	920	2.25	25500	2100	1850	0
SW09	660	0.96	17000	710	910	0
SW11	170	0.75	8000	200	140	0
SW13	800	0.86	12000	490	790	1
SW15	230	0.90	7700	380	170	0
SW17	270	0.98	10000	540	440	0
SW18	220	0.75	8100	440	130	0
SW21	260	1.40	9700	2400	170	0
SW22	260	1.10	12000	900	190	1
SW23	280	1.00	11000	1000	210	1
SW25	230	0.78	8150	350	231	0
SW27	210	0.68	12000	200	250	0
LAET	920	4.45	25500	5450	1850	
60% LAET	552	2.67	15300	3270	1110	

Table A32-10 Data used for Table A32-9

Station	Pre-Remedy Average Surface Sediment Concentration																						
	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn	Total HPAH (half DL)	TPAH	Fairey 13 TPAH (half DL)	TOC	Total PCB Congeners (half DL)	Total PCB Homologs (half DL)	Fairey 15 of 18 PCB Congeners (half DL)	Fairey estimated 18 PCB Congeners (*1.21)	Fairey estimate Total PCBs (*2)	TBT	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	%	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	
NA01	10.2	0.24	69.75	252.5	84	1.06	14.75	1.08	1.33	298	6575	7050	5580	2.18	375	533	240	290	580	157	
NA02	10.0	0.21	67.00	170	76	0.70	18.00	1.00	1.00	240	2800	3000	2422	2.00	208	299	134	162	324	82	
NA03	11.0	0.29	69.00	220	94	1.10	18.00	1.10	1.40	260	6100	6600	5244	2.33	370	520	237	287	574	180	
NA04	12.0	0.27	73.00	260	93	1.10	19.00	1.10	1.20	310	3500	3700	2819	2.04	250	350	158	191	381	300	
NA05	9.5	0.17	57.00	170	65	0.61	15.00	0.43	0.89	210	2800	3000	2277	1.60	180	250	116	140	280	110	
NA06	10.5	0.27	61.50	395	130	2.35	14.50	1.05	1.02	335	3800	4050	3235	2.14	640	935	400	484	969	225	
NA07	13.5	0.27	60.50	225	100	1.45	16.00	0.90	1.15	255	15850	16500	13734	2.02	495	710	310	375	749	111	
NA08	18.0	0.31	79.00	270	96	0.82	21.00	1.20	1.00	330	3500	3800	2928	2.18	310	430	197	238	476	110	
NA09	13.0	0.40	75.00	260	97	1.20	20.00	1.20	1.10	330	2800	3000	2248	2.26	290	410	188	228	455	120	
NA10	6.9	0.22	52.00	160	59	0.58	14.00	1.00	0.78	190	1800	1900	1438	1.18	160	230	100	120	241	91	
NA11	9.3	0.28	59.00	180	73	0.85	15.00	1.00	1.10	230	2800	3000	2391	1.69	190	270	121	147	294	38	
NA12	9.5	0.18	54.00	150	59	0.62	15.00	1.10	0.79	210	2000	2200	1700	1.48	150	220	97	118	235	80	
NA13	10.8	0.24	59.00	185	75	0.65	15.50	1.00	0.94	295	1800	1950	1511	1.92	173	265	113	137	273	68	
NA14	9.0	0.25	56.00	130	66	0.55	15.00	1.10	0.78	200	1100	1200	963	1.82	128	183	82	99	199	45	
NA15	12.0	0.25	62.00	250	83	0.98	16.00	1.00	1.30	310	3300	3600	2714	1.95	340	480	214	259	517	670	
NA16	10.5	0.36	70.25	252.5	90	1.09	15.75	1.03	1.35	313	3200	3500	2676	2.00	590	665	368	445	890	175	
NA17	14.5	0.41	74.00	510	115	0.85	17.50	1.10	1.30	620	2950	3200	2496	2.03	550	620	339	410	821	1350	
NA18	14.0	0.36	67.00	230	97	0.79	17.00	1.00	1.00	380	2400	2600	1957	2.04	350	490	221	268	536	210	
NA19	14.0	0.37	65.00	270	100	0.78	17.00	1.00	1.10	450	3000	3200	2415	1.84	990	1400	607	734	1469	570	
NA20	6.6	0.44	26.00	96	53	0.24	8.40	1.00	0.53	190	2900	3200	2639	1.42	120	170	74	89	178	280	
NA21	11.0	0.39	51.00	150	83	0.51	14.00	1.10	0.88	250	2100	2200	1829	2.15	177	257	114	137	275	410	
NA22	8.5	0.46	39	150	95	0.38	12.00	1.10	0.91	230	3600	4000	3317	1.65	180	250	112	135	270	120	
NA23	12.0	0.26	77.00	350	120	1.10	18.00	1.30	1.30	430	3400	3700	2988	2.21	510	730	320	387	774	120	
NA24	9.6	0.20	60.00	200	88	0.90	11.00	1.10	0.90	280	2100	2300	1812	2.12	290	410	183	222	443	59	
NA25	6.0	0.11	33.00	85	41	0.42	8.50	1.10	0.72	130	1100	1100	906	1.24	83	120	55	66	133	25	
NA26	6.2	0.11	32.00	80	41	0.48	8.00	1.00	0.66	140	850	910	707	1.22	180	250	115	139	278	37	
NA27	13.0	0.29	100.00	390	110	1.20	27.00	1.30	1.50	500	2800	3000	2465	2.01	210	290	137	166	332	100	
NA28	10.0	0.31	86.00	290	84	0.89	23.00	1.20	1.40	390	3400	3700	2993	1.87	180	260	118	143	286	90	
NA29	6.9	0.14	39.00	110	56	0.55	11.00	1.10	0.86	170	1900	2000	1559	1.70	190	260	119	144	289	58	
NA30	7.5	0.22	37.00	140	59	0.71	9.30	1.00	1.00	170	1000	1100	835	1.38	100	150	70	84	168	22	
NA31	5.3	0.13	29.00	71	34	0.35	7.50	1.10	0.57	110	530	580	447	0.92	68	96	44	53	107	20	
SW01	13.5	0.71	78.50	560	145	1.45	98.00	0.88	1.07	520	7525	8725	7351	2.24	1600	2400	950	1150	2300	450	
SW02	13.8	3.18	118.75	580	170	4.45	106.00	1.26	3.90	585	14500	21250	19460	5.98	5450	8325	3312	4008	8015	167	

Table A32-10 Data used for Table A32-9, Continued

Station	Pre-Remedy Average Surface Sediment Concentration																				
	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn	Total HPAH (half DL)	TPAH	Fairey 13 TPAH (half DL)	TOC	Total PCB Congeners (half DL)	Total PCB Homologs (half DL)	Fairey 15 of 18 PCB Congeners (half DL)	Fairey estimated 18 PCB Congeners (*1.21)	Fairey estimate Total PCBs (*2)	TBT
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	%	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SW03	11.0	0.70	52.00	190	79	1.20	18.00	0.80	1.20	230	6800	7500	6134	3.11	410	580	257	310	621	53
SW04	73.0	1.95	87.50	1500	430	1.75	18.00	1.50	1.60	3450	14000	16000	14109	2.28	4000	5200	2476	2996	5992	3250
SW05	11.0	0.86	53.00	230	120	0.96	19.00	0.75	1.20	280	13000	17000	15067	1.55	1200	1800	769	930	1861	170
SW06	15.0	0.85	56.00	170	81	0.75	20.00	0.83	1.10	280	12000	14000	12641	1.82	380	580	235	284	567	100
SW07	8.1	0.19	43.00	150	57	0.52	13.00	0.81	0.74	170	3800	4100	3450	1.73	170	230	107	129	258	44
SW08	24.0	0.73	82.50	920	225	2.25	21.00	1.20	1.45	830	25500	28500	24759	3.80	2100	2700	1308	1583	3166	1850
SW09	27.0	1.10	56.00	660	220	0.96	18.00	0.84	1.30	1200	17000	20000	17383	1.94	710	1100	446	540	1079	910
SW10	13.0	0.87	45.00	160	79	0.58	17.00	0.84	0.82	360	16000	25000	23410	1.21	610	930	380	459	918	250
SW11	9.6	0.24	62.00	170	74	0.75	17.00	0.39	1.10	240	8000	8500	7001	1.81	200	280	127	153	307	140
SW12	7.4	0.14	39.00	119.5	52	0.53	10.80	0.90	0.76	160	3000	3300	2742	1.47	155	231	100	121	243	36
SW13	15.0	0.42	72.00	800	93	0.86	24.00	1.10	1.40	580	12000	14000	12507	2.33	490	710	312	377	754	790
SW14	10.0	0.31	63.00	280	88	1.00	17.00	1.00	1.20	300	8400	9100	7659	2.13	400	570	257	310	621	450
SW15	11.0	0.45	67.00	230	90	0.90	19.00	1.10	1.30	290	7700	8400	7137	2.31	380	540	237	287	573	170
SW16	12.0	0.66	68.00	430	97	1.00	16.00	1.10	1.90	370	5700	6100	4847	2.24	430	610	273	330	661	1100
SW17	12.0	0.37	73.00	270	93	0.98	20.00	0.44	1.50	310	10000	11000	9199	2.53	540	880	333	403	805	440
SW18	11.0	0.33	74.00	220	86	0.75	20.00	0.44	1.30	280	8100	8800	7471	2.19	440	660	276	334	668	130
SW19	7.1	0.15	42.00	110	51	2.10	12.00	0.70	0.78	150	1100	1200	938	1.15	94	135	61	74	148	37
SW20	14.0	0.41	68.00	290	110	0.99	18.00	1.10	1.10	390	11000	12000	9736	2.14	1600	2600	1023	1238	2476	130
SW21	11.0	0.51	70.00	260	120	1.40	14.00	1.00	1.30	330	9700	10000	8480	2.10	2400	3600	1491	1804	3608	170
SW22	13.0	0.35	70.00	260	110	1.10	21.00	1.10	1.30	310	12000	13000	10684	2.46	900	1400	577	698	1396	190
SW23	15.0	0.37	89.00	280	110	1.00	25.00	1.10	1.30	330	11000	12000	9880	2.52	1000	1500	640	775	1550	210
SW24	10.0	0.33	52.50	300	88	1.90	16.00	0.95	1.15	300	52000	57000	50225	1.75	950	1500	588	711	1423	165
SW25	11.5	0.36	64.50	230	86	0.78	16.50	1.00	1.20	345	8150	8800	7505	2.15	350	500	221	268	535	231
SW26	9.0	0.14	45.00	120	58	0.43	12.00	0.90	0.46	160	1600	1700	1345	1.31	293	418	184	222	444	49
SW27	10.0	0.27	63.00	210	80	0.68	18.00	0.42	1.10	250	12000	14000	12055	2.08	200	320	128	155	311	250
SW28	14.0	0.32	65.50	265	100	0.88	15.00	1.20	1.10	330	17000	19000	16165	2.52	2100	2600	1388	1679	3359	150
SW29	8.3	0.49	44.00	220	72	0.93	37.00	1.10	1.20	230	4600	4900	4142	1.34	820	1200	504	610	1220	190
SW30	8.9	0.23	72.00	240	72	1.10	13.00	1.00	1.20	300	4900	5200	4311	2.05	380	540	240	291	581	200
SW31	4.0	0.06	18.00	54	21	0.23	4.90	1.20	0.36	80	1200	1300	1031	0.66	66	93	42	51	101	36
SW32	9.4	0.06	43.00	92	57	0.51	11.00	1.10	0.33	160	820	900	719	1.56	160	230	101	122	245	30
SW33	10.0	0.07	41.00	100	58	0.53	11.00	1.20	0.24	170	1000	1100	826	2.09	100	150	68	82	164	19
SW34	8.3	0.21	53.00	320	99	0.75	11.00	1.10	0.95	310	1400	1500	1155	1.68	130	180	82	99	198	38
SW36	9.9	0.21	70.00	240	79	0.75	13.00	1.00	1.20	300	4000	4300	3607	2.23	200	282	131	159	318	49

Table A32-11 Supporting Calculations for Tables 32-20 and 32-21

Station	Sediment CoC Concentration					Triad Likely Effects	SS-MEQ Performance					
	Cu	Hg	HPAH	TPCB	TBT		SS-MEQ	Exceed SS-MEQ Threshold	True Pos	True Neg	False Pos	False Neg
	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg							
NA01	252.5	1.0625	6575	375	157	0	0.69	0	0	1	0	0
NA03	220	1.1	6100	370	180	0	0.67	0	0	1	0	0
NA04	260	1.1	3500	250	300	0	0.69	0	0	1	0	0
NA05	170	0.61	2800	180	110	0	0.40	0	0	1	0	0
NA06	395	2.35	3800	640	225	0	1.11	1	0	0	1	0
NA07	225	1.45	15850	495	110.5	0	0.91	1	0	0	1	0
NA09	260	1.2	2800	290	120	0	0.62	0	0	1	0	0
NA11	180	0.85	2800	190	38	0	0.42	0	0	1	0	0
NA12	150	0.62	2000	150	80	0	0.35	0	0	1	0	0
NA15	250	0.98	3300	340	670	0	0.87	0	0	1	0	0
NA16	253	1.09	3200	590	175	0	0.69	0	0	1	0	0
NA17	510	0.85	2950	550	1350	0	1.41	1	0	0	1	0
NA19	270	0.78	3000	990	570	1	0.92	1	1	0	0	0
NA20	96	0.24	2900	120	280	0	0.34	0	0	1	0	0
NA22	150	0.38	3600	180	120	1	0.35	0	0	0	0	1
SW02	580	4.45	14500	5450	167	0	2.87	1	0	0	1	0
SW03	190	1.20	6800	410	53	0	0.63	0	0	1	0	0
SW04	1500	1.75	14000	4000	3250	1	4.22	1	1	0	0	0
SW08	920	2.25	25500	2100	1850	0	2.99	1	0	0	1	0
SW09	660	0.96	17000	710	910	0	1.60	1	0	0	1	0
SW11	170	0.75	8000	200	140	0	0.54	0	0	1	0	0
SW13	800	0.86	12000	490	790	1	1.48	1	1	0	0	0
SW15	230	0.90	7700	380	170	0	0.66	0	0	1	0	0
SW17	270	0.98	10000	540	440	0	0.92	1	0	0	1	0
SW18	220	0.75	8100	440	130	0	0.62	0	0	1	0	0
SW21	260	1.40	9700	2400	170	0	1.25	1	0	0	1	0
SW22	260	1.10	12000	900	190	1	0.92	1	1	0	0	0
SW23	280	1.00	11000	1000	210	1	0.93	1	1	0	0	0
SW25	230	0.78	8150	350	231	0	0.67	0	0	1	0	0
SW27	210	0.68	12000	200	250	0	0.68	0	0	1	0	0
SS-Median	275	0.93	11500	945	390	6		13	5	16	8	1

Total Stations	30
Threshold	0.90
Reliability	70%
Non-Likely Efficiency	94%
Non-Liekly Specificity	67%
Likely Efficiency	38%
Likely Specificity	83%
True Positives	5
True Negatives	16
False Positives	8
False Negatives	1

Table A32-12 Supporting Calculations for Tables 32-20 and 32-21

Station	Cu	Hg	HPAH	TPCB	TBT	SSMEQ
	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	
NA01	252.5	1.06	6575	375	157	0.69
NA02	170	0.70	2800	208	82	0.41
NA03	220	1.10	6100	370	180	0.67
NA04	260	1.10	3500	250	300	0.69
NA05	170	0.61	2800	180	110	0.40
NA06	395	2.35	3800	640	225	1.11
NA07	225	1.45	15850	495	111	0.91
NA08	270	0.82	3500	310	110	0.56
NA09	260	1.20	2800	290	120	0.62
NA10	160	0.58	1800	160	91	0.35
NA11	180	0.85	2800	190	38	0.42
NA12	150	0.62	2000	150	80	0.35
NA13	185	0.65	1800	173	68	0.38
NA14	130	0.55	1100	128	45	0.28
NA15	250	0.98	3300	340	670	0.87
NA16	252.5	1.09	3200	590	175	0.69
NA17	510	0.85	2950	550	1350	1.41
NA18	230	0.79	2400	350	210	0.56
NA19	270	0.78	3000	990	570	0.92
NA20	96	0.24	2900	120	280	0.34
NA21	150	0.51	2100	177	410	0.50
NA22	150	0.38	3600	180	120	0.35
NA23	350	1.10	3400	510	120	0.72
NA24	200	0.90	2100	290	59	0.47
NA25	85	0.42	1100	83	25	0.20
NA26	80	0.48	850	180	37	0.23
NA27	390	1.20	2800	210	100	0.69
NA28	290	0.89	3400	180	90	0.55
NA29	110	0.55	1900	190	58	0.30
NA30	140	0.71	1000	100	22	0.30
NA31	71	0.35	530	68	20	0.16
SW01	560	1.45	7525	1600	450	1.42
SW02	580	4.45	14500	5450	167	2.87

Station	Cu	Hg	HPAH	TPCB	TBT	SSMEQ
	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	
SW03	190	1.20	6800	410	53	0.63
SW04	1500	1.75	14000	4000	3250	4.22
SW05	230	0.96	13000	1200	170	0.94
SW06	170	0.75	12000	380	100	0.63
SW07	150	0.52	3800	170	44	0.35
SW08	920	2.25	25500	2100	1850	2.99
SW09	660	0.96	17000	710	910	1.60
SW10	160	0.58	16000	610	250	0.78
SW11	170	0.75	8000	200	140	0.54
SW12	119.5	0.53	3000	155	36	0.30
SW13	800	0.86	12000	490	790	1.48
SW14	280	1.00	8400	400	450	0.88
SW15	230	0.90	7700	380	170	0.66
SW16	430	1.00	5700	430	1100	1.28
SW17	270	0.98	10000	540	440	0.92
SW18	220	0.75	8100	440	130	0.62
SW19	110	2.10	1100	94	37	0.59
SW20	290	0.99	11000	1600	130	1.02
SW21	260	1.40	9700	2400	170	1.25
SW22	260	1.10	12000	900	190	0.92
SW23	280	1.00	11000	1000	210	0.93
SW24	300	1.90	52000	950	165	1.82
SW25	230	0.78	8150	350	231	0.67
SW26	120	0.43	1600	293	49	0.29
SW27	210	0.68	12000	200	250	0.68
SW28	265	0.88	17000	2100	150	1.20
SW29	220	0.93	4600	820	190	0.71
SW30	240	1.10	4900	380	200	0.68
SW31	54	0.23	1200	66	36	0.14
SW32	92	0.51	820	160	30	0.24
SW33	100	0.53	1000	100	19	0.24
SW34	320	0.75	1400	130	38	0.47
SW36	240	0.75	4000	200	49	0.47

Table A32-13 Data used for Tables A32–11 and A32-12

Station	Pre-Remedy Average Surface Sediment Concentration																				
	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn	Total HPAH (half DL)	TPAH	Fairey 13 TPAH (half DL)	TOC	Total PCB Congeners (half DL)	Total PCB Homologs (half DL)	Fairey 15 of 18 PCB Congeners (half DL)	Fairey estimated 18 PCB Congeners (*1.21)	Fairey estimate Total PCBs (*2)	TBT
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	%	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
NA01	10.2	0.24	69.75	252.5	84	1.06	14.75	1.08	1.33	298	6575	7050	5580	2.18	375	533	240	290	580	157
NA02	10.0	0.21	67.00	170	76	0.70	18.00	1.00	1.00	240	2800	3000	2422	2.00	208	299	134	162	324	82
NA03	11.0	0.29	69.00	220	94	1.10	18.00	1.10	1.40	260	6100	6600	5244	2.33	370	520	237	287	574	180
NA04	12.0	0.27	73.00	260	93	1.10	19.00	1.10	1.20	310	3500	3700	2819	2.04	250	350	158	191	381	300
NA05	9.5	0.17	57.00	170	65	0.61	15.00	0.43	0.89	210	2800	3000	2277	1.60	180	250	116	140	280	110
NA06	10.5	0.27	61.50	395	130	2.35	14.50	1.05	1.02	335	3800	4050	3235	2.14	640	935	400	484	969	225
NA07	13.5	0.27	60.50	225	100	1.45	16.00	0.90	1.15	255	15850	16500	13734	2.02	495	710	310	375	749	111
NA08	18.0	0.31	79.00	270	96	0.82	21.00	1.20	1.00	330	3500	3800	2928	2.18	310	430	197	238	476	110
NA09	13.0	0.40	75.00	260	97	1.20	20.00	1.20	1.10	330	2800	3000	2248	2.26	290	410	188	228	455	120
NA10	6.9	0.22	52.00	160	59	0.58	14.00	1.00	0.78	190	1800	1900	1438	1.18	160	230	100	120	241	91
NA11	9.3	0.28	59.00	180	73	0.85	15.00	1.00	1.10	230	2800	3000	2391	1.69	190	270	121	147	294	38
NA12	9.5	0.18	54.00	150	59	0.62	15.00	1.10	0.79	210	2000	2200	1700	1.48	150	220	97	118	235	80
NA13	10.8	0.24	59.00	185	75	0.65	15.50	1.00	0.94	295	1800	1950	1511	1.92	173	265	113	137	273	68
NA14	9.0	0.25	56.00	130	66	0.55	15.00	1.10	0.78	200	1100	1200	963	1.82	128	183	82	99	199	45
NA15	12.0	0.25	62.00	250	83	0.98	16.00	1.00	1.30	310	3300	3600	2714	1.95	340	480	214	259	517	670
NA16	10.5	0.36	70.25	252.5	90	1.09	15.75	1.03	1.35	313	3200	3500	2676	2.00	590	665	368	445	890	175
NA17	14.5	0.41	74.00	510	115	0.85	17.50	1.10	1.30	620	2950	3200	2496	2.03	550	620	339	410	821	1350
NA18	14.0	0.36	67.00	230	97	0.79	17.00	1.00	1.00	380	2400	2600	1957	2.04	350	490	221	268	536	210
NA19	14.0	0.37	65.00	270	100	0.78	17.00	1.00	1.10	450	3000	3200	2415	1.84	990	1400	607	734	1469	570
NA20	6.6	0.44	26.00	96	53	0.24	8.40	1.00	0.53	190	2900	3200	2639	1.42	120	170	74	89	178	280
NA21	11.0	0.39	51.00	150	83	0.51	14.00	1.10	0.88	250	2100	2200	1829	2.15	177	257	114	137	275	410
NA22	8.5	0.46	39	150	95	0.38	12.00	1.10	0.91	230	3600	4000	3317	1.65	180	250	112	135	270	120
NA23	12.0	0.26	77.00	350	120	1.10	18.00	1.30	1.30	430	3400	3700	2988	2.21	510	730	320	387	774	120
NA24	9.6	0.20	60.00	200	88	0.90	11.00	1.10	0.90	280	2100	2300	1812	2.12	290	410	183	222	443	59
NA25	6.0	0.11	33.00	85	41	0.42	8.50	1.10	0.72	130	1100	1100	906	1.24	83	120	55	66	133	25
NA26	6.2	0.11	32.00	80	41	0.48	8.00	1.00	0.66	140	850	910	707	1.22	180	250	115	139	278	37
NA27	13.0	0.29	100.00	390	110	1.20	27.00	1.30	1.50	500	2800	3000	2465	2.01	210	290	137	166	332	100
NA28	10.0	0.31	86.00	290	84	0.89	23.00	1.20	1.40	390	3400	3700	2993	1.87	180	260	118	143	286	90
NA29	6.9	0.14	39.00	110	56	0.55	11.00	1.10	0.86	170	1900	2000	1559	1.70	190	260	119	144	289	58
NA30	7.5	0.22	37.00	140	59	0.71	9.30	1.00	1.00	170	1000	1100	835	1.38	100	150	70	84	168	22
NA31	5.3	0.13	29.00	71	34	0.35	7.50	1.10	0.57	110	530	580	447	0.92	68	96	44	53	107	20
SW01	13.5	0.71	78.50	560	145	1.45	98.00	0.88	1.07	520	7525	8725	7351	2.24	1600	2400	950	1150	2300	450
SW02	13.8	3.18	118.75	580	170	4.45	106.00	1.26	3.90	585	14500	21250	19460	5.98	5450	8325	3312	4008	8015	167

Table A32-13 Data used for Tables A32–11 and A32-12, Continued

Station	Pre-Remedy Average Surface Sediment Concentration																						
	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn	Total HPAH (half DL)	TPAH	Fairey 13 TPAH (half DL)	TOC	Total PCB Congeners (half DL)	Total PCB Homologs (half DL)	Fairey 15 of 18 PCB Congeners (half DL)	Fairey estimated 18 PCB Congeners (*1.21)	Fairey estimate Total PCBs (*2)	TBT			
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	%	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg			
SW03	11.0	0.70	52.00	190	79	1.20	18.00	0.80	1.20	230	6800	7500	6134	3.11	410	580	257	310	621	53			
SW04	73.0	1.95	87.50	1500	430	1.75	18.00	1.50	1.60	3450	14000	16000	14109	2.28	4000	5200	2476	2996	5992	3250			
SW05	11.0	0.86	53.00	230	120	0.96	19.00	0.75	1.20	280	13000	17000	15067	1.55	1200	1800	769	930	1861	170			
SW06	15.0	0.85	56.00	170	81	0.75	20.00	0.83	1.10	280	12000	14000	12641	1.82	380	580	235	284	567	100			
SW07	8.1	0.19	43.00	150	57	0.52	13.00	0.81	0.74	170	3800	4100	3450	1.73	170	230	107	129	258	44			
SW08	24.0	0.73	82.50	920	225	2.25	21.00	1.20	1.45	830	25500	28500	24759	3.80	2100	2700	1308	1583	3166	1850			
SW09	27.0	1.10	56.00	660	220	0.96	18.00	0.84	1.30	1200	17000	20000	17383	1.94	710	1100	446	540	1079	910			
SW10	13.0	0.87	45.00	160	79	0.58	17.00	0.84	0.82	360	16000	25000	23410	1.21	610	930	380	459	918	250			
SW11	9.6	0.24	62.00	170	74	0.75	17.00	0.39	1.10	240	8000	8500	7001	1.81	200	280	127	153	307	140			
SW12	7.4	0.14	39.00	119.5	52	0.53	10.80	0.90	0.76	160	3000	3300	2742	1.47	155	231	100	121	243	36			
SW13	15.0	0.42	72.00	800	93	0.86	24.00	1.10	1.40	580	12000	14000	12507	2.33	490	710	312	377	754	790			
SW14	10.0	0.31	63.00	280	88	1.00	17.00	1.00	1.20	300	8400	9100	7659	2.13	400	570	257	310	621	450			
SW15	11.0	0.45	67.00	230	90	0.90	19.00	1.10	1.30	290	7700	8400	7137	2.31	380	540	237	287	573	170			
SW16	12.0	0.66	68.00	430	97	1.00	16.00	1.10	1.90	370	5700	6100	4847	2.24	430	610	273	330	661	1100			
SW17	12.0	0.37	73.00	270	93	0.98	20.00	0.44	1.50	310	10000	11000	9199	2.53	540	880	333	403	805	440			
SW18	11.0	0.33	74.00	220	86	0.75	20.00	0.44	1.30	280	8100	8800	7471	2.19	440	660	276	334	668	130			
SW19	7.1	0.15	42.00	110	51	2.10	12.00	0.70	0.78	150	1100	1200	938	1.15	94	135	61	74	148	37			
SW20	14.0	0.41	68.00	290	110	0.99	18.00	1.10	1.10	390	11000	12000	9736	2.14	1600	2600	1023	1238	2476	130			
SW21	11.0	0.51	70.00	260	120	1.40	14.00	1.00	1.30	330	9700	10000	8480	2.10	2400	3600	1491	1804	3608	170			
SW22	13.0	0.35	70.00	260	110	1.10	21.00	1.10	1.30	310	12000	13000	10684	2.46	900	1400	577	698	1396	190			
SW23	15.0	0.37	89.00	280	110	1.00	25.00	1.10	1.30	330	11000	12000	9880	2.52	1000	1500	640	775	1550	210			
SW24	10.0	0.33	52.50	300	88	1.90	16.00	0.95	1.15	300	52000	57000	50225	1.75	950	1500	588	711	1423	165			
SW25	11.5	0.36	64.50	230	86	0.78	16.50	1.00	1.20	345	8150	8800	7505	2.15	350	500	221	268	535	231			
SW26	9.0	0.14	45.00	120	58	0.43	12.00	0.90	0.46	160	1600	1700	1345	1.31	293	418	184	222	444	49			
SW27	10.0	0.27	63.00	210	80	0.68	18.00	0.42	1.10	250	12000	14000	12055	2.08	200	320	128	155	311	250			
SW28	14.0	0.32	65.50	265	100	0.88	15.00	1.20	1.10	330	17000	19000	16165	2.52	2100	2600	1388	1679	3359	150			
SW29	8.3	0.49	44.00	220	72	0.93	37.00	1.10	1.20	230	4600	4900	4142	1.34	820	1200	504	610	1220	190			
SW30	8.9	0.23	72.00	240	72	1.10	13.00	1.00	1.20	300	4900	5200	4311	2.05	380	540	240	291	581	200			
SW31	4.0	0.06	18.00	54	21	0.23	4.90	1.20	0.36	80	1200	1300	1031	0.66	66	93	42	51	101	36			
SW32	9.4	0.06	43.00	92	57	0.51	11.00	1.10	0.33	160	820	900	719	1.56	160	230	101	122	245	30			
SW33	10.0	0.07	41.00	100	58	0.53	11.00	1.20	0.24	170	1000	1100	826	2.09	100	150	68	82	164	19			
SW34	8.3	0.21	53.00	320	99	0.75	11.00	1.10	0.95	310	1400	1500	1155	1.68	130	180	82	99	198	38			
SW36	9.9	0.21	70.00	240	79	0.75	13.00	1.00	1.20	300	4000	4300	3607	2.23	200	282	131	159	318	49			

SECTION V

SUPPLEMENTAL TRIAD ANALYSIS RESULTS AND SS-MEQ / 60%LAET PREDICTIONS

Table A32-14 to Table A32-22

SSMEQ/60% LAET Predictions	Table A32-14
MLOE Summary	Table A32-15
Chemistry MLOE	Table A32-16
Chemistry Data	Table A32-17
Toxicity MLOE	Table A32-18
Mytilus Toxicity Data	Table A32-19
Eohaustorius Toxicity Data	Table A32-20
Benthic MLOE	Table A32-21
Taxa Data	Table A32-22

Continued on Part 2 of 2:

Abundance Data	Table A32-23
BRI Data	Table A32-24
SoCal Marine Bays Data	Table A32-25

Table A32-14 Supporting Calculations for Table 32-22

Station	Sediment CoC Concentration					SSMEQ	Station Exceeds SSMEQ	Station Exceeds 60%LAET	Triad Likely Effects Predicted	
	Cu	Hg	HPAH	TPCB	TBT				Predicted	Observed
	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg					
NA24	250	1.18	3606	103	31	0.53	No	No	No	No
SW06	225	0.84	8110	183	150	0.60	No	No	No	No
SW19	166	0.69	3544	121	47.3	0.38	No	No	No	No
SW30	194	0.94	2102	120	51	0.43	No	No	No	No
NA23	258	1.13	4845	830	7.4	0.69	No	No	No	No
SS-Median	275	0.93	11500	945	390	0.90				
60%LAET	552	2.67	15300	3270	1110					

Station	Stations Exceeding 60%LAET					# Exceeding 60%LAET
	Cu	Hg	HPAH	TPCB	TBT	
	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	
NA24	0	0	0	0	0	0
SW06	0	0	0	0	0	0
SW19	0	0	0	0	0	0
SW30	0	0	0	0	0	0
NA23	0	0	0	0	0	0
# Exceeding 60%LAET	0	0	0	0	0	

Table A32-15 Supporting Calculations for Table 32-22

	2009 Supplemental Triad Study			
	Sediment Chemistry	**Toxicity**	**Benthic Community**	**Weight-of-Evidence Category**
NA23	Moderate	Low	Moderate	**Possible**
NA24	Moderate	Low	Moderate	**Possible**
SW06	Moderate	Low	Low	**Unlikely**
SW19	Low	Low	Low	**Unlikely**
SW30	Moderate	Low	Low	**Unlikely**

Table A32-16 Supporting Calculations for Table A32-15

Sediment Quality Guidelines

	Value	*Unit*	*Threshold*	*Reference UPL*	
Cadmium	4.21	ug/g (dry wt)	PEL	0.33	ug/g
Copper	270	ug/g (dry wt)	ERM	121	ug/g
Lead	112.18	ug/g (dry wt)	PEL	53	ug/g
Silver	1.77	ug/g (dry wt)	PEL	1.1	ug/g
Zinc	410	ug/g (dry wt)	ERM	192	ug/g
Total Chlordane	6	ng/g (dry wt)	ERM	NA	
Dieldrin	8	ng/g (dry wt)	ERM	NA	
Total PAH-OC	1800	ug/g OC	consensus-based	114.91	ug/g
Total PCBs	400	ng/g (dry wt)	consensus-based	84	ng/g

Correction Factor for Total PCBs (%)	21.2
TOC at Reference Station (%)	1.1

SQGQ1

	Cadmium	Copper	Lead	Silver	Zinc	Total Chlordane	Dieldrin	Total PAH-OC	Total PCBs	SQGQ1
NA23	0.0831	0.956	0.909	0.98	0.76			0.12	2.73	0.93
NA24	0.0523	0.926	0.789	0.82	0.74			0.08	0.37	0.54
SW06	0.0689	0.846	0.686	0.68	0.73			0.19	0.67	0.55
SW19	0.0238	0.369	0.350	0.39	0.38			0.03	0.08	0.23
SW30	0.0428	0.719	0.595	0.65	0.60			0.06	0.44	0.44
Reference UPL	0.078	0.448	0.472	0.621	0.468			0.064	0.51	0.38

SQGQ1 Calculations (based on email from TAIo@waterboards.ca.gov to Ccarigan@waterboards.ca.gov, dated August 26, 2009)
Notes:

Total PCBs are summed with full detection limit if result is below detection limit.
Correction factor of 21.2% was applied to Total PCBs concentration and doubled to account for missing congeners.
Email from TAI0@waterboards.ca.gov states Cd PEL is 4.21 ug/kg. Fairey et al. 2001 lists Cd PEL as 4.21 ug/g.
TOC at Reference station is based on median value of ranges reported in Table 5-2 of DTR report.
Reference upper predictive limits (UPL) taken from Section 18, Tables 18-3 and 18-4.
Background PAH level derived from Priority PAHs.
Correction factor of 21.2% was applied to Reference UPL Total PCBs concentration and doubled to account for missing congeners.
Per Fairey et al. 2001:
Low Molecular PAHs (OC-normalized) = acenapthene, acenaphthylene, anthracene, fluorene, naphthalene, phenanthrene;
High Molecular PAHs (OC-normalized) = benz[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluornanthene, chrysene, fluoranthene, pyrene;
Total PAHs (OC-normalized) = LPAHs+HPAHs.

Table A32-16 Supporting Calculations for Table A32-15, Continued

Exceedences of SQG and UPL

	Cadmium	Copper	Lead	Silver	Zinc	Total Chlordane	Dieldrin	Total PAH-OC	Total PCBs	# of Exceedences
NA23	0	0	0	0	0			0	1	1
NA24	0	0	0	0	0			0	0	0
SW06	0	0	0	0	0			0	0	0
SW19	0	0	0	0	0			0	0	0
SW30	0	0	0	0	0			0	0	0

	1	2	3	4	5				
	SQGQ1 ≥ 1?	SQGQ1 ≥ 0.25?	SQGQ1 ≥ UPL?	>5 Chemicals > SQG and UPL?	1 Chemical > SQG and UPL?	(High) LOE Category	(Moderate) LOE Category	(Low) LOE Category	Chemical LOE Category
NA23	No	Yes	Yes	No	Yes		Moderate		Moderate
NA24	No	Yes	Yes	No	No		Moderate		Moderate
SW06	No	Yes	Yes	No	No		Moderate		Moderate
SW19	No	No	No	No	No			Low	Low
SW30	No	Yes	Yes	No	No		Moderate		Moderate

SQGQ1 Calculations (based on email from TAIo@waterboards.ca.gov to Ccarigan@waterboards.ca.gov, dated August 26, 2009)

Notes:

Total PCBs are summed with full detection limit if result is below detection limit.
Correction factor of 21.2% was applied to Total PCBs concentration and doubled to account for missing congeners.
Email from TAI0@waterboards.ca.gov states Cd PEL is 4.21 ug/kg. Fairey et al. 2001 lists Cd PEL as 4.21 ug/g.
TOC at Reference station is based on median value of ranges reported in Table 5-2 of DTR report.
Reference upper predictive limits (UPL) taken from Section 18, Tables 18-3 and 18-4.
Background PAH level derived from Priority PAHs.
Correction factor of 21.2% was applied to Reference UPL Total PCBs concentration and doubled to account for missing congeners.
Per Fairey et al. 2001:
Low Molecular PAHs (OC-normalized) = acenapthene, acenaphthylene, anthracene, fluorene, naphthalene, phenanthrene;
High Molecular PAHs (OC-normalized) = benz[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluornanthene, chrysene, fluoranthene, pyrene;
Total PAHs (OC-normalized) = LPAHs+HPAHs.

Table A32-17 Supporting Calculations for Table A32-16

Survey station	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)	Mercury (mg/kg dry)	Nickel (mg/kg dry)	Selenium (mg/kg dry)	Silver (mg/kg dry)	Zinc (mg/kg dry)	Total organic carbon (% dry)	Tributyltin (µg/kg dry)
NA23	12.7	0.35	70.7	258	102	1.13	16.3	0.30	1.74 *J*	311 *J*	2.17	7.4 *J*
NA24	11.7	0.22	69	250	88.5	1.18	15.7	0.40	1.45 *J*	305 *J*	2.25	31 *J*
SW06	11.5	0.29	61.9	229	76.9	0.86	15.6	0.45	1.21 *J*	299 *J*	1.97	120 *J*
SW19	6.9	0.10	38.7	99.6	39.3	0.50	9.45	0.20	0.69 *J*	154 *J*	1.06	5.6 *J*
SW30	10.2	0.18	59.6	194	66.8	0.94	13.9	0.30	1.15 *J*	246 *J*	1.76	51 *J*

Analyte list for S. Law, created 6/04/10 results for sediment samples.

Survey station	Total PCB Congeners, full dl (ng/g dry)	Tributyltin (µg/kg dry)	Total PCB Congeners, half dl (ng/g dry)	Fairey sum of 15 PCB Congeners, half dl (ng/g dry)	Total HPAH, full dl (µg/kg dry)	Total HPAH, half dl (µg/kg dry)	Total LPAH, full dl (µg/kg dry)	Total LPAH, half dl (µg/kg dry)	Total LPAH and HPAH, full dl (µg/kg dry)	Total LPAH and HPAH, half dl (µg/kg dry)	Fairey Total LPAH and HPAH, half dl (µg/kg dry)
NA23	840	7.4 *J*	830	450	4,800	4,800	400	400	5,200	5,200	4,600
NA24	110	31 *J*	100	61	3,600	3,600	140	140	3,700	3,700	3,100
SW06	210	120 *J*	200	110	7,300	7,300	670	670	7,950	7,950	6,800
SW19	26	5.6 *J*	24	14	600	600	39	39	640	640	490
SW30	130	51 *J*	120	72	2,100	2,100	140	140	2,200	2,200	1,800

Analyte list for S. Law, created 6/04/10 results for sediment samples.

Table A32-18 Supporting Calculations for Table A32-15

Toxicity Lines of Evidence Calculations

Eohaustorius

Amphipod Test

Station	T-test	Significantly Different from Control?	Survival (%) (mean)
NA23_09	0.0299	Yes	82.0
NA24_09	0.0299	Yes	82.0
SW06_09	0.0012	Yes	82.0
SW19_09	0.0138	Yes	77.0
SW30_09	0.0472	Yes	88.0
Control			*94.0*

Reference 95% Lower Prediction Limit

Amphipod	72.9
Bivalve Development	37.4
Urchin Fertilization	41.9

Notes:
Reference 95% LPL from Table 16-4 of DTR.
Eohaustroius survival is calculated as the mean of 5 replicates.

Table A32-18 Supporting Calculations for Table A32-15, Continued

Mytilus galloprovincialis

sediment-water interface (SWI)

Station	T-test	Significant Different from Control?	Larval Development (%) (mean)
NA23_09	0.9367	No	98.676
NA24_09	0.7638	No	98.197
SW06_09	0.9311	No	98.323
SW19_09	0.3784	No	97.094
SW30_09	0.9535	No	98.318
Control			*97.488*

Echinoderm

pore water (PW)

Station	T-test	Significant Different from Control?	Fertilization (mean)
NA23_09			
NA24_09			
SW06_09			
SW19_09			
SW30_09			
Control			

Notes:
Reference 95% LPL from Table 16-4 of DTR.
Eohaustroius survival is calculated as the mean of 5 replicates.

Toxicity Lines of Evidence

	1	2	3	4	5				
Station	*Amphipod significantly different from control and <LPL?*	*Amphipod survival <50% control?*	*PW significantly different from control and <LPL?*	*SWI significantly different from control and <LPL?*	*PW and SWI <50% control?*	(High) LOE Category	(Moderate) LOE Category	(Low) LOE Category	**Final Toxicity LOE**
NA23_09	No	No	No	No	No			Low	**Low**
NA24_09	No	No	No	No	No			Low	**Low**
SW06_09	No	No	No	No	No			Low	**Low**
SW19_09	No	No	No	No	No			Low	**Low**
SW30_09	No	No	No	No	No			Low	**Low**

Notes:
Reference 95% LPL from Table 16-4 of DTR.
Eohaustroius survival is calculated as the mean of 5 replicates.

Table A32-19 Supporting Calculations for Table A32-18

STATION	SURVEY	SAMPLE_NO	Species	DILUTION	LAB_REP	Calculated response	Units	T-Test	
NA23_09	TRIAD09	TOX-07-MYT	Mytilus edulis	100	5	98.67549669	Percent of individuals	0.063271826	0.9367
NA23_09	TRIAD09	TOX-07-MYT	Mytilus edulis	100	3	96.44444444	Percent of individuals		
NA23_09	TRIAD09	TOX-07-MYT	Mytilus edulis	100	4	99.55555556	Percent of individuals		
NA23_09	TRIAD09	TOX-07-MYT	Mytilus edulis	100	2	100	Percent of individuals		
NA23_09	TRIAD09	TOX-07-MYT	Mytilus edulis	100	1	98.70689655	Percent of individuals		
NA24_09	TRIAD09	TOX-02-MYT	Mytilus edulis	100	5	98.86792453	Percent of individuals	0.236241891	0.7638
NA24_09	TRIAD09	TOX-02-MYT	Mytilus edulis	100	4	98.8372093	Percent of individuals		
NA24_09	TRIAD09	TOX-02-MYT	Mytilus edulis	100	3	99.45355191	Percent of individuals		
NA24_09	TRIAD09	TOX-02-MYT	Mytilus edulis	100	2	99.11894273	Percent of individuals		
NA24_09	TRIAD09	TOX-02-MYT	Mytilus edulis	100	1	94.70588235	Percent of individuals		
SW06_09	TRIAD09	TOX-03-MYT	Mytilus edulis	100	1	99.13043478	Percent of individuals	0.062812524	0.9311
SW06_09	TRIAD09	TOX-03-MYT	Mytilus edulis	100	2	98.42519685	Percent of individuals		
SW06_09	TRIAD09	TOX-03-MYT	Mytilus edulis	100	3	98.99497487	Percent of individuals		
SW06_09	TRIAD09	TOX-03-MYT	Mytilus edulis	100	5	97.00598802	Percent of individuals		
SW06_09	TRIAD09	TOX-03-MYT	Mytilus edulis	100	4	98.05825243	Percent of individuals		
SW19_09	TRIAD09	TOX-05-MYT	Mytilus edulis	100	1	98.93048128	Percent of individuals		0.3784
SW19_09	TRIAD09	TOX-05-MYT	Mytilus edulis	100	5	98.54368932	Percent of individuals		
SW19_09	TRIAD09	TOX-05-MYT	Mytilus edulis	100	4	92.45283019	Percent of individuals		
SW19_09	TRIAD09	TOX-05-MYT	Mytilus edulis	100	3	97.79005525	Percent of individuals		
SW19_09	TRIAD09	TOX-05-MYT	Mytilus edulis	100	2	97.75280899	Percent of individuals		
SW30_09	TRIAD09	TOX-06-MYT	Mytilus edulis	100	5	98.15668203	Percent of individuals		0.9535
SW30_09	TRIAD09	TOX-06-MYT	Mytilus edulis	100	4	98.47715736	Percent of individuals		
SW30_09	TRIAD09	TOX-06-MYT	Mytilus edulis	100	3	97.36842105	Percent of individuals		
SW30_09	TRIAD09	TOX-06-MYT	Mytilus edulis	100	1	99.08675799	Percent of individuals		
SW30_09	TRIAD09	TOX-06-MYT	Mytilus edulis	100	2	98.5	Percent of individuals		
QC	TRIAD09	Control	Mytilus edulis	100	3	98.29059829	Percent of individuals		
QC	TRIAD09	Control	Mytilus edulis	100	4	96.44670051	Percent of individuals		
QC	TRIAD09	Control	Mytilus edulis	100	2	97.39130435	Percent of individuals		
QC	TRIAD09	Control	Mytilus edulis	100	1	97.19626168	Percent of individuals		
QC	TRIAD09	Control	Mytilus edulis	100	5	98.11320755	Percent of individuals		
QC	TRIAD09	ZERO-TIME	Mytilus edulis	100	4		Percent of individuals		
QC	TRIAD09	ZERO-TIME	Mytilus edulis	100	6		Percent of individuals		
QC	TRIAD09	ZERO-TIME	Mytilus edulis	100	5		Percent of individuals		
QC	TRIAD09	ZERO-TIME	Mytilus edulis	100	3		Percent of individuals		
QC	TRIAD09	ZERO-TIME	Mytilus edulis	100	1		Percent of individuals		
QC	TRIAD09	ZERO-TIME	Mytilus edulis	100	2		Percent of individuals		

Table A32-20 Supporting Calculations for Table A32-18

STATION	SURVEY	SAMPLE_NO	Species	DILUTION	LAB_REP	Calculated response	Units	T-Test
NA23_09	TRIAD09	TOX-07-AMP	Eohaustorius estuarius	100	1	80	Percent of individuals	0.0299
NA23_09	TRIAD09	TOX-07-AMP	Eohaustorius estuarius	100	2	80	Percent of individuals	
NA23_09	TRIAD09	TOX-07-AMP	Eohaustorius estuarius	100	3	95	Percent of individuals	
NA23_09	TRIAD09	TOX-07-AMP	Eohaustorius estuarius	100	4	90	Percent of individuals	
NA23_09	TRIAD09	TOX-07-AMP	Eohaustorius estuarius	100	5	65	Percent of individuals	
NA24_09	TRIAD09	TOX-02-AMP	Eohaustorius estuarius	100	4	85	Percent of individuals	0.0299
NA24_09	TRIAD09	TOX-02-AMP	Eohaustorius estuarius	100	5	75	Percent of individuals	
NA24_09	TRIAD09	TOX-02-AMP	Eohaustorius estuarius	100	3	80	Percent of individuals	
NA24_09	TRIAD09	TOX-02-AMP	Eohaustorius estuarius	100	1	100	Percent of individuals	
NA24_09	TRIAD09	TOX-02-AMP	Eohaustorius estuarius	100	2	70	Percent of individuals	
SW06_09	TRIAD09	TOX-03-AMP	Eohaustorius estuarius	100	1	75	Percent of individuals	0.0012
SW06_09	TRIAD09	TOX-03-AMP	Eohaustorius estuarius	100	3	85	Percent of individuals	
SW06_09	TRIAD09	TOX-03-AMP	Eohaustorius estuarius	100	4	85	Percent of individuals	
SW06_09	TRIAD09	TOX-03-AMP	Eohaustorius estuarius	100	2	80	Percent of individuals	
SW06_09	TRIAD09	TOX-03-AMP	Eohaustorius estuarius	100	5	85	Percent of individuals	
SW19_09	TRIAD09	TOX-05-AMP	Eohaustorius estuarius	100	1	60	Percent of individuals	0.0138
SW19_09	TRIAD09	TOX-05-AMP	Eohaustorius estuarius	100	2	95	Percent of individuals	
SW19_09	TRIAD09	TOX-05-AMP	Eohaustorius estuarius	100	3	85	Percent of individuals	
SW19_09	TRIAD09	TOX-05-AMP	Eohaustorius estuarius	100	4	70	Percent of individuals	
SW19_09	TRIAD09	TOX-05-AMP	Eohaustorius estuarius	100	5	75	Percent of individuals	
SW30_09	TRIAD09	TOX-06-AMP	Eohaustorius estuarius	100	5	85	Percent of individuals	0.0472
SW30_09	TRIAD09	TOX-06-AMP	Eohaustorius estuarius	100	1	90	Percent of individuals	
SW30_09	TRIAD09	TOX-06-AMP	Eohaustorius estuarius	100	2	95	Percent of individuals	
SW30_09	TRIAD09	TOX-06-AMP	Eohaustorius estuarius	100	4	90	Percent of individuals	
SW30_09	TRIAD09	TOX-06-AMP	Eohaustorius estuarius	100	3	80	Percent of individuals	
QC	TRIAD09	Control	Eohaustorius estuarius	100	5	95	Percent of individuals	
QC	TRIAD09	Control	Eohaustorius estuarius	100	2	90	Percent of individuals	
QC	TRIAD09	Control	Eohaustorius estuarius	100	4	100	Percent of individuals	
QC	TRIAD09	Control	Eohaustorius estuarius	100	3	90	Percent of individuals	
QC	TRIAD09	Control	Eohaustorius estuarius	100	1	95	Percent of individuals	

Table A32-21 Supporting Calculations for Table A32-15

SURVEY	STN_ID	Station	BRI Score	BRI Score (rounded to 1-decimal place)	Total Abund	Total Abund (rounded to whole number)	Richness	# Taxa	S-W Diversity	S-W Diversity (rounded to 1-decimal place)
TRIAD09	BEN-06	NA23	37.07780515	37.1	171.6	172	25.2	25	2.452396479	2.5
TRIAD09	BEN-02	NA24	36.71739184	36.7	171	171	28.6	29	2.622922153	2.6
TRIAD09	BEN-03	SW06	28.24695859	28.2	468.8	469	73.2	73	3.270576215	3.3
TRIAD09	BEN-04	SW19	30.81250359	30.8	339	339	35	35	2.465269997	2.5
TRIAD09	BEN-05	SW30	38.14392767	38.1	247.4	247	39.6	40	2.671738812	2.7

SURVEY	STN_ID	Station	Benthic Response Index				Abundance	# Taxa	S-W Diversity	High	Moderate	Moderate	Moderate	Low	Low	LOE Category
			>= 73	>= 53	>= 42	>= 95% UPL	<= 95% LPL	<= 95% LP	<= 95% LPL	High						
TRIAD09	BEN-06	NA23	No	No	No	No	Yes	No	No		Moderate					Moderate
TRIAD09	BEN-02	NA24	No	No	No	No	Yes	No	No		Moderate					Moderate
TRIAD09	BEN-03	SW06	No	No	No	No	No	No	No					Low		Low
TRIAD09	BEN-04	SW19	No	No	No	No	No	No	No					Low		Low
TRIAD09	BEN-05	SW30	No	No	No	No	No	No	No					Low		Low

Unique taxonomy for TRIAD09 species abundance.

SURVEY	Species Name	Species Name - Updated	TAXON	Phylum	Class	Subclass	Order	Suborder	Family
TRIAD09	Acteocina inculta	Acteocina inculta	ActIncul	Mollusca	Gastropoda	Opisthobranchia	Cephalaspidea		Cylichnidae
TRIAD09	Alpheus californiensis	Alpheus californiensis	AlpCalif	Arthropoda	Malacostraca	Eumalacostraca	Decapoda	Pleocyemata	Alpheidae
TRIAD09	Alpheidae	Alpheidae	Alpheida	Arthropoda	Malacostraca		Decapoda		Alpheidae
TRIAD09	Ambidexter Sp	Ambidexter Sp	AmbidexterSp	Arthropoda	Malacostraca	Eumalacostraca	Decapoda	Pleocyemata	Processidae
TRIAD09	Americhelidium rectipalmum	Americhelidium rectipalmum	AmeRecti	Mollusca	Bivalvia	Heterodonta	Veneroidea		Cardiidae
TRIAD09	Ampelisca lobata	Ampelisca lobata	AmpLobat	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Ampeliscidae
TRIAD09	Amphideutopus oculatus	Amphideutopus oculatus	AmpOcula	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Isaeidae
TRIAD09	Amphiporus sp	Amphiporus sp	AmpporSp	Nemertea	Enopla		Hoplonemertea	Monostilifera	Amphiporidae
TRIAD09	Amphipholis squamata	Amphipholis squamata	AmpSquam	Echinodermata	Ophiuroidea		Ophiurida	Gnathophiurina	Amphiuridae
TRIAD09	Anemonactis sp A	Anemonactis sp	AnemonacSpA	Cnidaria	Anthozoa		Actiniaria		Haloclavidae
TRIAD09	Anisolabis maritima	Anisolabis maritima	AniMarit						
TRIAD09	Anoplodactylus erectus	Anoplodactylus erectus	AnoErect	Arthropoda	Pycnogonida		Pegmata		Phoxichilidiidae
TRIAD09	Anoplodactylus viridintestinalis	Anoplodactylus viridintestinalis	AnoVirid	Arthropoda	Pycnogonida		Pegmata		Phoxichilidiidae
TRIAD09	Aphrodita sp	Aphrodita sp	AphrodSp	Annelida	Polychaeta	Palpata	Phyllodocida		Aphroditidae
TRIAD09	Apseudidae	Apseudidae	Apseudidae	Arthropoda	Malacostraca		Tanaidacea		Apseudidae
TRIAD09	Arachnida	Arachnida	Arachnid	Arthropoda	Arachnida				
TRIAD09	Arcularia tiarula	Arcularia tiarula	ArcTiara	Mollusca	Gastropoda	Prosobranchia	Neogastropoda		Nassariidae
TRIAD09	Armandia brevis	Armandia brevis	ArmBrevi	Annelida	Polychaeta	Scolecida	Opheliida		Opheliidae
TRIAD09	Aruga holmesi	Aruga holmesi	AruHolme	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Lysianassidae
TRIAD09	Ascidiacea	Ascidiacea	Ascidiac	Chordata	Ascidiacea				
TRIAD09	Ascidia sp	Ascidia sp	AscidiaSp	Chordata	Ascidiacea		Aplousobranchia		Cionidae
TRIAD09	Asteropella slatteryi	Asteropella slatteryi	AstSlatt	Arthropoda	Ostracoda	Myodocopa	Mycdocopina		Cylindroleberididae
TRIAD09	Autolytus sp	Autolytus sp	AutolytuSp	Annelida	Polychaeta		Aciculata		Syllidae
TRIAD09	Betaeus Sp	Betaeus Sp	BetaeusSp	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Pleocyemata	Alpheidae
TRIAD09	Betaeus ensenadensis	Betaeus ensenadensis	BetEnsen	Arthropoda	Malacostraca	Eumalacostraca	Decapoda	Pleocyemata	Alpheidae
TRIAD09	Bivalvia	Bivalvia	Bivalvia	Mollusca	Bivalvia				
TRIAD09	Boreosignum sp	Boreosignum sp	BoreosignuSp						
TRIAD09	Botryllus sp	Botryllus sp	BotyllSp	Chordata	Ascidiacea		Stolidobranchiata		Styelidae
TRIAD09	Bougainvilliidae	Bougainvilliidae	Bougainvilli	Cnidaria	Hydrozoa		Filifera		Bougainvilliidae
TRIAD09	Brachyura	Brachyura	Brachyur					Brachyura	

Table A32-22 Supporting Calculations for Table A32-21, Continued

Unique taxonomy for TRIAD09 s

SURVEY	Species Name	Subfamily	Genus	Species	ToleranceScore	Sensitive?	Notes
TRIAD09	Acteocina inculta		Acteocina	inculta	110.1482233	S	
TRIAD09	Alpheus californiensis		Alpheus	californiensis	53.59610929		
TRIAD09	Alpheidae				0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Ambidexter Sp		Ambidexter	Sp			
TRIAD09	Americhelidium rectipalmum		Americhelidium	rectipalmum			
TRIAD09	Ampelisca lobata		Ampelisca	lobata	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Amphideutopus oculatus		Amphideutopus	oculatus	-0.357155467	S	
TRIAD09	Amphiporus sp		Amphiporus	sp			
TRIAD09	Amphipholis squamata		Amphipholis	squamata	22.69917855		
TRIAD09	Anemonactis sp A		Anemonactis	sp A	45.22162313		
TRIAD09	Anisolabis maritima		Anisolabis	maritima			
TRIAD09	Anoplodactylus erectus		Anoplodactylus	erectus	55.78974785		
TRIAD09	Anoplodactylus viridintestinalis		Anoplodactylus	viridintestinalis	91.22761302		
TRIAD09	Aphrodita sp		Aphrodita	sp	44.51535713		
TRIAD09	Apseudidae						
TRIAD09	Arachnida						
TRIAD09	Arcularia tiarula		Arcularia	tiarula			
TRIAD09	Armandia brevis		Armandia	brevis	7.073996052		
TRIAD09	Aruga holmesi		Aruga	holmesi			
TRIAD09	Ascidiacea				0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Ascidia sp		Ascidia	sp			
TRIAD09	Asteropella slatteryi		Asteropella	slatteryi	15.86020582	S	
TRIAD09	Autolytus sp		Autolytus	sp	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Betaeus Sp		Betaeus	Sp	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Betaeus ensenadensis		Betaeus	ensenadensis	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Bivalvia				0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Boreosignum sp		Boreosignum	sp			
TRIAD09	Botryllus sp		Botryllus	sp	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Bougainvilliidae						
TRIAD09	Brachyura				0		list in SoCal_Marine_Bays, but no tolerance score

Table A32-22 Supporting Calculations for Table A32-21, Continued

SURVEY	Species Name	Species Name - Updated	TAXON	Phylum	Class	Subclass	Order	Suborder	Family
TRIAD09	Branchiomma sp SD1	Branchiomma sp SD1	BranchiSpSD1						
TRIAD09	Branchiosyllis sp SD1	Branchiosyllis sp SD1	BranchSpSD1	Annelida	Polychaeta	Palpata	Phyllodocida		Syllidae
TRIAD09	Califanthura squamosissima	Califanthura squamosissima	CalSquam	Arthropoda	Malacostraca	Eumalacostraca	Isopoda	Anthuridea	Paranthuridae
TRIAD09	Capitella capitata complex	Capitella capitata Cmplx	CapCapit	Annelida	Polychaeta	Scolecida	Capitellida		Capitellidae
TRIAD09	Caprellidae	Caprellidae	Caprellidae	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Caprellidea	Caprellidae
TRIAD09	Carinoma mutabilis	Carinoma mutabilis	CarMutab	Nemertea	Anopla		Paleonemertea		Carinomidae
TRIAD09	Celleporina sp	Celleporina sp	CellepSp	Ectoprocta	Gymnolaemata		Cheilostomata	Ascophora	Celleporidae
TRIAD09	Cerebratulus sp	Cerebratulus sp	CerebratulSp	Nemertea	Anopla		Heteronemertea		Lineidae
TRIAD09	Ceriantharia	Ceriantharia	Cerianth	Cnidaria	Anthozoa	Ceriantipatharia	Ceriantharia		
TRIAD09	Cerithium sp	Cerithium sp	CerithiumSp	Mollusca	Gastropoda		Sorbeoconcha		Potamididae
TRIAD09	Chione californiensis	Chione californiensis	ChiCalif	Mollusca	Bivalvia	Heterodonta	Veneroida		Veneridae
TRIAD09	Cirratulidae	Cirratulidae	Cirratul	Annelida	Polychaeta	Palpata	Spionida	Terebellida	Cirratulidae
TRIAD09	Cirriformia sp SD2	Cirriformia sp	CirriSpSD2	Annelida	Polychaeta		Canalipalpata		Cirratulidae
TRIAD09	Colomastix sp WS1	Colomastix sp WS1	ColomasSpWS1						
TRIAD09	Corymorpha sp	Corymorpha sp	CorymorphaSp	Cnidaria	Hydrozoa		Hydroida		Corymorphidae
TRIAD09	Cossura sp A	Cossura sp A	CossuSpA	Annelida	Polychaeta	Scolecida	Cossurida		Cossuridae
TRIAD09	Crepidula sp	Crepidula sp	CrepidSp	Mollusca	Gastropoda		Neotaenioglossa		Calyptraeidae
TRIAD09	Crucibulum spinosum	Crucibulum spinosum	CruSpino	Mollusca	Gastropoda		Neotaenioglossa		Calyptraeidae
TRIAD09	Cryptomya californica	Cryptomya californica	CryCalif	Mollusca	Bivalvia	Heterodonta	Myoida		Myidae
TRIAD09	Ctenostomata	Ctenostomata	Ctenostomata	Ectoprocta	Gymnolaemata		Ctenostomata		
TRIAD09	Deflexilodes enigmaticus	Deflexilodes enigmaticus	DefEnigm						
TRIAD09	Demonax sp	Demonax sp	DemonaxSp	Annelida	Polychaeta		Canalipalpata		Sabellidae
TRIAD09	Deutella californica	Deutella californica	DeuCalif	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Caprellidea	Caprellidae
TRIAD09	Diadumene sp	Diadumene sp	DiadumenSp	Cnidaria	Anthozoa	Zoantharia	Actiniaria	Thenaria	Diadumenidae
TRIAD09	Diopatra ornata	Diopatra ornata	DioOrnat	Annelida	Polychaeta	Palpata	Phyllodocida	Eunicida	Onuphidae
TRIAD09	Diplocirrus sp SD1	Diplocirrus sp SD1	DiploSpSD1	Annelida	Polychaeta	Palpata	Flabelligerida	Terebellida	Flabelligeridae
TRIAD09	Dorvillea (Schistomeringos) annulata	Dorvillea (Schistomeringos) annulata	DorAnnul	Annelida	Polychaeta		Aciculata		Dorvilleidae
TRIAD09	Drilonereis mexicana	Drilonereis mexicana	DriMexic	Annelida	Polychaeta		Aciculata		Oenonidae
TRIAD09	Echinoidea	Echinoidea	Echinoidea	Echinodermata	Echinoidea				

Table A32-22 Supporting Calculations for Table A32-21, Continued

SURVEY	Species Name	Subfamily	Genus	Species	ToleranceScore	Sensitive?	Notes
TRIAD09	Branchiomma sp SD1		Branchiomma	sp SD1			
TRIAD09	Branchiosyllis sp SD1		Branchiosyllis	sp SD1			
TRIAD09	Califanthura squamosissima		Califanthura	squamosissima			
TRIAD09	Capitella capitata complex		Capitella	capitata complex	130.8424967		
TRIAD09	Caprellidae				0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Carinoma mutabilis		Carinoma	mutabilis			
TRIAD09	Celleporina sp		Celleporina	sp			
TRIAD09	Cerebratulus sp		Cerebratulus	sp			
TRIAD09	Ceriantharia				18.78453775		
TRIAD09	Cerithium sp		Cerithium	sp			
TRIAD09	Chione californiensis		Chione	californiensis	50.09654742		
TRIAD09	Cirratulidae				0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Cirriformia sp SD2		Cirriformia	sp SD2	89.04397716	S	
TRIAD09	Colomastix sp WS1		Colomastix	sp WS1			
TRIAD09	Corymorpha sp		Corymorpha	sp	44.43132945	S	
TRIAD09	Cossura sp A		Cossura	sp A	49.79433542		
TRIAD09	Crepidula sp		Crepidula	sp	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Crucibulum spinosum		Crucibulum	spinosum	23.49710928	S	
TRIAD09	Cryptomya californica		Cryptomya	californica	32.44786737	S	
TRIAD09	Ctenostomata						
TRIAD09	Deflexilodes enigmaticus		Deflexilodes	enigmaticus			
TRIAD09	Demonax sp		Demonax	sp	105.2049839		
TRIAD09	Deutella californica		Deutella	californica	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Diadumene sp		Diadumene	sp	30.01714261		
TRIAD09	Diopatra ornata		Diopatra	ornata	-2.612807496	S	
TRIAD09	Diplocirrus sp SD1		Diplocirrus	sp SD1	46.61142285		
TRIAD09	Dorvillea (Schistomeringos) annulata		Dorvillea	(Schistomeringos) annulata			
TRIAD09	Drilonereis mexicana		Drilonereis	mexicana	45.17472125		
TRIAD09	Echinoidea						

Table A32-22 Supporting Calculations for Table A32-21, Continued

SURVEY	Species Name	Species Name - Updated	TAXON	Phylum	Class	Subclass	Order	Suborder	Family
TRIAD09	Edwardsia californica	Edwardsia californica	EdwCalif	Cnidaria	Anthozoa	Zoantharia	Actiniaria	Athenaria	Edwardsiidae
TRIAD09	Elasmopus mutatus	Elasmopus mutatus	ElaMutat	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Melitidae
TRIAD09	Ericthonius brasiliensis	Ericthonius brasiliensis	EriBrasi	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Ischyroceridae
TRIAD09	Eteone sp 11 (Harris)	Eteone sp 11 (Harris)	EteoSp11	Annelida	Polychaeta	Palpata	Phyllodocida		Phyllodocidae
TRIAD09	Euchone limnicola	Euchone limnicola	EucLimni	Annelida	Polychaeta	Palpata	Sabellida		Sabellidae
TRIAD09	Euclymeninae	Euclymeninae	Euclymeninae	Annelida	Polychaeta	Scolecida	Capitellida		Maldanidae
TRIAD09	Euphilomedes carcharodonta	Euphilomedes carcharodonta	EupCarch	Arthropoda	Ostracoda	Myodocopa	Myodocopina		Philomedidae
TRIAD09	Eupolymnia heterobranchia	Eupolymnia heterobranchia	EupHeter	Annelida	Polychaeta	Palpata	Terebellida		Terebellidae
TRIAD09	Eusiroidea	Eusiroidea	Eusiroidea	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Eusiroidea	
TRIAD09	Exogone lourei	Exogone lourei	ExoLoure	Annelida	Polychaeta	Palpata	Phyllodocida		Syllidae
TRIAD09	Gammaridea	Gammaridea	Gammarid	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	
TRIAD09	Gammaropsis thompsoni	Gammaropsis thompsoni	GamThomp	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Isaeidae
TRIAD09	Glycera americana	Glycera americana	GlyAmeri	Annelida	Polychaeta	Palpata	Phyllodocida		Glyceridae
TRIAD09	Goniada littorea	Goniada littorea	GonLitto	Annelida	Polychaeta	Palpata	Phyllodocida		Goniadidae
TRIAD09	Grandidierella japonica	Grandidierella japonica	GraJapon	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Aoridae
TRIAD09	Halosydna johnsoni	Halosydna johnsoni	HalJohns	Annelida	Polychaeta	Palpata	Phyllodocida		Polynoidae
TRIAD09	Hartmanodes hartmanae	Hartmanodes hartmanae	HarHartm	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Oedicerotidae
TRIAD09	Harmothoe imbricata Cmplx	Harmothoe imbricata Cmplx	HarImbrC	Annelida	Polychaeta	Palpata	Phyllodocida		Polynoidae
TRIAD09	Harmothoe sp SD1	Harmothoe sp SD1	HarmoSpSD1	Annelida	Polychaeta	Palpata	Phyllodocida		Polynoidae
TRIAD09	Hartmanodes sp	Hartmanodes sp	HartmanoSp	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Oedicerotidae
TRIAD09	Hemiproto sp A	Hemiproto sp A	HemiprotSpA						
TRIAD09	Heteroserolis carinata	Heteroserolis carinata	HetCarin	Arthropoda	Malacostraca	Eumalacostraca	Isopoda	Flabellifera	Serolidae
TRIAD09	Heterophoxus ellisi	Heterophoxus ellisi	HetEllis	Arthropoda	Malacostraca		Amphipoda		Phoxocephalidae
TRIAD09	Heterophoxus sp	Heterophoxus sp	HeterophSp	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Phoxocephalidae
TRIAD09	Heterophoxus oculatus	Heterophoxus oculatus	HetOcula	Arthropoda	Malacostraca		Amphipoda		Phoxocephalidae
TRIAD09	Heteromysis odontops	Heteromysis odontops	HetOdont	Arthropoda	Malacostraca	Eumalacostraca	Mysidacea		Mysidae
TRIAD09	Hippomedon zetesimus	Hippomedon zetesimus	HipZetes	Arthropoda	Malacostraca		Amphipoda		Lysianassidae

SURVEY	Species Name	Subfamily	Genus	Species	ToleranceScore	Sensitive?	Notes
TRIAD09	Edwardsia californica		Edwardsia	californica	47.58058748		
TRIAD09	Elasmopus mutatus		Elasmopus	mutatus	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Ericthonius brasiliensis		Ericthonius	brasiliensis	16.8621073	S	
TRIAD09	Eteone sp 11 (Harris)		Eteone	sp 11 (Harris)			
TRIAD09	Euchone limnicola		Euchone	limnicola	76.26571032		
TRIAD09	Euclymeninae		Euclymeninae		12.02124528		
TRIAD09	Euphilomedes carcharodonta		Euphilomedes	carcharodonta	57.23740693		
TRIAD09	Eupolymnia heterobranchia		Eupolymnia	heterobranchia	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Eusiroidea						
TRIAD09	Exogone lourei		Exogone	lourei	41.85502235	S	
TRIAD09	Gammaridea				0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Gammaropsis thompsoni		Gammaropsis	thompsoni	-35.0939563		
TRIAD09	Glycera americana		Glycera	americana	29.81031804		
TRIAD09	Goniada littorea		Goniada	littorea	16.62986316	S	
TRIAD09	Grandidierella japonica		Grandidierella	japonica	105.9832039		
TRIAD09	Halosydna johnsoni		Halosydna	johnsoni	19.34780401		
TRIAD09	Hartmanodes hartmanae		Hartmanodes	hartmanae	31.37952501		
TRIAD09	Harmothoe imbricata Cmplx		Harmothoe	imbricata Cmplx	26.75478304		
TRIAD09	Harmothoe sp SD1		Harmothoe	sp SD1			
TRIAD09	Hartmanodes sp		Hartmanodes	sp			
TRIAD09	Hemiproto sp A		Hemiproto	sp A	16.0420338		
TRIAD09	Heteroserolis carinata		Heteroserolis	carinata	32.22570984	S	
TRIAD09	Heterophoxus ellisi		Heterophoxus	ellisi	43.5044969		
TRIAD09	Heterophoxus sp		Heterophoxus	sp			
TRIAD09	Heterophoxus oculatus		Heterophoxus	oculatus	45.69979945		
TRIAD09	Heteromysis odontops		Heteromysis	odontops	40.26509817		
TRIAD09	Hippomedon zetesimus		Hippomedon	zetesimus			

Table A32-22 Supporting Calculations for Table A32-21, Continued

SURVEY	Species Name	Species Name - Updated	TAXON	Phylum	Class	Subclass	Order	Suborder	Family
TRIAD09	Hydroides elegans	Hydroides elegans	HydElega	Annelida	Polychaeta	Palpata	Sabellida		Serpulidae
TRIAD09	Iselica ovoidea	Iselica ovoidea	IseOvoid	Mollusca	Gastropoda		Heterostropha		Amathinidae
TRIAD09	Joeropsis concava	Joeropsis concava	JoeConca	Arthropoda	Malacostraca		Isopoda		Joeropsidae
TRIAD09	Laevicardium substriatum	Laevicardium substriatum	LaeSubst	Mollusca	Bivalvia	Heterodonta	Veneroida		Cardiidae
TRIAD09	Leitoscoloplos pugettensis	Leitoscoloplos pugettensis	LeiPuget	Annelida	Polychaeta	Scolecida	Orbiniidae		Orbiniidae
TRIAD09	Leptochelia dubia	Leptochelia dubia	LepDubia	Arthropoda	Malacostraca	Eumalacostraca	Tanaidacea	Tanaidomorpha	Leptocheliidae
TRIAD09	Leucothoe spinicarpa	Leucothoe spinicarpa	LeuSpini	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Leucothoidae
TRIAD09	Lilieborgia geminata	Lilieborgia geminata	LilGemin	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Liljeborgiidae
TRIAD09	Lineidae	Lineidae	Lineidae	Nemertea	Anopla		Heteronemertea		Lineidae
TRIAD09	Listriella goleta	Listriella goleta	LisGolet	Arthropoda	Malacostraca		Amphipoda		Liljeborgiidae
TRIAD09	Listriella melanica	Listriella melanica	LisMelan	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Liljeborgiidae
TRIAD09	Listriella sp	Listriella sp	ListrielSp	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Liljeborgiidae
TRIAD09	Lophopanopeus bellus	Lophopanopeus bellus	LopBellu	Arthropoda	Malacostraca		Decapoda		Xanthidae
TRIAD09	Lumbrineridae	Lumbrineridae	Lumbrine	Annelida	Polychaeta	Palpata	Sabellida	Eunicida	Lumbrineridae
TRIAD09	Lumbrineris inflata	Lumbrineris inflata	LumInfla	Annelida	Polychaeta	Palpata	Sabellida	Eunicida	Lumbrineridae
TRIAD09	Lyonsia californica	Lyonsia californica	LyoCalif	Mollusca	Bivalvia		Pholadomyoida		Lyonsiidae
TRIAD09	Lysianassidae	Lysianassidae	Lysianassida	Arthropoda	Malacostraca		Amphipoda		Lysianassidae
TRIAD09	Macoma nasuta	Macoma nasuta	MacNasut	Mollusca	Bivalvia	Heterodonta	Veneroida		Tellinidae
TRIAD09	Majidae	Majidae	Majidae	Arthropoda	Malacostraca	Eumalacostraca	Decapoda	Pleocyemata	Majidae
TRIAD09	Malacoplax californiensis	Malacoplax californiensis	MalCalif	Arthropoda	Malacostraca	Eumalacostraca	Decapoda	Pleocyemata	Goneplacidae
TRIAD09	Marphysa angelensis	Marphysa angelensis	MarAngel	Annelida	Polychaeta	Palpata	Sabellida	Eunicida	Eunicidae
TRIAD09	Mediomastus sp	Mediomastus sp	MediomSp	Annelida	Polychaeta	Scolecida	Capitellida		Capitellidae
TRIAD09	Megalomma pigmentum	Megalomma pigmentum	MegPigme	Annelida	Polychaeta	Palpata	Sabellida		Sabellidae
TRIAD09	Megalopa/Zoea	Megalopa/Zoea	MegZoea						
TRIAD09	Melinna oculata	Melinna oculata	MelOcula	Annelida	Polychaeta	Palpata	Terebellida		Ampharetidae
TRIAD09	Microspio pigmentata	Microspio pigmentata	MicPigme	Annelida	Polychaeta	Palpata	Spionida		Spionidae
TRIAD09	Molgula sp	Molgula sp	MolgulSp	Chordata	Ascidiacea		Stolidobranchiata		Molgulidae
TRIAD09	Monticellina cryptica	Monticellina cryptica	MonCrypt	Annelida	Polychaeta		Spionida		Cirratulidae
TRIAD09	Monocorophium sp	Monocorophium sp	MonocorophSp						
TRIAD09	Musculista senhousia	Musculista senhousia	MusSenha	Mollusca	Bivalvia	Pteriomorphia	Mytiloida		Mytilidae

Table A32-22 Supporting Calculations for Table A32-21, Continued

SURVEY	Species Name	Subfamily	Genus	Species	ToleranceScore	Sensitive?	Notes
TRIAD09	Hydroides elegans		Hydroides	elegans	28.09919138		
TRIAD09	Iselica ovoidea		Iselica	ovoidea	64.2606507		
TRIAD09	Joeropsis concava		Joeropsis	concava			
TRIAD09	Laevicardium substriatum		Laevicardium	substriatum	40.38441634		
TRIAD09	Leitoscoloplos pugettensis		Leitoscoloplos	pugettensis	64.43038626		
TRIAD09	Leptochelia dubia		Leptochelia	dubia	-9.362482876	S	
TRIAD09	Leucothoe spinicarpa		Leucothoe	spinicarpa			
TRIAD09	Liljeborgia geminata		Liljeborgia	geminata	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Lineidae				3.955749061		
TRIAD09	Listriella goleta		Listriella	goleta	-18.66310753	S	
TRIAD09	Listriella melanica		Listriella	melanica	5.795696058	S	
TRIAD09	Listriella sp		Listriella	sp			
TRIAD09	Lophopanopeus bellus		Lophopanopeus	bellus	41.3730066		
TRIAD09	Lumbrineridae				0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Lumbrineris inflata		Lumbrineris	inflata			
TRIAD09	Lyonsia californica		Lyonsia	californica	43.70128095	S	
TRIAD09	Lysianassidae						
TRIAD09	Macoma nasuta		Macoma	nasuta	45.88841545		
TRIAD09	Majidae				0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Malacoplax californiensis		Malacoplax	californiensis	14.4031045		
TRIAD09	Marphysa angelensis		Marphysa	angelensis	97.8190499		
TRIAD09	Mediomastus sp		Mediomastus	sp	57.83516512		
TRIAD09	Megalomma pigmentum		Megalomma	pigmentum	44.39318152		
TRIAD09	Megalopa/Zoea		Megalopa/Zoea				
TRIAD09	Melinna oculata		Melinna	oculata			
TRIAD09	Microspio pigmentata		Microspio	pigmentata	-2.26044449	S	
TRIAD09	Molgula sp		Molgula	sp	46.61008095		
TRIAD09	Monticellina cryptica		Monticellina	cryptica	0.221180981		
TRIAD09	Monocorophium sp		Monocorophium	sp	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Musculista senhousia		Musculista	senhousia	68.04816597		

Table A32-22 Supporting Calculations for Table A32-21, Continued

SURVEY	Species Name	Species Name - Updated	TAXON	Phylum	Class	Subclass	Order	Suborder	Family
TRIAD09	Mysidacea	Mysidacea	Mysidace	Arthropoda	Malacostraca		Mysidacea		
TRIAD09	Mytilus galloprovincialis	Mytilus galloprovincialis	MytGallo	Mollusca	Bivalvia	Pteriomorphia	Mytiloida		Mytilidae
TRIAD09	Naineris uncinata	Naineris uncinata	NaiUncin	Annelida	Polychaeta				Orbiniidae
TRIAD09	Natantia	Natantia	NatZoea	Arthropoda	Malacostraca		Decapoda	Natantia	
TRIAD09	Naushonia macginitiei	Naushonia macginitiei	NauMacgi						
TRIAD09	Neanthes acuminata Cmplx	Neanthes acuminata Cmplx	NeaAcumC	Annelida	Polychaeta	Palpata	Phyllodocida		Nereidiae
TRIAD09	Nematoda	Nematoda	Nematoda	Nematoda					
TRIAD09	Nemertea	Nemertea	Nemertea	Nemertea					
TRIAD09	Neotrypaea gigas	Neotrypaea gigas	NeoGigas	Arthropoda	Malacostraca		Decapoda		Callianassidae
TRIAD09	Neotrypaea sp	Neotrypaea sp	NeotrySp	Arthropoda	Malacostraca	Eumalacostraca	Decapoda	Pleocyemata	Callianassidae
TRIAD09	Nephtys cornuta	Nephtys cornuta	NepCornu	Annelida	Polychaeta	Palpata	Phyllodocida		Nephtyidae
TRIAD09	Odontosyllis phosphorea	Odontosyllis phosphorea	OdophoSp	Annelida	Polychaeta	Palpata	Phyllodocida		Syllidae
TRIAD09	Oedicerotidae	Oedicerotidae	Oedicero	Arthropoda	Malacostraca		Amphipoda		Oedicerotidae
TRIAD09	Oligochaeta	Oligochaeta	Oligocha	Annelida	Oligochaeta				
TRIAD09	Ophiodromus pugettensis	Ophiodromus pugettensis	OphPuget	Annelida	Polychaeta		Aciculata		Hesionidae
TRIAD09	Ophiactis simplex	Ophiactis simplex	OphSimpl	Echinodermata	Ophiuroidea		Ophiurida	Gnathophiurina	Ophiactidae
TRIAD09	Ostrea conchaphila	Ostrea conchaphila	OstConch	Mollusca	Bivalvia	Pteriomorphia	Ostreoida		Ostreidae
TRIAD09	Owenia fusiformis	Owenia fusiformis	OweFusif	Annelida	Polychaeta	Palpata	Oweniida	Sabellida	Oweniidae
TRIAD09	Paleonemertea	Paleonemertea	Paleonemerte	Nemertea	Anopla		Paleonemertea		
TRIAD09	Paranemertes californica	Paranemertes californica	ParCalif	Nemertea	Enopla		Hoplonemertea	Monostilifera	Emplectonematidae
TRIAD09	Paranthura elegans	Paranthura elegans	ParElega	Arthropoda	Malacostraca	Eumalacostraca	Isopoda	Anthuridea	Paranthuridae
TRIAD09	Peracarida	Peracarida	Peracarida	Arthropoda	Malacostraca	Peracarida			
TRIAD09	Peristichia pedroana	Peristichia pedroana	PerPedro						
TRIAD09	Pherusa capulata	Pherusa capulata	PheCapul	Annelida	Polychaeta	Palpata	Flabelligerida	Terebellida	Flabelligeridae
TRIAD09	Phoronida	Phoronida	Phoronid	Phorona			Phoronida		
TRIAD09	Phoxocephalidae	Phoxocephalidae	Phoxocep	Arthropoda	Malacostraca		Amphipoda		Phoxocephalidae
TRIAD09	Pinnixa longipes	Pinnixa longipes	PinLongi	Arthropoda	Malacostraca		Decapoda		Pinnotheridae
TRIAD09	Pista brevibranchiata	Pista brevibranchiata	PisBrevi	Annelida	Polychaeta		Canalipalpata		Terebellidae
TRIAD09	Platynereis bicanaliculata	Platynereis bicanaliculata	PlaBican	Annelida	Polychaeta	Palpata	Phyllodocida		Nereidiae
TRIAD09	Podocerus fulanus	Podocerus fulanus	PodFulam	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda	Gammaridea	Podoceridae
TRIAD09	Podochela hemphillii	Podochela hemphillii	PodHemph	Arthropoda	Malacostraca		Decapoda		Majidae

Table A32-22 Supporting Calculations for Table A32-21, Continued

SURVEY	Species Name	Subfamily	Genus	Species	ToleranceScore	Sensitive?	Notes
TRIAD09	Mysidacea						
TRIAD09	Mytilus galloprovincialis		Mytilus	galloprovincialis			
TRIAD09	Naineris uncinata		Naineris	uncinata	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Natantia				0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Naushonia macginitiei		Naushonia	macginitiei	68.9805713		
TRIAD09	Neanthes acuminata Cmplx		Neanthes	acuminata Cmplx	58.87584674		
TRIAD09	Nematoda						
TRIAD09	Nemertea				33.99054322		
TRIAD09	Neotrypaea gigas		Neotrypaea	gigas			
TRIAD09	Neotrypaea sp		Neotrypaea	sp	30.33791473		
TRIAD09	Nephtys cornuta		Nephtys	cornuta	20.40178049		
TRIAD09	Odontosyllis phosphorea		Odontosyllis	phosphorea	26.10867653		
TRIAD09	Oedicerotidae						
TRIAD09	Oligochaeta				69.9587992		
TRIAD09	Ophiodromus pugettensis		Ophiodromus	pugettensis	18.13126184		
TRIAD09	Ophiactis simplex		Ophiactis	simplex	14.68999525	S	
TRIAD09	Ostrea conchaphila		Ostrea	conchaphila			
TRIAD09	Owenia fusiformis		Owenia	fusiformis	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Paleonemertea						
TRIAD09	Paranemertes californica		Paranemertes	californica	34.24738946		
TRIAD09	Paranthura elegans		Paranthura	elegans	48.37578292		
TRIAD09	Peracarida						
TRIAD09	Peristichia pedroana		Peristichia	pedroana			
TRIAD09	Pherusa capulata		Pherusa	capulata	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Phoronida				99.34407986	S	
TRIAD09	Phoxocephalidae						
TRIAD09	Pinnixa longipes		Pinnixa	longipes			
TRIAD09	Pista brevibranchiata		Pista	brevibranchiata			
TRIAD09	Platynereis bicanaliculata		Platynereis	bicanaliculata	-3.36546107	S	
TRIAD09	Podocerus fulanus		Podocerus	fulanus	21.56207237		
TRIAD09	Podochela hemphillii		Podochela	hemphillii	0		list in SoCal_Marine_Bays, but no tolerance score

Table A32-22 Supporting Calculations for Table A32-21, Continued

SURVEY	Species Name	Species Name - Updated	TAXON	Phylum	Class	Subclass	Order	Suborder	Family
TRIAD09	Poecilochaetus johnsoni	Poecilochaetus johnsoni	PoeJohns	Annelida	Polychaeta	Palpata	Spionida		Poecilochaetidae
TRIAD09	Polydora cornuta	Polydora cornuta	PolCornu	Annelida	Polychaeta		Canalipalpata		Spionidae
TRIAD09	Portunus xantusii	Portunus xantusii	PorXantu						
TRIAD09	Postasterope barnesi	Postasterope barnesi	PosBarne	Arthropoda	Ostracoda	Myodocopa	Myodocopina		Cylindroleberididae
TRIAD09	Prionospio heterobranchia	Prionospio (Prionospio) heterobranchia	PriHeter	Annelida	Polychaeta	Palpata	Spionida		Spionidae
TRIAD09	Prionospio (Minuspio) lighti	Prionospio (Minuspio) lighti	PriMligh	Annelida	Polychaeta	Palpata	Spionida		Spionidae
TRIAD09	Protocirrineris sp	Protocirrineris sp	ProtocirSp	Annelida	Polychaeta		Spionida		Cirratulidae
TRIAD09	Pseudotanais makrothrix	Pseudotanais makrothrix	PseMakro						
TRIAD09	Pseudopolydora paucibranchiata	Pseudopolydora paucibranchiata	PsePauci	Annelida	Polychaeta	Palpata	Spionida		Spionidae
TRIAD09	Pteropurpura festiva	Pteropurpura festiva	PteFesti	Mollusca	Gastropoda	Prosobranchia	Neogastropoda		Muricidae
TRIAD09	Pyramdellidae	Pyramdellidae	Pyramdellida						Pyramdellidae
TRIAD09	Pyromaia tuberculata	Pyromaia tuberculata	PyrTuber	Arthropoda	Malacostraca	Eumalacostraca	Decapoda	Pleocyemata	Majidae
TRIAD09	Quietula y-cauda	Quietula y-cauda	QuiYcaud						
TRIAD09	Rhizocaulus verticillatus	Rhizocaulus verticillatus	RhiVerti	Cnidaria	Hydrozoa	Leptothecatae	Proboscoida		Campanulariidae
TRIAD09	Acuminodeutopus heteruropus	Acuminodeutopus heteruropus	RudHeter	Arthropoda	Malacostraca	Eumalacostraca	Amphipoda		Aoridae
TRIAD09	Rudilemboides stenopropodus	Rudilemboides stenopropodus	RudStenp	Arthropoda	Malacostraca		Amphipoda		Aoridae
TRIAD09	Saxidomus nuttalli	Saxidomus nuttalli	SaxNutta	Mollusca	Bivalvia		Veneroida		Veneridae
TRIAD09	Schmittius politus	Schmittius politus	SchPolit	Arthropoda	Malacostraca	Eumalacostraca	Stomatopod	Gammaridea	Squillidae
TRIAD09	Scleroplax granulata	Scleroplax granulata	SclGranu	Arthropoda	Malacostraca	Eumalacostraca	Decapoda	Pleocyemata	Pinnotheridae
TRIAD09	Scoloplos acmeceps	Scoloplos acmeceps	ScoAcmec	Annelida	Polychaeta	Scolecida	Orbiniidae		Orbiniidae
TRIAD09	Scoletoma erecta	Scoletoma erecta	ScoleErect	Annelida	Polychaeta		Aciculata		Lumbrineridae
TRIAD09	Scoletoma sp C	Scoletoma sp C	ScoleSpC	Annelida	Polychaeta		Aciculata		Lumbrineridae
TRIAD09	Scoletoma sp	Scoletoma sp	ScoletomSp	Annelida	Polychaeta		Aciculata		Lumbrineridae
TRIAD09	Scolanthus scamiti	Scolanthus scamiti	ScoScami	Cnidaria	Anthozoa	Hexacorallia	Actiniaria		Edwardsiidae
TRIAD09	Scrupocellaria sp	Scrupocellaria sp	ScrupoSp	Ectoprocta	Gymnolaemata		Cheilostomata	Anasca	Candidae
TRIAD09	Scyphoproctus oculatus	Scyphoproctus oculatus	ScyOcula	Annelida	Polychaeta	Scolecida	Capitellida		Capitellidae
TRIAD09	Silicea	Silicea	Silicea	Silicea					

Table A32-22 Supporting Calculations for Table A32-21, Continued

SURVEY	Species Name	Subfamily	Genus	Species	ToleranceScore	Sensitive?	Notes
TRIAD09	Poecilochaetus johnsoni		Poecilochaetus	johnsoni	-6.596849042	S	
TRIAD09	Polydora cornuta		Polydora	cornuta	28.4705711		
TRIAD09	Portunus xantusii		Portunus	xantusii	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Postasterope barnesi		Postasterope	barnesi	5.047441599		
TRIAD09	Prionospio heterobranchia		Prionospio	heterobranchia	37.45938529		
TRIAD09	Prionospio (Minuspio) lighti		Prionospio	(Minuspio) lighti	7.182261612		
TRIAD09	Protocirrineris sp		Protocirrineris	sp	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Pseudotanais makrothrix		Pseudotanais	makrothrix			
TRIAD09	Pseudopolydora paucibranchiata		Pseudopolydora	paucibranchiata	81.68272084		
TRIAD09	Pteropurpura festiva		Pteropurpura	festiva	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Pyramdellidae						
TRIAD09	Pyromaia tuberculata		Pyromaia	tuberculata	18.03231748		
TRIAD09	Quietula y-cauda		Quietula	y-cauda			
TRIAD09	Rhizocaulus verticillatus		Rhizocaulus	verticillatus			
TRIAD09	Acuminodeutopus heteruropus		Acuminodeutopus	heteruropus	53.5638465	S	
TRIAD09	Rudilemboides stenopropodus		Rudilemboides	stenopropodus			
TRIAD09	Saxidomus nuttalli		Saxidomus	nuttalli	31.98305702		
TRIAD09	Schmittius politus		Schmittius	politus	63.28393264		
TRIAD09	Scleroplax granulata		Scleroplax	granulata	13.05920785		
TRIAD09	Scoloplos acmeceps		Scoloplos	acmeceps	18.01224389		
TRIAD09	Scoletoma erecta		Scoletoma	erecta			
TRIAD09	Scoletoma sp C		Scoletoma	sp C	74.27264563		
TRIAD09	Scoletoma sp		Scoletoma	sp	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Scolanthus scamiti		Scolanthus	scamiti			
TRIAD09	Scrupocellaria sp		Scrupocellaria	sp			
TRIAD09	Scyphoproctus oculatus		Scyphoproctus	oculatus	25.42401465		
TRIAD09	Silicea						

Table A32-22 Supporting Calculations for Table A32-21, Continued

SURVEY	Species Name	Species Name - Updated	TAXON	Phylum	Class	Subclass	Order	Suborder	Family
TRIAD09	Solen rostriformis	Solen rostriformis	SolRostr	Mollusca	Bivalvia	Heterodonta	Veneroida		Solenidae
TRIAD09	Spiophanes duplex	Spiophanes duplex	SpiDuple	Annelida	Polychaeta	Palpata	Spionida		Spionidae
TRIAD09	Spirorbidae	Spirorbidae	Spirorbi	Annelida	Polychaeta	Palpata	Sabellida		Spirorbidae
TRIAD09	Styela sp	Styela sp	StyelaSp	Chordata	Ascidiacea		Stolidobranchiata		Styelidae
TRIAD09	Stylochus exiguus	Stylochus exiguus	StyExigu						
TRIAD09	Syllis(Syllis) gracilis	Syllis (Syllis) gracilis	SylGraci	Annelida	Polychaeta	Palpata	Phyllodocida		Syllidae
TRIAD09	Syllis(Typosyllis) sp	Syllis(Typosyllis) sp	SyllisSp	Annelida	Polychaeta	Palpata	Phyllodocida		Syllidae
TRIAD09	Syllis(Typosyllis) nipponica	Syllis (Typosyllis) nipponica	SylNippo	Annelida	Polychaeta	Palpata	Phyllodocida		Syllidae
TRIAD09	Tagelus subteres	Tagelus subteres	TagSubte	Mollusca	Bivalvia	Heterodonta	Veneroida		Solecurtidae
TRIAD09	Talitridae	Talitridae	Talitridae						Talitridae
TRIAD09	Tanystylum intermedium	Tanystylum intermedium	TanInter	Arthropoda	Pycnogonida		Pegmata		Tanystylidae
TRIAD09	Tellina meropsis	Tellina meropsis	TelMerop	Mollusca	Bivalvia	Heterodonta	Veneroida		Tellinidae
TRIAD09	Tetrastemma sp	Tetrastemma sp	TetrasSp	Nemertea	Enopla		Hoplonemertea	Monostilifera	Tetrastemmidae
TRIAD09	Theora lubrica	Theora lubrica	TheLubri	Mollusca	Bivalvia	Heterodonta	Veneroida		Semelidae
TRIAD09	Thraciidae	Thraciidae	Thraciidae	Mollusca	Bivalvia		Pholadomyoida		Thraciidae
TRIAD09	Tubulanus polymorphus	Tubulanus polymorphus	TubPolyo	Nemertea	Anopla		Paleonemertea		Tubulanidae
TRIAD09	Tubulanidae	Tubulanidae	Tubulani	Nemertea	Anopla		Paleonemertea		Tubulanidae
TRIAD09	Upogebia macginitieorum	Upogebia macginitieorum	UpoMacgi	Arthropoda	Malacostraca		Decapoda		
TRIAD09	Venerupis philippinarum	Venerupis philippinarum	VenPhili	Mollusca	Bivalvia		Veneroida		Veneridae
TRIAD09	Xanthidae	Xanthidae	Xanthida	Arthropoda	Malacostraca		Decapoda		Xanthidae
TRIAD09	Zaolutus actius	Zaolutus actius	ZaoActiu	Cnidaria	Anthozoa		Actiniaria		Isanthidae
TRIAD09	Zoobotryon pellucida	Zoobotryon pellucida	ZooPellu	Ectoprocta	Gymnolaemata		Ctenostomata	Carnosa	Vesicularidae

Table A32-22 Supporting Calculations for Table A32-21, Continued

SURVEY	Species Name	Subfamily	Genus	Species	ToleranceScore	Sensitive?	Notes
TRIAD09	Solen rostriformis		Solen	rostriformis	25.05093152		
TRIAD09	Spiophanes duplex		Spiophanes	duplex	31.79482086	S	
TRIAD09	Spirorbidae				0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Styela sp		Styela	sp	0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Stylochus exiguus		Stylochus	exiguus			
TRIAD09	Syllis(Syllis) gracilis		Syllis(Syllis)	gracilis	-3.654858105		
TRIAD09	Syllis(Typosyllis) sp		Syllis(Typosyllis)	sp			
TRIAD09	Syllis(Typosyllis) nipponica		Syllis(Typosyllis)	nipponica	40.63817963		
TRIAD09	Tagelus subteres		Tagelus	subteres	37.28286885	S	
TRIAD09	Talitridae						
TRIAD09	Tanystylum intermedium		Tanystylum	intermedium			
TRIAD09	Tellina meropsis		Tellina	meropsis	33.51890648	S	
TRIAD09	Tetrastemma sp		Tetrastemma	sp			
TRIAD09	Theora lubrica		Theora	lubrica	46.64676839		
TRIAD09	Thraciidae						
TRIAD09	Tubulanus polymorphus		Tubulanus	polymorphus			
TRIAD09	Tubulanidae				0		list in SoCal_Marine_Bays, but no tolerance score
TRIAD09	Upogebia macginitieorum		Upogebia	macginitieorum			
TRIAD09	Venerupis philippinarum		Venerupis	philippinarum	53.88031083		
TRIAD09	Xanthidae						
TRIAD09	Zaolutus actius		Zaolutus	actius	42.55003768		
TRIAD09	Zoobotryon pellucida		Zoobotryon	pellucida			

SECTION VI

SUPPLEMENTAL TRIAD ANALYSIS RESULTS AND SS-MEQ / 60%LAET PREDICTIONS (CONTINUED)

Table A32-23 to Table A32-25

Continued from Part 1 of 2:

Abundance Data	Table A32-23
BRI Data	Table A32-24
SoCal Marine Bays Data	Table A32-25

Table A32-23 Supporting Calculations for Table A32-21

TRIAD09 species abundance totals by station and field replicate.

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
Field Rep	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**
ActIncul												
AlpCalif						2	2		2	2	1	1
Alpheida	1	1										
AmbidexterSp		1										
AmeRecti								1				1
AmpLobat						1						
AmpOcula				1		7		2		4	12	
AmpporSp												
AmpSquam						6	14	1	7	7	3	
AnemonacSpA												
AniMarit							1					
AnoErect										1		
AnoVirid						1	1			2		
AphrodSp												
Apseudidae												
Arachnid												
ArcTiara	1											
ArmBrevi	1	5	8	15	1	1	6	3	1			
AruHolme						1		2				1
Ascidiac						5						
AscidiaSp												
AstSlatt								1				
AutolytuSp						1						
BetaeusSp	1				2			1	1	1		
BetEnsen									4			
Bivalvia								1				
BoreosignuSp						1				1		
BotyllSp								1				
Bougainvilli												
Brachyur		1				1					1	
BranchiSpSD1	1					1	14					
BranchSpSD1						1	6					
CalSquam		1										
CapCapit						3	13					
Caprellidae			1			1	1	4		1		
CarMutab								1				
CellepSp												
CerebratulSp												
Cerianth						1						
CerithiumSp												
ChiCalif						1						

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
Cirratul		1				1	1				
CirriSpSD2					1			1			
ColomasSpWS1						1					
CorymorphaSp											
CossuSpA					1	3	1	1			
CrepidSp		6			4	16	2	3	6		
CruSpino					5	7	3	4	15		
CryCalif	5					4	6	4	14		
Ctenostomata											
DefEnigm					1	1	1				
DemonaxSp						1					
DeuCalif						10	7	4	11		
DiadumenSp						1		1	1		
DioOrnat					1						
DiploSpSD1			1	2	1	2					
DorAnnul			1		2	2	4	1	1		
DriMexic											
Echinoidea											
EdwCalif		1	1		1				1		
ElaMutat											
EriBrasi											
EteoSp11											1
EucLimni	5	10	10	8	4	5	9	3	6	5	1	5
Euclymeninae											
EupCarch										5	
EupHeter		1					5			2		
Eusiroidea			1								
ExoLoure	14	74	10	7	11	59	74	70	38	23	4	5
Gammarid							1		1	1		
GamThomp												
GlyAmeri						1	1					1
GonLitto				1								
GraJapon				1		9	8	8	4	16		
HaloJohns								1				
HarHartm												
HarImbrC		1	1	1		3	5	2	1			
HarmoSpSD1			1			1	1			2		1
HartmanoSp												
HemiprotSpA				1			1		1	1		
HetCarin				1								
HetEllis		1	7			2			2	1	3	1
HeterophSp	6	9	14	5	9	12	13	8	11	7	13	8
HetOcula		2							2			
HetOdont			1			1	1	1		2		

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
HipZetes										2	
HydElega								1			
IseOvoid		1	1			3	2	3			
JoeConca						2			1		
LaeSubst									1		
LeiPuget	17	18	12	24	15	14	16	7	7	17	15
LepDubia						5			2		
LeuSpini								1			
LilGemin						2	1	1	1		
Lineidae			1								
LisGolet						1	1				
LisMelan										1	
ListrielSp							1		1		
LopBellu						8			3		
Lumbrine						1					
LumInfla		1				29	14	7	9		
LyoCalif	1					3	4		9	1	2
Lysianassida											
MacNasut							5	4			
Majidae			1	1		4	3	8	7	5	1
MalCalif											
MarAngel						7	4	3	2		
MediomSp	3	15	5	2	3	9	3	5	5	6	5
MegPigme	1		1	1	1	2	1				
MegZoea						1					
MelOcula											1
MicPigme											
MolgulSp						1		1	2		
MonCrypt	1										
MonocorophSp											
MusSenha	19	138	15	27	28	24	48	127	74	57	5	7
Mysidace					1					3		1
MytGallo									2	1		
NaiUncin	2	6	4			6	17	6	5	10		
NatZoea						3	2					
NauMacgi			2			1	2	2		1		
NeaAcumC							7		1			
Nematoda		13			1	1	212	48	4	5		
Nemertea						1					1	
NeoGigas												
NeotrySp	1	1			1	2	2	1	2	7	1	2
NepCornu												1
OdophoSp												
Oedicero						1						

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
Oligocha	1	2	6	1	2	11	26	14	9	2		
OphPuget						2	3			1		
OphSimpl						2	5			1		
OstConch						2	23	4	2	3		
OweFusif											1	
Paleonemerte											1	
ParCalif							1				1	
ParElega		1	1									
Peracarida				1								
PerPedro												
PheCapul							1	1				
Phoronid		1							1			
Phoxocep				1					1			
PinLongi						1						
PisBrevi	1	3	1	6	4	2	2	2		4	5	
PlaBican			1									
PodFulam						2		1				
PodHemph		3				9	7	2	6	3		
PoeJohns												
PolCornu						1						
PorXantu					1							
PosBarne							1				1	
PriHeter	2	4		3	3	12	4	9	5	16	3	2
PriMligh											2	
ProtocirSp	1						1	1				
PseMakro								1	1			1
PsePauci	2	7	5	5	7	13	6	9	3	4		
PteFesti						1	12	1		2		
Pyramdellida						1						
PyrTuber						8	1			3		
QuiYcaud						1					1	
RhiVerti						1						
RudHeter						1						
RudStenp									1			
SaxNutta		1			1		1		2	1		
SchPolit	1						2					
SclGranu								1	3	1		
ScoAcmec						1						
ScoleErect		4	1		1	2	5	2	3	3		
ScoleSpC	15	12	8	17	14	46	39	34	41	44	26	30
ScoletomSp	5	1		1		3	4	10	2	7	3	2
ScoScami											3	1
ScrupoSp												
ScyOcula	2	3						2			7	7

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
Silicea												
SolRostr						3			1			
SpiDuple											1	1
Spirorbi						1						
StyelaSp						3	5	1		2		
StyExigu								1				
SylGraci		2					13					
SyllisSp							1					
SylNippo		1		3	3	2				1		
TagSubte						1	2	1			1	1
Talitridae							1					
TanInter							2			1		
TelMerop						1						
TetrasSp									1			
TheLubri	7	4	4	4	2	11	5		2	3	8	7
Thraciidae							1	1				
TubPolyo		1										
Tubulani												
UpoMacgi						1		2		1		
VenPhili						2	1	1		2		
Xanthida						2	1	1	1	4		
ZaoActiu											1	
ZooPellu												
No of Individuals by Stn/Rep	**117**	**357**	**126**	**136**	**119**	**399**	**783**	**477**	**314**	**371**	**145**	**115**
Average No of Ind by station					**171**					**468.8**		
P-Values												
ActIncul	0	0	0	0	0	0	0	0	0	0	0	0
AlpCalif	0	0	0	0	0	53.59611	53.59611	0	53.59611	53.59611	53.59611	53.59611
Alpheida	0	0	0	0	0	0	0	0	0	0	0	0
AmbidexterSp	0	0	0	0	0	0	0	0	0	0	0	0
AmeRecti	0	0	0	0	0	0	0	0	0	0	0	0
AmpLobat	0	0	0	0	0	0	0	0	0	0	0	0
AmpOcula	0	0	0	-0.35716	0	-0.35716	0	-0.35716	0	-0.35716	-0.35716	0
AmpporSp	0	0	0	0	0	0	0	0	0	0	0	0
AmpSquam	0	0	0	0	0	22.69918	22.69918	22.69918	22.69918	22.69918	22.69918	0
AnemonacSpA	0	0	0	0	0	0	0	0	0	0	0	0
AniMarit	0	0	0	0	0	0	0	0	0	0	0	0
AnoErect	0	0	0	0	0	0	0	0	0	55.78975	0	0
AnoVirid	0	0	0	0	0	91.22761	91.22761	0	0	91.22761	0	0
AphrodSp	0	0	0	0	0	0	0	0	0	0	0	0
Apseudidae	0	0	0	0	0	0	0	0	0	0	0	0
Arachnid	0	0	0	0	0	0	0	0	0	0	0	0
ArcTiara	0	0	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
ArmBrevi	7.073996	7.073996	7.073996	7.073996	7.073996	7.073996	7.073996	7.073996	0	0	0
AruHolme	0	0	0	0	0	0	0	0	0	0	0
Ascidiac	0	0	0	0	0	0	0	0	0	0	0
AscidiaSp	0	0	0	0	0	0	0	0	0	0	0
AstSlatt	0	0	0	0	0	0	15.86021	0	0	0	0
AutolytuSp	0	0	0	0	0	0	0	0	0	0	0
BetaeusSp	0	0	0	0	0	0	0	0	0	0	0
BetEnsen	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	0	0	0	0	0	0	0	0	0	0	0
BoreosignuSp	0	0	0	0	0	0	0	0	0	0	0
BotyllSp	0	0	0	0	0	0	0	0	0	0	0
Bougainvilli	0	0	0	0	0	0	0	0	0	0	0
Brachyur	0	0	0	0	0	0	0	0	0	0	0
BranchiSpSD1	0	0	0	0	0	0	0	0	0	0	0
BranchSpSD1	0	0	0	0	0	0	0	0	0	0	0
CalSquam	0	0	0	0	0	0	0	0	0	0	0
CapCapit	0	0	0	0	0	130.8425	130.8425	0	0	0	0
Caprellidae	0	0	0	0	0	0	0	0	0	0	0
CarMutab	0	0	0	0	0	0	0	0	0	0	0
CellepSp	0	0	0	0	0	0	0	0	0	0	0
CerebratulSp	0	0	0	0	0	0	0	0	0	0	0
Cerianth	0	0	0	0	0	18.78454	0	0	0	0	0
CerithiumSp	0	0	0	0	0	0	0	0	0	0	0
ChiCalif	0	0	0	0	0	50.09655	0	0	0	0	0
Cirratul	0	0	0	0	0	0	0	0	0	0	0
CirriSpSD2	0	0	0	0	0	89.04398	0	0	89.04398	0	0
ColomasSpWS1	0	0	0	0	0	0	0	0	0	0	0
CorymorphaSp	0	0	0	0	0	0	0	0	0	0	0
CossuSpA	0	0	0	0	0	49.79434	49.79434	49.79434	0	0	0
CrepidSp	0	0	0	0	0	0	0	0	0	0	0
CruSpino	0	0	0	0	0	23.49711	23.49711	23.49711	23.49711	0	0
CryCalif	32.44787	0	0	0	0	0	32.44787	32.44787	32.44787	0	0
Ctenostomata	0	0	0	0	0	0	0	0	0	0	0
DefEnigm	0	0	0	0	0	0	0	0	0	0	0
DemonaxSp	0	0	0	0	0	0	105.205	0	0	0	0
DeuCalif	0	0	0	0	0	0	0	0	0	0	0
DiadumenSp	0	0	0	0	0	0	30.01714	0	30.01714	30.01714	0
DioOrnat	0	0	0	0	0	-2.61281	0	0	0	0	0
DiploSpSD1	0	0	46.61142	0	46.61142	46.61142	46.61142	0	0	0	0
DorAnnul	0	0	0	0	0	0	0	0	0	0	0
DriMexic	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0
EdwCalif	0	47.58059	47.58059	0	0	47.58059	0	0	0	47.58059	0
ElaMutat	0	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
EriBrasi	0	0	0	0	0	0	0	0	0	0	0
EteoSp11	0	0	0	0	0	0	0	0	0	0	0
EucLimni	76.26571	76.26571	76.26571	76.26571	76.26571	76.26571	76.26571	76.26571	76.26571	76.26571	76.26571
Euclymeninae	0	0	0	0	0	0	0	0	0	0	0
EupCarch	0	0	0	0	0	0	0	0	0	57.23741	0
EupHeter	0	0	0	0	0	0	0	0	0	0	0
Eusiroidea	0	0	0	0	0	0	0	0	0	0	0
ExoLoure	41.85502	41.85502	41.85502	41.85502	41.85502	41.85502	41.85502	41.85502	41.85502	41.85502	41.85502
Gammarid	0	0	0	0	0	0	0	0	0	0	0
GamThomp	0	0	0	0	0	0	0	0	0	0	0
GlyAmeri	0	0	0	0	0	29.81032	29.81032	0	0	0	29.81032
GonLitto	0	0	0	0	16.62986	0	0	0	0	0	0
GraJapon	0	0	0	105.9832	0	105.9832	105.9832	105.9832	105.9832	0	0
HaiJohns	0	0	0	0	0	0	19.3478	0	0	0	0
HarHartm	0	0	0	0	0	0	0	0	0	0	0
HarImbrC	0	26.75478	26.75478	26.75478	0	26.75478	26.75478	26.75478	0	0	0
HarmoSpSD1	0	0	0	0	0	0	0	0	0	0	0
HartmanoSp	0	0	0	0	0	0	0	0	0	0	0
HemiprotSpA	0	0	0	16.04203	0	0	16.04203	0	16.04203	16.04203	0
HetCarin	0	0	0	32.22571	0	0	0	0	0	0	0
HetEllis	0	43.5045	43.5045	0	0	43.5045	0	0	43.5045	43.5045	43.5045
HeterophSp	0	0	0	0	0	0	0	0	0	0	0
HetOcula	0	45.6998	0	0	0	0	0	45.6998	0	0	0
HetOdont	0	0	40.2651	0	0	40.2651	40.2651	0	40.2651	0	0
HipZetes	0	0	0	0	0	0	0	0	0	0	0
HydElega	0	0	0	0	0	0	0	28.09919	0	0	0
IseOvoid	0	64.26065	64.26065	0	0	0	64.26065	64.26065	0	0	0
JoeConca	0	0	0	0	0	0	0	0	0	0	0
LaeSubst	0	0	0	0	0	0	0	0	40.38442	0	0
LeiPuget	64.43039	64.43039	64.43039	64.43039	64.43039	64.43039	64.43039	64.43039	64.43039	64.43039	64.43039
LepDubia	0	0	0	0	0	-9.36248	-9.36248	0	-9.36248	0	0
LeuSpini	0	0	0	0	0	0	0	0	0	0	0
LilGemin	0	0	0	0	0	0	0	0	0	0	0
Lineidae	0	0	3.955749	0	0	0	0	0	0	0	0
LisGolet	0	0	0	0	0	0	-18.6631	-18.6631	0	0	0
LisMelan	0	0	0	0	0	0	0	0	0	5.795696	0
ListrielSp	0	0	0	0	0	0	0	0	0	0	0
LopBellu	0	0	0	0	0	41.37301	41.37301	0	41.37301	0	0
Lumbrine	0	0	0	0	0	0	0	0	0	0	0
LumInfla	0	0	0	0	0	0	0	0	0	0	0
LyoCalif	43.70128	0	0	0	0	43.70128	43.70128	0	43.70128	43.70128	43.70128
Lysianassida	0	0	0	0	0	0	0	0	0	0	0
MacNasut	0	0	0	0	0	0	45.88842	45.88842	0	0	0
Majidae	0	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
MalCalif	0	0	0	0	0	0	0	0	0	0	0
MarAngel	0	0	0	0	0	97.81905	97.81905	97.81905	97.81905	0	0
MediomSp	57.83517	57.83517	57.83517	57.83517	57.83517	57.83517	57.83517	57.83517	57.83517	57.83517	57.83517
MegPigme	44.39318	0	44.39318	44.39318	0	44.39318	44.39318	0	0	0	0
MegZoea	0	0	0	0	0	0	0	0	0	0	0
MelOcula	0	0	0	0	0	0	0	0	0	0	0
MicPigme	0	0	0	0	0	0	0	0	0	0	0
MolgulSp	0	0	0	0	46.61008	0	0	46.61008	46.61008	0	0
MonCrypt	0.221181	0	0	0	0	0	0	0	0	0	0
MonocorophSp	0	0	0	0	0	0	0	0	0	0	0
MusSenha	68.04817	68.04817	68.04817	68.04817	68.04817	68.04817	68.04817	68.04817	68.04817	68.04817	68.04817
Mysidace	0	0	0	0	0	0	0	0	0	0	0
MytGallo	0	0	0	0	0	0	0	0	0	0	0
NaiUncin	0	0	0	0	0	0	0	0	0	0	0
NatZoea	0	0	0	0	0	0	0	0	0	0	0
NauMacgi	0	0	68.98057	0	0	68.98057	68.98057	0	68.98057	0	0
NeaAcumC	0	0	0	0	0	0	58.87585	58.87585	0	0	0
Nematoda	0	0	0	0	0	0	0	0	0	0	0
Nemertea	0	0	0	0	0	33.99054	0	0	0	33.99054	0
NeoGigas	0	0	0	0	0	0	0	0	0	0	0
NeotrySp	30.33791	30.33791	0	0	30.33791	30.33791	30.33791	30.33791	30.33791	30.33791	30.33791
NepCornu	0	0	0	0	0	0	0	0	0	0	20.40178
OdophoSp	0	0	0	0	0	0	0	0	0	0	0
Oedicero	0	0	0	0	0	0	0	0	0	0	0
Oligocha	69.9588	69.9588	69.9588	69.9588	69.9588	69.9588	69.9588	69.9588	69.9588	0	0
OphPuget	0	0	0	0	0	0	18.13126	0	18.13126	0	0
OphSimpl	0	0	0	0	0	14.69	14.69	0	14.69	0	0
OstConch	0	0	0	0	0	0	0	0	0	0	0
OweFusif	0	0	0	0	0	0	0	0	0	0	0
Paleonemerte	0	0	0	0	0	0	0	0	0	0	0
ParCalif	0	0	0	0	0	0	0	0	0	0	34.24739
ParElega	0	0	0	0	0	0	48.37578	0	0	0	0
Peracarida	0	0	0	0	0	0	0	0	0	0	0
PerPedro	0	0	0	0	0	0	0	0	0	0	0
PheCapul	0	0	0	0	0	0	0	0	0	0	0
Phoronid	0	99.34408	0	0	0	0	0	99.34408	0	0	0
Phoxocep	0	0	0	0	0	0	0	0	0	0	0
PinLongi	0	0	0	0	0	0	0	0	0	0	0
PisBrevi	0	0	0	0	0	0	0	0	0	0	0
PlaBican	0	0	-3.36546	0	0	0	0	0	0	0	0
PodFulam	0	0	0	0	0	21.56207	0	21.56207	0	0	0
PodHemph	0	0	0	0	0	0	0	0	0	0	0
PoeJohns	0	0	0	0	0	0	0	0	0	0	0
PolCornu	0	0	0	0	0	28.47057	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
PorXantu	0	0	0	0	0	0	0	0	0	0	0
PosBarne	0	0	0	0	0	5.047442	0	0	0	5.047442	0
PriHeter	37.45939	37.45939	0	37.45939	37.45939	37.45939	37.45939	37.45939	37.45939	37.45939	37.45939
PriMligh	0	0	0	0	0	0	0	0	0	7.182262	0
ProtocirSp	0	0	0	0	0	0	0	0	0	0	0
PseMakro	0	0	0	0	0	0	0	0	0	0	0
PsePauci	81.68272	81.68272	81.68272	81.68272	81.68272	81.68272	81.68272	81.68272	81.68272	0	0
PteFesti	0	0	0	0	0	0	0	0	0	0	0
Pyramdellida	0	0	0	0	0	0	0	0	0	0	0
PyrTuber	0	0	0	0	0	18.03232	18.03232	0	18.03232	0	0
QuiYcaud	0	0	0	0	0	0	0	0	0	0	0
RhiVerti	0	0	0	0	0	0	0	0	0	0	0
RudHeter	0	0	0	0	0	53.56385	0	0	0	0	0
RudStenp	0	0	0	0	0	0	0	0	0	0	0
SaxNutta	0	31.98306	0	0	31.98306	0	31.98306	0	31.98306	0	0
SchPolit	63.28393	0	0	0	0	0	63.28393	0	0	0	0
SclGranu	0	0	0	0	0	0	0	13.05921	13.05921	0	0
ScoAcmec	0	0	0	0	0	18.01224	0	0	0	0	0
ScoleErect	0	0	0	0	0	0	0	0	0	0	0
ScoleSpC	74.27265	74.27265	74.27265	74.27265	74.27265	74.27265	74.27265	74.27265	74.27265	74.27265	74.27265
ScoletomSp	0	0	0	0	0	0	0	0	0	0	0
ScoScami	0	0	0	0	0	0	0	0	0	0	0
ScrupoSp	0	0	0	0	0	0	0	0	0	0	0
ScyOcula	25.42401	25.42401	0	0	0	0	25.42401	0	0	25.42401	25.42401
Silicea	0	0	0	0	0	0	0	0	0	0	0
SolRostr	0	0	0	0	0	25.05093	0	25.05093	0	0	0
SpiDuple	0	0	0	0	0	0	0	0	0	31.79482	31.79482
Spirorbi	0	0	0	0	0	0	0	0	0	0	0
StyelaSp	0	0	0	0	0	0	0	0	0	0	0
StyExigu	0	0	0	0	0	0	0	0	0	0	0
SytGraci	0	-3.65486	0	0	0	0	-3.65486	0	0	0	0
SyllisSp	0	0	0	0	0	0	0	0	0	0	0
SytNippo	0	40.63818	0	40.63818	40.63818	40.63818	0	0	40.63818	0	0
TagSubte	0	0	0	0	0	37.28287	37.28287	37.28287	0	37.28287	37.28287
Talitridae	0	0	0	0	0	0	0	0	0	0	0
TanInter	0	0	0	0	0	0	0	0	0	0	0
TelMerop	0	0	0	0	0	33.51891	0	0	0	0	0
TetrasSp	0	0	0	0	0	0	0	0	0	0	0
TheLubri	46.64677	46.64677	46.64677	46.64677	46.64677	46.64677	46.64677	0	46.64677	46.64677	46.64677
Thraciidae	0	0	0	0	0	0	0	0	0	0	0
TubPolyo	0	0	0	0	0	0	0	0	0	0	0
Tubulani	0	0	0	0	0	0	0	0	0	0	0
UpoMacgi	0	0	0	0	0	0	0	0	0	0	0
VenPhili	0	0	0	0	0	53.88031	53.88031	0	53.88031	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
Xanthida	0	0	0	0	0	0	0	0	0	0	0
ZaoActiu	0	0	0	0	0	0	0	0	0	42.55004	0
ZooPellu	0	0	0	0	0	0	0	0	0	0	0
Total P-value for stn/rep	**865.3381**	**1077.401**	**971.0105**	**891.2087**	**836.1224**	**2092.984**	**2139.09**	**1443.101**	**1616.893**	**1772.469**	**954.1808**	**816.9142**
Average P-value for station					**928.2162**					**1812.908**		
4th Root Abundance												
ActIncul	0	0	0	0	0	0	0	0	0	0	0	0
AlpCalif	0	0	0	0	0	1.189207	1.189207	0	1.189207	1.189207	1	1
Alpheida	1	1	0	0	0	0	0	0	0	0	0	0
AmbidexterSp	0	1	0	0	0	0	0	0	0	0	0	0
AmeRecti	0	0	0	0	0	0	0	1	0	0	0	1
AmpLobat	0	0	0	0	0	1	0	0	0	0	0	0
AmpOcula	0	0	0	1	0	1.626577	0	1.189207	0	1.414214	1.86121	0
AmpporSp	0	0	0	0	0	0	0	0	0	0	0	0
AmpSquam	0	0	0	0	0	1.565085	1.934336	1	1.626577	1.626577	1.316074	0
AnemonacSpA	0	0	0	0	0	0	0	0	0	0	0	0
AniMarit	0	0	0	0	0	0	1	0	0	0	0	0
AnoErect	0	0	0	0	0	0	0	0	0	1	0	0
AnoVirid	0	0	0	0	0	1	1	0	0	1.189207	0	0
AphrodSp	0	0	0	0	0	0	0	0	0	0	0	0
Apseudidae	0	0	0	0	0	0	0	0	0	0	0	0
Arachnid	0	0	0	0	0	0	0	0	0	0	0	0
ArcTiara	1	0	0	0	0	0	0	0	0	0	0	0
ArmBrevi	1	1.495349	1.681793	1.96799	1	1	1.565085	1.316074	1	0	0	0
AruHolme	0	0	0	0	0	1	0	1.189207	0	0	0	1
Ascidiac	0	0	0	0	0	1.495349	0	0	0	0	0	0
AscidiaSp	0	0	0	0	0	0	0	0	0	0	0	0
AstSlatt	0	0	0	0	0	0	0	1	0	0	0	0
AutolytuSp	0	0	0	0	0	1	0	0	0	0	0	0
BetaeusSp	1	0	0	0	1.189207	0	0	1	1	1	0	0
BetEnsen	0	0	0	0	0	0	0	0	1.414214	0	0	0
Bivalvia	0	0	0	0	0	0	0	1	0	0	0	0
BoreosignuSp	0	0	0	0	0	1	0	0	0	1	0	0
BotyllSp	0	0	0	0	0	0	0	1	0	0	0	0
Bougainvilli	0	0	0	0	0	0	0	0	0	0	0	0
Brachyur	0	1	0	0	0	1	0	0	0	0	1	0
BranchiSpSD1	1	0	0	0	0	1	1.934336	0	0	0	0	0
BranchSpSD1	0	0	0	0	0	1	1.565085	0	0	0	0	0
CalSquam	0	1	0	0	0	0	0	0	0	0	0	0
CapCapit	0	0	0	0	0	1.316074	1.898829	0	0	0	0	0
Caprellidae	0	0	1	0	0	1	1	1.414214	0	1	0	0
CarMutab	0	0	0	0	0	0	0	1	0	0	0	0
CellepSp	0	0	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
CerebratulSp	0	0	0	0	0	0	0	0	0	0	0
Cerianth	0	0	0	0	0	1	0	0	0	0	0
CerithiumSp	0	0	0	0	0	0	0	0	0	0	0
ChiCalif	0	0	0	0	0	1	0	0	0	0	0
Cirratul	0	0	1	0	0	0	1	1	0	0	0
CirriSpSD2	0	0	0	0	0	1	0	0	1	0	0
ColomasSpWS1	0	0	0	0	0	0	1	0	0	0	0
CorymorphaSp	0	0	0	0	0	0	0	0	0	0	0
CossuSpA	0	0	0	0	0	1	1.316074	1	0	0	0
CrepidSp	0	1.565085	0	0	1.414214	2	1.189207	1.316074	1.565085	0	0
CruSpino	0	0	0	0	1.495349	1.626577	1.316074	1.414214	1.96799	0	0
CryCalif	1.495349	0	0	0	0	1.414214	1.565085	1.414214	1.934336	0	0
Ctenostomata	0	0	0	0	0	0	0	0	0	0	0
DefEnigm	0	0	0	0	0	1	1	0	0	0	0
DemonaxSp	0	0	0	0	0	0	1	0	0	0	0
DeuCalif	0	0	0	0	0	0	1.778279	1.626577	1.414214	1.82116	0
DiadumenSp	0	0	0	0	0	0	1	0	1	1	0
DioOrnat	0	0	0	0	0	1	0	0	0	0	0
DiploSpSD1	0	0	1	0	1.189207	1	1.189207	0	0	0	0
DorAnnul	0	0	0	1	0	1.189207	1.189207	1.414214	1	1	0
DriMexic	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0
EdwCalif	0	1	1	0	0	1	0	0	0	1	0
ElaMutat	0	0	0	0	0	0	0	0	0	0	0
EriBrasi	0	0	0	0	0	0	0	0	0	0	0
EteoSp11	0	0	0	0	0	0	0	0	0	0	1
EucLimni	1.495349	1.778279	1.778279	1.681793	1.414214	1.495349	1.732051	1.316074	1.565085	1.495349	1	1.495349
Euclymeninae	0	0	0	0	0	0	0	0	0	0	0
EupCarch	0	0	0	0	0	0	0	0	0	0	1.495349	0
EupHeter	0	1	0	0	0	0	1.495349	0	0	1.189207	0	0
Eusiroidea	0	0	1	0	0	0	0	0	0	0	0	0
ExoLoure	1.934336	2.932972	1.778279	1.626577	1.82116	2.771488	2.932972	2.892508	2.482824	2.189939	1.414214	1.495349
Gammarid	0	0	0	0	0	0	1	0	1	1	0	0
GamThomp	0	0	0	0	0	0	0	0	0	0	0	0
GlyAmeri	0	0	0	0	0	1	1	0	0	0	0	1
GonLitto	0	0	0	0	1	0	0	0	0	0	0	0
GraJapon	0	0	0	1	0	1.732051	1.681793	1.681793	1.414214	2	0	0
HalJohns	0	0	0	0	0	0	0	1	0	0	0	0
HarHartm	0	0	0	0	0	0	0	0	0	0	0	0
HarImbrC	0	1	1	1	0	1.316074	1.495349	1.189207	1	0	0	0
HarmoSpSD1	0	0	1	0	0	1	1	0	0	1.189207	0	1
HartmanoSp	0	0	0	0	0	0	0	0	0	0	0	0
HemiprotSpA	0	0	0	1	0	0	1	0	1	1	0	0
HetCarin	0	0	0	1	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
HetEllis	0	1	1.626577	0	0	1.189207	0	0	1.189207	1	1.316074	1
HeterophSp	1.565085	1.732051	1.934336	1.495349	1.732051	1.86121	1.898829	1.681793	1.82116	1.626577	1.898829	1.681793
HetOcula	0	1.189207	0	0	0	0	0	0	1.189207	0	0	0
HetOdont	0	0	1	0	0	1	1	1	0	1.189207	0	0
HipZetes	0	0	0	0	0	0	0	0	0	0	1.189207	0
HydElega	0	0	0	0	0	0	0	0	1	0	0	0
IseOvoid	0	1	1	0	0	0	1.316074	1.189207	1.316074	0	0	0
JoeConca	0	0	0	0	0	0	1.189207	0	0	1	0	0
LaeSubst	0	0	0	0	0	0	0	0	0	1	0	0
LeiPuget	2.030543	2.059767	1.86121	2.213364	1.96799	2.378414	1.934336	2	1.626577	1.626577	2.030543	1.96799
LepDubia	0	0	0	0	0	1.414214	1.495349	0	0	1.189207	0	0
LeuSpini	0	0	0	0	0	0	0	0	1	0	0	0
LilGemin	0	0	0	0	0	1	1.189207	1	1	1	0	0
Lineidae	0	0	1	0	0	0	0	0	0	0	0	0
LisGolet	0	0	0	0	0	0	1	1	0	0	0	0
LisMelan	0	0	0	0	0	0	0	0	0	0	1	0
ListrielSp	0	0	0	0	0	0	0	1	0	1	0	0
LopBellu	0	0	0	0	0	1.189207	1.681793	0	0	1.316074	0	0
Lumbrine	0	0	0	0	0	0	1	0	0	0	0	0
LumInfla	0	1	0	0	0	1.82116	2.320596	1.934336	1.626577	1.732051	0	0
LyoCalif	1	0	0	0	0	1.495349	1.316074	1.414214	0	1.732051	1	1.189207
Lysianassida	0	0	0	0	0	0	0	0	0	0	0	0
MacNasut	0	0	0	0	0	0	0	1.495349	1.414214	0	0	0
Majidae	0	0	1	0	1	1.681793	1.414214	1.316074	1.681793	1.626577	1.495349	1
MalCalif	0	0	0	0	0	0	0	0	0	0	0	0
MarAngel	0	0	0	0	0	0	1.626577	1.414214	1.316074	1.189207	0	0
MediomSp	1.316074	1.96799	1.495349	1.189207	1.316074	1.495349	1.732051	1.316074	1.495349	1.495349	1.565085	1.495349
MegPigme	1	0	1	1	1	0	1.189207	1	0	0	0	0
MegZoea	0	0	0	0	0	0	1	0	0	0	0	0
MelOcula	0	0	0	0	0	0	0	0	0	0	0	1
MicPigme	0	0	0	0	0	0	0	0	0	0	0	0
MolgulSp	0	0	0	0	0	1	0	0	1	1.189207	0	0
MonCrypt	1	0	0	0	0	0	0	0	0	0	0	0
MonocorophSp	0	0	0	0	0	0	0	0	0	0	0	0
MusSenha	2.087798	3.427439	1.96799	2.279507	2.300327	2.213364	2.632148	3.356997	2.932972	2.747696	1.495349	1.626577
Mysidace	0	0	0	0	1	0	0	0	0	1.316074	0	1
MytGallo	0	0	0	0	0	0	0	0	1.189207	1	0	0
NaiUncin	1.189207	1.565085	1.414214	0	0	1.565085	2.030543	1.565085	1.495349	1.778279	0	0
NatZoea	0	0	0	0	0	1.316074	1.189207	0	0	0	0	0
NauMacgi	0	0	1.189207	0	0	1	1.189207	1.189207	0	1	0	0
NeaAcumC	0	0	0	0	0	0	1.626577	0	1	0	0	0
Nematoda	0	1.898829	0	0	1	1	3.815786	2.632148	1.414214	1.495349	0	0
Nemertea	0	0	0	0	0	1	0	0	0	0	1	0
NeoGigas	0	0	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
NeotrySp	1	1	0	0	1	1.189207	1.189207	1	1.189207	1.626577	1	1.189207
NepCornu	0	0	0	0	0	0	0	0	0	0	0	1
OdophoSp	0	0	0	0	0	0	0	0	0	0	0	0
Oedicero	0	0	0	0	0	1	0	0	0	0	0	0
Oligocha	1	1.189207	1.565085	1	1.189207	1.82116	2.258101	1.934336	1.732051	1.189207	0	0
OphPuget	0	0	0	0	0	0	1.316074	0	0	1	0	0
OphSimpl	0	0	0	0	0	1.189207	1.495349	0	0	1	0	0
OstConch	0	0	0	0	0	1.189207	2.189939	1.414214	1.189207	1.316074	0	0
OweFusif	0	0	0	0	0	0	0	0	0	0	0	1
Paleonemerte	0	0	0	0	0	0	0	0	0	0	0	1
ParCalif	0	0	0	0	0	0	0	0	0	0	0	1
ParElega	0	0	0	0	0	0	1	0	0	0	0	0
Peracarida	0	1	1	0	0	0	0	0	0	0	0	0
PerPedro	0	0	0	0	0	0	0	0	0	0	0	0
PheCapul	0	0	0	0	0	0	1	1	0	0	0	0
Phoronid	0	1	0	0	0	0	0	0	1	0	0	0
Phoxocep	0	0	0	1	0	0	0	0	1	0	0	0
PinLongi	0	0	0	0	0	1	0	0	0	0	0	0
PisBrevi	1	1.316074	1	1.565085	1.414214	1.189207	1.189207	1.189207	0	1.414214	1.495349	0
PlaBican	0	0	1	0	0	0	0	0	0	0	0	0
PodFulam	0	0	0	0	0	1.189207	0	1	0	0	0	0
PodHemph	0	1.316074	0	0	0	1.732051	1.626577	1.189207	1.565085	1.316074	0	0
PoeJohns	0	0	0	0	0	0	0	0	0	0	0	0
PolCornu	0	0	0	0	0	1	0	0	0	0	0	0
PorXantu	0	0	0	0	1	0	0	0	0	0	0	0
PosBarne	0	0	0	0	0	0	1	0	0	0	1	0
PriHeter	1.189207	1.414214	0	1.316074	1.316074	1.86121	1.414214	1.732051	1.495349	2	1.316074	1.189207
PriMligh	0	0	0	0	0	0	0	0	0	0	1.189207	0
ProtocirSp	1	0	0	0	0	0	1	1	0	0	0	0
PseMakro	0	0	0	0	0	0	0	1	1	0	0	1
PsePauci	1.189207	1.626577	1.495349	1.495349	1.626577	1.898829	1.565085	1.732051	1.316074	1.414214	0	0
PteFesti	0	0	0	0	0	1	1.86121	1	0	1.189207	0	0
Pyramdellida	0	0	0	0	0	1	0	0	0	0	0	0
PyrTuber	0	0	0	0	0	1.681793	1	0	0	1.316074	0	0
QuiYcaud	0	0	0	0	0	1	0	0	0	0	1	0
RhiVerti	0	0	0	0	0	0	1	0	0	0	0	0
RudHeter	0	0	0	0	0	1	0	0	0	0	0	0
RudStenp	0	0	0	0	0	0	0	0	1	0	0	0
SaxNutta	0	1	0	0	1	0	1	0	1.189207	1	0	0
SchPolit	1	0	0	0	0	0	1.189207	0	0	0	0	0
SclGranu	0	0	0	0	0	0	0	1	1.316074	1	0	0
ScoAcmec	0	0	0	0	0	1	0	0	0	0	0	0
ScoleErect	0	1.414214	1	0	1	1.189207	1.495349	1.189207	1.316074	1.316074	0	0
ScoleSpC	1.96799	1.86121	1.681793	2.030543	1.934336	2.604291	2.498999	2.414736	2.53044	2.57551	2.258101	2.340347

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
ScoletomSp	1.495349	1	0	1	0	1.316074	1.414214	1.778279	1.189207	1.626577	1.316074	1.189207
ScoScami	0	0	0	0	0	0	0	0	0	0	1.316074	1
ScrupoSp	0	0	0	0	0	0	0	0	0	0	0	0
ScyOcula	1.189207	1.316074	0	0	0	0	0	1.189207	0	0	1.626577	1.626577
Silicea	0	0	0	0	0	0	0	0	0	0	0	0
SolRostr	0	0	0	0	0	1.316074	0	0	1	0	0	0
SpiDuple	0	0	0	0	0	0	0	0	0	0	1	1
Spirorbi	0	0	0	0	0	1	0	0	0	0	0	0
StyelaSp	0	0	0	0	0	1.316074	1.495349	1	0	1.189207	0	0
StyExigu	0	0	0	0	0	0	0	1	0	0	0	0
SytGraci	0	1.189207	0	0	0	0	1.898829	0	0	0	0	0
SyllisSp	0	0	0	0	0	0	1	0	0	0	0	0
SylNippo	0	1	0	1.316074	1.316074	1.189207	0	0	0	1	0	0
TagSubte	0	0	0	0	0	1	1.189207	1	0	0	1	1
Talitridae	0	0	0	0	0	0	1	0	0	0	0	0
TanInter	0	0	0	0	0	0	1.189207	0	0	1	0	0
TelMerop	0	0	0	0	0	1	0	0	0	0	0	0
TetrasSp	0	0	0	0	0	0	0	0	1	0	0	0
TheLubri	1.626577	1.414214	1.414214	1.414214	1.189207	1.82116	1.495349	0	1.189207	1.316074	1.681793	1.626577
Thraciidae	0	0	0	0	0	0	1	1	0	0	0	0
TubPolyo	0	1	0	0	0	0	0	0	0	0	0	0
Tubulani	0	0	0	0	0	0	0	0	0	0	0	0
UpoMacgi	0	0	0	0	0	1	0	1.189207	0	1	0	0
VenPhili	0	0	0	0	0	1.189207	1	1	0	1.189207	0	0
Xanthida	0	0	0	0	0	1.189207	1	1	1	1.414214	0	0
ZaoActiu	0	0	0	0	0	0	0	0	0	0	1	0
ZooPellu	0	0	0	0	0	0	0	0	0	0	0	0
Sum of 4th Root Abundance	**34.77128**	**52.66912**	**38.88367**	**31.59112**	**32.91592**	**104.298**	**119.6956**	**87.75584**	**75.17599**	**90.42946**	**42.27653**	**38.11273**
Ave 4th Root Abundance/Stn					**38.16622**					**95.47098**		
4th Root Abundance x P												
ActIncul	0	0	0	0	0	0	0	0	0	0	0	0
AlpCalif	0	0	0	0	0	63.73687	63.73687	0	63.73687	63.73687	53.59611	53.59611
Alpheida	0	0	0	0	0	0	0	0	0	0	0	0
AmbidexterSp	0	0	0	0	0	0	0	0	0	0	0	0
AmeRecti	0	0	0	0	0	0	0	0	0	0	0	0
AmpLobat	0	0	0	0	0	0	0	0	0	0	0	0
AmpOcula	0	0	0	-0.35716	0	-0.58094	0	-0.42473	0	-0.50509	-0.66474	0
AmpporSp	0	0	0	0	0	0	0	0	0	0	0	0
AmpSquam	0	0	0	0	0	35.52613	43.90785	22.69918	36.92195	36.92195	29.8738	0
AnemonacSpA	0	0	0	0	0	0	0	0	0	0	0	0
AniMarit	0	0	0	0	0	0	0	0	0	0	0	0
AnoErect	0	0	0	0	0	0	0	0	0	55.78975	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
AnoVirid	0	0	0	0	0	91.22761	91.22761	0	0	108.4885	0	0
AphrodSp	0	0	0	0	0	0	0	0	0	0	0	0
Apseudidae	0	0	0	0	0	0	0	0	0	0	0	0
Arachnid	0	0	0	0	0	0	0	0	0	0	0	0
ArcTiara	0	0	0	0	0	0	0	0	0	0	0	0
ArmBrevi	7.073996	10.57809	11.897	13.92155	7.073996	7.073996	11.0714	9.309902	7.073996	0	0	0
AruHolme	0	0	0	0	0	0	0	0	0	0	0	0
Ascidiac	0	0	0	0	0	0	0	0	0	0	0	0
AscidiaSp	0	0	0	0	0	0	0	0	0	0	0	0
AstSlatt	0	0	0	0	0	0	15.86021	0	0	0	0	0
AutolytuSp	0	0	0	0	0	0	0	0	0	0	0	0
BetaeusSp	0	0	0	0	0	0	0	0	0	0	0	0
BetEnsen	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	0	0	0	0	0	0	0	0	0	0	0	0
BoreosignuSp	0	0	0	0	0	0	0	0	0	0	0	0
BotyllSp	0	0	0	0	0	0	0	0	0	0	0	0
Bougainvilli	0	0	0	0	0	0	0	0	0	0	0	0
Brachyur	0	0	0	0	0	0	0	0	0	0	0	0
BranchiSpSD1	0	0	0	0	0	0	0	0	0	0	0	0
BranchSpSD1	0	0	0	0	0	0	0	0	0	0	0	0
CalSquam	0	0	0	0	0	0	0	0	0	0	0	0
CapCapit	0	0	0	0	0	172.1984	248.4475	0	0	0	0	0
Caprellidae	0	0	0	0	0	0	0	0	0	0	0	0
CarMutab	0	0	0	0	0	0	0	0	0	0	0	0
CellepSp	0	0	0	0	0	0	0	0	0	0	0	0
CerebratulSp	0	0	0	0	0	0	0	0	0	0	0	0
Cerianth	0	0	0	0	0	18.78454	0	0	0	0	0	0
CerithiumSp	0	0	0	0	0	0	0	0	0	0	0	0
ChiCalif	0	0	0	0	0	50.09655	0	0	0	0	0	0
Cirratul	0	0	0	0	0	0	0	0	0	0	0	0
CirriSpSD2	0	0	0	0	0	89.04398	0	0	0	89.04398	0	0
ColomassSpWS1	0	0	0	0	0	0	0	0	0	0	0	0
CorymorphaSp	0	0	0	0	0	0	0	0	0	0	0	0
CossuSpA	0	0	0	0	0	49.79434	65.53303	49.79434	49.79434	0	0	0
CrepidSp	0	0	0	0	0	0	0	0	0	0	0	0
CruSpino	0	0	0	0	0	35.13637	38.21985	30.92393	33.22993	46.24207	0	0
CryCalif	48.52088	0	0	0	0	0	45.88821	50.78366	45.88821	62.76509	0	0
Ctenostomata	0	0	0	0	0	0	0	0	0	0	0	0
DefEnigm	0	0	0	0	0	0	0	0	0	0	0	0
DemonaxSp	0	0	0	0	0	0	105.205	0	0	0	0	0
DeuCalif	0	0	0	0	0	0	0	0	0	0	0	0
DiadumenSp	0	0	0	0	0	0	30.01714	0	30.01714	30.01714	0	0
DioOrnat	0	0	0	0	0	-2.61281	0	0	0	0	0	0
DiploSpSD1	0	0	46.61142	0	55.43064	46.61142	55.43064	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
DorAnnul	0	0	0	0	0	0	0	0	0	0	0
DriMexic	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0
EdwCalif	0	47.58059	47.58059	0	0	47.58059	0	0	0	47.58059	0
ElaMutat	0	0	0	0	0	0	0	0	0	0	0
EriBrasi	0	0	0	0	0	0	0	0	0	0	0
EteoSp11	0	0	0	0	0	0	0	0	0	0	0
EucLimni	114.0438	135.6217	135.6217	128.2631	107.856	114.0438	132.0961	100.3713	119.3623	114.0438	76.26571	114.0438
Euclymeninae	0	0	0	0	0	0	0	0	0	0	0	0
EupCarch	0	0	0	0	0	0	0	0	0	0	85.58989	0
EupHeter	0	0	0	0	0	0	0	0	0	0	0	0
Eusiroidea	0	0	0	0	0	0	0	0	0	0	0	0
ExoLoure	80.96169	122.7596	74.42992	68.0804	76.2247	116.0007	122.7596	121.066	103.9186	91.65993	59.19194	62.58786
Gammarid	0	0	0	0	0	0	0	0	0	0	0	0
GamThomp	0	0	0	0	0	0	0	0	0	0	0	0
GlyAmeri	0	0	0	0	0	29.81032	29.81032	0	0	0	0	29.81032
GonLitto	0	0	0	0	16.62986	0	0	0	0	0	0	0
GraJapon	0	0	0	105.9832	0	183.5683	178.2418	178.2418	149.8829	211.9664	0	0
HaloJohns	0	0	0	0	0	0	0	19.3478	0	0	0	0
HarHartm	0	0	0	0	0	0	0	0	0	0	0	0
HarImbrC	0	26.75478	26.75478	26.75478	0	35.21127	40.00773	31.81698	26.75478	0	0	0
HarmoSpSD1	0	0	0	0	0	0	0	0	0	0	0	0
HartmanoSp	0	0	0	0	0	0	0	0	0	0	0	0
HemiprotSpA	0	0	0	16.04203	0	0	16.04203	0	16.04203	16.04203	0	0
HetCarin	0	0	0	32.22571	0	0	0	0	0	0	0	0
HetEllis	0	43.5045	70.76339	0	0	51.73586	0	0	51.73586	43.5045	57.25514	43.5045
HeterophSp	0	0	0	0	0	0	0	0	0	0	0	0
HetOcula	0	54.34653	0	0	0	0	0	0	54.34653	0	0	0
HetOdont	0	0	40.2651	0	0	40.2651	40.2651	40.2651	0	47.88354	0	0
HipZetes	0	0	0	0	0	0	0	0	0	0	0	0
HydElega	0	0	0	0	0	0	0	0	28.09919	0	0	0
IseOvoid	0	64.26065	64.26065	0	0	0	84.57177	76.41922	84.57177	0	0	0
JoeConca	0	0	0	0	0	0	0	0	0	0	0	0
LaeSubst	0	0	0	0	0	0	0	0	0	40.38442	0	0
LeiPuget	130.8287	132.7116	119.9185	142.6079	126.7983	153.2421	124.63	128.8608	104.801	104.801	130.8287	126.7983
LepDubia	0	0	0	0	0	-13.2406	-14.0002	0	0	-11.1339	0	0
LeuSpini	0	0	0	0	0	0	0	0	0	0	0	0
LilGemin	0	0	0	0	0	0	0	0	0	0	0	0
Lineidae	0	0	3.955749	0	0	0	0	0	0	0	0	0
LisGolet	0	0	0	0	0	0	-18.6631	-18.6631	0	0	0	0
LisMelan	0	0	0	0	0	0	0	0	0	0	5.795696	0
ListrielSp	0	0	0	0	0	0	0	0	0	0	0	0
LopBellu	0	0	0	0	0	49.20107	69.58083	0	0	54.44994	0	0
Lumbrine	0	0	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
LumInfla	0	0	0	0	0	0	0	0	0	0	0
LyoCalif	43.70128	0	0	0	0	65.34866	57.51412	61.80294	0	75.69284	43.70128	51.96987
Lysianassida	0	0	0	0	0	0	0	0	0	0	0	0
MacNasut	0	0	0	0	0	0	0	68.61919	64.89602	0	0	0
Majidae	0	0	0	0	0	0	0	0	0	0	0	0
MalCalif	0	0	0	0	0	0	0	0	0	0	0	0
MarAngel	0	0	0	0	0	0	159.1102	138.337	128.7371	116.3271	0	0
MediomSp	76.11536	113.819	86.48374	68.77799	76.11536	86.48374	100.1734	76.11536	86.48374	86.48374	90.51693	86.48374
MegPigme	44.39318	0	44.39318	44.39318	44.39318	0	52.79269	44.39318	0	0	0	0
MegZoea	0	0	0	0	0	0	0	0	0	0	0	0
MelOcula	0	0	0	0	0	0	0	0	0	0	0	0
MicPigme	0	0	0	0	0	0	0	0	0	0	0	0
MolgulSp	0	0	0	0	0	46.61008	0	0	46.61008	55.42904	0	0
MonCrypt	0.221181	0	0	0	0	0	0	0	0	0	0	0
MonocorophSp	0	0	0	0	0	0	0	0	0	0	0	0
MusSenha	142.0708	233.231	133.9181	155.1163	156.533	150.6153	179.1128	228.4375	199.5834	186.9757	101.7557	110.6856
Mysidace	0	0	0	0	0	0	0	0	0	0	0	0
MytGallo	0	0	0	0	0	0	0	0	0	0	0	0
NaiUncin	0	0	0	0	0	0	0	0	0	0	0	0
NatZoea	0	0	0	0	0	0	0	0	0	0	0	0
NauMacgi	0	0	82.03219	0	0	68.98057	82.03219	82.03219	0	68.98057	0	0
NeaAcumC	0	0	0	0	0	0	95.76607	0	58.87585	0	0	0
Nematoda	0	0	0	0	0	0	0	0	0	0	0	0
Nemertea	0	0	0	0	0	33.99054	0	0	0	0	33.99054	0
NeoGigas	0	0	0	0	0	0	0	0	0	0	0	0
NeotrySp	30.33791	30.33791	0	0	30.33791	36.07806	36.07806	30.33791	36.07806	49.34694	30.33791	36.07806
NepCornu	0	0	0	0	0	0	0	0	0	0	0	20.40178
OdophoSp	0	0	0	0	0	0	0	0	0	0	0	0
Oedicero	0	0	0	0	0	0	0	0	0	0	0	0
Oligocha	69.9588	83.1955	109.4914	69.9588	83.1955	127.4062	157.974	135.3239	121.1722	83.1955	0	0
OphPuget	0	0	0	0	0	0	23.86208	0	0	18.13126	0	0
OphSimpl	0	0	0	0	0	17.46945	21.96667	0	0	14.69	0	0
OstConch	0	0	0	0	0	0	0	0	0	0	0	0
OweFusif	0	0	0	0	0	0	0	0	0	0	0	0
Paleonemerte	0	0	0	0	0	0	0	0	0	0	0	0
ParCalif	0	0	0	0	0	0	0	0	0	0	0	34.24739
ParElega	0	0	0	0	0	0	48.37578	0	0	0	0	0
Peracarida	0	0	0	0	0	0	0	0	0	0	0	0
PerPedro	0	0	0	0	0	0	0	0	0	0	0	0
PheCapul	0	0	0	0	0	0	0	0	0	0	0	0
Phoronid	0	99.34408	0	0	0	0	0	0	99.34408	0	0	0
Phoxocep	0	0	0	0	0	0	0	0	0	0	0	0
PinLongi	0	0	0	0	0	0	0	0	0	0	0	0
PisBrevi	0	0	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
PlaBican	0	0	-3.36546	0	0	0	0	0	0	0	0
PodFulam	0	0	0	0	0	25.64177	0	21.56207	0	0	0
PodHemph	0	0	0	0	0	0	0	0	0	0	0
PoeJohns	0	0	0	0	0	0	0	0	0	0	0
PolCornu	0	0	0	0	0	28.47057	0	0	0	0	0
PorXantu	0	0	0	0	0	0	0	0	0	0	0
PosBarne	0	0	0	0	0	0	5.047442	0	0	5.047442	0
PriHeter	44.54697	52.97557	0	49.29932	49.29932	69.71977	52.97557	64.88156	56.01485	74.91877	49.29932	44.54697
PriMligh	0	0	0	0	0	0	0	0	0	0	8.541197	0
ProtocirSp	0	0	0	0	0	0	0	0	0	0	0	0
PseMakro	0	0	0	0	0	0	0	0	0	0	0	0
PsePauci	97.13767	132.8632	122.1442	122.1442	132.8632	155.1015	127.8404	141.4786	107.5005	115.5168	0	0
PteFesti	0	0	0	0	0	0	0	0	0	0	0	0
Pyramdellida	0	0	0	0	0	0	0	0	0	0	0	0
PyrTuber	0	0	0	0	0	30.32662	18.03232	0	0	23.73186	0	0
QuiYcaud	0	0	0	0	0	0	0	0	0	0	0	0
RhiVerti	0	0	0	0	0	0	0	0	0	0	0	0
RudHeter	0	0	0	0	0	53.56385	0	0	0	0	0	0
RudStenp	0	0	0	0	0	0	0	0	0	0	0	0
SaxNutta	0	31.98306	0	0	31.98306	0	31.98306	0	38.03448	31.98306	0	0
SchPolit	63.28393	0	0	0	0	0	75.2577	0	0	0	0	0
SclGranu	0	0	0	0	0	0	0	13.05921	17.18688	13.05921	0	0
ScoAcmec	0	0	0	0	0	18.01224	0	0	0	0	0	0
ScoleErect	0	0	0	0	0	0	0	0	0	0	0	0
ScoleSpC	146.1678	138.237	124.9112	150.8138	143.6683	193.4276	185.6073	179.3489	187.9424	191.2899	167.7151	173.8238
ScoletomSp	0	0	0	0	0	0	0	0	0	0	0	0
ScoScami	0	0	0	0	0	0	0	0	0	0	0	0
ScrupoSp	0	0	0	0	0	0	0	0	0	0	0	0
ScyOcula	30.23442	33.45988	0	0	0	0	0	30.23442	0	0	41.35411	41.35411
Silicea	0	0	0	0	0	0	0	0	0	0	0	0
SolRostr	0	0	0	0	0	32.96888	0	0	25.05093	0	0	0
SpiDuple	0	0	0	0	0	0	0	0	0	0	31.79482	31.79482
Spirorbi	0	0	0	0	0	0	0	0	0	0	0	0
StyelaSp	0	0	0	0	0	0	0	0	0	0	0	0
StyExigu	0	0	0	0	0	0	0	0	0	0	0	0
SylGraci	0	-4.34638	0	0	0	0	-6.93995	0	0	0	0	0
SyllisSp	0	0	0	0	0	0	0	0	0	0	0	0
SylNippo	0	40.63818	0	53.48285	53.48285	48.32721	0	0	0	40.63818	0	0
TagSubte	0	0	0	0	0	37.28287	44.33705	37.28287	0	0	37.28287	37.28287
Talitridae	0	0	0	0	0	0	0	0	0	0	0	0
TanInter	0	0	0	0	0	0	0	0	0	0	0	0
TelMerop	0	0	0	0	0	33.51891	0	0	0	0	0	0
TetrasSp	0	0	0	0	0	0	0	0	0	0	0	0
TheLubri	75.87454	65.96849	65.96849	65.96849	55.47267	84.95124	69.75319	0	55.47267	61.3906	78.4502	75.87454

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-02	BEN-02	BEN-02	BEN-02	BEN-02	BEN-03	BEN-03	BEN-03	BEN-03	BEN-04	BEN-04
Thraciidae	0	0	0	0	0	0	0	0	0	0	0
TubPolyo	0	0	0	0	0	0	0	0	0	0	0
Tubulani	0	0	0	0	0	0	0	0	0	0	0
UpoMacgi	0	0	0	0	0	0	0	0	0	0	0
VenPhili	0	0	0	0	0	64.07485	53.88031	0	64.07485	0	0
Xanthida	0	0	0	0	0	0	0	0	0	0	0
ZaoActiu	0	0	0	0	0	0	0	0	0	42.55004	0
ZooPellu	0	0	0	0	0	0	0	0	0	0	0
Sum 4th Root Abundance x P	**1245.473**	**1689.825**	**1408.036**	**1313.476**	**1247.358**	**2971.826**	**3276.56**	**2263.799**	**2335.161**	**2577.958**	**1174.884**
Ave 4th Root Abundance x P					**1380.834**					**2685.061**	
BRI	**35.81902**	**32.08378**	**36.21149**	**41.57739**	**37.89528**	**28.49359**	**27.3741**	**25.79657**	**31.06259**	**28.50794**	**30.82656**
BRI - station					**36.71739**					**28.24696**	

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
Field Rep	**3**	**4**	**5**	**1**	**2**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
ActIncul				2	1	1	3					
AlpCalif								1		1		
Alpheida												
AmbidexterSp												
AmeRecti											1	
AmpLobat												
AmpOcula		3	3	2	1	1						
AmpporSp							1					
AmpSquam	2	2	3	2			2					
AnemonacSpA			2									
AniMarit												
AnoErect												
AnoVirid												
AphrodSp							1					
Apseudidae	1											
Arachnid												
ArcTiara											1	
ArmBrevi			1								1	3
AruHolme	1		2									
Ascidiac												
AscidiaSp			1									
AstSlatt												
AutolytuSp												
BetaeusSp				1								
BetEnsen				1	1							
Bivalvia												
BoreosignuSp												
BotyllSp												
Bougainvilli												
Brachyur											1	
BranchiSpSD1												
BranchSpSD1												
CalSquam												
CapCapit												
Caprellidae												
CarMutab												
CellepSp												
CerebratulSp						1						
Cerianth										1		
CerithiumSp			1									

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
ChiCalif							1					
Cirratul												
CirriSpSD2												
ColomasSpWS1												
CorymorphaSp												
CossuSpA			1									
CrepidSp	2	5	1	1				3	1	2		5
CruSpino	1									1		
CryCalif			1		1		1					
Ctenostomata												1
DefEnigm												
DemonaxSp												
DeuCalif	1		2									
DiadumenSp			1									
DioOrnat												
DiploSpSD1			1	1		1		1	3	2	1	3
DorAnnul											1	
DriMexic				1	1		1				1	
Echinoidea												1
EdwCalif		1		1	4		1					
ElaMutat								1				
EriBrasi		2	1									
EteoSp11												
EucLimni	6	1		16	8	8	11	2	2	1		1
Euclymeninae		1										
EupCarch		1										
EupHeter												
Eusiroidea												
ExoLoure	29	61	102	18	39	22	34	38	27	25	5	22
Gammarid		1										
GamThomp										1		
GlyAmeri	1	1	1		1		1		1	1		
GonLitto												
GraJapon				1	1	1						
HalJohns												
HarHartm					1							
HarImbrC							2	1				
HarmoSpSD1				1			1					
HartmanoSp												
HemiprotSpA			1	1	1		1					
HetCarin			3			1						
HetEllis		1	3	9		8	6	1		2	2	9
HeterophSp	17	14	17	10	8	8	3	4			5	21

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
HetOcula												
HetOdont			1			1						
HipZetes					1							
HydElega												
IseOvoid	1			1	1	1			2			1
JoeConca												
LaeSubst												
LeiPuget	11	4	9	22	12	21	7	30	21	27	25	21
LepDubia												
LeuSpini												
LilGemin												
Lineidae												
LisGolet												
LisMelan					1							
ListrielSp												
LopBellu										1		
Lumbrine												
LumInfla	1					1			1	1		
LyoCalif	3		1	3	4	3	1					
Lysianassida		1										
MacNasut			1									
Majidae	3	7		1	3	1	6	4	2	2		3
MalCalif						1			1			
MarAngel												
MediomSp	27	7	6	12	1	9	6	5	3	2	1	4
MegPigme				1		1						
MegZoea												
MelOcula	1											
MicPigme					1							
MolgulSp	1	1	3	1								
MonCrypt												
MonocorophSp							1					
MusSenha	106	201	173	37	48	45	73	50	31	30	17	16
Mysidace		2	2		1	1		2				
MytGallo												
NaiUncin												
NatZoea									1			
NauMacgi								1			2	1
NeaAcumC		1										
Nematoda	2		81					8				25
Nemertea	1				1			1	1			
NeoGigas			1									
NeotrySp	1	1	1	1								1

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
NepCornu			1									
OdophoSp				1	2		1		1			
Oedicero												
Oligocha		1		2		1		3	5	2	2	2
OphPuget												
OphSimpl												
OstConch										1		
OweFusif												
Paleonemerte												
ParCalif				1								
ParElega			2	1	1		2					
Peracarida												
PerPedro					1	2						
PheCapul												
Phoronid		1										
Phoxocep		3	4		1							
PinLongi												
PisBrevi	9	14	10	10	4	4	8	16	16	6	6	8
PlaBican												
PodFulam												
PodHemph	2	3	2	2					1	3		
PoeJohns												
PolCornu												
PorXantu												
PosBarne						1						
PriHeter			2	9	2	8	5	3	4	2	2	3
PriMligh	1	1				1						
ProtocirSp										1		
PseMakro												2
PsePauci			4	6	2	1	7		11		1	5
PteFesti												
Pyramdellida												
PyrTuber			8	1	1					1		
QuiYcaud								1				1
RhiVerti												
RudHeter												
RudStenp				1								
SaxNutta		1					1					
SchPolit	1		1	1		1		1	2			
SclGranu												
ScoAcmec												
ScoleErect	1		2	3		2	1	4				1
ScoleSpC	39	71	56	48	37	48	41	48	23	29	15	42

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
ScoletomSp	1	1	1	5	1	2	1	4		2	1		
ScoScami	2	2					1						
ScrupoSp													
ScyOcula	32	62	122					1		1			
Silicea													
SolRostr				1	1								
SpiDuple		1	1						1				
Spirorbi													
StyelaSp								1					
StyExigu													
SylGraci													
SyllisSp													
SylNippo	1				2		2			2			
TagSubte				1			1						
Talitridae													
TanInter													
TelMerop													
TetrasSp													
TheLubri	4			4	5	2	3	2	3	7	5	5	
Thraciidae													
TubPolyo													
Tubulani					1		1						
UpoMacgi													
VenPhili													
Xanthida													
ZaoActiu													
ZooPellu													
No of Individuals by Stn/Rep	**312**	**480**	**643**	**244**	**202**	**187**	**258**	**237**	**164**	**156**	**94**	**207**	
Average No of Ind by station			**339**				**247.4**					**171.6**	
P-Values													
ActIncul	0	0	0	110.1482	110.1482	110.1482	110.1482	0	0	0	0	0	
AlpCalif	0	0	0	0	0	0	0	53.59611	0	53.59611	0	0	
Alpheida	0	0	0	0	0	0	0	0	0	0	0	0	
AmbidexterSp	0	0	0	0	0	0	0	0	0	0	0	0	
AmeRecti	0	0	0	0	0	0	0	0	0	0	0	0	
AmpLobat	0	0	0	0	0	0	0	0	0	0	0	0	
AmpOcula	0	-0.35716	-0.35716	-0.35716	-0.35716	-0.35716	0	0	0	0	0	0	
AmpporSp	0	0	0	0	0	0	0	0	0	0	0	0	
AmpSquam	22.69918	22.69918	22.69918	22.69918	0	0	22.69918	0	0	0	0	0	
AnemonacSpA	0	0	45.22162	0	0	0	0	0	0	0	0	0	
AniMarit	0	0	0	0	0	0	0	0	0	0	0	0	
AnoErect	0	0	0	0	0	0	0	0	0	0	0	0	

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
AnoVirid	0	0	0	0	0	0	0	0	0	0	0	0
AphrodSp	0	0	0	0	0	44.51536	0	0	0	0	0	0
Apseudidae	0	0	0	0	0	0	0	0	0	0	0	0
Arachnid	0	0	0	0	0	0	0	0	0	0	0	0
ArcTiara	0	0	0	0	0	0	0	0	0	0	0	0
ArmBrevi	0	0	7.073996	0	0	0	0	0	0	7.073996	7.073996	7.073996
AruHolme	0	0	0	0	0	0	0	0	0	0	0	0
Ascidiac	0	0	0	0	0	0	0	0	0	0	0	0
AscidiaSp	0	0	0	0	0	0	0	0	0	0	0	0
AstSlatt	0	0	0	0	0	0	0	0	0	0	0	0
AutolytuSp	0	0	0	0	0	0	0	0	0	0	0	0
BetaeusSp	0	0	0	0	0	0	0	0	0	0	0	0
BetEnsen	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	0	0	0	0	0	0	0	0	0	0	0	0
BoreosignuSp	0	0	0	0	0	0	0	0	0	0	0	0
BotyllSp	0	0	0	0	0	0	0	0	0	0	0	0
Bougainvilli	0	0	0	0	0	0	0	0	0	0	0	0
Brachyur	0	0	0	0	0	0	0	0	0	0	0	0
BranchiSpSD1	0	0	0	0	0	0	0	0	0	0	0	0
BranchSpSD1	0	0	0	0	0	0	0	0	0	0	0	0
CalSquam	0	0	0	0	0	0	0	0	0	0	0	0
CapCapit	0	0	0	0	0	0	0	0	0	0	0	0
Caprellidae	0	0	0	0	0	0	0	0	0	0	0	0
CarMutab	0	0	0	0	0	0	0	0	0	0	0	0
CellepSp	0	0	0	0	0	0	0	0	0	0	0	0
CerebratulSp	0	0	0	0	0	0	0	0	0	0	0	0
Cerianth	0	0	0	0	0	0	0	0	0	18.78454	0	0
CerithiumSp	0	0	0	0	0	0	0	0	0	0	0	0
ChiCalif	0	0	0	0	0	0	50.09655	0	0	0	0	0
Cirratul	0	0	0	0	0	0	0	0	0	0	0	0
CirriSpSD2	0	0	0	0	0	0	0	0	0	0	0	0
ColomasSpWS1	0	0	0	0	0	0	0	0	0	0	0	0
CorymorphaSp	0	0	0	0	0	0	0	0	0	0	0	0
CossuSpA	0	0	49.79434	0	0	0	0	0	0	0	0	0
CrepidSp	0	0	0	0	0	0	0	0	0	0	0	0
CruSpino	23.49711	0	0	0	0	0	0	0	0	23.49711	0	0
CryCalif	0	0	32.44787	0	32.44787	0	32.44787	0	0	0	0	0
Ctenostomata	0	0	0	0	0	0	0	0	0	0	0	0
DefEnigm	0	0	0	0	0	0	0	0	0	0	0	0
DemonaxSp	0	0	0	0	0	0	0	0	0	0	0	0
DeuCalif	0	0	0	0	0	0	0	0	0	0	0	0
DiadumenSp	0	0	30.01714	0	0	0	0	0	0	0	0	0
DioOrnat	0	0	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
DiploSpSD1	0	0	46.61142	46.61142	0	46.61142	46.61142	46.61142	46.61142	46.61142	46.61142
DorAnnul	0	0	0	0	0	0	0	0	0	0	0
DriMexic	0	0	0	45.17472	45.17472	0	45.17472	0	0	45.17472	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0
EdwCalif	0	47.58059	0	47.58059	47.58059	0	47.58059	0	0	0	0
ElaMutat	0	0	0	0	0	0	0	0	0	0	0
EriBrasi	0	16.86211	16.86211	0	0	0	0	0	0	0	0
EteoSp11	0	0	0	0	0	0	0	0	0	0	0
EucLimni	76.26571	76.26571	0	76.26571	76.26571	76.26571	76.26571	76.26571	76.26571	0	76.26571
Euclymeninae	0	12.02125	0	0	0	0	0	0	0	0	0
EupCarch	0	57.23741	0	0	0	0	0	0	0	0	0
EupHeter	0	0	0	0	0	0	0	0	0	0	0
Eusiroidea	0	0	0	0	0	0	0	0	0	0	0
ExoLoure	41.85502	41.85502	41.85502	41.85502	41.85502	41.85502	41.85502	41.85502	41.85502	41.85502	41.85502
Gammarid	0	0	0	0	0	0	0	0	0	0	0
GamThomp	0	0	0	0	0	0	0	0	-35.094	0	0
GlyAmeri	29.81032	29.81032	29.81032	0	29.81032	0	29.81032	0	29.81032	0	0
GonLitto	0	0	0	0	0	0	0	0	0	0	0
GraJapon	0	0	0	105.9832	105.9832	105.9832	0	0	0	0	0
HalJohns	0	0	0	0	0	0	0	0	0	0	0
HarHartm	0	0	0	0	31.37953	0	0	0	0	0	0
HarImbrC	0	0	0	0	0	0	26.75478	26.75478	0	0	0
HarmoSpSD1	0	0	0	0	0	0	0	0	0	0	0
HartmanoSp	0	0	0	0	0	0	0	0	0	0	0
HemiprotSpA	0	0	16.04203	16.04203	16.04203	0	16.04203	0	0	0	0
HetCarin	0	0	32.22571	0	0	32.22571	0	0	0	0	0
HetEllis	0	43.5045	43.5045	43.5045	0	43.5045	43.5045	43.5045	0	43.5045	43.5045
HeterophSp	0	0	0	0	0	0	0	0	0	0	0
HetOcula	0	0	0	0	0	0	0	0	0	0	0
HetOdont	0	0	40.2651	0	0	0	40.2651	0	0	0	0
HipZetes	0	0	0	0	0	0	0	0	0	0	0
HydElega	0	0	0	0	0	0	0	0	0	0	0
IseOvoid	64.26065	0	0	64.26065	64.26065	0	64.26065	0	64.26065	0	64.26065
JoeConca	0	0	0	0	0	0	0	0	0	0	0
LaeSubst	0	0	0	0	0	0	0	0	0	0	0
LeiPuget	64.43039	64.43039	64.43039	64.43039	64.43039	64.43039	64.43039	64.43039	64.43039	64.43039	64.43039
LepDubia	0	0	0	0	0	0	0	0	0	0	0
LeuSpini	0	0	0	0	0	0	0	0	0	0	0
LilGemin	0	0	0	0	0	0	0	0	0	0	0
Lineidae	0	0	0	0	0	0	0	0	0	0	0
LisGolet	0	0	0	0	0	0	0	0	0	0	0
LisMelan	0	0	0	0	5.795696	0	0	0	0	0	0
ListrielSp	0	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06
LopBellu	0	0	0	0	0	0	0	41.37301	0	0
Lumbrine	0	0	0	0	0	0	0	0	0	0
LumInfla	0	0	0	0	0	0	0	0	0	0
LyoCalif	43.70128	0	43.70128	43.70128	43.70128	43.70128	0	0	0	0
Lysianassida	0	0	0	0	0	0	0	0	0	0
MacNasut	0	0	45.88842	0	0	0	0	0	0	0
Majidae	0	0	0	0	0	0	0	0	0	0
MalCalif	0	0	0	0	0	14.4031	0	14.4031	0	0
MarAngel	0	0	0	0	0	0	0	0	0	0
MediomSp	57.83517	57.83517	57.83517	57.83517	57.83517	57.83517	57.83517	57.83517	57.83517	57.83517
MegPigme	0	0	0	44.39318	0	44.39318	0	0	0	0
MegZoea	0	0	0	0	0	0	0	0	0	0
MelOcula	0	0	0	0	0	0	0	0	0	0
MicPigme	0	0	0	0	-2.26044	0	0	0	0	0
MolgulSp	46.61008	46.61008	46.61008	46.61008	0	0	0	0	0	0
MonCrypt	0	0	0	0	0	0	0	0	0	0
MonocorophSp	0	0	0	0	0	0	0	0	0	0
MusSenha	68.04817	68.04817	68.04817	68.04817	68.04817	68.04817	68.04817	68.04817	68.04817	68.04817
Mysidace	0	0	0	0	0	0	0	0	0	0
MytGallo	0	0	0	0	0	0	0	0	0	0
NaiUncin	0	0	0	0	0	0	0	0	0	0
NatZoea	0	0	0	0	0	0	0	0	0	0
NauMacgi	0	0	0	0	0	0	68.98057	0	68.98057	68.98057
NeaAcumC	0	58.87585	0	0	0	0	0	0	0	0
Nematoda	0	0	0	0	0	0	0	0	0	0
Nemertea	33.99054	0	0	0	33.99054	0	33.99054	33.99054	0	0
NeoGigas	0	0	0	0	0	0	0	0	0	0
NeotrySp	30.33791	30.33791	30.33791	30.33791	0	0	0	0	0	30.33791
NepCornu	0	0	20.40178	0	0	0	0	0	0	0
OdophoSp	0	0	0	26.10868	26.10868	0	26.10868	0	26.10868	0
Oedicero	0	0	0	0	0	0	0	0	0	0
Oligocha	0	69.9588	0	69.9588	0	69.9588	0	69.9588	69.9588	69.9588
OphPuget	0	0	0	0	0	0	0	0	0	0
OphSimpl	0	0	0	0	0	0	0	0	0	0
OstConch	0	0	0	0	0	0	0	0	0	0
OweFusif	0	0	0	0	0	0	0	0	0	0
Paleonemerte	0	0	0	0	0	0	0	0	0	0
ParCalif	0	0	0	34.24739	0	0	0	0	0	0
ParElega	0	0	48.37578	48.37578	48.37578	48.37578	0	0	0	0
Peracarida	0	0	0	0	0	0	0	0	0	0
PerPedro	0	0	0	0	0	0	0	0	0	0
PheCapul	0	0	0	0	0	0	0	0	0	0
Phoronid	0	99.34408	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06
Phoxocep	0	0	0	0	0	0	0	0	0	0	0
PinLongi	0	0	0	0	0	0	0	0	0	0	0
PisBrevi	0	0	0	0	0	0	0	0	0	0	0
PlaBican	0	0	0	0	0	0	0	0	0	0	0
PodFulam	0	0	0	0	0	0	0	0	0	0	0
PodHemph	0	0	0	0	0	0	0	0	0	0	0
PoeJohns	0	0	0	0	0	0	0	0	0	0	0
PolCornu	0	0	0	0	0	0	0	0	0	0	0
PorXantu	0	0	0	0	0	0	0	0	0	0	0
PosBarne	0	0	0	0	5.047442	0	0	0	0	0	0
PriHeter	0	0	37.45939	37.45939	37.45939	37.45939	37.45939	37.45939	37.45939	37.45939	37.45939
PriMligh	7.182262	7.182262	0	0	7.182262	0	0	0	0	0	0
ProtocirSp	0	0	0	0	0	0	0	0	0	0	0
PseMakro	0	0	0	0	0	0	0	0	0	0	0
PsePauci	0	0	81.68272	81.68272	81.68272	81.68272	81.68272	0	81.68272	81.68272	81.68272
PteFesti	0	0	0	0	0	0	0	0	0	0	0
Pyramdellida	0	0	0	0	0	0	0	0	0	0	0
PyrTuber	0	0	18.03232	18.03232	18.03232	0	0	0	18.03232	0	0
QuiYcaud	0	0	0	0	0	0	0	0	0	0	0
RhiVerti	0	0	0	0	0	0	0	0	0	0	0
RudHeter	0	0	0	0	0	0	0	0	0	0	0
RudStenp	0	0	0	0	0	0	0	0	0	0	0
SaxNutta	0	31.98306	0	0	0	0	31.98306	0	0	0	0
SchPolit	63.28393	0	63.28393	63.28393	0	63.28393	0	63.28393	63.28393	0	0
SclGranu	0	0	0	0	0	0	0	0	0	0	0
ScoAcmec	0	0	0	0	0	0	0	0	0	0	0
ScoleErect	0	0	0	0	0	0	0	0	0	0	0
ScoleSpC	74.27265	74.27265	74.27265	74.27265	74.27265	74.27265	74.27265	74.27265	74.27265	74.27265	74.27265
ScoletomSp	0	0	0	0	0	0	0	0	0	0	0
ScoScami	0	0	0	0	0	0	0	0	0	0	0
ScrupoSp	0	0	0	0	0	0	0	0	0	0	0
ScyOcula	25.42401	25.42401	25.42401	0	0	0	0	25.42401	0	25.42401	0
Silicea	0	0	0	0	0	0	0	0	0	0	0
SolRostr	0	0	0	25.05093	25.05093	0	0	0	0	0	0
SpiDuple	0	31.79482	31.79482	0	0	0	0	0	31.79482	0	0
Spirorbi	0	0	0	0	0	0	0	0	0	0	0
StyelaSp	0	0	0	0	0	0	0	0	0	0	0
StyExigu	0	0	0	0	0	0	0	0	0	0	0
SylGraci	0	0	0	0	0	0	0	0	0	0	0
SyllisSp	0	0	0	0	0	0	0	0	0	0	0
SylNippo	40.63818	0	0	0	40.63818	0	40.63818	0	0	40.63818	0
TagSubte	0	0	0	37.28287	0	0	37.28287	0	0	0	0
Talitridae	0	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
TanInter	0	0	0	0	0	0	0	0	0	0	0	0
TelMerop	0	0	0	0	0	0	0	0	0	0	0	0
TetrasSp	0	0	0	0	0	0	0	0	0	0	0	0
TheLubri	46.64677	0	0	46.64677	46.64677	46.64677	46.64677	46.64677	46.64677	46.64677	46.64677	46.64677
Thraciidae	0	0	0	0	0	0	0	0	0	0	0	0
TubPolyo	0	0	0	0	0	0	0	0	0	0	0	0
Tubulani	0	0	0	0	0	0	0	0	0	0	0	0
UpoMacgi	0	0	0	0	0	0	0	0	0	0	0	0
VenPhili	0	0	0	0	0	0	0	0	0	0	0	0
Xanthida	0	0	0	0	0	0	0	0	0	0	0	0
ZaoActiu	0	0	0	0	0	0	0	0	0	0	0	0
ZooPellu	0	0	0	0	0	0	0	0	0	0	0	0
Total P-value for stn/rep	**860.7893**	**1013.576**	**1211.652**	**1537.526**	**1270.399**	**1075.786**	**1455.293**	**898.9179**	**928.7182**	**842.9496**	**683.5755**	**879.2238**
Average P-value for station			**971.4225**				**1342.266**					**846.677**
4th Root Abundance												
ActIncul	0	0	0	1.189207	1	1	1.316074	0	0	0	0	0
AlpCalif	0	0	0	0	0	0	0	1	0	1	0	0
Alpheida	0	0	0	0	0	0	0	0	0	0	0	0
AmbidexterSp	0	0	0	0	0	0	0	0	0	0	0	0
AmeRecti	0	0	0	0	0	0	0	0	0	0	1	0
AmpLobat	0	0	0	0	0	0	0	0	0	0	0	0
AmpOcula	0	1.316074	1.316074	1.189207	1	1	0	0	0	0	0	0
AmpporSp	0	0	0	0	0	0	1	0	0	0	0	0
AmpSquam	1.189207	1.189207	1.316074	1.189207	0	0	1.189207	0	0	0	0	0
AnemonacSpA	0	0	1.189207	0	0	0	0	0	0	0	0	0
AniMarit	0	0	0	0	0	0	0	0	0	0	0	0
AnoErect	0	0	0	0	0	0	0	0	0	0	0	0
AnoVirid	0	0	0	0	0	0	0	0	0	0	0	0
AphrodSp	0	0	0	0	0	0	1	0	0	0	0	0
Apseudidae	1	0	0	0	0	0	0	0	0	0	0	0
Arachnid	0	0	0	0	0	0	0	0	0	0	0	0
ArcTiara	0	0	0	0	0	0	0	0	0	0	1	0
ArmBrevi	0	0	1	0	0	0	0	0	0	0	1	1.316074
AruHolme	1	0	1.189207	0	0	0	0	0	0	0	0	0
Ascidiac	0	0	0	0	0	0	0	0	0	0	0	0
AscidiaSp	0	0	1	0	0	0	0	0	0	0	0	0
AstSlatt	0	0	0	0	0	0	0	0	0	0	0	0
AutolytuSp	0	0	0	0	0	0	0	0	0	0	0	0
BetaeusSp	0	0	0	1	0	0	0	0	0	0	0	0
BetEnsen	0	0	0	1	1	0	0	0	0	0	0	0
Bivalvia	0	0	0	0	0	0	0	0	0	0	0	0
BoreosignuSp	0	0	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
BotyllSp	0	0	0	0	0	0	0	0	0	0	0
Bougainvilli	0	0	0	0	0	0	0	0	0	0	0
Brachyur	0	0	0	0	0	0	0	0	0	1	0
BranchiSpSD1	0	0	0	0	0	0	0	0	0	0	0
BranchSpSD1	0	0	0	0	0	0	0	0	0	0	0
CalSquam	0	0	0	0	0	0	0	0	0	0	0
CapCapit	0	0	0	0	0	0	0	0	0	0	0
Caprellidae	0	0	0	0	0	0	0	0	0	0	0
CarMutab	0	0	0	0	0	0	0	0	0	0	0
CellepSp	0	0	0	0	0	1	0	0	0	0	0
CerebratulSp	0	0	0	0	1	0	0	0	0	0	0
Cerianth	0	0	0	0	0	0	0	0	1	0	0
CerithiumSp	0	0	1	0	0	0	0	0	0	0	0
ChiCalif	0	0	0	0	0	1	0	0	0	0	0
Cirratul	0	0	0	0	0	0	0	0	0	0	0
CirriSpSD2	0	0	0	0	0	0	0	0	0	0	0
ColomasSpWS1	0	0	0	0	0	0	0	0	0	0	0
CorymorphaSp	0	0	0	0	0	0	0	0	0	0	0
CossuSpA	0	0	1	0	0	0	0	0	0	0	0
CrepidSp	1.189207	1.495349	1	1	0	0	1.316074	1	1	0	1.495349
CruSpino	1	0	0	0	0	0	0	0	1	0	0
CryCalif	0	0	1	0	1	0	1	0	0	0	0
Ctenostomata	0	0	0	0	0	0	0	0	0	0	1
DefEnigm	0	0	0	0	0	0	0	0	0	0	0
DemonaxSp	0	0	0	0	0	0	0	0	0	0	0
DeuCalif	1	0	1.189207	0	0	0	0	0	0	0	0
DiadumenSp	0	0	1	0	0	0	0	0	0	0	0
DioOrnat	0	0	0	0	0	0	0	0	0	0	0
DiploSpSD1	0	0	1	1	0	1	1	1.316074	1.189207	1	1.316074
DorAnnul	0	0	0	0	0	0	0	0	0	1	0
DriMexic	0	0	0	1	1	0	1	0	0	1	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	1
EdwCalif	0	1	0	1	1.414214	0	1	0	0	0	0
ElaMutat	0	0	0	0	0	0	0	1	0	0	0
EriBrasi	0	1.189207	1	0	0	0	0	0	0	0	0
EteoSp11	0	0	0	0	0	0	0	0	0	0	0
EucLimni	1.565085	1	0	2	1.681793	1.681793	1.82116	1.189207	1.189207	1	0	1
Euclymeninae	0	1	0	0	0	0	0	0	0	0	0	0
EupCarch	0	1	0	0	0	0	0	0	0	0	0	0
EupHeter	0	0	0	0	0	0	0	0	0	0	0	0
Eusiroidea	0	0	0	0	0	0	0	0	0	0	0	0
ExoLoure	2.320596	2.794682	3.177972	2.059767	2.498999	2.165737	2.414736	2.482824	2.279507	2.236068	1.495349	2.165737
Gammarid	0	1	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06
GamThomp	0	0	0	0	0	0	0	0	1	0	0
GlyAmeri	1	1	1	0	1	0	1	0	1	0	0
GonLitto	0	0	0	0	0	0	0	0	0	0	0
GraJapon	0	0	0	1	1	1	0	0	0	0	0
HalJohns	0	0	0	0	0	0	0	0	0	0	0
HarHartm	0	0	0	0	1	0	0	0	0	0	0
HarImbrC	0	0	0	0	0	0	1.189207	1	0	0	0
HarmoSpSD1	0	0	0	1	0	0	1	0	0	0	0
HartmanoSp	0	0	0	0	0	0	0	0	0	0	0
HemiprotSpA	0	0	1	1	1	0	1	0	0	0	0
HetCarin	0	0	1.316074	0	0	1	0	0	0	0	0
HetEllis	0	1	1.316074	1.732051	0	1.681793	1.565085	1	0	1.189207	1.189207	1.732051
HeterophSp	2.030543	1.934336	2.030543	1.778279	1.681793	1.681793	1.316074	1.414214	0	0	1.495349	2.140695
HetOcula	0	0	0	0	0	0	0	0	0	0	0	0
HetOdont	0	0	1	0	0	0	1	0	0	0	0	0
HipZetes	0	0	0	0	0	1	0	0	0	0	0	0
HydElega	0	0	0	0	0	0	0	0	0	0	0	0
IseOvoid	1	0	0	1	1	0	1	0	1.189207	0	0	1
JoeConca	0	0	0	0	0	0	0	0	0	0	0	0
LaeSubst	0	0	0	0	0	0	0	0	0	0	0	0
LeiPuget	1.82116	1.414214	1.732051	2.165737	1.86121	1.626577	2.140695	2.340347	2.140695	2.279507	2.236068	2.140695
LepDubia	0	0	0	0	0	0	0	0	0	0	0	0
LeuSpini	0	0	0	0	0	0	0	0	0	0	0	0
LilGemin	0	0	0	0	0	0	0	0	0	0	0	0
Lineidae	0	0	0	0	0	0	0	0	0	0	0	0
LisGolet	0	0	0	0	0	0	0	0	0	0	0	0
LisMelan	0	0	0	0	1	0	0	0	0	0	0	0
ListrielSp	0	0	0	0	0	0	0	0	0	0	0	0
LopBellu	0	0	0	0	0	0	0	0	0	1	0	0
Lumbrine	0	0	0	0	0	0	0	0	0	0	0	0
LumInfla	1	0	0	0	0	0	1	0	1	1	0	0
LyoCalif	1.316074	0	1	1.316074	1.414214	1	1.316074	0	0	0	0	0
Lysianassida	0	1	0	0	0	0	0	0	0	0	0	0
MacNasut	0	0	1	0	0	0	0	0	0	0	0	0
Majidae	1.316074	1.626577	0	1	1.316074	0	1	1.414214	1.189207	1.189207	0	1.316074
MalCalif	0	0	0	0	0	0	1	0	1	0	0	0
MarAngel	0	0	0	0	0	0	0	0	0	0	0	0
MediomSp	2.279507	1.626577	1.565085	1.86121	1	1.565085	1.732051	1.495349	1.316074	1.189207	1	1.414214
MegPigme	0	0	0	1	0	0	1	0	0	0	0	0
MegZoea	0	0	0	0	0	0	0	0	0	0	0	0
MelOcula	1	0	0	0	0	0	0	0	0	0	0	0
MicPigme	0	0	0	0	1	0	0	0	0	0	0	0
MolgulSp	1	1	1.316074	1	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
MonCrypt	0	0	0	0	0	0	0	0	0	0	0	0
MonocorophSp	0	0	0	0	0	1	0	0	0	0	0	0
MusSenha	3.20868	3.765295	3.626699	2.466326	2.632148	2.59002	2.923013	2.659148	2.359611	2.340347	2.030543	2
Mysidace	0	1.189207	1.189207	0	1	1	0	1.189207	0	0	0	0
MytGallo	0	0	0	0	0	0	0	0	0	0	0	0
NaiUncin	0	0	0	0	0	0	0	0	0	0	0	0
NatZoea	0	0	0	0	0	0	0	0	1	0	0	0
NauMacgi	0	0	0	0	0	0	0	1	0	0	1.189207	1
NeaAcumC	0	1	0	0	0	0	0	0	0	0	0	0
Nematoda	1.189207	0	3	0	0	0	0	1.681793	0	0	0	2.236068
Nemertea	1	0	0	0	1	0	0	1	1	0	0	0
NeoGigas	0	0	1	0	0	0	0	0	0	0	0	0
NeotrySp	1	1	1	1	0	0	0	0	0	0	0	1
NepCornu	0	0	1	0	0	0	0	0	0	0	0	0
OdophoSp	0	0	0	1	1.189207	0	1	0	1	0	0	0
Oedicero	0	0	0	0	0	0	0	0	0	0	0	0
Oligocha	0	1	0	1.189207	0	1	0	1.316074	1.495349	1.189207	0	1.189207
OphPuget	0	0	0	0	0	0	0	0	0	0	0	0
OphSimpl	0	0	0	0	0	0	0	0	0	0	0	0
OstConch	0	0	0	0	0	0	0	0	0	1	0	0
OweFusif	0	0	0	0	0	0	0	0	0	0	0	0
Paleonemerte	0	0	0	0	0	0	0	0	0	0	0	0
ParCalif	0	0	0	1	0	0	0	0	0	0	0	0
ParElega	0	0	1.189207	1	1	0	1.189207	0	0	0	0	0
Peracarida	0	0	0	0	0	0	0	0	0	0	0	0
PerPedro	0	0	0	0	1	1.189207	0	0	0	0	0	0
PheCapul	0	0	0	0	0	0	0	0	0	0	0	0
Phoronid	0	1	0	0	0	0	0	0	0	0	0	0
Phoxocep	0	1.316074	1.414214	0	1	0	0	0	0	0	0	0
PinLongi	0	0	0	0	0	0	0	0	0	0	0	0
PisBrevi	1.732051	1.934336	1.778279	1.778279	1.414214	1.414214	1.681793	2	2	1.565085	1.565085	1.681793
PlaBican	0	0	0	0	0	0	0	0	0	0	0	0
PodFulam	0	0	0	0	0	0	0	0	0	0	0	0
PodHemph	1.189207	1.316074	1.189207	1.189207	0	0	0	0	1	1.316074	0	0
PoeJohns	0	0	0	0	0	0	0	0	0	0	0	0
PolCornu	0	0	0	0	0	0	0	0	0	0	0	0
PorXantu	0	0	0	0	0	0	0	0	0	0	0	0
PosBarne	0	0	0	0	0	1	0	0	0	0	0	0
PriHeter	0	0	1.189207	1.732051	1.189207	1.681793	1.495349	1.316074	1.414214	1.189207	1.189207	1.316074
PriMligh	1	1	0	0	0	1	0	0	0	0	0	0
ProtocirSp	0	0	0	0	0	0	0	0	0	1	0	0
PseMakro	0	0	0	0	0	0	0	0	0	0	0	1.189207
PsePauci	0	0	1.414214	1.565085	1.189207	1	1.626577	0	1.82116	0	1	1.495349

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
PteFesti	0	0	0	0	0	0	0	0	0	0	0	0
Pyramdellida	0	0	0	0	0	0	0	0	0	0	0	0
PyrTuber	0	0	1.681793	1	1	0	0	0	0	1	0	0
QuiYcaud	0	0	0	0	0	0	0	1	0	0	0	1
RhiVerti	0	0	0	0	0	0	0	0	0	0	0	0
RudHeter	0	0	0	0	0	0	0	0	0	0	0	0
RudStenp	0	0	0	1	0	0	0	0	0	0	0	0
SaxNutta	0	1	0	0	0	0	1	0	0	0	0	0
SchPolit	1	0	1	1	0	1	0	1	1.189207	0	0	0
SclGranu	0	0	0	0	0	0	0	0	0	0	0	0
ScoAcmec	0	0	0	0	0	0	0	0	0	0	0	0
ScoleErect	1	0	1.189207	1.316074	0	1.189207	1	1.414214	0	0	0	1
ScoleSpC	2.498999	2.902783	2.735565	2.632148	2.466326	2.632148	2.53044	2.632148	2.189939	2.320596	1.96799	2.54573
ScoletomSp	1	1	1	1.495349	1	1.189207	1	1.414214	0	1.189207	1	0
ScoScami	1.189207	1.189207	0	0	0	0	1	0	0	0	0	0
ScrupoSp	0	0	0	0	0	0	0	0	0	0	0	0
ScyOcula	2.378414	2.806066	3.323456	0	0	0	0	1	0	1	0	0
Silicea	0	0	0	0	0	0	0	0	0	0	0	0
SolRostr	0	0	0	1	1	0	0	0	0	0	0	0
SpiDuple	0	1	1	0	0	0	0	0	1	0	0	0
Spirorbi	0	0	0	0	0	0	0	0	0	0	0	0
StyelaSp	0	0	0	0	0	0	0	1	0	0	0	0
StyExigu	0	0	0	0	0	0	0	0	0	0	0	0
SylGraci	0	0	0	0	0	0	0	0	0	0	0	0
SyllisSp	0	0	0	0	0	0	0	0	0	0	0	0
SylNippo	1	0	0	0	1.189207	0	1.189207	0	0	1.189207	0	0
TagSubte	0	0	0	1	0	0	1	0	0	0	0	0
Talitridae	0	0	0	0	0	0	0	0	0	0	0	0
TanInter	0	0	0	0	0	0	0	0	0	0	0	0
TelMerop	0	0	0	0	0	0	0	0	0	0	0	0
TetrasSp	0	0	0	0	0	0	0	0	0	0	0	0
TheLubri	1.414214	0	0	1.414214	1.495349	1.189207	1.316074	1.189207	1.316074	1.626577	1.495349	1.495349
Thraciidae	0	0	0	0	0	0	0	0	0	0	0	0
TubPolyo	0	0	0	0	0	0	0	0	0	0	0	0
Tubulani	0	0	0	0	1	0	1	0	0	0	0	0
UpoMacgi	0	0	0	0	0	0	0	0	0	0	0	0
VenPhili	0	0	0	0	0	0	0	0	0	0	0	0
Xanthida	0	0	0	0	0	0	0	0	0	0	0	0
ZaoActiu	0	0	0	0	0	0	0	0	0	0	0	0
ZooPellu	0	0	0	0	0	0	0	0	0	0	0	0
Sum of 4th Root Abundance	**45.82743**	**48.00527**	**63.5739**	**55.25868**	**46.63316**	**38.47778**	**52.95202**	**39.46431**	**33.40553**	**36.19791**	**25.85335**	**38.18574**
Ave 4th Root Abundance/Stn			**47.55917**				**51.71788**					**34.62137**

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06
4th Root Abundance x P										
ActIncul	0	0	0	130.9891	110.1482	144.9632	0	0	0	0
AlpCalif	0	0	0	0	0	0	53.59611	0	53.59611	0
Alpheida	0	0	0	0	0	0	0	0	0	0
AmbidexterSp	0	0	0	0	0	0	0	0	0	0
AmeRecti	0	0	0	0	0	0	0	0	0	0
AmpLobat	0	0	0	0	0	0	0	0	0	0
AmpOcula	0	-0.47004	-0.47004	-0.42473	-0.35716	0	0	0	0	0
AmpporSp	0	0	0	0	0	0	0	0	0	0
AmpSquam	26.99402	26.99402	29.8738	26.99402	0	26.99402	0	0	0	0
AnemonacSpA	0	0	53.77788	0	0	0	0	0	0	0
AniMarit	0	0	0	0	0	0	0	0	0	0
AnoErect	0	0	0	0	0	0	0	0	0	0
AnoVirid	0	0	0	0	0	0	0	0	0	0
AphrodSp	0	0	0	0	0	44.51536	0	0	0	0
Apseudidae	0	0	0	0	0	0	0	0	0	0
Arachnid	0	0	0	0	0	0	0	0	0	0
ArcTiara	0	0	0	0	0	0	0	0	0	0
ArmBrevi	0	0	7.073996	0	0	0	0	0	7.073996	9.309902
AruHolme	0	0	0	0	0	0	0	0	0	0
Ascidiac	0	0	0	0	0	0	0	0	0	0
AscidiaSp	0	0	0	0	0	0	0	0	0	0
AstSlatt	0	0	0	0	0	0	0	0	0	0
AutolytuSp	0	0	0	0	0	0	0	0	0	0
BetaeusSp	0	0	0	0	0	0	0	0	0	0
BetEnsen	0	0	0	0	0	0	0	0	0	0
Bivalvia	0	0	0	0	0	0	0	0	0	0
BoreosignuSp	0	0	0	0	0	0	0	0	0	0
BotyllSp	0	0	0	0	0	0	0	0	0	0
Bougainvilli	0	0	0	0	0	0	0	0	0	0
Brachyur	0	0	0	0	0	0	0	0	0	0
BranchiSpSD1	0	0	0	0	0	0	0	0	0	0
BranchSpSD1	0	0	0	0	0	0	0	0	0	0
CalSquam	0	0	0	0	0	0	0	0	0	0
CapCapit	0	0	0	0	0	0	0	0	0	0
Caprellidae	0	0	0	0	0	0	0	0	0	0
CarMutab	0	0	0	0	0	0	0	0	0	0
CellepSp	0	0	0	0	0	0	0	0	0	0
CerebratulSp	0	0	0	0	0	0	0	0	0	0
Cerianth	0	0	0	0	0	0	0	18.78454	0	0
CerithiumSp	0	0	0	0	0	0	0	0	0	0
ChiCalif	0	0	0	0	0	50.09655	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
Cirratul	0	0	0	0	0	0	0	0	0	0	0	0
CirriSpSD2	0	0	0	0	0	0	0	0	0	0	0	0
ColomasSpWS1	0	0	0	0	0	0	0	0	0	0	0	0
CorymorphaSp	0	0	0	0	0	0	0	0	0	0	0	0
CossuSpA	0	0	49.79434	0	0	0	0	0	0	0	0	0
CrepidSp	0	0	0	0	0	0	0	0	0	0	0	0
CruSpino	23.49711	0	0	0	0	0	0	0	0	23.49711	0	0
CryCalif	0	0	32.44787	0	32.44787	0	32.44787	0	0	0	0	0
Ctenostomata	0	0	0	0	0	0	0	0	0	0	0	0
DefEnigm	0	0	0	0	0	0	0	0	0	0	0	0
DemonaxSp	0	0	0	0	0	0	0	0	0	0	0	0
DeuCalif	0	0	0	0	0	0	0	0	0	0	0	0
DiadumenSp	0	0	30.01714	0	0	0	0	0	0	0	0	0
DioOrnat	0	0	0	0	0	0	0	0	0	0	0	0
DiploSpSD1	0	0	46.61142	46.61142	0	46.61142	46.61142	46.61142	61.34408	55.43064	46.61142	61.34408
DorAnnul	0	0	0	0	0	0	0	0	0	0	0	0
DriMexic	0	0	0	45.17472	45.17472	0	45.17472	0	0	0	45.17472	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
EdwCalif	0	47.58059	0	47.58059	67.28911	0	47.58059	0	0	0	0	0
ElaMutat	0	0	0	0	0	0	0	0	0	0	0	0
EriBrasi	0	20.05254	16.86211	0	0	0	0	0	0	0	0	0
EteoSp11	0	0	0	0	0	0	0	0	0	0	0	0
EucLimni	119.3623	76.26571	0	152.5314	128.2631	128.2631	138.8921	90.69573	90.69573	76.26571	0	76.26571
Euclymeninae	0	12.02125	0	0	0	0	0	0	0	0	0	0
EupCarch	0	57.23741	0	0	0	0	0	0	0	0	0	0
EupHeter	0	0	0	0	0	0	0	0	0	0	0	0
Eusiroidea	0	0	0	0	0	0	0	0	0	0	0	0
ExoLoure	97.12859	116.9715	133.0141	86.2116	104.5957	90.64696	101.0688	103.9186	95.40882	93.59068	62.58786	90.64696
Gammarid	0	0	0	0	0	0	0	0	0	0	0	0
GamThomp	0	0	0	0	0	0	0	0	0	-35.094	0	0
GlyAmeri	29.81032	29.81032	29.81032	0	29.81032	0	29.81032	0	29.81032	29.81032	0	0
GonLitto	0	0	0	0	0	0	0	0	0	0	0	0
GraJapon	0	0	0	105.9832	105.9832	105.9832	0	0	0	0	0	0
HalJohns	0	0	0	0	0	0	0	0	0	0	0	0
HarHartm	0	0	0	0	31.37953	0	0	0	0	0	0	0
HarImbrC	0	0	0	0	0	0	31.81698	26.75478	0	0	0	0
HarmoSpSD1	0	0	0	0	0	0	0	0	0	0	0	0
HartmanoSp	0	0	0	0	0	0	0	0	0	0	0	0
HemiprotSpA	0	0	16.04203	16.04203	16.04203	0	16.04203	0	0	0	0	0
HetCarin	0	0	42.41142	0	0	32.22571	0	0	0	0	0	0
HetEllis	0	43.5045	57.25514	75.352	0	73.16555	68.08822	43.5045	0	51.73586	51.73586	75.352
HeterophSp	0	0	0	0	0	0	0	0	0	0	0	0
HetOcula	0	0	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
HetOdont	0	0	40.2651	0	0	40.2651	0	0	0	0	0
HipZetes	0	0	0	0	0	0	0	0	0	0	0
HydElega	0	0	0	0	0	0	0	0	0	0	0
IseOvoid	64.26065	0	0	64.26065	64.26065	64.26065	0	76.41922	0	0	64.26065
JoeConca	0	0	0	0	0	0	0	0	0	0	0
LaeSubst	0	0	0	0	0	0	0	0	0	0	0
LeiPuget	117.3381	91.11833	111.5967	139.5393	119.9185	104.801	137.9258	150.7895	137.9258	146.8695	144.0707	137.9258
LepDubia	0	0	0	0	0	0	0	0	0	0	0	0
LeuSpini	0	0	0	0	0	0	0	0	0	0	0	0
LilGemin	0	0	0	0	0	0	0	0	0	0	0	0
Lineidae	0	0	0	0	0	0	0	0	0	0	0	0
LisGolet	0	0	0	0	0	0	0	0	0	0	0	0
LisMelan	0	0	0	0	5.795696	0	0	0	0	0	0	0
ListrielSp	0	0	0	0	0	0	0	0	0	0	0	0
LopBellu	0	0	0	0	0	0	0	0	0	41.37301	0	0
Lumbrine	0	0	0	0	0	0	0	0	0	0	0	0
LumInfla	0	0	0	0	0	0	0	0	0	0	0	0
LyoCalif	57.51412	0	43.70128	57.51412	61.80294	43.70128	57.51412	0	0	0	0	0
Lysianassida	0	0	0	0	0	0	0	0	0	0	0	0
MacNasut	0	0	45.88842	0	0	0	0	0	0	0	0	0
Majidae	0	0	0	0	0	0	0	0	0	0	0	0
MalCalif	0	0	0	0	0	0	14.4031	0	14.4031	0	0	0
MarAngel	0	0	0	0	0	0	0	0	0	0	0	0
MediomSp	131.8357	94.07332	90.51693	107.6434	57.83517	90.51693	100.1734	86.48374	76.11536	68.77799	57.83517	81.79127
MegPigme	0	0	0	44.39318	0	0	44.39318	0	0	0	0	0
MegZoea	0	0	0	0	0	0	0	0	0	0	0	0
MelOcula	0	0	0	0	0	0	0	0	0	0	0	0
MicPigme	0	0	0	0	-2.26044	0	0	0	0	0	0	0
MolguiSp	46.61008	46.61008	61.34232	46.61008	0	0	0	0	0	0	0	0
MonCrypt	0	0	0	0	0	0	0	0	0	0	0	0
MonocorophSp	0	0	0	0	0	0	0	0	0	0	0	0
MusSenha	218.3448	256.2214	246.7902	167.8289	179.1128	176.2461	198.9057	180.9501	160.5672	159.2563	138.1747	136.0963
Mysidace	0	0	0	0	0	0	0	0	0	0	0	0
MytGallo	0	0	0	0	0	0	0	0	0	0	0	0
NaiUncin	0	0	0	0	0	0	0	0	0	0	0	0
NatZoea	0	0	0	0	0	0	0	0	0	0	0	0
NauMacgi	0	0	0	0	0	0	0	68.98057	0	0	82.03219	68.98057
NeaAcumC	0	58.87585	0	0	0	0	0	0	0	0	0	0
Nematoda	0	0	0	0	0	0	0	0	0	0	0	0
Nemertea	33.99054	0	0	0	33.99054	0	0	33.99054	33.99054	0	0	0
NeoGigas	0	0	0	0	0	0	0	0	0	0	0	0
NeotrySp	30.33791	30.33791	30.33791	30.33791	0	0	0	0	0	0	0	30.33791
NepCornu	0	0	20.40178	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06	BEN-06
OdophoSp	0	0	0	26.10868	31.04862	0	26.10868	0	26.10868	0	0	0
Oedicero	0	0	0	0	0	0	0	0	0	0	0	0
Oligocha	0	69.9588	0	83.1955	0	69.9588	0	92.07096	104.6128	83.1955	0	83.1955
OphPuget	0	0	0	0	0	0	0	0	0	0	0	0
OphSimpl	0	0	0	0	0	0	0	0	0	0	0	0
OstConch	0	0	0	0	0	0	0	0	0	0	0	0
OweFusif	0	0	0	0	0	0	0	0	0	0	0	0
Paleonemerte	0	0	0	0	0	0	0	0	0	0	0	0
ParCalif	0	0	0	34.24739	0	0	0	0	0	0	0	0
ParElega	0	0	57.52883	48.37578	48.37578	0	57.52883	0	0	0	0	0
Peracarida	0	0	0	0	0	0	0	0	0	0	0	0
PerPedro	0	0	0	0	0	0	0	0	0	0	0	0
PheCapul	0	0	0	0	0	0	0	0	0	0	0	0
Phoronid	0	99.34408	0	0	0	0	0	0	0	0	0	0
Phoxocep	0	0	0	0	0	0	0	0	0	0	0	0
PinLongi	0	0	0	0	0	0	0	0	0	0	0	0
PisBrevi	0	0	0	0	0	0	0	0	0	0	0	0
PlaBican	0	0	0	0	0	0	0	0	0	0	0	0
PodFulam	0	0	0	0	0	0	0	0	0	0	0	0
PodHemph	0	0	0	0	0	0	0	0	0	0	0	0
PoeJohns	0	0	0	0	0	0	0	0	0	0	0	0
PolCornu	0	0	0	0	0	0	0	0	0	0	0	0
PorXantu	0	0	0	0	0	0	0	0	0	0	0	0
PosBarne	0	0	0	0	0	5.047442	0	0	0	0	0	0
PriHeter	0	0	44.54697	64.88156	44.54697	62.99893	56.01485	49.29932	52.97557	44.54697	44.54697	49.29932
PriMigh	7.182262	7.182262	0	0	0	7.182262	0	0	0	0	0	0
ProtocirSp	0	0	0	0	0	0	0	0	0	0	0	0
PseMakro	0	0	0	0	0	0	0	0	0	0	0	0
PsePauci	0	0	115.5168	127.8404	97.13767	81.68272	132.8632	0	148.7573	0	81.68272	122.1442
PteFesti	0	0	0	0	0	0	0	0	0	0	0	0
Pyramdellida	0	0	0	0	0	0	0	0	0	0	0	0
PyrTuber	0	0	30.32662	18.03232	18.03232	0	0	0	0	18.03232	0	0
QuiYcaud	0	0	0	0	0	0	0	0	0	0	0	0
RhiVerti	0	0	0	0	0	0	0	0	0	0	0	0
RudHeter	0	0	0	0	0	0	0	0	0	0	0	0
RudStenp	0	0	0	0	0	0	0	0	0	0	0	0
SaxNutta	0	31.98306	0	0	0	0	31.98306	0	0	0	0	0
SchPolit	63.28393	0	63.28393	63.28393	0	63.28393	0	63.28393	75.2577	0	0	0
SclGranu	0	0	0	0	0	0	0	0	0	0	0	0
ScoAcmec	0	0	0	0	0	0	0	0	0	0	0	0
ScoleErect	0	0	0	0	0	0	0	0	0	0	0	0
ScoleSpC	185.6073	215.5974	203.1776	195.4966	183.1805	195.4966	187.9424	195.4966	162.6525	172.3568	146.1678	189.0781
ScoletomSp	0	0	0	0	0	0	0	0	0	0	0	0

Table A32-23 Supporting Calculations for Table A32-21, Continued

Station	BEN-04	BEN-04	BEN-04	BEN-05	BEN-05	BEN-05	BEN-06	BEN-06	BEN-06	BEN-06
ScoScami	0	0	0	0	0	0	0	0	0	0
ScrupoSp	0	0	0	0	0	0	0	0	0	0
ScyOcula	60.46884	71.34147	84.4956	0	0	0	25.42401	0	25.42401	0
Silicea	0	0	0	0	0	0	0	0	0	0
SolRostr	0	0	0	25.05093	25.05093	0	0	0	0	0
SpiDuple	0	31.79482	31.79482	0	0	0	0	31.79482	0	0
Spirorbi	0	0	0	0	0	0	0	0	0	0
StyelaSp	0	0	0	0	0	0	0	0	0	0
StyExigu	0	0	0	0	0	0	0	0	0	0
SylGraci	0	0	0	0	0	0	0	0	0	0
SyllisSp	0	0	0	0	0	0	0	0	0	0
SylNippo	40.63818	0	0	0	48.32721	0	48.32721	0	48.32721	0
TagSubte	0	0	0	37.28287	0	0	37.28287	0	0	0
Talitridae	0	0	0	0	0	0	0	0	0	0
TanInter	0	0	0	0	0	0	0	0	0	0
TelMerop	0	0	0	0	0	0	0	0	0	0
TetrasSp	0	0	0	0	0	0	0	0	0	0
TheLubri	65.96849	0	0	65.96849	69.75319	55.47267	61.3906	55.47267	61.3906	75.87454	69.75319	69.75319
Thraciidae	0	0	0	0	0	0	0	0	0	0	0	0
TubPolyo	0	0	0	0	0	0	0	0	0	0	0	0
Tubulani	0	0	0	0	0	0	0	0	0	0	0	0
UpoMacgi	0	0	0	0	0	0	0	0	0	0	0	0
VenPhili	0	0	0	0	0	0	0	0	0	0	0	0
Xanthida	0	0	0	0	0	0	0	0	0	0	0	0
ZaoActiu	0	0	0	0	0	0	0	0	0	0	0	0
ZooPellu	0	0	0	0	0	0	0	0	0	0	0	0
Sum 4th Root Abundance x P	**1420.173**	**1534.407**	**1866.033**	**2180.937**	**1756.686**	**1543.076**	**2121.385**	**1367.323**	**1440.23**	**1251.651**	**977.4473**	**1345.781**
Ave 4th Root Abundance x P			**1460.63**				**1956.616**					**1276.487**
BRI	**30.98959**	**31.9633**	**29.35219**	**39.46778**	**37.67031**	**40.10303**	**40.0624**	**34.64708**	**43.11353**	**34.578**	**37.80737**	**35.24304**
BRI - station			**30.8125**				**38.14393**					**37.07781**

Table A32-24 Supporting Calculations for Table A32-21

BRI Calcs			
STN_ID	**BRI Score**	**BRI Category**	**BRI Category Score**
BEN-02	36.71739184	Reference	1
BEN-03	28.24695859	Reference	1
BEN-04	30.81250359	Reference	1
BEN-05	38.14392767	Reference	1
BEN-06	37.07780515	Reference	1

Table A32-25 Supporting Calculations for Table A32-21

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVCoINo	SpeciesLevel
Acanthina spirata	#N/A	Mollusca	Gastropoda	Neogastropoda	Muricidae		Mollusc			Acanthina_spirata	366	
Acanthodoris hudsoni	AcaHudso	Mollusca	Gastropoda	Nudibranchia	Onchidoridae		Mollusc					
Acanthodoris rhodoceras	#N/A	Mollusca	Gastropoda	Nudibranchia	Onchidoridae		Mollusc					
Achelia simplissima	#N/A	Arthropoda	Pycnogonida	Pegmata	Ammotheidae							
Achelia sp	AcheliSp	Arthropoda	Pycnogonida	Pegmata	Ammotheidae			Crustacean				Drop
Acidostoma hancocki	#N/A	Arthropoda	Malacostraca	Amphipoda	Lysianassidae		Mollusc					
Aclis occidentalis	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Aclidae		Mollusc					
Acteocina carinata	#N/A	Mollusca	Gastropoda	Cephalaspidea	Scaphandridae		Mollusc					
Acteocina culcitella	#N/A	Mollusca	Gastropoda	Cephalaspidea	Scaphandridae		Mollusc					
Acteocina harpa	#N/A	Mollusca	Gastropoda	Cephalaspidea	Scaphandridae	S	Mollusc		-8.35	Acteocina_harpa	253	
Acteocina inculta	ActIncul	Mollusca	Gastropoda	Cephalaspidea	Scaphandridae	S	Mollusc		110.15	Acteocina_inculta	87	
Acteocina sp	#N/A	Mollusca	Gastropoda	Cephalaspidea	Scaphandridae		Mollusc					Drop
Actiniaria	#N/A	Cnidaria	Anthozoa	Actiniaria								Drop
Acuminodeutopus heteruropus	#N/A	Arthropoda	Malacostraca	Amphipoda	Aoridae	S		Crustacean	53.56	Acuminodeutopus_heteruropus	336	
Adula diegensis	#N/A	Mollusca	Bivalvia	Mytiloida	Mytilidae		Mollusc					
Aegires albopunctatus	AegAlbop	Mollusca	Gastropoda	Nudibranchia	Notodoridae		Mollusc					
Aglaja ocelligera	#N/A	Mollusca	Gastropoda	Cephalaspidea	Aglajidae		Mollusc					
Aglaja sp	#N/A	Mollusca	Gastropoda	Cephalaspidea	Aglajidae		Mollusc					Drop
Agnezia septentrionalis	#N/A	Chordata	Ascidiacea	Phlebobranchiata	Agneziidae				24.13	Agnezia_septentrionalis	412	
Alabina phalacra	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Obtortionidae		Mollusc			Alabina_phalacra	440	
Alderia modesta	#N/A	Mollusca	Gastropoda	Sacoglossa	Hermaeidae		Mollusc					
Alia carinata	AliCarin	Mollusca	Gastropoda	Neogastropoda	Columbellidae		Mollusc		16.68	Alia_carinata	323	
Alia tuberosa	#N/A	Mollusca	Gastropoda	Neogastropoda	Columbellidae		Mollusc					
Alienacanthomysis macropsis	#N/A	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean	-1.35	Alienacanthomysis_macropsis	254	
Allorchestes angusta	#N/A	Arthropoda	Malacostraca	Amphipoda	Hyalellidae			Crustacean				
Alpheidae	#N/A	Arthropoda	Malacostraca	Decapoda	Alpheidae			Crustacean				Drop
Alpheopsis equidactylus	#N/A	Arthropoda	Malacostraca	Decapoda	Alpheidae			Crustacean				
Alpheus bellimanus	#N/A	Arthropoda	Malacostraca	Decapoda	Alpheidae			Crustacean				
Alpheus californiensis	AlpCalif	Arthropoda	Malacostraca	Decapoda	Alpheidae			Crustacean	53.60	Alpheus_californiensis	59	
Alpheus clamator	#N/A	Arthropoda	Malacostraca	Decapoda	Alpheidae			Crustacean				
Alpheus sp	#N/A	Arthropoda	Malacostraca	Decapoda	Alpheidae			Crustacean				Drop
Alvania compacta	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Rissoidae		Mollusc					
Amaeana occidentalis	AmaOccid	Annelida	Polychaeta	Terebellida	Terebellidae	S			-14.49	Amaeana_occidentalis	200	
Amathia sp	AmathiSp	Ectoprocta	Gymnolaemata	Ctenostomata	Vesiculariidae							
Amathimysis trigibba	#N/A	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean				
Ambidexter panamensis	AmbPanam	Arthropoda	Malacostraca	Decapoda	Processidae			Crustacean	76.06	Ambidexter_panamensis	419	
Amblyosyllis sp	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							
Americhelidium sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae			Crustacean				
Ammothea hilgendorfi	#N/A	Arthropoda	Pycnogonida	Pegmata	Ammotheidae				27.23	Ammothea_hilgendorfi	400	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVCoINo	SpeciesLevel
Ampelisca agassizi	#N/A	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae			Crustacean				
Ampelisca brachycladus	AmpBrach	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae	S		Crustacean	-18.30	Ampelisca_brachycladus	215	
Ampelisca brevisimulata	#N/A	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae	S		Crustacean	-30.75	Ampelisca_brevisimulata	216	
Ampelisca cristata	AmpCrist	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae	S		Crustacean	-32.31	Ampelisca_cristata	217	
Ampelisca lobata	AmpLobat	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae			Crustacean				
Ampelisca milleri	#N/A	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae			Crustacean				
Ampelisca pugetica	AmpPuget	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae			Crustacean				
Ampelisca romigi	AmpRomig	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae			Crustacean				
Ampelisca sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae			Crustacean				Drop
Ampharete acutifrons	#N/A	Annelida	Polychaeta	Terebellida	Ampharetidae				-19.75	Ampharete_labrops	88	
Ampharete labrops	AmpLabro	Annelida	Polychaeta	Terebellida	Ampharetidae							Drop
Ampharete sp	#N/A	Annelida	Polychaeta	Terebellida	Ampharetidae							Drop
Ampharetidae	#N/A	Annelida	Polychaeta	Terebellida	Ampharetidae	S			6.33	Amphicteis_scaphobranchiata	201	
Amphicteis scaphobranchiata	AmpScaph	Annelida	Polychaeta	Terebellida	Ampharetidae							Drop
Amphicteis sp	#N/A	Annelida	Polychaeta	Terebellida	Ampharetidae	S		Crustacean	-0.36	Amphideutopus_oculatus	60	
Amphideutopus oculatus	AmpOcula	Arthropoda	Malacostraca	Amphipoda	Isaeidae							
Amphiduros sp	#N/A	Annelida	Polychaeta	Phyllodocida	Hesionidae				8.36	Amphiodia_sp	89	
Amphiodia sp	AmphioSp	Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	S			-14.49	Amphioplus_strongyloplax	406	
Amphioplus strongyloplax	#N/A	Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae							Drop
Amphipholis sp	AmphipSp	Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae				22.70	Amphipholis_squamata	61	
Amphipholis squamata	AmpSquam	Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae							Drop
Amphipoda	#N/A	Arthropoda	Malacostraca	Amphipoda				Crustacean				
Amphiporus bimaculatus	#N/A	Nemertea	Enopla	Hoplonemertea	Amphiporidae							
Amphiporus californianus	#N/A	Nemertea	Enopla	Hoplonemertea	Amphiporidae							
Amphiporus cruentatus	#N/A	Nemertea	Enopla	Hoplonemertea	Amphiporidae							
Amphiporus impanspinosus	#N/A	Nemertea	Enopla	Hoplonemertea	Amphiporidae							
Amphiporus rubellus	#N/A	Nemertea	Enopla	Hoplonemertea	Amphiporidae							
Amphissa undata	#N/A	Mollusca	Gastropoda	Neogastropoda	Columbellidae		Mollusc					
Amphitrite robusta	#N/A	Annelida	Polychaeta	Terebellida	Terebellidae							
Amphiuridae	#N/A	Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae							Drop
Ampithoe lacertosa	#N/A	Arthropoda	Malacostraca	Amphipoda	Ampithoidae			Crustacean	72.06	Ampithoe_lacertosa	33	
Ampithoe longimana	#N/A	Arthropoda	Malacostraca	Amphipoda	Ampithoidae			Crustacean				
Ampithoe plumulosa	AmpPlumu	Arthropoda	Malacostraca	Amphipoda	Ampithoidae			Crustacean	38.32	Ampithoe_plumulosa	379	
Ampithoe 橈皿蝦Ea	#N/A	Arthropoda	Malacostraca	Amphipoda	Ampithoidae	S		Crustacean	90.96	Ampithoe_valida	183	
Anadara multicostata	#N/A	Mollusca	Bivalvia	Arcoida	Arcidae		Mollusc			Anadara_multicostata	433	
Anchicolurus occidentalis	#N/A	Arthropoda	Malacostraca	Cumacea	Diastylidae			Crustacean				
Ancinus granulatus	#N/A	Arthropoda	Malacostraca	Isopoda	Ancinidae			Crustacean				
Ancistrosyllis groenlandica	#N/A	Annelida	Polychaeta	Phyllodocida	Pilargidae				-28.58	Ancistrosyllis_groenlandica	255	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVCoINo	SpeciesLevel
Ancula sp	AnculaSp	Mollusca	Gastropoda	Nudibranchia	Goniodorididae		Mollusc					
Anemonactis sp	#N/A	Cnidaria	Anthozoa	Actiniaria	Haloclavidae				45.22	Anemonactis_sp	345	
Anoplodactylus erectus	AnoErect	Arthropoda	Pycnogonida	Pegmata	Phoxichilidiidae				55.79	Anoplodactylus_erectus	90	
Anoplodactylus nodosus	#N/A	Arthropoda	Pycnogonida	Pegmata	Phoxichilidiidae					Anoplodactylus_nodosus	428	
Anoplodactylus pacificus	AnoPacif	Arthropoda	Pycnogonida	Pegmata	Phoxichilidiidae							Drop
Anoplodactylus sp	AnoploSp	Arthropoda	Pycnogonida	Pegmata	Phoxichilidiidae							
Anoplodactylus viridintestinalis	AnoVirid	Arthropoda	Pycnogonida	Pegmata	Phoxichilidiidae				91.23	Anoplodactylus_viridintestinalis	144	
Anoropallene palpida	#N/A	Arthropoda	Pycnogonida	Pegmata	Callipallenidae				6.24	Anoropallene_palpida	364	
Anotomastus gordiodes	#N/A	Annelida	Polychaeta	Capitellida	Capitellidae	S			15.83	Anotomastus_gordiodes	202	
Anthozoa	#N/A	Cnidaria	Anthozoa									Drop
Anthuridae	#N/A	Arthropoda	Malacostraca	Isopoda	Anthuridae			Crustacean				Drop
Aonides sp	#N/A	Annelida	Polychaeta	Spionida	Spionidae							
Aoridae	#N/A	Arthropoda	Malacostraca	Amphipoda	Aoridae			Crustacean				Drop
Aoroides exilis	#N/A	Arthropoda	Malacostraca	Amphipoda	Aoridae			Crustacean				
Aoroides inermis	#N/A	Arthropoda	Malacostraca	Amphipoda	Aoridae			Crustacean				
Aoroides intermedia	#N/A	Arthropoda	Malacostraca	Amphipoda	Aoridae			Crustacean				
Aoroides secundus	#N/A	Arthropoda	Malacostraca	Amphipoda	Aoridae			Crustacean				
Aoroides sp	AoroidSp	Arthropoda	Malacostraca	Amphipoda	Aoridae			Crustacean				Drop
Aoroides spinosa	#N/A	Arthropoda	Malacostraca	Amphipoda	Aoridae			Crustacean		Aoroides_spinosa	434	
Aphelochaeta cf williamsae	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae							
Aphelochaeta glandaria Cmplx	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae				101.93	Aphelochaeta_glandaria_Cmplx	218	
Aphelochaeta monilaris	AphMonil	Annelida	Polychaeta	Spionida	Cirratulidae				-15.19	Aphelochaeta_monilaris	151	
Aphelochaeta petersenae	AphPeter	Annelida	Polychaeta	Spionida	Cirratulidae				145.34	Aphelochaeta_petersenae	249	
Aphelochaeta sp	AphreloSp	Annelida	Polychaeta	Spionida	Cirratulidae							Drop
Aphrodita brevitentaculata	AphBrevi	Annelida	Polychaeta	Phyllodocida	Aphroditidae							
Aphrodita sp	AphrodSp	Annelida	Polychaeta	Phyllodocida	Aphroditidae				44.52	Aphrodita_sp	210	
Apionsoma misakianum	#N/A	Sipuncula	Phascolosomatidea	Phascolosomatiformes	Phascolosomatidae				9.93	Apionsoma_misakianum	173	
Apionsoma murinae	#N/A	Sipuncula	Phascolosomatidea	Phascolosomatiformes	Phascolosomatidae					Apionsoma_murinae	355	
Apistobranchus ornatus	#N/A	Annelida	Polychaeta	Spionida	Apistobranchidae					Apistobranchus_ornatus	295	
Aplousobranchiata	#N/A	Chordata	Ascidiacea	Aplousobranchiata								Drop
Aplysiopsis enteromorphae	#N/A	Mollusca	Gastropoda	Sacoglossa	Oleidae		Mollusc			Aplysiopsis_enteromorphae	429	
Apolochus barnardi	#N/A	Arthropoda	Malacostraca	Amphipoda	Amphilochidae	S		Crustacean	2.60	Apolochus_barnardi	425	
Apoprionospio pygmaea	#N/A	Annelida	Polychaeta	Spionida	Spionidae	S			14.96	Apoprionospio_pygmaea	62	
Arabella sp	#N/A	Annelida	Polychaeta	Eunicida	Oenonidae							
Araphura breviaria	#N/A	Arthropoda	Malacostraca	Tanaidacea	Anarthruridae			Crustacean		Araphura_breviaria	302	
Argissa hamatipes	#N/A	Arthropoda	Malacostraca	Amphipoda	Argissidae			Crustacean	-13.95	Argissa_hamatipes	389	
Argopecten ventricosus	#N/A	Mollusca	Bivalvia	Ostreoida	Pectinidae		Mollusc		9.64	Argopecten_ventricosus	352	
Aricidea (Acmira) catherinae	#N/A	Annelida	Polychaeta	Orbiniida	Paraonidae				-17.00	Aricidea__Acmira__catherinae	303	
Aricidea (Acmira) horikoshii	AriAcmHo	Annelida	Polychaeta	Orbiniida	Paraonidae				-21.04	Aricidea__Acmira__horikoshii	256	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVCoINo	SpeciesLevel
Aricidea (Acmira) simplex	#N/A	Annelida	Polychaeta	Orbiniida	Paraonidae							
Aricidea (Acmira) sp	#N/A	Annelida	Polychaeta	Orbiniida	Paraonidae							Drop
Aricidea (Aedicira) sp	#N/A	Annelida	Polychaeta	Orbiniida	Paraonidae					Aricidea_Aedicira_sp	311	
Aricidea (Allia) antennata	#N/A	Annelida	Polychaeta	Orbiniida	Paraonidae							
Aricidea (Aricidea) wassi	#N/A	Annelida	Polychaeta	Orbiniida	Paraonidae					Aricidea_Aricidea_wassi	449	
Armandia brevis	ArmBrevi	Annelida	Polychaeta	Opheliida	Opheliidae		Mollusc		7.07	Armandia_brevis	15	
Armina californica	ArmCalif	Mollusca	Gastropoda	Nudibranchia	Arminidae		Mollusc					
Aruga sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Lysianassidae			Crustacean				
Ascidiacea	#N/A	Chordata	Ascidiacea									
Assiminea californica	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Assimineidae		Mollusc					
Asteropella slatteryi	AstSlatt	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	S		Crustacean	15.86	Asteropella_slatteryi	211	
Asthenothaerus diegensis	#N/A	Mollusca	Bivalvia	Pholadomyoida	Thraciidae		Mollusc		9.40	Asthenothaerus_diegensis	126	
Astropecten verrilli	#N/A	Echinodermata	Asteroidea	Paxillosida	Astropectinidae							
Astyris aurantiaca	#N/A	Mollusca	Gastropoda	Neogastropoda	Columbellidae		Mollusc					
Atylus tridens	#N/A	Arthropoda	Malacostraca	Amphipoda	Dexaminidae			Crustacean	24.25	Atylus_tridens	442	
Autolytus sp	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae					Autolytus_sp	194	
Axinopsida serricata	#N/A	Mollusca	Bivalvia	Veneroida	Thyasiridae		Mollusc		3.59	Axinopsida_serricata	152	
Axiothella sp	#N/A	Annelida	Polychaeta	Capitellida	Maldanidae				-8.47	Axiothella_sp	240	
Barleeia sp	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Barleeidae	S	Mollusc		21.32	Barleeia_sp	91	
Bathyleberis sp	#N/A	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae			Crustacean				
Bemlos macromanus	BemMacro	Arthropoda	Malacostraca	Amphipoda	Aoridae			Crustacean	31.06	Bemlos_macromanus	141	
Bemlos sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Aoridae			Crustacean				Drop
Berthella sp	#N/A	Mollusca	Gastropoda	Notaspidea	Pleurobranchidae		Mollusc			Berthella_sp	367	
Betaeus ensenadensis	BetEnsen	Arthropoda	Malacostraca	Decapoda	Alpheidae			Crustacean				
Betaeus harrimani	#N/A	Arthropoda	Malacostraca	Decapoda	Alpheidae			Crustacean				
Betaeus longidactylus	#N/A	Arthropoda	Malacostraca	Decapoda	Alpheidae			Crustacean				
Betaeus sp	#N/A	Arthropoda	Malacostraca	Decapoda	Alpheidae			Crustacean				Drop
Bispira sp	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae				33.90	Bispira_sp	304	
Bivalvia	#N/A	Mollusca	Bivalvia				Mollusc					Drop
Boccardia basilaria	#N/A	Annelida	Polychaeta	Spionida	Spionidae							
Boccardia proboscidea	#N/A	Annelida	Polychaeta	Spionida	Spionidae					Boccardia_proboscidea	362	
Boccardia sp	BoccarSp	Annelida	Polychaeta	Spionida	Spionidae							Drop
Boccardiella hamata	#N/A	Annelida	Polychaeta	Spionida	Spionidae				89.89	Boccardiella_hamata	2	
Boccardiella ligerica	BocLiger	Annelida	Polychaeta	Spionida	Spionidae							
Boccardiella sp	#N/A	Annelida	Polychaeta	Spionida	Spionidae							Drop
Boreocingula martyni	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Rissoidae		Mollusc					
Botryllus sp	BotyllSp	Chordata	Ascidiacea	Stolidobranchiata	Styelidae					Botryllus_sp	356	
Brachyura	#N/A	Arthropoda	Malacostraca	Decapoda				Crustacean				Drop
Branchiostoma californiense	#N/A	Chordata	Cephalochordata	Amphioxiformes	Branchiostomatidae							

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVColNo	SpeciesLevel
Branchiosyllis sp	BranchSp	Annelida	Polychaeta	Phyllodocida	Sylidae							
Brania sp	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae				9.37	Brania_sp	145	
Bulla gouldiana	BulGould	Mollusca	Gastropoda	Cephalaspidea	Bullidae		Mollusc		64.47	Bulla_gouldiana	16	
Bullomorpha sp A	#N/A	Mollusca	Gastropoda	Cephalaspidea			Mollusc			Bullomorpha_sp_A	452	
Bunodeopsis sp A	#N/A	Cnidaria	Anthozoa	Actiniaria	Boloceroididae				3.27	Bunodeopsis_sp_A	415	
Cadulus aberrans	#N/A	Mollusca	Scaphopoda	Gadilida	Gadilidae		Mollusc		-26.09	Cadulus_aberrans	153	
Caecognathia sp	#N/A	Arthropoda	Malacostraca	Isopoda	Gnathiidae			Crustacean				Drop
Caecum californicum	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Caecidae	S	Mollusc		5.10	Caecum_californicum	332	
Caecum crebricinctum	CaeCrebr	Mollusca	Gastropoda	Neotaenioglossa	Caecidae		Mollusc		32.35	Caecum_crebricinctum	92	
Caecum occidentale	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Caecidae	S	Mollusc		-1.22	Caecum_occidentale	337	
Calocarides sp	CalocaSp	Arthropoda	Malacostraca	Decapoda	Axiidae			Crustacean				
Calyptraea fastigiata	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Calyptraeidae		Mollusc					
Campylaspis biplicata	#N/A	Arthropoda	Malacostraca	Cumacea	Nannastacidae			Crustacean				
Campylaspis canaliculata	#N/A	Arthropoda	Malacostraca	Cumacea	Nannastacidae			Crustacean				
Campylaspis rubromaculata	#N/A	Arthropoda	Malacostraca	Cumacea	Nannastacidae			Crustacean	7.32	Campylaspis_rubromaculata	390	
Cancer antennarius	#N/A	Arthropoda	Malacostraca	Decapoda	Cancridae			Crustacean		Cancer_antennarius	368	
Cancer anthonyi	#N/A	Arthropoda	Malacostraca	Decapoda	Cancridae			Crustacean				
Cancer gracilis	#N/A	Arthropoda	Malacostraca	Decapoda	Cancridae			Crustacean		Cancer_gracilis	189	
Cancer jordani	#N/A	Arthropoda	Malacostraca	Decapoda	Cancridae	S		Crustacean		Cancer_jordani	391	
Cancer sp	#N/A	Arthropoda	Malacostraca	Decapoda	Cancridae			Crustacean				Drop
Capitella capitata Cmplx	#N/A	Annelida	Polychaeta	Capitellida	Capitellidae				130.84	Capitella_capitata_Cmplx	3	
Capitellidae	#N/A	Annelida	Polychaeta	Capitellida	Capitellidae							Drop
Caprella alaskana	#N/A	Arthropoda	Malacostraca	Amphipoda	Caprellidae			Crustacean	41.75	Caprella_alaskana	226	
Caprella californica	#N/A	Arthropoda	Malacostraca	Amphipoda	Caprellidae	S		Crustacean	0.82	Caprella_californica	127	
Caprella equilibra	#N/A	Arthropoda	Malacostraca	Amphipoda	Caprellidae	S		Crustacean	9.04	Caprella_equilibra	338	
Caprella gracilior	#N/A	Arthropoda	Malacostraca	Amphipoda	Caprellidae			Crustacean				
Caprella mendax	#N/A	Arthropoda	Malacostraca	Amphipoda	Caprellidae			Crustacean				
Caprella natalensis	#N/A	Arthropoda	Malacostraca	Amphipoda	Caprellidae	S		Crustacean	38.68	Caprella_natalensis	34	
Caprella scaura	#N/A	Arthropoda	Malacostraca	Amphipoda	Caprellidae			Crustacean				
Caprella sp	CaprelSp	Arthropoda	Malacostraca	Amphipoda	Caprellidae			Crustacean				Drop
Caprella verrucosa	#N/A	Arthropoda	Malacostraca	Amphipoda	Caprellidae	S		Crustacean	19.98	Caprella_verrucosa	346	
Caprellidae	#N/A	Arthropoda	Malacostraca	Amphipoda	Caprellidae			Crustacean				Drop
Carazziella sp	#N/A	Annelida	Polychaeta	Spionida	Spionidae	S			4.82	Carazziella_sp	392	
Caridea	#N/A	Arthropoda	Malacostraca	Decapoda				Crustacean				Drop
Caudina arenicola	#N/A	Echinodermata	Holothuroidea	Molpadida	Caudinidae							
Caulleriella apicula	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae					Caulleriella_apicula	450	
Caulleriella pacifica	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae				34.05	Caulleriella_pacifica	353	
Ceradocus spinicaudus	#N/A	Arthropoda	Malacostraca	Amphipoda	Melitidae			Crustacean				
Cerapus tubularis Cmplx	#N/A	Arthropoda	Malacostraca	Amphipoda	Ischyroceridae			Crustacean				

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVColNo	SpeciesLevel
Ceratonereis mirabilis	#N/A	Annelida	Polychaeta	Phyllodocida	Nereididae							
Cerberilla sp	#N/A	Mollusca	Gastropoda	Nudibranchia	Aeolidiidae		Mollusc					
Ceriantharia	#N/A	Cnidaria	Anthozoa	Ceriantharia					18.78	Ceriantharia	63	
Cerithidea californica	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Potamididae		Mollusc					
Cerithiopsis sp	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Cerithiopsidae		Mollusc					
Chaetopterus variopedatus Cmplx	#N/A	Annelida	Polychaeta	Spionida	Chaetopteridae							
Chaetozone columbiana	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae					Chaetozone_columbiana	312	
Chaetozone corona	ChaCoron	Annelida	Polychaeta	Spionida	Cirratulidae				-9.85	Chaetozone_corona	64	
Chaetozone senticosa	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae							
Chaetozone setosa Cmplx	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae							
Chaetozone sp	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae							Drop
Chama arcana	ChaArcan	Mollusca	Bivalvia	Veneroida	Chamidae		Mollusc					
Chauliopleona dentata	ChaDenta	Arthropoda	Malacostraca	Tanaidacea	Anarthruridae			Crustacean				
Chelura terebrans	#N/A	Arthropoda	Malacostraca	Amphipoda	Cheluridae			Crustacean				
Chione californiensis	ChiCalif	Mollusca	Bivalvia	Veneroida	Veneridae		Mollusc		50.10	Chione_californiensis	309	
Chione sp	#N/A	Mollusca	Bivalvia	Veneroida	Veneridae		Mollusc					Drop
Chione undatella	#N/A	Mollusca	Bivalvia	Veneroida	Veneridae		Mollusc		3.86	Chione_undatella	421	
Chironomidae	#N/A	Arthropoda	Insecta	Diptera	Chironomidae				138.87	Chironomidae	184	
Chone albocincta	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae				-16.05	Chone_albocincta	257	
Chone duneri	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae							
Chone ecaudata	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae					Chone_ecaudata	453	
Chone minuta	ChoMinut	Annelida	Polychaeta	Sabellida	Sabellidae				19.66	Chone_minuta	35	
Chone mollis	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae				-21.65	Chone_mollis	258	
Chone sp	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae							Drop
Chone veleronis	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae				-3.94	Chone_veleronis	259	
Ciona intestinalis	CioIntes	Chordata	Ascidiacea	Phlebobranchiata	Cionidae							
Cirratulidae	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae							Drop
Cirratulus sp	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae				55.64	Cirratulus_sp	36	
Cirriformia sp	CirrifSp	Annelida	Polychaeta	Spionida	Cirratulidae	S			89.04	Cirriformia_sp	37	
Cirrophorus furcatus	#N/A	Annelida	Polychaeta	Orbiniida	Paraonidae				-37.35	Cirrophorus_furcatus	284	
Clymenella sp	#N/A	Annelida	Polychaeta	Capitellida	Maldanidae							
Columbiaemysis ignota	#N/A	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean		Columbiaemysis_ignota	305	
Compsomyax subdiaphana	#N/A	Mollusca	Bivalvia	Veneroida	Veneridae	S	Mollusc		-22.84	Compsomyax_subdiaphana	154	
Conus californicus	#N/A	Mollusca	Gastropoda	Neogastropoda	Conidae		Mollusc					
Cooperella subdiaphana	CooSubdi	Mollusca	Bivalvia	Veneroida	Petricolidae	S	Mollusc		-8.38	Cooperella_subdiaphana	17	
Corbula porcella	#N/A	Mollusca	Bivalvia	Myoida	Corbulidae		Mollusc					
Corophiidae	#N/A	Arthropoda	Malacostraca	Amphipoda	Corophiidae			Crustacean				Drop
Corophioidea	#N/A	Arthropoda	Malacostraca	Amphipoda				Crustacean				Drop
Corymorpha sp	#N/A	Cnidaria	Hydrozoa	Athecatae	Corymorphidae	S			44.43	Corymorpha_sp	227	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVCoINo	SpeciesLevel
Corymorphidae	#N/A	Cnidaria	Hydrozoa	Athecatae	Corymorphidae							Drop
Cossura candida	CosCandi	Annelida	Polychaeta	Cossurida	Cossuridae				33.97	Cossura_candida	38	
Cossura pygodactylata	#N/A	Annelida	Polychaeta	Cossurida	Cossuridae							Drop
Cossura sp	CossurSp	Annelida	Polychaeta	Cossurida	Cossuridae				49.79	Cossura_sp_A	65	
Cossura sp A	CossuSpA	Annelida	Polychaeta	Cossurida	Cossuridae			Crustacean	-8.23	Crangon_alaskensis	443	
Crangon nigromaculata	#N/A	Arthropoda	Malacostraca	Decapoda	Crangonidae	S		Crustacean	-39.24	Crangon_nigromaculata	260	
Crepidula adunca	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Calyptraeidae		Mollusc					
Crepidula convexa	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Calyptraeidae		Mollusc					
Crepidula glottidiarum	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Calyptraeidae		Mollusc					
Crepidula naticarum	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Calyptraeidae		Mollusc					
Crepidula norrisianum	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Calyptraeidae		Mollusc					
Crepidula onyx	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Calyptraeidae		Mollusc		15.65	Crepidula_onyx	326	
Crepidula sp	CrepidSp	Mollusca	Gastropoda	Neotaenioglossa	Calyptraeidae		Mollusc					Drop
Crepipatella dorsata	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Calyptraeidae		Mollusc		123.06	Crepipatella_dorsata	233	
Crucibulum spinosum	CruSpino	Mollusca	Gastropoda	Neotaenioglossa	Calyptraeidae	S	Mollusc		23.50	Crucibulum_spinosum	93	
Cryptomya californica	CryCalif	Mollusca	Bivalvia	Myoida	Myidae	S	Mollusc		32.45	Cryptomya_californica	18	
Ctenodrilus serratus	#N/A	Annelida	Polychaeta	Ctenodrilida	Ctenodrilidae					Ctenodrilus_serratus	386	
Cumella californica	#N/A	Arthropoda	Malacostraca	Cumacea	Nannastacidae			Crustacean				
Cumella sp	#N/A	Arthropoda	Malacostraca	Cumacea	Nannastacidae			Crustacean				
Cumingia californica	#N/A	Mollusca	Bivalvia	Veneroida	Semelidae		Mollusc		35.01	Cumingia_californica	380	
Cyathodonta pedroana	#N/A	Mollusca	Bivalvia	Pholadomyoida	Thraciidae		Mollusc					
Cylichna diegensis	#N/A	Mollusca	Gastropoda	Cephalaspidea	Cylichnidae		Mollusc		-30.04	Cylichna_diegensis	155	
Cylindroleberididae	#N/A	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae			Crustacean				Drop
Decamastus gracilis	#N/A	Annelida	Polychaeta	Capitellida	Capitellidae				12.02	Decamastus_gracilis	94	
Decapoda	Decapoda	Arthropoda	Malacostraca	Decapoda				Crustacean				Drop
Deflexilodes norvegicus	#N/A	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae			Crustacean				
Deltamysis sp A	#N/A	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean	120.02	Deltamysis_sp_A	381	
Demonax sp	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae				105.20	Demonax_sp	146	
Dendraster excentricus	#N/A	Echinodermata	Echinoidea	Clypeasteroida	Dendrasteridae							
Dendraster sp	#N/A	Echinodermata	Echinoidea	Clypeasteroida	Dendrasteridae							Drop
Dentaliidae	#N/A	Mollusca	Scaphopoda	Dentaliida	Dentaliidae		Mollusc			Dentaliidae	261	
Deutella californica	#N/A	Arthropoda	Malacostraca	Amphipoda	Pariambidae			Crustacean				
Diadumene sp	#N/A	Cnidaria	Anthozoa	Actiniaria	Diadumenidae				30.02	Diadumene_sp	142	
Diastylis crenellata	#N/A	Arthropoda	Malacostraca	Cumacea	Diastylidae			Crustacean		Diastylis_crenellata	394	
Diastylopsis tenuis	#N/A	Arthropoda	Malacostraca	Cumacea	Diastylidae	S		Crustacean	-10.52	Diastylopsis_tenuis	435	
Diopatra ornata	DioOrnat	Annelida	Polychaeta	Eunicida	Onuphidae	S			-2.61	Diopatra_ornata	95	
Diopatra sp	DiopatSp	Annelida	Polychaeta	Eunicida	Onuphidae							Drop
Diopatra splendidissima	#N/A	Annelida	Polychaeta	Eunicida	Onuphidae	S			6.93	Diopatra_splendidissima	96	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVCoINo	SpeciesLevel
Diopatra tridentata	#N/A	Annelida	Polychaeta	Eunicida	Onuphidae				-29.49	Diopatra_tridentata	219	
Diplocirrus sp SD1	#N/A	Annelida	Polychaeta	Flabelligerida	Flabelligeridae				46.61	Diplocirrus_sp_SD1	66	
Diplodonta orbella	#N/A	Mollusca	Bivalvia	Veneroida	Ungulinidae		Mollusc					
Diplodonta sericata	#N/A	Mollusca	Bivalvia	Veneroida	Ungulinidae		Mollusc					
Diplodonta sp	#N/A	Mollusca	Bivalvia	Veneroida	Ungulinidae		Mollusc					Drop
Dipolydora sp	#N/A	Annelida	Polychaeta	Spionida	Spionidae				56.56	Dipolydora_sp	147	
Diptera	#N/A	Arthropoda	Insecta	Diptera								
Distaplia occidentalis	#N/A	Chordata	Ascidiacea	Aplousobranchiata	Polycitoridae							
Dolichopodidae	#N/A	Arthropoda	Insecta	Diptera	Dolichopodidae							
Donax gouldii	#N/A	Mollusca	Bivalvia	Veneroida	Veneridae		Mollusc					
Dorvillea (Dorvillea) sp	#N/A	Annelida	Polychaeta	Eunicida	Dorvilleidae							
Dorvillea (Schistomeringos) sp	#N/A	Annelida	Polychaeta	Eunicida	Dorvilleidae				38.12	Dorvillea__Schistomeringos__sp	39	
Drilonereis falcata	DrlFalca	Annelida	Polychaeta	Eunicida	Oenonidae							
Drilonereis longa	#N/A	Annelida	Polychaeta	Eunicida	Oenonidae				8.38	Drilonereis_longa	262	
Drilonereis mexicana	#N/A	Annelida	Polychaeta	Eunicida	Oenonidae				45.17	Drilonereis_mexicana	359	
Drilonereis nuda	#N/A	Annelida	Polychaeta	Eunicida	Oenonidae					Drilonereis_nuda	297	
Drilonereis sp	DrilonSp	Annelida	Polychaeta	Eunicida	Oenonidae							Drop
Dulichia sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Podoceridae			Crustacean				
Eclysippe trilobata	#N/A	Annelida	Polychaeta	Terebellida	Ampharetidae							
Edotia sp B	#N/A	Arthropoda	Malacostraca	Isopoda	Idoteidae			Crustacean		Edotia_sp_B	407	
Edotia sublittoralis	#N/A	Arthropoda	Malacostraca	Isopoda	Idoteidae	S		Crustacean	4.29	Edotia_sublittoralis	280	
Edwardsia californica	EdwCalif	Cnidaria	Anthozoa	Actiniaria	Edwardsiidae				47.58	Edwardsia_californica	195	
Edwardsia sp G	#N/A	Cnidaria	Anthozoa	Actiniaria	Edwardsiidae				-2.98	Edwardsia_sp_G	156	
Edwardsiidae	#N/A	Cnidaria	Anthozoa	Actiniaria	Edwardsiidae							Drop
Elasmopus antennatus	#N/A	Arthropoda	Malacostraca	Amphipoda	Melitidae			Crustacean				
Elasmopus bampo	#N/A	Arthropoda	Malacostraca	Amphipoda	Melitidae			Crustacean	39.90	Elasmopus_bampo	291	
Elasmopus mutatus	#N/A	Arthropoda	Malacostraca	Amphipoda	Melitidae			Crustacean				
Elasmopus sp	ElasmoSp	Arthropoda	Malacostraca	Amphipoda	Melitidae			Crustacean				Drop
Ensis myrae	#N/A	Mollusca	Bivalvia	Veneroida	Pharidae	S	Mollusc		-16.55	Ensis_myrae	263	
Enteropneusta	#N/A	Chordata	Enteropneusta		Ptychoderidae				-10.03	Enteropneusta	97	
Eobrolgus spinosus	#N/A	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae			Crustacean				
Eochelidium sp A	#N/A	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae			Crustacean	52.73	Eochelidium_sp_A	67	
Eogammarus confervicolus Cmplx	#N/A	Arthropoda	Malacostraca	Amphipoda	Anisogammaridae			Crustacean		Eogammarus_confervicolus_Cmplx	445	
Ephesiella brevicapitis	#N/A	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae					Ephesiella_brevicapitis	408	
Epilucina californica	#N/A	Mollusca	Bivalvia	Veneroida	Lucinidae		Mollusc					
Epitonium hindsii	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Epitoniidae		Mollusc					
Epitonium sp	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Epitoniidae		Mollusc					Drop
Epitonium tinctum	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Epitoniidae		Mollusc					
Eranno lagunae	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae				-25.33	Eranno_lagunae	313	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVColNo	SpeciesLevel
Erato columbella	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Triviidae		Mollusc			Erato_columbella	333	
Erichsonella crenulata	#N/A	Arthropoda	Malacostraca	Isopoda	Idoteidae			Crustacean	28.95	Erichsonella_crenulata	324	
Ericthonius brasiliensis	EriBrasi	Arthropoda	Malacostraca	Amphipoda	Ischyroceridae	S		Crustacean	16.86	Ericthonius_brasiliensis	128	
Eteone sp	#N/A	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	S			47.42	Eteone_sp	129	
Eualus lineatus	#N/A	Arthropoda	Malacostraca	Decapoda	Hippolytidae			Crustacean				
Euchone incolor	EucIncol	Annelida	Polychaeta	Sabellida	Sabellidae				48.47	Euchone_incolor	190	
Euchone limnicola	EucLimni	Annelida	Polychaeta	Sabellida	Sabellidae				76.27	Euchone_limnicola	40	
Euclymeninae	#N/A	Annelida	Polychaeta	Capitellida	Maldanidae				12.02	Euclymeninae	157	
Euclymeninae sp A	#N/A	Annelida	Polychaeta	Capitellida	Maldanidae				18.95	Euclymeninae_sp_A	203	
Eulalia californiensis	EulCalif	Annelida	Polychaeta	Phyllodocida	Phyllodocidae							
Eulalia quadrioculata	#N/A	Annelida	Polychaeta	Phyllodocida	Phyllodocidae							
Eulithidium sp	#N/A	Mollusca	Gastropoda	Vetigastropoda	Turbinidae		Mollusc		-26.84	Eulithidium_sp	447	
Eumida longicornuta	EumLongi	Annelida	Polychaeta	Phyllodocida	Phyllodocidae				2.40	Eumida_longicornuta	292	
Eumida sp	#N/A	Annelida	Polychaeta	Phyllodocida	Phyllodocidae							Drop
Eunicidae	#N/A	Annelida	Polychaeta	Eunicida	Eunicidae							Drop
Euphilomedes carcharodonta	EupCarch	Arthropoda	Ostracoda	Myodocopida	Philomedidae			Crustacean	57.24	Euphilomedes_carcharodonta	41	
Euphilomedes producta	#N/A	Arthropoda	Ostracoda	Myodocopida	Philomedidae			Crustacean				
Euphysa sp	#N/A	Cnidaria	Hydrozoa	Athecatae	Corymorphidae							
Eupolymnia heterobranchia	EupHeter	Annelida	Polychaeta	Terebellida	Terebellidae							
Eusarsiella thominx	#N/A	Arthropoda	Ostracoda	Myodocopida	Sarsiellidae	S		Crustacean		Eusarsiella_thominx	314	
Eusiridae	#N/A	Arthropoda	Malacostraca	Amphipoda	Eusiridae			Crustacean				Drop
Exogone acutipalpa	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							
Exogone breviseta	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae	S			11.40	Exogone_breviseta	98	
Exogone cf verugera	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							Drop
Exogone dwisula	ExoDwisu	Annelida	Polychaeta	Phyllodocida	Syllidae	S			52.84	Exogone_dwisula	99	
Exogone lourei	ExoLoure	Annelida	Polychaeta	Phyllodocida	Syllidae	S			41.86	Exogone_lourei	42	
Exogone sp	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							Drop
Exogone sp A (Harris)	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							Drop
Exogone uniformis	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							Drop
Exosphaeroma rhomburum	#N/A	Arthropoda	Malacostraca	Isopoda	Sphaeromatidae			Crustacean		Exosphaeroma_rhomburum	395	
Eyakia robusta	#N/A	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae			Crustacean				
Fabricinuda limnicola	FabLimni	Annelida	Polychaeta	Sabellida	Sabellidae				50.03	Fabricinuda_limnicola	130	
Flabellifera	#N/A	Arthropoda	Malacostraca	Isopoda				Crustacean				Drop
Flabelligera infundibularis	#N/A	Annelida	Polychaeta	Flabelligerida	Flabelligeridae							
Flosmaris grandis	FloGrand	Cnidaria	Anthozoa	Actiniaria	Isophelliidae							
Foxiphalus golfensis	#N/A	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae			Crustacean		Foxiphalus_golfensis	409	
Foxiphalus obtusidens	#N/A	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae			Crustacean		Foxiphalus_obtusidens	244	
Gammaridea	Gammarid	Arthropoda	Malacostraca	Amphipoda				Crustacean				Drop
Gammaropsis sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Isaeidae			Crustacean				Drop

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVCoINo	SpeciesLevel
Gammaropsis thompsoni	GamThomp	Arthropoda	Malacostraca	Amphipoda	Isaeidae			Crustacean	-35.09	Gammaropsis_thompsoni	369	
Gari sp	#N/A	Mollusca	Bivalvia	Veneroida	Psammobiidae		Mollusc					
Gastropoda	#N/A	Mollusca	Gastropoda				Mollusc					Drop
Gastropteron pacificum	#N/A	Mollusca	Gastropoda	Cephalaspidea	Gastropteridae	S	Mollusc			Gastropteron_pacificum	315	
Geukensia demissa	#N/A	Mollusca	Bivalvia	Mytiloida	Mytilidae		Mollusc			Geukensia_demissa	185	
Gibberosus myersi	#N/A	Arthropoda	Malacostraca	Amphipoda	Megaluropidae			Crustacean	-18.88	Gibberosus_myersi	441	
Gitanopsis sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Amphilochidae			Crustacean				
Glottidia albida	#N/A	Brachiopoda	Inarticulata	Lingulida	Lingulidae	S			-9.45	Glottidia_albida	347	
Glycera americana	GlyAmeri	Annelida	Polychaeta	Phyllodocida	Glyceridae				29.81	Glycera_americana	100	
Glycera macrobranchia	#N/A	Annelida	Polychaeta	Phyllodocida	Glyceridae							
Glycera nana	#N/A	Annelida	Polychaeta	Phyllodocida	Glyceridae				17.37	Glycera_nana	174	
Glycera robusta	#N/A	Annelida	Polychaeta	Phyllodocida	Glyceridae							Drop
Glycera sp	#N/A	Annelida	Polychaeta	Phyllodocida	Glyceridae							
Glycera tenuis	#N/A	Annelida	Polychaeta	Phyllodocida	Glyceridae							
Glycinde armigera	GlyArmig	Annelida	Polychaeta	Phyllodocida	Goniadidae				28.22	Glycinde_armigera	264	
Glycinde picta	#N/A	Annelida	Polychaeta	Phyllodocida	Goniadidae							
Glycinde polygnatha	#N/A	Annelida	Polychaeta	Phyllodocida	Goniadidae							
Glycinde sp	GlycinSp	Annelida	Polychaeta	Phyllodocida	Goniadidae							Drop
Gnathiidae	#N/A	Arthropoda	Malacostraca	Isopoda	Gnathiidae			Crustacean	2.19	Gnathiidae	285	
Gnorimosphaeroma oregonense	#N/A	Arthropoda	Malacostraca	Isopoda	Sphaeromatidae			Crustacean	110.11	Gnorimosphaeroma_oregonense	43	
Golfingia sp	#N/A	Sipuncula	Sipunculidea	Golfingiformes	Golfingiidae							
Golfingiidae	#N/A	Sipuncula	Sipunculidea	Golfingiformes	Golfingiidae							Drop
Goniada littorea	GonLitto	Annelida	Polychaeta	Phyllodocida	Goniadidae	S			16.63	Goniada_littorea	148	
Goniada maculata	#N/A	Annelida	Polychaeta	Phyllodocida	Goniadidae				-14.95	Goniada_maculata	265	
Grandidierella japonica	GraJapon	Arthropoda	Malacostraca	Amphipoda	Aoridae			Crustacean	105.98	Grandidierella_japonica	4	
Granulina margaritula	GraMarga	Mollusca	Gastropoda	Neogastropoda	Marginellidae		Mollusc		63.54	Granulina_margaritula	396	
Grapsidae	Grapsida	Arthropoda	Malacostraca	Decapoda	Grapsidae			Crustacean				Drop
Gymnonereis crosslandi	#N/A	Annelida	Polychaeta	Phyllodocida	Nereididae					Gymnonereis_crosslandi	298	
Gyptis sp	GyptiSp	Annelida	Polychaeta	Phyllodocida	Hesionidae							
Halcampidae	#N/A	Cnidaria	Anthozoa	Actiniaria	Halcampidae				21.57	Halcampidae	131	
Haliophasma geminatum	#N/A	Arthropoda	Malacostraca	Isopoda	Anthuridae			Crustacean				
Halosydna brevisetosa	HalBrevi	Annelida	Polychaeta	Phyllodocida	Polynoidae							
Halosydna johnsoni	HalJohns	Annelida	Polychaeta	Phyllodocida	Polynoidae				19.35	Halosydna_johnsoni	234	
Halosydna latior	#N/A	Annelida	Polychaeta	Phyllodocida	Polynoidae							
Haminoea vesicula	HamVesic	Mollusca	Gastropoda	Cephalaspidea	Haminaeidae		Mollusc		29.87	Haminoea_vesicula	19	
Haminoea virescens	HamVires	Mollusca	Gastropoda	Cephalaspidea	Haminaeidae		Mollusc					
Harmothoe hirsuta	#N/A	Annelida	Polychaeta	Phyllodocida	Polynoidae							
Harmothoe imbricata Cmplx	#N/A	Annelida	Polychaeta	Phyllodocida	Polynoidae				26.75	Harmothoe_imbricata_Cmplx	44	
Harmothoe sp	#N/A	Annelida	Polychaeta	Phyllodocida	Polynoidae							Drop

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVCoINo	SpeciesLevel
Harmothoe sp 1	HarmoSp1	Annelida	Polychaeta	Phyllodocida	Polynoidae							Drop
Harpacticoida	#N/A	Arthropoda	Copepoda	Harpacticoida	Ectinosomatidae			Crustacean	32.91	Harpacticoida	186	
Hartmanodes hartmanae	HarHartm	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae			Crustacean	31.38	Hartmanodes_hartmanae	101	
Hartmanodes murrius	#N/A	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae			Crustacean				
Hemigrapsus oregonensis	HemOrego	Arthropoda	Malacostraca	Decapoda	Grapsidae			Crustacean	60.70	Hemigrapsus_oregonensis	20	
Hemilamprops californicus	#N/A	Arthropoda	Malacostraca	Cumacea	Lampropidae			Crustacean				
Hemipodia borealis	#N/A	Annelida	Polychaeta	Phyllodocida	Glyceridae				-11.76	Hemipodia_borealis	354	
Hemiproto sp A	#N/A	Arthropoda	Malacostraca	Amphipoda	Phtiscidae			Crustacean	16.04	Hemiproto_sp_A	245	
Heptacarpus paludicola	#N/A	Arthropoda	Malacostraca	Decapoda	Hippolytidae			Crustacean				
Heptacarpus sp	#N/A	Arthropoda	Malacostraca	Decapoda	Hippolytidae			Crustacean				Drop
Heptacarpus taylori	#N/A	Arthropoda	Malacostraca	Decapoda	Hippolytidae			Crustacean				
Hesionidae	#N/A	Annelida	Polychaeta	Phyllodocida	Hesionidae							Drop
Hesionura coineaui difficilis	#N/A	Annelida	Polychaeta	Phyllodocida	Phyllodocidae							
Hesperonoe complanata	#N/A	Annelida	Polychaeta	Phyllodocida	Polynoidae							
Hesperonoe laevis	#N/A	Annelida	Polychaeta	Phyllodocida	Polynoidae				-29.17	Hesperonoe_laevis	266	
Heteromastus filiformis	#N/A	Annelida	Polychaeta	Capitellida	Capitellidae							
Heteromysis odontops	HetOdont	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean	40.27	Heteromysis_odontops	191	
Heterophoxus ellisi	#N/A	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae			Crustacean	43.50	Heterophoxus_ellisi	132	
Heterophoxus oculatus	#N/A	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae			Crustacean	45.70	Heterophoxus_oculatus	397	
Heteropodarke heteromorpha	#N/A	Annelida	Polychaeta	Phyllodocida	Hesionidae							
Heteroserolis carinata	HetCarin	Arthropoda	Malacostraca	Isopoda	Serolidae	S		Crustacean	32.23	Heteroserolis_carinata	68	
Heterospio catalinensis	#N/A	Annelida	Polychaeta	Spionida	Longosomatidae							
Hiatella arctica	HiaArcti	Mollusca	Bivalvia	Myoida	Hiatellidae		Mollusc		-14.90	Hiatella_arctica	102	
Hippolyte californiensis	HipCalif	Arthropoda	Malacostraca	Decapoda	Hippolytidae			Crustacean				
Hippolytidae	#N/A	Arthropoda	Malacostraca	Decapoda	Hippolytidae			Crustacean				Drop
Hippomedon sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Lysianassidae	S		Crustacean	23.62	Hippomedon_sp	330	
Hirudinea	#N/A	Annelida	Hirudinea							Hirudinea	454	
Holmesimysis costata	#N/A	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean		Holmesimysis_costata	455	
Hyalidae	#N/A	Arthropoda	Malacostraca	Amphipoda	Hyalidae			Crustacean	19.15	Hyalidae	422	
Hydroides elegans	#N/A	Annelida	Polychaeta	Sabellida	Serpulidae				28.10	Hydroides_elegans	232	
Hydroides pacificus	HydPacif	Annelida	Polychaeta	Sabellida	Serpulidae							
Incisocalliope sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Pleustidae			Crustacean				
Insecta	#N/A	Arthropoda	Insecta									
Irusella lamellifera	IruLamel	Mollusca	Bivalvia	Veneroida	Veneridae		Mollusc					
Isaeidae	#N/A	Arthropoda	Malacostraca	Amphipoda	Isaeidae			Crustacean				Drop
Ischyrocerus sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Ischyroceridae			Crustacean				
Iselica ovoidea	IseOvoid	Mollusca	Gastropoda	Heterostropha	Pyramidellidae		Mollusc		64.26	Iselica_ovoidea	235	
Isocheles pilosus	IsoPilos	Arthropoda	Malacostraca	Decapoda	Diogenidae			Crustacean				
Janiralata sp	JaniraSp	Arthropoda	Malacostraca	Isopoda	Janiridae			Crustacean	44.75	Janiralata_sp	339	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVColNo	SpeciesLevel
Janiropsis tridens	#N/A	Arthropoda	Malacostraca	Isopoda	Janiridae			Crustacean	4.75	Janiropsis_tridens	446	
Janua (Dexiospira) brasiliensis	#N/A	Annelida	Polychaeta	Sabellida	Serpulidae							
Jassa slatteryi	#N/A	Arthropoda	Malacostraca	Amphipoda	Ischyroceridae			Crustacean	30.44	Jassa_slatteryi	241	
Jassa sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Ischyroceridae			Crustacean		Jassa_sp	456	
Joeropsis dubia	#N/A	Arthropoda	Malacostraca	Isopoda	Joeropsididae			Crustacean	-7.01	Joeropsis_dubia	436	
Joeropsis sp	JoeropSp	Arthropoda	Malacostraca	Isopoda	Joeropsididae			Crustacean				Drop
Kalliapseudes crassus	KalCrass	Arthropoda	Malacostraca	Tanaidacea	Kalliapseudidaea			Crustacean				
Kellia sp	#N/A	Mollusca	Bivalvia	Veneroida	Lasaeidae		Mollusc		42.95	Kellia_sp	327	
Kurtziella plumbea	#N/A	Mollusca	Gastropoda	Neogastropoda	Conidae		Mollusc		-16.60	Kurtziella_plumbea	267	
Kurtzina beta	#N/A	Mollusca	Gastropoda	Neogastropoda	Conidae		Mollusc			Kurtzina_beta	250	
Lacuna unifasciata	LacUnifa	Mollusca	Gastropoda	Neotaenioglossa	Lacunidae		Mollusc			Lacuna_unifasciata	457	
Laevicardium substriatum	LaeSubst	Mollusca	Bivalvia	Veneroida	Cardiidae		Mollusc		40.38	Laevicardium_substriatum	21	
Lamprops carinatus	#N/A	Arthropoda	Malacostraca	Cumacea	Lampropidae			Crustacean				
Lamprops quadriplicatus	#N/A	Arthropoda	Malacostraca	Cumacea	Lampropidae			Crustacean				
Lamprops sp	#N/A	Arthropoda	Malacostraca	Cumacea	Lampropidae			Crustacean				Drop
Lanice conchilega	#N/A	Annelida	Polychaeta	Terebellida	Terebellidae							
Laomedea calceolifera	#N/A	Cnidaria	Hydrozoa	Thecatae	Campanulariidae							Drop
Laonice cirrata	#N/A	Annelida	Polychaeta	Spionida	Spionidae				-27.89	Laonice_cirrata	158	
Laonice nuchala	#N/A	Annelida	Polychaeta	Spionida	Spionidae							
Laonice pugettensis	#N/A	Annelida	Polychaeta	Spionida	Spionidae							
Laticorophium baconi	#N/A	Arthropoda	Malacostraca	Amphipoda	Corophidae			Crustacean		Laticorophium_baconi	316	
Leitoscoloplos panamensis	#N/A	Annelida	Polychaeta	Orbiniida	Orbiniidae					Leitoscoloplos_panamensis	317	
Leitoscoloplos pugettensis	LeiPuget	Annelida	Polychaeta	Orbiniida	Orbiniidae				64.43	Leitoscoloplos_pugettensis	69	
Lepidasthenia berkeleyae	#N/A	Annelida	Polychaeta	Phyllodocida	Polynoidae							
Lepidochitona hartwegii	#N/A	Mollusca	Polyplacophora	Neoloricata	Tonicellidae		Mollusc					
Lepidonotus sp	#N/A	Annelida	Polychaeta	Phyllodocida	Polynoidae							
Lepidopa californica	#N/A	Arthropoda	Malacostraca	Decapoda	Albuneidae			Crustacean				
Leporimetis obesa	#N/A	Mollusca	Bivalvia	Veneroida	Tellinidae	S	Mollusc		-12.30	Leporimetis_obesa	175	
Leptochelia dubia	LepDubia	Arthropoda	Malacostraca	Tanaidacea	Leptocheliidae	S		Crustacean	-9.36	Leptochelia_dubia	103	
Leptocuma forsmani	#N/A	Arthropoda	Malacostraca	Cumacea	Bodotriidae			Crustacean				
Leptopecten latiauratus	LepLatia	Mollusca	Bivalvia	Ostreoida	Pectinidae		Mollusc		11.92	Leptopecten_latiauratus	22	
Leptosynapta sp	LeptosSp	Echinodermata	Holothuroidea	Apodida	Synaptidae				3.64	Leptosynapta_sp	70	
Leucon sp	#N/A	Arthropoda	Malacostraca	Cumacea	Leuconidae			Crustacean				Drop
Leucothoe alata	LeuAluta	Arthropoda	Malacostraca	Amphipoda	Leucothoidae			Crustacean				
Leucothoe sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Leucothoidae			Crustacean				
Leuroleberis sharpei	LeuSharp	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae			Crustacean	0.06	Leuroleberis_sharpei	348	
Levinsenia gracilis	#N/A	Annelida	Polychaeta	Orbiniida	Paraonidae				-10.46	Levinsenia_gracilis	220	
Liljeborgia geminata	LilGemin	Arthropoda	Malacostraca	Amphipoda	Liljeborgiidae			Crustacean				
Liljeborgia sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Liljeborgiidae			Crustacean				

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVCoINo	SpeciesLevel
Limaria hemphilli	LimHemph	Mollusca	Bivalvia	Limoida	Limidae	S	Mollusc		1.87	Limaria_hemphilli	414	
Limatula saturna	#N/A	Mollusca	Bivalvia	Limoida	Limidae		Mollusc					
Lineidae	#N/A	Nemertea	Anopla	Heteronemertea	Lineidae				3.96	Lineidae	23	
Lirobittium sp	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Cerithidae		Mollusc		16.36	Lirobittium_sp	378	
Lirularia parcipicta	#N/A	Mollusca	Gastropoda	Vetigastropoda	Trochidae		Mollusc					
Listriella diffusa	LisDiffu	Arthropoda	Malacostraca	Amphipoda	Liljeborgiidae			Crustacean	-31.23	Listriella_diffusa	413	
Listriella eriopisa	#N/A	Arthropoda	Malacostraca	Amphipoda	Liljeborgiidae			Crustacean	64.17	Listriella_eriopisa	246	
Listriella goleta	#N/A	Arthropoda	Malacostraca	Amphipoda	Liljeborgiidae	S		Crustacean	-18.66	Listriella_goleta	221	
Listriella melanica	LisMelan	Arthropoda	Malacostraca	Amphipoda	Liljeborgiidae	S		Crustacean	5.80	Listriella_melanica	196	
Listriolobus pelodes	#N/A	Echiura	Echiurida	Echiuroinea	Thalassematidae							
Lophopanopeus bellus	#N/A	Arthropoda	Malacostraca	Decapoda	Xanthidae			Crustacean	41.37	Lophopanopeus_bellus	437	
Lophopanopeus frontalis	LopFront	Arthropoda	Malacostraca	Decapoda	Xanthidae			Crustacean				
Lophopanopeus leucomanus	#N/A	Arthropoda	Malacostraca	Decapoda	Xanthidae			Crustacean				
Lophopanopeus sp	LophopSp	Arthropoda	Malacostraca	Decapoda	Xanthidae			Crustacean				Drop
Lottia ochracea	#N/A	Mollusca	Gastropoda	Petallogastropoda	Lottiidae		Mollusc			Lottia_ochracea	370	
Loxorhynchus sp	LoxorhSp	Arthropoda	Malacostraca	Decapoda	Majidae			Crustacean				
Lucinisca nuttalli	#N/A	Mollusca	Bivalvia	Veneroida	Lucinidae		Mollusc		-36.18	Lucinisca_nuttalli	286	
Lumbrineridae	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae							Drop
Lumbrinerides platypygos	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae							
Lumbrineris californiensis	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae	S				Lumbrineris_californiensis	318	
Lumbrineris cruzensis	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae				-20.62	Lumbrineris_cruzensis	104	
Lumbrineris erecta	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae				83.58	Lumbrineris_erecta	197	
Lumbrineris japonica	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae				-25.17	Lumbrineris_japonica	230	
Lumbrineris latreilli	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae				16.12	Lumbrineris_latreilli	105	
Lumbrineris limicola	LumLimic	Annelida	Polychaeta	Eunicida	Lumbrineridae				2.90	Lumbrineris_limicola	281	
Lumbrineris sp	LumbrineSp	Annelida	Polychaeta	Eunicida	Lumbrineridae							Drop
Lyonsia californica	LyoCalif	Mollusca	Bivalvia	Pholadomyoida	Lyonsiidae	S	Mollusc		43.70	Lyonsia_californica	71	
Lysippe sp	#N/A	Annelida	Polychaeta	Terebellida	Ampharetidae				-37.81	Lysippe_sp	268	
Lytechinus pictus	#N/A	Echinodermata	Echinoidea	Temnopleuroida	Toxopneustidae							
Macoma acolasta	#N/A	Mollusca	Bivalvia	Veneroida	Tellinidae		Mollusc					
Macoma indentata	#N/A	Mollusca	Bivalvia	Veneroida	Tellinidae		Mollusc		15.47	Macoma_indentata	236	
Macoma inquinata	#N/A	Mollusca	Bivalvia	Veneroida	Tellinidae		Mollusc					
Macoma nasuta	MacNasut	Mollusca	Bivalvia	Veneroida	Tellinidae		Mollusc		45.89	Macoma_nasuta	72	
Macoma sp	MacomaSp	Mollusca	Bivalvia	Veneroida	Tellinidae		Mollusc					Drop
Macoma yoldiformis	MacYoldi	Mollusca	Bivalvia	Veneroida	Tellinidae		Mollusc		-9.18	Macoma_yoldiformis	176	
Macrochaeta sp	#N/A	Annelida	Polychaeta	Spionida	Acrocirridae					Macrochaeta_sp	431	
Mactridae	#N/A	Mollusca	Bivalvia	Veneroida	Mactridae		Mollusc					Drop
Mactromeris sp	#N/A	Mollusca	Bivalvia	Veneroida	Mactridae		Mollusc			Mactromeris_sp	73	
Mactrotoma californica	MacCalif	Mollusca	Bivalvia	Veneroida	Mactridae		Mollusc		5.11	Mactrotoma_californica	106	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVColNo	SpeciesLevel
Maera similis	#N/A	Arthropoda	Malacostraca	Amphipoda	Melitidae			Crustacean	-8.23	Maera_similis	328	
Maera sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Melitidae			Crustacean				Drop
Majidae	#N/A	Arthropoda	Malacostraca	Decapoda	Majidae			Crustacean				Drop
Malacoplax californiensis	MalCalif	Arthropoda	Malacostraca	Decapoda	Gonoplacidae			Crustacean	14.40	Malacoplax_californiensis	296	
Maldane sarsi	#N/A	Annelida	Polychaeta	Capitellida	Maldanidae				26.05	Maldanidae	74	
Maldanidae	#N/A	Annelida	Polychaeta	Capitellida	Maldanidae							
Malmgreniella sp	MalmgrSp	Annelida	Polychaeta	Phyllodocida	Polynoidae				-25.46	Malmgreniella_sp	133	
Marphysa angelensis	#N/A	Annelida	Polychaeta	Eunicida	Eunicidae				97.82	Marphysa_angelensis	149	
Marphysa disjuncta	MarDisju	Annelida	Polychaeta	Eunicida	Eunicidae				-5.91	Marphysa_disjuncta	251	
Marphysa mortenseni	#N/A	Annelida	Polychaeta	Eunicida	Eunicidae							
Marphysa sp	#N/A	Annelida	Polychaeta	Eunicida	Eunicidae							Drop
Marphysa sp A	#N/A	Annelida	Polychaeta	Eunicida	Eunicidae				-25.98	Marphysa_sp_A	287	
Marphysa sp B	#N/A	Annelida	Polychaeta	Eunicida	Eunicidae							
Marphysa stylobranchiata	#N/A	Annelida	Polychaeta	Eunicida	Eunicidae				94.27	Marphysa_stylobranchiata	187	
Mayerella acanthopoda	#N/A	Arthropoda	Malacostraca	Amphipoda	Protellidae			Crustacean	22.26	Mayerella_acanthopoda	134	
Mayerella banksia	MayBanks	Arthropoda	Malacostraca	Amphipoda	Protellidae			Crustacean	23.44	Mayerella_banksia	247	
Mediomastus sp	MediomSp	Annelida	Polychaeta	Capitellida	Capitellidae				57.84	Mediomastus_sp	24	
Megalomma pigmentum	MegPigme	Annelida	Polychaeta	Sabellida	Sabellidae				44.39	Megalomma_pigmentum	107	
Megalomma sp	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae							Drop
Megamoera subtener	#N/A	Arthropoda	Malacostraca	Amphipoda	Melitidae			Crustacean		Megamoera_subtener	371	
Megastraea undosa	#N/A	Mollusca	Gastropoda	Vetigastropoda	Turbinidae		Mollusc					
Melampus olivaceus	#N/A	Mollusca	Gastropoda	Archaeopulmonata	Ellobiidae		Mollusc					
Melanochlamys diomedea	#N/A	Mollusca	Gastropoda	Cephalaspidea	Aglajidae		Mollusc					
Melinna sp	#N/A	Annelida	Polychaeta	Terebellida	Ampharetidae				-4.80	Melinna_sp	108	
Melitidae	#N/A	Arthropoda	Malacostraca	Amphipoda	Melitidae			Crustacean				Drop
Melphisana bola Cmplx	#N/A	Arthropoda	Malacostraca	Amphipoda	Melphidippidae			Crustacean				
Metacrangon spinosissima	MetSpino	Arthropoda	Malacostraca	Decapoda	Crangonidae			Crustacean				
Metamysidopsis elongata	#N/A	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean				
Metasychis disparidentatus	MetDispa	Annelida	Polychaeta	Capitellida	Maldanidae				85.83	Metasychis_disparidentatus	252	
Microcosmus squamiger	#N/A	Chordata	Ascidiacea	Stolidobranchiata	Pyuridae							
Microjassa litotes	#N/A	Arthropoda	Malacostraca	Amphipoda	Ischyroceridae			Crustacean				
Microphthalmus sp	#N/A	Annelida	Polychaeta	Phyllodocida	Hesionidae							Drop
Micropleustes nautilus	#N/A	Arthropoda	Malacostraca	Amphipoda	Pleustidae			Crustacean		Micropleustes_nautilus	430	
Micropodarke dubia	#N/A	Annelida	Polychaeta	Phyllodocida	Hesionidae				-0.85	Micropodarke_dubia	372	
Microspio microcera	#N/A	Annelida	Polychaeta	Spionida	Spionidae							
Microspio pigmentata	MicPigme	Annelida	Polychaeta	Spionida	Spionidae	S			-2.26	Microspio_pigmentata	198	
Modiolus sp	#N/A	Mollusca	Bivalvia	Mytiloida	Mytilidae	S	Mollusc		-18.11	Modiolus_sp	382	
Molgula sp	MolgulSp	Chordata	Ascidiacea	Stolidobranchiata	Molgulidae				46.61	Molgula_sp	283	
Monocorophium acherusicum	#N/A	Arthropoda	Malacostraca	Amphipoda	Corophiidae	S		Crustacean	61.69	Monocorophium_acherusicum	5	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVColNo	SpeciesLevel
Monocorophium insidiosum	#N/A	Arthropoda	Malacostraca	Amphipoda	Corophiidae	S		Crustacean	103.42	Monocorophium_insidiosum	6	
Monocorophium sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Corophiidae			Crustacean				Drop
Monocorophium uenoi	#N/A	Arthropoda	Malacostraca	Amphipoda	Corophiidae			Crustacean				
Monoculodes sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae			Crustacean		Monoculodes_sp	426	
Monticellina cryptica	MonCrypt	Annelida	Polychaeta	Spionida	Cirratulidae				0.22	Monticellina_cryptica	75	
Monticellina siblina	MonSibli	Annelida	Polychaeta	Spionida	Cirratulidae				8.29	Monticellina_siblina	45	
Monticellina sp	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae							Drop
Monticellina tesselata	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae							
Munnogonium tillerae	#N/A	Arthropoda	Malacostraca	Isopoda	Paramunnidae			Crustacean				
Musculista senhousia	#N/A	Mollusca	Bivalvia	Mytiloida	Mytilidae		Mollusc		68.05	Musculista_senhousia	46	
Mya arenaria	MyaArena	Mollusca	Bivalvia	Myoida	Myidae		Mollusc					
Mysidae	#N/A	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean				Drop
Mysidella americana	#N/A	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean				
Mysidopsis californica	#N/A	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean	48.65	Mysidopsis_californica	384	
Mysidopsis intii	#N/A	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean	-1.99	Mysidopsis_intii	306	
Mysidopsis sp	#N/A	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean				Drop
Mytilidae	#N/A	Mollusca	Bivalvia	Mytiloida	Mytilidae		Mollusc					Drop
Mytilus sp	#N/A	Mollusca	Bivalvia	Mytiloida	Mytilidae		Mollusc		6.74	Mytilus_sp	242	
Myxicola sp	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae							
Naineris dendritica	#N/A	Annelida	Polychaeta	Orbiniida	Orbiniidae				60.00	Naineris_dendritica	340	
Naineris uncinata	#N/A	Annelida	Polychaeta	Orbiniida	Orbiniidae					Naineris_uncinata	438	
Nasagenia quinsana	#N/A	Arthropoda	Malacostraca	Amphipoda	Eusiridae			Crustacean		Nasagenia_quinsana	439	
Nassarina penicillata	#N/A	Mollusca	Gastropoda	Neogastropoda	Columbellidae		Mollusc					
Nassarius perpinguis	#N/A	Mollusca	Gastropoda	Neogastropoda	Nassariidae		Mollusc		0.77	Nassarius_perpinguis	269	
Nassarius sp	NassarSp	Mollusca	Gastropoda	Neogastropoda	Nassariidae		Mollusc					Drop
Nassarius tiarula	#N/A	Mollusca	Gastropoda	Neogastropoda	Nassariidae		Mollusc		55.80	Nassarius_tiarula	135	
Natantia	#N/A	Arthropoda	Malacostraca	Decapoda				Crustacean				Drop
Naushonia macginitiei	#N/A	Arthropoda	Malacostraca	Decapoda	Laomediidae			Crustacean	68.98	Naushonia_macginitiei	231	
Navanax inermis	NavInerm	Mollusca	Gastropoda	Cephalaspidea	Aglajidae		Mollusc					
Neanthes acuminata Cmplx	#N/A	Annelida	Polychaeta	Phyllodocida	Nereididae				58.88	Neanthes_acuminata_Cmplx	47	
Neastacilla californica	NeaCalif	Arthropoda	Malacostraca	Isopoda	Arcturidae			Crustacean				
Nebalia daytoni	#N/A	Arthropoda	Malacostraca	Leptostraca	Nebaliidae			Crustacean				
Nebalia pugettensis Cmplx	#N/A	Arthropoda	Malacostraca	Leptostraca	Nebaliidae			Crustacean	40.62	Nebalia_pugettensis_Cmplx	48	
Nematonereis sp	NematoSp	Annelida	Polychaeta	Eunicida	Eunicidae							
Nemertea	#N/A	Nemertea							33.99	Nemertea	109	
Nemocardium centifilosum	NemCenti	Mollusca	Bivalvia	Veneroida	Cardiidae		Mollusc					
Neoischyrocerus claustris	#N/A	Arthropoda	Malacostraca	Amphipoda	Ischyroceridae			Crustacean				
Neolepton sp	#N/A	Mollusca	Bivalvia	Veneroida	Bernardinidae		Mollusc					
Neomysis sp	NeomysSp	Arthropoda	Malacostraca	Mysidacea	Mysidae	S		Crustacean	17.02	Neomysis_sp	192	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVColNo	SpeciesLevel
Neosabellaria cementarium	#N/A	Annelida	Polychaeta	Terebellida	Sabellariidae				-34.44	Neosabellaria_cementarium	373	
Neotrypaea sp	NeotrySp	Arthropoda	Malacostraca	Decapoda	Callianassidae			Crustacean	30.34	Neotrypaea_sp	136	
Nephasoma sp	#N/A	Sipuncula	Sipunculidea	Golfingiformes	Golfingiidae				1.41	Nephasoma_sp	110	
Nephtys caecoides	NepCaeco	Annelida	Polychaeta	Phyllodocida	Nephtyidae				35.51	Nephtys_caecoides	76	
Nephtys californiensis	#N/A	Annelida	Polychaeta	Phyllodocida	Nephtyidae							
Nephtys cornuta	NepCornu	Annelida	Polychaeta	Phyllodocida	Nephtyidae				20.40	Nephtys_cornuta	193	
Nephtys ferruginea	NepFerru	Annelida	Polychaeta	Phyllodocida	Nephtyidae				-3.78	Nephtys_ferruginea	222	
Nephtys simoni	#N/A	Annelida	Polychaeta	Phyllodocida	Nephtyidae				25.38	Nephtys_simoni	423	
Nephtys sp	#N/A	Annelida	Polychaeta	Phyllodocida	Nephtyidae							Drop
Nereididae	#N/A	Annelida	Polychaeta	Phyllodocida	Nereididae							Drop
Nereis latescens	#N/A	Annelida	Polychaeta	Phyllodocida	Nereididae				-20.47	Nereis_latescens	293	
Nereis procera	NerProce	Annelida	Polychaeta	Phyllodocida	Nereididae				-31.64	Nereis_procera	25	
Nereis sp	#N/A	Annelida	Polychaeta	Phyllodocida	Nereididae							Drop
Neverita reclusiana	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Naticidae		Mollusc		-16.96	Neverita_reclusiana	288	
Nicolea sp	#N/A	Annelida	Polychaeta	Terebellida	Terebellidae				13.61	Nicolea_sp	329	
No organisms present	#N/A											
Norrisia norrisi	#N/A	Mollusca	Gastropoda	Vetigastropoda	Trochidae		Mollusc					
Notomastus sp	NotomaSp	Annelida	Polychaeta	Capitellida	Capitellidae				13.55	Notomastus_sp	49	
Nuculana elenensis	#N/A	Mollusca	Bivalvia	Nuculoida	Nuculanidae		Mollusc			Nuculana_elenensis	410	
Nuculana penderi	#N/A	Mollusca	Bivalvia	Nuculoida	Nuculanidae		Mollusc					Drop
Nuculana sp	#N/A	Mollusca	Bivalvia	Nuculoida	Nuculanidae		Mollusc					
Nuculana taphria	NucTaphr	Mollusca	Bivalvia	Nuculoida	Nuculanidae	S	Mollusc		-18.20	Nuculana_taphria	159	
Nutricola ovalis	#N/A	Mollusca	Bivalvia	Veneroida	Veneridae		Mollusc					
Nutricola tantilla	#N/A	Mollusca	Bivalvia	Veneroida	Veneridae		Mollusc					
Nuttallia nuttallii	#N/A	Mollusca	Bivalvia	Veneroida	Psammobiidae		Mollusc					
Ocinebrina sp	#N/A	Mollusca	Gastropoda	Neogastropoda	Muricidae		Mollusc					
Octopus sp	OctopuSp	Mollusca	Cephalopoda	Octopoda	Octopodidae		Mollusc					
Odontosyllis phosphorea	OdophoSp	Annelida	Polychaeta	Phyllodocida	Syllidae				26.11	Odontosyllis_phosphorea	111	
Odostomia sp	OdostoSp	Mollusca	Gastropoda	Heterostropha	Pyramidellidae	S	Mollusc		38.00	Odostomia_sp	282	
Ogyrides sp A	#N/A	Arthropoda	Malacostraca	Decapoda	Ogyrididae			Crustacean				
Okenia sp A	#N/A	Mollusca	Gastropoda	Nudibranchia	Goniodorididae		Mollusc					
Olea hansineensis	#N/A	Mollusca	Gastropoda	Sacoglossa	Oleidae		Mollusc					
Oligochaeta	#N/A	Annelida	Oligochaeta						69.96	Oligochaeta	50	
Olivella baetica	OliBaeti	Mollusca	Gastropoda	Neogastropoda	Olividae	S	Mollusc		13.42	Olivella_baetica	112	
Olivella biplicata	#N/A	Mollusca	Gastropoda	Neogastropoda	Olividae		Mollusc					
Onuphidae	#N/A	Annelida	Polychaeta	Eunicida	Onuphidae							
Onuphis sp	#N/A	Annelida	Polychaeta	Eunicida	Onuphidae							
Ophelia assimilis	#N/A	Annelida	Polychaeta	Opheliida	Opheliidae							
Ophelia limacina	#N/A	Annelida	Polychaeta	Opheliida	Opheliidae							

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVColNo	SpeciesLevel
Ophelia sp	#N/A	Annelida	Polychaeta	Opheliida	Opheliidae							Drop
Opheliidae	#N/A	Annelida	Polychaeta	Opheliida	Opheliidae							Drop
Ophiactis simplex	#N/A	Echinodermata	Ophiuroidea	Ophiurida	Ophiactidae	S			14.69	Ophiactis_simplex	341	
Ophiodromus pugettensis	#N/A	Annelida	Polychaeta	Phyllodocida	Hesionidae				18.13	Ophiodromus_pugettensis	342	
Ophiothrix spiculata	#N/A	Echinodermata	Ophiuroidea	Ophiurida	Ophiotricidae							
Ophiuroconis bispinosa	#N/A	Echinodermata	Ophiuroidea	Ophiurida	Ophiodermatidae					Ophiuroconis_bispinosa	319	
Ophiuroidea	#N/A	Echinodermata	Ophiuroidea									Drop
Ophryotrocha sp	#N/A	Annelida	Polychaeta	Eunicida	Dorvilleidae							
Opisthobranchia	#N/A	Mollusca	Gastropoda				Mollusc					Drop
Orchomene sp	OrchomSp	Arthropoda	Malacostraca	Amphipoda	Lysianassidae			Crustacean				Drop
Ostrea sp	OstreaSp	Mollusca	Bivalvia	Ostreoida	Ostreidae		Mollusc		28.83	Ostrea_sp	401	
Owenia collaris	OweColla	Annelida	Polychaeta	Oweniida	Oweniidae	S			-29.21	Owenia_collaris	270	
Owenia fusiformis	#N/A	Annelida	Polychaeta	Oweniida	Oweniidae							
Oxyurostylis pacifica	OxyPacif	Arthropoda	Malacostraca	Cumacea	Diastylidae			Crustacean	32.66	Oxyurostylis_pacifica	113	
Oxyurostylis tertia	#N/A	Arthropoda	Malacostraca	Cumacea	Diastylidae			Crustacean		Oxyurostylis_tertia	427	
Pachynus barnardi	#N/A	Arthropoda	Malacostraca	Amphipoda	Lysianassidae			Crustacean		Pachynus_barnardi	307	
Pacifacanthomysis nephrophthalma	#N/A	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean		Pacifacanthomysis_nephrophthalma	403	
Palaemonella holmesi	#N/A	Arthropoda	Malacostraca	Decapoda	Palaemonidae			Crustacean				
Paleanotus bellis	PalBelli	Annelida	Polychaeta	Phyllodocida	Chrysopetalidae	S			1.83	Paleanotus_bellis	374	
Paracaprella sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Caprellidae			Crustacean				
Paracerceis cordata	#N/A	Arthropoda	Malacostraca	Isopoda	Sphaeromatidae			Crustacean				
Paracerceis sculpta	ParSculp	Arthropoda	Malacostraca	Isopoda	Sphaeromatidae			Crustacean	40.15	Paracerceis_sculpta	51	
Paracerceis sp	#N/A	Arthropoda	Malacostraca	Isopoda	Sphaeromatidae			Crustacean				Drop
Paradexamine sp SD1	#N/A	Arthropoda	Malacostraca	Amphipoda	Dexaminidae			Crustacean	53.70	Paradexamine_sp_SD1	137	
Paradiopatra parva	#N/A	Annelida	Polychaeta	Eunicida	Onuphidae							
Paramage scutata	#N/A	Annelida	Polychaeta	Terebellida	Ampharetidae				-16.52	Paramage_scutata	160	
Paramicrodeutopus schmitti	#N/A	Arthropoda	Malacostraca	Amphipoda	Aoridae	S		Crustacean	9.81	Paramicrodeutopus_schmitti	77	
Parandalia fauveli	#N/A	Annelida	Polychaeta	Phyllodocida	Pilargidae				-18.11	Parandalia_fauveli	404	
Paranemertes californica	ParCalif	Nemertea	Enopla	Hoplonemertea	Emplectonematidae				34.25	Paranemertes_californica	138	
Paranthura elegans	ParElega	Arthropoda	Malacostraca	Isopoda	Paranthuridae			Crustacean	48.38	Paranthura_elegans	78	
Paraonella platybranchia	#N/A	Annelida	Polychaeta	Orbiniida	Paraonidae				176.74	Paraonella_platybranchia	7	
Paraprionospio pinnata	ParPinna	Annelida	Polychaeta	Spionida	Spionidae				11.37	Paraprionospio_pinnata	79	
Paratanais sp	#N/A	Arthropoda	Malacostraca	Tanaidacea	Paratanaidae			Crustacean				
Pareurythoe californica	#N/A	Annelida	Polychaeta	Amphinomida	Amphinomidae				18.38	Pareurythoe_californica	204	
Parougia sp	#N/A	Annelida	Polychaeta	Eunicida	Dorvilleidae					Parougia_sp	161	
Parvaplustrum sp A	#N/A	Mollusca	Gastropoda	Architectibranchia	Hydatinidae		Mollusc					
Parvilucina tenuisculpta	ParTenui	Mollusca	Bivalvia	Veneroida	Lucinidae		Mollusc		-17.92	Parvilucina_tenuisculpta	177	
Pectinaria californiensis	PecCalif	Annelida	Polychaeta	Terebellida	Pectinariidae	S			29.76	Pectinaria_californiensis	178	
Pectinidae	#N/A	Mollusca	Bivalvia	Ostreoida	Pectinidae		Mollusc					Drop

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVColNo	SpeciesLevel
Pelecypoda	#N/A	Mollusca	Bivalvia				Mollusc					Drop
Pennatulacea	#N/A	Cnidaria	Anthozoa	Pennatulacea	Virgulariidae	S			-6.53	Pennatulacea	179	
Peramphithoe sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Ampithoidae			Crustacean				
Periclimenes infraspinis	#N/A	Arthropoda	Malacostraca	Decapoda	Palaemonidae			Crustacean				
Periploma discus	PerDiscu	Mollusca	Bivalvia	Pholadomyoida	Periplomatidae		Mollusc		-15.03	Periploma_discus	80	
Petaloclymene pacifica	#N/A	Annelida	Polychaeta	Capitellida	Maldanidae				-17.40	Petaloclymene_pacifica	223	
Petricola californiensis	#N/A	Mollusca	Bivalvia	Veneroida	Petricolidae		Mollusc					
Petricola carditoides	#N/A	Mollusca	Bivalvia	Veneroida	Petricolidae		Mollusc			Petricola_carditoides	375	
Petricola hertzana	#N/A	Mollusca	Bivalvia	Veneroida	Petricolidae		Mollusc					
Petricola sp	#N/A	Mollusca	Bivalvia	Veneroida	Petricolidae		Mollusc					Drop
Pherusa capulata	PheCapul	Annelida	Polychaeta	Flabelligerida	Flabelligeridae							
Pherusa inflata	#N/A	Annelida	Polychaeta	Flabelligerida	Flabelligeridae							
Pherusa negligens	#N/A	Annelida	Polychaeta	Flabelligerida	Flabelligeridae				30.95	Pherusa_negligens	237	
Pherusa neopapillata	#N/A	Annelida	Polychaeta	Flabelligerida	Flabelligeridae				39.25	Pherusa_neopapillata	300	
Pherusa sp	PherusSp	Annelida	Polychaeta	Flabelligerida	Flabelligeridae							Drop
Philine sp	PhilinSp	Mollusca	Gastropoda	Cephalaspidea	Philinidae		Mollusc		6.68	Philine_sp	114	
Philomedes dentata	#N/A	Arthropoda	Ostracoda	Myodocopida	Philomedidae			Crustacean		Philomedes_dentata	416	
Phisidia sanctaemariae	#N/A	Annelida	Polychaeta	Terebellida	Terebellidae							
Pholoe sp	PholoeSp	Annelida	Polychaeta	Phyllodocida	Pholoidae				-19.29	Pholoe_sp	248	
Pholoides asperus	#N/A	Annelida	Polychaeta	Phyllodocida	Pholoidae							
Phoronida	#N/A	Phorona		Phoronida		S			99.34	Phoronida	26	
Photis bifurcata	#N/A	Arthropoda	Malacostraca	Amphipoda	Isaeidae			Crustacean				
Photis brevipes	PhoBrevi	Arthropoda	Malacostraca	Amphipoda	Isaeidae	S		Crustacean	-30.44	Photis_brevipes	289	
Photis californica	#N/A	Arthropoda	Malacostraca	Amphipoda	Isaeidae			Crustacean				
Photis macinerneyi	#N/A	Arthropoda	Malacostraca	Amphipoda	Isaeidae			Crustacean				
Photis sp	PhotisSp	Arthropoda	Malacostraca	Amphipoda	Isaeidae			Crustacean				Drop
Phoxichilidium quadridentatum	#N/A	Arthropoda	Pycnogonida	Pegmata	Phoxichilidiidae							
Phyllodoce hartmanae	#N/A	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	S			2.22	Phyllodoce_hartmanae	205	
Phyllodoce longipes	#N/A	Annelida	Polychaeta	Phyllodocida	Phyllodocidae				-10.80	Phyllodoce_longipes	206	
Phyllodoce medipapillata	#N/A	Annelida	Polychaeta	Phyllodocida	Phyllodocidae							
Phyllodoce pettiboneae	#N/A	Annelida	Polychaeta	Phyllodocida	Phyllodocidae							
Phyllodoce sp	#N/A	Annelida	Polychaeta	Phyllodocida	Phyllodocidae							Drop
Phyllodocidae	#N/A	Annelida	Polychaeta	Phyllodocida	Phyllodocidae							Drop
Pilargis berkeleyae	#N/A	Annelida	Polychaeta	Phyllodocida	Pilargidae							
Pilargis sp	#N/A	Annelida	Polychaeta	Phyllodocida	Pilargidae							Drop
Pinnixa sp	PinnixSp	Arthropoda	Malacostraca	Decapoda	Pinnotheridae			Crustacean	-16.58	Pinnixa_sp	162	
Pinnotheridae	#N/A	Arthropoda	Malacostraca	Decapoda	Pinnotheridae			Crustacean				Drop
Pionosyllis sp	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae					Pionosyllis_sp	424	
Piromis sp	PiromiSp	Annelida	Polychaeta	Flabelligerida	Flabelligeridae							Drop

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVColNo	SpeciesLevel
Piromis sp SD1	#N/A	Annelida	Polychaeta	Flabelligerida	Flabelligeridae				29.19	Piromis_sp_SD1	417	
Pisione remota	#N/A	Annelida	Polychaeta	Phyllodocida	Pisionidae							
Pista estevanica	#N/A	Annelida	Polychaeta	Terebellida	Terebellidae							
Pista percyi	PisPercy	Annelida	Polychaeta	Terebellida	Terebellidae				42.02	Pista_percyi	52	
Pista sp	#N/A	Annelida	Polychaeta	Terebellida	Terebellidae							Drop
Pista sp C	PistaSpC	Annelida	Polychaeta	Terebellida	Terebellidae				4.06	Pista_wui	163	
Pista wui	#N/A	Annelida	Polychaeta	Terebellida	Terebellidae	S	Mollusc		-34.01	Pitar_newcombianus	398	
Pitar newcombianus	#N/A	Mollusca	Bivalvia	Veneroida	Veneridae							
Platidia hornii	#N/A	Brachiopoda	Articulata	Terebratulida	Platidiidae							
Platynereis bicanaliculata	PlaBican	Annelida	Polychaeta	Phyllodocida	Nereididae	S			-3.37	Platynereis_bicanaliculata	27	
Pleustidae	#N/A	Arthropoda	Malacostraca	Amphipoda	Pleustidae			Crustacean				Drop
Podarkeopsis glabrus	#N/A	Annelida	Polychaeta	Phyllodocida	Hesionidae				71.14	Podarkeopsis_glabrus	271	
Podarkeopsis sp A	#N/A	Annelida	Polychaeta	Phyllodocida	Hesionidae				-41.70	Podarkeopsis_sp_A	308	
Podocerus brasiliensis	#N/A	Arthropoda	Malacostraca	Amphipoda	Podoceridae			Crustacean				
Podocerus cristatus	#N/A	Arthropoda	Malacostraca	Amphipoda	Podoceridae			Crustacean	55.37	Podocerus_cristatus	385	
Podocerus fulanus	PodFulam	Arthropoda	Malacostraca	Amphipoda	Podoceridae			Crustacean	21.56	Podocerus_fulanus	115	
Podocerus sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Podoceridae			Crustacean				Drop
Podochela hemphillii	#N/A	Arthropoda	Malacostraca	Decapoda	Majidae			Crustacean		Podochela_hemphillii	420	
Podocopida	#N/A	Arthropoda	Ostracoda	Podocopida	Cypridae			Crustacean		Podocopida	188	
Poecilochaetus johnsoni	PoeJohns	Annelida	Polychaeta	Spionida	Poecilochaetidae	S			-6.60	Poecilochaetus_johnsoni	272	
Poecilochaetus sp	PoecilSp	Annelida	Polychaeta	Spionida	Poecilochaetidae							Drop
Poecilochaetus sp A	#N/A	Annelida	Polychaeta	Spionida	Poecilochaetidae				1.62	Poecilochaetus_sp_A	290	
Polycera sp	#N/A	Mollusca	Gastropoda	Nudibranchia	Polyceratidae		Mollusc					
Polycirrus sp	PolyciSp	Annelida	Polychaeta	Terebellida	Terebellidae				0.43	Polycirrus_sp	116	
Polydora cirrosa	#N/A	Annelida	Polychaeta	Spionida	Spionidae				13.97	Polydora_cirrosa	363	
Polydora cornuta	#N/A	Annelida	Polychaeta	Spionida	Spionidae				28.47	Polydora_cornuta	361	
Polydora limicola	#N/A	Annelida	Polychaeta	Spionida	Spionidae							
Polydora nuchalis	#N/A	Annelida	Polychaeta	Spionida	Spionidae				108.42	Polydora_nuchalis	143	
Polydora sp	PolydoSp	Annelida	Polychaeta	Spionida	Spionidae							Drop
Polydora websteri	PolWebst	Annelida	Polychaeta	Spionida	Spionidae							
Polynoidae	#N/A	Annelida	Polychaeta	Phyllodocida	Polynoidae							Drop
Polyophthalmus pictus	PolPictu	Annelida	Polychaeta	Ophelida	Opheliidae	S			0.87	Polyophthalmus_pictus	28	
Pontogeneia rostrata	#N/A	Arthropoda	Malacostraca	Amphipoda	Eusiridae			Crustacean	135.94	Pontogeneia_rostrata	451	
Portunus xantusii	#N/A	Arthropoda	Malacostraca	Decapoda	Portunidae			Crustacean		Portunus_xantusii	393	
Postasterope barnesi	PosBarne	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae			Crustacean	5.05	Postasterope_barnesi	81	
Potamethus sp A	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae					Potamethus_sp_A	349	
Praxillella pacifica	PraPacif	Annelida	Polychaeta	Capitellida	Maldanidae				-0.82	Praxillella_pacifica	207	
Praxillella sp	#N/A	Annelida	Polychaeta	Capitellida	Maldanidae							Drop
Prionospio (Minuspio) lighti	#N/A	Annelida	Polychaeta	Spionida	Spionidae				7.18	Prionospio_Minuspio_lighti	82	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVColNo	SpeciesLevel
Prionospio (Minuspio) multibranchiata	#N/A	Annelida	Polychaeta	Spionida	Spionidae							
Prionospio (Prionospio) dubia	#N/A	Annelida	Polychaeta	Spionida	Spionidae					Prionospio_Prionospio_dubia	273	
Prionospio (Prionospio) heterobranchia	#N/A	Annelida	Polychaeta	Spionida	Spionidae				37.46	Prionospio_Prionospio_heterobr	29	
Prionospio (Prionospio) jubata	#N/A	Annelida	Polychaeta	Spionida	Spionidae				3.88	Prionospio_Prionospio_jubata	180	
Prionospio sp	PrionoSp	Annelida	Polychaeta	Spionida	Spionidae							Drop
Pristes oblongus	#N/A	Mollusca	Bivalvia	Veneroida	Lasaeidae		Mollusc					
Protocirrineris sp	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae							Drop
Protocirrineris sp A	ProtoSpA	Annelida	Polychaeta	Spionida	Cirratulidae				51.20	Protocirrineris_sp_A	343	
Protocirrineris sp B	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae				45.72	Protocirrineris_sp_B	344	
Protocirrineris sp MEC1	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae							
Protocirrineris sp SD1	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae							
Protodorvillea gracilis	#N/A	Annelida	Polychaeta	Eunicida	Dorvilleidae				5.84	Protodorvillea_gracilis	117	
Protohyale frequens	#N/A	Arthropoda	Malacostraca	Amphipoda	Hyalidae			Crustacean	89.86	Protohyale_frequens	139	
Protomedeia articulata Cmplx	#N/A	Arthropoda	Malacostraca	Amphipoda	Isaeidae			Crustacean				
Prototthaca sp	PrototSp	Mollusca	Bivalvia	Veneroida	Veneridae		Mollusc		55.94	Prototthaca_sp	30	
Prototrygaeus jordanae	#N/A	Arthropoda	Pycnogonida	Pegmata	Ammotheidae							
Pseudofabriciola californica	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae					Pseudofabriciola_californica	172	
Pseudomelatoma penicillata	#N/A	Mollusca	Gastropoda	Neogastropoda	Pseudomelatomidae		Mollusc					
Pseudopolydora kempi	#N/A	Annelida	Polychaeta	Spionida	Spionidae					Pseudopolydora_kempi	8	
Pseudopolydora paucibranchiata	PsePauci	Annelida	Polychaeta	Spionida	Spionidae				81.68	Pseudopolydora_paucibranchiata	9	
Pseudopotamilla sp	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae							
Pseudotanais sp	#N/A	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae			Crustacean		Pseudotanais_sp	432	
Pterocirrus montereyensis	#N/A	Annelida	Polychaeta	Phyllodocida	Phyllodocidae					Pterocirrus_montereyensis	376	
Pteropurpura festiva	PteFesti	Mollusca	Gastropoda	Neogastropoda	Muricidae		Mollusc					
Pycnogonida	#N/A	Arthropoda	Pycnogonida									Drop
Pyromaia tuberculata	PyrTuber	Arthropoda	Malacostraca	Decapoda	Majidae			Crustacean	18.03	Pyromaia_tuberculata	83	
Raeta undulata	#N/A	Mollusca	Bivalvia	Veneroida	Mactridae		Mollusc			Raeta_undulata	357	
Rhamphidonta retifera	#N/A	Mollusca	Bivalvia	Veneroida	Lasaeidae		Mollusc		-27.21	Rhamphidonta_retifera	274	
Rhepoxynius daboius	#N/A	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae			Crustacean				
Rhepoxynius heterocuspidatus	#N/A	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae			Crustacean				
Rhepoxynius menziesi	#N/A	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae			Crustacean				
Rhepoxynius sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae			Crustacean				Drop
Rhepoxynius sp A	#N/A	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae			Crustacean				
Rhepoxynius tridentatus	#N/A	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae			Crustacean				
Rhynchospio glutaea	#N/A	Annelida	Polychaeta	Spionida	Spionidae							
Rictaxis punctocaelatus	RicPunct	Mollusca	Gastropoda	Lower Heterobranchia	Acteonidae		Mollusc		8.28	Rictaxis_punctocaelatus	164	
Rissoidae	Rissoida	Mollusca	Gastropoda	Neotaenioglossa	Rissoidae		Mollusc					Drop
Rochefortia coani	RocCoani	Mollusca	Bivalvia	Veneroida	Lasaeidae	S	Mollusc		-22.99	Rochefortia_coani	320	
Rochefortia compressa	#N/A	Mollusca	Bivalvia	Veneroida	Lasaeidae		Mollusc		-23.40	Rochefortia_compressa	334	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVColNo	SpeciesLevel
Rochefortia grippi	RocGripp	Mollusca	Bivalvia	Veneroida	Lasaeidae		Mollusc		13.67	Rochefortia_grippi	181	
Rochefortia mortoni	#N/A	Mollusca	Bivalvia	Veneroida	Lasaeidae		Mollusc			Rochefortia_mortoni	387	
Rochefortia sp	RochefSp	Mollusca	Bivalvia	Veneroida	Lasaeidae		Mollusc					Drop
Rochefortia tumida	RocTumid	Mollusca	Bivalvia	Veneroida	Lasaeidae		Mollusc		-18.27	Rochefortia_tumida	165	
Rocinela belliceps	#N/A	Arthropoda	Malacostraca	Isopoda	Aegidae			Crustacean				
Rudilemboides sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Aoridae			Crustacean	-6.00	Rudilemboides_sp	140	
Runcinidae	#N/A	Mollusca	Gastropoda	Cephalaspidea	Runcinidae		Mollusc					
Rutiderma apex	#N/A	Arthropoda	Ostracoda	Myodocopida	Rutidermatidae			Crustacean				
Rutiderma judayi	#N/A	Arthropoda	Ostracoda	Myodocopida	Rutidermatidae			Crustacean	48.26	Rutiderma_judayi	299	
Rutiderma lomae	#N/A	Arthropoda	Ostracoda	Myodocopida	Rutidermatidae			Crustacean				
Sabellaria gracilis	SabGraci	Annelida	Polychaeta	Terebellida	Sabellaridae							
Sabellidae	#N/A	Annelida	Polychaeta	Sabellida	Sabellidae							Drop
Sabellides manriquei	#N/A	Annelida	Polychaeta	Terebellida	Ampharetidae	S			-26.57	Sabellides_manriquei	405	
Saccocirrus sp	#N/A	Annelida	Polychaeta	Uncertain	Saccocirridae							
Sarsiellidae sp SD1	#N/A	Arthropoda	Ostracoda	Myodocopida	Sarsiellidae			Crustacean		Sarsiellidae_sp_SD1	350	
Saxicavella nybakkeni	#N/A	Mollusca	Bivalvia	Myoida	Hiatellidae		Mollusc					
Saxidomus nuttalli	#N/A	Mollusca	Bivalvia	Veneroida	Veneridae		Mollusc		31.98	Saxidomus_nuttalli	118	
Scalibregma californicum	ScaCalif	Annelida	Polychaeta	Opheliida	Scalibregmatidae				-29.22	Scalibregma_californicum	275	
Schistocomus sp A	#N/A	Annelida	Polychaeta	Terebellida	Ampharetidae							
Schmittius politus	SchPolit	Arthropoda	Malacostraca	Stomatopoda	Squillidae			Crustacean	63.28	Schmittius_politus	358	
Scleroplax granulata	SclGranu	Arthropoda	Malacostraca	Decapoda	Pinnotheridae			Crustacean	13.06	Scleroplax_granulata	84	
Scolanthus sp A	#N/A	Cnidaria	Anthozoa	Actiniaria	Edwardsiidae				64.26	Scolanthus_sp_A	301	
Scolanthus sp B	ScolaSpB	Cnidaria	Anthozoa	Actiniaria	Edwardsiidae				43.83	Scolanthus_sp_B	199	
Scolelepis (Parascolelpis) sp	#N/A	Annelida	Polychaeta	Spionida	Spionidae				22.88	Scolelepis__Parascolelpis__sp	10	
Scolelepis (Scolelepis) sp	#N/A	Annelida	Polychaeta	Spionida	Spionidae				46.06	Scolelepis__Scolelepis__sp	238	
Scolelepis sp	ScolelSp	Annelida	Polychaeta	Spionida	Spionidae							Drop
Scoletoma luti	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae							
Scoletoma sp	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae							Drop
Scoletoma sp A	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae				19.74	Scoletoma_sp_A	166	
Scoletoma sp B	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae				37.52	Scoletoma_sp_B	208	
Scoletoma sp C	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae				74.27	Scoletoma_sp_C	53	
Scoletoma tetraura Cmplx	#N/A	Annelida	Polychaeta	Eunicida	Lumbrineridae				45.46	Scoletoma_tetraura_Cmplx	239	
Scoloplos acmeceps	ScoAcmec	Annelida	Polychaeta	Orbiniida	Orbiniidae				18.01	Scoloplos_acmeceps	119	
Scoloplos armiger Cmplx	#N/A	Annelida	Polychaeta	Orbiniida	Orbiniidae							
Scoloplos sp	#N/A	Annelida	Polychaeta	Orbiniida	Orbiniidae							Drop
Scyphoproctus oculatus	ScyOcula	Annelida	Polychaeta	Capitellida	Capitellidae				25.42	Scyphoproctus_oculatus	182	
Scyra acutifrons	ScyAcuti	Arthropoda	Malacostraca	Decapoda	Majidae			Crustacean				
Semela sp	#N/A	Mollusca	Bivalvia	Veneroida	Semelidae		Mollusc					Drop
Semele venusta	#N/A	Mollusca	Bivalvia	Veneroida	Semelidae		Mollusc		-4.17	Semele_venusta	399	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVColNo	SpeciesLevel
Serpula vermicularis	#N/A	Annelida	Polychaeta	Sabellida	Serpulidae							Drop
Serpulidae	#N/A	Annelida	Polychaeta	Sabellida	Serpulidae							Drop
Sigalion spinosus	#N/A	Annelida	Polychaeta	Phyllodocida	Sigalionidae					Sigalion_spinosus	351	
Sigambra bassi	#N/A	Annelida	Polychaeta	Phyllodocida	Pilargidae					Sigambra_bassi	448	
Sigambra tentaculata	#N/A	Annelida	Polychaeta	Phyllodocida	Pilargidae				9.32	Sigambra_tentaculata	167	
Sige sp A	#N/A	Annelida	Polychaeta	Phyllodocida	Phyllodocidae							
Siliqua sp	#N/A	Mollusca	Bivalvia	Veneroida	Pharidae		Mollusc					
Simomactra sp	#N/A	Mollusca	Bivalvia	Veneroida	Mactridae		Mollusc		23.32	Simomactra_sp	383	
Sinocorophium heteroceratum	#N/A	Arthropoda	Malacostraca	Amphipoda	Corophiidae			Crustacean	-3.19	Sinocorophium_heteroceratum	85	
Siphonodentalium quadrifissatum	#N/A	Mollusca	Scaphopoda	Gadilida	Gadilidae		Mollusc		-15.60	Siphonodentalium_quadrifissatum	120	
Sipuncula	#N/A	Sipuncula										Drop
Sipunculidae	#N/A	Sipuncula	Sipunculidea	Sipunculiformes	Sipunculidae							
Siriella pacifica	SirPacif	Arthropoda	Malacostraca	Mysidacea	Mysidae			Crustacean				
Solamen columbianum	#N/A	Mollusca	Bivalvia	Mytiloida	Mytilidae		Mollusc			Solamen_columbianum	276	
Solemya reidi	#N/A	Mollusca	Bivalvia	Solemyoida	Solemyidae		Mollusc					
Solen rostriformis	SolRostr	Mollusca	Bivalvia	Veneroida	Solenidae		Mollusc		25.05	Solen_rostriformis	121	
Solen sicarius	SolSicar	Mollusca	Bivalvia	Veneroida	Solenidae		Mollusc		0.37	Solen_sicarius	277	
Sphaeromatidae	#N/A	Arthropoda	Malacostraca	Isopoda	Sphaeromatidae			Crustacean				Drop
Sphaerosyllis californiensis	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae				15.46	Sphaerosyllis_californiensis	228	
Sphaerosyllis ranunculus	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							Drop
Sphaerosyllis sp	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							Drop
Sphaerosyllis sp 7 (Harris)	SphaeSp7	Annelida	Polychaeta	Phyllodocida	Syllidae							
Sphaerosyllis sp A	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							
Sphenia fragilis	#N/A	Mollusca	Bivalvia	Myoida	Myidae		Mollusc			Sphenia_fragilis	150	
Spio filicornis	#N/A	Annelida	Polychaeta	Spionida	Spionidae							
Spio maciolekae	#N/A	Annelida	Polychaeta	Spionida	Spionidae							
Spio maculata	#N/A	Annelida	Polychaeta	Spionida	Spionidae				33.09	Spio_maculata	11	
Spiochaetopterus costarum	SpiCosta	Annelida	Polychaeta	Spionida	Chaetopteridae				-0.50	Spiochaetopterus_costarum	209	
Spiochaetopterus pottsi	#N/A	Annelida	Polychaeta	Spionida	Chaetopteridae							
Spionidae	#N/A	Annelida	Polychaeta	Spionida	Spionidae							Drop
Spiophanes berkeleyorum	SpiBerke	Annelida	Polychaeta	Spionida	Spionidae	S			2.30	Spiophanes_berkeleyorum	54	
Spiophanes bombyx	#N/A	Annelida	Polychaeta	Spionida	Spionidae	S			-26.86	Spiophanes_bombyx	122	
Spiophanes duplex	SpiDuple	Annelida	Polychaeta	Spionida	Spionidae	S			31.79	Spiophanes_duplex	31	
Spirorbidae	#N/A	Annelida	Polychaeta	Sabellida	Spirorbidae							Drop
Stenothoe sp	#N/A	Arthropoda	Malacostraca	Amphipoda	Stenothoidae			Crustacean				
Sternaspis fossor	#N/A	Annelida	Polychaeta	Sternaspida	Sternaspidae							
Sthenelais tertiaglabra	#N/A	Annelida	Polychaeta	Phyllodocida	Sigalionidae				-32.42	Sthenelais_tertiaglabra	321	
Sthenelais verruculosa	#N/A	Annelida	Polychaeta	Phyllodocida	Sigalionidae							
Sthenelanella uniformis	SthUnifo	Annelida	Polychaeta	Phyllodocida	Sigalionidae	S			-11.01	Sthenelanella_uniformis	322	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVCoINo	SpeciesLevel
Streblosoma sp	#N/A	Annelida	Polychaeta	Terebellida	Terebellidae				7.79	Streblosoma_sp	86	
Streblospio benedicti	#N/A	Annelida	Polychaeta	Spionida	Spionidae				61.83	Streblospio_benedicti	12	
Styela sp	StyelaSp	Chordata	Ascidiacea	Stolidobranchiata	Styelidae							
Styelidae	#N/A	Chordata	Ascidiacea	Stolidobranchiata	Styelidae							Drop
Stylatula sp	#N/A	Cnidaria	Anthozoa	Pennatulacea	Virgulariidae							
Sulcoretusa xystrum	#N/A	Mollusca	Gastropoda	Cephalaspidea	Retusidae		Mollusc		18.85	Sulcoretusa_xystrum	388	
Syllidae	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							Drop
Syllides sp	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae				27.56	Syllides_sp	377	
Syllis (Ehlersia) hyperioni	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae					Syllis__Ehlersia__hyperioni	278	
Syllis (Syllis) gracilis	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae				-3.65	Syllis__Syllis__gracilis	402	
Syllis (Typosyllis) farallonensis	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							
Syllis (Typosyllis) nipponica	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae				40.64	Syllis__Typosyllis__nipponica	55	
Syllis (Typosyllis) sp	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							Drop
Syllis sp	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							Drop
Synaptotanais notabilis	SynNotab	Arthropoda	Malacostraca	Tanaidacea	Tanaidae			Crustacean	75.33	Synaptotanais_notabilis	56	
Synelmis sp	#N/A	Annelida	Polychaeta	Phyllodocida	Pilargidae							
Synidotea harfordi	#N/A	Arthropoda	Malacostraca	Isopoda	Idoteidae			Crustacean		Synidotea_harfordi	458	
Tagelus affinis	#N/A	Mollusca	Bivalvia	Veneroida	Solecurtidae		Mollusc					
Tagelus californianus	#N/A	Mollusca	Bivalvia	Veneroida	Solecurtidae		Mollusc					
Tagelus sp	TageluSp	Mollusca	Bivalvia	Veneroida	Solecurtidae		Mollusc					Drop
Tagelus subteres	TagSubte	Mollusca	Bivalvia	Veneroida	Solecurtidae	S	Mollusc		37.28	Tagelus_subteres	13	
Tanaidacea	#N/A	Arthropoda	Malacostraca	Tanaidacea				Crustacean				Drop
Tanystylum californicum	#N/A	Arthropoda	Pycnogonida	Pegmata	Tanystylidae							
Tanystylum sp	#N/A	Arthropoda	Pycnogonida	Pegmata	Tanystylidae							Drop
Tectura depicta	#N/A	Mollusca	Gastropoda	Patellogastropoda	Acmaeidae	S	Mollusc		30.17	Tectura_depicta	325	
Teinostoma supravallatum	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Adeorbidae		Mollusc					
Tellina cadieni	TelCadie	Mollusca	Bivalvia	Veneroida	Tellinidae		Mollusc		42.43	Tellina_cadieni	243	
Tellina carpenteri	#N/A	Mollusca	Bivalvia	Veneroida	Tellinidae	S	Mollusc		-3.40	Tellina_carpenteri	294	
Tellina idae	#N/A	Mollusca	Bivalvia	Veneroida	Tellinidae	S	Mollusc		5.09	Telina_idae	310	
Tellina meropsis	#N/A	Mollusca	Bivalvia	Veneroida	Tellinidae	S	Mollusc		33.52	Telina_meropsis	411	
Tellina modesta	TelModes	Mollusca	Bivalvia	Veneroida	Tellinidae	S	Mollusc		11.17	Telina_modesta	224	
Tellina nuculoides	#N/A	Mollusca	Bivalvia	Veneroida	Tellinidae		Mollusc					
Tellina sp	#N/A	Mollusca	Bivalvia	Veneroida	Tellinidae		Mollusc					Drop
Tenonia priops	TenPriop	Annelida	Polychaeta	Phyllodocida	Polynoidae	S			6.32	Tenonia_priops	225	
Terebellidae	#N/A	Annelida	Polychaeta	Terebellida	Terebellidae							Drop
Terebellides californica	#N/A	Annelida	Polychaeta	Terebellida	Trichobranchidae				-26.48	Terebellides_californica	168	
Tethygenia opata	#N/A	Arthropoda	Malacostraca	Amphipoda	Eusiridae			Crustacean				
Thelepus hamatus	#N/A	Annelida	Polychaeta	Terebellida	Terebellidae					Thelepus_hamatus	418	
Theora lubrica	TheLubri	Mollusca	Bivalvia	Veneroida	Semelidae		Mollusc		46.65	Theora_lubrica	57	

Table A32-25 Supporting Calculations for Table A32-21, Continued

TaxonName	TAXON	Phylum	Class	Order	Family	IBISensitive	Mollusc	Crustacean	ToleranceScore	RIVColHead	RIVCoINo	SpeciesLevel
Thracia sp	#N/A	Mollusca	Bivalvia	Pholadomyoida	Thraciidae		Mollusc		8.33	Thracia_sp	123	
Thyasira flexuosa	#N/A	Mollusca	Bivalvia	Veneroida	Thyasiridae		Mollusc		-10.70	Thyasira_flexuosa	169	
Thysanocardia nigra	#N/A	Sipuncula	Sipunculidea	Golfingiiformes	Golfingiidae				33.98	Thysanocardia_nigra	214	
Tiburonella viscana	#N/A	Arthropoda	Malacostraca	Amphipoda	Platyischnopidae			Crustacean				
Timarete sp	#N/A	Annelida	Polychaeta	Spionida	Cirratulidae				78.14	Timarete_sp	360	
Tiron biocellata	#N/A	Arthropoda	Malacostraca	Amphipoda	Synopiidae			Crustacean				
Trachycardium quadragenarium	TraQuadr	Mollusca	Bivalvia	Veneroida	Cardiidae	S	Mollusc		11.34	Trachycardium_quadragenarium	365	
Tresus sp	#N/A	Mollusca	Bivalvia	Veneroida	Mactridae		Mollusc		33.58	Tresus_sp	124	
Tritella sp	TritelSp	Arthropoda	Malacostraca	Amphipoda	Protellidae			Crustacean				Drop
Tritonia sp	TritonSp	Mollusca	Gastropoda	Nudibranchia	Tritoniidae		Mollusc					Drop
Tryonia sp	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Hydrobiidae		Mollusc		127.95	Tryonia_sp	32	
Trypanosyllis sp	#N/A	Annelida	Polychaeta	Phyllodocida	Syllidae							Drop
Tubulanidae	#N/A	Nemertea	Anopla	Palaeonemertea	Tubulanidae							
Tubulanus sp	#N/A	Nemertea	Anopla	Palaeonemertea	Tubulanidae				0.61	Tubulanus_sp	58	
Tubulariidae	#N/A	Cnidaria	Hydrozoa	Athecatae	Tubulariidae					Tubulariidae	331	
Turbellaria	#N/A	Platyhelminthes	Turbellaria						44.95	Turbellaria	14	
Turbonilla sp	TurbonSp	Mollusca	Gastropoda	Heterostropha	Pyramidellidae		Mollusc		-17.55	Turbonilla_sp	125	
Upogebia sp	#N/A	Arthropoda	Malacostraca	Decapoda	Upogebiidae			Crustacean				
Urechis caupo	#N/A	Echiura	Echiurida	Xenopneusta	Urechidae							
Uristes entalladurus	#N/A	Arthropoda	Malacostraca	Amphipoda	Lysianassidae			Crustacean				
Uromunna ubiquita	UroUbiqu	Arthropoda	Malacostraca	Isopoda	Munnidae			Crustacean				
Vargula tsujii	VarTsuji	Arthropoda	Ostracoda	Myodocopida	Cypridinidae	S		Crustacean	-7.89	Vargula_tsujii	212	
Veneridae	#N/A	Mollusca	Bivalvia	Veneroida	Veneridae		Mollusc					Drop
Venerupis philippinarum	#N/A	Mollusca	Bivalvia	Veneroida	Veneridae		Mollusc		53.88	Venerupis_philippinarum	229	
Vitrinella cf stearnsi	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Vitrinellidae		Mollusc			Vitrinella_cf_stearnsi	279	
Vitrinella oldroydi	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Vitrinellidae		Mollusc		-0.24	Vitrinella_oldroydi	335	
Vitrinella sp	#N/A	Mollusca	Gastropoda	Neotaenioglossa	Vitrinellidae		Mollusc					Drop
Volvulella panamica	#N/A	Mollusca	Gastropoda	Cephalaspidea	Retusidae		Mollusc		-31.26	Volvulella_panamica	170	
Westwoodilla caecula	#N/A	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae			Crustacean	-35.91	Westwoodilla_caecula	171	
Xenoleberis californica	#N/A	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae			Crustacean				
Zaolutus actius	#N/A	Cnidaria	Anthozoa	Actiniaria	Isanthidae				42.55	Zaolutus_actius	213	
Zeuxo normani	#N/A	Arthropoda	Malacostraca	Tanaidacea	Tanaidae			Crustacean	54.17	Zeuxo_normani	444	

SECTION VII

TECHNOLOGICAL AND ECONOMICAL FEASIBILITY

Anchor QEA, L.P.
Cost Estimate for Remedial Footprint
San Diego Shipyards Sediment Site
July 12 ,2010

Item	Probable Quantity	Unit	Unit Cost	Probable Cost	Assumptions
DESIGN AND PERMITTING					
Additional Pre-Design Site Characterization	1	LUMP SUM	$348,000	$348,000	
Surveys and Engineering Design	1	LUMP SUM	$675,000	$675,000	
Permitting	1	LUMP SUM	$400,000	$400,000	See Note 1.
CEQA EIR - if required	1	LUMP SUM	$900,000	$900,000	As discussed in Note 1, we do not believe an EIR will be required; however in the event that a EIR is required, we have added in estimated costs for the preparation and submittal of an EIR.
CONSTRUCTION PREPARATION					
Mobilization(s) and Demobilization(s)	3	CONSTRUCTION SEASONS	$300,000	$900,000	Estimate assumes work is completed in 3 construction seasons.
Demolition	1	LUMP SUM	$500,000	$500,000	Includes demolition of dormant BAE pier.
DREDGING					
Unconstrained open-water dredging (outside of leasehold area)(12.5% of dredge area)	17,925	CY	$10	$179,250	Unit costs are typical for unconstrained dredging outside of shipyard area.
Constrained dredging from inner shipyard (within leasehold area)(87.5% of dredge area)	125,475	CY	$18	$2,258,550	Higher cost for dredging within leasehold line, near piers, in areas of ship traffic, etc.
Dredging Surface/Subsurface Debris	7,170	CY	$120	$860,400	Unknown quantity. Estimates assume 5% of total dredge volume. Pricing includes landfill disposal.
Engineering Controls (silt curtain, oil boom)	3	CONSTRUCTION SEASONS	$32,000	$96,000	Estimate assumes work is completed in 3 construction seasons.
Additional Dredging (as needed for 2nd pass)	28,100	CY	$18	$505,800	Two feet of dredging over one-half the remedial area. Same unit costs as for constrained dredging from inner shipyard.
MARINE STRUCTURES					
Placement of Quarry Run Rock for Protection of Marine Structures	21,887	TON	$45	$984,915	No structural retrofit of structures is assumed to be necessary. Estimated costs assume setback of dredging from marine structures and revetments, and placement of quarry run blankets or berms to reinstate lateral resistance.
SEDIMENT OFFLOADING AND DISPOSAL					
Acquisition/Lease of Sediment Offloading Area	3	CONSTRUCTION SEASONS	$300,000	$900,000	An off-site sediment staging area will be needed in the vicinity of the project area. Location is unknown at this time. Costs assume a three-year construction period.
Preparation of Sediment Offloading Area	1	LUMP SUM	$300,000	$300,000	Preparation of sediment handling and dewatering area.
Rehandling and Dewatering	171,500	CY	$25	$4,287,500	Assumes stockpiling of sediments prior to transport to landfill and addition of lime or cement admixture to facilitate dewatering.

Item	Probable Quantity	Unit	Unit Cost	Probable Cost	Assumptions
Transportation and Disposal at Landfill	**257,250**	TON	$75	$19,293,750	Assumes disposal at regional hazardous waste landfill outside of San Diego County (Copper Mountain in Nevada).
UNDERPIER REMEDIATION					
Purchase and place 3 feet of clean sand/gravel beneath piers and overwater structures	**103,705**	SF	$30	$3,111,150	Assumes 3 foot thick layer of sand placed only under pier areas in the dredging footprint, quarry run rock assumed to be placed on the setback areas.
PLACEMENT OF CLEAN SAND COVER	**42,211**	CY	$40	$1,688,422	Assumes one half of dredged area receives 1-3 feet of sand.
SW04 cleanout, BMP Installation, Investigation	**1**	LS	$703,048	$703,048	
TOTAL DIRECT CONSTRUCTION COSTS				**$38,891,785**	
BID MANAGEMENT AND SUPPORT	**1**	LUMP SUM	$25,000	$25,000	
CONSTRUCTION MANAGEMENT	**3**	CONSTRUCTION SEASONS	$450,000	$1,350,000	Estimate assumes work is completed in 3 construction seasons.
CONTINGENCY	**30%**	Percent		$12,080,036	Unquantifiable or identifiable unknowns
MONITORING COSTS					
Water Quality Monitoring during construction	**24**	WEEK	$18,000	$432,000	Consistent with project approach per mediation discussions.
Post-Dredging Confirmational Sampling	**45**	SAMPLES	$8,000	$360,000	Consistent with project approach per mediation discussions.
Long-Term Monitoring of Remediated Areas	**30**	LOCATIONS	$60,000	$1,800,000	Consistent with project approach per mediation discussions.
SW04 long term monitoring	**1**	LUMP SUM	$595,437	$595,437	PV for 100 years $20K/year, 5% discount rate
OTHER (NON-CONSTRUCTION) COSTS					
Eel Grass Habitat Mitigation (if needed) Construction and maintenance)	**0.87**	ACRES	$600,000	$522,000	Assumes 5% of dredged acreage will require mitigation
Eel Grass land lease costs in perpetuity (LS)	**0.87**	ACRES	$1,500,000	$1,305,000	
Internal Shipyard Costs	**1**	LUMP SUM	$250,000	$250,000	
RWQCB Oversight Costs	**10**	YEARS	$45,000	$450,000	Duration covers periods of design, construction, and long-term monitoring oversight.
GRAND TOTAL				**$58,100,000**	

Note 1:
This is inclusive of all requried permits. Required permits will be identified with legal assistance. Implementation of the cleanup program requires resource agency permits and environmental review under state [California Environmental Quality Act (CEQA)] and possibly federal [National Environmental Policy Act (NEPA)] guidelines.

Table A32-27 Supporting Calculations for Table 32-25

Summary Table		Mass of COCs removed through dredging (Kg)					
LOC_ID	maxdepth	Area Dredged (ft^2)	Volume Removed (ft^3)*	Volume removed (CY)*	Arsenic	Cadmium	Chromium
NA06	6	50,190	301,140	11,200	81.80	5.08	380.52
NA09	10	29,520	295,200	10,900	164.24	42.67	958.96
NA15	4	47,630	190,520	7,100	110.90	2.31	572.97
NA17	6	36,470	218,820	8,100	102.52	4.13	406.88
NA19	8	32,040	256,320	9,500	120.76	10.81	454.75
SW28s	7	21,920	153,440	5,700	68.16	14.21	433.81
SW01	5	39,970	199,850	7,400	42.75	5.29	221.02
SW02	6	44,454	266,726	9,900	99.23	9.73	320.43
SW04	6	16,282	97,692	3,600	455.31	11.45	352.40
SW05	6	18,892	113,351	4,200	60.48	4.73	291.41
SW08	7	9,066	63,462	2,400	38.19	1.70	190.37
SW09	4	19,598	78,392	2,900	102.67	4.18	212.94
SW10	4	18,389	73,555	2,700	13.01	0.44	51.65
SW13	6	19,937	119,622	4,400	87.04	2.44	417.78
SW14	4	16,208	64,832	2,400	31.45	0.97	198.12
SW16	6	18,223	109,335	4,000	63.64	3.50	360.64
SW17	8	46,963	375,702	13,900	169.71	13.42	912.57
SW20	4	7,966	31,864	1,200	14.37	0.79	45.87
SW21	4	13,641	54,564	2,000	29.11	1.35	185.27
SW22	4	4,440	17,761	700	11.20	0.30	60.31
SW23	4	16,950	67,800	2,500	49.33	1.22	292.70
SW24	4	20,006	80,024	3,000	31.44	6.89	186.61
SW27	6	77,488	464,930	17,200	160.83	10.16	653.26
SW28n	7	24,723	173,061	6,400	76.87	16.02	489.29
Total North		433,000.	2,450,000.	90,800.	1,540.	94.6	5,440.
Total South		218,000.	1,420,000.	52,500.	648.	79.2	3,210.
Total Site		651,000.	3,870,000.	143,000.	2,190.	174.	8,650.

Notes:
Data is from the 2001-2003 Exponent study. No other data is included in this estimate.
Where more than one sample was collected from the same location and elevation, average concentrations were used.
Non detects are included at 1/2 of the reporting limit for all constituents except PCB Congers, which were 100% of the reporting limit.
Concentrations vary by depth based on the bore data.
Depth of chemicals capped extends to lowest depth sampled.
All analytical results were assumed to be dry weight.
Dry bulk density of the sediments is estimated to be the average of the values found in the Exponent report where dry bulk density is the Total Solids (dry weight as a percent of bulk weight) times the specific gravity values (averages of each).
Areas are those calculated by Anchor QEA under the direction of BAE and NASSCO.
Areas are for SMUs and are not exactly the same as the Thiessen polygons, but total SMU areas represent the total Thiessen polygon areas.
Concentrations in a SMU are assumed to be constant throughout the SMU and the same as the concentrations in the sample bore that represents the SMU. There is one sample bore per SMU.
Where a SMU extends slight over another Thiessen polygon, the concentration in that part of the SMU is not different from the rest of the SMU.
PCBs are presented as sum of 41 congeners

Table A32-27 Supporting Calculations for Table 32-25 Continued

Summary Table	Mass of COCs removed through dredging (Kg)						
LOC_ID	Copper	HPAH	Lead	Mercury	PCB Congener Total	Tributyltin	Zinc
NA06	2,791.22	39.25	949.48	19.67	12.64	2.16	2,642.71
NA09	3,539.71	200.76	1,526.00	46.51	32.18	1.30	6,694.22
NA15	2,310.38	30.50	767.05	9.06	3.14	6.19	2,864.87
NA17	2,236.07	18.45	665.69	4.70	3.93	5.83	3,387.71
NA19	2,309.48	40.16	885.87	10.17	6.78	10.75	5,563.88
SW28s	965.98	79.64	643.28	12.91	6.50	0.48	2,211.60
SW01	588.04	28.97	349.37	8.63	2.13	0.10	874.41
SW02	859.08	53.15	438.60	10.13	4.23	0.06	1,305.66
SW04	7,623.81	195.36	1,554.30	25.17	52.12	18.90	6,016.60
SW05	1,264.61	71.48	659.80	5.28	6.60	0.93	1,539.53
SW08	2,616.23	38.52	616.02	9.65	12.56	10.45	1,810.06
SW09	2,509.69	64.64	836.56	3.65	2.70	3.46	4,563.08
SW10	193.38	12.10	70.47	0.60	0.40	0.26	311.30
SW13	4,641.98	69.63	539.63	4.99	2.90	4.58	3,365.44
SW14	880.54	26.42	276.74	3.14	1.26	1.42	943.44
SW16	2,280.50	30.23	514.44	5.30	2.28	5.83	1,962.29
SW17	8,070.99	64.19	1,073.63	10.45	9.15	7.34	5,241.70
SW20	195.71	4.27	54.52	0.63	2.50	0.26	304.68
SW21	688.15	25.67	317.61	3.71	6.35	0.45	873.42
SW22	223.99	10.34	94.77	0.95	0.78	0.16	267.07
SW23	920.85	36.18	361.76	3.29	3.29	0.69	1,085.29
SW24	568.67	44.64	243.38	5.54	7.29	0.09	1,167.42
SW27	2,143.21	37.19	656.87	9.90	3.04	13.21	3,477.18
SW28n	1,089.50	89.82	725.54	14.56	7.33	0.54	2,494.40
Total North	37,400.	903.	9,380.	126.	127.	68.7	37,600.
Total South	14,200.	409.	5,440.	103.	65.2	26.7	23,400.
Total Site	51,500.	1,310.	14,800.	229.	192.	95.4	61,000.

Notes:
Data is from the 2001-2003 Exponent study. No other data is included in this estimate.
Where more than one sample was collected from the same location and elevation, average concentrations were used.
Non detects are included at 1/2 of the reporting limit for all constituents except PCB Congers, which were 100% of the reporting limit.
Concentrations vary by depth based on the bore data.
Depth of chemicals capped extends to lowest depth sampled.
All analytical results were assumed to be dry weight.
Dry bulk density of the sediments is estimated to be the average of the values found in the Exponent report where dry bulk density is the Total Solids (dry weight as a percent of bulk weight) times the specific gravity values (averages of each).
Areas are those calculated by Anchor QEA under the direction of BAE and NASSCO.
Areas are for SMUs and are not exactly the same as the Thiessen polygons, but total SMU areas represent the total Thiessen polygon areas.
Concentrations in a SMU are assumed to be constant throughout the SMU and the same as the concentrations in the sample bore that represents the SMU. There is one sample bore per SMU.
Where a SMU extends slight over another Thiessen polygon, the concentration in that part of the SMU is not different from the rest of the SMU.
PCBs are presented as sum of 41 congeners

Table A32-28 Supporting Calculations for Table 32-25

Summary Table		Mass of COCs Capped (Kg)					
LOC_ID	maxdepth	Area Capped (ft^2)	Volume Capped (ft^3)*	Volume Capped (CY)*	Arsenic	Cadmium	Chromium
NA06	6	10,355	62,130	2,300	12.55	0.71	58.47
NA09	10	0	0	0	0.00	0.00	0.00
NA15	4	0	0	0	0.00	0.00	0.00
NA17	6	0	0	0	0.00	0.00	0.00
NA19	8	0	0	0	0.00	0.00	0.00
SW28s	7	3,370	23,590	900	8.53	1.85	55.30
SW01	5	0	0	0	0.00	0.00	0.00
SW02	6	0	0	0	0.00	0.00	0.00
SW04	6	6,639	39,834	1,500	118.35	2.71	84.34
SW05	6	6,510	39,062	1,400	0.35	0.03	1.67
SW08	7	6,355	44,485	1,600	26.45	1.19	132.88
SW09	4	4,791	19,163	700	0.63	0.03	1.30
SW10	4	3,237	12,948	500	2.00	0.07	8.09
SW13	6	17,204	103,224	3,800	1.25	0.04	6.01
SW14	4	539	2,154	100	0.03	0.00	0.16
SW16	6	51	305	0	0.00	0.00	0.02
SW17	8	9,155	73,237	2,700	30.13	2.26	153.91
SW20	4	19,635	78,540	2,900	23.85	1.75	84.10
SW21	4	0	0	0	0.00	0.00	0.00
SW22	4	0	0	0	0.00	0.00	0.00
SW23	4	9,892	39,569	1,500	0.72	0.02	4.27
SW24	4	5,934	23,736	900	7.54	1.82	47.29
SW27	6	39	234	0	0.08	0.01	0.32
SW28n	7	0	0	0	0.00	0.00	0.00
Total North		90,000.	476,000.	17,600.	211.	9.92	524.
Total South		13,700.	85,700.	3,200.	21.1	2.56	114.
Total Site		104,000.	562,000.	20,800.	232.	12.5	638.

Notes:
Data is from the 2001-2003 Exponent study. No other data is included in this estimate.
Where more than one sample was collected from the same location and elevation, average concentrations were used.
Non detects are included at 1/2 of the reporting limit for all constituents except PCB Congers, which were 100% of the reporting limit.
Concentrations vary by depth based on the bore data.
Depth of chemicals capped extends to lowest depth sampled.
All analytical results were assumed to be dry weight.
Dry bulk density of the sediments is estimated to be the average of the values found in the Exponent report where dry bulk density is the Total Solids (dry weight as a percent of bulk weight) times the specific gravity values (averages of each).
Areas are those calculated by Anchor QEA under the direction of BAE and NASSCO.
Areas are for SMUs and are not exactly the same as the Thiessen polygons, but total SMU areas represent the total Thiessen polygon areas.
Concentrations in a SMU are assumed to be constant throughout the SMU and the same as the concentrations in the sample bore that represents the SMU. There is one sample bore per SMU.
Where a SMU extends slight over another Thiessen polygon, the concentration in that part of the SMU is not different from the rest of the SMU.
PCBs are presented as sum of 41 congeners

Table A32-28 Supporting Calculations for Table 32-25 Continued

Summary Table	Mass of COCs Capped (Kg)						
LOC_ID	Copper	HPAH	Lead	Mercury	PCB Congener Total	Tributyltin	Zinc
NA06	449.30	5.57	151.59	2.79	1.58	0.40	408.11
NA09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NA15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NA17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NA19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW28s	134.62	11.72	86.11	1.60	0.99	0.07	295.55
SW01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW04	1,762.51	44.17	382.90	5.74	11.46	4.65	1,535.47
SW05	7.26	0.41	3.79	0.03	0.04	0.01	8.84
SW08	1,833.26	27.00	431.53	6.76	8.80	7.33	1,267.26
SW09	15.34	0.40	5.11	0.02	0.02	0.02	27.89
SW10	33.11	2.13	12.01	0.10	0.07	0.03	52.38
SW13	66.76	1.00	7.76	0.07	0.04	0.07	48.40
SW14	0.73	0.02	0.23	0.00	0.00	0.00	0.78
SW16	0.11	0.00	0.02	0.00	0.00	0.00	0.09
SW17	1,149.67	11.63	190.90	1.90	1.55	1.38	917.87
SW20	447.36	9.92	122.50	1.45	5.31	0.61	661.08
SW21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW23	13.44	0.53	5.28	0.05	0.05	0.01	15.83
SW24	154.28	12.38	64.71	1.51	2.00	0.02	305.97
SW27	1.07	0.02	0.33	0.00	0.00	0.01	1.72
SW28n	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total North	5,480.	110.	1,230.	17.6	29.3	14.1	4,840.
Total South	584.	17.3	238.	4.39	2.57	0.48	704.
Total Site	6,070.	127.	1,460.	22.	31.9	14.6	5,550.

Notes:
Data is from the 2001-2003 Exponent study. No other data is included in this estimate.
Where more than one sample was collected from the same location and elevation, average concentrations were used.
Non detects are included at 1/2 of the reporting limit for all constituents except PCB Congers, which were 100% of the reporting limit.
Concentrations vary by depth based on the bore data.
Depth of chemicals capped extends to lowest depth sampled.
All analytical results were assumed to be dry weight.
Dry bulk density of the sediments is estimated to be the average of the values found in the Exponent report where dry bulk density is the Total Solids (dry weight as a percent of bulk weight) times the specific gravity values (averages of each).
Areas are those calculated by Anchor QEA under the direction of BAE and NASSCO.
Areas are for SMUs and are not exactly the same as the Thiessen polygons, but total SMU areas represent the total Thiessen polygon areas.
Concentrations in a SMU are assumed to be constant throughout the SMU and the same as the concentrations in the sample bore that represents the SMU. There is one sample bore per SMU.
Where a SMU extends slight over another Thiessen polygon, the concentration in that part of the SMU is not different from the rest of the SMU.
PCBs are presented as sum of 41 congeners

Table A32-29 Supporting Calculations for Table 32-25

Dredging Volumes								
Polygon/Sample Station/SMU	Apparent Depth of Contaminant Exceedances (ft)	Estimated Required Neatline Dredging Depth (ft)	Dredging Area (sq.ft.)	Underpier Remedial Area (sq.ft.)	Total Remedial Area (sq.ft.)	Estimated Volume of Dredging to Neatline Elevation (cy)	Estimated Volume of 1 ft Additional Dredging[3] (cy)	Total Estimated Dredging Volume (cy)
NORTH (BAE SYSTEMS) SHIPYARD AREA								
SW01	4.0	4	39,970	0	39,970	5,900	1,500	7,400
SW02	4.9	5	44,454	0	44,454	8,200	1,600	9,900
SW04	4.1	5	16,282	6,639	22,921	3,000	600	3,600
SW05	surface sample	5	18,892	6,510	25,402	3,500	700	4,200
SW08	6.0	6	9,066	6,355	15,421	2,000	300	2,400
SW09	surface sample	3	19,598	4,791	24,389	2,200	700	2,900
SW10	2.0	3	18,389	3,237	21,626	2,000	700	2,700
SW13	surface sample	5	19,937	17,204	37,141	3,700	700	4,400
SW14	surface sample	3	16,208	539	16,747	1,800	600	2,400
SW16	surface sample	5	18,223	51	18,273	3,400	700	4,000
SW17	6.2	7	46,963	9,155	56,117	12,200	1,700	13,900
SW20	2.4	3	7,966	19,635	27,601	900	300	1,200
SW21	surface sample	3	13,641	0	13,641	1,500	500	2,000
SW22	surface sample	3	4,440	0	4,440	500	200	700
SW23	surface sample	3	16,950	9,892	26,842	1,900	600	2,500
SW24	3.0	3	20,006	5,934	25,940	2,200	700	3,000
SW27	4.25	5	77,488	39	77,527	14,300	2,900	17,200
SW28n	5.3	6	24,723	0	24,723	5,500	900	6,400
TOTALS			**433,196**	**89,980**	**523,176**	**74,700**	**15,900**	**90,800**

Polygon/Sample Station/SMU	Apparent Depth of Contaminant Exceedances (ft)	Estimated Required Neatline Dredging Depth (ft)	Dredging Area (sq.ft.)	Underpier Remedial Area (sq.ft.)	Total Remedial Area (sq.ft.)	Estimated Volume of Dredging to Neatline Elevation (cy)	Estimated Volume of 1 ft Additional Dredging[3] (cy)	Total Estimated Dredging Volume (cy)
SOUTH (NASSCO) SHIPYARD AREA								
SW28s	5.3	6	21,920	3,370	25,290	4,900	800	5,700
NA06	3.9	5	50,190	10,355	60,545	9,300	1,900	11,200
NA09	8.0	9	29,520		29,520	9,800	1,100	10,900
NA15	surface sample	3	47,630		47,630	5,300	1,800	7,100
NA17	4.0	5	36,470		36,470	6,800	1,400	8,200
NA19	5.8	7	32,040		32,040	8,300	1,200	9,500
TOTALS			**217,770**	**13,725**	**231,495**	**44,400**	**8,200**	**52,600**

Areas for SW01 and SW02 extended into SW29 polygon by approximately 20,000 square feet.

Table A32-30 Supporting Calculations for Table 32-25

Averaged Chemical Results												
From Exponent (2003) (mg/kg).												
LOC_ID	SDepth	EDepth	Arsenic	Cadmium	Chromium	Copper	HPAH	Lead	Mercury	PCB	Tributyltin	Zinc
NA01	0	0.1	10.2	0.24	70	252	7.55	84	1.1	0.375	0.157	298
NA01	0	2	11	3.1	110	300	10	120	2	1.3	0.15	500
NA01	2	4	8.6	4.6	130	215	8.15	100	2.6	1.1	0.0012	430
NA01	5	5.5	8.2	2.9	89	96	8.8	120	1.8	0.232	0.001	290
NA02	0	0.1	10	0.21	67	170	2.8	76	0.7	0.21	0.082	240
NA02	0	2	8.3	0.9	59	140	2.3	65	0.7	0.259	0.056	240
NA02	2	3.7	3.6	0.44	28	27	1.1	13	0.21	0.0504	0.00065	65
NA03	0	0.1	11	0.29	69	220	6.1	94	1.1	0.37	0.18	260
NA04	0	0.1	12	0.27	73	260	3.5	93	1.1	0.25	0.3	310
NA04	0	2	11	1.3	62	350	3.9	120	2.4	0.655	0.16	440
NA04	2	4	9.9	1.6	88	250	5.1	150	1.4	0.732	0.46	390
NA04	4	6	9.6	3.6	100	300	10	170	2	1.2	0.0115	460
NA04	6	8.3	11	5.2	120	450	15	230	4.1	1.9	0.001	680
NA05	0	0.1	9.5	0.17	57	170	2.8	65	0.61	0.18	0.11	210
NA06	0	0.1	10.5	0.26	62	395	4.4	130	2.4	0.64	0.225	335
NA06	0	2	8.5	0.41	39	330	3.2	110	1.6	0.65	0.37	280
NA06	2	3.9	4.1	0.32	19	120	2.4	42	1.2	0.973	0.04	130
NA07	0	0.1	13.5	0.27	60	225	16	100	1.4	0.495	0.11	255
NA08	0	0.1	18	0.31	79	270	3.5	96	0.82	0.31	0.11	330
NA09	0	0.1	13	0.4	75	260	2.8	97	1.2	0.29	0.12	330
NA09	0	2	18	2.4	58	340	8.8	120	4.4	2.7	0.46	580
NA09	2	4	14	5.4	95	400	22	180	3.8	4	0.009	690
NA09	4	6	13	5	97	400	36	160	6	4.6	0.00105	780
NA09	6	8	6.3	1.1	42	50	1.8	37	1.1	0.0432	0.00085	150
NA09	8	8.8								0.0138		
NA10	0	0.1	6.9	0.22	52	160	1.8	59	0.58	0.16	0.091	190
NA11	0	0.1	9.3	0.28	59	180	2.8	73	0.85	0.19	0.038	230
NA12	0	0.1	9.5	0.09	54	150	2	59	0.62	0.15	0.08	210
NA13	0	0.1	10.8	0.24	59	185	1.5	75	0.645	0.17	0.068	295
NA13	0	2	6.7	0.43	24	110	0.9	37	0.34	0.158	0.075	250
NA13	2	3	0.8	0.025	8.6	3.6	0	1.7	0.03	0.00109	0.00065	16
NA14	0	0.1	9	0.25	56	130	1.1	66	0.55	0.13	0.045	200
NA15	0	0.1	12	0.25	62	250	3.3	83	0.98	0.34	0.67	310
NA16	0	0.1	10.5	0.36	70	252	3.7	90	1.1	0.59	0.175	312
NA16	0	2	11	3.3	80	330	7.2	180	2.6	0.397	0.06	520
NA16	2	4	9.6	3.8	87	150	5.9	100	4	1.1	0.00102	385
NA16	4	6.1	7.2	0.83	32	49	2	39	1.5	0.0532	0.0009	160
NA17	0	0.1	14.5	0.4	74	510	3.9	115	0.845	0.55	1.4	620
NA17	0	2	15	0.46	84	450	3.6	120	0.89	0.621	1.3	550
NA17	2	4	10	0.62	24	170	1.5	62	0.39	0.491	0.34	380
NA17	4	5.1	4	0.09	7.5	9	0.1	6.4	0.05	0.00282	0.0017	24
NA18	0	0.1	14	0.36	67	230	2.4	97	0.79	0.35	0.21	380
NA19	0	0.1	14	0.37	65	270	3	100	0.78	1	0.57	450
NA19	0	2	17	0.84	59	450	2.6	120	0.94	0.762	1.4	850
NA19	2	4	13	1.1	31	160	1.7	96	0.6	0.798	1.2	540
NA19	4	5.8	4.5	0.78	28	71	4.3	35	0.87	0.305	0.45	210
NA20	0	0.1	6.6	0.44	26	96	2.9	53	0.24	0.12	0.28	190
NA20	0	2	8.2	0.48	33	160	2.4	73	0.31	0.151	0.34	280
NA20	2	4	10	0.72	39	200	4	100	0.49	0.205	0.31	340

Table A32-30 Supporting Calculations for Table 32-25 Continued

Averaged Chemical Results												
From Exponent (2003) (mg/kg).												
LOC_ID	SDepth	EDepth	Arsenic	Cadmium	Chromium	Copper	HPAH	Lead	Mercury	PCB	Tributyltin	Zinc
NA20	4	6	7.6	1	32	90	3.4	96	0.465	0.32	0.059	220
NA20	6	8.1	6	2.2	52	67	1.2	65	1.3	0.0905	0.0076	160
NA21	0	0.1	11	0.39	51	150	2.1	83	0.51	0.18	0.41	250
NA21	0	2	10	5.1	130	220	6.1	110	2.3	0.882	0.52	510
NA21	2	4	8.7	3.5	130	130	3.2	77	1.9	0.205	0.001	320
NA21	4	6	3.7	0.39	18	16	0.5	13	0.36	0.028	0.00075	51
NA21	6	7.6	2.9	0.03	3.5	1.4	0	0.86	0.01	0.00109	0.0006	5
NA23	0	0.1	12	0.26	77	350	3.4	120	1.1		0.12	430
NA23	0	2	12	0.42	85	480	8.5	130	1.4	0.423	0.67	440
NA23	2	4	4.8	0.55	29	130	4.2	55	1.1	0.5	0.013	150
NA23	4	4.7								0.0171		
NA24	0	0.1	9.6	0.2	60	200	2.1	88	0.9	0.29	0.059	280
NA24	0	2	6.2	0.29	25	80	2	33	0.58	0.101	0.036	150
NA24	2	4	1.4	0.03	6.7	3.8	0.1	1.9	0.03	0.00109	0.00065	18
NA25	0	0.1	6	0.11	33	85	1.1	41	0.42	0.08	0.025	130
NA25	0	2	2.5	0.06	14	25	0.3	13	0.14	0.0297	0.011	47
NA25	2	4	1.5	0.025	4.9	1.3	0	0.8	0.01	0.00109	0.00065	7.1
NA25	4	5.2	2.1	0.025	4.5	1.2	0	0.73	0.01	0.00109	0.0006	5.9
NA26	0	0.1	6.2	0.11	32	80	0.9	41	0.48	0.18	0.037	140
NA26	0	2	4	0.12	17	32	0.5	20	0.65	0.051	0.011	62
NA26	2	4	2.1	0.03	3.1	3.3	0	0.88	0.005	0.0012	0.00075	5.1
NA26	4	6	3.1	0.025	2.3	1.2	0	1	0.01	0.00178	0.0006	3.5
NA26	6	7.5	2.1	0.025	3.8	1.5	0	1.8	0.01	0.00109	0.0006	4.9
NA27	0	0.1	13	0.29	100	390	2.8	110	1.2	0.21	0.1	500
NA28	0	0.1	10	0.31	86	290	3.4	84	0.89	0.18	0.09	390
NA29	0	0.1	6.9	0.14	39	110	1.9	56	0.55	0.19	0.058	170
NA29	0	2	6.2	0.44	30	64	1.3	37	0.51	0.165	0.062	150
NA29	2	4.4	1.8	0.03	7.8	2.8	0	1.4	0.01	0.00371	0.000625	11
NA30	0	0.1	7.5	0.22	37	140	1	59	0.71	0.11	0.022	170
NA30	0	2	4.8	0.3	25	47	0.7	30	0.41	0.0742	0.016	97
NA30	2	3.4	4.3	0.08	8.7	7.4	0.2	10	0.12	0.00234	0.00065	28
NA31	0	0.1	5.3	0.13	29	71	0.5	34	0.35	0.07	0.02	110
NA31	0	2	1.7	0.025	4.4	2.9	0	1.6	0.01	0.00237	0.00065	8.5
NA31	2	3	1.7	0.025	3.4	1.2	0	0.81	0.01	0.00109	0.0006	4.1
SW28s	0	0.1	14	0.32	66	265	20	100	0.875	2.1	0.15	330
SW28s	0	2	15	2.7	76	280	26	170	1.5	2.2	0.22	530
SW28s	2	4	6.6	2.3	67	100	8.9	67	2.5	0.807	0.0082	280
SW28s	4	5.3	7	1.2	41	50	1.9	46	1.4	0.0364	0.00085	160
SW01	0	0.1	13.5	0.71	78	560	10	145	1.4	1.6	0.45	520
SW01	0	2	5	0.96	38	100	1.6	53	1.4	0.488	0.0028	110
SW01	2	4	4.4	0.38	14	26	5.1	30	0.79	0.00528	0.0007	86
SW01	4	5.4	2.4	0.075	6	5.3	0.7	5	0.07	0.00109	0.0006	18
SW02	0	0.1	13.8	3.2	119	580	14	170	4.4	5.5	0.167	585
SW02	0	2	9.6	1.7	51	160	9.5	84	2	0.729	0.0044	230
SW02	2	4	4.5	0.16	13	14	2.4	10	0.2	0.0115	0.00075	40
SW02	4	4.9	8.7	0.32	6.9	4.2	0.2	3.4	0.03	0.00237	0.0006	15
SW03	0	0.1	11	0.7	52	190	6.8	79	1.2	0.41	0.053	230
SW04	0	0.1	73	2	88	1500	13	430	1.8	4.1	3.2	3450
SW04	0	2	68	0.79	26	370	7.4	150	1.1	0.835	1.9	670

Table A32-30 Supporting Calculations for Table 32-25 Continued

Averaged Chemical Results												
From Exponent (2003) (mg/kg).												
LOC_ID	SDepth	EDepth	Arsenic	Cadmium	Chromium	Copper	HPAH	Lead	Mercury	PCB	Tributyltin	Zinc
SW04	2	4.1	110	3.2	97	2200	58	410	7.4	16	5	1500
SW05	0	0.1	11	0.86	53	230	13	120	0.96	1.2	0.17	280
SW06	0	0.1	15	0.85	56	170	12	81	0.75	0.38	0.1	280
SW07	0	0.1	8.1	0.19	43	150	3.8	57	0.52	0.17	0.044	170
SW08	0	0.1	24	0.73	82	920	26	225	2.2	2.1	1.8	830
SW08	0	2	24.5	1	98	1450	20	355	4.8	6.3	7	1250
SW08	2	4	13	0.86	110	1500	23	340	6	7.9	5.1	790
SW08	4	6	4.9	0.07	7.4	49	0.5	11	0.3	0.288	0.044	34
SW08	6	6.5	2.1	0.025	3.7	4.2	0	1.8	0.005	0.00434	0.0023	10
SW09	0	0.1	27	1.1	56	660	17	220	0.96	0.71	0.91	1200
SW10	0	0.1	13	0.87	45	160	16	79	0.58	0.61	0.25	360
SW10	0	2	5.2	0.19	22	100	6.3	35	0.3	0.199	0.067	150
SW10	2	2.9	1.7	0.02	5.8	5.4	0	2.3	0.02	0.00224		14
SW11	0	0.1	9.6	0.24	62	170	8	74	0.75	0.2	0.14	240
SW12	0	0.1	7.4	0.14	39	120	3	52	0.525	0.16	0.036	160
SW12	0	2	5.3	0.17	31	93	1.6	32	0.34	0.186	0.05	130
SW12	2	3.7	3	0.07	8.1	24	0.4	6.5	0.07	0.0198	0.0089	35
SW13	0	0.1	15	0.42	72	800	12	93	0.86	0.5	0.79	580
SW14	0	0.1	10	0.31	63	280	8.4	88	1	0.4	0.45	300
SW15	0	0.1	11	0.45	67	230	7.7	90	0.9	0.38	0.17	290
SW16	0	0.1	12	0.66	68	430	5.7	97	1	0.43	1.1	370
SW17	0	0.1	12	0.37	73	270	10	93	0.98	0.55	0.44	310
SW17	0	2	15	0.68	87	440	8.2	100	1.3	0.666	0.92	500
SW17	2	4	15	1.4	54	280	3.6	90	0.67	0.773	0.6	400
SW17	4	6.2	3.7	0.44	30	530	1.1	23	0.17	0.288	0.057	130
SW18	0	0.1	11	0.33	74	220	8.1	86	0.75	0.44	0.13	280
SW19	0	0.1	7.1	0.15	42	110	1.1	51	2.1	0.09	0.037	150
SW19	0	2	6	0.19	40	97	0.9	42	0.41	0.0782	0.023	160
SW19	2	4	2.9	0.07	9.7	18	0.3	7.3	0.07	0.0122	0.0056	38
SW19	4	5.4	2.5	0.03	8.8	10	0.1	4.7	0.04	0.00752	0.00065	30
SW20	0	0.1	14	0.41	68	290	11	110	0.99	1.6	0.13	390
SW20	0	1.5	12	1.2	46	300	6.4	79	0.97	3.5	0.44	430
SW20	1.5	2.4	7.6	0.13	19	23	0.4	7.8	0.07	0.568	0.013	59
SW21	0	0.1	11	0.51	70	260	9.7	120	1.4	2.4	0.17	330
SW22	0	0.1	13	0.35	70	260	12	110	1.1	0.9	0.19	310
SW23	0	0.1	15	0.37	89	280	11	110	1	1	0.21	330
SW24	0	0.1	10	0.32	52	300	58	88	1.9	0.95	0.165	300
SW24	0	2	10	2.9	69	240	18	100	2.4	3.3	0.018	470
SW24	2	3	6.2	0.78	28	50	3	26	0.48	0.575	0.019	140
SW25	0	0.1	11.5	0.36	64	230	11	86	0.775	0.35	0.23	345
SW25	0	2	6.6	0.33	28	110	8.9	32	0.24	0.163	0.12	160
SW25	2	4.2	9	1.1	41	170	7.2	51	0.76	0.297	0.16	230
SW26	0	0.1	9	0.14	45	120	1.6	58	0.43	0.29	0.049	160
SW27	0	0.1	10	0.27	63	210	12	80	0.68	0.2	0.25	250
SW27	0	2	10.1	0.81	46	245	3.85	65	1.1	0.333	1.8	335
SW27	2	4.3	6.5	0.42	23	29	0.6	16	0.2	0.0657	0.028	88
SW27	5.3	5.6	4.5	0.1	16	10	0	3.8	0.01	0.00326	0.0026	36
SW28n	0	0.1	14	0.32	66	265	20	100	0.875	2.1	0.15	330

Table A32-30 Supporting Calculations for Table 32-25 Continued

Averaged Chemical Results												
From Exponent (2003) (mg/kg).												
LOC_ID	SDepth	EDepth	Arsenic	Cadmium	Chromium	Copper	HPAH	Lead	Mercury	PCB	Tributyltin	Zinc
SW28n	0	2	15	2.7	76	280	26	170	1.5	2.2	0.22	530
SW28n	2	4	6.6	2.3	67	100	8.9	67	2.5	0.807	0.0082	280
SW28n	4	5.3	7	1.2	41	50	1.9	46	1.4	0.0364	0.00085	160
SW30	0	0.1	8.9	0.23	72	240	4.9	72	1.1	0.38	0.2	300
SW30	0	2	9	1.1	42	210	5.2	71	1.1	0.555	0.14	280
SW30	2	4	5.1	2.4	22	32	1.2	17	0.31	0.0633	0.0045	91
SW30	4	6	6.3	0.55	25	29	3	34	0.95	0.00215	0.00095	100
SW30	6	8	5.8	0.06	10	5.3	0.5	4.7	0.05	0.00109	0.0007	22
SW30	8	8.7	5.7	0.06	7.2	3.8	0.1	1.8	0.01	0.0011	0.00065	12
SW31	0	0.1	4	0.064	18	54	1.2	21	0.23	0.07	0.036	80
SW31	0	2	3.8	0.18	17	49	0.9	16	0.12	0.0439	0.027	89
SW31	2	2.9	1.1	0.03	12	3.3	0	1.1	0.005	0.00109		22
SW32	0	0.1	9.4	0.064	43	92	0.8	57	0.51	0.16	0.03	160
SW32	0	2	6.2	0.23	24	67	0.7	35	0.43	0.0792	0.012	130
SW32	2	2.8	3.3	0.07	5.5	5.7	0.1	3.9	0.06	0.00594	0.0006	14
SW33	0	0.1	10	0.065	41	100	1	58	0.53	0.1	0.019	170
SW33	0	2	6.5	0.17	26	55	0.5	24	0.63	0.0547	0.013	98
SW33	2	2.5	7.9	0.07	7.1	7.5	0.1	5.4	0.07	0.00621	0.0016	19
SW34	0	0.1	8.3	0.21	53	320	1.4	99	0.75	0.13	0.038	310
SW34	0	2	5.4	0.22	20	64	0.75	30	0.4	0.0967	0.028	102
SW34	2	2.8								0.0032		
SW36	0	0.1	9.9	0.21	70	240	4	79	0.75	0.2	0.049	300
SW36	0	2	15	0.46	78	290	6.5	89	0.76	0.479	0.32	370
SW36	2	4.3	26	1.7	73	610	3.4	150	0.61	0.693	1.2	1200

1/2 Reporting limit used for non-dectects for all except PCB congeners. Reporting limit for non detects for PCB congeners
Duplicates averaged
Subsequent samples averaged with prior samples or prior duplicate average values
PCBs are sum of 41 congeners.

Table A32-31 Supporting Calculations for Table 32-25

Estimate of Dry Bulk Density														
From Exponent Appendix B3 (2003)												Grain-Size Distribution (percent dry)		
Station	Sample Number	Date	Field Split	Upper Depth (in.)	Lower Depth (in.)	Moisture (as % of solids)	Total Solids (dry wt. as % of wet wt.)	Specific Gravity (SI units)	Atterberg Limits (percent wet) Liquid Limit	Atterberg Limits (percent wet) Plastic Limit	Plasticity Index	Particles >4.75 mm	Particles >2.00 mm and <4.75 mm	Very Coarse Sand (Phi Class –1 to 0)
NA06	SD0068E	9/3/2002		0	35	78%	56%	2.68	47	21	26	0	3	6
NA06	SD0069E	9/3/2002		35	47	22%	82%	2.73				2	4	9
NA09	SD0079E	9/4/2002	1	0	72	120%	47%	2.58	87	33	55	2	2	1
NA09	SD0083E	9/4/2002	2	0	72	106%	49%	2.69	87	32	55	5	0	1
NA09	SD0082	9/4/2002		72	96	67%	60%	2.75	68	29	39	0	0	1
NA13	SD0156E	9/20/2002		0	21	37%	73%	2.7	34	18	16	0	3	6
NA13	SD0157E	9/20/2002		21	38	22%	82%	2.73				0	0	1
NA17	SD0088	9/4/2002		0	24	183%	35%	2.6	82	32	50	2	1	1
NA17	SD0089E	9/4/2002		24	42	36%	73%	2.68	40	19	21	14	9	8
NA17	SD0090E	9/4/2002		42	61	25%	80%	2.68	32	17	15	7	16	15
NA24	SD0165E	9/21/2002		0	26	93%	52%	2.75	63	24	39	4	6	4
NA24	SD0166E	9/21/2002		26	48	28%	78%	2.7				0	1	1
SW01	SD0001	8/13/2002		0	24	57%	64%	2.7				8	6	6
SW01	SD0002	8/13/2002		24	48	39%	72%	2.75	29	19	10	2	1	1
SW01	SD0003	8/13/2002		48	65	26%	80%	2.71				24	8	5
SW10	SD0049	8/28/2002		0	17	127%	44%	2.68	75	28	47	0	3	5
SW10	SD0050	8/28/2002		17	35	18%	85%	2.68	46	18	28	0	14	32
SW17	SD0017E	8/26/2002	1	0	36	165%	38%	2.75	103	33	70	0	0	0
SW17	SD0020	8/26/2002	2	0	36	150%	40%	2.77	90	32	58	0	0	0
SW17	SD0018E	8/26/2002		60	74	19%	84%	2.75				2	12	14
SW24	SD0006E	8/13/2002		0	30	88%	53%	2.66	57	23	34	0	0	1
SW24	SD0007E	8/13/2002		30	36	19%	84%	2.74	26	13	13	0	2	4
SW30	SD0061	8/29/2002		0	48	177%	36%	2.42				0	2	4
SW30	SD0062	8/29/2002		48	72	88%	53%	2.78	69	27	42	0	0	0
SW30	SD0063	8/29/2002		72	104	30%	77%	2.77				7	9	11
SW31	SD0035	8/27/2002		0	12	69%	59%	2.74	28	24	4	0	1	2
SW31	SD0036	8/27/2002		12	35	30%	77%	2.73				0	0	0
						Averages	63%	2.70						
						Standard Deviations	17%	0.07						
						Average dry bulk density		1.713 bulk dry density						