

Table 2-1. Sample Identification and Description

Sampling Area	Habitat Description	Sample Identification	Species	Sex	Carapace Length (cm)	Number in Composite (M / F)	Comments ⁽¹⁾	
Area 1: Downgradient from SWMU 7	Mangrove/sandy mudflat	S7-FD-01-01	Fiddler Crab	NA	NA	65 / 38		
		S7-FD-01-02	Fiddler Crab	NA	NA	74 / 26		
		S7-FD-01-03	Fiddler Crab	NA	NA	95 / 32		
	Coastal wet forest	S7-LC-01-01	Land Crab	Male	6.99	NA		Shell only analyzed for metals
		S7-LC-01-02	Land Crab	Male	8.26	NA		
		S7-LC-01-03	Land Crab	Male	6.67	NA		
		S7-LC-01-04	Land Crab	Male	10.00	NA		Matrix spike/matrix spike duplicate sample
		S7-LC-01-05	Land Crab	Male	9.21	NA		
		S7-LC-01-06	Land Crab	Female	6.99	NA		
	S7-LC-01-07	Land Crab	Male	7.62	NA			
Area 2: Downgradient from AOCs J and R	Sand flat	JR-FD-01-01	Fiddler Crab	NA	NA	27 / 64		
		JR-FD-01-02	Fiddler Crab	NA	NA	52 / 29		
		JR-FD-01-03	Fiddler Crab	NA	NA	66 / 35		
	Coastal wet forest, shrub/scrub, mudflat	JR-LC-01-01	Land Crab	Male	6.67	NA		
		JR-LC-01-02	Land Crab	Male	6.99	NA		Shell only analyzed for metals
		JR-LC-01-03	Land Crab	Female	8.89	NA		
		JR-LC-01-04	Land Crab	Male	7.46	NA		
		JR-LC-01-05	Land Crab	Male	8.89	NA		
	JR-LC-01-06	Land Crab	Female	7.62	NA			
Area 3: Laguna Kiani	Mangrove, sand flat	KA-FD-01-01	Fiddler Crab	NA	NA	42 / 12		
		KA-FD-01-02	Fiddler Crab	NA	NA	56 / 13		
		KA-FD-01-03	Fiddler Crab	NA	NA	48 / 9		
	Mangrove, sand flat	KA-LC-01-01	Land Crab	Male	7.30	NA		
		KA-LC-01-02	Land Crab	Male	6.03	NA		Shell only analyzed for metals
		KA-LC-01-03	Land Crab	Female	7.30	NA		
		KA-LC-01-04	Land Crab	Male	8.57	NA		
		KA-LC-01-05	Land Crab	Male	5.87	NA		
	KA-LC-01-06	Land Crab	Female	7.46	NA			
Area 4: Laguna Kiani South	Mangrove, sand flat	LA-FD-01-01	Fiddler Crab	NA	NA	55 / 13		
		LA-FD-01-02	Fiddler Crab	NA	NA	34 / 14		
		LA-FD-01-03	Fiddler Crab	NA	NA	51 / 10		
	Shrub/scrub	LA-LC-01-01	Land Crab	Male	8.10	NA		Shell only analyzed for metals
		LA-LC-01-02	Land Crab	Male	6.67	NA		
		LA-LC-01-03	Land Crab	Male	8.26	NA		
		LA-LC-01-04	Land Crab	Female	7.14	NA		
		LA-LC-01-05	Land Crab	Female	8.10	NA		
	LA-LC-01-06	Land Crab	Male	7.78	NA			
Area 5: Boca Quebrada	Mangrove, mudflat	S4-FD-01-01	Fiddler Crab	NA	NA	NR		
		S4-FD-01-02	Fiddler Crab	NA	NA	NR		
		S4-FD-01-03	Fiddler Crab	NA	NA	NR		
	Shrub/scrub	S4-LC-01-01	Land Crab	Male	9.53	NA		Matrix spike/matrix spike duplicate sample
		S4-LC-01-02	Land Crab	Male	6.83	NA		
		S4-LC-01-03	Land Crab	Female	8.10	NA		Shell only analyzed for metals
		S4-LC-01-04	Land Crab	Male	14.29	NA		
		S4-LC-01-05	Land Crab	Male	8.89	NA		
	S4-LC-01-06	Land Crab	Female	8.41	NA			
	S4-LC-01-08	Land Crab	Female	8.26	NA			
Area 6: Laguna Playa Grande	Mudflat	PG-FD-01-01	Fiddler Crab	NA	NA	151 / 72		
		PG-FD-01-02	Fiddler Crab	NA	NA	125 / 58		
		PG-FD-01-03	Fiddler Crab	NA	NA	78 / 18		
	Coastal wet forest	PG-LC-01-01	Land Crab	Male	8.41	NA		
		PG-LC-01-02	Land Crab	Male	8.41	NA		
		PG-LC-01-03	Land Crab	Female	7.62	NA		
		PG-LC-01-04	Land Crab	Female	7.94	NA		
		PG-LC-01-05	Land Crab	Male	7.94	NA		
	PG-LC-01-06	Land Crab	Female	7.94	NA		Shell only analyzed for metals	
Area 7: Mosquito Bay	Mangrove, mudflat	SB-FD-01-01	Fiddler Crab	NA	NA	30 / 3		
		SB-FD-01-02	Fiddler Crab	NA	NA	32 / 6		
		SB-FD-01-03	Fiddler Crab	NA	NA	47 / 5		
	Coastal wet forest	SB-LC-01-01	Land Crab	Male	8.41	NA		
		SB-LC-01-02	Land Crab	Female	7.78	NA		
		SB-LC-01-03	Land Crab	Male	7.62	NA		
		SB-LC-01-04	Land Crab	Male	8.89	NA		Shell only analyzed for metals
		SB-LC-01-05	Land Crab	Male	8.10	NA		
	SB-LC-01-06	Land Crab	Female	7.14	NA			

Table 2-1. Sample Identification and Description

Sampling Area	Habitat Description	Sample Identification	Species	Sex	Carapace Length (cm)	Number in Composite (M / F)	Comments ⁽¹⁾	
Area 8: Puerto Ferro	Mangrove, sand flat	PF-FD-01-01	Fiddler Crab	NA	NA	NR		
		PF-FD-01-02	Fiddler Crab	NA	NA	64 / 31		
		PF-FD-01-03	Fiddler Crab	NA	NA	40 / 10		
	Coastal wet forest	PF-LC-01-01	Land Crab	Male	8.41	NA		Shell only analyzed for metals
		PF-LC-01-02	Land Crab	Female	6.99	NA		
		PF-LC-01-03	Land Crab	Male	7.94	NA		
		PF-LC-01-04	Land Crab	Female	6.99	NA		
		PF-LC-01-05	Land Crab	Female	7.94	NA		
PF-LC-01-06	Land Crab	Male	9.84	NA				
PF-LC-01-07	Land Crab	Male	7.94	NA		Matrix spike/matrix spike duplicate sample		
Area 9: Red Beach	Mangrove, sandy mudflat	RB-FD-01-01	Fiddler Crab	NA	NA	43 / 34		
		RB-FD-01-02	Fiddler Crab	NA	NA	37 / 21		
		RB-FD-01-03	Fiddler Crab	NA	NA	41 / 39		
	Coastal wet forest	RB-LC-01-01	Land Crab	Female	9.05	NA		
		RB-LC-01-02	Land Crab	Male	9.84	NA		
		RB-LC-01-03	Land Crab	Male	9.53	NA		
		RB-LC-01-04	Land Crab	Male	8.89	NA		
		RB-LC-01-05	Land Crab	Female	10.80	NA		
RB-LC-01-06	Land Crab	Male	9.53	NA		Shell only analyzed for metals		
RB-LC-01-07	Land Crab	Male	12.07	NA		Not analyzed for explosives		
Area 10: Blue Beach	Mangrove	BB-FD-01-01	Fiddler Crab	NA	NA	87 / 18		
		BB-FD-01-02	Fiddler Crab	NA	NA	86 / 24		
		BB-FD-01-03	Fiddler Crab	NA	NA	71 / 10		
	Coastal wet forest	BB-LC-01-01	Land Crab	Male	10.32	NA		
		BB-LC-01-02	Land Crab	Male	12.07	NA		
		BB-LC-01-03	Land Crab	Female	8.41	NA		
		BB-LC-01-04	Land Crab	Male	9.68	NA		Shell only analyzed for metals
BB-LC-01-05	Land Crab	Male	11.59	NA				
BB-LC-01-06	Land Crab	Male	10.16	NA				
Area 11: Bahia Tapon	Mangrove	BT-FD-01-01	Fiddler Crab	NA	NA	29 / 9		
		BT-FD-01-02	Fiddler Crab	NA	NA	29 / 14		
		BT-FD-01-03	Fiddler Crab	NA	NA	39 / 16		
	Coastal wet forest	BT-LC-01-01	Land Crab	Male	6.99	NA		
		BT-LC-01-02	Land Crab	Female	7.30	NA		
		BT-LC-01-03	Land Crab	Female	8.73	NA		Shell only analyzed for metals
		BT-LC-01-04	Land Crab	Female	6.99	NA		
BT-LC-01-05	Land Crab	Male	9.05	NA				
BT-LC-01-06	Land Crab	Female	8.26	NA				
Area 12: Live Impact Area (LIA)	Mangrove	LI-FD-01-01	Fiddler Crab	NA	NA	134 / 32		
		LI-FD-01-02	Fiddler Crab	NA	NA	122 / 68		
		LI-FD-01-03	Fiddler Crab	NA	NA	97 / 23		
	Coastal wet forest	LI-LC-01-01	Land Crab	Male	9.53	NA		
		LI-LC-01-02	Land Crab	Female	8.89	NA		Shell only analyzed for metals
		LI-LC-01-03	Land Crab	Female	9.21	NA		
		LI-LC-01-04	Land Crab	Female	9.53	NA		Matrix spike/matrix spike duplicate sample
		LI-LC-01-05	Land Crab	Male	9.84	NA		
LI-LC-01-06	Land Crab	Female	9.21	NA				
Area 13: Blue Horizon Reference	Coastal wet forest	VR-LC-01-01	Land Crab	Male	7.46	NA		
		VR-LC-01-02	Land Crab	Male	7.78	NA		
		VR-LC-01-03	Land Crab	Male	8.10	NA		Shell only analyzed for metals
		VR-LC-01-04	Land Crab	Female	7.78	NA		
		VR-LC-01-05	Land Crab	Male	7.78	NA		
		VR-LC-01-06	Land Crab	Male	7.46	NA		
Area 14: Humacao Wildlife Reserve, Main Island Reference	Mudflat	HR-FD-01-01	Fiddler Crab	NA	NA	18 / 17		
		HR-FD-01-02	Fiddler Crab	NA	NA	31 / 23		
		HR-FD-01-03	Fiddler Crab	NA	NA	29 / 6		
	Coastal wet forest	HR-01	Land Crab	Male	6.35	NA		
		HR-02	Land Crab	Female	8.89	NA		
		HR-03	Land Crab	Male	6.86	NA		
		HR-04	Land Crab	Male	6.60	NA		
HR-05	Land Crab	Male	7.87	NA		Shell only analyzed for metals		
HR-06	Land Crab	Female	7.11	NA				

NOTES:

(1) = All samples except where noted were analyzed for trace elements by USEPA methods 200.8, 6010B, 7471A, and 7740; pesticides by USEPA method 8081A; polychlorinated biphenyls by USEPA method 8082; and explosive compounds by USEPA method 833.

M / F = male / female

NA = not applicable

NR = not recorded

Table 3-1. Ecological Screening Benchmarks

Chemical Name	USEPA TOXRES Database ¹		USACE ERED Database ²		ORNL TRVs for Wildlife ³		Final Screening Level Used for Data Evaluation ⁴		
	Limit (mg/kg)	Endpoint	Limit (mg/kg)	Endpoint	Limit (mg/kg)	Endpoint	Limit (mg/kg)	Limit (ug/kg)	Endpoint
Polychlorinated Biphenyls									
Aroclor 1016	7.7	Horseshoe crab					7.7	7700	Horseshoe crab
Aroclor 1254	23	Blue crab	23	Blue crab			23	23000	Blue crab
Pesticides									
Aldrin					0.733	Short-tailed shrew	0.733	733	Short-tailed shrew
Chlordane					1.8	American robin	1.8	1800	American robin
DDT,p,p'- ⁵	0.13	Blue crab	0.13	Blue crab	0.002	American robin	0.13	130	Blue crab
Dieldrin					0.064	American robin	0.064	64	American robin
Endosulfan					0.55	Short-tailed shrew	0.55	550	Short-tailed shrew
Endrin					0.008	American robin	0.008	8	American robin
Methoxychlor	0.1	Blue crab	0.1	Blue crab			0.1	100	Blue crab
Mirex	0.02	Blue crab					0.02	20	Blue crab
Toxaphene					29.3	Short-tailed shrew	29.3	29300	Short-tailed shrew
Trace Elements									
Aluminum					3.825	Short-tailed shrew	3.825	3825	Short-tailed shrew
Arsenic					0.25	Short-tailed shrew	0.25	250	Short-tailed shrew
Barium					17.2	American Robin	17.2	17200	American Robin
Beryllium					2.42	Short-tailed shrew	2.42	2420	Short-tailed shrew
Cadmium	0.13	Norway lobster			1.2	American robin	0.13	130	Norway lobster
Chromium					0.83	American robin	0.83	830	American robin
Copper					38.9	American robin	38.9	38900	American robin
Lead					0.94	American Robin	0.94	940	American Robin
Manganese					322	Short-tail Shrew	322	322000	Short-tail Shrew
Mercury	0.23	Norway lobster	1.23	Fiddler crab*	0.005	American robin	1.23	1230	Fiddler crab*
Nickel					64.08	American robin	64.08	64080	American robin
Selenium					0.331	American robin	0.331	331	American robin
Thallium					0.027	Short-tail Shrew	0.027	27	Short-tail Shrew
Uranium					5.981	Short-tail Shrew	5.981	5981	Short-tail Shrew
Vanadium			0.2	Shore crab	0.714	Short-tailed shrew	0.2	200	Shore crab
Zinc					12	American robin	12	12000	American robin

NOTES:

Values in wet weight.

1. U.S. Environmental Protection Agency (USEPA) Toxicity/Residue (TOXRES) database: Jarvinen & Ankley, 1999:

"Linkage of Effects to Tissue Residues: Development of a Comprehensive Database for Aquatic Organisms Exposed to Inorganic and Organic Chemicals".

2. U.S. Army Corps of Engineers (USACE) Environmental Residue Effects Database (ERED) for effects based on tissue concentrations.

3. Oak Ridge National Laboratory (ORNL) Toxicological Benchmarks for Wildlife (1996) - used lowest available bird/mammal NOAEL.

4. Final screening level used for Vieques data report based on lowest crustacean no effects level, when available; otherwise lowest wildlife no effects level.

5. In this report, the analytical results for 4,4'-DDT are compared to the benchmarks for p,p'-DDT.

* Original value was 12.3 mg/kg based on a Lowest Observable Effect Concentration, and was adjusted by an uncertainty factor of 10 to extrapolate to No Observable Effect Concentration.

NOAEL = no observed adverse effects level

TRV = toxicity reference value

Table 3-2. Vieques Island Land Crab Whole Body Data Summary

Chemical Name	# Samples	# Detects	# Non-Detects	Detection Frequency	Min Detected Concentration	Max Detected Concentration	Avg Detected Concentration	Min DL for NonDetects	Max DL for NonDetects
Explosives (ug/kg)									
1,3,5-Trinitrobenzene	73	0	73	0%	-	-	-	54	54
1,3-Dinitrobenzene	73	0	73	0%	-	-	-	59	59
2,4,6-Trinitrotoluene (TNT)	73	0	73	0%	-	-	-	52	52
2,4-Dinitrotoluene	73	0	73	0%	-	-	-	80	100
2,6-Dinitrotoluene	73	0	73	0%	-	-	-	78	78
2-Amino-4,6-dinitrotoluene	73	0	73	0%	-	-	-	78	120
2-Nitrotoluene	73	0	73	0%	-	-	-	52	380
3-Nitrotoluene	73	0	73	0%	-	-	-	110	110
4-Amino-2,6-dinitrotoluene	73	0	73	0%	-	-	-	54	54
4-Nitrotoluene	73	0	73	0%	-	-	-	150	150
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	73	0	73	0%	-	-	-	76	200
Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	73	0	73	0%	-	-	-	74	450
Nitrobenzene	73	0	73	0%	-	-	-	55	200
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HM)	73	0	73	0%	-	-	-	52	1200
Polychlorinated Biphenyls (ug/kg)									
Aroclor 1016	74	0	74	0%	-	-	-	4.3	4.3
Aroclor 1221	74	0	74	0%	-	-	-	2.4	2.4
Aroclor 1232	74	0	74	0%	-	-	-	3	3
Aroclor 1242	74	0	74	0%	-	-	-	1.4	1.4
Aroclor 1248	74	0	74	0%	-	-	-	2.6	2.6
Aroclor 1254	74	0	74	0%	-	-	-	0.82	0.82
Aroclor 1260	74	1	73	1.4%	7.6	7.6	7.6	3.1	3.1
Aroclor 1262	74	0	74	0%	-	-	-	1.6	1.6
Aroclor 1268	74	0	74	0%	-	-	-	1.3	1.3
Pesticides (ug/kg)									
2,4'-DDD	74	3	71	4.1%	1.5	4.4	2.7	0.32	1.6
2,4'-DDE	74	2	72	2.7%	0.16	0.26	0.21	0.15	5.1
2,4'-DDT	74	20	54	27%	0.23	7.2	2.2	0.12	5
4,4'-DDD	74	15	59	20%	0.18	69	8.8	0.16	5
4,4'-DDE	74	39	35	53%	0.14	190	21.3	0.1	5
4,4'-DDT	74	14	60	19%	0.22	25	4.3	0.2	1
Aldrin	74	1	73	1.4%	0.17	0.17	0.17	0.15	0.77
alpha-BHC	74	0	74	0%	-	-	-	0.32	1.6
alpha-Chlordane	74	4	70	5.4%	0.12	0.53	0.32	0.11	1
beta-BHC	74	0	74	0%	-	-	-	0.31	1.9
Chlordane	74	1	73	1.4%	15	15	15	1.5	18
Chlorpyrifos	74	0	74	0%	-	-	-	0.43	2.2
cis-Nonachlor	74	0	74	0%	-	-	-	0.25	5.5
delta-BHC	74	0	74	0%	-	-	-	0.21	1.1
Dieldrin	74	1	73	1.4%	0.23	0.23	0.23	0.075	1
Endosulfan I	74	0	74	0%	-	-	-	0.17	2.5
Endosulfan II	74	0	74	0%	-	-	-	0.24	1.2
Endosulfan Sulfate	74	3	71	4.1%	0.86	1.4	1.2	0.19	1
Endrin	74	1	73	1.4%	0.1	0.1	0.10	0.075	2.5
Endrin Aldehyde	74	0	74	0%	-	-	-	0.17	1
Endrin Ketone	74	0	74	0%	-	-	-	0.4	2
gamma-BHC (Lindane)	74	0	74	0%	-	-	-	0.17	1.3
gamma-Chlordane	74	16	58	22%	0.28	0.9	0.56	0.17	1.5
Heptachlor	74	0	74	0%	-	-	-	0.31	1.6
Heptachlor Epoxide	74	3	71	4.1%	0.44	0.79	0.64	0.34	1.8
Isodrin	74	0	74	0%	-	-	-	0.4	2
Methoxychlor	74	2	72	2.7%	0.79	1.1	0.95	0.32	1.6
Mirex	74	4	70	5.4%	0.55	1.7	1.0	0.24	1.2
Oxychlordane	74	0	74	0%	-	-	-	0.39	2.1
Toxaphene	74	0	74	0%	-	-	-	14	70
trans-Nonachlor	74	1	73	1.4%	0.31	0.31	0.31	0.19	1
Trace Elements (mg/kg)									
Aluminum	74	74	0	100%	3.1	144	45.6	-	-
Arsenic	74	74	0	100%	0.09	1.56	0.33	-	-
Barium	74	74	0	100%	2.35	198	60.9	-	-
Beryllium	74	1	73	1.4%	0.002	0.002	0.002	0.001	0.003
Cadmium	74	73	1	99%	0.004	0.515	0.04	0.004	0.004
Calcium	74	74	0	100%	7380	83400	49190	-	-
Chromium	74	74	0	100%	0.08	5.71	1.4	-	-
Cobalt	74	74	0	100%	0.0799	1.12	0.42	-	-
Copper	74	74	0	100%	13	107	32.2	-	-
Iron	74	74	0	100%	7.39	191	76.9	-	-
Lead	74	55	19	74%	0.008	2.55	0.11	0.01	0.02
Magnesium	74	74	0	100%	812	7990	4240	-	-
Manganese	74	74	0	100%	1.18	97.2	15.8	-	-
Mercury	74	33	41	45%	0.001	0.005	0.003	0.001	0.003
Nickel	74	74	0	100%	1.29	10.1	4.6	-	-
Potassium	74	74	0	100%	1260	2990	1933	-	-
Selenium	74	19	55	26%	0.11	0.35	0.20	0.08	0.17
Silver	74	69	5	93%	0.003	0.314	0.04	0.015	0.068
Sodium	74	74	0	100%	2090	4430	3455	-	-
Thallium	74	19	55	26%	0.0007	0.0146	0.003	0.0005	0.002
Uranium	74	72	2	97%	0.0017	0.0375	0.007	0.0011	0.0017
Vanadium	74	66	8	89%	0.1	0.7	0.33	0.1	0.2
Zinc	74	74	0	100%	18.2	76.5	38.1	-	-

NOTES:

All values reported in wet weight.
DL = Detection Limit

Table 3-3. Vieques Island Land Crab Whole Body Average Values

Chemical Name	Crustacean Ecological Screening Benchmarks	Area 1: Downgradient from SWMU 7	Area 2: Downgradient from AOCs J&R	Area 3: Laguna Kiani	Area 4: Laguna Kiani South	Area 5: Boca Quebrada	Area 6: Laguna Playa Grande	Area 7: Mosquito Bay	Area 8: Puerto Ferro	Area 9: Red Beach	Area 10: Blue Beach	Area 11: Bahia Tapon	Area 12: Live Impact Area	Area 13: Blue Horizon Reference	Area 14: Main Island Reference
Polychlorinated Biphenyls (ug/kg)															
Aroclor 1260	23,000 *	3.1	3.1	4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Pesticides (ug/kg)															
2,4'-DDD		1.60	0.32	0.32	0.32	0.32	0.32	0.32	0.32	1.33	0.692	0.32	0.32	0.32	0.32
2,4'-DDE		3.37	0.15	0.172	0.234	0.15	0.32	0.17	0.30	0.60	0.632	0.164	0.15	0.152	0.66
2,4'-DDT	130	2.88	0.648	2.302	1.08	0.96	0.88	1.88	0.85	0.59	2.264	0.644	1.732	0.648	0.99
4,4'-DDD		3.72	0.16	5.3	0.162	0.16	0.172	0.16	0.16	4.85	15.55	0.174	0.164	0.16	0.328
4,4'-DDE		2.36	0.172	69.48	0.386	0.27	0.216	2.152	1.77	65.43	7.32	6.66	0.106	0.288	0.14
4,4'-DDT		1.00	0.218	6.224	0.2	0.20	0.2	0.2	0.20	4.55	0.308	0.2	0.366	0.226	0.288
Aldrin		0.75	0.15	0.166	0.15	0.15	0.15	0.15	0.16	0.15	0.15	0.154	0.154	0.372	0.16
alpha-Chlordane		0.56	0.19	0.124	0.57	0.19	0.124	0.178	0.30	0.21	0.132	0.41	0.11	0.634	0.204
Chlordane		10.25	6.88	6.9	8.06	4.78	2.66	3.64	1.78	1.68	4.92	1.5	3.64	6.56	4.2
Dieldrin		0.38	0.26	0.494	0.279	0.23	0.08	0.075	0.09	0.08	0.63	0.092	0.075	0.127	0.686
Endosulfan Sulfate		0.95	0.22	0.59	0.19	0.33	0.192	0.192	0.21	0.48	0.378	0.406	0.19	0.56	0.472
Endrin		0.38	0.63	0.964	0.762	0.43	0.466	0.2776	0.41	0.16	1.36	0.138	0.313	0.815	0.485
gamma-Chlordane		1.06	0.17	0.31	0.466	0.35	0.17	0.382	0.58	0.39	0.632	0.346	0.236	0.362	0.508
Heptachlor Epoxide		1.72	0.468	0.562	0.48	0.34	0.366	0.512	0.68	0.40	0.472	0.45	0.34	0.366	0.49
Methoxychlor	100	1.60	0.332	0.476	0.324	0.32	0.35	0.32	0.32	0.43	0.412	0.322	0.55	0.32	0.456
Mirex	20	1.20	0.24	0.24	0.24	0.25	0.24	0.24	0.24	0.29	0.26	0.24	0.868	0.24	0.24
trans-Nonachlor		0.95	0.19	0.514	0.214	0.33	0.19	0.364	0.19	0.31	0.564	0.352	0.19	0.19	0.19
Trace Elements (mg/kg)															
Aluminum		34.6	47.8	42.0	54.5	57.3	33.9	57.2	35.4	10.4	72.0	47.3	68.9	38.3	47.2
Arsenic		0.23	0.15	0.73	0.16	0.27	0.27	0.27	0.29	0.52	0.48	0.21	0.57	0.18	0.27
Barium		50.5	125.0	57.7	145.3	59.8	74.5	65.3	23.2	10.6	58.1	45.7	31.2	87.5	37.6
Beryllium		0.002	0.001	0.002	0.002	0.003	0.001	0.002	0.003	0.002	0.002	0.002	0.003	0.002	0.001
Cadmium	0.13	0.01	0.01	0.05	0.01	0.05	0.01	0.02	0.04	0.02	0.02	0.01	0.26	0.01	0.02
Calcium		45067	57680	60860	47960	56983	56640	36100	56533	35295	36876	53620	60140	51220	34260
Chromium		1.1	0.8	3.4	0.9	2.1	0.9	0.9	2.7	1.0	0.9	0.7	1.4	1.0	1.5
Cobalt		0.343	0.596	0.277	0.462	0.507	0.417	0.586	0.557	0.273	0.437	0.530	0.290	0.292	0.284
Copper		36.42	41.16	37.7	30.7	23.80	35.16	55.42	35.83	19.65	35.54	24.5	23.1	29.2	24.74
Iron		61.5	87.1	94.8	63.6	84.8	73.8	75.5	79.5	26.0	91.3	57.4	85.4	94.4	113.2
Lead		0.02	0.04	0.73	0.06	0.10	0.05	0.04	0.02	0.05	0.03	0.03	0.02	0.02	0.03
Magnesium		3725	5054	5752	3876	4760	4500	2950	4803	3402	3476	4702	5522	4266	2622
Manganese		21.85	35.06	10.20	27.74	33.35	11.52	17.82	5.97	3.26	11.51	8.70	9.82	12.67	11.93
Mercury	1.23	0.002	0.001	0.002	0.003	0.002	0.002	0.002	0.001	0.003	0.001	0.001	0.003	0.003	0.002
Nickel		2.61	5.84	4.38	2.88	6.87	5.99	3.71	7.40	4.11	5.09	5.40	3.52	2.85	2.74
Potassium		1818	2154	1818	1930	1722	2176	1994	1807	2218	1922	2018	1688	2088	1746
Selenium		0.17	0.13	0.13	0.12	0.13	0.14	0.11	0.17	0.13	0.16	0.2	0.14	0.15	0.1
Silver		0.030	0.016	0.051	0.014	0.013	0.012	0.047	0.105	0.017	0.047	0.021	0.074	0.015	0.041
Sodium		3193	3936	3748	3030	3283	3416	3506	3452	3570	3718	3754	3694	3238	2902
Thallium		0.002	0.001	0.002	0.003	0.002	0.002	0.002	0.002	0.004	0.001	0.002	0.002	0.002	0.002
Uranium		0.003	0.012	0.005	0.012	0.010	0.008	0.011	0.009	0.008	0.008	0.005	0.003	0.006	0.003
Vanadium	0.2	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.1	0.3	0.2	0.4	0.4	0.3
Zinc		31.5	44.8	33.7	36.8	38.1	37.8	40.5	35.1	47.7	40.1	37.8	29.4	33.1	47.1

NOTES:

Only analytes with at least one detected concentration are included.

All values reported in wet weight.

MDL (method detection limit) was used in place of non-detected results for averaging.

Exoskeleton and tissue-only results NOT included in whole body averages.

Shaded values denote that all samples from this area were below detection for the analyte; the average method detection limit is then listed.

Analytes in italics have tissue residue screening benchmarks developed for the protection of the crab themselves.

Bold values indicate that the average value exceeds the ecological screening benchmark.

* Benchmark is for Aroclor 1254.

Table 3-4. Vieques Island Land Crab Exoskeleton vs. Tissue-Only Data Summary

Chemical Name	Exoskeleton Summary Statistics									Tissue-Only Summary Statistics									Ratio:
	# Samples	# Detects	# Non-Detects	Detection Frequency	Min Detected Concentration	Max Detected Concentration	Avg Detected Concentration	Min DL for NonDetects	Max DL for NonDetects	# Samples	# Detects	# Non-Detects	Detection Frequency	Min Detected Concentration	Max Detected Concentration	Avg Detected Concentration	Min DL for NonDetects	Max DL for NonDetects	Avg Detect Exoskeleton/Tissue
<i>Metals (mg/kg)</i>																			
Aluminum	14	14	0	100%	2	54.5	18.3	-	-	14	14	0	100%	2	64	19	-	-	1.0
Arsenic	14	14	0	100%	0.08	0.45	0.18	-	-	14	14	0	100%	0.13	1.4	0.36	-	-	0.5
Barium	14	14	0	100%	13.7	234	99.5	-	-	14	14	0	100%	1.57	11.6	5.2	-	-	19.2
Beryllium	14	0	14	0%	-	-	-	0.002	0.004	14	4	10	29%	0.0007	0.0022	0.0011	0.0006	0.0009	-
Cadmium	14	7	7	50%	0.003	0.026	0.012	0.003	0.005	14	14	0	100%	0.0144	0.634	0.104	-	-	0.1
Calcium	14	14	0	100%	56600	130000	105657	-	-	14	14	0	100%	1640	7460	3844	-	-	27.5
Chromium	14	13	1	93%	0.2	7.8	1.8	0.2	0.2	14	2	12	14%	0.1	0.2	0.2	0.1	0.1	11.7
Cobalt	14	14	0	100%	0.231	0.526	0.387	-	-	14	14	0	100%	0.135	0.583	0.311	-	-	1.2
Copper	14	14	0	100%	3.25	12.2	6.0	-	-	14	14	0	100%	33.4	73.8	50.3	-	-	0.1
Iron	14	14	0	100%	5.8	109	41.9	-	-	14	14	0	100%	9.8	321	55.4	-	-	0.8
Lead	14	9	5	64%	0.02	0.33	0.11	0.01	0.03	14	14	0	100%	0.006	0.181	0.029	-	-	3.7
Magnesium	14	14	0	100%	4480	11900	9064	-	-	14	14	0	100%	587	1230	875	-	-	10.4
Manganese	14	14	0	100%	2.87	63.2	23.2	-	-	14	14	0	100%	1.23	29.8	5.4	-	-	4.3
Mercury	14	0	14	0%	-	-	-	0.002	0.004	14	14	0	100%	0.002	0.012	0.004	-	-	-
Nickel	14	14	0	100%	0.2	9.71	3.2	-	-	14	14	0	100%	0.16	0.94	0.41	-	-	7.9
Potassium	14	14	0	100%	1050	1870	1314	-	-	14	14	0	100%	1830	2460	2114	-	-	0.6
Selenium	14	0	14	0%	-	-	-	0.13	0.32	14	2	12	14%	0.58	0.72	0.65	0.06	0.09	-
Silver	14	8	6	57%	0.003	0.023	0.013	0.004	0.009	14	14	0	100%	0.0142	0.181	0.073	-	-	0.2
Sodium	14	14	0	100%	2580	3670	3230	-	-	14	14	0	100%	2740	4250	3384	-	-	1.0
Thallium	14	5	9	36%	0.002	0.011	0.004	0.001	0.003	14	2	12	14%	0.001	0.0014	0.0012	0.0004	0.0006	3.3
Uranium	14	12	2	86%	0.001	0.009	0.004	0.002	0.003	14	14	0	100%	0.0016	0.0341	0.0074	-	-	0.6
Vanadium	14	6	8	43%	0.2	0.5	0.4	0.2	0.3	14	11	3	79%	0.12	0.41	0.18	0.08	0.12	2.2
Zinc	14	14	0	100%	5.5	29.4	13.0	-	-	14	14	0	100%	38.9	55.6	48.1	-	-	0.3

NOTES:

All values reported in wet weight.

DL = Detection Limit

Shaded values are average exoskeleton to tissue-only ratios greater than 1.

Italics indicate analytes with average exoskeleton to tissue-only ratios greater than 10.

Table 3-5. Summary of Differences, Relative to Reference, and Exceedances of Crustacean ESBs in Land Crab

Trace Element	Area 1: Downgradient from SWMU 7	Area 2: Downgradient from AOCs J and R	Area 3: Laguna Kiari	Area 4: Laguna Kiari South	Area 5: Boca Quebrada	Area 6: Laguna Playa Grande	Area 7: Mosquito Bay	Area 8: Puerto Ferro	Area 9: Red Beach	Area 10: Blue Beach	Area 11: Bahia Tapon	Area 12: Live Impact Area	ESB Exceedance
Aluminum									< ◀	> ▶		>	
Arsenic			> ▶						>			> ▶	
Barium *		▶		> ▶				<	<			<	
Beryllium	Differences indicated were essentially between below detection areas and areas with values just above the detection limit.												
<i>Cadmium</i>												> ▶	Area 12
Chromium			> ▶					> ▶					
Cobalt		> ▶			> ▶		> ▶	> ▶				> ▶	
Copper							> ▶						
Iron	◀			◀		◀	◀		< ◀			◀	
Lead			> ▶										
Magnesium		▶	▶		▶	▶		▶				▶	
Manganese		> ▶			> ▶								
<i>Mercury</i>	Differences indicated were essentially between below detection areas and areas with values just above the detection limit.												
Nickel		> ▶			> ▶	> ▶		> ▶		> ▶	> ▶		
Selenium	No differences among areas were indicated.												
Silver								> ▶				>	
Thallium	No differences among areas were indicated.												
Uranium	No differences among areas were indicated.												
<i>Vanadium</i>									< ◀	<	<		All areas except Area 9
Zinc	No differences among areas were indicated.												
tDDT			> ▶						> ▶				

NOTES:

- < indicates areas with average values statistically significantly less than the on-island, Blue Horizon reference average.
- > indicates areas with average values statistically significantly greater than the on-island, Blue Horizon reference average.
- ◀ indicates areas with average values statistically significantly less than the main island, Humacao reference average.
- ▶ indicates areas with average values statistically significantly greater than the main island, Humacao reference average.
- Trace elements* in italics have crustacean-based ecological screening benchmarks (ESB).
- * The Humacao reference area was statistically greater than the Blue Horizon reference area.

Trace element averages were calculated using the method detection limit for samples below detection.
Total DDT averages were calculated using only the detected values.

Table 3-6. Vieques Island Fiddler Crab Whole Body Data Summary

Chemical Name	Ecological Screening Benchmarks	# Samples	# Detects	# Non-Detects	Detection Frequency	# Exceeds	Min Detected Concentration	Max Detected Concentration	Avg Detected Concentration	Min DL for NonDetects	Max DL for NonDetects
Explosives (ug/kg)											
1,3,5-Trinitrobenzene		39	0	39	0%	-	-	-	-	54	54
1,3-Dinitrobenzene		39	0	39	0%	-	-	-	-	59	59
2,4,6-Trinitrotoluene (TNT)		39	0	39	0%	-	-	-	-	52	52
2,4-Dinitrotoluene		39	0	39	0%	-	-	-	-	80	80
2,6-Dinitrotoluene		39	0	39	0%	-	-	-	-	78	78
2-Amino-4,6-dinitrotoluene		39	0	39	0%	-	-	-	-	78	78
2-Nitrotoluene		39	0	39	0%	-	-	-	-	52	300
3-Nitrotoluene		39	0	39	0%	-	-	-	-	110	110
4-Amino-2,6-dinitrotoluene		39	0	39	0%	-	-	-	-	54	54
4-Nitrotoluene		39	0	39	0%	-	-	-	-	150	200
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)		39	0	39	0%	-	-	-	-	76	200
Methyl-2,4,6-trinitrophenylnitramine (Tetryl)		39	0	39	0%	-	-	-	-	74	74
Nitrobenzene		39	0	39	0%	-	-	-	-	55	55
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)		39	0	39	0%	-	-	-	-	52	500
Polychlorinated Biphenyls (ug/kg)											
Aroclor 1016	7700	39	0	39	0%	-	-	-	-	4.3	5.8
Aroclor 1221		39	0	39	0%	-	-	-	-	2.4	3.2
Aroclor 1232		39	0	39	0%	-	-	-	-	3	4
Aroclor 1242		39	0	39	0%	-	-	-	-	1.4	1.9
Aroclor 1248		39	0	39	0%	-	-	-	-	2.6	3.5
Aroclor 1254	23000	39	3	36	7.7%	0	47	58	51	0.82	5.9
Aroclor 1260		39	0	39	0%	-	-	-	-	3.1	4.5
Aroclor 1262		39	0	39	0%	-	-	-	-	1.6	2.2
Aroclor 1268		39	0	39	0%	-	-	-	-	1.3	1.8
Pesticides											
2,4'-DDD		39	5	34	13%	-	0.58	3	1.3	0.32	1.6
2,4'-DDE		39	2	37	5.1%	-	0.37	1.2	0.79	0.15	7.7
2,4'-DDT		39	33	6	85%	-	0.4	4	1.3	0.12	1.3
4,4'-DDD		39	22	17	56%	-	0.37	17	3.4	0.16	1.4
4,4'-DDE		39	30	9	77%	-	0.59	270	46	0.1	2.1
4,4'-DDT	130	39	21	18	54%	0	0.27	6.3	2.0	0.2	1
Aldrin	733	39	2	37	5.1%	0	0.18	0.24	0.21	0.15	0.95
alpha-BHC		39	0	39	0%	-	-	-	-	0.32	1.6
alpha-Chlordane		39	7	32	18%	-	0.13	0.69	0.32	0.11	1.2
beta-BHC		39	3	36	7.7%	-	0.38	2.5	1.1	0.31	2.6
Chlordane	1800	39	0	39	0%	-	-	-	-	1.5	24
Chlorpyrifos		39	0	39	0%	-	-	-	-	0.43	2.2
cis-Nonachlor		39	2	37	5.1%	-	0.6	1.9	1.3	0.25	1.9
delta-BHC		39	1	38	2.6%	-	0.21	0.21	0.21	0.21	1.1
Dieldrin	64	39	8	31	21%	0	0.14	2.9	1.0	0.075	1
Endosulfan I	550	39	0	39	0%	-	-	-	-	0.17	1.1
Endosulfan II	550	39	0	39	0%	-	-	-	-	0.24	1.2
Endosulfan Sulfate		39	6	33	15%	-	0.3	4.8	1.5	0.19	3.9
Endrin	8	39	1	38	2.6%	0	0.29	0.29	0.29	0.075	1
Endrin Aldehyde		39	3	36	7.7%	-	0.34	1.2	0.85	0.17	1.3
Endrin Ketone		39	2	37	5.1%	-	1.1	1.7	1.4	0.4	2
gamma-BHC (Lindane)		39	0	39	0%	-	-	-	-	0.17	2.2
gamma-Chlordane		39	2	37	5.1%	-	0.34	0.66	0.50	0.17	1.9
Heptachlor		39	1	38	2.6%	-	0.89	0.89	0.89	0.31	1.6
Heptachlor Epoxide		39	6	33	15%	-	0.35	0.77	0.56	0.34	1.7
Isodrin		39	0	39	0%	-	-	-	-	0.4	2
Methoxychlor	100	39	6	33	15%	0	0.38	1.2	0.73	0.32	1.7
Mirex	20	39	3	36	7.7%	0	2.5	7	5.4	0.24	1.2
Oxychlordane		39	0	39	0%	-	-	-	-	0.39	2
Toxaphene	29300	39	0	39	0%	-	-	-	-	14	70
trans-Nonachlor		39	2	37	5.1%	-	0.29	1.6	0.95	0.19	1
Trace Elements (mg/kg)											
Aluminum	3.825	39	39	0	100%	39	33.2	1100	347	-	-
Arsenic	0.25	39	39	0	100%	39	0.6	4.01	1.90	-	-
Barium	17.2	39	39	0	100%	29	4.19	122	34.9	-	-
Beryllium	2.42	39	21	18	54%	0	0.001	0.012	0.004	0.001	0.003
Cadmium	0.13	39	39	0	100%	12	0.013	0.557	0.118	-	-
Calcium		39	39	0	100%	-	29500	77100	52641	-	-
Chromium	0.83	39	39	0	100%	30	0.27	7.89	1.82	-	-
Cobalt		39	39	0	100%	-	0.121	0.638	0.4	-	-
Copper	38.9	39	39	0	100%	26	26.7	73.1	46.9	-	-
Iron		39	39	0	100%	-	44.6	915	359	-	-
Lead	0.94	39	39	0	100%	3	0.08	9.72	0.90	-	-
Magnesium		39	39	0	100%	-	2100	5740	4206	-	-
Manganese	322	39	39	0	100%	0	1.96	107	27.8	-	-
Mercury	1.23	39	37	2	95%	0	0.003	0.032	0.011	0.002	0.002
Nickel	64.08	39	39	0	100%	0	1.4	8.95	4.00	-	-
Potassium		39	39	0	100%	-	905	2240	1664	-	-
Selenium	0.331	39	36	3	92%	14	0.12	0.83	0.35	0.1	0.13
Silver		39	37	2	95%	-	0.008	0.21	0.05	0.046	0.068
Sodium		39	39	0	100%	-	1820	4630	3417	-	-
Thallium	0.027	39	30	9	77%	0	0.0008	0.011	0.003	0.0015	0.002
Uranium	5.981	39	39	0	100%	0	0.011	0.115	0.04	-	-
Vanadium	0.2	39	39	0	100%	39	0.2	3.2	1.22	-	-
Zinc	12	39	39	0	100%	39	18.8	36.5	26	-	-

NOTES:

All values reported in wet weight.

DL = Detection Limit

Italics indicate compounds for which one or more samples exceed ecological screening benchmarks.

Table 3-7. Vieques Island Fiddler Crab Whole Body Average Values

Chemical Name	Ecological Screening Benchmarks	Area 1: Downgradient from SWMU 7	Area 2: Downgradient from AOCs J&R	Area 3: Laguna Kiani	Area 4: Laguna Kiani South	Area 5: Boca Quebrada	Area 6: Laguna Playa Grande	Area 7: Mosquito Bay	Area 8: Puerto Ferro	Area 9: Red Beach	Area 10: Blue Beach	Area 11: Bahia Tapon	Area 12: Live Impact Area	Area 14: Main Island Reference
Polychlorinated Biphenyls (ug/kg)														
Aroclor 1254	23,000	3.37	0.82	51.00	0.82	0.82	0.82	0.82	0.82	1.85	0.82	0.82	3.14	1.01
Pesticides (ug/kg)														
2,4'-DDD		0.32	0.32	1.07	0.75	0.32	0.78	1.24	0.41	0.71	0.61	0.32	0.32	0.39
2,4'-DDE		0.72	0.25	1.70	2.15	0.49	0.74	0.85	0.15	1.03	3.23	0.43	0.15	0.18
2,4'-DDT		0.89	0.51	3.27	0.90	1.01	0.63	1.22	0.63	0.74	1.47	1.02	1.48	1.60
4,4'-DDD		0.21	0.48	7.20	0.77	0.64	0.16	1.49	1.18	2.69	4.70	6.83	0.16	0.20
4,4'-DDE		0.62	2.27	78.33	1.27	3.49	0.65	35.30	33.43	170.00	41.33	88.33	2.97	0.36
4,4'-DDT	130	0.31	0.52	4.30	0.47	0.67	0.30	0.82	0.90	3.07	0.84	2.11	1.50	0.25
Aldrin	733	0.21	0.15	0.42	0.35	0.15	0.19	0.23	0.15	0.28	0.17	0.15	0.17	0.45
alpha-Chlordane		0.11	0.11	0.38	0.34	0.13	1.07	0.12	0.11	0.53	0.16	0.12	0.11	0.26
beta-BHC		0.67	0.39	0.60	1.37	0.31	0.83	0.46	0.38	1.00	0.54	0.33	0.71	1.84
cis-Nonachlor		0.37	0.25	1.83	0.75	0.59	0.63	0.62	0.25	1.00	1.01	1.00	0.82	0.31
delta-BHC		0.21	0.21	0.21	0.51	0.21	0.25	0.21	0.21	0.71	0.21	0.21	0.21	0.26
Dieldrin	64	0.30	0.16	1.97	0.64	0.08	0.43	0.26	0.82	0.31	0.43	0.08	0.09	0.36
Endosulfan Sulfate		0.51	0.19	0.73	0.45	0.19	0.46	0.57	0.57	0.27	2.13	2.50	0.19	0.25
Endrin	8	0.20	0.31	0.28	0.57	0.26	0.32	0.80	0.26	0.53	0.53	0.40	0.40	0.09
Endrin Aldehyde		0.32	0.17	1.03	0.40	0.75	0.25	0.17	0.17	0.70	0.91	0.72	0.26	0.49
Endrin Ketone		0.40	0.40	0.78	0.93	0.40	0.40	0.40	0.40	1.27	0.40	0.40	0.40	0.49
gamma-Chlordane		0.95	0.17	1.20	0.40	0.56	0.22	0.29	0.17	0.72	1.07	0.89	0.23	0.49
Heptachlor		0.31	0.31	0.50	0.74	0.34	0.31	0.31	0.31	0.40	0.31	0.31	0.31	0.38
Heptachlor Epoxide		0.81	0.34	0.35	0.79	0.44	0.40	0.46	0.34	0.78	0.72	0.42	0.48	0.64
Methoxychlor	100	0.32	0.32	0.32	0.77	0.62	1.01	0.81	0.32	0.61	0.32	0.82	0.77	0.39
Mirex	20	0.24	0.24	0.24	0.58	0.24	0.49	0.27	0.24	0.45	0.66	0.24	5.40	0.29
trans-Nonachlor		0.24	0.19	0.73	0.52	0.32	0.23	0.72	0.19	1.00	0.19	1.20	0.19	0.24
Trace Elements (mg/kg)														
Aluminum	3.825	227	208	284	304	626	616	276	187	65	846	293	163	422
Arsenic	0.25	0.97	0.88	3.09	1.08	1.63	1.57	1.93	1.42	3.33	1.11	2.40	3.50	1.78
Barium	17.2	84.6	84.9	15.1	44.6	32.1	45.0	20.1	17.4	7.8	30.0	13.5	18.9	39.2
Beryllium	2.42	0.002	0.002	0.002	0.003	0.006	0.006	0.003	0.001	0.002	0.007	0.002	0.002	0.002
Cadmium	0.13	0.14	0.09	0.31	0.03	0.04	0.11	0.02	0.08	0.06	0.16	0.05	0.40	0.04
Calcium		67400	57900	48433	46067	51667	50867	51600	50033	49300	54133	49733	55633	51567
Chromium	0.83	1.37	0.55	1.13	2.09	3.30	1.54	1.05	1.37	1.30	4.60	2.50	1.47	1.37
Cobalt		0.41	0.48	0.33	0.37	0.44	0.30	0.25	0.45	0.18	0.49	0.47	0.25	0.50
Copper	38.9	31.1	34.3	63.2	40.8	60.3	55.6	36.2	45.2	51.2	50.7	49.8	51.7	39.4
Iron		254	204	479	238	527	571	262	239	75	709	387	223	496
Lead	0.94	0.14	0.26	8.13	0.31	0.55	0.54	0.10	0.43	0.20	0.49	0.19	0.21	0.19
Magnesium		4677	3990	4273	4080	4393	4190	4717	4320	3923	4393	4480	4033	3207
Manganese	322	30.43	40.10	18.77	24.57	43.20	69.07	13.57	14.97	3.66	50.83	23.23	12.24	17.13
Mercury	1.23	0.007	0.007	0.012	0.012	0.012	0.008	0.013	0.008	0.009	0.010	0.012	0.019	0.007
Nickel	64.08	4.52	4.61	3.03	3.49	6.12	2.62	2.87	5.25	2.45	5.62	3.18	2.99	5.22
Potassium		1610	1790	1630	1600	1940	1763	1607	1393	1438	1633	2070	1513	1650
Selenium	0.331	0.22	0.11	0.27	0.23	0.24	0.68	0.18	0.18	0.42	0.47	0.45	0.51	0.29
Silver		0.04	0.03	0.11	0.03	0.06	0.04	0.01	0.03	0.12	0.03	0.04	0.04	0.04
Sodium		3003	3037	3117	3133	4147	3303	3867	3210	3153	3787	3957	3280	3433
Thallium	0.027	0.003	0.002	0.002	0.002	0.003	0.006	0.002	0.001	0.003	0.003	0.002	0.003	0.002
Uranium	5.981	0.016	0.015	0.024	0.064	0.082	0.035	0.058	0.032	0.032	0.013	0.046	0.018	0.025
Vanadium	0.2	1.13	0.73	0.83	0.80	1.50	2.10	0.87	0.87	0.33	2.37	1.97	0.87	1.43
Zinc	12	27	26	30	24	32	24	23	20	28	25	29	22	22

NOTES:

Only analytes with at least one detected concentration are included.

All values reported in wet weight.

Method detection limit (MDL) was used in place of non-detected results to calculate averages.

Italics indicates compounds with average values that exceed ecological screening benchmarks.

Bold values indicate that the average value exceeds the ecological screening benchmark.

Shaded values denote that all samples from this area were below detection for the analyte; the average method detection limit is then listed.

Table 3-8. Summary of Differences, Relative to Reference, and Exceedances of ESBs in Fiddler Crab

Trace Element	Area 1: Downgradient from SWMU 7	Area 2: Downgradient from AOCs J and R	Area 3: Laguna Kiani	Area 4: Laguna Kiani South	Area 5: Boca Quebrada	Area 6: Laguna Playa Grande	Area 7: Mosquito Bay	Area 8: Puerto Ferro	Area 9: Red Beach	Area 10: Blue Beach	Area 11: Bahia Tapon	Area 12: Live Impact Area
Aluminum *	<	<	>>	<	>>			<	<	>>		<
Arsenic *	<	<	>>	<	>>				>>	<	>>	>>
Barium	>>	>>	<						<		<	
Beryllium				>	>					>		
Cadmium			>>							>>		>>
Chromium										>>		
Cobalt			<		<	<		<				<
Copper			>>		>>	>>						
Iron	<	<		<			<	<	<	>		<
Lead			>>									
Magnesium	No differences among areas were indicated.											
Manganese		>			>	>				>		
Mercury	No differences among areas were indicated.											
Nickel						<			<			
Selenium		<				>>				>>	>>	>>
Silver			>						>			
Thallium	No differences among areas were indicated.											
Uranium				>	>		>					
Vanadium *		<	<	<		>>	<	<	<	>>		<
Zinc *			>>		>>				>>		>>	
tDDT									>		>	

NOTES:

- < indicates areas with average values statistically significantly less than the reference average.
- > indicates areas with average values statistically significantly greater than the reference average.
- >> indicates areas with average values statistically significantly greater than the reference average and with samples above the ecological screening benchmarks.
- * - All samples equalled or exceeded the benchmarks for these trace elements.