Tables

Table 1
Schedule of Monitoring Activities
Martin Luther King, Jr. Shoreline Regional Park Wetland Restoration

A. General Schedule for All Monitoring Years

Description		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1. Ecology													
A	Vegetation survey							X				X	
B	Plant community acreage											X	
C	Spartina transplants											X	
D	Weed invasion							X				X	
E	Loafing island vegetation											X	
F	Birds (Audubon)	X	X	X	X	X	X	X					
2. Hydrology and geomorphology													
A	Channel cross sections												X
B	Sediment pins												X
C	Seasonal pond size			X		X		X		X			
D	Tidal circulation				X								
E	Velocity and turbidity												X
F	Channel meander												X
G	Air photo											X	

B. Monitoring Activities Completed in Fall 2001 to Fall 2002 Monitoring Period

Description		2001			2002										
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1. Ecology															
A	Vegetation survey							24							5
B	Plant community acreage											26			
C	Spartina transplants		not applicable this year												
D	Weed invasion							24							5
E	Loafing island vegetation														5
F	Birds (Audubon)[1]														
2. Hydrology and geomorphology															
A	Channel cross sections											1			
B	Sediment pins		not applicable this year												
C	Seasonal pond size			7		1	1	24							
D	Tidal circulation		not applicable this year												
E	Velocity, turbidity and water quality		not applicable this year												
F	Channel meander											26			
G	Air photo											26			

Notes:
1. Grey-shaded boxes denote data collected at multiple intervals during period indicated.

Table 2
Sediment Accretion from Sediment Pins 1998-2001
MLK Jr. Regional Shoreline Wetlands Project
Oakland, California

Location	Sample Date	Time Since Baseline (yr)	Distance from Top of Pin to Ground Surface[1] (m)	Sediment Deposition, m		Deposition Rate, m/yr		Comments
				Calculated[2,3]		From Calculated Deposition ±0.007		
				Interval	Cumulative	Interval	Cumulative	
A. Sediment Pins Located at Edge of Seasonal Ponds (see locations in Figure 2)								
SP-1	7-Jan-99		Data Problem[4]					East Edge of Pond 1
	10-Oct-99		Data Problem[4]					
	2-Nov-00	0.00	0.800					
	24-Aug-01	0.81	0.798	0.002	0.002	0.002	0.002	
SP-2	7-Jan-99		Data Problem[4]					North Edge of Pond 1
	10-Oct-99		Data Problem[4]					
	2-Nov-00	0.00	0.850					
	24-Aug-01	0.81	0.854	-0.004	-0.004	-0.005	-0.005	
SP-3		--	--	--	--	--	--	** Pin Missing **
SP-4	7-Jan-99		Data Problem[4]					North Edge of Pond 2
	10-Oct-99		Data Problem[4]					
	2-Nov-00	0.00	0.900					
	24-Aug-01	0.81	0.928	-0.028	-0.028	-0.035	-0.035	
SP-5	7-Jan-99		Data Problem[4]					West Edge of Pond 3
	10-Oct-99		Data Problem[4]					
	2-Nov-00	0.00	0.800					
	24-Aug-01	0.81	0.780	0.020	0.020	0.025	0.025	
SP-6	7-Jan-99		Data Problem[4]					North Edge of Pond 3
	10-Oct-99		Data Problem[4]					
	2-Nov-00	0.00	0.690					
	24-Aug-01	0.81	0.686	0.004	0.004	0.005	0.005	
Statistics:								
1. **Mean**				**-0.001**	**-0.001**	**-0.001**	**-0.001**	
2. Median				0.002	0.002	0.002	0.002	
3. Maximum				0.020	0.020	0.025	0.025	
4. Minimum				-0.028	-0.028	-0.035	-0.035	

Table 2
Sediment Accretion from Sediment Pins 1998-2001
MLK Jr. Regional Shoreline Wetlands Project
Oakland, California

Location	Sample Date	Time Since Baseline (yr)	Distance from Top of Pin to Ground Surface[1] (m)	Sediment Deposition, m		Deposition Rate, m/yr		Comments
				Calculated[2,3]		From Calculated Deposition ±0.007		
				Interval	Cumulative	Interval	Cumulative	
B. Sediment Pins Located within Tidal Marsh (see locations in Figure 2)								
Low Marsh								
SP-7	18-Jul-98		Data Problem[4]					
	7-Jan-99		Data Problem[4]					
	10-Oct-99		Data Problem[4]					
	2-Nov-00		Data Problem[5]					
	24-Aug-01		Data Problem[5]					
SP-9	18-Jul-98		Data Problem[4]					
	7-Jan-99		Data Problem[4]					
	10-Oct-99		Data Problem[4]					
	2-Nov-00		Data Problem[5]					
	24-Aug-01		Data Problem[5]					
Statistics:								
1. **Mean**				**n/a**	**n/a**	**n/a**	**n/a**	
2. Median				n/a	n/a	n/a	n/a	
3. Maximum				n/a	n/a	n/a	n/a	
4. Minimum				n/a	n/a	n/a	n/a	
High Marsh								
SP-8	18-Jul-98		Data Problem[4]					
	7-Jan-99		Data Problem[4]					
	10-Oct-99		Data Problem[4]					
	2-Nov-00	0.00	0.440					
	12-Aug-01	0.78	0.435	0.005	0.005	0.006	0.006	
SP-10	18-Jul-98		Data Problem[4]					
	7-Jan-99		Data Problem[4]					
	10-Oct-99		Data Problem[4]					

Table 2
Sediment Accretion from Sediment Pins 1998-2001
MLK Jr. Regional Shoreline Wetlands Project
Oakland, California

Location	Sample Date	Time Since Baseline (yr)	Distance from Top of Pin to Ground Surface[1] (m)	Sediment Deposition, m		Deposition Rate, m/yr		Comments
				Calculated[2,3]		From Calculated Deposition ±0.007		
				Interval	Cumulative	Interval	Cumulative	
	2-Nov-00	0.00	bent					
	24-Aug-01	0.81	0.688					
SP-11	18-Jul-98		Data Problem[4]					
	7-Jan-99		Data Problem[4]					
	10-Oct-99		Data Problem[4]					
	2-Nov-00	0.00	0.910					
	24-Aug-01	0.81	0.890	0.020	0.020	0.025	0.025	
SP-12	18-Jul-98		Data Problem[4]					
	7-Jan-99		Data Problem[4]					
	10-Oct-99		Data Problem[4]					
	2-Nov-00	0.00	0.640					
	24-Aug-01	0.81	0.609	0.031	0.031	0.038	0.038	
Statistics:								
1. **Mean**				**0.019**	**0.014**	**0.023**	**0.023**	
2. Median				0.020	0.020	0.025	0.025	
3. Maximum				0.031	0.031	0.038	0.038	
4. Minimum				0.005	0.005	0.006	0.006	

Notes:

1. Uncertainty in measurement of sediment pin to ground surface distance is approximately ±0.005 m (0.5 cm); therefore, any changes less than this value must be considered no change.
2. Calculated sediment deposition that denotes loss of sediment could be attributed to measurement error, not actual sediment loss.
3. Calculated sediment deposition is difference of sequential measurements of distance from top of sediment pins to ground surface.
4. Baseline and six-month data reported in the year-one monitoring report (LES 1999) did not match that reported in six-month monitoring report (LFR 1999b). Problems included unit conversion (meters-feet) errors and reported field measurements that computed unreasonable results. Original field notes are not available to determine what values should be reported, so all suspect data from 1998 and 1999 have been removed from this table.
5. Sediment pin measurements at SP-7 and SP-9 for 2000 and 2001 showed unreasonably large amounts of erosion (approximately 0.5 m difference), which leads us to believe that during one of those two sampling events, we took measurements from other markers instead of the sediment pins installed by LFR. The sediment pins had no distinctive identification markings and were located amongst many similar unmarked PVC pipes in the area set out by other monitoring groups.

Table 3

Tidal Marsh Sediment Accretion Estimates from Marsh Plain Topography[1], 2001-2002

Martin Luther King Jr. Regional Shoreline Wetlands Project

Oakland, California

Cross Section Location	Average Elevation (ft Port Datum) 2001	2002	Elevation Difference (ft)	Elevation Difference (m)	Interval Sediment Accretion Rate (m/yr)	Marsh Type[2]
Left Bank						
XS-1W	6.28	6.30	0.02	0.01	0.01	High
XS-1E	5.49	5.59	0.10	0.03	0.03	Low
XS-2W	5.74	5.90	0.15	0.05	0.05	Low
XS-2E	5.86	5.88	0.02	0.01	0.01	Low
XS-3	5.63	5.70	0.07	0.02	0.02	Low
Right Bank						
XS-1W	5.84	5.86	0.02	0.01	0.01	Low
XS-1E	6.17	6.23	0.06	0.02	0.02	High
XS-2W	5.62	5.71	0.08	0.03	0.03	Low
XS-2E	6.17	6.15	-0.02	-0.01	-0.01	High
XS-3	6.10	6.11	0.01	0.00	0.00	High
Low Marsh Interval Sediment Accretion Estimate[2] (m):				**0.02**		
Minimum (m):				0.01		
Maximum (m):				0.05		
Standard Deviation (m):				0.02		
Low Marsh Interval Sedimentation Rate Estimate[2] (m/yr):					**0.02**	
Minimum (m/yr):					0.01	
Maximum (m/yr):					0.05	
Standard Deviation (m/yr):					0.02	
High Marsh Interval Sediment Accretion Estimate[2] (m):				**0.01**		
Minimum (m):				-0.01		
Maximum (m):				0.02		
Standard Deviation (m):				0.01		
High Marsh Interval Sedimentation Rate Estimate[2] (m/yr):					**0.01**	
Minimum (m/yr):					-0.01	
Maximum (m/yr):					0.02	
Standard Deviation (m/yr):					0.01	

Notes:

1. Tidal marsh sediment accretion estimates are based on 2001 and 2002 channel cross section survey data (Figures 3-5; Appendix B).
2. Marsh type (low or high) used to separate data for calculating respective accretion estimates.

Table 4
Seasonal Ponds Depths and Acreages 1998-2002
MLK Jr. Regional Shoreline Wetlands Project
Oakland, California

Date	Pond 1		Pond 2		Pond 3		Total Ponded Area (acres)
	Depth (ft)	Area (acres)	Depth (ft)	Area (acres)	Depth (ft)	Area (acres)	
1998-1999 Monitoring Year[1]							
Water Year 1998-1999 Total Rainfall = 24.08 inches (see Table 5)							
28-Nov-98	0.92	2.63	1.80	2.87	0.46	0.78	6.28
19-Dec-98	1.05	2.71	2.03	3.15	0.59	0.97	6.83
20-Jan-99	1.57	3.00	2.43	3.58	0.66	1.20	7.78
23-Mar-99	3.28	7.11	Overtopped[2]	6.40	1.41	1.42	14.93
17-Apr-99	2.79	6.32	Overtopped[2]	5.61	0.66	1.18	13.11
7-May-99	2.17	5.62	3.15	4.90	0.66	1.06	11.58
24-Jun-99	0.72	2.40	0.85	0.82	n/a	Dry	3.22
16-Jul-99	n/a	Dry	n/a	Dry	n/a	Dry	0
1999-2000 Monitoring Year[1]							
Water Year 1999-2000 Total Rainfall = 27.12 inches (see Table 5)							
9-Feb-00	1.87	4.73	2.43	3.60	0.66	1.13	9.46
6-Jul-00	n/a	2.40	n/a	0.82	n/a	Dry	3.22
2000-2001 Monitoring Year[3]							
Water Year 2000-2001 Total Rainfall = 18.53 inches (see Table 5)							
3-Jan-01	0.60	0.56	0.91	0.35	n/a	Dry	0.91
1-Feb-01	1.22	2.87	1.75	1.01	0.75	0.37	4.25
22-Mar-01	2.21	5.28	2.76	4.01	1.72	0.64	9.94
26-Apr-01[4]	1.76	4.0	2.29	2.6	1.30	0.4	7.0
12-Jul-01	n/a	Dry	n/a	Dry	n/a	Dry	0
2001-2002 Monitoring Year							
Water Year 2001-2002 Total Rainfall = 24.32 inches (see Table 5)							
7-Dec-02[4]	1.90	4.5	2.40	3.1	1.42	0.6	8.2
1-Feb-02[4]	2.54	6.1	3.19	4.4	1.88	0.7	11.2
1-Mar-02[5]	2.75	6.61	3.80	5.53	3.55	1.38	13.52
24-Apr-02[4]	2.30	5.5	2.86	3.9	1.50	0.6	10.0

Notes:
1. 1998-1999 and 1999-2000 data provided by previous monitoring efforts.
2. Pond 2 staff gauge is 3.49 ft tall in 1999.
3. All staff gauges replaced between fall and winter 2000.
4. Pond acreages estimated from stage-area curves.
5. Pond depths estimated from stage-area curves (Figure 6)

Table 5
Rainfall Totals, October 1998 to September 2002
MLK Jr. Regional Shoreline Wetlands Project
Data from U.S. Forest Service Oakland South Station, Oakland, California

Date	Daily Rainfall Totals (inches)												Water Year Total (in)
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
A) 1998-1999 Water Year Rainfall (Oct 1998 to Sep 1999)													
1	0.00	m	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	0.00	m	0.07	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00	
3	0.00	m	0.59	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	
4	0.00	m	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5	0.00	m	0.57	0.00	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.00	
6	0.00	m	0.00	0.00	1.73	0.00	0.03	0.00	0.00	0.00	0.08	0.00	
7	0.00	m	0.00	0.00	1.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8	0.00	m	0.01	0.00	0.29	0.93	0.43	0.00	0.00	0.00	0.00	0.12	
9	0.00	m	0.00	0.00	0.79	0.08	0.00	0.00	0.00	0.00	0.00	0.02	
10	0.00	m	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.01	0.00	
11	0.00	m	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.04	0.00	
12	0.00	m	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13	0.00	0.00	0.32	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
14	0.00	0.00	0.00	0.06	0.00	0.76	0.00	0.00	0.00	0.00	0.00	0.00	
15	0.00	0.00	0.00	0.41	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	
16	0.00	0.04	0.00	0.10	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
17	0.00	0.16	0.00	0.13	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
18	0.00	0.00	0.00	1.32	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
19	0.00	0.00	0.00	0.99	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	
20	0.00	0.00	0.00	0.34	1.07	0.04	0.00	0.00	0.00	0.00	0.00	m	
21	0.00	0.14	0.00	0.00	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	
22	m	0.02	0.00	0.20	m	0.12	0.00	0.00	0.00	0.00	0.00	0.07	
23	m	0.88	0.00	0.63	m	0.05	0.00	0.00	0.00	0.00	0.00	0.00	
24	m	0.00	0.00	0.01	0.16	0.64	0.00	0.00	0.00	0.00	0.00	0.00	
25	m	0.00	0.00	0.00	0.15	0.05	0.00	0.00	0.00	0.00	0.00	0.00	
26	m	0.12	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
27	m	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
28	m	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
29	m	0.80	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
30	m	1.10	0.00	0.15		0.22	0.00	0.00	0.00	0.00	0.00	0.00	
31	m		0.02	0.48		0.00		0.00		0.00	0.00		
Total:	**0.00**	**3.57**	**1.59**	**5.07**	**8.26**	**3.54**	**1.71**	**0.00**	**0.00**	**0.00**	**0.13**	**0.21**	**24.08**

Table 5
Rainfall Totals, October 1998 to September 2002
MLK Jr. Regional Shoreline Wetlands Project
Data from U.S. Forest Service Oakland South Station, Oakland, California

Date	Daily Rainfall Totals (inches)												Water Year Total (in)
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
B) 1999-2000 Water Year Rainfall (Oct 1999 to Sep 2000)													
1	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	0.00	0.00	0.17	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	
3	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4	0.00	0.00	0.00	0.02	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	
5	0.00	0.00	0.00	0.00	0.16	0.05	0.00	0.00	0.00	0.00	0.00	0.00	
6	0.00	m	0.03	0.00	0.01	0.01	0.00	0.07	0.00	0.00	0.00	0.00	
7	0.00	0.00	0.01	0.00	0.00	0.33	0.00	0.69	0.00	0.00	0.00	0.00	
8	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.58	0.00	0.00	0.00	0.00	
9	0.00	0.00	0.32	0.01	0.01	0.22	m	0.00	0.00	0.00	0.00	0.00	
10	0.00	0.00	0.01	0.04	0.41	0.00	m	0.00	0.00	0.00	0.00	m	
11	0.00	0.00	0.00	0.52	1.67	0.00	0.00	0.00	0.00	0.00	0.00	m	
12	0.00	0.00	0.00	0.00	0.27	0.00	0.48	0.00	0.00	0.00	0.00	0.00	
13	0.00	0.00	0.08	0.00	3.20	0.00	0.01	0.00	0.00	0.00	0.00	0.00	
14	0.00	0.00	0.00	0.00	0.48	0.00	0.10	0.00	0.00	0.00	0.00	0.00	
15	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
16	0.00	0.00	0.00	0.69	0.29	0.00	0.14	0.00	0.00	0.00	0.00	0.00	
17	0.00	0.00	0.00	0.21	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	
18	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
19	0.00	3.37	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
20	0.00	0.07	0.00	0.02	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
21	0.00	0.09	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
22	0.00	0.00	0.00	0.35	1.12	0.00	0.07	0.00	0.00	0.00	0.00	0.00	
23	0.00	0.00	0.00	2.55	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
24	0.00	0.00	0.00	2.26	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
25	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
26	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
27	0.20	0.01	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
28	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
29	0.00	0.25	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
30	0.00	0.31	0.00	0.30		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
31	0.00		0.00	0.00		0.00		0.00		0.00	0.00		
Total:	**0.20**	**4.10**	**0.63**	**7.73**	**10.24**	**1.89**	**0.99**	**1.34**	**0.00**	**0.00**	**0.00**	**0.00**	**27.12**

Table 5
Rainfall Totals, October 1998 to September 2002
MLK Jr. Regional Shoreline Wetlands Project
Data from U.S. Forest Service Oakland South Station, Oakland, California

Date	Daily Rainfall Totals (inches)												Water Year Total (in)
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
C) 2000-2001 Water Year Rainfall (Oct 2000 to Sep 2001)													
1	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	
2	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	
3	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	
4	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	
5	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	
6	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	
7	0.00	0.00	0.00	0.07	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	
8	0.00	0.00	0.00	0.52	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	
9	0.00	0.00	m	0.06	1.08	0.00	0.13	0.00	0.00	0.00	0.00	0.00	
10	0.09	0.00	m	0.75	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11	0.01	0.00	0.24	0.38	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
12	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	m	0.00	0.00	
13	0.00	0.07	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
14	0.00	0.01	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
15	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
16	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
17	0.00	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
18	0.00	0.00	0.00	0.00	0.09	0.00	0.05	0.00	0.00	0.00	0.00	0.00	
19	0.00	0.00	0.00	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
20	0.00	0.00	0.00	0.00	0.47	0.00	0.91	0.00	0.00	0.00	0.00	0.00	
21	0.00	0.22	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
22	0.00	0.02	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
23	0.00	0.00	0.00	0.48	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
24	0.00	0.00	0.00	0.11	0.75	0.51	0.00	0.00	0.00	0.00	0.00	0.21	
25	0.02	0.00	0.01	0.97	0.00	0.04	0.00	0.00	0.18	0.00	0.00	0.00	
26	0.01	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
28	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
29	0.30	0.40	0.00	0.15		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
30	0.42	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
31	0.00		0.00	0.00		0.00		0.00		0.00	0.00		
Total:	**1.67**	**0.78**	**1.34**	**3.54**	**7.01**	**1.55**	**2.25**	**0.00**	**0.18**	**0.00**	**0.00**	**0.21**	**18.53**

Table 5
Rainfall Totals, October 1998 to September 2002
MLK Jr. Regional Shoreline Wetlands Project
Data from U.S. Forest Service Oakland South Station, Oakland, California

Date	Daily Rainfall Totals (inches)												Water Year Total (in)
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
D) 2001-2002 Water Year Rainfall (Oct 2001 to Sep 2002)													
1	0.00	0.00	0.87	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	0.00	0.00	1.80	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3	0.00	0.00	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5	0.00	0.00	0.99	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	
6	0.00	0.00	0.28	0.01	0.00	1.31	0.00	0.00	0.00	0.00	0.00	0.00	
7	0.00	0.00	0.01	0.01	0.40	0.34	0.00	0.00	0.00	0.00	0.00	0.00	
8	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9	0.00	0.00	0.03	0.00	0.00	0.12	0.04	0.00	0.00	0.00	0.00	0.00	
10	0.00	0.37	0.00	0.00	0.00	0.44	0.01	0.00	0.00	0.00	0.00	0.00	
11	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
12	0.00	1.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13	0.00	0.00	0.57	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
14	0.00	0.01	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
16	0.00	0.00	0.00	0.00	0.33	0.00	0.19	0.00	0.00	0.00	0.00	0.00	
17	0.00	0.00	0.81	0.00	0.36	0.98	0.00	0.00	0.00	0.00	m	0.00	
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
19	0.00	0.01	0.35	0.00	1.07	0.00	0.00	m	0.00	0.00	0.00	0.00	
20	0.00	0.00	0.58	0.00	0.05	0.00	0.00	0.43	0.00	0.00	0.00	0.00	
21	0.00	0.43	0.01	0.21	0.01	0.00	0.00	0.15	0.01	0.00	0.00	0.00	
22	0.00	0.03	0.55	0.01	0.01	0.35	0.00	0.00	0.01	0.00	0.00	0.00	
23	0.00	0.00	0.02	0.00	0.04	0.58	0.00	0.00	0.00	0.00	0.00	0.00	
24	0.00	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
26	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
27	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
28	0.00	1.07	1.15	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
29	0.00	0.38	0.40	0.00		0.00	0.08	0.00	0.00	0.00	0.00	0.00	
30	0.47	0.04	0.86	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
31	0.00		0.05	0.00		0.00		0.00		0.00	0.00		
Total:	**0.47**	**4.52**	**10.07**	**1.85**	**2.35**	**4.14**	**0.32**	**0.58**	**0.02**	**0.00**	**0.00**	**0.00**	**24.32**

Notes :
1. m = data missing for those dates.
2. Data source: http://cdec.water.ca.gov/queryCSV.html, OSO station, sensor 45

Table 6
Channel Velocity and Turbidity, 1999, 2000, and 2001
MLK Jr. Regional Shoreline Wetlands Project
Oakland, California

Location	Date	Time	Velocity1 (m/s)	Turbidity2 (NTU)	Notes
1998-1999 Data					Sampled ebb tide, near low water
First Order Channels					
Eastern	26-Jan-99	11:33	0.34	28.4	
	26-Jan-99	11:38	0.30	32.6	
Western	26-Jan-99	12:12	0.43	41.5	
	26-Jan-99	12:18	0.38	26.1	
Second Order Channels					
Eastern	26-Jan-99	11:46	0.48	36.6	
	26-Jan-99	11:52	0.52	33.9	
Western	26-Jan-99	11:59	0.60	29.4	
	26-Jan-99	12:06	0.47	40.3	
Third Order Channel					
	26-Jan-99	12:37	0.56	38.7	
1999-2000 Data					Sampled ebb tide, after high water
Western First Order	27-Sep-00	14:54			Total depth 0.7 m
5 cm depth			0.40		
30 cm depth			0.49		
55 cm depth			0.49		
65 cm depth			0.46		
0 to 0.3 m depth				8	
0 to half depth				8	
0 to bottom depth				8	
Eastern Second Order	27-Sep-00	14:23			Total depth 1.05 m
5 cm depth			0.32		
30 cm depth			0.31		
55 cm depth			0.39		
80 cm depth			0.38		
100 cm depth			0.38		
0 to 0.3 m depth				8	
0 to half depth				7	
0 to bottom depth				8	
Third Order Channel	27-Sep-00	13:20			Total depth 1.24 m
5 cm depth			0.34		
30 cm depth			0.41		
55 cm depth			0.41		
80 cm depth			0.43		
105 cm depth			0.44		
119 cm depth			0.49		
0 to 0.3 m depth				4	
0 to half depth				5	
0 to bottom depth				5	

Table 6
Channel Velocity and Turbidity, 1999, 2000, and 2001
MLK Jr. Regional Shoreline Wetlands Project
Oakland, California

Location	Date	Time	Velocity1 (m/s)	Turbidity2 (NTU)	Notes
2000-2001 Data					Sampled flood tide, near high water
Eastern First Order	24-Aug-01	15:38			Total depth 0.64 m
5 cm depth			0.73		
30 cm depth			0.76		
60 cm depth			0.73		
5 cm up from bed			n/a		
Surface depth				5.5	
Mid-depth				5.6	
Western First Order	24-Aug-01	15:58			Total depth 0.56 m
5 cm depth			0.73		
30 cm depth			0.73		
60 cm depth			n/a		
5 cm up from bed			0.73		
Surface depth				7.6	
Mid-depth				4.1	
Eastern Second Order	24-Aug-01	15:30			Total depth 0.76 m
5 cm depth			0.94		
30 cm depth			0.88		
60 cm depth			0.85		
5 cm up from bed			n/a		
Surface depth				2.8	
Mid-depth				4.1	
Western Second Order	24-Aug-01	16:09			Total depth 1.05 m
5 cm depth			1.10		
30 cm depth			1.10		
60 cm depth			1.01		
5 cm up from bed			0.94		
Surface depth				5.3	
Mid-depth				4.7	
Third Order Channel	24-Aug-01	16:18			Total depth 1.10 m
5 cm depth			1.37		
30 cm depth			1.37		
60 cm depth			1.28		
5 cm up from bed			1.07		
Surface depth				3.8	
Mid-depth				3.4	

Notes:
1. Velocity Sep 2000 and Aug 2001 measured at multiple discrete depths as indicated.
2. Turbidity Sep 2000 and Aug 2001 measured from depth-integrated rather than discrete-depth surface water samples.

Table 7
Channel Water Quality, 2001
MLK Jr. Regional Shoreline Wetlands Project
Oakland, California

Location	Date	Time	Temp (C)	pH	Dissolved oxygen (mg/L)	Conductivity (mS/cm)	Redox (mV)	Notes
First Order Channels								
Eastern	24-Aug-01	15:38	24.4	7.77	4.90	47.5	114.0	Flood tide
Western	24-Aug-01	15:58	25.5	7.75	4.89	47.6	125.2	
Second Order Channels								
Eastern	24-Aug-01	15:30	23.8	7.76	5.12	47.5	118.1	Flood tide
Western	24-Aug-01	16:09	23.1	7.88	5.87	48.0	128.0	
Third Order Channel								
	24-Aug-01	16:18	22.8	7.85	5.96	48.1	122.0	Flood tide

* These data not required by MMP (LFR 1999a); measurements taken because instrument was available in the field.

Table 8
Tidal Marsh Vegetation Transects, 2000-2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

Distance (m)				Height	
Start	**End**	**Species**	**Percent cover**	**(m)**	**Comments**
Transects V1, V2 and V3, all start from "center stake" located in tidal marsh immediately north of intertidal pond. Transects V4 and V5 cross marsh to the north of other transects. All transect locations shown in Figure 2. All surveys by Vir McCoy.					
Transect V1, 5-Nov-2002					Bearing 250 deg from center stake in line with park bench
0	1.8	*Salicornia europaea*	70	0.2 m	Average height
		Bare ground	30		
1.8	36	Bare ground	70		Open area
		Salicornia europaea	30		
36	50.5	*Salicornia europaea*	75		
		Bare ground	25		
50.5	52.5	Small channel			
52.5	75.7	*Salicornia europaea*	90	0.2 m	
		Salicornia virginica	5		
		Spartina spp.	1		Indeterminant hybrids possible
		Bare ground	5		
75.7	86	Bare ground	100		Open area
86	94.5	*Salicornia europaea*	95		
		Spartina spp.	1		Indeterminant hybrids possible
		Bare ground	5		
94.5	99	Channel			
99	157	*Salicornia europaea*	75		
		Salicornia virginica	1		
		Bare ground	25		
157	159	*Salicornia europaea*	40		Edge species
		Distichlis spicata	25		Edge species
		Spartina spp.	20		Indeterminant hybrids possible. One clump at edge
		Salicornia virginica	5		One clump at edge
Bare Gound as Percent of Total Transect:			**34%**		
Transect V1, 6-Sep-2001					
0	40	Bare ground	95		
		Salicornia virginica	1		Edge
		Salicornia europaea	2		Spreading
40	78	*Salicornia europaea*	50		
		Bare ground	50		
78	88	Bare ground	100		
88	94	*Salicornia europaea*	50		
		Bare ground	50		
94	96	Channel			
96	159	*Salicornia europaea*	55		
		Bare ground	40		
Bare Gound as Percent of Total Transect:			**60%**		
Transect V1, 2-Nov-2000					
0	94	Bare ground/algae	95		Constructed low marsh to channel
		Salicornia virginica	1		
		Salicornia europaea	2		
94	96	Channel			

Table 8
Tidal Marsh Vegetation Transects, 2000-2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

Distance (m)				Height	
Start	**End**	**Species**	**Percent cover**	**(m)**	**Comments**
96	159	Bare ground/algae	95		Minimal algae, constructed high marsh to end
		Salicornia europaea	2		Few scattered
		Salicornia virginica	2		Mostly on edge
		Distichlis spicata	1		
Bare Gound as Percent of Total Transect:			**94%**		
Transect V2, 5-Nov-2002					Bearing 70 deg from center stake, in line with PVC in distance
0	31	*Salicornia europaea*	60	0.20 m	Average height
		Bare ground	40		
31	47.5	Bare ground	70		
		Salicornia europaea	30		
47.5	55.5	*Salicornia europaea*	100		
		Spartina spp.	1		Indeterminant hybrids possible
55.5	73.5	Bare ground	50		Transect runs along edge of veg/open area
		Salicornia europaea	45		
		Salicornia virginica	5		
73.5	99	*Salicornia europaea*	80		
		Spartina spp.	1		Indeterminant hybrids possible
		Salicornia virginica	5		
		Bare ground	10		
99	103	Channel			
103	179	*Salicornia europaea*	70		
		Salicornia virginica	5		
		Spartina spp.	5		Indeterminant hybrids possible
		Spartina spp.	1		Indeterminant hybrids possible. Along bank
		Bare ground	20		
Bare Gound as Percent of Total Transect:			**28%**		
Transect V2, 6-Sep-2001					
0	46.8	Bare ground	100		
46.8	100	*Salicornia europaea*	60	0.25	
		Salicornia virginica	5	0.35	
		Bare ground	35		
100	102	Channel			
102	135	*Salicornia europaea*	70		
		Salicornia virginica	5		
		Bare ground	25		
		Spartina foliosa	1		Indeterminant hybrids possible
135	145.5	*Salicornia europaea*	5		
		Bare ground	95		
145.5	162	*Salicornia europaea*	90		
		Spartina foliosa	3	0.2	Indeterminant hybrids possible
		Bare ground	5		
162	177	Bare ground	100		
177	179	*Spartina alterniflora*	10	0.4	Indeterminant hybrids possible
		Salicornia virginica	65	0.2	
		Spartina foliosa	5		Indeterminant hybrids possible
		Bare ground	20		
Bare Gound as Percent of Total Transect:			**56%**		

Table 8
Tidal Marsh Vegetation Transects, 2000-2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

Distance (m)		Species	Percent cover	Height (m)	Comments
Start	End				
Transect V2, 2-Nov-2000					
0	47.7	Bare ground/algae	100		Pockets of water, constructed low marsh to channel
47.7	100	*Salicornia europaea*	35	0.2	Mostly dead w/ new sprouts
		Salicornia virginica	4	0.3	
		Distichlis spicata	1		
		Bare ground	60		
100	102	Channel			
102	119.6	*Salicornia europaea*	20		Constructed high marsh to end
		Salicornia virginica	10		
		Bare ground	70		
119.6	145	*Salicornia europaea*	5		
		Bare ground	95		
145	176	*Salicornia europaea*	15		
		Spartina foliosa	3	0.2	Approx. 25 plants. Indeterminant hybrids possible
		Bare ground	80		
176	179	*Spartina alterniflora*	35	0.4	Dense strip along edge. Indeterminant hybrids possible
		Salicornia virginica	65	0.2	Edge of marsh
Bare Gound as Percent of Total Transect:			**78%**		
Transect V3, 5-Nov-2002					Bearing 150 deg from center stake, in line with flag in distance
0	2.5	*Salicornia europaea*	75	0.20 m	
		Bare ground	25		
2.5	35.5	Bare ground	100		
35.5	40.6	*Salicornia virginica*	35		Bank
		Spartina spp.	1		Indeterminant hybrids possible. Bank
		Salicornia europaea	15		Bank
		Bare ground	50		Bank
40.6	114.6	Bare ground/ pond water	100		
114.6	163	Bare ground	85		Marsh
		Salicornia virginica	10		Marsh
		Salicornia europaea	2		Marsh
		Jaumea carnosa	1		Marsh
163	168.6	*Triglochin concinna*	15		Edge
		Scirpus maritimus	25		Edge
		Distichlis spicata	30		Edge
		Spartina spp.	20		Indeterminant hybrids possible. Edge
		Typha latifolia	10		Edge
Bare Gound as Percent of Total Transect:			**47%**		
Transect V3, 6-Sep-2001					
0	35.6	Bare ground	100		
35.6	40.6	*Salicornia europaea*	10		
		Salicornia virginica	10		
		Bare ground	80		

Table 8
Tidal Marsh Vegetation Transects, 2000-2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

Distance (m) Start	End	Species	Percent cover	Height (m)	Comments
40.6	114.6	Bare ground/pond water	100		
114.6	163.6	Bare ground	95		
		Salicornia europaea	5		
163.6	168.6	*Triglochin concinna*	10		
		Scirpus maritimus	10		
		Distichlis spicata	20		
		Cotula coronopifolia	10		
		Spartina alterniflora	25		Indeterminant hybrids possible
		Typha latifolia	5		
		Bare ground	20		
Bare Gound as Percent of Total Transect:			**52%**		
Transect V3, 2-Nov-2000					
0	35.6	Bare ground	100		Constructed low marsh to intertidal pond
35.6	40.6	*Salicornia europaea*	5		Berm forming northern edge of intertidal pond
		Salicornia virginica	5		
		Bare ground	80		
40.6	114.6	Bare ground/pond water	100		Intertidal pond
114.6	163.6	Bare ground/algae	98		Minimal algae, constructed high marsh to end
		Salicornia europaea	2		
163.6	168.6	*Triglochin coccina*	10		
		Scirpus maritimus	5	0.5	Small patch
		Distichlis spicata	15		
		Cotula coronopifolia	20		
		Spartina alterniflora	20		Indeterminant hybrids possible
		Bare ground	30		
168.6	end				Seasonal wetlands -- see Table 10
Bare Gound as Percent of Total Transect:			**53%**		
Transect V4, 5-Nov-2002					Bearing 70 deg from gate at south end of main parking lot
0	3	*Bromus hordeaceous*	35		Ruderal to edge of Wetland
		Avena fatua	20		
		Hirschfeldia incana	10		
		Bare ground	35		
3	33	*Salicornia europaea*	85		
		Salicornia virginica	5		
		Spartina spp.	2		Indeterminant hybrids possible
		Distichlis spicata	1		
		Bare ground	10		
33	41	Channel			
41	80	*Salicornia europaea*	50		
		Salicornia virginica	5		
		Spartina spp.	5		Indeterminant hybrids possible
		Bare ground	40		
80	82.7	*Salicornia virginica*	15		
		Salicornia europaea	5		
		Spartina spp.	80		Indeterminant hybrids possible
Bare Gound as Percent of Total Transect:			**24%**		

Table 8
Tidal Marsh Vegetation Transects, 2000-2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

Distance (m)		Species	Percent cover	Height (m)	Comments
Start	End				
Transect V4, 6-Sep-2001					
0	3	*Bromus* spp.	70		Gate to marsh edge
3	6.3	Bare ground	80		
		Salicornia virginica	20		
6.3	33	*Salicornia europaea*	25		
		Bare ground	70		
		Salicornia virginica	3		
		Spergularia marina	2		
33	40.5	Channel	100		
40.5	61	*Salicornia virginica*	5		
		Salicornia europaea	65		
		Spartina foliosa	5		Indeterminant hybrids possible
		Spergularia marina	2		
		Bare ground	25		
61	73	Bare ground	100		
73	80	*Spartina foliosa*	5		Indeterminant hybrids possible
		Salicornia virginica	5		
		Grindelia stricta	5		
		Salicornia europaea	80		
		Bare ground	5		
80	82.7	Bare ground	50		
		Bromus spp.	50		
Bare Gound as Percent of Total Transect:			**49%**		
Transect V4, 3-Jan-2001 (2000 Survey)					
0	3	*Bromus* spp.	70		Gate edge to marsh edge
3	6.3	Bare ground	100		Marsh edge
6.3	15.3	*Salicornia europaea*	40	0.2	Dead (annual), constructed high marsh to slope break
		Bare ground	55		
		Distichlis spicata	2	0.2	
		Salicornia virginica	3		
		Spergularia marina	2	0.05	
15.3	33	*Salicornia europaea*	10	0.2	Constructed low marsh to channel
		Spergularia marina	2		
		Bare ground	85		Algae throughout
33	40.5	Bare ground/ open water	100		Channel
40.5	49	*Salicornia virginica*	5	0.2	Constructed high marsh to end
		Salicornia europaea	20	0.2	
		Spartina foliosa	5	0.3	Indeterminant hybrids possible
		Spartina alterniflora	2	1	Most plants were recently pulled from ground by others
		Spergularia marina	2		
		Bare ground	65		Algae throughout
49	56.8	Open water/ bare ground	100		Pockets of water
56.8	64.3	*Salicornia europaea*	20		
		Spartina foliosa	5		Indeterminant hybrids possible
		Salicornia virginica	1		
		Bare ground	75		Algae throughout

Table 8
Tidal Marsh Vegetation Transects, 2000-2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

Distance (m)				Height	
Start	**End**	**Species**	**Percent cover**	**(m)**	**Comments**
64.3	73	*Salicornia europaea*	5		
		Salicornia virginica	1		
		Bare ground	95		Water 2-3" no algae
73	75	*Spartina foliosa*	30	1	Indeterminant hybrids possible
		Salicornia virginica	30	0.2	
		Grindelia stricta	5	0.2	
		Jaumea carnosa	5	0.05	
		Spartina alterniflora	20	0.4	Indeterminant hybrids possible
		Salicornia europaea	10	0.2	
75	77.8	Bare ground	90		
		Cotula coronopifolia	5	0.02	Sprouts
		Unknown grass	5	0.05	Brome?
77.8	80	*Bromus* spp.	100		Fence
Bare Gound as Percent of Total Transect:			**66%**		
Transect V5, 5-Nov-2002					From SP-8 (west end) through SP-10 to marsh edge (east end)
0	41	*Salicornia europaea*	80		
		Salicornia virginica	5		
		Spartina spp.	2		Indeterminant hybrids possible
		Bare ground	15		
41	46.5	Channel			
46.5	84	*Salicornia europaea*	85		
		Spartina spp.	3		Indeterminant hybrids possible
		Bare ground	15		
84	161	*Salicornia europaea*	45		
		Spartina spp.	3		Indeterminant hybrids possible
		Salicornia virginica	2		
		Bare ground	50		
161	170	Bare ground	20		
		Salicornia europaea	75		
		Spartina spp.	5		Indeterminant hybrids possible
170	183	Channel			
183	235	*Salicornia europaea*	75	0.20 m	
		Spergularia marina	1		
		Spartina spp.	3		Indeterminant hybrids possible
		Salicornia virginica	5		
		Bare ground	15		
235	240	*Salicornia virginica*	75		Bank
		Spartina spp.	10		Indeterminant hybrids possible. Bank
		Bromus spp.	5		Bank
Bare Gound as Percent of Total Transect:			**25%**		
Transect V5, 6-Sep-2001					
0	41	*Salicornia europaea*	75		
		Salicornia virginica	5		
		Spergularia marina	1		
		Bare ground	20		
41	46.5	Channel			

Table 8
Tidal Marsh Vegetation Transects, 2000-2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

Distance (m)				Height	
Start	End	Species	Percent cover	(m)	Comments
46.5	83	Bare ground	45		
		Salicornia europaea	55		
83	163	Bare ground	80		
		Salicornia europaea	20		
163	170	*Salicornia europaea*	65		
		Spartina foliosa	30		Indeterminant hybrids possible
170	183	Channel			
183	227	*Salicornia europaea*	65		
		Salicornia virginica	5		
		Spartina foliosa	5		Indeterminant hybrids possible
		Bare ground	25		
227	233	*Salicornia europaea*	45		
		Salicornia virginica	45		
		Spartina foliosa	5		Indeterminant hybrids possible
233	236	Bare ground	100		
236	239	*Bromus* spp.	60		
Bare Gound as Percent of Total Transect:			**43%**		
Transect V5, 3-Jan-2001 (2000 Survey)					
					Slightly elavated bench, constructed high and low
0	21.2	*Salicornia europaea*	5	0.2	marsh to channel
		Salicornia virginica	5	0.4	
		Spergularia marina	1	0.05	
		Bare ground	90		Algae
41	46.5	Channel			Channel
46.5	83	Bare ground	97		Algae, constructed low marsh to next channel
		Salicornia europaea	3		
83	163	Bare ground	95		2" water
		Salicornia europaea	5		Red Pvc Pipe@163
163	170	*Salicornia europaea*	10		
		Spartina foliosa	5		Indeterminant hybrids possible
		Bare ground	85		Algae
170	183	Channel			
183	200	*Salicornia europaea*	50	0.2	Constructed high marsh to end
		Salicornia virginica	4		
		Spartina foliosa	1		Indeterminant hybrids possible
		Bare ground	50		Algae
200	227	*Salicornia europaea*	10		
		Spartina foliosa	2		Indeterminant hybrids possible
		Bare ground	90		Water 3"
227	233	*Salicornia europaea*	45	0.2	
		Salicornia virginica	45	0.3	
		Spartina foliosa	5	0.4	Indeterminant hybrids possible
		Distichlis spicata	2		
233	236	Bare ground	100		Litter
236	239	*Bromus spp.*	60		
		Hirschfeldia incana	30		Mustard
239		Fence			2m south of "keep out" sign
Bare Gound as Percent of Total Transect:			**72%**		

Table 9
Tidal Marsh Vegetation Map Patch Composition, 2001 and 2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

2002 Map, Surveyed 5-Nov-02[1,2]					
Type	**Patch**	**Species**	**Percent cover**	**Height (m)**	**Notes**
High	1	*Distichlis spicata*	2		
		Jaumea carnosa	1		
		Salicornia europaea	40	0.2	
		Salicornia virginica	10		
		Scirpus maritimus	2		
		Spartina spp.	2		Some are hybrids
		Triglochin concinna	1		
		Typha latifolia	1		
		Bare ground	41		
Low	2	*Distichlis spicata*	0.02		
		Salicornia europaea	47	0.2	
		Salicornia virginica	1.1		
		Spartina spp.	1.2		
		Bare ground	50		
2001 Map, Surveyed 6-Sep-01[2]					
Type	**Patch**	**Species**	**Percent cover**	**Height (m)**	**Notes**
High	1	*Salicornia europaea*	65	0.15	Spreading
		Salicornia virginica	5	0.25	South to first main channel
		Spartina foliosa	2	0.35	
		Spergularia marina	1		
		Bare ground	30		
High	2	*Salicornia europaea*	40	0.15	
		Salicornia virginica	5	0.25	
		Spergularia marina	5	0.2	
		Spartina foliosa	1		
		Bare ground	50		
High	3	*Salicornia europaea*	10	0.1	
		Salicornia virginica	5	0.15	
		Bare ground	85		
High	4	*Salicornia europaea*	58	0.2	
		Salicornia virginica	5	0.15	
		Spartina foliosa	2	0.8	
		Bare ground	40		
High	5	*Salicornia europaea*	60	0.2	
		Salicornia virginica	5	0.3	
		Spartina foliosa	5	0.4	
		Spartina alterniflora	5		
		Bare ground	25		
Low		*Salicornia europaea*	35		
		Salicornia virginica	5		
		Spartina foliosa	5		
		Bare ground	55		

Notes:
1. Percent cover derived from tidal marsh vegetation transects, Table 8.
2. Surveys conducted by Vir McCoy.

Table 10
Seasonal Wetland and Pond Vegetation Transects, 2000-2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

Distance (m) Start	End	Species	Percent cover	Height (m)	Comments
2002 SURVEY, 24-April-02					
Pond 1					Water depth at staff gauge = 2.3 ft.
T1-1		**Transect location = 94 degrees E. from rebar**			Total transect distance = 77.2 m.
0	3.2	*Cotula coronopifolia*	40	0.01	Very small
		Juncus bufonius	5	0.01	Very small
		Plantago spp.	5	0.02	Very small
		Anagallis arvensis	5	0.02	
		Melilotus indica	1	0.07	
		Bare ground	45		
3.2	6	*Crypsis vaginiflora*	10	0.01	
		Carex spp.	1	0.02	Too small to identify species
		Cotula coronopifolia	5	0.01	
		Spergularia marina	5	0.01	Small white flower
		Lythrum hyssopifolium	2	0.01	
		Bare ground	75		
6	77.2	Pond water			
% Bare ground in vegetated section of transect:			**59%**		
T1-2		**Transect location = 244 degrees W. from rebar**			Total transect distance = 73 m.
0	14.7	*Melilotus indica*	2	0.04	Mostly bare
		Plantago spp.	5	0.01	Small sprouts
		Cotula coronopifolia	5	0.01	
		Frankenia salina	1	0.04	
		Cynodon dactylon	1	0.01	
		Bare ground	85		
		Spergularia marina	1	0.01	
14.7	73	Pond water			
% Bare ground in vegetated section of transect:			**85%**		
Pond 2					Water depth at staff gauge = 2.86 ft.
T2-1		**Transect location = 238 degrees SW from rebar**			Total transect distance = 85 m.
0	4.5	*Lotus corniculatus*	10		Misidentified this in 2001 as scotch broom
		Lythrum hyssopifolium	5		
		Plantago lanceolata	15		
		Hordeum brachyantherum	10		
		Unknown species #1	15		Small white flower
		Nassela spp.	2		Small bunch grass; no flower.
		Cynodon dactylon	10		
		Bare ground	40		
		Carex spp.	2		
4.5	12	*Cynodon dactylon*	5		
		Carex spp.	1		
		Lythrum hyssopifolium	5		
		Bare ground	90		
12	85	Pond water			
% Bare ground in vegetated section of transect:			**71%**		
T2-2		**Transect location = 340 degrees N. from rebar**			Total transect distance = 88 m.
0	19	*Lotus corniculatus*	20		Weedy
		Melilotus indica	20		
		Hordeum brachyantherum	50		
		Hordeum marinum ssp. *gussoneanum*	10		
		Lythrum hyssopifolium	5		
		Bare ground	5		

Table 10
Seasonal Wetland and Pond Vegetation Transects, 2000-2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

Distance (m)		Species	Percent cover	Height (m)	Comments
Start	End				
					Upper water level is at 19 m along
19	30	*Lythrum hyssopifolium*	3		transect
		Spergularia marina	2		
		Bare ground	95		
30	88	Pond water			
% Bare ground in vegetated section of transect:			**38%**		
Pond 3					Water depth on staff gauge = 1.5 ft.
T3-1		**Transect location = 310 degrees NW from rebar**			Total transect distance = 50.9 m.
0	12.2	*Hordeum brachyantherum*	70		
		Lotus corniculatus	10		
		Hordeum marinum ssp. *gussoneanum*	30		
		Bromus hordeaceus	5		
		Melilotus indica	5		
		Lolium perenne	5		
12.2	19.4	*Carex* spp.	25		
		Bare ground	65		
		Lythrum hyssopifolium	5		
		Unknown species	5		
19.4	50.9	Pond water			
% Bare ground in vegetated section of transect:			**24%**		
T3-2		**Transect location = 94 degrees E from rebar**			Total transect distance = 63.6 m.
0	7	*Hordeum brachyantherum*	40	0.1	
		Lupinus spp.	20	0.1	
		Melilotus indica	15		
		Hordeum marinum ssp. *gussoneanum*	15		
		Vulpia myuros	10		
7	12	*Cotula coronopifolia*	25		Nesting avocets
		Plantago lanceolata	25		
		Bare ground	50		
		Picris echioides	1		
12	14.8	*Carex* spp.	20	0.1	
		Bare ground	80		
14.8	63.6	Pond water			
% Bare ground in vegetated section of transect:			**32%**		
2001 SURVEY #1, 22-Mar-01					
Pond 1					Depth at staff = 2.21 ft.
T1-1		**Transect location = 94 degrees E. from rebar**			Total transect distance = 77.2 m.
0	7.5	*Melilotus indica*	5	0.4	
		Crypsis vaginiflora	10	0.05	
		Lythrum hyssopifolia	1	0.1	
		Cotula coronopifolia	5	0.2	
		Polypogon monspeliensis	10	0.1	
		Juncus bufonius	10	0.1	
		Unknown #1	10	0.05	Too small to I.D.
		Bare ground	50		
7.5	77.2	Open water			Edge of water to staff gauge
% Bare ground in vegetated section of transect:			**50%**		
T1-2		**Transect location = 244 degrees W. from rebar**			Total transect distance = 73 m.
0	15.9	*Crypsis vaginiflora*	5		
		Cotula coronopifolia	10		
		Frankenia salina	2		
		Unknown #1	15		No flower

Table 10
Seasonal Wetland and Pond Vegetation Transects, 2000-2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

Distance (m)		Species	Percent cover	Height (m)	Comments
Start	End				
		Melilotus indica	5		
		Spergularia marina	5		Purple
		Bare ground	55		
15.9	73	Open water			
% Bare ground in vegetated section of transect:			**55%**		
Pond 2					Depth at staff = 2.76 ft.
T2-1		**Transect location = 238 degrees SW from rebar**			Total transect distance = 85 m.
0	7	*Melilotus indica*	70	0.4	
		Nassella spp.	5	0.2	Small clump, possibly *N. cernua*
		Polypogon monspeliensis	2	0.1	
		Crypsis vaginiflora	2	0.05	
		Cotula coronopifolia	1	0.02	
		Bare ground	10		
7	13.6	*Melilotus indica*	5		
		Cotula coronopifolia	50	0.01	Small sprouts
		Nassella spp.	2		
		Spergularia marina	1		
		Cyperus involucratus	2		Dead
		Bare ground	45		
13.6	85	Open water			
% Bare ground in vegetated section of transect:			**27%**		
T2-2		**Transect location = 340 degrees N. from rebar**			Total transect distance = 88 m.
0	12	*Bromus hordeaceus*	3		
		Lolium multiflorum	2		
		Unknown grass #1	10		
		Genista monspessulana	70		French broom
		Crypis vaginiflora	5		
		Sonchus spp.	1		Sprout
		Polypogon monspeliensis	5		
		Bare ground	5		
		Hordeum brachyantherum	2		
12	22.6	*Cotula coronopifolia*	5		
		Melilotus indica	5		
		Lythrum hyssopifolia	15		
		Polypogon monspeliensis	5		
		Unknown grass #1	10		
		Nassella spp.	1		No floret
		Crypis vaginiflora	10		
		Bare ground	50		
22.6	88	Open Water			
% Bare ground in vegetated section of transect:			**26%**		
Pond 3					Depth at staff = 1.72 ft.
T3-1		**Transect location = 310 degrees NW from rebar**			Total transect distance = 50.9 m.
0	12.1	*Hordeum murinum glaucum*	45	0.1	
		Unknown grass #1	35	0.2	
		Picris echiodes	1	0.05	
		Plantago lanceolata	1	0.1	
		Melilotus indica	5	0.1	
		Lythrum hyssopifolia	1	0.05	
		Edge Pool Species	10	0.02	Too small to I.D.

Table 10
Seasonal Wetland and Pond Vegetation Transects, 2000-2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

Distance (m)		Species	Percent cover	Height (m)	Comments
Start	End				
12.1	15	*Scirpus robustus*	5	3	
		Typha latifola	10	0.5	
15	50.9	Open Water			
% Bare ground in vegetated section of transect:			**0%**		
T3-2		**Transect location = 94 degrees E from rebar**			Total transect distance = 63.6 m.
0	7.5	*Melilotus indica*	60		
		Hordeum murinum	5		
		Picris echiodes	2		
		Polypogon monspeliensis	10		
		Unknown grass #1	25		
7.5	13	*Melilotus indica*	10	0.1	
		Scirpus robustus	10	0.2	
		Typha latifolia	10	0.3	
		Salicornia virginica	2	0.1	
		Edge Pool Species	5	0.1	Approx. 3 species. Too small to I.D.
		Crypsis vaginiflora	2	0.02	
		Lythrum hyssopifolium	2	0.05	
		Bare Ground	50		
		Polypogon monspeliensis	5	0.03	
13	63.6	Open water			
% Bare ground in vegetated section of transect:			**21%**		
2001 SURVEY #2, 26-Apr-01					
Pond 1					Depth at staff = 1.76 ft.
T1-1		**Transect location = 94 degrees E. from rebar**			Total transect distance = 77.2 m.
0	7	*Melilotus indica*	10	0.2	
		Bare ground	10		
		Crypsis vaginiflora	25	0.02	
		Anagallis arvensis	5	0.05	
		Cotula coronopifolia	15	0.02	
		Plantago lanceolata	35	0.02	
7	11	Bare ground	95		
		Cynodon dactylon	5	0.01	
11	77.2	Open water			
% Bare ground in vegetated section of transect:			**41%**		
T1-2		**Transect location = 244 degrees W. from rebar**			Total transect distance = 73 m.
0	15.9	*Atriplex triangularis*	2		
		Plantago lanceolata	20		
		Frankenia salina	5		
		Melilotus indica	10		No flower
		Spergularia marina	10		Purple
		Bare ground	45		
15.9	73	Open water			
% Bare ground in vegetated section of transect:			**45%**		
Pond 2					Depth at staff = 2.29 ft.
T2-1		**Transect location = 238 degrees SW from rebar**			Total transect distance = 85 m.
0	12.3	*Melilotus indica*	50	0.5	
		Anagalis arvensis	5	0.05	
		Plantago lanceolata	5	0.05	
		Taraxicum officinale	2	0.1	
		Cotula coronopifolia	2	0.05	
		Nassella spp.	3	0.2	
		Cyperus involucrata	3	0.2	

Table 10
Seasonal Wetland and Pond Vegetation Transects, 2000-2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

Distance (m)			Percent	Height	
Start	**End**	**Species**	**cover**	**(m)**	**Comments**
		Genista monspessulana	5	0.1	
		Gnaphalium spp.	1	0.05	
		Lythrum hyssopifolim	1	0.05	
		Cynodon dactylon	3	0.02	
		Bare ground	10		
		Geranium dissectum	1		
12.3	19.5	*Cyperus involucrata*	1		
		Cynodon dactylon	10		
		Unknown sp.	10		
		Bare Ground	79		
19.5	85	Open water			
% Bare ground in vegetated section of transect:			**35%**		
T2-2		**Transect location = 340 degrees N. from rebar**			Total transect distance = 88 m.
0	14	*Hordeum brachyantherum*	5		
		Vulpia myuros	5		
		Hordeum murinum ssp. glaucum	5		
		Melilotus indica	65		
		Genista monspessulana	15		
		Plantago lanceolata	5		
14	36.5	*Genista monspessulana*	5		
		Plantago lanceolata	5		
		Cotula coronopifolia	5		
		Lythrum hyssopifolia	20		
		Unknown sp.	20		
		Bare ground	45		
36.5	88	Open water			
% Bare ground in vegetated section of transect:			**28%**		
Pond 3					Depth at staff = 1.30 ft.
T3-1		**Transect location =310 degrees NW from rebar**			Total transect distance = 50.9 m.
0	11	*Hordeum murinum ssp. glaucum*	25	0.1	
		Hordeum brachyantherum	25	0.5	
		Lolium perenne	25	0.3	
		Melilotus indica	15	0.3	
		Bromus hordeaceus	5	0.2	
		Genista monspessulana	5		
11	19	*Melilotus indica*	5		
		Unknown grass	10		
		Scirpus robustus	15	0.2	
		Typha latifola	10	0.2	
		Hordeum murinum glaucum	5		
		Cotula coronopifolia	10		
		Bare ground	35		
19	50.9	Open water			
% Bare ground in vegetated section of transect:			**15%**		
T3-2		**Transect location = 94 degrees E from rebar**			Total transect distance = 63.6 m.
0	7.4	*Vulpia myuros*	20		
		Hordeum brachyantherum	20		
		Picris echiodes	5		
		Lupinus spp.	5		
		Genista monspessulana	5		
		Lolium perenne	15		
		Bromus hordeaceus	5		
		Geranium dissectum	20	0.1	

Table 10
Seasonal Wetland and Pond Vegetation Transects, 2000-2002
Martin Luther King Jr. Regional Shoreline Wetlands Project
Oakland, California

Distance (m)		Species	Percent cover	Height (m)	Comments
Start	**End**				
7.4	TBV**	*Melilotus indica*	10		
		Plantago lanceolata	10		
		Scirpus robustus	10		
		Cotula coronopifolia	10		
		Unknown grass	5		Small *Polypogon* spp.?
		Salicornia virginica	5		
		Bare Ground	50		
TBV**	63.6	Open water			
% Bare ground in vegetated section of transect:			**TBV****		
2000 Survey, 2-Nov-00					
		Transect location = continuation of tidal wetland Transect V3 (see Figure 2)			
0	168.6				Tidal wetland -- See Table 8.
168.6	200	*Plantago coronopus*	10		
		Frankenia salina	1		Road to edge of pond 2
		Genista monspessulana	5		
		Melilotus indica	5		
		Picris echiodes	1		
		Bare ground	80		
		Heliotropium curassavicum	1		
200	217	Bare ground	70		
		Plantago coronopus	5		
		Lythrum hyssopifolium	5		
		Crypsis vaginiflora	20		
217	290	Pond/ Open water	60		pond w/ water 230-255
		Bare ground	38		
		Crypsis vaginiflora	2		
290	331	*Lythrum hyssopifolium*	10		to edge of algae matting
		Scirpus robustus	5		
		Crypsis vaginiflora	10		
		Bare ground	75		
331	380	*Plantago coronopus*	70		Species to fence
		Melilotus indica	10		
		Picris echioedes	2		
		Salsola tragus	1		
% Bare ground in vegetated section of transect:			**25%**		

Notes:

* The rebar at T2 which indicates transect start could not be found, so the transect is based on angle and distance from staff gauge consistent with previous transect surveys.

** To be verified.

*** All surveys by Vir McCoy.