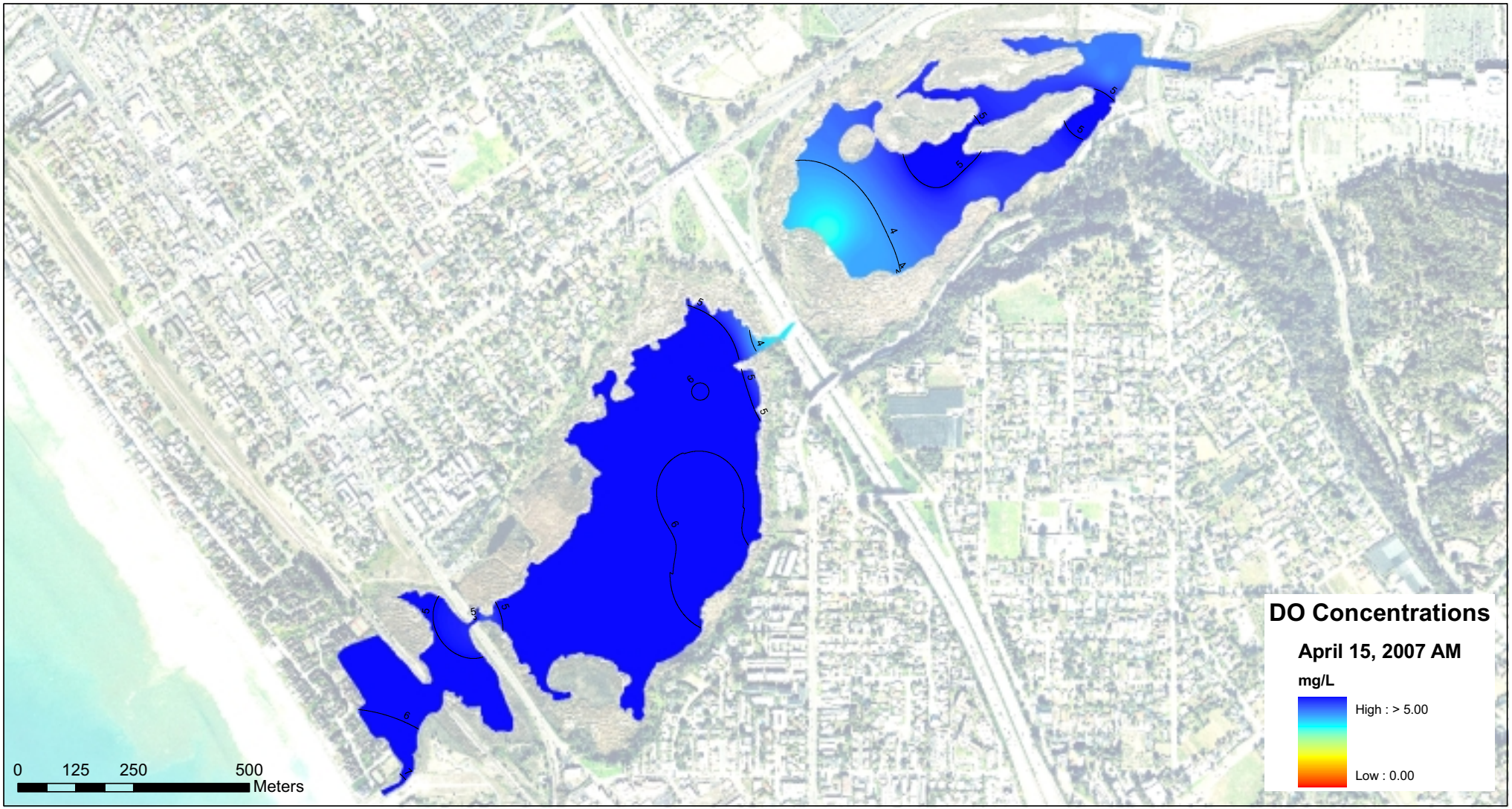
M&A # 02-059-60



Buena Vista Lagoon Wastewater Spill
Dissolved Oxygen Concentrations (mg/L)
April 15, 2007 (AM)

Merkel & Associates, Inc.

Buena Vista Spill Meeting
April 13, 2007
List of Attendees

City of Carlsbad

Glenn Pruim, Public Works Director
Jim Elliot, Administrative Services Director
Robert Johnson, Jr., Acting City Engineer
Mark Stone, GM, Carlsbad Municipal Water District
Cari Dale, Assistant GM, Carlsbad Municipal Water District
Linda Kermott, Public Works Manager
Elaine Lukey, Environmental Program Manager
Denise Vedder, Communications Manager
Joe Garuba, Sr. Management Analyst City Manager's Office
Kimberly Dillinger, Executive Secretary to City Manager
Ronald Kemp, Deputy City Attorney

Merkel & Associates

Keith Merkel
Kathy Rogers

4.19.07 13:00 BV Lagoon Release of March 31 - April 3, 2007
Inv. order Meeting - City of Carlsbad M+O Building
Attendance Sheet

NAME	ORGANIZATION	EMAIL
LAWRENCE PIERCE	City of Vista	LPIERCE@CI.VISTA.CA.US
Kathy Rogers	Merkel + Associates	kROgers@merkelinc.com
Keith Merkel	Merkel + Associates	kmerkel@merkelinc.com
Kevin Hardy	Encina Wastewater Authority	KHARDY@ENCINAJPA.COM
Debbie Biggs	EWA	dbiggs@encinajpa.com
Bruce Dale	EWA	bruce@encinajpa.com
CRAIG TRAMMELL	VISTA	CTRAMMELL@CI.VISTA.CA.US
Joe Garuba	Carlsbad	jgaru@ci.carlsbad.ca.us
Rita Geldert	Vista	rgeldert@cityofvista.com rgeldert@ci.vista.ca.us
Jayne Strommer	Vista	JStrommer@ci.vista.ca.us
Lisa Hildebrand	Carlsbad	lhild@ci.carlsbad.ca.us
GLENN PRUIM	CARLSBAD	gprui@ci.carlsbad.ca.us
MARK STONE	CARLSBAD	mstone@ci.carlsbad.ca.us
CARI DALE	CARLSBAD	Cdale@ci.carlsbad.ca.us
ROBERT T. JOHNSON, JR.	CARLSBAD	bjohn@ci.carlsbad.ca.us
Ron Kemp	Carlsbad	rKemp@ci.carlsbad.ca.us
ELAINE LUKEI	CARLSBAD	elUke@ci.carlsbad.ca.US
William Plumm	Carlsbad	bplumm@ci.carlsbad.ca.us
Sudi Shoji	Vista	sshoja@cityofvista.com

City of Carlsbad
Environmental Programs

April 10, 2007

William Paznokas
California Department of Fish and Game
4949 Viewridge Avenue
San Diego, CA 92123

Robin Lewis
California Department of Fish and Game
4949 Viewridge Avenue
San Diego, CA 92123

Kim McKee-Lewis
California Department of Fish and Game
4949 Viewridge Avenue
San Diego, CA 92123

Judy Gibson
U.S. Fish and Wildlife Service
Department of the Interior
6010 Hidden Valley Road
Carlsbad, CA 92011

Eric Becker
California Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Wastewater release at Buena Vista Lagoon April 1, 2007

The Cities of Carlsbad and Vista (Cities) are submitting this interim report as a status update at the request of participating state and federal agencies. It is not intended as a formal or final report of response, mitigation and remediation actions by the Cities or associated parties, nor is it intended to serve as an Environmental Site Assessment of the impacts of the release. This report is based on information known at the time of writing, and/or believed to be accurate. Where information is not known precisely, we have provided preliminary data using best professional judgment.

In general, the Cities have responded to prior data and status update requests via coordination meetings, verbal communication and emails with and between US Fish and Wildlife Service, State of California Department of Fish and Game, and San Diego Regional Water Quality Control Board (Agencies). Strategic environmental response has been and will continue to be a partnership between the Cities and Agencies.

The Cities recognize that this type of incident is dynamic in nature and have attempted to communicate fully and immediately with Agencies, and implement their requests. The Cities appreciate the knowledge and expertise that the Agencies have provided to improve the early and effective remediation of this event.

In summary, the release started on or about March 31, 2007 and discharge to the lagoon was terminated at approximately 13:00 on April 3, 2007. The estimated spill volume entering the lagoon was 7.3 million gallons. As of April 10, 2007, 10:00, the estimated drawback volume of wastewater and lagoon water sent back through Buena Vista Pump Station to Encina Wastewater Authority (EWA) was estimated at 31.2 million gallons. It is estimated that the drawback volume has resulted in approximately 6 inches of drawdown in the lagoon. The pumpback appears to have been successful at limiting the spread of the release to the Eastern basin, and a small portion of the middle basin. These estimated numbers are currently being reviewed and tested for quality assurance and final numbers will be submitted in the formal technical report as required by the Investigative Order. Based on the recovering D.O. levels in the Eastern basin and concerns for the drawdown of the water level, the pumpback level is being reduced to just balance the inflows from BV creek.

Coinciding with pipe repairs, lagoon aeration was initiated in the East basin on April 2, 2007. With six aerators currently operating, this aeration has benefited the recovery of early morning D.O. levels in the immediate release area.

Initial conclusions at this time include the following:

1) The release did not impact the West basin of the lagoon, nor was sewage discharged beyond Hwy 101 (Carlsbad Blvd.) and therefore did not reach the beaches at the mouth of the lagoon
2) In the past few days, the early morning D.O. concentrations have increased to approximately 4 mg/l in the East basin
3) Approximately 1700 deceased fish and four deceased birds (one CA gull, 2 American Coots, one gadwall) have been recovered.

Attached to this interim status report are three appendices for your review:

- Appendix A contains a draft chronology of environmental response events from Monday, April 2, at which time the City of Carlsbad Environmental Programs assumed the lead environmental role, through Monday April 9, 2007, inclusive.

- Appendix B contains data from the shoreline bacteria sampling, shoreline dissolved oxygen (DO) sampling, lagoon (on boat) DO sampling, and a map of sampling sites is sent via email in a separate pdf document

- Appendix C contains actions that the Cities and participating Agencies have agreed to implement.

The Cities are committed to remediation of impacts related to the wastewater release of April 1, 2007. Additional assessments are ongoing in conjunction with state and federal agencies. Formal, complete and final reports will be submitted as more event investigative information becomes available per requirements in the Investigative Order No. R9-2007-0060.

Please address any questions related to this report or ongoing environmental mitigation and remediation efforts to The City of Vista representative, Ms. Jayne Strommer at 760-726-1340 x 1373, or The City of Carlsbad representative Ms. Elaine Lukey at 760-602-7582.

Sincerely,

GLENN PRUIM, P.E.
Public Works Director, City of Carlsbad

c: Lisa Hildabrand, Acting City Manager, City of Carlsbad
Jim Elliott, Administrative Services Director, City of Carlsbad
Rita Geldert, City Manager, City of Vista

Appendix A
Draft Chronology of Events April 2, 2007 through April 9, 2007

DATE	TIME	ACTIONS
4/2/07	PM	initiated DO sampling at PCH bridge and Weir
	PM	deployed pump #1 on Northeast shore of East basin - recirculating water pump with aeration
	AM	Encina collected shoreline bacteria samples per BV Pump Station spill response sampling plan
	24 hr	Monitored and maintained pump 24 hours
4/3/07	AM	started DO sampling on lagoon based on sampling plan from 1997 spill
	AM	expanded shoreline DO sampling from PCH bridge and weir to co-locate with 6 additional shoreline bacteria sample sites (Encina collecting daily) 1xdaily
	AM/PM	deployed pump # 2,3,4 on far NE corner of East basin, from Jefferson bridge into East Channel, and on South side of East basin by duck pond. Total of 2 water re-circulation pumps and 2 aeration pumps
	PM	replaced and stabilized damaged pipe
	24 hr	monitored and maintained pumps on 24 hour basis
	PM	aerial viewing of site with CDFG representative warrants additional bacteria and DO sampling site on NW side of I-5 and lagoon intersection - accessed from Hunters Steakhouse
	PM	bacteria and DO samples taken at NW corner of I-5 and lagoon
	AM	Encina continued to collect shoreline bacteria samples
	AM/PM	initiated fish recovery 2x daily - to be sorted by size, species and #. Two of each species to be frozen.
	AM/PM	initiated monitoring for sick/dead birds
	PM	initiated drawback of lagoon water into BV Pump Station for re-route to Encina Wastewater Authority Facility (EWA). Est. 3M gallons/day to be drawn
	PM	sand berm constructed on beach at lagoon mouth
	PM	Contact bird rescue firm to be on standby for possibility of sick birds
4/4/07	AM/PM	increased DO sampling on lagoon 2x daily
	PM	revised lagoon DO sampling sites based on inaccessibility and redundancy of old sites
	AM/PM	continued shoreline DO sampling and increase to twice daily to coincide with lagoon twice daily sampling
	AM	initiated repair site backfill
	24 hr	monitored and maintained pumps on 24 hour basis
	AM	Encina expanded shoreline bacteria sampling to include site on NW corner of I-5 and lagoon
	24 hr	continued drawback of lagoon water into BV Pump Station for re-route to EWA. Moved location of drawback intake from clean channel water to dirty lagoon water
	AM/PM	continued monitoring for sick/dead birds

	AM/PM	continued fish recovery 2x daily - sorted by size, species and #. Two of each species to be frozen.
4/5/07	AM/PM	continued twice daily lagoon DO sampling
	AM/PM	continued twice daily shoreline DO sampling
	PM	completed repair site backfill and soil erosion BMPs in place
	AM	relocated pump #2 to West side of Jefferson, South bank
	AM	modified aeration tubing and extended
	24 hr	monitored and maintained pumps on 24 hour basis
	AM	Encina continued shoreline bacteria sampling
	24 hr	continued drawback of lagoon water to BV Pump Station for re-route to EWA
	AM/PM	continued monitoring for sick/dead birds
	AM/PM	continued fish recovery 2x daily - sorted by size, species and #. Two of each species to be frozen.
4/6/07	AM/PM	continued twice daily lagoon DO sampling
	AM/PM	continued twice daily shoreline DO sampling
	AM	Encina continued shoreline bacteria sampling
	AM/PM	City of Carlsbad Construction Dept. inspection conducted on soil erosion BMPs. Corrective actions required and completed same day. Second Construction inspection conducted to close out corrective actions.
	24 hr	monitored and maintained pumps on 24 hour basis
	24 hr	continued drawback of lagoon water to BV Pump Station for re-route to EWA
	AM/PM	continued monitoring for sick/dead birds
	AM/PM	continued fish recovery 2x daily - sorted by size, species and #. Two of each species to be frozen.
4/7/07	PM	deployed pumps # 5,6 on NE corner of East basin for additional aeration
	AM/PM	continued twice daily lagoon DO sampling
	AM/PM	continued twice daily shoreline DO sampling
	24 hr	monitored and maintained pumps on 24 hour basis
	AM	Encina continued shoreline bacteria sampling
	24 hr	continued drawback of lagoon water to BV Pump Station for re-route to EWA
	AM/PM	continued monitoring for sick/dead birds
	AM/PM	continued fish recovery 2x daily - sorted by size, species and #. Two of each species to be frozen.
4/8/07	AM/PM	continued twice daily lagoon DO sampling
	AM/PM	continued twice daily shoreline DO sampling
	24 hr	monitored and maintained pumps on 24 hour basis
	AM	Encina continued shoreline bacteria sampling
	24 hr	continued drawback of lagoon water to BV Pump Station for re-route to EWA
	AM/PM	continued monitoring for sick/dead birds
	AM/PM	continued fish recovery 2x daily - sorted by size, species and #. Two of each species to be frozen.

	PM	Change to 5 compressors with 6 hoses for aeration
4/9/07	AM/PM	continued twice daily lagoon DO sampling
	AM/PM	continued twice daily shoreline DO sampling
	24 hr	monitored and maintained pumps on 24 hour basis
	AM	Encina continued shoreline bacteria sampling
	24 hr	continued drawback of lagoon water to BV Pump Station for re-route to EWA
	AM/PM	continued monitoring for sick/dead birds
	AM/PM	continued fish recovery 2x daily - sorted by size, species and #. Two of each species to be frozen.
	AM	request for Cities of Oceanside and Carlsbad Police Dept. to perform sweep around lagoon for transient relocation
	PM	Resource agency coordination meeting to discuss changes to the environmental response program

Appendix B

Data – please see associated pdf

0 500 1,000 2,000 3,000 Feet

WESTON SOLUTIONS

Station ID	Station_Type	Basin	Description	Lat	Long	Site (Old Name)
BV01	Shoreline	Creek Upstream of Spill	Upstream of Pump Station	33.17911	-117.33977	
BV02	Shoreline	Far Eastern	Jefferson St Bridge West Side	33.17923	-117.34079	
BV03	Shoreline	Far Eastern	Jefferson St Duck Feeding Area	33.17816	-117.34152	
BV04	Shoreline	Marsh Pocket Eastern Basin	Lagoon View Dr North Shore	33.17969	-117.34165	
BV05	Shoreline	Western End Middle Basin	Hwy 101 Bridge East Side	33.16823	-117.35619	
BV06	Shoreline	Wier Western Basin	Weir at Beach	33.16478	-117.35831	
BV07	Shoreline	Western End East Basin	Under I-5 Bridge	33.17385	-117.34889	
BV08	Shoreline	Eastern End Middle Basin	75 Feet West of I-5 Bridge	33.17375	-117.34929	
BV09	Shoreline	West of Weir	West of Weir in Pond			
10A	Lagoon	Western Middle Basin	West End Middle Basin	33.16822	-117.35603	
10B	Lagoon	Western Middle Basin	West End Middle Basin	33.16779	-117.35439	
10C	Lagoon	Middle		33.1685	-117.35509	
10D	Lagoon	Central Middle Basin	Mid Section Middle Basin	33.16896	-117.35061	
10E	Lagoon	Central Middle Basin	Mid Section Middle Basin	33.1708	-117.35091	
10F	Lagoon	Central Middle Basin	Mid Section Middle Basin	33.17267	-117.35098	
10G	Lagoon	Eastern Middle Basin	East End Middle Basin	33.17335	-117.35076	
1	Lagoon	Western East Basin	West End East Basin	33.17519	-117.34724	
2	Lagoon	Western East Basin	West End East Basin	33.17584	-117.34808	
3	Lagoon	Western East Basin	West End East Basin	33.17623	-117.34815	
4	Lagoon	Central East Basin	Mid Section East Basin	33.17666	-117.34462	
5	Lagoon	Central East Basin	Mid Section East Basin	33.1773	-117.34536	
6	Lagoon	Far East Basin	East End East Basin	33.17828	-117.829	
7	Lagoon	Far East Basin	East End East Basin	33.17893	-117.34209	
8	Lagoon	Far East Basin	East End East Basin	33.17939	-117.34097	
9	Lagoon	Far East Basin	East End East Basin	33.17957	-117.344	
10	Lagoon	Far East Pocket Marsh		33.17936	-117.34209	
101	Lagoon	Western East Basin	West End East Basin	33.17516	-117.34725	1
102	Lagoon	Western East Basin	West End East Basin	33.17583	-117.34808	2
103	Lagoon	Western East Basin	West End East Basin	33.1734813	-117.34813	3
104	Lagoon	Central East Basin	Mid Section East Basin	33.17665	-117.34459	4
105	Lagoon	Central East Basin	Mid Section East Basin	33.1773	-117.34536	5
106	Lagoon	Far East Basin	East End East Basin	33.17828	-117.3419	6
107	Lagoon	Far East Basin	East End East Basin	33.17894	-117.34155	7
108	Lagoon	Far East Basin	East End East Basin	33.17933	-117.34196	8
109	Lagoon	Far East Basin	East End East Basin	33.1792	-117.34091	9
1S	Pacific Ocean	N/A	75 Feet South of Weir			
2S	Pacific Ocean	N/A	150 Feet South of Weir			
3S	Pacific Ocean	N/A	300 Feet South of Weir			
4S	Pacific Ocean	N/A	600 Feet South of Weir			
1N	Pacific Ocean	N/A	75 Feet North of Weir			
2N	Pacific Ocean	N/A	150 Feet North of Weir			
3N	Pacific Ocean	N/A	300 Feet North of Weir			
4N	Pacific Ocean	N/A	600 Feet North of Weir			
5N	Pacific Ocean	N/A	1200 Feet North of Weir			
6N	Pacific Ocean	N/A	2000 Feet North of Weir			

Station ID	Date	Time	D.O.	Temp.
BV01	4/2/2007	NS	NS	
BV01	4/2/2007	NS	NS	
BV02[1]	4/2/2007	NS	NS	
BV02[1]	4/2/2007	NS	NS	
BV03[1]	4/2/2007	NS	NS	
BV03[1]	4/2/2007	NS	NS	
BV04[1]	4/2/2007	NS	NS	
BV04[1]	4/2/2007	NS	NS	
BV05	4/2/2007	NS	NS	
BV05	4/2/2007	21:40	5.14	
BV06[2]	4/2/2007	NS	NS	
BV06[2]	4/2/2007	20:16	5.92	
BV07	4/2/2007	NS	NS	
BV07	4/2/2007	NS	NS	
BV08	4/2/2007	NS	NS	
BV08	4/2/2007	NS	NS	
BV01	4/3/2007	8:45	4.27	
BV01	4/3/2007	NS	NS	
BV02[1]	4/3/2007	8:55	1.75	
BV02[1]	4/3/2007	NS	NS	
BV03[1]	4/3/2007	9:22	1.50	
BV03[1]	4/3/2007	NS	NS	
BV04[1]	4/3/2007	9:06	1.55	
BV04[1]	4/3/2007	NS	NS	
BV05	4/3/2007	9:35	4.18	
BV05	4/3/2007	NS	NS	
BV06[2]	4/3/2007	9:47	5.48	
BV06[2]	4/3/2007	NS	NS	
BV07	4/3/2007	NS	NS	
BV07	4/3/2007	16:38	4.24	
BV08	4/3/2007	NS	NS	
BV08	4/3/2007	16:45	4.45	
BV01	4/4/2007	NS	NS	
BV01	4/4/2007	14:15	5.11	
BV02[1]	4/4/2007	NS	NS	
BV02[1]	4/4/2007	14:38	1.37	
BV03[1]	4/4/2007	NS	NS	
BV03[1]	4/4/2007	14:00	0.93	
BV04[1]	4/4/2007	NS	NS	
BV04[1]	4/4/2007	14:28	1.22	
BV05	4/4/2007	10:05	4.57	
BV05	4/4/2007	NS	NS	
BV06[2]	4/4/2007	10:15	5.80	
BV06[2]	4/4/2007	NS	NS	
BV07	4/4/2007	9:42	4.41	
BV07	4/4/2007	NS	NS	
BV08	4/4/2007	9:44	5.92	
BV08	4/4/2007	NS	NS	

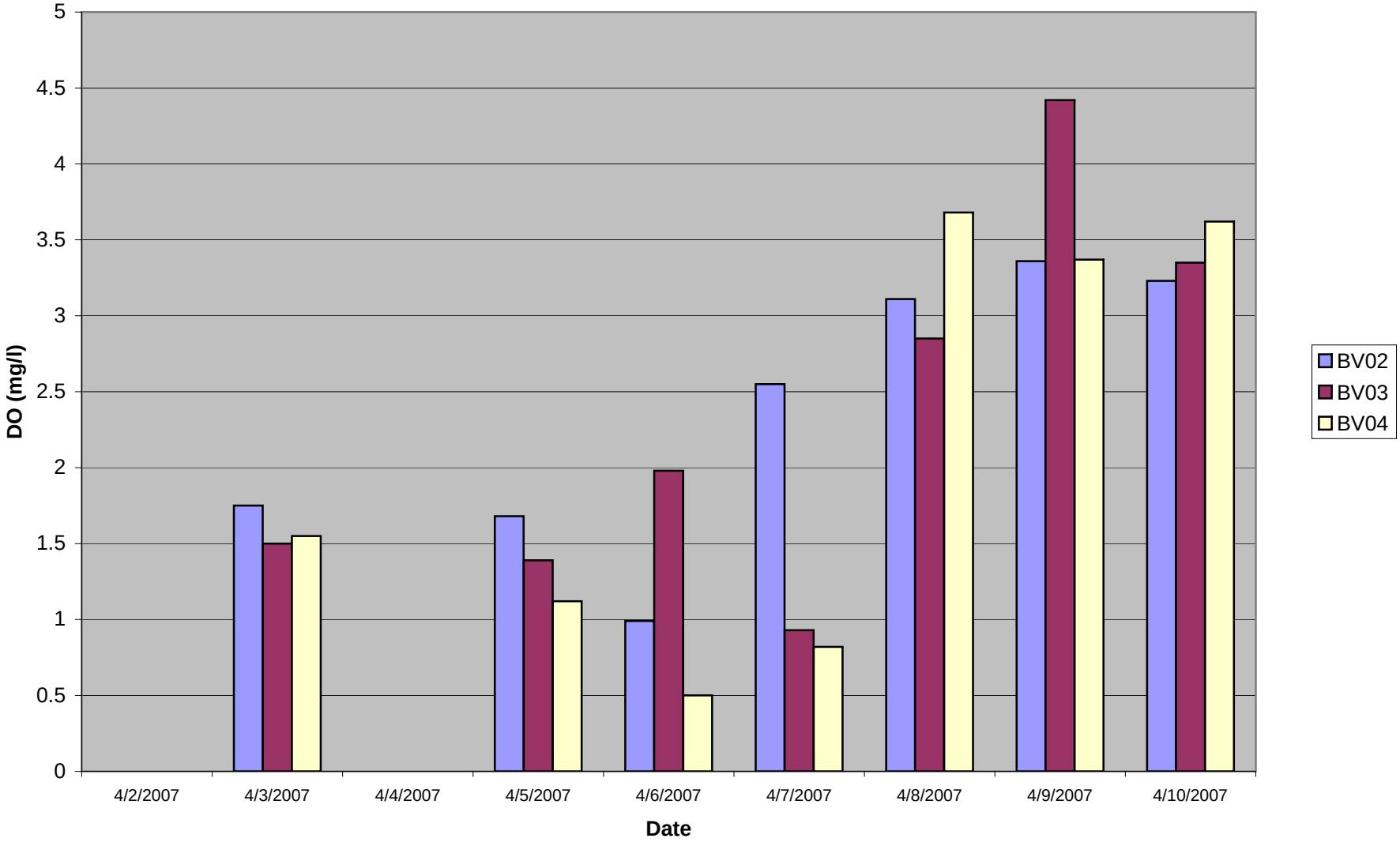
BV01	4/5/2007	6:41	3.81	
BV01	4/5/2007	13:53	5.78	
BV02[1]	4/5/2007	6:35	1.68	
BV02[1]	4/5/2007	14:06	1.35	
BV03[1]	4/5/2007	6:22	1.39	
BV03[1]	4/5/2007	13:40	1.90	
BV04[1]	4/5/2007	6:50	1.12	
BV04[1]	4/5/2007	14:30	1.76	
BV05	4/5/2007	7:58	4.14	
BV05	4/5/2007	15:32	6.50	
BV06[2]	4/5/2007	7:15	5.36	
BV06[2]	4/5/2007	14:50	6.04	
BV07	4/5/2007	7:37	5.14	
BV07	4/5/2007	16:20	6.59	
BV08	4/5/2007	7:40	5.06	
BV08	4/5/2007	16:30	7.31	
BV01	4/6/2007	7:18	5.00	
BV01	4/6/2007	14:30	6.56	
BV02[1]	4/6/2007	7:03	0.99	
BV02[1]	4/6/2007	14:46	4.73	
BV03[1]	4/6/2007	7:28	1.98	
BV03[1]	4/6/2007	13:57	4.50	
BV04[1]	4/6/2007	6:55	0.50	
BV04[1]	4/6/2007	14:40	0.98	
BV05	4/6/2007	8:50	3.75	
BV05	4/6/2007	15:08	6.13	
BV06[2]	4/6/2007	8:15	6.35	
BV06[2]	4/6/2007	NS	NS	
BV07	4/6/2007	9:20	3.60	
BV07	4/6/2007	15:34	6.03	
BV08	4/6/2007	9:25	3.70	
BV08	4/6/2007	15:38	6.40	
BV01	4/7/2007	6:45	1.08	18.4
BV01	4/7/2007	13:39	3.98	18.9
BV02[1]	4/7/2007	7:12	2.55	18.8
BV02[1]	4/7/2007	14:32	4.33	19.0
BV03[1]	4/7/2007	6:25	0.93	19.2
BV03[1]	4/7/2007	12:50	7.83	19.9
BV04[1]	4/7/2007	7:03	0.82	19.5
BV04[1]	4/7/2007	14:12	4.34	19.9
BV05	4/7/2007	8:32	3.21	19.3
BV05	4/7/2007	15:10	4.97	19.9
BV06[2]	4/7/2007	8:13	6.26	19.3
BV06[2]	4/7/2007	15:29	7.56	19.8
BV07	4/7/2007	7:39	2.22	19.0
BV07	4/7/2007	14:52	2.63	19.3
BV08	4/7/2007	7:27	2.35	19.2
BV08	4/7/2007	14:47	4.03	19.6
BV01	4/8/2007	6:19	3.07	18.3

BV01	4/8/2007	12:35	5.32	19.7
BV02[1]	4/8/2007	6:40	3.11	18.2
BV02[1]	4/8/2007	13:04	4.95	20.0
BV03[1]	4/8/2007	6:08	2.85	18.3
BV03[1]	4/8/2007	12:19	9.07	18.8
BV04[1]	4/8/2007	6:27	3.68	18.9
BV04[1]	4/8/2007	12:49	7.71	19.6
BV05	4/8/2007	7:26	2.63	18.7
BV05	4/8/2007	13:47	4.42	20.2
BV06[2]	4/8/2007	7:27	5.63	17.8
BV06[2]	4/8/2007	14:03	8.74	20.2
BV07	4/8/2007	7:15	1.64	18.6
BV07	4/8/2007	13:34	3.47	19.0
BV08	4/8/2007	7:04	1.97	18.6
BV08	4/8/2007	13:22	4.12	19.6
BV01	4/9/2007	6:32	3.27	17.7
BV01	4/9/2007	14:30	6.11	18.6
BV02[1]	4/9/2007	6:58	3.36	18.8
BV02[1]	4/9/2007	14:38	8.98	21.8
BV03[1]	4/9/2007	6:23	4.42	19.3
BV03[1]	4/9/2007	14:20	20.00	22.4
BV04[1]	4/9/2007	6:48	3.37	19.6
BV04[1]	4/9/2007	14:50	11.88	22.9
BV05	4/9/2007	7:24	3.08	19.6
BV05	4/9/2007	15:18	9.15	22.4
BV06[2]	4/9/2007	7:46	6.24	17.9
BV06[2]	4/9/2007	15:05	9.18	22.7
BV07	4/9/2007	7:22	2.80	19.0
BV07	4/9/2007	15:53	6.08	21.4
BV08	4/9/2007	7:13	2.77	19.0
BV08	4/9/2007	15:50	6.52	22.0
BV01	4/10/2007	6:30	3.59	16.6
BV02[1]	4/10/2007	6:34	3.23	19.1
BV03[1]	4/10/2007	6:25	3.35	19.4
BV04[1]	4/10/2007	6:39	3.62	19.9
BV05	4/10/2007	6:59	3.58	19.7
BV06[2]	4/10/2007	6:51	4.23	18.2
BV07	4/10/2007	7:07	2.58	19.1
BV08	4/10/2007	7:09	2.64	19.6

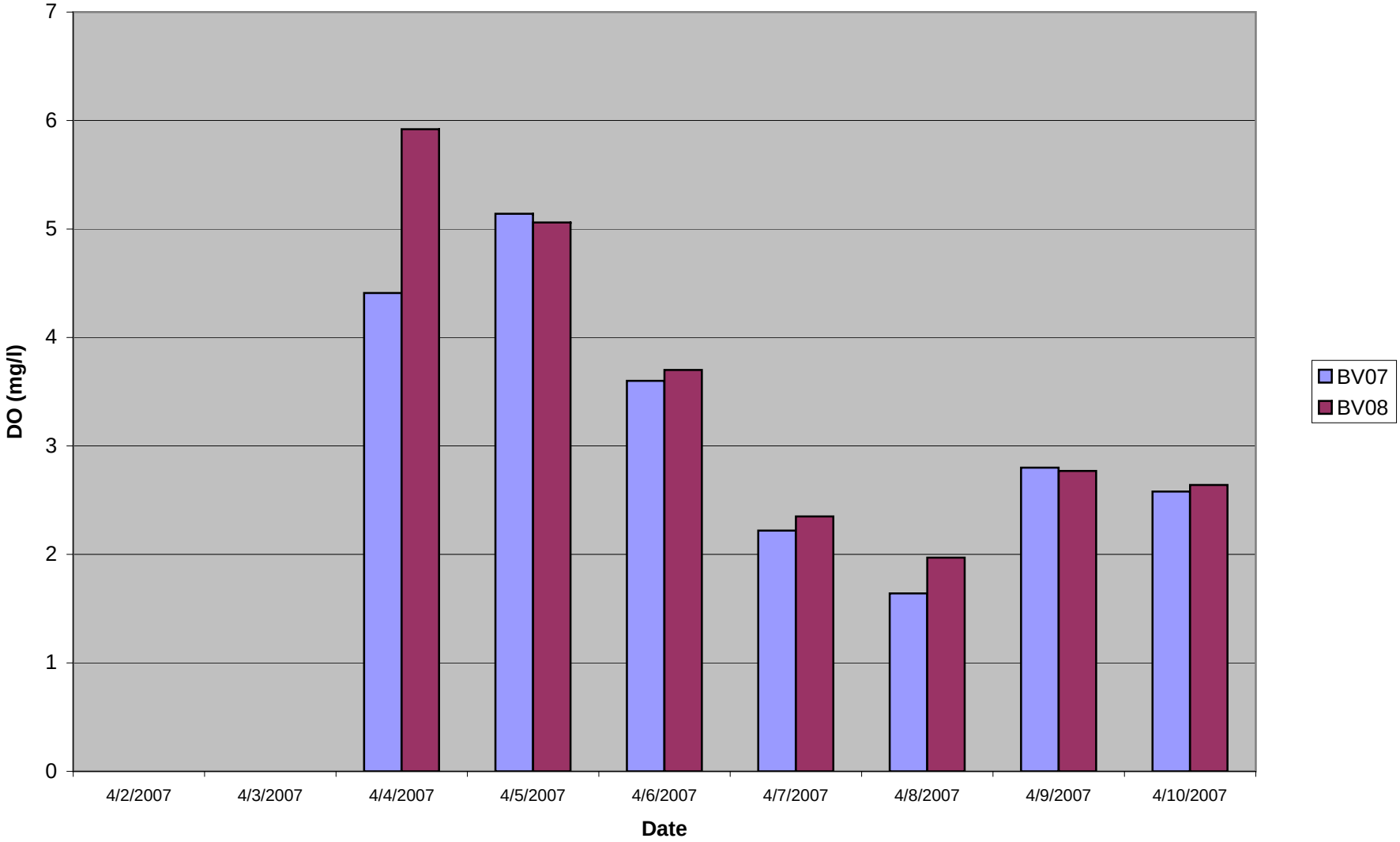
	4/2/2007	4/3/2007	4/4/2007	4/5/2007	4/6/2007	4/7/2007	4/8/2007	4/9/2007	4/10/2007
	AM	AM	AM	AM	AM	AM	AM	AM	AM
BV01		4.27		3.81	5.00	1.08	3.07	3.27	3.59
BV02		1.75		1.68	0.99	2.55	3.11	3.36	3.23
BV03		1.50		1.39	1.98	0.93	2.85	4.42	3.35
BV04		1.55		1.12	0.50	0.82	3.68	3.37	3.62
BV05		4.18	4.57	4.14	3.75	3.21	2.63	3.08	3.58
BV06		5.48	5.80	5.36	6.35	6.26	5.63	6.24	4.23
BV07			4.41	5.14	3.60	2.22	1.64	2.80	2.58
BV08			5.92	5.06	3.70	2.35	1.97	2.77	2.64

	4/2/2007	4/3/2007	4/4/2007	4/5/2007	4/6/2007	4/7/2007	4/8/2007	4/9/2007	4/10/2007
	PM	PM	PM	PM	PM	PM	PM	PM	PM
BV01			5.11	5.78	6.56	3.98	5.32	6.11	
BV02			1.37	1.35	4.73	4.33	4.95	8.98	
BV03			0.93	1.90	4.50	7.83	9.07	20.00	
BV04			1.22	1.76	0.98	4.34	7.71	11.88	
BV05	5.14			6.50	6.13	4.97	4.42	9.15	
BV06	5.92			6.04		7.56	8.74	9.18	
BV07		4.24		6.59	6.03	2.63	3.47	6.08	
BV08		4.45		7.31	6.40	4.03	4.12	6.52	

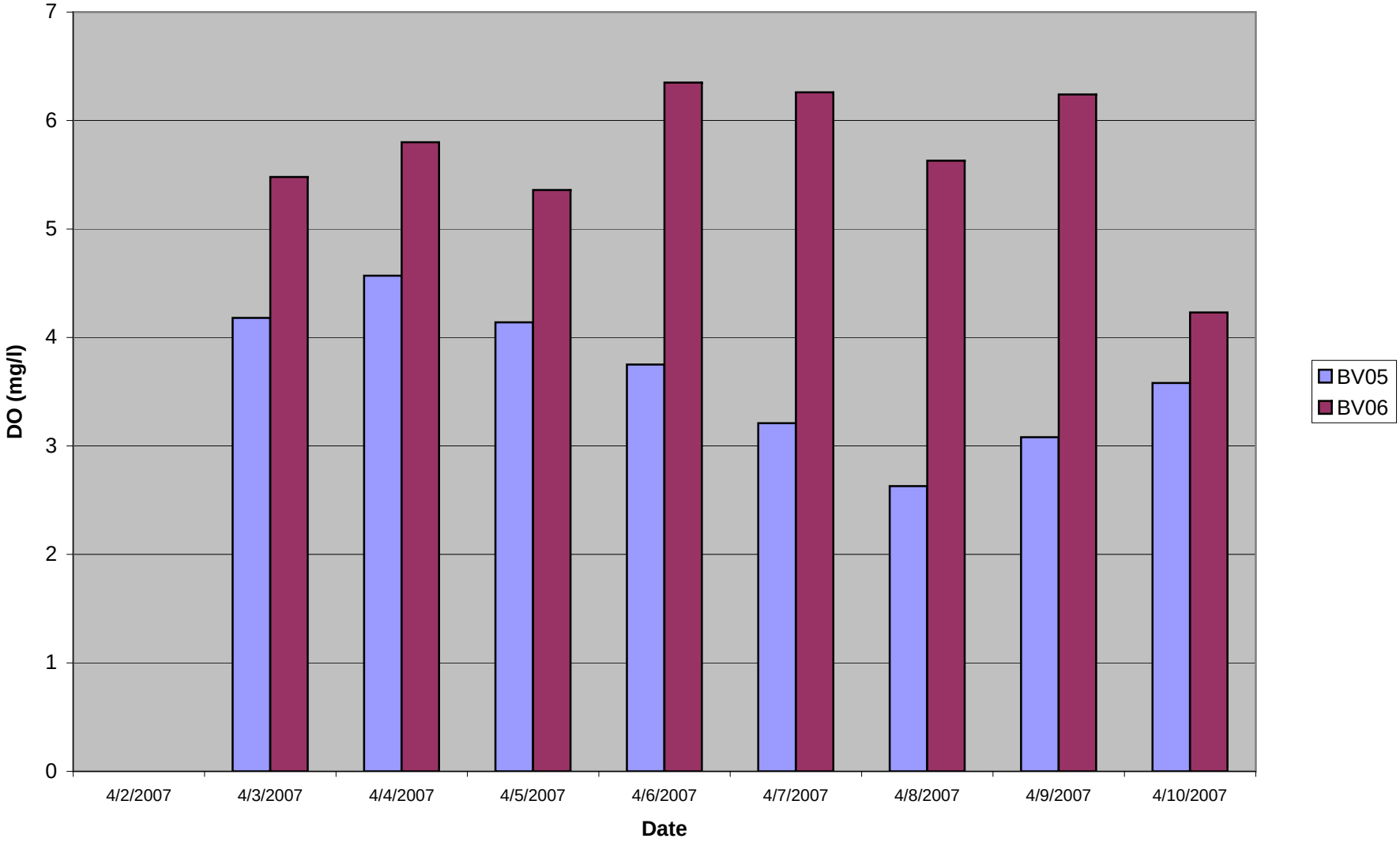
Shoreline Dissolved Oxygen Concentrations, East Basin, a.m.



Shoreline Dissolved Oxygen Concentrations, I-5 Bridge, a.m.



Shoreline Dissolved Oxygen Concentrations, Hwy 101 and Weir, a.m.



Site	Site (Old Name)	Latitude	Longitude	Date	Time	Field Team	Water Depth (inches)	Sample Depth	pH	Temp (Celsius)	Conductivity (uS)	DO (mg/L)	WQ Meter
1		33.17519	-117.34724	4/3/2007	13:15	NW/EG	12	top	7.98	22.43	3441	3.71	YSI 6 Series
2		33.17584	-117.34808	4/3/2007	13:25	NW/EG	14	top	8.06	23.8	3348	7.84	YSI 6 Series
3		33.17623	-117.34815	4/3/2007	13:35	NW/EG	13	top	8.17	23.83	3990	7.55	
4		33.17666	-117.34462	4/3/2007	12:55	NW/EG	14	top	7.92	21.84	3210	1.22	
5		33.1773	-117.34536	4/3/2007	13:00	NW/EG	18	top	7.89	21.06	3168	1.04	
6		33.17828	-117.829	4/3/2007	12:15	NW/EG	36	top	7.9	20.69	14931	0.22	
6		33.17828	-117.829	4/3/2007	12:15	NW/EG	36	middle	7.87	20.3	14770	0.4	
6		33.17828	-117.829	4/3/2007	12:15	NW/EG	36	bottom	7.84	19.2	4100	0.3	
7		33.17893	-117.34209	4/3/2007	11:15	NW/EG	48	top	7.69	19.49	3630	0.36	
7		33.17893	-117.34209	4/3/2007	11:15	NW/EG	48	middle	7.69	19.49	3186	0.33	
7		33.17893	-117.34209	4/3/2007	11:15	NW/EG	48	bottom	7.69	19.49	3186	0.33	
8		33.17939	-117.34097	4/3/2007	11:45	NW/EG	66	top	7.91	19.66	3252	0.92	
8		33.17939	-117.34097	4/3/2007	11:45	NW/EG	66	middle	7.84	19.38	3227	0.4	
8		33.17939	-117.34097	4/3/2007	11:45	NW/EG	66	bottom	7.81	19.26	3248	0.36	
9		33.17957	-117.344	4/3/2007	12:01	NW/EG	69	top	7.9	19.94	15410	0.51	
9		33.17957	-117.344	4/3/2007	12:01	NW/EG	69	middle	7.86	19.83	15411	0.3	
9		33.17957	-117.344	4/3/2007	12:01	NW/EG	69	bottom	7.83	19.02	15836	0.26	
10		33.17936	-117.34209	4/3/2007	11:35	NW/EG	29.5	top	7.89	19.31	3299	0.9	
10		33.17936	-117.34209	4/3/2007	11:35	NW/EG	29.5	bottom	7.85	19.02	3338	0.55	
1		33.17517	-117.34732	4/4/2007	8:30	AG/DO	10.8	top	8.11	18.71	3287	2.42	
2		33.17586	-117.34809	4/4/2007	8:40	AG/DO	10.8	top	8.05	19.55	3425	5.43	
3		33.1762	-117.34813	4/4/2007	8:53	AG/DO	15.6	top	8.1	19.4	3338	2.91	
4		33.17666	-117.3446	4/4/2007	8:11	AG/DO	7.2	top	8.06	19.22	3241	0.75	
5		33.1773	-117.34539	4/4/2007	8:18	AG/DO	15.6	top	8.06	19.19	3230	0.82	
6		33.17831	-117.3419	4/4/2007	7:50	AG/DO	31.2	top	8	19.43	3195	2.81	
6		33.17831	-117.3419	4/4/2007	7:50	AG/DO	31.2	middle	7.96	19.42	3201	1.07	
6		33.17831	-117.3419	4/4/2007	7:50	AG/DO	31.2	bottom	7.94	19.44	3203	0.34	
7		33.17894	-117.34208	4/4/2007	7:34	AG/DO	55.2	top	7.88	19.63	3211	0.75	
7		33.17894	-117.34208	4/4/2007	7:34	AG/DO	55.2	middle	7.87	19.62	3214	0.52	
7		33.17894	-117.34208	4/4/2007	7:34	AG/DO	55.2	bottom	7.87	19.4	3205	0.04	
8		33.1794	-117.3409	4/4/2007	7:17	AG/DO	60	top	7.84	19.7	3219	0.2	
8		33.1794	-117.3409	4/4/2007	7:17	AG/DO	60	middle	7.82	19.7	3221	0.04	
8		33.1794	-117.3409	4/4/2007	7:17	AG/DO	60	bottom	7.82	19.7	3224	0	
9		33.17958	-117.3414	4/4/2007	9:30	AG/DO	60	top	8.1	19.75	3220	0.5	
9		33.17958	-117.3414	4/4/2007	9:30	AG/DO	60	middle	7.99	19.76	3225	0.4	
9		33.17958	-117.3414	4/4/2007	9:30	AG/DO	60	bottom	7.96	19.66	3230	0.4	
10		33.17939	-117.3421	4/4/2007	7:40	AG/DO	20.4	top	7.99	19.55	3259	0.85	
109	9	33.1792	-117.34091	4/4/2007	13:43	AG/NS	80	top	7.75	20.57	3262	0.22	
109	9	33.1792	-117.34091	4/4/2007	13:43	AG/NS	80	middle	7.81	20.5	3260	0.1	
109	9	33.1792	-117.34091	4/4/2007	13:43	AG/NS	80	bottom	7.81	20.58	3261	0.13	
107	7	33.17894	-117.34155	4/4/2007	13:55	AG/NS	76	top	7.87	20.8	3217	0.89	
107	7	33.17894	-117.34155	4/4/2007	13:55	AG/NS	76	middle	7.81	20.73	3233	0.45	
107	7	33.17894	-117.34155	4/4/2007	13:55	AG/NS	76	bottom	7.82	20.42	3236	0.52	
108	8	33.17933	-117.34196	4/4/2007	14:05	AG/NS	31	top	7.87	20.8	3221	0.41	.
108	8	33.17933	-117.34196	4/4/2007	14:05	AG/NS	31	middle	7.82	20.7	3232	0.35	
108	8	33.17933	-117.34196	4/4/2007	14:05	AG/NS	31	bottom	7.85	20.42	3238	0.34	
106	6	33.17828	-117.3419	4/4/2007	14:20	AG/NS	29	top	7.98	21.47	3260	0.48	
106	6	33.17828	-117.3419	4/4/2007	14:20	AG/NS	29	middle	7.9	21.56	3266	0.28	
106	6	33.17828	-117.3419	4/4/2007	14:20	AG/NS	29	bottom	7.94	21.4	3265	0.35	
104	4	33.17665	-117.34459	4/4/2007	14:42	AG/NS	10	top	8.07	22.18	3289	7.61	
105	5	33.1773	-117.34536	4/4/2007	14:55	AG/NS	11	top	8.04	20.85	3212	0.79	
101	1	33.17516	-117.34725	4/4/2007	15:19	AG/NS	7	top	8.13	22.41	3461	11.3	
102	2	33.17583	-117.34808	4/4/2007	15:32	AG/NS	8	top	8.22	23.25	3300	15.78	
103	3	33.17348	-117.34813	4/4/2007	15:49	AG/NS	19.5	top	8.5	23.65	3329	20.61	
109	9	33.17923	-117.34089	4/5/2007	7:21	DO/CH	73.2	top	8.86	19.98	3478	0.39	YSI 600XL
109	9	33.17923	-117.34089	4/5/2007	7:21	DO/CH	73.2	middle	8.82	19.98	3477	0.25	YSI 600XL
109	9	33.17923	-117.34089	4/5/2007	7:21	DO/CH	73.2	bottom	8.81	19.99	3482	0.22	YSI 600XL
107	7	33.17889	-117.34162	4/5/2007	7:32	DO/CH	55.2	top	8.86	20.03	3477	0.51	YSI 600XL
107	7	33.17889	-117.34162	4/5/2007	7:32	DO/CH	55.2	middle	8.83	20.02	3479	0.34	YSI 600XL
107	7	33.17889	-117.34162	4/5/2007	7:32	DO/CH	55.2	bottom	8.77	19.98	3480	0.2	YSI 600XL
108	8	33.17936	-117.342	4/5/2007	10:05	DO/CH	34.8	top	8.99	19.96	3487	0.46	YSI 600XL
108	8	33.17936	-117.342	4/5/2007	10:05	DO/CH	34.8	middle	8.93	19.96	3485	0.25	YSI 600XL
108	8	33.17936	-117.342	4/5/2007	10:05	DO/CH	34.8	bottom	8.9	19.87	3522	0.18	YSI 600XL
106	6	33.1782	-117.34189	4/5/2007	7:45	DO/CH	42	top	8.73	19.69	3447	0.41	YSI 600XL
106	6	33.1782	-117.34189	4/5/2007	7:45	DO/CH	42	middle	8.75	19.7	3447	0.16	YSI 600XL
106	6	33.1782	-117.34189	4/5/2007	7:45	DO/CH	42	bottom	8.77	19.71	3407	0.14	YSI 600XL
104	4	33.1767	-117.34454	4/5/2007	8:30	DO/CH	8.4	top	8.5	18.62	3360	1.08	YSI 600XL
105	5	33.17739	-117.34536	4/5/2007	8:09	DO/CH	9	top	8.56	18.45	3347	0.48	YSI 600XL
101	1	33.17521	-117.34724	4/5/2007	9:15	DO/CH	9.6	top	8.59	18.47	3675	1.31	YSI 600XL
102	2	33.17582	-117.34808	4/5/2007	9:00	DO/CH	6	top	8.64	18.74	3604	0.8	YSI 600XL
103	3	33.1762	-117.34822	4/5/2007	8:50	DO/CH	7.2	top	8.91	19.12	3524	1.69	YSI 600XL
109	9	33.17921	-117.3409	4/5/2007	13:41	EG/TW	80	top	8.02	20.77	3581	0.02	YSI 600XL
109	9	33.17921	-117.3409	4/5/2007	13:41	EG/TW	80	middle	8.18	20.77	3581	0.05	YSI 600XL
109	9	33.17921	-117.3409	4/5/2007	13:41	EG/TW	80	bottom	8.08	20.76	3582	0	YSI 600XL
107	7	33.17898	-117.34148	4/5/2007	13:56	EG/TW	68.5	top	8.38	20.89	3586	0.07	YSI 600XL
107	7	33.17898	-117.34148	4/5/2007	13:56	EG/TW	68.5	middle	8.46	20.67	3574	0	YSI 600XL
107	7	33.17898	-117.34148	4/5/2007	13:56	EG/TW	68.5	bottom	8.47	20.41	3583	0	YSI 600XL
108	8	33.17932	-117.34192	4/5/2007	15:56	EG/TW	61	top	8.66	21.08	3524	0.05	YSI 600XL
108	8	33.17932	-117.34192	4/5/2007	15:56	EG/TW	61	middle	8.7	21	3624	0.04	YSI 600XL
108	8	33.17932	-117.34192	4/5/2007	15:56	EG/TW	61	bottom	8.72	21.01	3624	0.04	YSI 600XL
106	6	33.17824	-117.3418	4/5/2007	14:06	EG/TW	33	top	8.39	21.46	3650	0.09	YSI 600XL
106	6	33.17824	-117.3418	4/5/2007	14:06	EG/TW	33	middle	8.38	21.35	3645	0.08	YSI 600XL
106	6	33.17824	-117.3418	4/5/2007	14:06	EG/TW	33	bottom	8.39	21.28	3639	0.09	YSI 600XL
104	4	33.17659	-117.34468	4/5/2007	14:30	EG/TW	8	top	9.28	22.73	3718	0.07	YSI 600XL
105	5	33.17734	-117.34544	4/5/2007	14:40	EG/TW	13	top	8.37	20.91	3504	0.04	YSI 600XL
101	1	33.17512	-117.34725	4/5/2007	15:30	EG/TW	6.5	top	9.07	23.19	4739	2.65	YSI 600XL
102	2	33.17579	-117.34805	4/5/2007	15:11	EG/TW	7.5	top	9.44	24.04	4051	3.79	YSI 600XL
103	3	33.17629	-117.34807	4/5/2007	15:04	EG/TW	8	top	9.75	23.81	4221	4.72	YSI 600XL

109	33.17915	-117.34087	4/6/2007	7:45	DO/CH	53	top	8.58	19.88	3680	0.27	
109	33.17915	-117.34087	4/6/2007	7:45	DO/CH	53	middle	8.54	19.87	3677	0.27	
109	33.17915	-117.34087	4/6/2007	7:45	DO/CH	53	bottom	8.54	19.88	3683	0.25	
107	33.17891	-117.34154	4/6/2007	8:00	DO/CH	57	top	8.73	19.84	3663	1.81	
107	33.17891	-117.34154	4/6/2007	8:00	DO/CH	57	middle	8.71	19.85	3666	1.17	
107	33.17891	-117.34154	4/6/2007	8:00	DO/CH	57	bottom	8.67	19.85	3670	0.71	
106	33.17822	-117.34184	4/6/2007	8:08	DO/CH	33	top	8.63	19.63	3649	1.5	
106	33.17822	-117.34184	4/6/2007	8:08	DO/CH	33	middle	8.62	19.64	3646	0.97	
106	33.17822	-117.34184	4/6/2007	8:08	DO/CH	33	bottom	8.59	19.65	3647	0.29	
105	33.17735	-117.34535	4/6/2007	8:32	DO/CH	8	top	8.56	18.37	3448	4.61	
103	33.1762	-117.34818	4/6/2007	9:15	DO/CH	16	top	8.82	18.24	4598	5.89	
102	33.17587	-117.34805	4/6/2007	9:25	DO/CH	6	top	8.75	18.42	3817	5.04	
101	33.17523	-117.34721	4/6/2007	9:35	DO/CH	4	top	8.71	17.88	3965	7.07	
104	33.17622	-117.3446	4/6/2007	10:00	DO/CH	8	top	8.63	18.55	3586	5.64	
108	33.17939	-117.34195	4/6/2007	10:45	DO/CH	37	top	8.38	19.73	3671	0.5	
108	33.17939	-117.34195	4/6/2007	10:45	DO/CH	37	middle	8.49	19.71	3669	0.32	
108	33.17939	-117.34195	4/6/2007	10:45	DO/CH	37	bottom	8.55	19.71	3668	0.22	
109	33.1792	-117.34089	4/6/2007	13:41	EG/TW	58	top	8.2	20.24	3784	0.25	YSI 600XL
109	33.1792	-117.34089	4/6/2007	13:41	EG/TW	58	middle	8.39	20.26	3736	0.2	YSI 600XL
109	33.1792	-117.34089	4/6/2007	13:41	EG/TW	58	bottom	8.38	20.25	3736	0.29	YSI 600XL
107	33.17895	-117.34148	4/6/2007	14:01	EG/TW	63	top	8.44	20.25	3737	0.17	YSI 600XL
107	33.17895	-117.34148	4/6/2007	14:01	EG/TW	63	middle	8.57	20.08	3726	0.04	YSI 600XL
107	33.17895	-117.34148	4/6/2007	14:01	EG/TW	63	bottom	8.5	20.17	3732	0.02	YSI 600XL
106	33.1782	-117.1782	4/6/2007	14:18	EG/TW	41	top	8.73	20.71	3786	5.49	YSI 600XL
106	33.1782	-117.1782	4/6/2007	14:18	EG/TW	41	middle	8.76	20.7	3786	4.98	YSI 600XL
106	33.1782	-117.1782	4/6/2007	14:18	EG/TW	41	bottom	8.81	20.68	3783	4.89	YSI 600XL
108	33.17933	-117.34199	4/6/2007	14:30	EG/TW	41	top	8.55	20.39	3748	0.53	YSI 600XL
108	33.17933	-117.34199	4/6/2007	14:30	EG/TW	41	middle	8.59	20.33	3749	0.29	YSI 600XL
108	33.17933	-117.34199	4/6/2007	14:30	EG/TW	41	bottom	8.72	20.19	3768	0.38	YSI 600XL
104	33.17665	-117.34467	4/6/2007	14:47	EG/TW	8	top	9.37	21.41	3906	11.47	YSI 600XL
105	33.17732	-117.34533	4/6/2007	14:56	EG/TW	12	top	8.99	20.24	3578	11.07	YSI 600XL
103	33.17625	-117.3481	4/6/2007	15:16	EG/TW	7	top	9.63	22.58	4512	16.1	YSI 600XL
102	33.17577	-117.348	4/6/2007	15:24	EG/TW	7	top	9.78	22.94	4202	10.67	YSI 600XL
101	33.17526	-117.526	4/6/2007	15:37	EG/TW	7	top	9.76	23.15	4782	10.04	YSI 600XL
109	33.17915	-117.34091	4/7/2007	6:50	SC/DO	63.6	top	7.9	19.5	3754	1.82	
109	33.17915	-117.34091	4/7/2007	6:50	SC/DO	63.6	middle	8	8.07	3779	1.02	
109	33.17915	-117.34091	4/7/2007	6:50	SC/DO	63.6	bottom	8.07	19.6	3779	0.76	
107	33.17893	-117.34154	4/7/2007	7:12	SC/DO	61.2	top	8.34	19.58	3760	2.17	
107	33.17893	-117.34154	4/7/2007	7:12	SC/DO	61.2	middle	8.31	19.61	3780	0.88	
107	33.17893	-117.34154	4/7/2007	7:12	SC/DO	61.2	bottom	8.35	19.61	3774	0.63	
106	33.17819	-117.3418	4/7/2007	7:30	SC/DO	27.6	top	8.3	19.35	3751	3.31	
106	33.17819	-117.3418	4/7/2007	7:30	SC/DO	27.6	middle	8.32	19.45	3771	1.19	
106	33.17819	-117.3418	4/7/2007	7:30	SC/DO	27.6	bottom	8.36	19.49	3773	0.77	
105	33.17733	-117.34537	4/7/2007	7:49	SC/DO	8.4	top	8.55	18.17	3572	10.19	
103	33.17625	-117.34814	4/7/2007	8:23	SC/DO	6	top	8.49	17.29	4309	8.4	
102	33.17583	-117.34811	4/7/2007	8:39	SC/DO	7.2	top	8.48	17.6	4199	7.09	
101	33.17524	-117.34715	4/7/2007	8:59	SC/DO	6	top	8.42	17.38	4013	8.16	
104	33.1767	-117.34467	4/7/2007	9:20	SC/DO	7.2	top	8.59	18.39	3615	8.89	
108	33.17937	-117.34201	4/7/2007	9:55	SC/DO	38.4	top	8.45	19.45	3766	2.1	
108	33.17937	-117.34201	4/7/2007	9:55	SC/DO	38.4	middle	8.47	19.41	3759	1.27	
108	33.17937	-117.34201	4/7/2007	9:55	SC/DO	38.4	bottom	8.45	19.35	3760	1.08	
101	33.17522	-117.3417	4/7/2007	14:15	TW/MA	6	top	9.02	20.32	4541	15.72	
102	33.17581	-117.34808	4/7/2007	14:08	TW/MA	7	top	9.4	20.65	4481	22.43	
103	33.17626	-117.3481	4/7/2007	13:59	TW/MA	8	top	9.54	4416	4416	18.91	
104	33.17666	-117.34464	4/7/2007	13:38	TW/MA	8	top	9.44	19.95	3961	8.43	
105	33.1731	-117.34532	4/7/2007	13:45	TW/MA	8	top	8.93	19	3699	9.42	
106	33.17825	-117.34187	4/7/2007	13:29	TW/MA	30	top	8.62	19.92	3866	11.3	
106	33.17825	-117.34187	4/7/2007	13:29	TW/MA	30	middle	8.61	19.92	3867	11.37	
106	33.17825	-117.34187	4/7/2007	13:29	TW/MA	30	bottom	8.66	19.92	3868	11.37	
107	33.17895	-117.34149	4/7/2007	13:23	TW/MA	63	top	8.38	19.81	3807	4.76	
107	33.17895	-117.34149	4/7/2007	13:23	TW/MA	63	middle	8.31	19.79	3805	3.68	
107	33.17895	-117.34149	4/7/2007	13:23	TW/MA	63	bottom	8.4	19.67	3794	2.43	
108	33.1794	-117.34196	4/7/2007	13:02	TW/MA	36	top	8.26	19.84	3813	5.52	
108	33.1794	-117.34196	4/7/2007	13:02	TW/MA	36	middle	8.26	19.83	3815	5.38	
108	33.1794	-117.34196	4/7/2007	13:02	TW/MA	36	bottom	8.32	19.82	3814	5.41	
109	33.17921	-117.34088	4/7/2007	13:15	TW/MA	58	top	8.42	19.32	3807	3.96	
109	33.17921	-117.34088	4/7/2007	13:15	TW/MA	58	middle	8.34	19.8	3805	3.94	
109	33.17921	-117.34088	4/7/2007	13:15	TW/MA	58	bottom	8.39	19.78	3804	3.95	
101	33.17528	-117.34715	4/8/2007	8:25	DO/CH	4.8	top	8.17	16.88	4031	10.33	
102	33.1758	-117.34806	4/8/2001	8:15	DO/CH	6	top	8.19	17.49	4122	4.08	
103	33.17628	-117.34811	4/8/2007	8:07	DO/CH	6	top	8.23	17.11	4782	4.93	
104	33.17665	-117.34467	4/8/2007	8:42	DO/CH	7.2	top	8.44	18.02	3762	10.97	
105	33.17731	-117.34533	4/8/2007	7:45	DO/CH	7.2	top	8.32	17.49	3830	10.74	
106	33.17823	-117.34186	4/8/2007	7:30	DO/CH	27.6	top	8.19	18.74	3792	4.07	
106	33.17823	-117.34186	4/8/2007	7:30	DO/CH	27.6	middle	8.19	18.77	3792	4.07	
106	33.17823	-117.34186	4/8/2007	7:30	DO/CH	27.6	bottom	8.2	18.73	3792	4.22	
107	33.17897	-117.34154	4/8/2007	7:25	DO/CH	61.2	top	8.24	19.03	3793	3.95	
107	33.17897	-117.34154	4/8/2007	7:25	DO/CH	61.2	middle	8.22	19.04	3795	3.51	
107	33.17897	-117.34154	4/8/2007	7:25	DO/CH	61.2	bottom	8.35	19.05	3795	3.26	
108	33.17935	-117.342	4/8/2007	9:00	DO/CH	39.6	top	8.3	18.94	3783	4.61	
108	33.17935	-117.342	4/8/2007	9:00	DO/CH	39.6	middle	8.29	18.94	3785	4.2	
108	33.17935	-117.342	4/8/2007	9:00	DO/CH	39.6	bottom	8.27	18.89	3792	4.03	
109	33.17918	-117.34039	4/8/2007	7:10	DO/CH	32.4	top	8.23	19.1	3804	4.45	
109	33.17918	-117.34039	4/8/2007	7:10	DO/CH	32.4	middle	8.2	19.07	3802	3.93	
109	33.17918	-117.34039	4/8/2007	7:10	DO/CH	32.4	bottom	8.21	19.06	3801	3.45	
101	33.17525	-117.34714	4/8/2007	14:20	TW/SC	5	top	8.77	22.02	4817	13.55	
102	33.17574	-117.34807	4/8/2001	14:09	TW/SC	6	top	8.7	22.3	4526	6.79	
103	33.17628	-117.34811	4/8/2007	14:00	TW/SC	7	top	9.39	22.42	4592	16.43	
104	33.17644	-117.34462	4/8/2007	14:35	TW/SC	6	top	9.21	22.05	4350	16.41	
105	33.17733	-117.34531	4/8/2007	13:39	TW/SC	11	top	8.66	19.65	3950	16.69	
106	33.17821	-117.34182	4/8/2007	13:20	TW/SC	31.2	top	8.71	19.91	3982	15.08	

106	33.17821	-117.34182	4/8/2007	13:20	TW/SC	31.2	middle	8.72	19.79	3979	14.4		
106	33.17821	-117.34182	4/8/2007	13:20	TW/SC	31.2	bottom	8.71	19.74	3966	14.14		
107	33.17894	-117.34144	4/8/2007	13:10	TW/SC	66	top	8.33	19.47	3846	7.03		
107	33.17894	-117.34144	4/8/2007	13:10	TW/SC	66	middle	8.25	19.35	3839	6.07		
107	33.17894	-117.34144	4/8/2007	13:10	TW/SC	66	bottom	8.25	19.31	3837	5.76		
108	33.17939	-117.34193	4/8/2007	13:00	TW/SC	36	top	8.33	19.38	3849	6.84		
108	33.17939	-117.34193	4/8/2007	13:00	TW/SC	39.6	middle	8.39	19.34	3880	6.9		
108	33.17939	-117.34193	4/8/2007	13:00	TW/SC	39.6	bottom	8.45	19.32	3879	6.82		
109	33.17915	-117.34096	4/8/2007	12:50	TW/SC	56.4	top	8.31	19.4	3840	6.99		
109	33.17915	-117.34096	4/8/2007	12:50	TW/SC	56.4	middle	8.35	19.35	3838	6.46		
109	33.17915	-117.34096	4/8/2007	12:50	TW/SC	56.4	bottom	8.36	19.35	3841	6.47		
109	33.17918	-117.34084	4/9/2007	6:55	DM/DO	32.40	top	8.32	19.58	3953	4.49	YSI	600XL
109	33.17918	-117.34084	4/9/2007	6:55	DM/DO	32.40	middle	8.31	19.59	3953	4.46	YSI	600XL
109	33.17918	-117.34084	4/9/2007	6:55	DM/DO	32.40	bottom	8.34	19.60	3954	4.34	YSI	600XL
107	33.17849	-117.34153	4/9/2007	7:00	DM/DO	62.40	top	8.32	19.64	3952	4.21	YSI	600XL
107	33.17849	-117.34153	4/9/2007	7:00	DM/DO	62.40	middle	8.32	19.65	3954	4.17	YSI	600XL
107	33.17849	-117.34153	4/9/2007	7:00	DM/DO	62.40	bottom	8.46	19.67	3957	3.96	YSI	600XL
106	33.17821	-117.34180	4/9/2007	7:15	DM/DO	25.10	top	8.46	19.17	4006	8.62	YSI	600XL
106	33.17821	-117.34180	4/9/2007	7:15	DM/DO	25.10	middle	8.47	19.17	4007	8.56	YSI	600XL
106	33.17821	-117.34180	4/9/2007	7:15	DM/DO	25.10	bottom	8.59	19.17	4007	8.33	YSI	600XL
105	33.17731	-117.34534	4/9/2007	7:27	DM/DO	8.40	top	8.26	18.65	4012.00	8.80	YSI	600XL
103	33.17625	-117.34809	4/9/2007	7:57	DM/DO	4.80	top	8.30	17.79	4044.00	3.82	YSI	600XL
102	33.17579	-117.34808	4/9/2007	8:10	DM/DO	4.80	top	8.07	17.78	4481.00	6.79	YSI	600XL
101	33.17521	-177.34718	4/9/2007	8:22	DM/DO	1.20	top	8.47	17.76	4188.00	9.94	YSI	600XL
104	33.17664	-117.34460	4/9/2007	8:45	DM/DO	4.80	top	8.57	18.19	4225.00	9.74	YSI	600XL
108	33.17936	-117.34196	4/9/2007	9:00	DM/DO	2.30	top	8.51	19.61	3967.00	4.97	YSI	600XL
108	33.17936	-117.34196	4/9/2007	9:00	DM/DO	2.30	middle	8.50	19.58	3965.00	5.08	YSI	600XL
108	33.17936	-117.34196	4/9/2007	9:00	DM/DO	2.30	bottom	8.46	19.48	3992.00	4.64	YSI	600XL
101	33.17523	-117.34718	4/9/2007	14:39	EG/JS	3.00	top	8.98	26.13	4847.00	21.34	YSI	556
102	33.17575	-117.34805	4/9/2007	16:16	EG/JS	3.00	top	9.37	28.69	4142.00	25.00	YSI	556
103	33.17620	-117.34811	4/9/2007	16:24	EG/JS	5.00	top	9.32	27.84	4378.00	24.50	YSI	556
104	33.17665	-117.34460	4/9/2007	15:06	EG/JS	5.00	top	9.28	26.36	4237.00	26.00	YSI	556
105	33.17733	-117.34529	4/9/2007	15:17	EG/JS	9.00	top	9.16	23.25	3662.00	23.98	YSI	556
106	33.17823	-117.34182	4/9/2007	14:52	EG/JS	25.00	top	8.91	22.89	3958.00	19.42	YSI	556
106	33.17823	-117.34182	4/9/2007	14:52	EG/JS	25.00	middle	8.77	22.48	3930.00	16.83	YSI	556
106	33.17823	-117.34182	4/9/2007	14:52	EG/JS	25.00	bottom	8.71	22.36	3911.00	16.61	YSI	556
107	33.17896	-117.34148	4/9/2007	14:44	EG/JS	63.00	top	8.48	21.55	3775.00	12.56	YSI	556
107	33.17896	-117.34148	4/9/2007	14:44	EG/JS	63.00	middle	8.28	21.95	3776.00	8.37	YSI	556
107	33.17896	-117.34148	4/9/2007	14:44	EG/JS	63.00	bottom	8.41	21.34	3776.00	11.25	YSI	556
108	33.17934	-117.93400	4/9/2007	14:35	EG/JS	44.00	top	8.55	21.78	3792.00	13.81	YSI	556
108	33.17934	-117.93400	4/9/2007	14:35	EG/JS	44.00	middle	8.55	21.70	3800.00	13.95	YSI	556
108	33.17934	-117.93400	4/9/2007	14:35	EG/JS	44.00	bottom	8.41	21.35	3828.00	11.84	YSI	556
109	22.17919	-117.34087	4/9/2007	14:27	EG/JS	16.00	top	8.40	21.53	3770.00	11.43	YSI	556

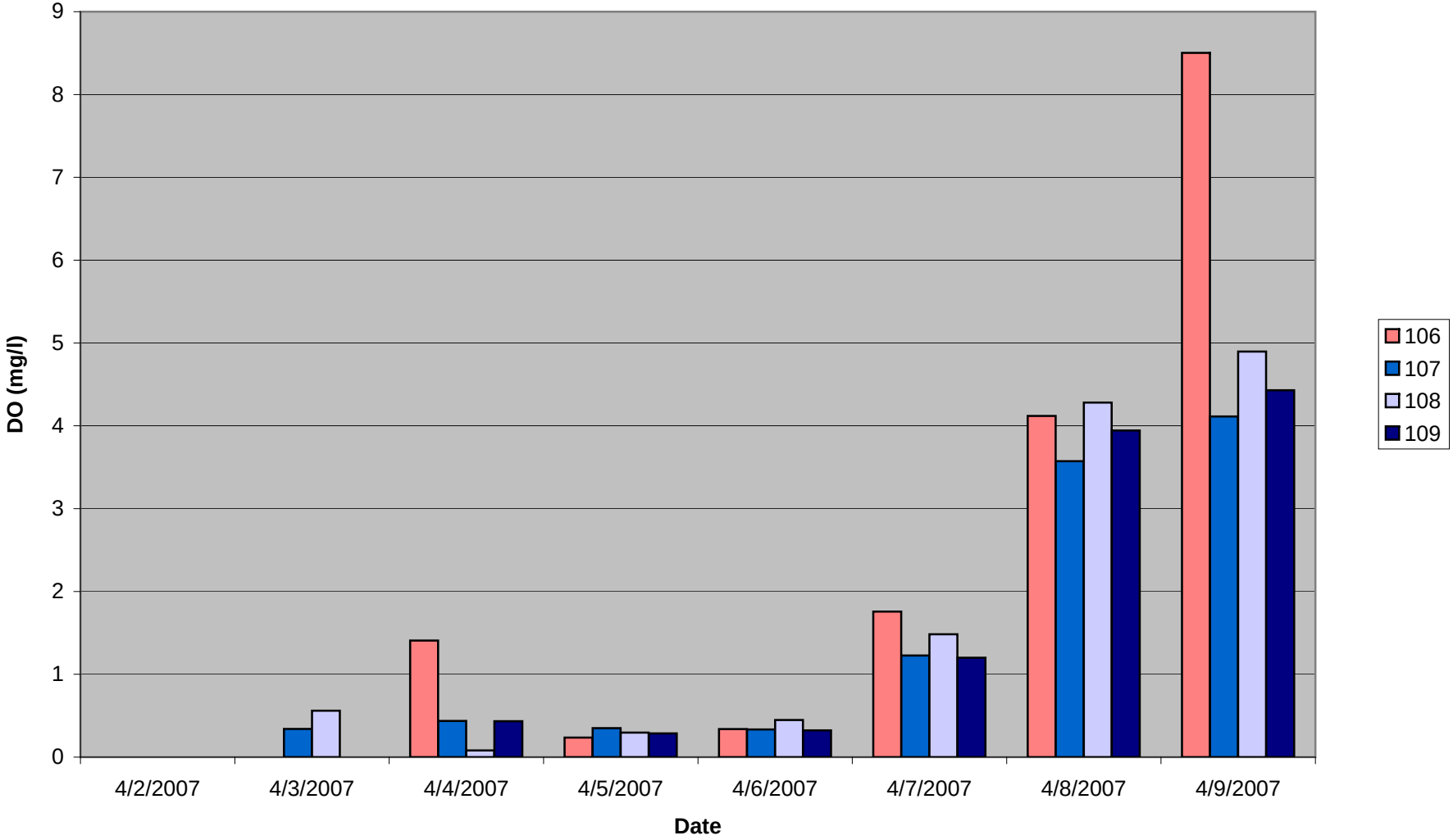
* Note: The San Diego Basin Plan objective for inland waters with MAR or WARM beneficial uses for dissolved oxygen is 5.0 mg/l. Dissolved oxygen values above 14 mg/l indicate calibration drfit and should be qualified as estimated. However, the values still indicate oxygen rich water in comparisson to the frequent readings less than 5.0 mg/l. The solubility of oxygen in water exposed to water-saturated air at standard ATM at 20 degrees C and % chlorinity < 5 mg/l is 8.621 mg/l (Standard Methods for the Examination of Water and Wastewater, Method 4500-0, 19th edition). Meter maintenance may be required more frequently for the oxygen membrane probes used for field measurements in waters with extreme dissolved oxygen fluctuations.

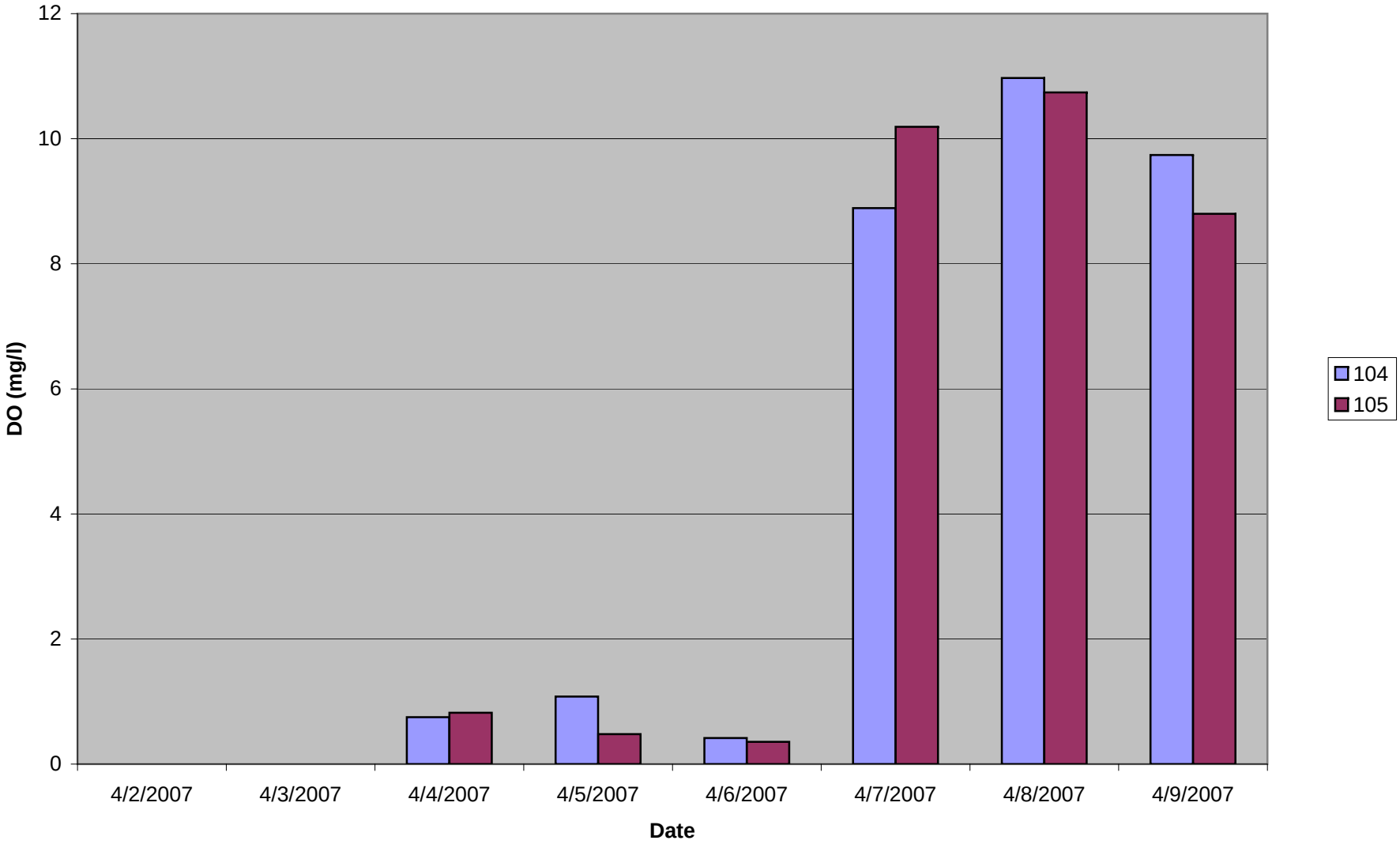
	4/2/2007	4/3/2007	4/4/2007	4/5/2007	4/6/2007	4/7/2007	4/8/2007	4/9/2007	4/10/2007
	AM	AM	AM	AM	AM	AM	AM	AM	AM
101			2.42	1.31	9:35	8.16	10.33	9.94	
102			5.43	0.80	9:25	7.09	4.08	6.79	
103			2.91	1.69	9:15	8.40	4.93	3.82	
104			0.75	1.08	10:00	8.89	10.97	9.74	
105			0.82	0.48	8:32	10.19	10.74	8.80	
106			1.41	0.24	8:08	1.76	4.12	8.50	
107		0.34	0.44	0.35	8:00	1.23	3.57	4.11	
108		0.56	0.08	0.30	10:45	1.48	4.28	4.90	
109			0.43	0.29	7:45	1.20	3.94	4.43	
10		0.73	0.85						

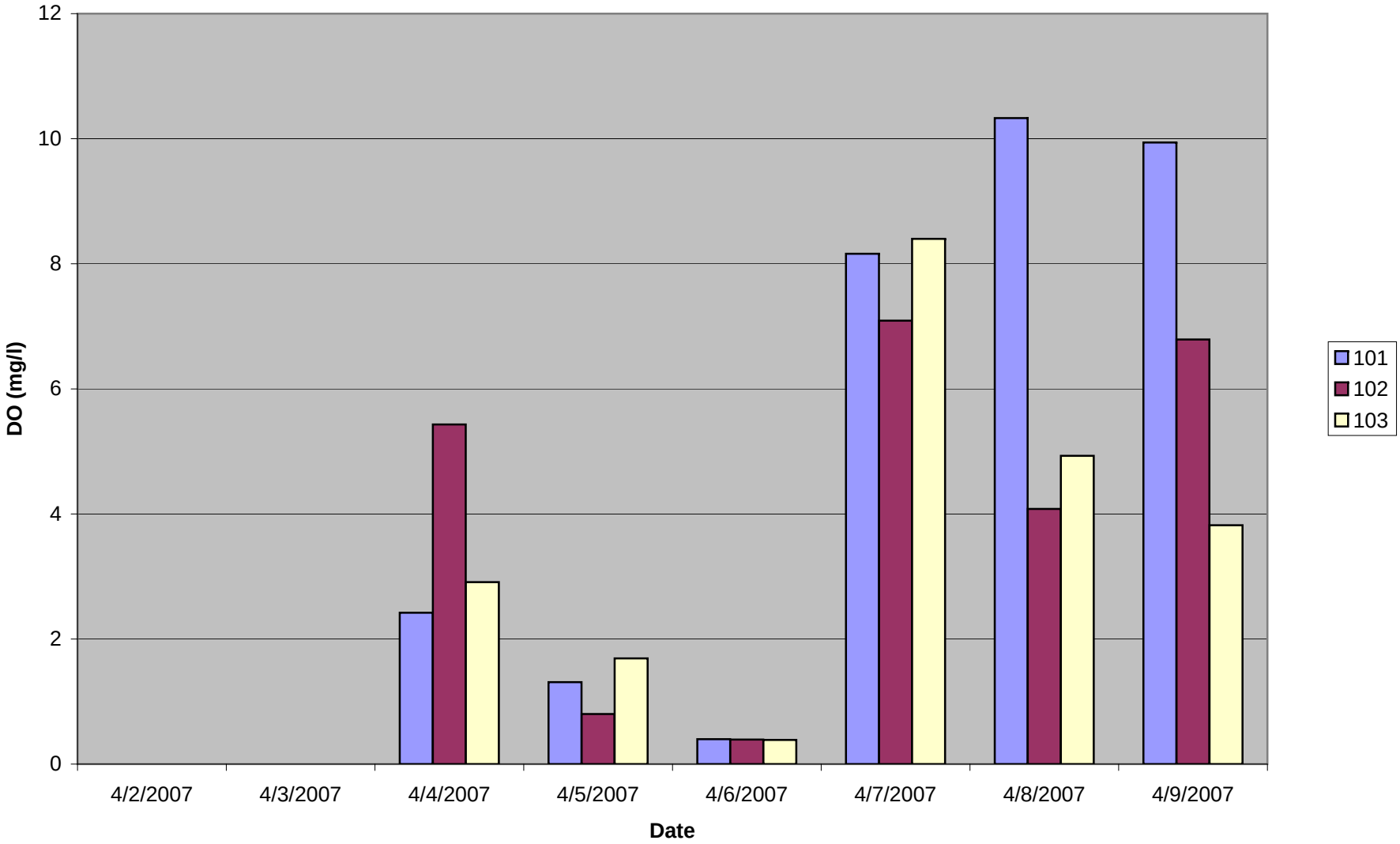
	4/2/2007	4/3/2007	4/4/2007	4/5/2007	4/6/2007	4/7/2007	4/8/2007	4/9/2007	4/10/2007
	PM	PM	PM	PM	PM	PM	PM	PM	PM
101		3.71	11.30	2.65	10.04	15.72	13.55	21.34	
102		7.84	15.78	3.79	10.67	22.43	6.79	25.00	
103		7.55	20.61	4.72	16.10	18.91	16.43	24.50	
104		1.22	7.61	0.07	11.47	8.43	16.41	26.00	
105		1.04	0.79	0.04	11.07	9.42	16.69	23.98	
106		0.31	0.37	0.09	5.12	11.35	14.54	17.62	
107			0.62	0.02	0.08	3.62	6.29	10.73	
108			0.37	0.04	0.40	5.44	6.85	13.20	
109		0.36	0.15	0.02	0.25	3.95	6.64	11.43	
10									

Sample locations where top, middle, and bottom depths were collected, values were averaged.

Lagoon Dissolved Oxygen Concentrations,
East Basin east end, a.m.




Lagoon Dissolved Oxygen Concentrations, East Basin mid section, a.m.
12
10
8
6
4
2
0
DO (mg/l)
4/2/2007
4/3/2007
4/4/2007
4/5/2007
4/6/2007
4/7/2007
4/8/2007
4/9/2007
Date
104
105


Lagoon Dissolved Oxygen Concentrations, East Basin west end, a.m.
12
10
8
6
4
2
0
DO (mg/l)
4/2/2007
4/3/2007
4/4/2007
4/5/2007
4/6/2007
4/7/2007
4/8/2007
4/9/2007
Date
101
102
103

Original site name	New site name	Latitude	Longitude	Date	Time	Field Team	Water Depth (in)	Sample Depth	pH	Temp (°C)	EC (µS/cm)	DO (mg/L)	WQ Meter Used	City DO (mg/l)	City Temp	Secondary Meter	Secondary meter Temp (°C)	Secondary meter EC (µS/cm)	Secondary meter DO (mg/L)	ondary meter
A	10A	33.16822	-117.35603	4/3/2007	15:48	NW/EG	54	top	8.01	22.48	3045	6.57								
A	10A	33.16822	-117.35603	4/3/2007	15:48	NW/EG	54	middle	8.05	21.87	3048	6.34								
A	10A	33.16822	-117.35603	4/3/2007	15:48	NW/EG	54	bottom	8	21.03	3059	5.48								
B	10B	33.16779	-117.35439	4/3/2007	16:15	NW/EG	28	top	8.46	22.83	3081	7.23								
B	10B	33.16779	-117.35439	4/3/2007	16:16	NW/EG	28	middle	8.47	22.74	3087	7.28								
B	10B	33.16779	-117.35439	4/3/2007	16:17	NW/EG	28	bottom	8.47	22.3	3092	7.26								
C	10C	33.1685	-117.35509	4/3/2007	16:00	NW/EG	36	top	8.39	22.7	3057	7.16								
C	10C	33.1685	-117.35509	4/3/2007	16:01	NW/EG	36	middle	8.4	22.73	3053	7.24								
C	10C	33.1685	-117.35509	4/3/2007	16:02	NW/EG	36	bottom	8.39	22.59	3052	7.29								
D	10D	33.16896	-117.35061	4/3/2007	16:30	NW/EG	33	top	8.55	23.1	3127	7.08								
D	10D	33.16896	-117.35061	4/3/2007	16:30	NW/EG	33	middle	8.56	23.13	3133	7.16								
D	10D	33.16896	-117.35061	4/3/2007	16:30	NW/EG	33	bottom	8.5	22.87	3122	6.77								
E	10E	33.1708	-117.35091	4/3/2007	16:45	NW/EG	38	top	8.54	23.17	3400	7.38								
E	10E	33.1708	-117.35091	4/3/2007	16:45	NW/EG	38	middle	8.55	23.17	3401	7.44								
E	10E	33.1708	-117.35091	4/3/2007	16:45	NW/EG	38	bottom	8.54	23.07	3475	7.33								
F	10F	33.17267	-117.35098	4/3/2007	16:55	NW/EG	31	top	8.54	22.84	3607	7.48								
F	10F	33.17267	-117.35098	4/3/2007	16:55	NW/EG	31	middle	8.55	22.85	3612	7.53								
F	10F	33.17267	-117.35098	4/3/2007	16:55	NW/EG	31	bottom	8.54	22.68	3669	7.57								
G	10G	33.17335	-117.35076	4/3/2007	17:10	NW/EG	31	top	8.49	22.35	3812	6.91								
G	10G	33.17335	-117.35076	4/3/2007	17:10	NW/EG	31	middle	8.48	22.37	3823	6.97								
G	10G	33.17335	-117.35076	4/3/2007	17:10	NW/EG	31	bottom	8.36	21.51	3906	6.3								
A	10A	33.16822	-117.35603	4/4/2007	12:15	NW/EG	52	top	8.21	20.97	3138	11.5								
A	10A	33.16822	-117.35603	4/4/2007	12:15	NW/EG	52	middle	8.19	20.98	3135	11.46								
A	10A	33.16822	-117.35603	4/4/2007	12:15	NW/EG	52	bottom	8.17	20.9	3088	10.89								
B	10B	33.16772	-117.35434	4/4/2007	11:20	NW/EG	36	top	8.12	20.97	14608	12.7								
B	10B	33.16772	-117.35434	4/4/2007	11:20	NW/EG	36	middle	8.13	20.94	3127	12.81								
B	10B	33.16772	-117.35434	4/4/2007	11:20	NW/EG	36	bottom	8.13	20.93	3128	12.88								
C	10C	33.16859	-117.35499	4/4/2007	12:10	NW/EG	32	top	8.3	21.06	3000	13.82								
C	10C	33.16859	-117.35499	4/4/2007	12:10	NW/EG	32	middle	8.2	21.03	3001	13.96								
C	10C	33.16859	-117.35499	4/4/2007	12:10	NW/EG	32	bottom	8.28	20.94	2999	14.44								
D	10D	33.16895	-117.35064	4/4/2007	11:28	NW/EG	33	top	8.2	21.43	14487	12.8								
D	10D	33.16895	-117.35064	4/4/2007	11:28	NW/EG	33	middle	8.2	21.43	14568	12.88								
D	10D	33.16895	-117.35064	4/4/2007	11:28	NW/EG	33	bottom	8.2	21.43	14602	12.93								
E	10E	33.17078	-117.35089	4/4/2007	11:45	NW/EG	37	top	8.38	21.54	3215	14.6								
E	10E	33.17078	-117.35089	4/4/2007	11:45	NW/EG	37	middle	8.38	21.53	3212	14.81								
E	10E	33.17078	-117.35089	4/4/2007	11:45	NW/EG	37	bottom	8.36	21.51	3210	14.86								
F	10F	33.17267	-117.35098	4/4/2007	11:50	NW/EG	32	top	8.24	21.63	3394	13.21								
F	10F	33.17267	-117.35098	4/4/2007	11:50	NW/EG	32	middle	8.23	21.63	3395	13.44								
F	10F	33.17267	-117.35098	4/4/2007	11:50	NW/EG	32	bottom	8.23	21.61	3399	13.49								
G	10G	33.17336	-117.35075	4/4/2007	11:55	NW/EG	30	top	8.16	20.38	3541	13.22								
G	10G	33.17336	-117.35075	4/4/2007	11:55	NW/EG	30	middle	8.14	21.28	3561	13.15								
G	10G	33.17336	-117.35075	4/4/2007	11:55	NW/EG	30	bottom	8.13	21.16	3584	13.12								
A	10A	33.16825	-117.356	4/4/2007	16:40	NW/EG	52	top	8.35	21.35	3199	12.39								
A	10A	33.16825	-117.356	4/4/2007	16:40	NW/EG	52	middle	8.35	21.35	3199	12.39								
A	10A	33.16825	-117.356	4/4/2007	16:40	NW/EG	52	bottom	8.35	21.35	3199	12.39								
B	10B	33.16776	-117.35441	4/4/2007	16:50	NW/EG	31	top	8.41	21.78	3077	14.83								
B	10B	33.16776	-117.35441	4/4/2007	16:50	NW/EG	31	middle	8.41	21.79	3078	14.9								
B	10B	33.16776	-117.35441	4/4/2007	16:50	NW/EG	31	bottom	8.41	21.78	3077	14.9								
D	10D	33.16899	-117.3507	4/4/2007	17:00	NW/EG	34	top	8.5	22.26	3063	15.01								
D	10D	33.16899	-117.3507	4/4/2007	17:00	NW/EG	34	middle	8.5	22.27	3062	15.09								
D	10D	33.16899	-117.3507	4/4/2007	17:00	NW/EG	34	bottom	8.5	22.26	3062	15.09								
E	10E	33.17085	-117.35095	4/4/2007	17:10	NW/EG	35	top	8.52	22.9	3100	15.52								
E	10E	33.17085	-117.35095	4/4/2007	17:10	NW/EG	35	middle	8.52	22.31	3106	15.58								
E	10E	33.17085	-117.35095	4/4/2007	17:10	NW/EG	35	bottom	8.52	22.3	3098	15.61								
F	10F	33.17272	-117.35095	4/4/2007	17:20	NW/EG	32	top	8.57	22.04	3430	17.88								
F	10F	33.17272	-117.35095	4/4/2007	17:20	NW/EG	32	middle	8.57	22.02	3434	17.96								
F	10F	33.17272	-117.35095	4/4/2007	17:20	NW/EG	32	bottom	8.56	22	3434	17.9								
G	10G	33.17334	-117.35075	4/4/2007	17:30	NW/EG	31	top	8.56	21.76	3535	18.14								
G	10G	33.17334	-117.35075	4/4/2007	17:30	NW/EG	31	middle	8.56	21.74	3536	18.24								
G	10G	33.17334	-117.35075	4/4/2007	17:30	NW/EG	31	bottom	8.55	21.72	3539	18.15								
A	10A	33.16825	-117.35603	4/5/2007	10:47	AG/NS	52.8	top	8.3	19.86	3113	5.4	YSI	6.1	19.9					
A	10A	33.16825	-117.35603	4/5/2007	10:47	AG/NS	52.8	middle	8.08	19.83	3132	5.79	YSI	5	19.9					
A	10A	33.16825	-117.35603	4/5/2007	10:47	AG/NS	52.8	bottom	8.16	19.2	3133	4.56	YSI	4.95	19.9					
B	10B	33.16776	-117.35444	4/5/2007	11:08	AG/NS	31.8	top	8.23	20.23	3034	8.45	YSI	20.4	7.1					
B	10B	33.16776	-117.35444	4/5/2007	11:08	AG/NS	31.8	middle	8.19	20.3	3029	9.51	YSI	20.4	7.34					
B	10B	33.16776	-117.35444	4/5/2007	11:08	AG/NS	31.8	bottom	8.19	20.13	3036	8.51	YSI	20.3	6.58					
D	10D	33.16896	-117.35061	4/5/2007	9:44	AG/NS	34.2	top	8.22	20.24	3092	3.19	YSI	5.56	20.3					
D	10D	33.16896	-117.35061	4/5/2007	9:44	AG/NS	34.2	middle	8.16	20.23	3092	4.29	YSI	5.78	20.3					
D	10D	33.16896	-117.35061	4/5/2007	9:44	AG/NS	34.2	bottom	8.2	20.23	3091	3.25	YSI	5.89	20.4					
E	10E	33.17086	-117.35096	4/5/2007	9:26	AG/NS	38.4	top	8.17	20.7	3235	4.98	YSI	7.42	20.8					
E	10E	33.17086	-117.35096	4/5/2007	9:26	AG/NS	38.4	middle	8.18	20.7	3232	5.23	YSI	7.2	20.8					
E	10E	33.17086	-117.35096	4/5/2007	9:26	AG/NS	38.4	bottom	8.19	20.7	3229	5.53	YSI	7.1	20.8					
F	10F-by GP	33.17271	-117.35104	4/5/2007	11:32	AG/NS	31.2	top	8.34	20.64	3393	12.66	YSI	20.7	8.58					
F	10F-by GP	33.17267	-117.35104	4/5/2007	11:32	AG/NS	31.2	middle	8.31	20.6	3401	14.1	YSI	20.7	8.46					
F	10F-by GP	33.17267	-117.35104	4/5/2007	11:32	AG/NS	31.2	bottom	8.31	20.5	3424	12.94	YSI	20.6	8.19					
F	10F-adjusti	33.17279	-117.35235	4/5/2007	10:07	AG/NS	31.2	top	8.29	20.02	3527	8.39	YSI	8.85	20.2					
F	10F-adjusti	33.17279	-117.35235	4/5/2007	10:07	AG/NS	31.2	middle	8.27	20.03	3528	10.08	YSI	9.27	20.1					
F	10F-adjusti	33.17279	-117.35235	4/5/2007	10:07	AG/NS	31.2	bottom	8.28	20.03	3527	9.77	YSI	9.07	20.1					
G	10G	33.17337	-117.35074	4/5/2007	8:43	AG/NS	28.8	top	7.94	19.83	3445	1.59	YSI	4.62	19.9					
G	10G	33.17337	-117.35074	4/5/2007	8:43	AG/NS	28.8	middle	7.91	19.84	3448	3.25	YSI	4.5	20					
G	10G	33.17337	-117.35074	4/5/2007	8:43	AG/NS	28.8	bottom	7.86	19.83	3448	2.48	YSI	4.64	20					
A	10A	33.16825	-117.35599	4/5/2007	13:55	NW/JS	47	top	7.69	20.86	3058	6.59	YSI	556						
A	10A	33.16825	-117.35599	4/5/2007	13:55	NW/JS	47	middle	7.92	20.83	3038	6.54	YSI	556						
A	10A	33.16825	-117.35599	4/5/2007	13:55	NW/JS	47	bottom	7.88	20.49	3009	6.19	YSI	556						
B	10B	33.16782	-117.35438	4/5/2007	14:05	NW/JS	29	top	8.27	21.5	2988	7.34	YSI	556						
B	10B	33.16782	-117.35438	4/5/2007	14:05	NW/JS	29	middle	8.25	21.24	2991	7.1	YSI	556						
B	10B	33.16782	-117.35438	4/5/2007	14:05	NW/JS	29	bottom	8.23	21.23	2988	7.25	YSI	556						
D	10D	33.16906	-117.35062	4/5/2007	14:15	NW/JS	29	top	8.4	21.87	3053	7.47	YSI	556						
D	10D	33.16906	-117.35062	4/5/2007	14:15	NW/JS	29	middle	8.4	21.87	3052	7.64	YSI	556						
D	10D	33.16906	-117.35062	4/5/2007	14:15	NW/JS	29	bottom	8.4	21.87	3053	7.62	YSI	556						
E	10E	33.17083	-117.35098	4/5/2007	14:25	NW/JS	43	top	8.37	21.94	3068	7.6	YSI	556						
E	10E	33.17083	-117.35098	4/5/2007	14:25	NW/JS	43	middle	8.35	21.91	3069	7.46	YSI	556						
E	10E	33.17083	-117.35098	4/5/2007	14:25	NW/JS	43	bottom	8.23	21.45	3102	7.08	YSI	556						
F	10F	33.17272	-117.35095	4/5/2007	14:40	NW/JS	34	top	8.43	21.63	3357	9.21	YSI	556						
F	10F	33.17272	-117.35095	4/5/2007	14:40	NW/JS	34	middle	8.44	21.63	3360	9.34	YSI	556						
F	10F	33.17272	-117.35095	4/5/2007	14:40	NW/JS	34	bottom	8.42	21.63	3351	9.27	YSI	556						
G	10G	33.17335	-117.35074	4/5/2007	14:45	NW/JS	29	top	8.34	20.51	3464	9.2	YSI	556						
G	10G	33.17335	-117.35074	4/5/2007	14:45	NW/JS	29	middle	8.16	21.35	3463	8.04	YSI	556						
G	10G	33.17335	-117.35074	4/5/2007	14:45	NW/JS	29	bottom	7.87	20.67	3462	6.16	YSI	556						
	10G	33.17332	-117.35076	4/6/2007	7:42	AG/NS	32.4	top	8.03	19.55	3359	6.19	YSI	556						
	10G	33.17332	-117.35076	4/6/2007	7:42	AG/NS	32.4	middle	8	19.56	3353	6.04	YSI	556						
	10G	33.17332	-117.35076	4/6/2007	7:42	AG/NS	32.4	bottom	7.94	19.6	3353	5.85	YSI	556						
	10F	33.17185	-117.3528	4/6/2007	8:08	AG/NS	31.2	top	8.1	19.46	3345	7.04	YSI	556						
	10F	33.17185	-117.3528	4/6/2007	8:08	AG/NS	31.2	middle	8.09	19.46	3346	6.72	YSI	556						
	10F	33.17185	-117.3528	4/6/2007	8:08	AG/NS	31.2	bottom	8.08	19.48	3344	6.89	YSI	556						
	10E	33.17057	-117.35168	4/6/2007	8:34	AG/NS	37.2	top	8.23	20.22	3142	6.99	YSI	556						
	10E	33.17057	-117.35168	4/6/2007	8:34	AG/NS	37.2	middle	8.2	20.28	3132	6.7	YSI	556						
	10E	33.17057	-117.35168	4/6/2007	8:34	AG/NS	37.2	bottom	8.2	20.27	3142	6.46	YSI	556						
	10D	33.16898	-117.35057	4/6/2007	8:52	AG/NS	36	top	8.15	19.92	3091	6.17	YSI	556						
	10D	33.16898	-117.35057	4/6/2007	8:52	AG/NS	36	middle	8.12	19.93	3094	5.5	YSI	556						
	10D	33.16898	-117.35057	4/6/2007	8:52	AG/NS	36	bottom	8.13	19.93	3094	5.79	YSI	556						
	10B	33.16782	-117.35436	4/6/2007	9:20	JS/NS	32	top	8	19.64	3023	4.46	YSI	556						
	10B	33.16782	-117.35436	4/6/2007	9:20	JS/NS	32	middle	7.99	19.64	3024	4.17	YSI	556						
	10B	33.16782	-117.35436	4/6/2007	9:20	JS/NS	32	bottom	7.99	19.64	3023	4.21	YSI	556						
	10A	33.16821	-117.35603	4/6/2007	9:30	JS/NS	46	top	7.9	19.72	3163	3.88	YSI	556						
	10A	33.16821	-117.35603	4/6/2007	9:30	JS/NS	46	middle	7.87	19.7	3157	3.26	YSI	556						
	10A	33.16821	-117.35603	4/6/2007	9:30	JS/NS	46	bottom	7.85	19.64	3157	3.26	YSI	556						
	10A	33.16824	-117.356	4/6/2007	13:45	NW/JS	49	top	7.99	20.31	3238	6.01	YSI	556						
	10A	33.16824	-117.356	4/6/2007	13:45	NW/JS	49	middle	7.94	20.09	3196	5.1	YSI	556						
	10A	33.16824	-117.356	4/6/2007	13:45	NW/JS	49	bottom	7.94	20.01	3177	4.3	YSI	556						
	10B	33.16776	-117.35442	4/6/2007	14:00	NW/JS	32	top	8.23	20.67	3036	6.31	YSI	556						
	10B	33.16776	-117.35442	4/6/2007	14:00	NW/JS	32	middle	8.25	20.57	3038	6.2	YSI	556						
	10B	33.16776	-117.35442	4/6/2007	14:00	NW/JS	32	bottom	8.25	20.37	3046	6.3	YSI	556						
	10D	33.16893	-117.35057	4/6/2007	14:15	NW/JS	36	top	8.33	21.07	3066	6.7	YSI	556						
	10D	33.16893	-117.35057	4/6/2007	14:15	NW/JS	36	middle	8.33	21	3067	6.69	YSI	556						
	10D	33.16893	-117.35057	4/6/2007	14:15	NW/JS	36	bottom	8.33	21.01	3067	6.71	YSI	556						

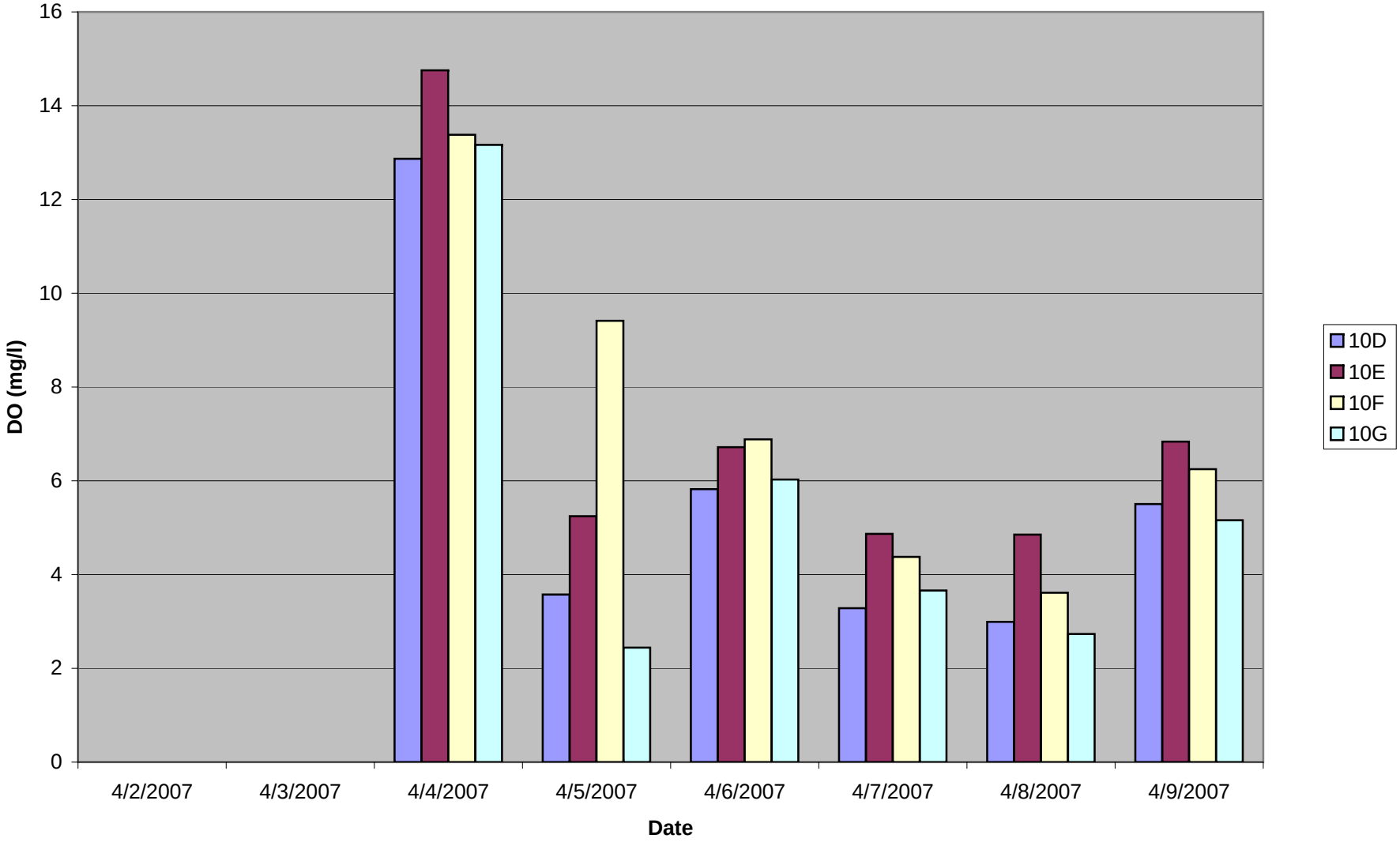
10E	33.17061	-117.3517	4/6/2007	14:30	NW/JS	35 top	8.35	21.17	3201	6.76	YSI 556									
10E	33.17061	-117.3517	4/6/2007	14:30	NW/JS	35 middle	8.33	21.14	3203	6.71	YSI 556									
10E	33.17061	-117.3517	4/6/2007	14:30	NW/JS	35 bottom	8.23	20.82	3217	6.26	YSI 556									
10F	33.17183	-117.35275	4/6/2007	14:40	NW/JS	32 top	8.33	20.75	3343	7.3	YSI 556									
10F	33.17183	-117.35275	4/6/2007	14:40	NW/JS	32 middle	8.33	20.75	3343	7.53	YSI 556									
10F	33.17183	-117.35275	4/6/2007	14:40	NW/JS	32 bottom	8.34	20.75	3344	7.54	YSI 556									
10G	33.17335	-117.35074	4/6/2007	14:50	NW/JS	29 top	8.19	20.73	3375	6.44	YSI 556									
10G	33.17335	-117.35074	4/6/2007	14:50	NW/JS	29 middle	8.15	20.74	3375	6.48	YSI 556									
10G	33.17335	-117.35074	4/6/2007	14:50	NW/JS	29 bottom	8.18	20.7	3373	6.45	YSI 556									
10A	33.1682	-117.35606	4/7/2007	7:40	LC/CH	47 top	7.89	19.34	3197	3.5										
10A	33.1682	-117.35606	4/7/2007	7:40	LC/CH	47 middle	7.89	19.3	3185	3.33										
10A	33.1682	-117.35606	4/7/2007	7:40	LC/CH	47 bottom	7.88	19.28	3177	3.19										
10B	33.16775	-117.35442	4/7/2007	7:51	LC/CH	31 top	8.12	19.58	3063	4.9										
10B	33.16775	-117.35442	4/7/2007	7:51	LC/CH	31 middle	8.15	19.6	3065	4.88										
10B	33.16775	-117.35442	4/7/2007	7:51	LC/CH	31 bottom	8.15	19.7	3007	4.79										
10D	33.16894	-117.3506	4/7/2007	8:05	LC/CH	33 top	7.97	19.52	3096	3.39										
10D	33.16894	-117.3506	4/7/2007	8:05	LC/CH	33 middle	8.04	19.53	3102	3.3										
10D	33.16894	-117.3506	4/7/2007	8:05	LC/CH	33 bottom	8	19.58	3083	3.16										
10E	33.17066	-117.35174	4/7/2007	8:27	LC/CH	38 top	8.15	19.5	3149	4.99										
10E	33.17066	-117.35174	4/7/2007	8:27	LC/CH	38 middle	8.17	19.52	3150	4.8										
10E	33.17066	-117.35174	4/7/2007	8:27	LC/CH	38 bottom	8.17	19.49	3144	4.82										
10F	33.17185	-117.35275	4/7/2007	8:17	LC/CH	28 top	8.01	19.07	3284	4.51										
10F	33.17185	-117.35275	4/7/2007	8:17	LC/CH	28 middle	8.02	19.08	3291	4.37										
10F	33.17185	-117.35275	4/7/2007	8:17	LC/CH	28 bottom	8.02	19.11	3293	4.25										
10G	33.17336	-117.35074	4/7/2007	8:45	LC/CH	28 top	7.96	18.84	3409	3.84										
10G	33.17336	-117.35074	4/7/2007	8:45	LC/CH	28 middle	7.97	18.84	3410	3.84										
10G	33.17336	-117.35074	4/7/2007	8:45	LC/CH	28 bottom	7.86	18.79	3409	3.3										
10A	33.16821	-117.35604	4/7/2007	13:06	NW/JS	46 top	7.89	19.51	3190	3.59	YSI 556									
10A	33.16821	-117.35604	4/7/2007	13:06	NW/JS	46 middle	7.87	19.31	3189	2.85	YSI 556									
10A	33.16821	-117.35604	4/7/2007	13:06	NW/JS	46 bottom	7.87	19.29	3192	2.88	YSI 556									
10B	33.16778	-117.35439	4/7/2007	13:15	NW/JS	30 top	8.21	20.03	3091	5.34	YSI 556									
10B	33.16778	-117.35439	4/7/2007	13:15	NW/JS	30 middle	8.22	19.86	3099	5.49	YSI 556									
10B	33.16778	-117.35439	4/7/2007	13:15	NW/JS	30 bottom	8.2	19.28	3099	5.49	YSI 556									
10D	33.16894	-117.35059	4/7/2007	13:25	NW/JS	35 top	8.22	20.04	3105	5.46	YSI 556									
10D	33.16894	-117.35059	4/7/2007	13:25	NW/JS	35 middle	8.21	20.04	3107	5.44	YSI 556									
10D	33.16894	-117.35059	4/7/2007	13:25	NW/JS	35 bottom	8.21	20.04	3106	5.45	YSI 556									
10E	33.17063	-117.35161	4/7/2007	13:35	NW/JS	36 top	8.29	20.67	3220	5.96	YSI 556									
10E	33.17063	-117.35161	4/7/2007	13:35	NW/JS	36 middle	8.29	60.06	3222	5.81	YSI 556									
10E	33.17063	-117.35161	4/7/2007	13:35	NW/JS	36 bottom	8.2	19.87	3229	5.42	YSI 556									
10F	33.17194	-117.35277	4/7/2007	13:40	NW/JS	30 top	8.2	19.68	3282	6.13	YSI 556									
10F	33.17194	-117.35277	4/7/2007	13:40	NW/JS	30 middle	8.2	19.69	3282	6.31	YSI 556									
10F	33.17194	-117.35277	4/7/2007	13:40	NW/JS	30 bottom	8.21	19.69	3283	6.25	YSI 556									
10G	33.17341	-117.35072	4/7/2007	13:50	NW/JS	33 top	8.11	19.59	3394	5.63	YSI 556									
10G	33.17341	-117.35072	4/7/2007	13:50	NW/JS	33 middle	8.08	19.55	3395	5.55	YSI 556									
10G	33.17341	-117.35072	4/7/2007	13:50	NW/JS	33 bottom	8.05	19.52	3393	5.61	YSI 556									
10A	33.16828	-117.35600	4/8/2007	6:30	NW/AM	56 top	7.88	18.91	3213	2.40	YSI 556									
10A	33.16828	-117.35600	4/8/2007	6:30	NW/AM	56 middle	7.89	18.93	3189	2.56	YSI 556	9:30	8.17	18.92	3340	3.25	YSI 650			
10A	33.16828	-117.35600	4/8/2007	6:30	NW/AM	56 bottom	7.88	18.89	3179	2.56	YSI 556	9:30	8.16	18.87	3330	3.13	YSI 650			
10B	33.16730	-117.35505	4/8/2007	6:55	NW/AM	28 top	8.11	19.08	3097	3.86	YSI 556	9:30	8.22	18.82	3338	2.97	YSI 650			
10B	33.16730	-117.35505	4/8/2007	6:55	NW/AM	28 middle	8.1	19.11	3097	3.92	YSI 556	9:38	8.36	19.2	3256	5.45	YSI 650			
10B	33.16730	-117.35505	4/8/2007	6:55	NW/AM	28 bottom	8.1	19.1	3097	3.93	YSI 556	9:38	8.35	19.19	3255	5.41	YSI 650			
10D	33.16898	-117.35059	4/8/2007	7:05	NW/AM	30 top	8.03	18.96	3110	2.95	YSI 556	9:38	8.36	19.19	3255	5.53	YSI 650			
10D	33.16898	-117.35059	4/8/2007	7:05	NW/AM	30 middle	8.02	18.96	3111	3.02	YSI 556	9:45	8.27	19.05	3271	4.71	YSI 650			
10D	33.16898	-117.35059	4/8/2007	7:05	NW/AM	30 bottom	8.03	18.97	3112	3.00	YSI 556	9:45	8.26	19.05	3272	4.18	YSI 650			
10E	33.17062	-117.35166	4/8/2007	7:15	NW/AM	37 top	8.19	19.07	3205	4.87	YSI 556	9:45	8.26	19.05	3273	4.18	YSI 650			
10E	33.17062	-117.35166	4/8/2007	7:15	NW/AM	37 middle	8.19	19.09	3210	4.81	YSI 556	9:55	8.34	19.07	3351	5.91	YSI 650			
10E	33.17062	-117.35166	4/8/2007	7:15	NW/AM	37 bottom	8.17	19.1	3210	4.87	YSI 556	9:55	8.34	19.07	3351	5.90	YSI 650			
10F	33.17188	-177.35278	4/8/2007	7:25	NW/AM	29 top	7.97	18.45	3277	3.48	YSI 556	9:55	8.36	19.07	3352	5.90	YSI 650			
10F	33.17188	-177.35278	4/8/2007	7:25	NW/AM	29 middle	7.97	18.47	3282	3.74	YSI 556	10:02	8.19	18.73	3381	5.05	YSI 650			
10F	33.17188	-177.35278	4/8/2007	7:25	NW/AM	29 bottom	7.96	18.47	3281	3.61	YSI 556	10:02	8.18	18.73	3385	5.09	YSI 650			
10G	33.17335	-117.35072	4/8/2007	7:35	NW/AM	30 top	7.95	18.54	3326	2.83	YSI 556	10:02	8.18	18.73	3386	5.13	YSI 650			
10G	33.17335	-117.35072	4/8/2007	7:35	NW/AM	30 middle	7.87	18.48	3333	2.74	YSI 556	10:10	8.20	18.56	3438	4.06	YSI 650			
10G	33.17335	-117.35072	4/8/2007	7:35	NW/AM	30 bottom	7.92	18.53	3327	2.63	YSI 556	10:10	8.17	18.56	3437	4.08	YSI 650			
10A	33.11682	-117.35602	4/8/2007	14:20	JS/CH	44 top	8.13	20.54	3104	6.25		10:10	8.19	18.56	3439	4.08	YSI 650			
10A	33.11682	-117.35602	4/8/2007	14:20	JS/CH	44 middle	7.95	19.61	3182	4.01										
10A	33.11682	-117.35602	4/8/2007	14:20	JS/CH	44 bottom	7.94	19.15	3183	2.59										
10B	33.16785	-117.35433	4/8/2007	14:08	JS/CH	30 top	8.34	20.2	3103	7.78										
10B	33.16785	-117.35433	4/8/2007	14:08	JS/CH	30 middle	8.33	20.01	3104	7.33										
10B	33.16785	-117.35433	4/8/2007	14:08	JS/CH	30 bottom	8.32	19.89	3100	7.25										
10D	33.16896	-117.35058	4/8/2007	13:10	JS/CH	32 top	8.33	19.93	3153	7.42										
10D	33.16896	-117.35058	4/8/2007	13:10	JS/CH	32 middle	8.34	19.85	3156	7.44										
10D	33.16896	-117.35058	4/8/2007	13:10	JS/CH	32 bottom	8.32	19.74	3157	7.33										
10E	33.17068	-117.35167	4/8/2007	13:22	JS/CH	37 top	8.33	19.79	3165	8.04										
10E	33.17068	-117.35167	4/8/2007	13:22	JS/CH	37 middle	8.32	19.76	3162	7.52										
10E	33.17068	-117.35167	4/8/2007	13:22	JS/CH	37 bottom	8.30	19.68	3165	7.56										
10F	33.17189	-117.35270	4/8/2007	13:36	JS/CH	32 top	8.29	19.74	3219	8.85										
10F	33.17189	-117.35270	4/8/2007	13:36	JS/CH	32 middle	8.31	19.74	3223	8.25										
10F	33.17189	-117.35270	4/8/2007	13:36	JS/CH	32 bottom	8.32	19.74	3223	8.97										
10G	33.17336	-117.35073	4/8/2007	13:40	JS/CH	25 top	8.15	19.83	3350	7.13										
10G	33.17336	-117.35073	4/8/2007	13:40	JS/CH	25 middle	8.11	19.76	3355	6.93										
10G	33.17336	-117.35073	4/8/2007	13:40	JS/CH	25 bottom	8.11	19.78	3355	6.87										
10A	33.16820	-117.35600	4/9/2007	6:30	LC/MA	52 top	7.94	19.54	3218	3.96	YSI 556									
10A	33.16820	-117.35600	4/9/2007	6:30	LC/MA	52 middle	7.94	19.55	3212	3.99	YSI 556									
10A	33.16820	-117.35600	4/9/2007	6:30	LC/MA	52 bottom	7.94	19.52	3195	3.85	YSI 556									
10B	33.16779	-117.35435	4/9/2007	6:40	LC/MA	30 top	8.08	19.34	3102	5.20	YSI 556									
10B	33.16779	-117.35435	4/9/2007	6:40	LC/MA	30 middle	8.08	19.33	3104	5.15	YSI 556									
10B	33.16779	-117.35435	4/9/2007	6:40	LC/MA	30 bottom	8.07	19.33	3103	5.11	YSI 556									
10D	33.16892	-117.35061	4/9/2007	6:49	LC/MA	36 top	8.18	19.54	3152	5.54	YSI 556									
10D	33.16892	-117.35061	4/9/2007	6:49	LC/MA	36 middle	8.18	19.54	3152	5.56	YSI 556									
10D	33.16892	-117.35061	4/9/2007	6:49	LC/MA	36 bottom	8.17	19.55	3152	5.42	YSI 556									
10E	33.17059	-117.35169	4/9/2007	6:56	LC/MA	39 top	8.25	19.57	3157	6.90	YSI 556									
10E	33.17059	-117.35169	4/9/2007	6:56	LC/MA	39 middle	8.25	19.59	3158	6.97	YSI 556									
10E	33.17059	-117.35169	4/9/2007	6:56	LC/MA	39 bottom	8.25	19.59	3158	6.64	YSI 556									
10F	33.17190	-117.35277	4/9/2007	7:03	LC/MA	31 top	8.10	19.36	3284	6.56	YSI 556									
10F	33.17190	-117.35277	4/9/2007	7:03	LC/MA	31 middle	8.11	19.36	3288	6.48	YSI 556									
10F	33.17190	-117.35277	4/9/2007	7:03	LC/MA	31 bottom	8.09	19.29	3264	5.70	YSI 556									
10G	33.17331	-117.35075	4/9/2007	7:11	LC/MA	30 top	8.06	19.26	3263	5.24	YSI 556									
10G	33.17331	-117.35075	4/9/2007	7:11	LC/MA	30 middle	8.05	19.26	3263	5.19	YSI 556									
10G	33.17331	-117.35075	4/9/2007	7:11	LC/MA	30 bottom	8.03	19.26	3251	5.04	YSI 556									
10A	33.16821	-117.35608	4/9/2007	12:59	NW/JS	48 top	8.14	21.10	3317	7.78	YSI 556									
10A	33.16821	-117.35608	4/9/2007	12:59	NW/JS	48 middle	8.07	20.81	3288	6.83	YSI 556									
10A	33.16821	-117.35608	4/9/2007	12:59	NW/JS	48 bottom	8.04	20.67	3270	6.41	YSI 556									
10B	33.16779	-117.35435	4/9/2007	13:08	NW/JS	31 top	8.25	21.02	3113	8.70	YSI 556									
10B	33.16779	-117.35435	4/9/2007	13:08	NW/JS	31 middle	8.28	20.98	3115	8.71	YSI 556									
10B	33.16779	-117.35435	4/9/2007	13:08	NW/JS	31 bottom	8.30	20.88	3115	8.77	YSI 556									
10D	33.16877	-117.35032	4/9/2007	13:15	NW/JS	33 top	8.38	21.62	3146	9.28	YSI 556									
10D	33.16877	-117.35032	4/9/2007	13:15	NW/JS	33 middle	8.38	21.63	3147	9.12	YSI 556									
10D	33.16877	-117.35032	4/9/2007	13:15	NW/JS	33 bottom	8.38	21.59	3144	9.32	YSI 556									
10E	33.17064	-117.35165	4/9/2007	13:25	NW/JS	37 top	8.51	21.62	3209	10.36	YSI 556									
10E	33.17064	-117.35165	4/9/2007	13:25	NW/JS	37 middle	8.51	21.56	3211	10.25	YSI 556									
10E	33.17064	-117.35165	4/9/2007	13:25	NW/JS	37 bottom	8.50	21.52	3211	10.28	YSI 556									
10F	33.17196	-117.35277	4/9/2007	13:35	NW/JS	32 top	8.28	21.98	3282	10.47	YSI 556									
10F	33.17196	-117.35277	4/9/2007	13:35	NW/JS	32 middle	8.27	21.93	3284	10.45	YSI 556									
10F	33.17196	-117.35277	4/9/2007	13:35	NW/JS	32 bottom	8.27	21.80	3281	10.66	YSI 556									
10G	33.17336	-117.35062	4/9/2007	13:45	NW/JS	26 top	8.22	21.55	3249	8.34	YSI 556									
10G	33.17336	-117.35062	4/9/2007	13:45	NW/JS	26 middle	8.21	21.55	3248	8.09	YSI 556									
10G	33.17336	-117.35062	4/9/2007	13:45	NW/JS	26 bottom	8.21	21.53	3248	8.17	YSI 556									

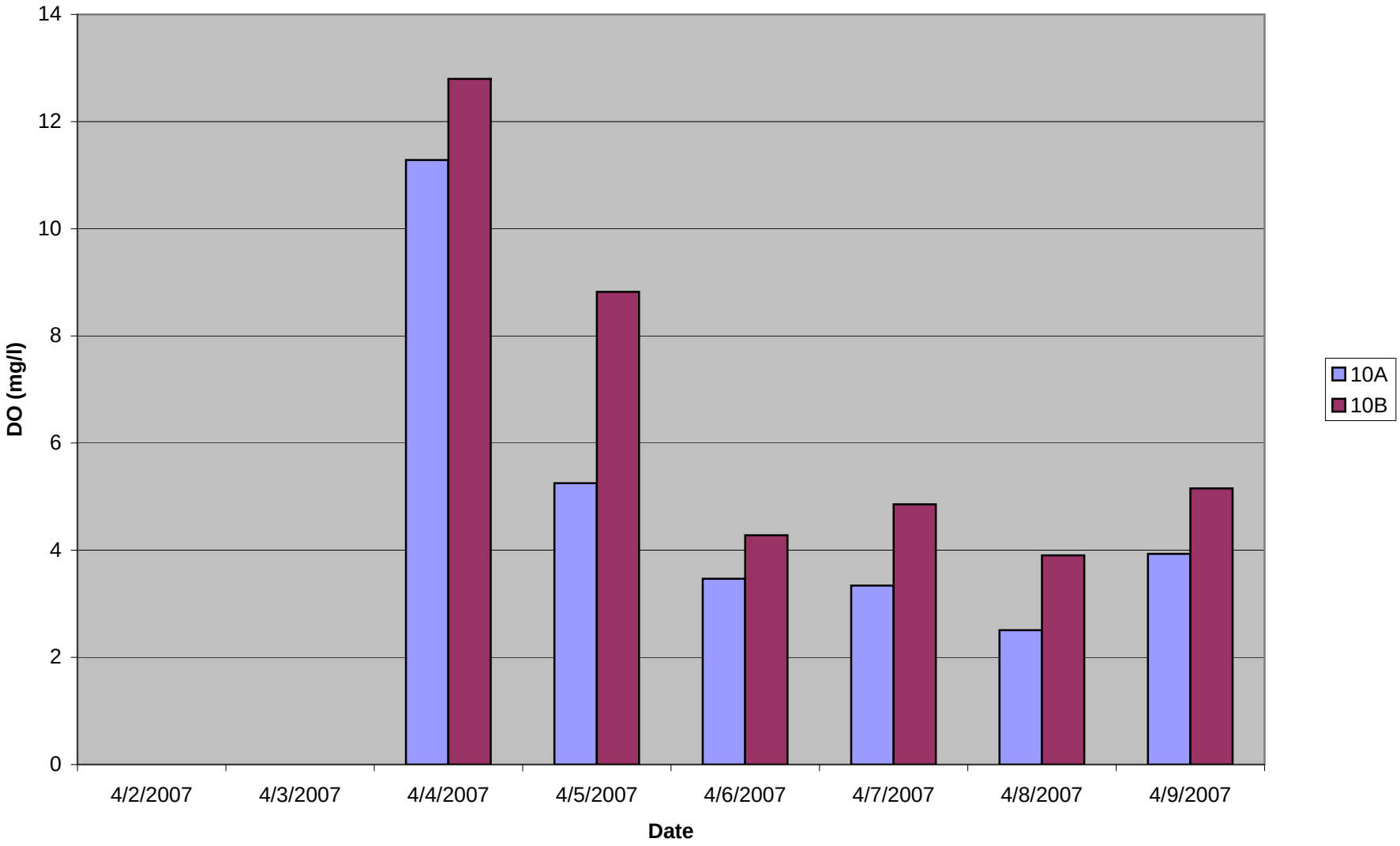
	4/2/2007	4/3/2007	4/4/2007	4/5/2007	4/6/2007	4/7/2007	4/8/2007	4/9/2007	4/10/2007
	AM	AM	AM	AM	AM	AM	AM	AM	AM
10A			11.28	5.25	3.47	3.34	2.51	3.93	
10B			12.80	8.82	4.28	4.86	3.90	5.15	
10C			14.07						
10D			12.87	3.58	5.82	3.28	2.99	5.51	
10E			14.76	5.25	6.72	4.87	4.85	6.84	
10F			13.38	9.41	6.88	4.38	3.61	6.25	
10G			13.16	2.44	6.03	3.66	2.73	5.16	

	4/2/2007	4/3/2007	4/4/2007	4/5/2007	4/6/2007	4/7/2007	4/8/2007	4/9/2007	4/10/2007
	PM	PM	PM	PM	PM	PM	PM	PM	PM
10A		6.13	12.39	6.44	5.14	3.11	4.28	7.01	
10B		7.26	14.88	7.23	6.27	5.44	7.45	8.73	
10C		7.23							
10D		7.00	15.06	7.58	6.70	5.45	7.40	9.24	
10E		7.38	15.57	7.38	6.58	5.73	7.71	10.30	
10F		7.53	17.91	9.27	7.46	6.23	8.69	10.53	
10G		6.73	18.18	7.80	6.46	5.60	6.98	8.20	

Sample locations where top, middle, and bottom depths were collected, values were averaged.

Lagoon Dissolved Oxygen Concentrations, Central Basin east end




Lagoon Dissolved Oxygen Concentrations, Central Basin west end
DO (mg/l)
14
12
10
8
6
4
2
0
4/2/2007
4/3/2007
4/4/2007
4/5/2007
4/6/2007
4/7/2007
4/8/2007
4/9/2007
Date
10A
10B

Station ID	Station_Type	Date	Time	Analyte	Method	Qualifier	Result	Unit
BV01	Shoreline	4/2/2007	8:37	Total Coliform	9222B	None	3,800	cfu/100 ml
BV01	Shoreline	4/2/2007	8:37	Fecal Coliform	9222D	None	1,200	cfu/100 ml
BV01	Shoreline	4/2/2007	8:37	Enterococcus	9230C	<	200	cfu/100 ml
BV02	Shoreline	4/2/2007	8:46	Total Coliform	9222B	None	1,820,000	cfu/100 ml
BV02	Shoreline	4/2/2007	8:46	Fecal Coliform	9222D	None	2,350,000	cfu/100 ml
BV02	Shoreline	4/2/2007	8:46	Enterococcus	9230C	None	482,000	cfu/100 ml
BV03	Shoreline	4/2/2007	9:03	Total Coliform	9222B	None	2,460,000	cfu/100 ml
BV03	Shoreline	4/2/2007	9:03	Fecal Coliform	9222D	None	2,300,000	cfu/100 ml
BV03	Shoreline	4/2/2007	9:03	Enterococcus	9230C	None	438,500	cfu/100 ml
BV04	Shoreline	4/2/2007	8:56	Total Coliform	9222B	None	2,120,000	cfu/100 ml
BV04	Shoreline	4/2/2007	8:56	Fecal Coliform	9222D	None	2,280,000	cfu/100 ml
BV04	Shoreline	4/2/2007	8:56	Enterococcus	9230C	None	421,500	cfu/100 ml
BV05	Shoreline	4/2/2007	10:02	Total Coliform	9222B	None	3,000	cfu/100 ml
BV05	Shoreline	4/2/2007	10:02	Fecal Coliform	9222D	<	100	cfu/100 ml
BV05	Shoreline	4/2/2007	10:02	Enterococcus	9230C	<	100	cfu/100 ml
BV06	Shoreline	4/2/2007	10:15	Total Coliform	9222B	None	6,950	cfu/100 ml
BV06	Shoreline	4/2/2007	10:15	Fecal Coliform	9222D	<	100	cfu/100 ml
BV06	Shoreline	4/2/2007	10:15	Enterococcus	9230C	<	100	cfu/100 ml
BV01	Shoreline	4/3/2007	8:42	Total Coliform	9222B	None	8,300	cfu/100 ml
BV01	Shoreline	4/3/2007	8:42	Fecal Coliform	9222D	None	2,300	cfu/100 ml
BV01	Shoreline	4/3/2007	8:42	Enterococcus	9230C	None	300	cfu/100 ml
BV02	Shoreline	4/3/2007	8:55	Total Coliform	9222B	None	970,000	cfu/100 ml
BV02	Shoreline	4/3/2007	8:55	Fecal Coliform	9222D	None	670,000	cfu/100 ml
BV02	Shoreline	4/3/2007	8:55	Enterococcus	9230C	None	116,000	cfu/100 ml
BV03	Shoreline	4/3/2007	9:18	Total Coliform	9222B	None	1,900,000	cfu/100 ml
BV03	Shoreline	4/3/2007	9:18	Fecal Coliform	9222D	None	980,000	cfu/100 ml
BV03	Shoreline	4/3/2007	9:18	Enterococcus	9230C	None	112,000	cfu/100 ml
BV04	Shoreline	4/3/2007	9:06	Total Coliform	9222B	None	2,080,000	cfu/100 ml
BV04	Shoreline	4/3/2007	9:06	Fecal Coliform	9222D	None	1,820,000	cfu/100 ml
BV04	Shoreline	4/3/2007	9:06	Enterococcus	9230C	None	118,000	cfu/100 ml
BV05	Shoreline	4/3/2007	9:34	Total Coliform	9222B	None	900	cfu/100 ml
BV05	Shoreline	4/3/2007	9:34	Fecal Coliform	9222D	None	200	cfu/100 ml
BV05	Shoreline	4/3/2007	9:34	Enterococcus	9230C	<	100	cfu/100 ml
BV06	Shoreline	4/3/2007	9:45	Total Coliform	9222B	None	3,800	cfu/100 ml
BV06	Shoreline	4/3/2007	9:45	Fecal Coliform	9222D	None	800	cfu/100 ml
BV06	Shoreline	4/3/2007	9:45	Enterococcus	9230C	None	100	cfu/100 ml
BV07	Shoreline	4/3/2007	16:38	Total Coliform	9222B	None	199,500	cfu/100 ml
BV07	Shoreline	4/3/2007	16:38	Fecal Coliform	9222D	None	95,500	cfu/100 ml
BV07	Shoreline	4/3/2007	16:38	Enterococcus	9230C	<	1,000	cfu/100 ml
BV08	Shoreline	4/3/2007	16:45	Total Coliform	9222B	None	112,500	cfu/100 ml
BV08	Shoreline	4/3/2007	16:45	Fecal Coliform	9222D	None	36,500	cfu/100 ml
BV08	Shoreline	4/3/2007	16:45	Enterococcus	9230C	<	1,000	cfu/100 ml
BV01	Shoreline	4/4/2007	8:41	Total Coliform	9222B	None	5,700	cfu/100 ml
BV01	Shoreline	4/4/2007	8:41	Fecal Coliform	9222D	None	2,700	cfu/100 ml
BV01	Shoreline	4/4/2007	8:41	Enterococcus	9230C	None	300	cfu/100 ml
BV02	Shoreline	4/4/2007	8:37	Total Coliform	9222B	None	1,010,000	cfu/100 ml
BV02	Shoreline	4/4/2007	8:37	Fecal Coliform	9222D	None	890,000	cfu/100 ml
BV02	Shoreline	4/4/2007	8:37	Enterococcus	9230C	None	110,000	cfu/100 ml
BV03	Shoreline	4/4/2007	8:54	Total Coliform	9222B	None	1,250,000	cfu/100 ml
BV03	Shoreline	4/4/2007	8:54	Fecal Coliform	9222D	None	900,000	cfu/100 ml

BV03	Shoreline	4/4/2007	8:54	Enterococcus	9230C	None	118,000	cfu/100 ml
BV04	Shoreline	4/4/2007	8:40	Total Coliform	9222B	None	1,140,000	cfu/100 ml
BV04	Shoreline	4/4/2007	8:40	Fecal Coliform	9222D	None	840,000	cfu/100 ml
BV04	Shoreline	4/4/2007	8:40	Enterococcus	9230C	None	126,000	cfu/100 ml
BV05	Shoreline	4/4/2007	9:01	Total Coliform	9222B	None	1,300	cfu/100 ml
BV05	Shoreline	4/4/2007	9:01	Fecal Coliform	9222D	<	100	cfu/100 ml
BV05	Shoreline	4/4/2007	9:01	Enterococcus	9230C	<	100	cfu/100 ml
BV06	Shoreline	4/4/2007	10:15	Total Coliform	9222B	None	700	cfu/100 ml
BV06	Shoreline	4/4/2007	10:15	Fecal Coliform	9222D	None	100	cfu/100 ml
BV06	Shoreline	4/4/2007	10:15	Enterococcus	9230C	None	100	cfu/100 ml
BV07	Shoreline	4/4/2007	9:38	Total Coliform	9222B	None	20,000	cfu/100 ml
BV07	Shoreline	4/4/2007	9:38	Fecal Coliform	9222D	<	10,000	cfu/100 ml
BV07	Shoreline	4/4/2007	9:38	Enterococcus	9230C	<	2,000	cfu/100 ml
BV08	Shoreline	4/4/2007	9:40	Total Coliform	9222B	None	40,000	cfu/100 ml
BV08	Shoreline	4/4/2007	9:40	Fecal Coliform	9222D	<	10,000	cfu/100 ml
BV08	Shoreline	4/4/2007	9:40	Enterococcus	9230C	<	2,000	cfu/100 ml
BV01	Shoreline	4/5/2007	8:12	Total Coliform	9222B	None	3,300	cfu/100 ml
BV01	Shoreline	4/5/2007	8:12	Fecal Coliform	9222D	None	1,000	cfu/100 ml
BV01	Shoreline	4/5/2007	8:12	Enterococcus	9230C	None	100	cfu/100 ml
BV02	Shoreline	4/5/2007	8:30	Total Coliform	9222B	None	4,170,000	cfu/100 ml
BV02	Shoreline	4/5/2007	8:30	Fecal Coliform	9222D	None	1,380,000	cfu/100 ml
BV02	Shoreline	4/5/2007	8:30	Enterococcus	9230C	None	116,000	cfu/100 ml
BV03	Shoreline	4/5/2007	8:34	Total Coliform	9222B	None	3,280,000	cfu/100 ml
BV03	Shoreline	4/5/2007	8:34	Fecal Coliform	9222D	None	1,030,000	cfu/100 ml
BV03	Shoreline	4/5/2007	8:34	Enterococcus	9230C	None	122,000	cfu/100 ml
BV04	Shoreline	4/5/2007	8:20	Total Coliform	9222B	None	1,970,000	cfu/100 ml
BV04	Shoreline	4/5/2007	8:20	Fecal Coliform	9222D	None	370,000	cfu/100 ml
BV04	Shoreline	4/5/2007	8:20	Enterococcus	9230C	None	118,000	cfu/100 ml
BV05	Shoreline	4/5/2007	8:41	Total Coliform	9222B	None	500	cfu/100 ml
BV05	Shoreline	4/5/2007	8:41	Fecal Coliform	9222D	None	200	cfu/100 ml
BV05	Shoreline	4/5/2007	8:41	Enterococcus	9230C	<	100	cfu/100 ml
BV06	Shoreline	4/5/2007	9:14	Total Coliform	9222B	None	1,600	cfu/100 ml
BV06	Shoreline	4/5/2007	9:14	Fecal Coliform	9222D	None	200	cfu/100 ml
BV06	Shoreline	4/5/2007	9:14	Enterococcus	9230C	None	400	cfu/100 ml
BV07	Shoreline	4/5/2007	8:52	Total Coliform	9222B	None	31,400	cfu/100 ml
BV07	Shoreline	4/5/2007	8:52	Fecal Coliform	9222D	None	11,200	cfu/100 ml
BV07	Shoreline	4/5/2007	8:52	Enterococcus	9230C	<	200	cfu/100 ml
BV08	Shoreline	4/5/2007	8:52	Total Coliform	9222B	None	32,400	cfu/100 ml
BV08	Shoreline	4/5/2007	8:52	Fecal Coliform	9222D	None	5,800	cfu/100 ml
BV08	Shoreline	4/5/2007	8:52	Enterococcus	9230C	<	200	cfu/100 ml
BV01	Shoreline	4/6/2007	9:19	Total Coliform	9222B	None	1,900	cfu/100 ml
BV01	Shoreline	4/6/2007	9:19	Fecal Coliform	9222D	None	300	cfu/100 ml
BV01	Shoreline	4/6/2007	9:19	Enterococcus	9230C	None	200	cfu/100 ml
BV02	Shoreline	4/6/2007	9:28	Total Coliform	9222B	None	1,520,000	cfu/100 ml
BV02	Shoreline	4/6/2007	9:28	Fecal Coliform	9222D	None	460,000	cfu/100 ml
BV02	Shoreline	4/6/2007	9:28	Enterococcus	9230C	None	22,000	cfu/100 ml
BV03	Shoreline	4/6/2007	9:43	Total Coliform	9222B	None	820,000	cfu/100 ml
BV03	Shoreline	4/6/2007	9:43	Fecal Coliform	9222D	None	360,000	cfu/100 ml
BV03	Shoreline	4/6/2007	9:43	Enterococcus	9230C	None	22,000	cfu/100 ml
BV04	Shoreline	4/6/2007	9:32	Total Coliform	9222B	None	930,000	cfu/100 ml
BV04	Shoreline	4/6/2007	9:32	Fecal Coliform	9222D	None	300,000	cfu/100 ml

BV04	Shoreline	4/6/2007	9:32	Enterococcus	9230C	None	36,000	cfu/100 ml
BV05	Shoreline	4/6/2007	9:54	Total Coliform	9222B	<	100	cfu/100 ml
BV05	Shoreline	4/6/2007	9:54	Fecal Coliform	9222D	None	200	cfu/100 ml
BV05	Shoreline	4/6/2007	9:54	Enterococcus	9230C	<	100	cfu/100 ml
BV06	Shoreline	4/6/2007	8:22	Total Coliform	9222B	None	900	cfu/100 ml
BV06	Shoreline	4/6/2007	8:22	Fecal Coliform	9222D	None	200	cfu/100 ml
BV06	Shoreline	4/6/2007	8:22	Enterococcus	9230C	<	100	cfu/100 ml
BV07	Shoreline	4/6/2007	10:08	Total Coliform	9222B	None	3,200	cfu/100 ml
BV07	Shoreline	4/6/2007	10:08	Fecal Coliform	9222D	None	1,000	cfu/100 ml
BV07	Shoreline	4/6/2007	10:08	Enterococcus	9230C	None	100	cfu/100 ml
BV08	Shoreline	4/6/2007	10:08	Total Coliform	9222B	None	3,600	cfu/100 ml
BV08	Shoreline	4/6/2007	10:08	Fecal Coliform	9222D	None	1,000	cfu/100 ml
BV08	Shoreline	4/6/2007	10:08	Enterococcus	9230C	<	100	cfu/100 ml
BV09	Shoreline	4/6/2007	8:25	Total Coliform	9222B	None	1,100	cfu/100 ml
BV09	Shoreline	4/6/2007	8:25	Fecal Coliform	9222D	None	700	cfu/100 ml
BV09	Shoreline	4/6/2007	8:25	Enterococcus	9230C	<	100	cfu/100 ml
BV01	Shoreline	4/7/2007	9:26	Total Coliform	9222B	None	3,400	cfu/100 ml
BV01	Shoreline	4/7/2007	9:26	Fecal Coliform	9222D	None	1,000	cfu/100 ml
BV01	Shoreline	4/7/2007	9:26	Enterococcus	9230C	None	200	cfu/100 ml
BV02	Shoreline	4/7/2007	9:27	Total Coliform	9222B	None	830,000	cfu/100 ml
BV02	Shoreline	4/7/2007	9:27	Fecal Coliform	9222D	None	380,000	cfu/100 ml
BV02	Shoreline	4/7/2007	9:27	Enterococcus	9230C	None	8,000	cfu/100 ml
BV03	Shoreline	4/7/2007	9:39	Total Coliform	9222B	None	720,000	cfu/100 ml
BV03	Shoreline	4/7/2007	9:39	Fecal Coliform	9222D	None	120,000	cfu/100 ml
BV03	Shoreline	4/7/2007	9:39	Enterococcus	9230C	None	6,000	cfu/100 ml
BV04	Shoreline	4/7/2007	9:30	Total Coliform	9222B	None	1,170,000	cfu/100 ml
BV04	Shoreline	4/7/2007	9:30	Fecal Coliform	9222D	None	190,000	cfu/100 ml
BV04	Shoreline	4/7/2007	9:30	Enterococcus	9230C	None	4,000	cfu/100 ml
BV05	Shoreline	4/7/2007	8:55	Total Coliform	9222B	None	600	cfu/100 ml
BV05	Shoreline	4/7/2007	8:55	Fecal Coliform	9222D	None	100	cfu/100 ml
BV05	Shoreline	4/7/2007	8:55	Enterococcus	9230C	<	100	cfu/100 ml
BV06	Shoreline	4/7/2007	8:36	Total Coliform	9222B	None	400	cfu/100 ml
BV06	Shoreline	4/7/2007	8:36	Fecal Coliform	9222D	None	200	cfu/100 ml
BV06	Shoreline	4/7/2007	8:36	Enterococcus	9230C	<	100	cfu/100 ml
BV07	Shoreline	4/7/2007	9:10	Total Coliform	9222B	None	1,400	cfu/100 ml
BV07	Shoreline	4/7/2007	9:10	Fecal Coliform	9222D	None	700	cfu/100 ml
BV07	Shoreline	4/7/2007	9:10	Enterococcus	9230C	None	600	cfu/100 ml
BV08	Shoreline	4/7/2007	9:10	Total Coliform	9222B	None	1,200	cfu/100 ml
BV08	Shoreline	4/7/2007	9:10	Fecal Coliform	9222D	<	100	cfu/100 ml
BV08	Shoreline	4/7/2007	9:10	Enterococcus	9230C	<	100	cfu/100 ml
BV09	Shoreline	4/7/2007	8:41	Total Coliform	9222B	None	1,000	cfu/100 ml
BV09	Shoreline	4/7/2007	8:41	Fecal Coliform	9222D	None	100	cfu/100 ml
BV09	Shoreline	4/7/2007	8:41	Enterococcus	9230C	None	100	cfu/100 ml
BV01	Shoreline	4/8/2007	9:55	Total Coliform	9222B	None	2,600	cfu/100 ml
BV01	Shoreline	4/8/2007	9:55	Fecal Coliform	9222D	None	1,300	cfu/100 ml
BV01	Shoreline	4/8/2007	9:55	Enterococcus	9230C	None	100	cfu/100 ml
BV02	Shoreline	4/8/2007	9:50	Total Coliform	9222B	None	360,000	cfu/100 ml
BV02	Shoreline	4/8/2007	9:50	Fecal Coliform	9222D	None	20,000	cfu/100 ml
BV02	Shoreline	4/8/2007	9:50	Enterococcus	9230C	None	3,000	cfu/100 ml
BV03	Shoreline	4/8/2007	10:04	Total Coliform	9222B	None	290,000	cfu/100 ml
BV03	Shoreline	4/8/2007	10:04	Fecal Coliform	9222D	None	100,000	cfu/100 ml

BV03	Shoreline	4/8/2007	10:04	Enterococcus	9230C	None	3,000	cfu/100 ml
BV04	Shoreline	4/8/2007	9:45	Total Coliform	9222B	None	260,000	cfu/100 ml
BV04	Shoreline	4/8/2007	9:45	Fecal Coliform	9222D	None	100,000	cfu/100 ml
BV04	Shoreline	4/8/2007	9:45	Enterococcus	9230C	None	1,000	cfu/100 ml
BV05	Shoreline	4/8/2007	9:05	Total Coliform	9222B	None	400	cfu/100 ml
BV05	Shoreline	4/8/2007	9:05	Fecal Coliform	9222D	None	100	cfu/100 ml
BV05	Shoreline	4/8/2007	9:05	Enterococcus	9230C	<	50	cfu/100 ml
BV06	Shoreline	4/8/2007	8:38	Total Coliform	9222B	None	300	cfu/100 ml
BV06	Shoreline	4/8/2007	8:38	Fecal Coliform	9222D	None	400	cfu/100 ml
BV06	Shoreline	4/8/2007	8:38	Enterococcus	9230C	None	100	cfu/100 ml
BV07	Shoreline	4/8/2007	9:20	Total Coliform	9222B	None	200	cfu/100 ml
BV07	Shoreline	4/8/2007	9:20	Fecal Coliform	9222D	<	50	cfu/100 ml
BV07	Shoreline	4/8/2007	9:20	Enterococcus	9230C	<	50	cfu/100 ml
BV08	Shoreline	4/8/2007	9:22	Total Coliform	9222B	None	600	cfu/100 ml
BV08	Shoreline	4/8/2007	9:22	Fecal Coliform	9222D	None	1,050	cfu/100 ml
BV08	Shoreline	4/8/2007	9:22	Enterococcus	9230C	None	50	cfu/100 ml
BV09	Shoreline	4/8/2007	8:36	Total Coliform	9222B	None	800	cfu/100 ml
BV09	Shoreline	4/8/2007	8:36	Fecal Coliform	9222D	None	200	cfu/100 ml
BV09	Shoreline	4/8/2007	8:36	Enterococcus	9230C	None	50	cfu/100 ml
BV01	Shoreline	4/9/2007	9:20	Total Coliform	9222B	None	5,600	cfu/100 ml
BV01	Shoreline	4/9/2007	9:20	Fecal Coliform	9222D	None	200	cfu/100 ml
BV01	Shoreline	4/9/2007	9:20	Enterococcus	9230C	None	1,000	cfu/100 ml
BV02	Shoreline	4/9/2007	9:22	Total Coliform	9222B	None	130,000	cfu/100 ml
BV02	Shoreline	4/9/2007	9:22	Fecal Coliform	9222D	None	14,000	cfu/100 ml
BV02	Shoreline	4/9/2007	9:22	Enterococcus	9230C	None	3,000	cfu/100 ml
BV03	Shoreline	4/9/2007	9:33	Total Coliform	9222B	None	120,000	cfu/100 ml
BV03	Shoreline	4/9/2007	9:33	Fecal Coliform	9222D	None	10,000	cfu/100 ml
BV03	Shoreline	4/9/2007	9:33	Enterococcus	9230C	None	2,000	cfu/100 ml
BV04	Shoreline	4/9/2007	9:20	Total Coliform	9222B	None	80,000	cfu/100 ml
BV04	Shoreline	4/9/2007	9:20	Fecal Coliform	9222D	None	8,000	cfu/100 ml
BV04	Shoreline	4/9/2007	9:20	Enterococcus	9230C	None	2,000	cfu/100 ml
BV05	Shoreline	4/9/2007	8:49	Total Coliform	9222B	None	300	cfu/100 ml
BV05	Shoreline	4/9/2007	8:49	Fecal Coliform	9222D	<	50	cfu/100 ml
BV05	Shoreline	4/9/2007	8:49	Enterococcus	9230C	<	50	cfu/100 ml
BV06	Shoreline	4/9/2007	8:25	Total Coliform	9222B	None	7,600	cfu/100 ml
BV06	Shoreline	4/9/2007	8:25	Fecal Coliform	9222D	None	1,050	cfu/100 ml
BV06	Shoreline	4/9/2007	8:25	Enterococcus	9230C	None	100	cfu/100 ml
BV07	Shoreline	4/9/2007	9:13	Total Coliform	9222B	None	4,200	cfu/100 ml
BV07	Shoreline	4/9/2007	9:13	Fecal Coliform	9222D	None	50	cfu/100 ml
BV07	Shoreline	4/9/2007	9:13	Enterococcus	9230C	<	50	cfu/100 ml
BV08	Shoreline	4/9/2007	9:15	Total Coliform	9222B	None	3,100	cfu/100 ml
BV08	Shoreline	4/9/2007	9:15	Fecal Coliform	9222D	None	50	cfu/100 ml
BV08	Shoreline	4/9/2007	9:15	Enterococcus	9230C	<	50	cfu/100 ml
BV09	Shoreline	4/9/2007	8:28	Total Coliform	9222B	None	2,800	cfu/100 ml
BV09	Shoreline	4/9/2007	8:28	Fecal Coliform	9222D	None	800	cfu/100 ml
BV09	Shoreline	4/9/2007	8:28	Enterococcus	9230C	None	100	cfu/100 ml

Total Coliform

	4/2/2007	4/3/2007	4/4/2007	4/5/2007	4/6/2007	4/7/2007	4/8/2007	4/9/2007
BV01	3,800	8,300	5,700	3,300	1,900	3,400	2,600	5,600
BV02	1,820,000	970,000	1,010,000	4,170,000	1,520,000	830,000	360,000	130,000
BV03	2,460,000	1,900,000	1,250,000	3,280,000	820,000	720,000	290,000	120,000
BV04	2,120,000	2,080,000	1,140,000	1,970,000	930,000	1,170,000	260,000	80,000
BV05	3,000	900	1,300	500	100	600	400	300
BV06	6,950	3,800	700	1,600	900	400	300	7,600
BV07		199,500	20,000	31,400	3,200	1,400	200	4,200
BV08		112,500	40,000	32,400	3,600	1,200	600	3,100
BV09					1,100	1,000	800	2,800

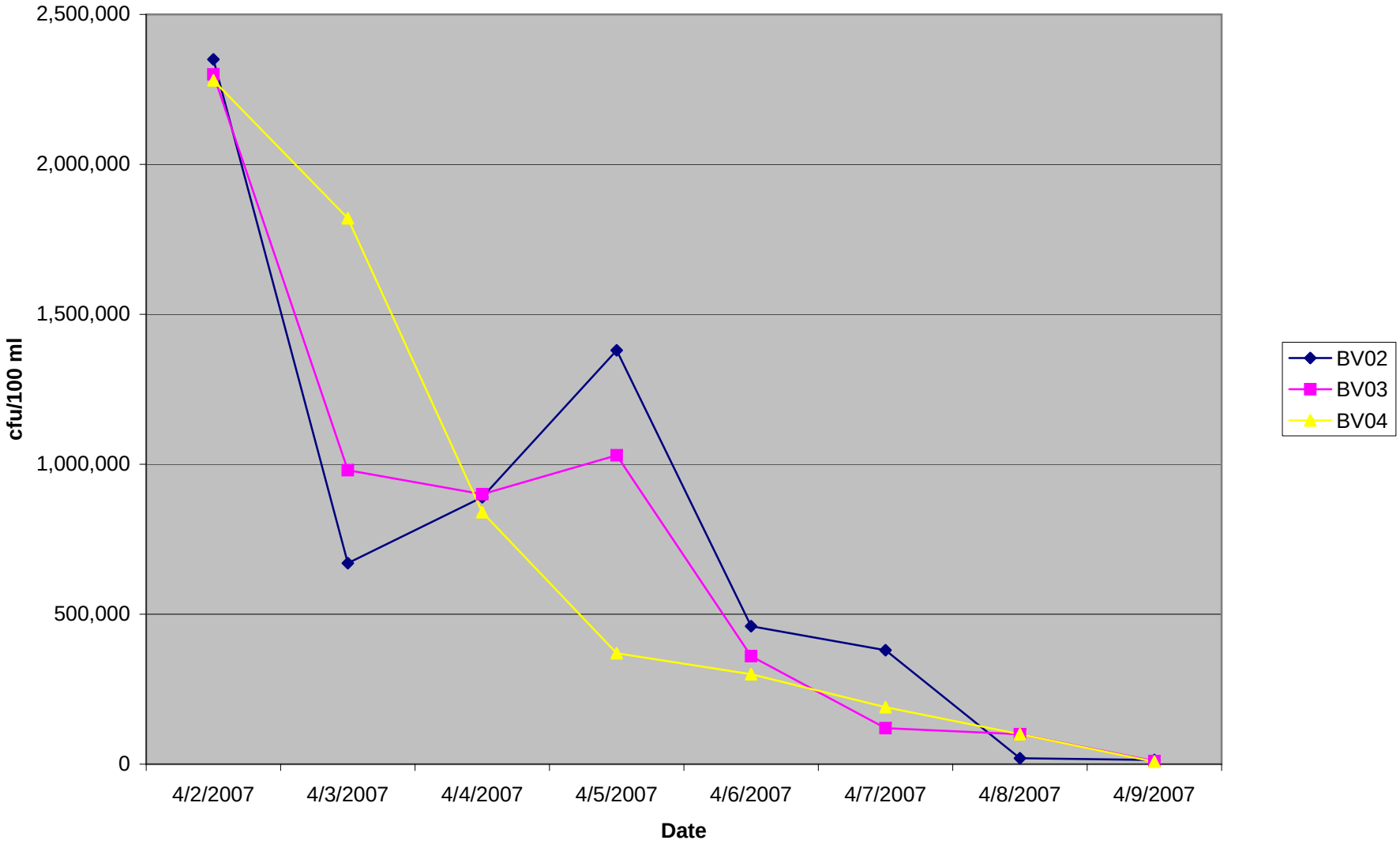
Fecal Coliform

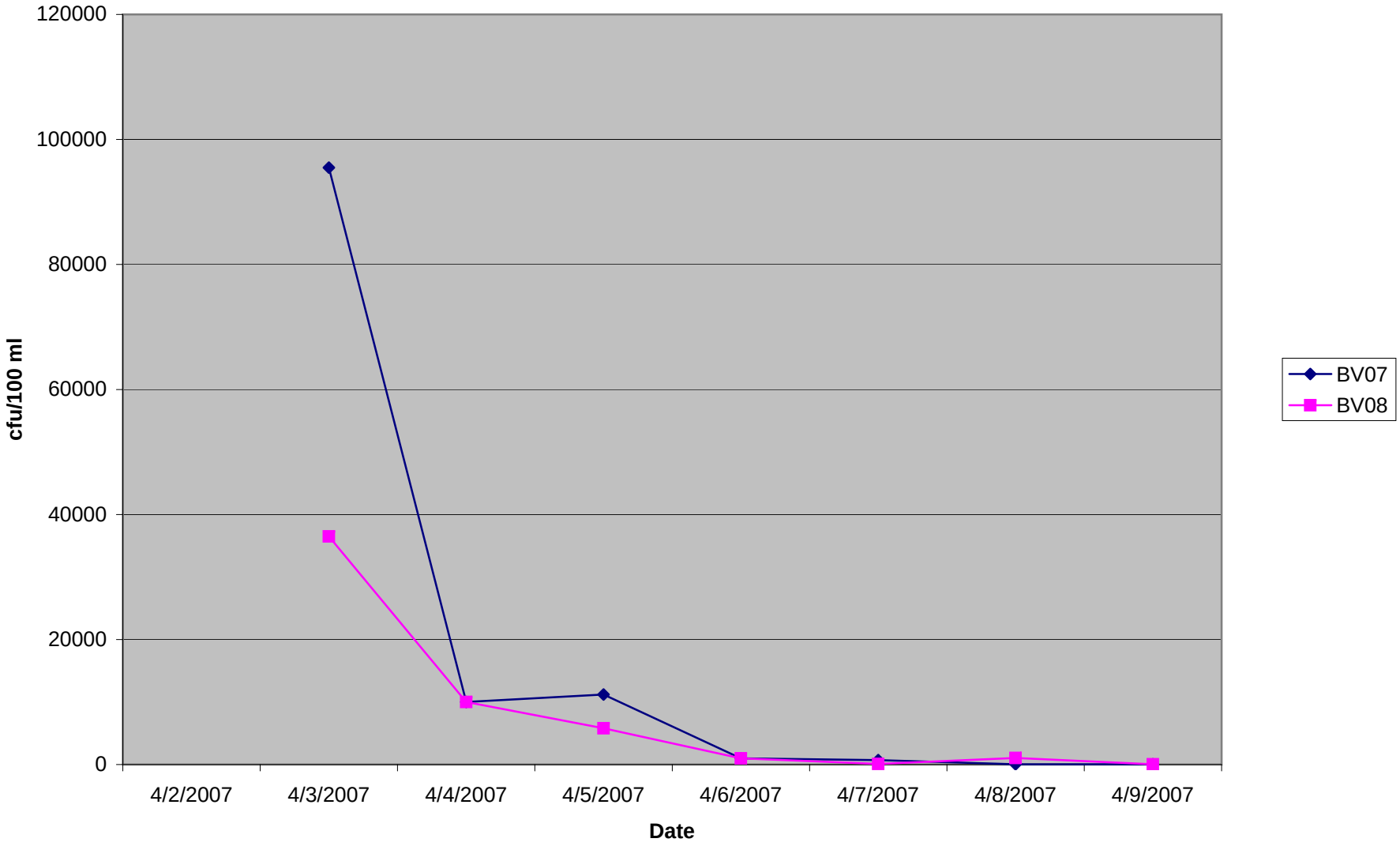
	4/2/2007	4/3/2007	4/4/2007	4/5/2007	4/6/2007	4/7/2007	4/8/2007	4/9/2007
BV01	1,200	2,300	2,700	1,000	300	1,000	1,300	200
BV02	2,350,000	670,000	890,000	1,380,000	460,000	380,000	20,000	14,000
BV03	2,300,000	980,000	900,000	1,030,000	360,000	120,000	100,000	10,000
BV04	2,280,000	1,820,000	840,000	370,000	300,000	190,000	100,000	8,000
BV05	100	200	100	200	200	100	100	50
BV06	100	800	100	200	200	200	400	1,050
BV07		95,500	10,000	11,200	1,000	700	50	50
BV08		36,500	10,000	5,800	1,000	100	1,050	50
BV09					700	100	200	800

Enterococcus

	4/2/2007	4/3/2007	4/4/2007	4/5/2007	4/6/2007	4/7/2007	4/8/2007	4/9/2007
BV01	200	300	300	100	200	200	100	1,000
BV02	482,000	116,000	110,000	116,000	22,000	8,000	3,000	3,000
BV03	438,500	112,000	118,000	122,000	22,000	6,000	3,000	2,000
BV04	421,500	118,000	126,000	118,000	36,000	4,000	1,000	2,000
BV05	100	100	100	100	100	100	50	50
BV06	100	100	100	400	100	100	100	100
BV07		1,000	2,000	200	100	600	50	50
BV08		1,000	2,000	200	100	100	50	50
BV09					100	100	50	100

Fecal Coliform Concentrations, East Basin around Spill Site




Fecal Coliform Concentrations, I-5 Bridge
120000
100000
80000
60000
40000
20000
0
cfu/100 ml
4/2/2007
4/3/2007
4/4/2007
4/5/2007
4/6/2007
4/7/2007
4/8/2007
4/9/2007
Date
BV07
BV08

Station ID	Station_Type	Date	Time	Analyte	Method	Qualifier	Result	Unit
1S	Pacific Ocean	4/2/2007	11:05	Total Coliform	9222B	None	1	cfu/100 ml
1S	Pacific Ocean	4/2/2007	11:05	Fecal Coliform	9222D	None	1	cfu/100 ml
1S	Pacific Ocean	4/2/2007	11:05	Enterococcus	9230C	None	1	cfu/100 ml
2S	Pacific Ocean	4/2/2007	11:10	Total Coliform	9222B	None	87	cfu/100 ml
2S	Pacific Ocean	4/2/2007	11:10	Fecal Coliform	9222D	None	77	cfu/100 ml
2S	Pacific Ocean	4/2/2007	11:10	Enterococcus	9230C	None	1	cfu/100 ml
3S	Pacific Ocean	4/2/2007	11:15	Total Coliform	9222B	None	3	cfu/100 ml
3S	Pacific Ocean	4/2/2007	11:15	Fecal Coliform	9222D	None	5	cfu/100 ml
3S	Pacific Ocean	4/2/2007	11:15	Enterococcus	9230C	None	3	cfu/100 ml
4S	Pacific Ocean	4/2/2007	11:20	Total Coliform	9222B	None	2	cfu/100 ml
4S	Pacific Ocean	4/2/2007	11:20	Fecal Coliform	9222D	None	3	cfu/100 ml
4S	Pacific Ocean	4/2/2007	11:20	Enterococcus	9230C	<	1	cfu/100 ml
1N	Pacific Ocean	4/2/2007	10:30	Total Coliform	9222B	None	13	cfu/100 ml
1N	Pacific Ocean	4/2/2007	10:30	Fecal Coliform	9222D	None	5	cfu/100 ml
1N	Pacific Ocean	4/2/2007	10:30	Enterococcus	9230C	None	3	cfu/100 ml
2N	Pacific Ocean	4/2/2007	10:40	Total Coliform	9222B	None	18	cfu/100 ml
2N	Pacific Ocean	4/2/2007	10:40	Fecal Coliform	9222D	None	12	cfu/100 ml
2N	Pacific Ocean	4/2/2007	10:40	Enterococcus	9230C	None	1	cfu/100 ml
3N	Pacific Ocean	4/2/2007	10:45	Total Coliform	9222B	None	8	cfu/100 ml
3N	Pacific Ocean	4/2/2007	10:45	Fecal Coliform	9222D	None	9	cfu/100 ml
3N	Pacific Ocean	4/2/2007	10:45	Enterococcus	9230C	None	2	cfu/100 ml
4N	Pacific Ocean	4/2/2007	10:50	Total Coliform	9222B	None	6	cfu/100 ml
4N	Pacific Ocean	4/2/2007	10:50	Fecal Coliform	9222D	None	4	cfu/100 ml
4N	Pacific Ocean	4/2/2007	10:50	Enterococcus	9230C	None	1	cfu/100 ml
5N	Pacific Ocean	4/2/2007	10:55	Total Coliform	9222B	None	4	cfu/100 ml
5N	Pacific Ocean	4/2/2007	10:55	Fecal Coliform	9222D	None	4	cfu/100 ml
5N	Pacific Ocean	4/2/2007	10:55	Enterococcus	9230C	<	1	cfu/100 ml
6N	Pacific Ocean	4/2/2007	11:00	Total Coliform	9222B	None	4	cfu/100 ml
6N	Pacific Ocean	4/2/2007	11:00	Fecal Coliform	9222D	None	7	cfu/100 ml
6N	Pacific Ocean	4/2/2007	11:00	Enterococcus	9230C	None	2	cfu/100 ml
1S	Pacific Ocean	4/3/2007	9:52	Total Coliform	9222B	None	77	cfu/100 ml
1S	Pacific Ocean	4/3/2007	9:52	Fecal Coliform	9222D	<	1	cfu/100 ml
1S	Pacific Ocean	4/3/2007	9:52	Enterococcus	9230C	<	1	cfu/100 ml
2S	Pacific Ocean	4/3/2007	9:55	Total Coliform	9222B	None	51	cfu/100 ml
2S	Pacific Ocean	4/3/2007	9:55	Fecal Coliform	9222D	<	1	cfu/100 ml
2S	Pacific Ocean	4/3/2007	9:55	Enterococcus	9230C	None	1	cfu/100 ml
3S	Pacific Ocean	4/3/2007	9:58	Total Coliform	9222B	None	83	cfu/100 ml
3S	Pacific Ocean	4/3/2007	9:58	Fecal Coliform	9222D	None	1	cfu/100 ml
3S	Pacific Ocean	4/3/2007	9:58	Enterococcus	9230C	None	1	cfu/100 ml
4S	Pacific Ocean	4/3/2007	10:03	Total Coliform	9222B	None	34	cfu/100 ml
4S	Pacific Ocean	4/3/2007	10:03	Fecal Coliform	9222D	None	2	cfu/100 ml
4S	Pacific Ocean	4/3/2007	10:03	Enterococcus	9230C	None	1	cfu/100 ml
1N	Pacific Ocean	4/3/2007	9:50	Total Coliform	9222B	None	28	cfu/100 ml
1N	Pacific Ocean	4/3/2007	9:50	Fecal Coliform	9222D	None	10	cfu/100 ml
1N	Pacific Ocean	4/3/2007	9:50	Enterococcus	9230C	None	1	cfu/100 ml
2N	Pacific Ocean	4/3/2007	9:53	Total Coliform	9222B	None	11	cfu/100 ml
2N	Pacific Ocean	4/3/2007	9:53	Fecal Coliform	9222D	None	7	cfu/100 ml
2N	Pacific Ocean	4/3/2007	9:53	Enterococcus	9230C	<	1	cfu/100 ml
3N	Pacific Ocean	4/3/2007	9:57	Total Coliform	9222B	None	14	cfu/100 ml
3N	Pacific Ocean	4/3/2007	9:57	Fecal Coliform	9222D	None	12	cfu/100 ml

3N	Pacific Ocean	4/3/2007	9:57	Enterococcus	9230C	None	4	cfu/100 ml
4N	Pacific Ocean	4/3/2007	10:00	Total Coliform	9222B	None	10	cfu/100 ml
4N	Pacific Ocean	4/3/2007	10:00	Fecal Coliform	9222D	None	10	cfu/100 ml
4N	Pacific Ocean	4/3/2007	10:00	Enterococcus	9230C	<	1	cfu/100 ml
5N	Pacific Ocean	4/3/2007	10:05	Total Coliform	9222B	None	50	cfu/100 ml
5N	Pacific Ocean	4/3/2007	10:05	Fecal Coliform	9222D	None	3	cfu/100 ml
5N	Pacific Ocean	4/3/2007	10:05	Enterococcus	9230C	<	1	cfu/100 ml
6N	Pacific Ocean	4/3/2007	10:09	Total Coliform	9222B	None	37	cfu/100 ml
6N	Pacific Ocean	4/3/2007	10:09	Fecal Coliform	9222D	None	4	cfu/100 ml
6N	Pacific Ocean	4/3/2007	10:09	Enterococcus	9230C	<	1	cfu/100 ml
1S	Pacific Ocean	4/4/2007	10:20	Total Coliform	9222B	None	3	cfu/100 ml
1S	Pacific Ocean	4/4/2007	10:20	Fecal Coliform	9222D	None	1	cfu/100 ml
1S	Pacific Ocean	4/4/2007	10:20	Enterococcus	9230C	<	1	cfu/100 ml
2S	Pacific Ocean	4/4/2007	10:22	Total Coliform	9222B	None	2	cfu/100 ml
2S	Pacific Ocean	4/4/2007	10:22	Fecal Coliform	9222D	<	1	cfu/100 ml
2S	Pacific Ocean	4/4/2007	10:22	Enterococcus	9230C	<	1	cfu/100 ml
3S	Pacific Ocean	4/4/2007	10:27	Total Coliform	9222B	None	4	cfu/100 ml
3S	Pacific Ocean	4/4/2007	10:27	Fecal Coliform	9222D	None	1	cfu/100 ml
3S	Pacific Ocean	4/4/2007	10:27	Enterococcus	9230C	<	1	cfu/100 ml
4S	Pacific Ocean	4/4/2007	10:30	Total Coliform	9222B	None	3	cfu/100 ml
4S	Pacific Ocean	4/4/2007	10:30	Fecal Coliform	9222D	None	1	cfu/100 ml
4S	Pacific Ocean	4/4/2007	10:30	Enterococcus	9230C	None	1	cfu/100 ml
1N	Pacific Ocean	4/4/2007	10:15	Total Coliform	9222B	None	2	cfu/100 ml
1N	Pacific Ocean	4/4/2007	10:15	Fecal Coliform	9222D	None	1	cfu/100 ml
1N	Pacific Ocean	4/4/2007	10:15	Enterococcus	9230C	<	1	cfu/100 ml
2N	Pacific Ocean	4/4/2007	10:17	Total Coliform	9222B	None	3	cfu/100 ml
2N	Pacific Ocean	4/4/2007	10:17	Fecal Coliform	9222D	None	3	cfu/100 ml
2N	Pacific Ocean	4/4/2007	10:17	Enterococcus	9230C	<	1	cfu/100 ml
3N	Pacific Ocean	4/4/2007	10:20	Total Coliform	9222B	None	3	cfu/100 ml
3N	Pacific Ocean	4/4/2007	10:20	Fecal Coliform	9222D	None	2	cfu/100 ml
3N	Pacific Ocean	4/4/2007	10:20	Enterococcus	9230C	<	1	cfu/100 ml
4N	Pacific Ocean	4/4/2007	10:24	Total Coliform	9222B	None	3	cfu/100 ml
4N	Pacific Ocean	4/4/2007	10:24	Fecal Coliform	9222D	None	1	cfu/100 ml
4N	Pacific Ocean	4/4/2007	10:24	Enterococcus	9230C	<	1	cfu/100 ml
5N	Pacific Ocean	4/4/2007	10:25	Total Coliform	9222B	None	4	cfu/100 ml
5N	Pacific Ocean	4/4/2007	10:25	Fecal Coliform	9222D	None	1	cfu/100 ml
5N	Pacific Ocean	4/4/2007	10:25	Enterococcus	9230C	<	1	cfu/100 ml
6N	Pacific Ocean	4/4/2007	10:32	Total Coliform	9222B	None	7	cfu/100 ml
6N	Pacific Ocean	4/4/2007	10:32	Fecal Coliform	9222D	<	1	cfu/100 ml
6N	Pacific Ocean	4/4/2007	10:32	Enterococcus	9230C	<	1	cfu/100 ml
1S	Pacific Ocean	4/5/2007	9:16	Total Coliform	9222B	None	11	cfu/100 ml
1S	Pacific Ocean	4/5/2007	9:16	Fecal Coliform	9222D	None	7	cfu/100 ml
1S	Pacific Ocean	4/5/2007	9:16	Enterococcus	9230C	<	1	cfu/100 ml
2S	Pacific Ocean	4/5/2007	9:20	Total Coliform	9222B	None	10	cfu/100 ml
2S	Pacific Ocean	4/5/2007	9:20	Fecal Coliform	9222D	None	19	cfu/100 ml
2S	Pacific Ocean	4/5/2007	9:20	Enterococcus	9230C	None	1	cfu/100 ml
1N	Pacific Ocean	4/5/2007	9:14	Total Coliform	9222B	None	10	cfu/100 ml
1N	Pacific Ocean	4/5/2007	9:14	Fecal Coliform	9222D	None	7	cfu/100 ml
1N	Pacific Ocean	4/5/2007	9:14	Enterococcus	9230C	<	1	cfu/100 ml
2N	Pacific Ocean	4/5/2007	9:16	Total Coliform	9222B	None	3	cfu/100 ml
2N	Pacific Ocean	4/5/2007	9:16	Fecal Coliform	9222D	None	8	cfu/100 ml

2N	Pacific Ocean	4/5/2007	9:16	Enterococcus	9230C	None	1	cfu/100 ml
1S	Pacific Ocean	4/6/2007	8:36	Total Coliform	9222B	None	20	cfu/100 ml
1S	Pacific Ocean	4/6/2007	8:36	Fecal Coliform	9222D	None	21	cfu/100 ml
1S	Pacific Ocean	4/6/2007	8:36	Enterococcus	9230C	<	1	cfu/100 ml
2S	Pacific Ocean	4/6/2007	8:38	Total Coliform	9222B	None	2	cfu/100 ml
2S	Pacific Ocean	4/6/2007	8:38	Fecal Coliform	9222D	None	5	cfu/100 ml
2S	Pacific Ocean	4/6/2007	8:38	Enterococcus	9230C	<	1	cfu/100 ml
1N	Pacific Ocean	4/6/2007	8:30	Total Coliform	9222B	None	14	cfu/100 ml
1N	Pacific Ocean	4/6/2007	8:30	Fecal Coliform	9222D	None	10	cfu/100 ml
1N	Pacific Ocean	4/6/2007	8:30	Enterococcus	9230C	<	1	cfu/100 ml
2N	Pacific Ocean	4/6/2007	8:33	Total Coliform	9222B	None	7	cfu/100 ml
2N	Pacific Ocean	4/6/2007	8:33	Fecal Coliform	9222D	None	4	cfu/100 ml
2N	Pacific Ocean	4/6/2007	8:33	Enterococcus	9230C	None	4	cfu/100 ml
1S	Pacific Ocean	4/7/2007	8:35	Total Coliform	9222B	None	1	cfu/100 ml
1S	Pacific Ocean	4/7/2007	8:35	Fecal Coliform	9222D	None	2	cfu/100 ml
1S	Pacific Ocean	4/7/2007	8:35	Enterococcus	9230C	None	1	cfu/100 ml
2S	Pacific Ocean	4/7/2007	8:38	Total Coliform	9222B	None	1	cfu/100 ml
2S	Pacific Ocean	4/7/2007	8:38	Fecal Coliform	9222D	<	1	cfu/100 ml
2S	Pacific Ocean	4/7/2007	8:38	Enterococcus	9230C	None	1	cfu/100 ml
1N	Pacific Ocean	4/7/2007	8:40	Total Coliform	9222B	<	1	cfu/100 ml
1N	Pacific Ocean	4/7/2007	8:40	Fecal Coliform	9222D	<	1	cfu/100 ml
1N	Pacific Ocean	4/7/2007	8:40	Enterococcus	9230C	<	1	cfu/100 ml
2N	Pacific Ocean	4/7/2007	8:47	Total Coliform	9222B	None	2	cfu/100 ml
2N	Pacific Ocean	4/7/2007	8:47	Fecal Coliform	9222D	None	1	cfu/100 ml
2N	Pacific Ocean	4/7/2007	8:47	Enterococcus	9230C	<	1	cfu/100 ml
1S	Pacific Ocean	4/8/2007	8:38	Total Coliform	9222B	None	6	cfu/100 ml
1S	Pacific Ocean	4/8/2007	8:38	Fecal Coliform	9222D	<	1	cfu/100 ml
1S	Pacific Ocean	4/8/2007	8:38	Enterococcus	9230C	None	1	cfu/100 ml
2S	Pacific Ocean	4/8/2007	8:42	Total Coliform	9222B	None	13	cfu/100 ml
2S	Pacific Ocean	4/8/2007	8:42	Fecal Coliform	9222D	None	1	cfu/100 ml
2S	Pacific Ocean	4/8/2007	8:42	Enterococcus	9230C	<	1	cfu/100 ml
1N	Pacific Ocean	4/8/2007	8:41	Total Coliform	9222B	None	1	cfu/100 ml
1N	Pacific Ocean	4/8/2007	8:41	Fecal Coliform	9222D	<	1	cfu/100 ml
1N	Pacific Ocean	4/8/2007	8:41	Enterococcus	9230C	<	1	cfu/100 ml
2N	Pacific Ocean	4/8/2007	8:45	Total Coliform	9222B	None	2	cfu/100 ml
2N	Pacific Ocean	4/8/2007	8:45	Fecal Coliform	9222D	None	3	cfu/100 ml
2N	Pacific Ocean	4/8/2007	8:45	Enterococcus	9230C	<	1	cfu/100 ml
1S	Pacific Ocean	4/9/2007	8:25	Total Coliform	9222B	None	2	cfu/100 ml
1S	Pacific Ocean	4/9/2007	8:25	Fecal Coliform	9222D	None	1	cfu/100 ml
1S	Pacific Ocean	4/9/2007	8:25	Enterococcus	9230C	<	1	cfu/100 ml
2S	Pacific Ocean	4/9/2007	8:30	Total Coliform	9222B	None	2	cfu/100 ml
2S	Pacific Ocean	4/9/2007	8:30	Fecal Coliform	9222D	<	1	cfu/100 ml
2S	Pacific Ocean	4/9/2007	8:30	Enterococcus	9230C	<	1	cfu/100 ml
1N	Pacific Ocean	4/9/2007	8:34	Total Coliform	9222B	None	4	cfu/100 ml
1N	Pacific Ocean	4/9/2007	8:34	Fecal Coliform	9222D	<	1	cfu/100 ml
1N	Pacific Ocean	4/9/2007	8:34	Enterococcus	9230C	None	1	cfu/100 ml
2N	Pacific Ocean	4/9/2007	8:40	Total Coliform	9222B	None	2	cfu/100 ml
2N	Pacific Ocean	4/9/2007	8:40	Fecal Coliform	9222D	<	1	cfu/100 ml
2N	Pacific Ocean	4/9/2007	8:40	Enterococcus	9230C	<	1	cfu/100 ml

Total Coliform

	4/2/2007	4/3/2007	4/4/2007	4/5/2007	4/6/2007	4/7/2007	4/8/2007	4/9/2007
1S	1	77	3	11	20	1	6	2
2S	87	51	2	10	2	1	13	2
3S	3	83	4					
4S	2	34	3					
1N	13	28	2	10	14	1	1	4
2N	18	11	3	3	7	2	2	2
3N	8	14	3					
4N	6	10	3					
5N	4	50	4					
6N	4	37	7					

Fecal Coliform

	4/2/2007	4/3/2007	4/4/2007	4/5/2007	4/6/2007	4/7/2007	4/8/2007	4/9/2007
1S	1	1	1	7	21	2	1	1
2S	77	1	1	19	5	1	1	1
3S	5	1	1					
4S	3	2	1					
1N	5	10	1	7	10	1	1	1
2N	12	7	3	8	4	1	3	1
3N	9	12	2					
4N	4	10	1					
5N	4	3	1					
6N	7	4	1					

Enterococcus

	4/2/2007	4/3/2007	4/4/2007	4/5/2007	4/6/2007	4/7/2007	4/8/2007	4/9/2007
1S	1	1	1	1	1	1	1	1
2S	1	1	1	1	1	1	1	1
3S	3	1	1					
4S	1	1	1					
1N	3	1	1	1	1	1	1	1
2N	1	1	1	1	4	1	1	1
3N	2	4	1					
4N	1	1	1					
5N	1	1	1					
6N	2	1	1					

Basin	Location	Date	Collection Time	Fish Species	Length (cm)	Estimated (e)/Partial(p)/Voucher(v)	Comments
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	28.0	v	City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	28.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	23.5	v	City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	30.0	e,p	City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	24.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	15.5		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	13.5		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	10.5		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	26.5		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	25.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	24.5		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	23.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	17.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	15.2		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	17.8		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	15.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	13.4		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	13.8		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	13.2		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	6.2		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Black Bullhead Catfish	6.9		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Largemouth Bass	22.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Largemouth Bass	40.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Largemouth Bass	25.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	17.5	v	City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	17.0	v	City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	16.5		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	17.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	13.5		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	11.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	5.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	7.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	3.5		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	17.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	18.0	e,p	City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	16.0	e,p	City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	15.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	14.8		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	9.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	9.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	8.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	6.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	7.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	6.3		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	6.5		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	5.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	4.5		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	5.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	5.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	4.5		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	3.6		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	3.6		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	4.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	3.0		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	3.6		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Bluegill	3.2		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Carp	23.3		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Crayfish	8.5		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Crayfish	4.1		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	NW Corner of Jefferson	4/3/2007	1015	Mosquito Fish	3.75		City of Oceanside fish - NW corner of Jefferson - East Basin
East Basin	Not Specified	4/3/2007	1200	Bluegill	18.5		Fish collected by Weston - Weston round 1
East Basin	Not Specified	4/3/2007	1200	Bluegill	15.4		Fish collected by Weston - Weston round 1
East Basin	Not Specified	4/3/2007	1200	Bluegill	10.2		Fish collected by Weston - Weston round 1
East Basin	Not Specified	4/3/2007	1200	Bluegill	9.3		Fish collected by Weston - Weston round 1
East Basin	Not Specified	4/3/2007	1830	Bluegill	19.3		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	17.5		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	17.3		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	16.2		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	13.5		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	13.0		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	13.0		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	11.6		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	11.1		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	10.7		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	10.1		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	11.0		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	9.2		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	8.3		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	6.8		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	6.2		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	6.2		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	6.0		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	6.6		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	5.2		Fish collected by City of Oceanside - Weston round 2

East Basin	Not Specified	4/3/2007	1830	Bluegill	6.1		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	5.0		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Bluegill	5.2		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Black Bullhead Catfish	25.5		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Black Bullhead Catfish	16.0		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Black Bullhead Catfish	6.9		Fish collected by City of Oceanside - Weston round 2
East Basin	Not Specified	4/3/2007	1830	Black Bullhead Catfish	28.6		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Black Bullhead Catfish	24.1		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Black Bullhead Catfish	23.0		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Black Bullhead Catfish	16.7		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Black Bullhead Catfish	14.2		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Black Bullhead Catfish	14.0		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Black Bullhead Catfish	11.8		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Black Bullhead Catfish	8.0		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Largemouth Bass	21.6		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Largemouth Bass	34.6		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Largemouth Bass	28.1		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Largemouth Bass	27.5		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	17.2		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	14.9		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	11.5		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	13.6		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	12.0		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	7.6		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	8.4		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	7.7		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	5.0		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	7.4		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	6.8		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	6.6		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	5.0		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	5.7		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Bluegill	3.8		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Green Sunfish	17.9		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Green Sunfish	18.0		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Green Sunfish	16.0		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/3/2007	1830	Green Sunfish	16.1		Fish collected by Weston - round 2 - East Basin
East Basin	Not Specified	4/4/2007	1200	Bluegill	17.8		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	15.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	14.8		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	16.3		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	18.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	20.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	16.6		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	15.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	14.6		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	12.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	10.8		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	6.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	4.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	11.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	15.6		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	18.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	12.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	18.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	17.3		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	18.3		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	13.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	14.4		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	14.8		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	14.3		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	5.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	18.4		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	16.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	14.7		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	16.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	11.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	9.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	9.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	9.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	8.4		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	8.3		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	7.4		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	7.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	6.9		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	7.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	5.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	5.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	4.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	7.0	e,p	Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	7.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	6.9		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	6.9		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	5.8		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	5.6		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	5.2	e,p	Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	6.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Bluegill	7.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	26.9		Fish collected by Weston round 1

East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	29.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	24.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	32.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	25.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	32.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	15.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	13.7		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	32.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	31.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	28.7		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	26.8		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	29.8		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	23.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	26.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	29.4		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	12.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	31.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	31.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	27.7		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	26.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	28.8		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	25.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	29.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	21.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	25.4		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	26.0	e,p	Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	24.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	30.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	28.7		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	29.6		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	33.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	35.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	29.7		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	29.6		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	30.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	18.9		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	28.3		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	26.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	28.6		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	34.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	26.4		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	30.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	19.4		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	25.9		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	27.8		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	19.3		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	25.6		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	23.7		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	23.4		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	23.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	19.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	17.4		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	20.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	14.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	19.9		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	19.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	14.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	11.9		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	10.6		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	10.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	10.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	8.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	10.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	9.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	7.8		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	9.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Black Bullhead Catfish	7.3		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	34.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	33.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	27.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	24.7		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	32.2		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	34.6		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	22.7		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	38.1		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	44.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	49.0	e,p	Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	34.5		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	29.8		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	32.8		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	24.3		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	21.6		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Largemouth Bass	22.0		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Carp	31.8		Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Carp	32.9	v	Fish collected by Weston round 1
East Basin	Not Specified	4/4/2007	1200	Carp	29.0	v	Fish collected by Weston round 1
East Basin	East End	4/4/2007	1230	Green Sunfish	16.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	15.3		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	6.0		Samples collected at east end of East Basin

East Basin	East End	4/4/2007	1230	Green Sunfish	6.3		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	16.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	15.1		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	13.6		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	15.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	15.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	18.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	12.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	17.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	20.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	19.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	19.4		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	13.6		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	17.1		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	18.8		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	10.9		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	20.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	11.1		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	11.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	18.9		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	12.3		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	13.3		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	17.8		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	13.6		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	11.1		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	10.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	12.7		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	7.3		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	10.8		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Green Sunfish	8.7		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	9.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	3.9		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	4.9		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	6.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	9.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	8.8		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	5.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	5.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	5.4		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	5.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	5.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	13.9		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	17.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	17.7		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	9.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	7.7		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	9.8		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	5.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	8.5	e,p	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	12.3		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	14.2		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	16.6		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	18.1		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	17.4		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	14.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	14.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	20.1		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	7.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	7.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	6.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	15.1		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	16.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	18.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	5.4		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	8.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	6.8		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	5.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	9.4		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	6.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	12.3		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	9.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	7.4		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	4.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	4.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	4.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	6.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	6.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	18.5	e,p	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	5.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	1.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	12.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	8.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	19.0		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	4.1		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	10.5		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	18.3		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	4.2		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	10.9		Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	16.1		Samples collected at east end of East Basin

East Basin	East End	4/4/2007	1230	Bluegill	14.2	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	13.0	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	9.0	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	10.5	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	6.0	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	5.2	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	8.4	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	12.6	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	4.5	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	12.4	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	6.0	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	9.9	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	9.0	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	14.7	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	5.8	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	5.3	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	18.0	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	6.2	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	4.5	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	6.7	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	7.7	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	6.5	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	4.5	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	8.3	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	4.8	Samples collected at east end of East Basin
East Basin	East End	4/4/2007	1230	Bluegill	6.7	Samples collected at east end of East Basin
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	14.9	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	5.1	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	9.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	16.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	17.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	12.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	12.1	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	15.9	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	10.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	16.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	12.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	16.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	17.8	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	5.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	15.8	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	12.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	8.6	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	19.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Carp	35.8	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Carp	31.1	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Carp	33.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Carp	28.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	26.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	34.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	24.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	24.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	21.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	31.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	31.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	17.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	22.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	28.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	19.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	29.7	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	29.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	31.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	16.6	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	17.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	31.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	29.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	24.1	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	32.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	16.1	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	22.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	12.6	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	36.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	13.1	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	27.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	28.6	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	21.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	26.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	23.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	16.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	32.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	29.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	21.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	32.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	24.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston

East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	26.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	15.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	19.7	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	35.6	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	25.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	38.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	32.9	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	36.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	33.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	25.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	34.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	35.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	21.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	18.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	18.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	19.8	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	19.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	21.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	16.6	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	19.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	10.7	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	18.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	16.9	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	17.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	14.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	16.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	12.7	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	10.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	16.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	7.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	14.7	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	7.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	26.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	19.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	17.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	16.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	15.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	16.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	8.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	17.7	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	5.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	6.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	4.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	14.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	15.1	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	14.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	21.1	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	15.6	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	13.6	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	17.8	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	12.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	14.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	17.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	8.7	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	6.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	6.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	20.8	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	12.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	16.7	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Carp	37.7	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Carp	36.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Carp	27.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	33.1	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	29.9	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	27.8	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	32.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	25.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	12.1	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	10.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	26.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	28.1	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	26.9	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	32.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	31.4	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	25.1	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	13.6	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	16.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	13.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	10.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	14.9	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	13.0	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	35.6	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	33.8	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	21.8	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	29.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	20.2	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	23.5	Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	17.3	Cooler 1 of 3; Middle, South Channel; Collected by Weston

East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	23.0		Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	15.6		Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	6.0		Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	34.0		Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	25.4		Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	21.0		Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	32.6		Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	35.4		Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	41.5		Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	23.5		Cooler 1 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	10	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	10	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	15	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	15	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	15	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	20	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	20	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Bluegill	20	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	10	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	20	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	20	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	30	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	40	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	40	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	40	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	40	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	40	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Black Bullhead Catfish	40	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	25	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	35	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	45	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	45	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	45	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Largemouth Bass	45	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	10	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	10	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	15	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	15	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	15	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	20	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	20	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	20	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	20	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Green Sunfish	20	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Carp	25	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Carp	35	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle, South Channel	4/5/2007	1230	Carp	45	e	Cooler 3 of 3; Middle, South Channel; Collected by Weston
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	29.6		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	31.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	27.0		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	16.0		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	16.7		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	17.0		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	16.0		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	14.6		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	23.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	27.9		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	30.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	23.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	32.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	14.3		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	12.7		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	15.0		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	14.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	13.6		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	9.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	12.4		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	30.0		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	22.0		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	23.0		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	23.6		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Black Bullhead Catfish	19.0		Samples collected at middle channel of East Basin-City of Carlsbad

East Basin	Middle Channel	4/5/2007	1600	Bluegill	12.0		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Bluegill	14.0	e,p	Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Bluegill	17		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Bluegill	14.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Bluegill	11.9		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Bluegill	17		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Bluegill	17		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Bluegill	14.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Bluegill	17.9		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Bluegill	11.5	e,p	Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Green Sunfish	18.7		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Green Sunfish	8		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Green Sunfish	18		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Green Sunfish	13.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Green Sunfish	16.4		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Green Sunfish	15	e,p	Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Green Sunfish	18.2		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Green Sunfish	20		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Green Sunfish	19.2		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Green Sunfish	19		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	23.1		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	22.8		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	38.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	33.8		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	24.9		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	17	e,p	Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	22		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	34.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	31		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	26		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	40		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	35.9		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	40.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Largemouth Bass	32		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Carp	29.7		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Carp	31.5		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Carp	36		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Middle Channel	4/5/2007	1600	Carp	38		Samples collected at middle channel of East Basin-City of Carlsbad
East Basin	Not Specified	4/5/2007	1600	Black Crappie	25	e,v	Collected by Weston
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	30.5		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	11.5		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	11		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	30.7		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	9.3		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	29.1		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	20.1		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	16.4		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	18		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	8.5		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	17		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	31		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	27		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	18.2		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	15.3		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	13..5		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	26		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	13.5		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	29.1		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	14		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	16.1		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	12	e,p	Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	12		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	10.5		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	10		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	12		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	12		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	15		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	10		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	9.6		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	14.5		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	12		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	11		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	12		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	13.2		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	15.8		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	8		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	13		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	12.5		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	9		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	8.2		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	18.5		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	8		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	10		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	14.8		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Black Bullhead Catfish	7		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Bluegill	14.7		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Bluegill	17		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Bluegill	17.2		Samples collected at middle channel of East Basin-Weston Round 2
East Basin	Middle Channel	4/5/2007	1800	Bluegill	14		Samples collected at middle channel of East Basin-Weston Round 2

APPENDIX B. PHOTO DOCUMENTATION OF PIPE DAMAGE, AERATION AND PUMP-BACK EFFORTS

Photos by Weston Solutions, Inc.

W43-2: Date: April 3, 2007 **Time:** 11:00am. **Photographer:** E. Goldstein
Description: Various species of dead fish collected from East Basin

W43-10: Date: April 3, 2007 **Time:** 12:06pm. **Photographer:** N. Woodward
Description: Aeration pump used to increase DO in East Basin
View: Northeast

W43-31: Date: April 3, 2007 **Time:** 17:33pm. **Photographer:** N. Woodward
Description: Dead fish collected from East Basin

W44-28 Date: April 4, 2007 **Time:** 15:22pm. **Photographer:** A. Glassco
Description: East Basin channel **View:** South

W44S-4 Date: April 4, 2007 **Time:** 15:55pm. **Photographer:** D. McCoy
Description: Aeration pump in East Basin **View:** North

W45S-1 Date: April 5, 2007 **Time:** 11:16am. **Photographer:** B. Isham
Description: West Basin sediment in Eckman grab sampler

W46-3 Date: April 6, 2007 **Time:** 7:12am. **Photographer:** C. Hartman
Description: East Basin aeration **View:** Southwest

W46-13 Date: April 6, 2007 **Time:** 11:05am. **Photographer:** C. Hartman
Description: East Basin aerator **View:** North

W46-17 Date: April 6, 2007 **Time:** 10:53am. **Photographer:** N. Spears
Description: Dead California gull in the Middle Basin

W47-4: Date: April 7, 2007 **Time:** 17:27pm. **Photographer:** T. Wells
Description: Counting, measuring, and identifying dead fish at Weston Solutions

W47-5: Date: April 7, 2007 **Time:** 17:27pm. **Photographer:** T. Wells
Description: Counting, measuring, and identifying dead fish at Weston Solutions

W47-8: Date: April 7, 2007 **Time:** 17:28pm. **Photographer:** T. Wells
Description: Measuring and classifying dead fish

W47-9: Date: April 7, 2007 **Time:** 17:28pm. **Photographer:** T. Wells
Description: Measuring and classifying dead gadwall

W47-14: Date: April 7, 2007 **Time:** 9:25am. **Photographer:** C. Hartman
Description: Dead coot along reeds, Central Basin

W410-1 Date: April 10, 2007 **Time:** 6:50am. **Photographer:** L. Campagna
Description: Dead fish in Central Basin

APPENDIX C. LABORATORY REPORTS

ENCINA WASTEWATER AUTHORITY

A Public Agency

6200 Avenida Encinas
Carlsbad, CA 92011-1095
Telephone (760) 438-3941
FAX (760) 438-3861 (Plant)
(760) 431-7493 (Admin)

April 3, 2007

Client: City Of Carlsbad
1635 Faraday Avenue
Carlsbad, CA 92009

Ref No. EC:07-0156

Contact: Ms. Elaine Lukey
Samplers: Rachael Willi

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml	Fecal Coliform cfu/100 ml	Enterococcus cfu/100 ml
				S.M 9222 B.	S.M. 9222 D.	S.M. 9230 C.
Upstream of Pump Station (BV1)	4/2/2007	8:37 AM	Rachael Willi	3,800	1,200	<200
Jefferson St. Bridge West Side (BV2)	4/2/2007	8:46 AM	Rachael Willi	1,820,000	2,350,000	482,000
Jefferson St. Duck Feeding Area (BV3)	4/2/2007	9:03 AM	Rachael Willi	2,460,000	2,300,000	438,500
Lagoon View Dr. North Shore (BV4)	4/2/2007	8:56 AM	Rachael Willi	2,120,000	2,280,000	421,500
PCH Bridge East Side (BV5)	4/2/2007	10:02 AM	Rachael Willi	3,000	<100	<100
Lagoon Spillway to Beach (BV6)	4/2/2007	10:15 AM	Rachael Willi	6,950	<100	<100
Receiving Water 75 ft. South (1S)	4/2/2007	11:05 AM	Rachael Willi	1	1	1
Receiving Water 150 ft. S (2S)	4/2/2007	11:10 AM	Rachael Willi	87	77	1
Receiving Water 300 ft. S (3S)	4/2/2007	11:15 AM	Rachael Willi	3	5	3
Receiving Water 600 ft. S (4S)	4/2/2007	11:20 AM	Rachael Willi	2	3	<1
Receiving Water 75 ft. North (1N)	4/2/2007	10:30 AM	Rachael Willi	13	5	3
Receiving Water 150 ft. N (2N)	4/2/2007	10:40 AM	Rachael Willi	18	12	1
Receiving Water 300 ft. N (3N)	4/2/2007	10:45 AM	Rachael Willi	8	9	2
Receiving Water 600 ft. N (4N)	4/2/2007	10:50 AM	Rachael Willi	6	4	1
Receiving Water 1200 ft. N (5N)	4/2/2007	10:55 AM	Rachael Willi	4	4	<1
Receiving Water 2000 ft. N (6N)	4/2/2007	11:00 AM	Rachael Willi	4	7	2

E= Estimated Value

Certified By: Doug Campbell

Doug Campbell, Laboratory Supervisor

Date: 4/3/2007

ENCINA WASTEWATER AUTHORITY

A Public Agency

6200 Avenida Encinas
Carlsbad, CA 92011-1095
Telephone (760) 438-3941
FAX (760) 438-3861 (Plant)
(760) 431-7493 (Admin)

April 4, 2007

Client: City Of Carlsbad
1635 Faraday Avenue
Carlsbad, CA 92009

Ref No. EC:07-0158

Contact: Ms. Elaine Lukey
Samplers: Mr. Paul Hartman

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml	Fecal Coliform cfu/100 ml	Enterococcus cfu/100 ml
				S.M 9222 B.	S.M. 9222 D.	S.M. 9230 C.
BV @ I-5 Bridge BV-7	4/3/2007	4:38 PM	Joel Camarillo	199,500	95,500	<1,000
BV @ 75 West I-5 Bridge BV-8	4/3/2007	4:45 PM	Joel Camarillo	112,500	36,500	<1,000
E= Estimated Value						

Certified By: Doug Campbell

Doug Campbell, Laboratory Supervisor

Date: 4/4/2007

ENCINA WASTEWATER AUTHORITY
A Public Agency
6200 Avenida Encinas
Carlsbad, CA 92011-1095
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(760) 431-7493 (Admin)

ENCINA WASTEWATER AUTHORITY

April 4, 2007

Ref No. EC:07-0158

Client: City Of Carlsbad
1635 Faraday Avenue
Carlsbad, CA 92009

Contact: Ms. Elaine Lukey
Samplers: Rachael Willi

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml	Fecal Coliform cfu/100 ml	Enterococcus cfu/100 ml
				S.M 9222 B.	S.M. 9222 D.	S.M. 9230 C.
Upstream of Pump Station (BV1)	4/3/2007	8:42 AM	Joel Camarillo	8,300	2,300	300
Jefferson St. Bridge West Side (BV2)	4/3/2007	8:55 AM	Joel Camarillo	970,000	670,000	116,000
Jefferson St. Duck Feeding Area (BV3)	4/3/2007	9:18 AM	Joel Camarillo	1,900,000	980,000	112,000
Lagoon View Dr. North Shore (BV4)	4/3/2007	9:06 AM	Joel Camarillo	2,080,000	1,820,000	118,000
PCH Bridge East Side (BV5)	4/3/2007	9:34 AM	Joel Camarillo	900	200	<100
Lagoon Spillway to Beach (BV6)	4/3/2007	9:45 AM	Joel Camarillo	3,800	800	100
Receiving Water 75 ft. South (1S)	4/3/2007	9:52 AM	Joel Camarillo	77	<1	<1
Receiving Water 150 ft. S (2S)	4/3/2007	9:55 AM	Joel Camarillo	51	<1	1
Receiving Water 300 ft. S (3S)	4/3/2007	9:58 AM	Joel Camarillo	83	1	1
Receiving Water 600 ft. S (4S)	4/3/2007	10:03 AM	Joel Camarillo	34	2	1
Receiving Water 75 ft. North (1N)	4/3/2007	9:50 AM	Joel Camarillo	28	10	1
Receiving Water 150 ft. N (2N)	4/3/2007	9:53 AM	Joel Camarillo	11	7	<1
Receiving Water 300 ft. N (3N)	4/3/2007	9:57 AM	Joel Camarillo	14	12	4
Receiving Water 600 ft. N (4N)	4/3/2007	10:00 AM	Joel Camarillo	10	10	<1
Receiving Water 1200 ft. N (5N)	4/3/2007	10:05 AM	Joel Camarillo	50	3	<1
Receiving Water 2000 ft. N (6N)	4/3/2007	10:09 AM	Joel Camarillo	37	4	<1

E= Estimated Value

Certified By: Doug Campbell

Doug Campbell, Laboratory Supervisor

Date: 4/4/2007

ENCINA WASTEWATER AUTHORITY

A Public Agency

6200 Avenida Encinas
Carlsbad, CA 92011-1095
Telephone (760) 438-3941
FAX (760) 438-3861 (Plant)
(760) 431-7493 (Admin)

April 5, 2007

Client: City Of Carlsbad
1635 Faraday Avenue
Carlsbad, CA 92009

Ref No. EC:07-0162

Contact: Ms. Elaine Lukey
Samplers: Rachael Willi

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml	Fecal Coliform cfu/100 ml	Enterococcus cfu/100 ml
				S.M 9222 B.	S.M. 9222 D.	S.M. 9230 C.
Upstream of Pump Station (BV1)	4/4/2007	8:41 AM	Joel Camarillo	5,700	2,700	300
Jefferson St. Bridge West Side (BV2)	4/4/2007	8:37 AM	Joel Camarillo	1,010,000	890,000	110,000
Jefferson St. Duck Feeding Area (BV3)	4/4/2007	8:54 AM	Joel Camarillo	1,250,000	900,000	118,000
Lagoon View Dr. North Shore (BV4)	4/4/2007	8:40 AM	Joel Camarillo	1,140,000	840,000	126,000
PCH Bridge East Side (BV5)	4/4/2007	9:01 AM	Joel Camarillo	1,300	<100	<100
Lagoon Spillway to Beach (BV6)	4/4/2007	10:15 AM	Joel Camarillo	700	100	100
BV @ I-5 Bridge (BV-7)	4/4/2007	9:38 AM	Joel Camarillo	20,000	<10,000	<2,000
BV @ 75 West I-5 Bridge (BV-8)	4/4/2007	9:40 AM	Joel Camarillo	40,000	<10,000	<2,000
Receiving Water 75 ft. South (1S)	4/4/2007	10:20 AM	Joel Camarillo	3	1	<1
Receiving Water 150 ft. S (2S)	4/4/2007	10:22 AM	Joel Camarillo	2	<1	<1
Receiving Water 300 ft. S (3S)	4/4/2007	10:27 AM	Joel Camarillo	4	1	<1
Receiving Water 600 ft. S (4S)	4/4/2007	10:30 AM	Joel Camarillo	3	1	1
Receiving Water 75 ft. North (1N)	4/4/2007	10:15 AM	Joel Camarillo	2	1	<1
Receiving Water 150 ft. N (2N)	4/4/2007	10:17 AM	Joel Camarillo	3	3	<1
Receiving Water 300 ft. N (3N)	4/4/2007	10:20 AM	Joel Camarillo	3	2	<1
Receiving Water 600 ft. N (4N)	4/4/2007	10:24 AM	Joel Camarillo	3	1	<1
Receiving Water 1200 ft. N (5N)	4/4/2007	10:25 AM	Joel Camarillo	4	1	<1
Receiving Water 2000 ft. N (6N)	4/4/2007	10:32 AM	Joel Camarillo	7	<1	<1

E= Estimated Value

Certified By: Doug Campbell **Date:** 4/5/2007

Doug Campbell, Laboratory Supervisor

ENCINA WASTEWATER AUTHORITY

A Public Agency

6200 Avenida Encinas
Carlsbad, CA 92011-1095
Telephone (760) 438-3941
FAX (760) 438-3861 (Plant)
(760) 431-7493 (Admin)

April 6, 2007

Client: City Of Carlsbad
1635 Faraday Avenue
Carlsbad, CA 92009

Ref No. EC:07-0166

Contact: Ms. Elaine Lukey
Samplers: Rachael Willi

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml	Fecal Coliform cfu/100 ml	Enterococcus cfu/100 ml
				S.M 9222 B.	S.M. 9222 D.	S.M. 9230 C.
Upstream of Pump Station (BV1)	4/5/2007	8:12 AM	Joel Camarillo	3,300	1,000	100
Jefferson St. Bridge West Side (BV2)	4/5/2007	8:30 AM	Joel Camarillo	4,170,000	1,380,000	116,000
Jefferson St. Duck Feeding Area (BV3)	4/5/2007	8:34 AM	Joel Camarillo	3,280,000	1,030,000	122,000
Lagoon View Dr. North Shore (BV4)	4/5/2007	8:20 AM	Joel Camarillo	1,970,000	370,000	118,000
PCH Bridge East Side (BV5)	4/5/2007	8:41 AM	Joel Camarillo	500	200	<100
Lagoon Spillway to Beach (BV6)	4/5/2007	9:14 AM	Joel Camarillo	1,600	200	400
BV @ I-5 Bridge (BV-7)	4/5/2007	8:52 AM	Joel Camarillo	31,400	11,200	<200
BV @ 75 West I-5 Bridge (BV-8)	4/5/2007	8:52 AM	Joel Camarillo	32,400	5,800	<200
Receiving Water 75 ft. South (1S)	4/5/2007	9:16 AM	Joel Camarillo	11	7	<1
Receiving Water 150 ft. S (2S)	4/5/2007	9:20 AM	Joel Camarillo	10	19	1
Receiving Water 75 ft. North (1N)	4/5/2007	9:14 AM	Joel Camarillo	10	7	<1
Receiving Water 150 ft. N (2N)	4/5/2007	9:16 AM	Joel Camarillo	3	8	1

E= Estimated Value

Certified By: Doug Campbell **Date:** 4/6/2007

Doug Campbell, Laboratory Supervisor

ENCINA WASTEWATER AUTHORITY

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Carlsbad, CA 92011-1095
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(760) 431-7493 (Admin)

April 9, 2007

Ref No. EC:07-0168

Client: City Of Carlsbad
1635 Faraday Avenue
Carlsbad, CA 92009

Contact: Ms. Elaine Lukey
Samplers: Rachael Willi

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml	Fecal Coliform cfu/100 ml	Enterococcus cfu/100 ml
				S.M 9222 B.	S.M. 9222 D.	S.M. 9230 C.
Upstream of Pump Station (BV1)	4/6/2007	9:19 AM	Rachael Willi	1,900	300	200
Jefferson St. Bridge West Side (BV2)	4/6/2007	9:28 AM	Rachael Willi	1,520,000	460,000	22,000
Jefferson St. Duck Feeding Area (BV3)	4/6/2007	9:43 AM	Rachael Willi	820,000	360,000	22,000
Lagoon View Dr. North Shore (BV4)	4/6/2007	9:32 AM	Rachael Willi	930,000	300,000	36,000
PCH Bridge East Side (BV5)	4/6/2007	9:54 AM	Rachael Willi	<100	200	<100
Lagoon Spillway to Beach (BV6)	4/6/2007	8:22 AM	Rachael Willi	900	200	<100
BV @ I-5 Bridge (BV-7)	4/6/2007	10:08 AM	Rachael Willi	3,200	1,000	100
BV @ 75 West I-5 Bridge (BV-8)	4/6/2007	10:08 AM	Rachael Willi	3,600	1,000	<100
Receiving Water 75 ft. South (1S)	4/6/2007	8:36 AM	Rachael Willi	20	21	<1
Receiving Water 150 ft. S (2S)	4/6/2007	8:38 AM	Rachael Willi	2	5	<1
Receiving Water 75 ft. North (1N)	4/6/2007	8:30 AM	Rachael Willi	14	10	<1
Receiving Water 150 ft. N (2N)	4/6/2007	8:33 AM	Rachael Willi	7	4	4
Pooling Water West of Spillway	4/6/2007	8:25 AM	Rachael Willi	1,100	700	<100

E= Estimated Value

Certified By: _____

Doug Campbell, Laboratory Supervisor

Date: 4/9/2007

ENCINA WASTEWATER AUTHORITY
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(760) 431-7493 (Admin)

ENCINA WASTEWATER AUTHORITY

April 9, 2007

Client: City Of Carlsbad
1635 Faraday Avenue
Carlsbad, CA 92009

Ref No. EC:07-0170

Contact: Ms. Elaine Lukey
Samplers: Rachael Willi

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml	Fecal Coliform cfu/100 ml	Enterococcus cfu/100 ml
				S.M 9222 B.	S.M. 9222 D.	S.M. 9230 C.
Upstream of Pump Station (BV1)	4/7/2007	9:26 AM	Rachael Willi	3,400	1,000	200
Jefferson St. Bridge West Side (BV2)	4/7/2007	9:27 AM	Rachael Willi	830,000	380,000	8,000
Jefferson St. Duck Feeding Area (BV3)	4/7/2007	9:39 AM	Rachael Willi	720,000	120,000	6,000
Lagoon View Dr. North Shore (BV4)	4/7/2007	9:30 AM	Rachael Willi	1,170,000	190,000	4,000
PCH Bridge East Side (BV5)	4/7/2007	8:55 AM	Rachael Willi	600	100	<100
Lagoon Spillway to Beach (BV6)	4/7/2007	9:36 AM	Rachael Willi	400	200	<100
BV @ I-5 Bridge (BV-7)	4/7/2007	9:10 AM	Rachael Willi	1,400	700	600
BV @ 75 West I-5 Bridge (BV-8)	4/7/2007	9:10 AM	Rachael Willi	1,200	<100	<100
Receiving Water 75 ft. South (1S)	4/7/2007	8:35 AM	Rachael Willi	1	2	1
Receiving Water 150 ft. S (2S)	4/7/2007	8:38 AM	Rachael Willi	1	<1	1
Receiving Water 75 ft. North (1N)	4/7/2007	8:40 AM	Rachael Willi	<1	<1	<1
Receiving Water 150 ft. N (2N)	4/7/2007	9:47 AM	Rachael Willi	2	1	<1
Pooling Water West of Spillway	4/7/2007	8:41 AM	Rachael Willi	1,000	100	100

E= Estimated Value

Certified By: Doug Campbell

Doug Campbell, Laboratory Supervisor

Date: 4/9/2007

ENCINA WASTEWATER AUTHORITY
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ENCINA WASTEWATER AUTHORITY

A Public Agency

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(760) 431-7493 (Admin)

April 9, 2007

Ref No. EC:07-0171

Client: City Of Carlsbad
1635 Faraday Avenue
Carlsbad, CA 92009

Contact: Ms. Elaine Lukey
Samplers: Rachael Willi

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml	Fecal Coliform cfu/100 ml	Enterococcus cfu/100 ml
				S.M 9222 B.	S.M. 9222 D.	S.M. 9230 C.
Upstream of Pump Station (BV1)	4/8/2007	9:55 AM	Rachael Willi	2,600	1,300	100
Jefferson St. Bridge West Side (BV2)	4/8/2007	9:50 AM	Rachael Willi	360,000	20,000	3,000
Jefferson St. Duck Feeding Area (BV3)	4/8/2007	10:04 AM	Rachael Willi	290,000	100,000	3,000
Lagoon View Dr. North Shore (BV4)	4/8/2007	9:45 AM	Rachael Willi	260,000	100,000	1,000
PCH Bridge East Side (BV5)	4/8/2007	9:05 AM	Rachael Willi	400	100	<50
Lagoon Spillway to Beach (BV6)	4/8/2007	8:38 AM	Rachael Willi	300	400	100
BV @ I-5 Bridge (BV-7)	4/8/2007	9:20 AM	Rachael Willi	200	<50	<50
BV @ 75 West I-5 Bridge (BV-8)	4/8/2007	9:22 AM	Rachael Willi	600	1,050	50
Receiving Water 75 ft. South (1S)	4/8/2007	8:38 AM	Rachael Willi	6	<1	1
Receiving Water 150 ft. S (2S)	4/8/2007	8:42 AM	Rachael Willi	13	1	<1
Receiving Water 75 ft. North (1N)	4/8/2007	8:41 AM	Rachael Willi	1	<1	<1
Receiving Water 150 ft. N (2N)	4/8/2007	8:45 AM	Rachael Willi	2	3	<1
Pooling Water West of Spillway	4/8/2007	8:36 AM	Rachael Willi	800	200	50
E= Estimated Value						

Certified By: Doug Campbell

Doug Campbell, Laboratory Supervisor

Date: 4/9/2007

ENCINA WASTEWATER AUTHORITY

A Public Agency

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(760) 431-7493 (Admin)

April 10, 2007

Client: City Of Carlsbad
1635 Faraday Avenue
Carlsbad, CA 92009

Ref No. EC:07-0172

Contact: Ms. Elaine Lukey
Samplers: Rachael Willi

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml	Fecal Coliform cfu/100 ml	Enterococcus cfu/100 ml
				S.M 9222 B.	S.M. 9222 D.	S.M. 9230 C.
Upstream of Pump Station (BV1)	4/9/2007	9:20 AM	Rachael Willi	5,600	200	1,000
Jefferson St. Bridge West Side (BV2)	4/9/2007	9:22 AM	Rachael Willi	130,000	14,000	3,000
Jefferson St. Duck Feeding Area (BV3)	4/9/2007	9:33 AM	Rachael Willi	120,000	E 10,000	2,000
Lagoon View Dr. North Shore (BV4)	4/9/2007	9:20 AM	Rachael Willi	80,000	8,000	2,000
PCH Bridge East Side (BV5)	4/9/2007	8:49 AM	Rachael Willi	300	<50	<50
Lagoon Spillway to Beach (BV6)	4/9/2007	8:25 AM	Rachael Willi	7,600	1,050	100
BV @ I-5 Bridge (BV-7)	4/9/2007	9:13 AM	Rachael Willi	4,200	50	<50
BV @ 75 West I-5 Bridge (BV-8)	4/9/2007	9:15 AM	Rachael Willi	3,100	50	<50
Receiving Water 75 ft. South (1S)	4/9/2007	8:25 AM	Rachael Willi	2	1	<1
Receiving Water 150 ft. S (2S)	4/9/2007	8:30 AM	Rachael Willi	2	<1	<1
Receiving Water 75 ft. North (1N)	4/9/2007	8:34 AM	Rachael Willi	4	<1	1
Receiving Water 150 ft. N (2N)	4/9/2007	8:40 AM	Rachael Willi	2	<1	<1
Pooling Water West of Spillway (BV9)	4/9/2007	8:28 AM	Rachael Willi	2,800	800	100
E= Estimated Value						

Certified By: Doug Campbell

Doug Campbell, Laboratory Supervisor

Date: 4/10/2007

ENCINA WASTEWATER AUTHORITY
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ENCINA WASTEWATER AUTHORITY

April 12, 2007

Ref No. EC:07-0185

Client: City Of Carlsbad
1635 Faraday Avenue
Carlsbad, CA 92009

Contact: Ms. Elaine Lukey
Samplers: Rachael Willi

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml	Fecal Coliform cfu/100 ml	Enterococcus cfu/100 ml
				S.M 9222 B.	S.M. 9222 D.	S.M. 9230 C.
Upstream of Pump Station (BV1)	4/10/2007	9:22 AM	Rachael Willi	2,200	200	600
Jefferson St. Bridge West Side (BV2)	4/10/2007	9:20 AM	Rachael Willi	50,000	1,000	2,400
Jefferson St. Duck Feeding Area (BV3)	4/10/2007	9:26 AM	Rachael Willi	52,000	4,000	1,400
Lagoon View Dr. North Shore (BV4)	4/10/2007	9:15 AM	Rachael Willi	26,000	<1,000	2,000
PCH Bridge East Side (BV5)	4/10/2007	8:46 AM	Rachael Willi	200	50	<50
Lagoon Spillway to Beach (BV6)	4/10/2007	8:35 AM	Rachael Willi	400	100	50
BV @ I-5 Bridge (BV-7)	4/10/2007	8:58 AM	Rachael Willi	400	50	<50
BV @ 75 West I-5 Bridge (BV-8)	4/10/2007	9:00 AM	Rachael Willi	200	50	<50
Pooling Water West of Spillway (BV9)	4/10/2007	8:33 AM	Rachael Willi	3,300	100	<50
Receiving Water 75 ft. South (1S)	4/10/2007	8:30 AM	Rachael Willi	<2	<1	<1
Receiving Water 75 ft. North (1N)	4/10/2007	8:35 AM	Rachael Willi	<2	<1	<1

E= Estimated Value

Certified By: Doug Campbell

Doug Campbell, Laboratory Supervisor

Date: 4/12/2007

ENCINA WASTEWATER AUTHORITY

A Public Agency

6200 Avenida Encinas
Carlsbad, CA 92011-1095
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(760) 431-7493 (Admin)

April 12, 2007

Ref No. EC:07-0184

Client: City Of Carlsbad
1635 Faraday Avenue
Carlsbad, CA 92009

Contact: Ms. Elaine Lukey
Samplers: Rachael Willi

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml	Fecal Coliform cfu/100 ml	Enterococcus cfu/100 ml
				S.M 9222 B.	S.M. 9222 D.	S.M. 9230 C.
Upstream of Pump Station (BV1)	4/11/2007	9:21 AM	Rachael Willi	6,600	1,300	900
Jefferson St. Bridge West Side (BV2)	4/11/2007	9:30 AM	Rachael Willi	25,000	5,000	1,200
Jefferson St. Duck Feeding Area (BV3)	4/11/2007	9:37 AM	Rachael Willi	41,000	9,600	5,200
Lagoon View Dr. North Shore (BV4)	4/11/2007	9:25 AM	Rachael Willi	28,000	5,200	2,000
PCH Bridge East Side (BV5)	4/11/2007	8:54 AM	Rachael Willi	300	100	<50
Lagoon Spillway to Beach (BV6)	4/11/2007	8:28 AM	Rachael Willi	500	100	50
BV @ I-5 Bridge (BV-7)	4/11/2007	9:10 AM	Rachael Willi	300	50	<50
BV @ 75 West I-5 Bridge (BV-8)	4/11/2007	9:10 AM	Rachael Willi	400	300	<50
Pooling Water West of Spillway (BV9)	4/11/2007	8:30 AM	Rachael Willi	1,800	250	<50
Receiving Water 75 ft. South (1S)	4/11/2007	8:35 AM	Rachael Willi	<1	2	<1
Receiving Water 75 ft. North (1N)	4/11/2007	8:32 AM	Rachael Willi	2	<1	<1

E= Estimated Value

Certified By: Doug Campbell

Doug Campbell, Laboratory Supervisor

Date: 4/12/2007

ENCINA WASTEWATER AUTHORITY

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April 13, 2007

Client: City Of Carlsbad
1635 Faraday Avenue
Carlsbad, CA 92009

Ref No. EC:07-0186

Contact: Ms. Elaine Lukey
Samplers: Joel Camarillo

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml	Fecal Coliform cfu/100 ml	Enterococcus cfu/100 ml
				S.M 9222 B.	S.M. 9222 D.	S.M. 9230 C.
Upstream of Pump Station (BV1)	4/12/2007	9:17 AM	Joel Camarillo	4,300	300	100
Jefferson St. Bridge West Side (BV2)	4/12/2007	9:24 AM	Joel Camarillo	30,000	6,600	1,200
Jefferson St. Duck Feeding Area (BV3)	4/12/2007	9:32 AM	Joel Camarillo	28,000	3,000	1,400
Lagoon View Dr. North Shore (BV4)	4/12/2007	9:18 AM	Joel Camarillo	13,000	2,600	400
PCH Bridge East Side (BV5)	4/12/2007	8:45 AM	Joel Camarillo	300	100	<50
Lagoon Spillway to Beach (BV6)	4/12/2007	8:35 AM	Joel Camarillo	200	250	100
BV @ I-5 Bridge (BV-7)	4/12/2007	9:01 AM	Joel Camarillo	300	200	50
BV @ 75 West I-5 Bridge (BV-8)	4/12/2007	9:00 AM	Joel Camarillo	600	100	<50
Pooling Water West of Spillway (BV9)	4/12/2007	8:30 AM	Joel Camarillo	400	<50	50
Receiving Water 75 ft. South (1S)	4/12/2007	8:38 AM	Joel Camarillo	1	<1	3
Receiving Water 75 ft. North (1N)	4/12/2007	8:35 AM	Joel Camarillo	<1	2	6

E= Estimated Value

Certified By: Doug Campbell

Doug Campbell, Laboratory Supervisor

Date: 4/13/2007

ENCINA WASTEWATER AUTHORITY

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(760) 431-7493 (Admin)

April 14, 2007

Client: City Of Carlsbad
1635 Faraday Avenue
Carlsbad, CA 92009

Ref No. EC:07-0197

Contact: Ms. Elaine Lukey
Samplers: Merkl & Associates

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml	Fecal Coliform cfu/100 ml	Enterococcus cfu/100 ml
				S.M 9222 B.	S.M. 9222 D.	S.M. 9230 C.
Upstream of Pump Station (BV1)	4/13/2007	7:45 AM	Joel Camarillo	3,600	1,500	100
Jefferson St. Bridge West Side (BV2)	4/13/2007	8:10 AM	Joel Camarillo	7,000	3,200	200
Jefferson St. Duck Feeding Area (BV3)	4/13/2007	6:33 AM	Joel Camarillo	5,000	2,000	1,200
Lagoon View Dr. North Shore (BV4)	4/13/2007	8:00 AM	Joel Camarillo	3,000	2,600	400
PCH Bridge East Side (BV5)	4/13/2007	8:55 AM	Joel Camarillo	400	50	<50
Lagoon Spillway to Beach (BV6)	4/13/2007	9:25 AM	Joel Camarillo	1,100	50	50
BV @ I-5 Bridge (BV-7)	4/13/2007	8:38 AM	Joel Camarillo	800	450	100
BV @ 75 West I-5 Bridge (BV-8)	4/13/2007	8:28 AM	Joel Camarillo	500	350	<50
Pooling Water West of Spillway (BV9)	4/13/2007	8:28 AM	Joel Camarillo	300	<50	<50
Receiving Water 75 ft. South (1S)	4/13/2007	11:12 AM	Joel Camarillo	2	<1	<1
Receiving Water 75 ft. North (1N)	4/13/2007	11:10 AM	Joel Camarillo	1	2	<1
107	4/13/2007	6:45 AM	Joel Camarillo	7,200	1,550	650
104	4/13/2007	7:00 AM	Joel Camarillo	12,600	1,650	<50
10E	4/13/2007	8:35 AM	Joel Camarillo	6,200	200	<50
103	4/13/2007	8:55 AM	Joel Camarillo	1,400	50	<50
10B	4/13/2007	8:13 AM	Joel Camarillo	2,000	<50	<50
102	4/13/2007	7:12 AM	Joel Camarillo	16,400	200	100
E= Estimated Value						

Certified By: Debra L Bejop **Date:** 4/16/07

for **Doug Campbell, Laboratory Supervisor**

ENCINA WASTEWATER AUTHORITY

A Public Agency

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April 15, 2007

Client: City Of Carlsbad
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Carlsbad, CA 92009

Ref No. EC:07-0198

Contact: Ms. Elaine Lukey
Samplers: Merkl & Associates

ENCINA WASTEWATER AUTHORITY LABORATORY REPORT
E.L.A.P. Certification No. 1441

	Sample Date	Sample Time	Analyzed By:	Total Coliform cfu/100 ml S.M 9222 B.	Fecal Coliform cfu/100 ml S.M. 9222 D.	Enterococcus cfu/100 ml S.M. 9230 C.
Upstream of Pump Station (BV1)	4/14/2007	7:05 AM	Rachael Willi	3,300	900	<100
Jefferson St. Bridge West Side (BV2)	4/14/2007	6:14 AM	Rachael Willi	14,000	2,000	1,200
Jefferson St. Duck Feeding Area (BV3)	4/14/2007	6:26 AM	Rachael Willi	5,000	1,200	200
Lagoon View Dr. North Shore (BV4)	4/14/2007	6:05 AM	Rachael Willi	4,000	600	600
PCH Bridge East Side (BV5)	4/14/2007	7:51 AM	Rachael Willi	300	50	50
Lagoon Spillway to Beach (BV6)	4/14/2007	8:16 AM	Rachael Willi	600	150	50
BV @ I-5 Bridge (BV-7)	4/14/2007	7:35 AM	Rachael Willi	500	100	<50
BV @ 75 West I-5 Bridge (BV-8)	4/14/2007	7:26 AM	Rachael Willi	200	50	<50
Pooling Water West of Spillway (BV9)	4/14/2007	8:13 AM	Rachael Willi	500	200	<50

E= Estimated Value

Certified By: Debra L Beggs **Date:** 4/16/07

for **Doug Campbell, Laboratory Supervisor**

Excerpts from the San Diego County Municipal Copermittees Urban Runoff Monitoring Annual Reports for The Ambient Bay and Lagoon Monitoring Program

Entire reports are available on-line at
http://www.projectcleanwater.org/html/wg_monitoring.html

Ambient Bay and Lagoon Monitoring
Results for Buena Vista Lagoon
2002-2003

5.1 Introduction

Under the NPDES permit granted to the County of San Diego by the San Diego Regional Water Quality Control Board, the Copermittees are required to develop and implement a program to assess the overall health of the receiving waters and monitor the impact of urban runoff on ambient receiving water quality. This program, known as the Ambient Bay and Lagoon Monitoring (ABLM) Program, is intended to include San Diego Bay, Mission Bay, Oceanside Harbor, the Pacific Coastline, coastal lagoons and estuaries, and all Clean Water Act section 303(d) water bodies or other environmentally sensitive areas. To implement the first year of this monitoring program, evaluations of sediment chemistry, toxicity, and ecological community (benthic infauna) structure in the coastal embayments (lagoons and bays) of San Diego County were monitored. Data from these evaluations are intended to provide an indication of how marine life in the bays and lagoons is affected by pollution, and allow prioritization of outfall areas of coastal embayments for additional investigation in subsequent years. This section summarizes the initial phase of the first year of monitoring for the ABLM Program.

5.1.1 Objectives

The overall goal of the ABLM Program is to develop and implement an environmental study to monitor the impact of urban runoff on the major coastal embayments in San Diego County and assess the overall health of these receiving waters. The program has several objectives:

- to fulfill NPDES requirements for San Diego County,
- to initiate a regional study of coastal embayments,
- to assess the overall health of the receiving waters, and
- to monitor the impact of urban runoff on ambient water quality.

5.1.2 Approach

The first step in fulfilling the objectives was to conduct a literature review to determine what information and data were available that could be used to design an appropriate monitoring program. The relevant data and information were used to create the sampling design, assess its validity using empirical data from other studies, and delineate the appropriate sampling effort.

The literature review covered southern California bays and lagoons: Newport Bay, Santa Margarita River and Estuary, Oceanside Harbor, San Luis Rey River and Estuary, Batiquitos Lagoon, San Elijo Lagoon, Aqua Hedionda Lagoon, Buena Vista Lagoon, San Dieguito Estuary, and Los Peñasquitos Lagoon. Documents and data more than 10 years old were considered non-reflective of current conditions in most of these bays and lagoons and therefore excluded from the review. The literature review targeted information related to sediment grain size, organic carbon concentrations, sediment toxicity, bacteria, infaunal communities, and contaminant concentrations. Data were sought that could be related to gradients within each water body, i.e. information near watershed inputs, middle lagoon or bay, and areas furthest from potential watershed inputs. Information was available for all these areas but there was little consistency on the parameters measured or the methods utilized. Most of the sampling and monitoring within the target sites related to water quality measures and/or only a few locations with other measured sediment parameters.

The results of the literature review demonstrated that the physical characteristics and depositional patterns within coastal embayments vary spatially in a longitudinal and lateral sense. There are wide variations in sediment characteristics within coastal embayments because of temporal variations in deposition patterns, the influence of stream and tidal channels, sequestering of contaminants by marshes and grasses, and connectivity with the ocean. Sediments that accumulate in coastal embayments as a result of urban runoff are dispersed according to the different energy conditions that are encountered at stream outfalls and in the embayment. Fine-grained sediments tend to accumulate in lower energy conditions between active stream and tidal channels; whereas, coarser sediments accumulate in stream and tidal channels as point bars. This variability complicates measuring and assessing the concentration and distribution of contaminants and requires that care be taken to specify the frequency and locations of field samples. Site assessments are further complicated by seasonal effects, which can be regular, or atypical, caused by drought that can reduce sediment outflow or high-energy storms that can displace large amounts of sediments and significantly alter the distribution and availability of contaminants.

Accounting for this inherent variability in monitoring coastal embayments requires comprehensive site assessments that reflect the possible range of variability of both long-term, periodic variations and infrequent, but often high-energy, episodic events. Such comprehensive assessments can be extremely labor intensive and expensive. Thus, rather than trying to directly measure contaminant loading in the water, the approach that was used in the ABLM Program focuses on the receiving water sediments where contaminants are most likely to be found. It was clear from the literature review that fine-grained sediment particles in the size range typical of silts and clays (<64 microns in diameter) are favored adsorption sites for most contaminants found in the waters of coastal wetlands (Gibbs 1973, Moore et al. 1989, Kennish 1998). Fine-grained sediments tend to have large surface areas with unsatisfied surface charges that promote adsorption of ionic complexes of metals, PCBs, PAHs, and pesticides. This association is particularly strong where fine-grained sediments are associated with high levels of total organic carbon (TOC). Additionally, fine-grained, organic sediment in overabundance can overwhelm the endemic flora and fauna of lagoons and estuaries. Because of their ability to complex and adsorb pollutants, fine-grained sediments with high TOC content are the most likely to be influenced by watershed contaminants and thus pose the greatest threat to the biological communities in the embayment.

5.1.3 Validation of Approach

To validate this association, information from benthic sediment quality and toxicity monitoring conducted in Newport Bay, California in 1994 (EMAP 1997) was assessed to determine if the sediments with the highest TOC concentrations and greatest proportion of fines also had the highest concentrations of contaminants. Samples taken from 12 sites in Newport Bay (includes upper, middle, and outer areas of the Bay) were ranked according to their grain size and TOC concentration. The ranks were summed and the summed ranks were separated into four groups of three samples each, according to the sediment ranks. Group 1 was the group with the highest TOC concentration and finest grain sediments. Concentrations of several contaminants (16 metals, total DDT, total PAHs, and chlordane) and amphipod toxicity were then compared between the groups by analysis of variance (ANOVA). The purpose of the ANOVA was to see if Group 1 (the "finest grain, highest TOC" group) also had higher contaminant levels. The results of the analyses are presented in Table 5-1.

Table 5-1. Results of ANOVA on 1994 Newport Bay data.

Constituent of Concern	Prob > F	Tukey-Kramer Comparison Groups Highest to Lowest			
Aluminum	0.174	4	2	3	1
Antimony	0.007	1	2	3	4
Arsenic	0.726	1	3	2	4
Cadmium	0.006	2	1	3	4
Chromium	0.010	1	2	3	4
Copper	0.014	1	3	2	4
Iron	0.004	1	2	3	4
Lead	0.541	1	2	3	4
Manganese	0.485	1	2	4	3
Mercury	0.449	3	1	4	2
Nickel	0.014	1	2	3	4
Silver	0.127	2	4	3	1
Selenium	0.027	1	2	3	4
Tin	0.017	1	2	3	4
Zinc	0.003	1	2	3	4
DDT	0.001	1	2	3	4
PAH	0.129	1	2	3	4
Chlordane	0.007	2	1	3	4
R. abronius mortality	0.132	2	1	3	4

Eleven of the 20 ANOVAs were significant at a p level of 0.05. For nine of the contaminants, Group 1 was the highest in concentration and Group 4, with the lowest TOC and fine grains, was always the lowest in concentration. In the remaining nine tests with non-significant results, four contaminants also had highest concentrations in Group 1. The results of the analysis verify other studies that suggest that areas with finer grain size and higher TOC concentration also tend to have higher contaminant levels and thus represent the "worst case" condition of the coastal embayment.

The 2002-2003 ABLM Program utilized the association between small grain size, high TOC levels, and contaminants to spatially target areas in each embayment where contaminants were most likely to be found. The ABLM Program will be conducted over several years to assess the temporal trends of the major coastal embayments in San Diego County. During each year, the program will be conducted in two phases:

- **Phase I – Contaminant Targeting:** three areas in each embayment with the finest grain size and highest TOC concentration will be identified using a stratified random design.

- **Phase II – Sediment Assessment:** the areas identified in Phase I will be assessed using the same "triad" approach that is being utilized for the storm water runoff program: chemistry, toxicity, and biology of the sediments.

During the first year of the program, the field assessment was conducted in June, 2003 for Phase I and in July and August, 2003 for Phase II. The results of Phase I are presented in this report. The results of Phase II will be presented in the 2003-2004 Monitoring Report.

5.2 Phase I – Contaminant Targeting

5.2.1 Site Locations

The proposed 2002-2003 program includes sampling and analysis of 12 coastal embayments in San Diego County (Table 5-2).

Table 5-2. Coastal embayments monitored in the 2002/2003 Ambient Bay and Lagoon Monitoring Program.

Name of Coastal Embayment	Site Designation	Watershed Management Area	Major Freshwater Tributary
Santa Margarita River Estuary	SME	Santa Margarita River	Santa Margarita River
Oceanside Harbor	OH	Santa Margarita River	None
San Luis Rey River Estuary	SLE	San Luis Rey River	San Luis Rey River
Buena Vista Lagoon	BVL	Carlsbad	Buena Vista Creek
Agua Hedionda Lagoon	AHL	Carlsbad	Agua Hedionda Creek
Batiquitos Lagoon	BL	Carlsbad	San Marcos Creek
San Elijo Lagoon	SEL	Carlsbad	Escondido Creek
San Dieguito Lagoon	SDL	San Dieguito	San Dieguito Creek
Los Peñasquitos Lagoon	LPL	Peñasquitos	Los Peñasquitos Creek
Mission Bay (includes Rose and Tecolote Creek outfalls)	MB	Mission Bay	Tecolote Creek and Rose Creek
Sweetwater River Estuary	SRE	San Diego Bay	Sweetwater River
Tijuana River Estuary	TRE	Tijuana River	Tijuana River

The embayments are shown graphically in Figure 5-1. Descriptions for each of the sites are presented in Section 2 of this report.

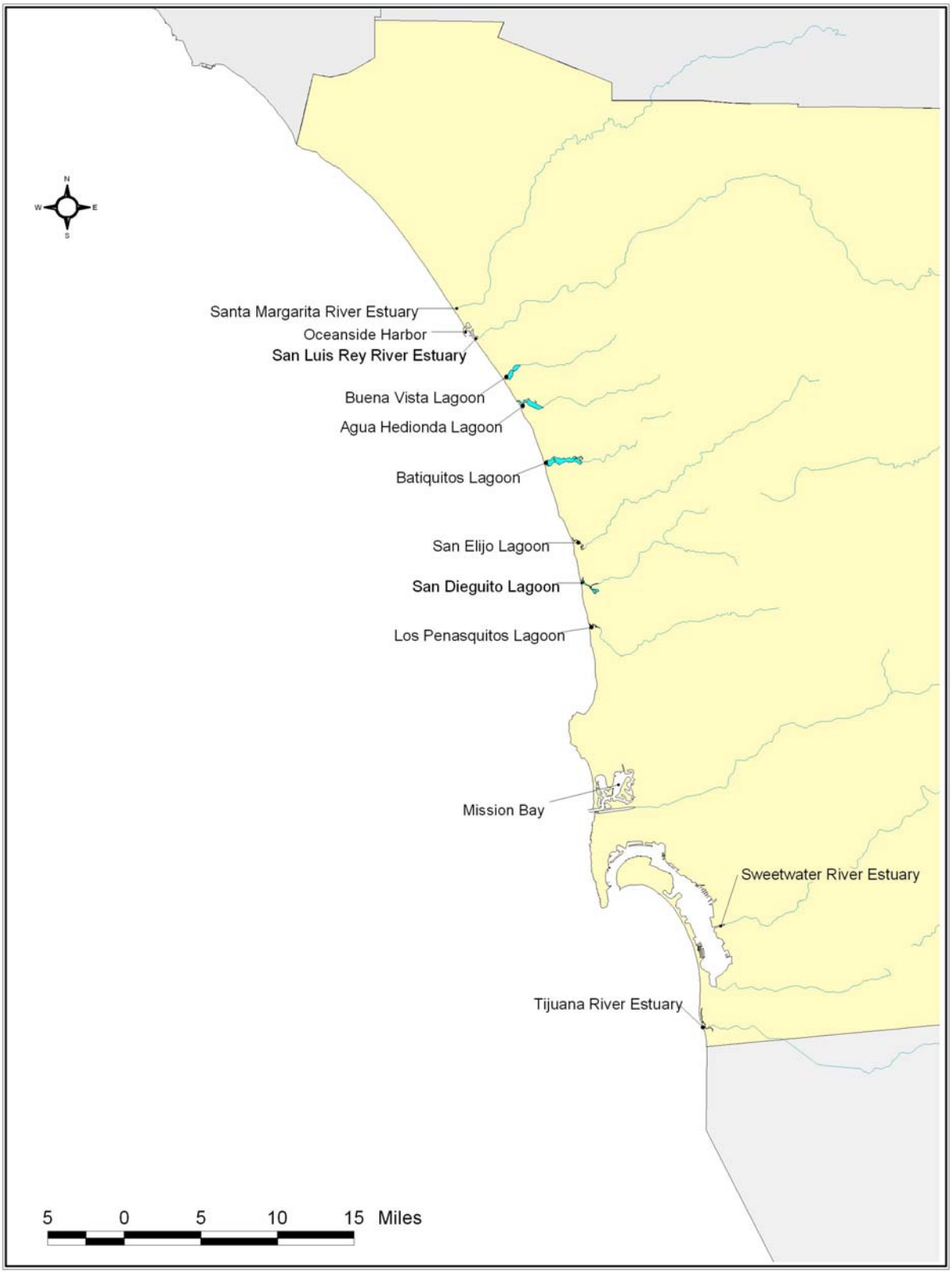

Figure 5-1. Map of coastal embayments monitored in the 2002/2003 Ambient Bay and Lagoon Monitoring Program.

5.2.2 Statistical Design

A stratified random approach was used to select sampling sites within each embayment. First, the area of each embayment that is tidally influenced at mean lower low water (MLLW) was delineated on aerial photographs using GIS. Tidal extent was determined from U.S. Geological Survey topographical maps, published reports showing tidal extent, and visual observations. Then, to provide complete spatial coverage, each embayment was stratified into three strata using GIS:

1. **Stratum 1 -** an outer stratum located nearest the ocean;
2. **Stratum 2 -** a middle stratum, centered upon the lagoon; and
3. **Stratum 3 -** an inner stratum, located nearest the major watershed input source.

Each of these three strata was further divided into three areas roughly along the longitudinal axis of the embayment: right bank (looking downstream), center, and left bank. Thus, nine strata were delineated in each embayment. Each of these areas was digitized using GIS. Within the polygon representing each strata, a series of random points was created using a random points generator, an extension of ArcView that generates a user specified number of random points within polygons. A minimum distance of 100 feet was specified between points. The first random point generated by the program and the corresponding latitude and longitude coordinates for each of the nine strata were mapped on the aerial photographs for all of the coastal embayments. As many as five additional points per strata were also generated in case the first point selected was found to be inaccessible in the field. The sampling site locations identified by this process for each of the coastal embayments are presented in Table 5-3.

Table 5-3. Ambient Bay and Lagoon Phase I site locations.

Embayment	Site Number	Latitude	Longitude	Embayment	Site Number	Latitude	Longitude
SME	1L-1	N33° 13.881'	W117° 24.822'	BL	1L-1	N33° 05.082'	W117° 18.491'
SME	1M-1	N33° 13.964'	W117° 24.927'	BL	1M-1	N33° 05.285'	W117° 18.441'
SME	1R-4	N33° 14.000'	W117° 24.907'	BL	1R-4	N33° 05.314'	W117° 18.671'
SME	2L-2	N33° 14.059'	W117° 24.583'	BL	2L-4	N33° 05.318'	W117° 17.788'
SME	2M-2	N33° 14.056'	W117° 24.614'	BL	2M-1	N33° 05.378'	W117° 17.762'
SME	2R-1	N33° 14.061'	W117° 24.705'	BL	2R-6	N33° 05.453'	W117° 17.895'
SME	3L-1	N33° 14.154'	W117° 24.042'	BL	3L-2	N33° 05.336'	W117° 16.861'
SME	3M-2	N33° 14.142'	W117° 24.276'	BL	3M-5	N33° 05.396'	W117° 16.816'
SME	3R-2	N33° 14.239'	W117° 23.925'	BL	3R-2	N33° 05.464'	W117° 16.704'
OH	1L-3	N33° 12.441'	W117° 24.021'	SEL	1L-2	N33° 00.655'	W117° 16.435'
OH	1M-1	N33° 12.464'	W117° 24.169'	SEL	1M-1	N33° 00.804'	W117° 16.513'
OH	1R-1	N33° 12.688'	W117° 24.227'	SEL	1R-1	N33° 00.664'	W117° 16.451'
OH	2L-1	N33° 12.450'	W117° 23.970'	SEL	2L-1	N33° 00.459'	W117° 16.184'
OH	2M-1	N33° 12.643'	W117° 24.052'	SEL	2M-1	N33° 00.479'	W117° 16.240'
OH	2R-6	N33° 12.614'	W117° 23.931'	SEL	2R-1	N33° 00.454'	W117° 16.151'
OH	3L-1	N33° 12.271'	W117° 23.462'	SEL	3L-4	N33° 00.440'	W117° 15.976'
OH	3M-1	N33° 12.497'	W117° 23.818'	SEL	3M-1	N33° 00.389'	W117° 15.991'
OH	3R-1	N33° 12.363'	W117° 23.497'	SEL	3R-4	N33° 00.622'	W117° 15.824'
SLE	1L-1	N33° 12.203'	W117° 23.297'	SDL	1L-1	N32° 58.245'	W117° 15.774'
SLE	1M-1	N33° 12.191'	W117° 23.345'	SDL	1M-1	N32° 58.266'	W117° 15.801'
SLE	1R-1	N33° 12.221'	W117° 23.334'	SDL	1R-1	N32° 58.352'	W117° 15.986'
SLE	2L-1	N33° 12.276'	W117° 23.200'	SDL	2L-1	N32° 57.909'	W117° 15.121'
SLE	2M-1	N33° 12.303'	W117° 23.196'	SDL	2M-1	N32° 58.022'	W117° 15.399'
SLE	2R-1	N33° 12.249'	W117° 23.272'	SDL	2R-1	N32° 58.076'	W117° 15.580'
SLE	3L-1	N33° 12.474'	W117° 22.912'	SDL	3L-1	N32° 58.328'	W117° 15.135'
SLE	3M-1	N33° 12.429'	W117° 22.999'	SDL	3M-1	N32° 58.315'	W117° 15.289'
SLE	3R-1	N33° 12.446'	W117° 22.971'	SDL	3R-2	N32° 58.299'	W117° 15.398'
BVL	1L-1	N33° 09.919'	W117° 21.468'	LPL	1L-1	N32° 55.898'	W117° 15.546'
BVL	1M-1	N33° 09.983'	W117° 21.464'	LPL	1M-1	N32° 55.944'	W117° 15.490'
BVL	1R-1	N33° 10.050'	W117° 21.507'	LPL	1R-1	N32° 56.035'	W117° 15.575'
BVL	2L-1	N33° 10.274'	W117° 20.995'	LPL	2L-3	N32° 55.962'	W117° 15.424'
BVL	2M-1	N33° 10.119'	W117° 21.213'	LPL	2M-1	N32° 55.966'	W117° 15.272'
BVL	2R-1	N33° 10.404'	W117° 21.094'	LPL	2R-1	N32° 55.965'	W117° 15.246'
BVL	3L-1	N33° 10.697'	W117° 20.514'	LPL	3L-1	N32° 55.866'	W117° 15.061'
BVL	3M-3	N33° 10.565'	W117° 20.857'	LPL	3M-1	N32° 55.820'	W117° 14.920'
BVL	3R-1	N33° 10.637'	W117° 20.925'	LPL	3R-1	N32° 55.890'	W117° 15.161'
AHL	1L-2	N33° 08.481'	W117° 20.402'	MB	1L-1	N32° 45.597'	W117° 14.178'
AHL	1M-1	N33° 08.713'	W117° 20.509'	MB	1M-1	N32° 45.722'	W117° 14.579'
AHL	1R-2	N33° 08.657'	W117° 20.362'	MB	1R-1	N32° 46.727'	W117° 14.770'
AHL	2L-6	N33° 08.580'	W117° 19.946'	MB	2L-1	N32° 46.338'	W117° 13.735'
AHL	2M-1	N33° 08.602'	W117° 19.892'	MB	2M-1	N32° 46.495'	W117° 13.756'
AHL	2R-1	N33° 08.749'	W117° 20.185'	MB	2R-1	N32° 47.116'	W117° 13.868'
AHL	3L-1	N33° 08.383'	W117° 19.469'	MB	3L-1	N32° 46.444'	W117° 12.888'
AHL	3M-1	N33° 08.455'	W117° 19.461'	MB	3M-1	N32° 46.568'	W117° 12.726'
AHL	3R-3	N33° 08.472'	W117° 19.306'	MB	3R-1	N32° 47.572'	W117° 13.135'
SRE	1L-1	N32° 38.853'	W117° 06.908'	TRE	1L-1	N32° 33.292'	W117° 07.671'
SRE	1M-1	N32° 38.934'	W117° 06.692'	TRE	1M-6	N32° 33.376'	W117° 07.693'
SRE	1R-5	N32° 38.943'	W117° 06.700'	TRE	1R-3	N32° 33.619'	W117° 07.850'
SRE	2L-1	N32° 39.067'	W117° 06.133'	TRE	2L-1	N32° 33.409'	W117° 07.300'
SRE	2M-1	N32° 39.122'	W117° 05.977'	TRE	2M-1	N32° 33.427'	W117° 07.533'
SRE	2R-2	N32° 39.018'	W117° 06.455'	TRE	2R-1	N32° 33.464'	W117° 07.421'
SRE	3L-1	N32° 39.217'	W117° 05.586'	TRE	3L-2	N32° 33.445'	W117° 07.372'
SRE	3M-1	N32° 39.162'	W117° 05.853'	TRE	3M-1	N32° 33.474'	W117° 07.300'
SRE	3R-2	N32° 39.254'	W117° 05.577'	TRE	3R-1	N32° 33.474'	W117° 06.402'

In the field, the aerial photographs with the identified sampling sites and a hand-held differential global positioning system (dGPS) unit were used to locate the first sampling site identified by the random points generator. Each site was accessed by a survey team of two people with an inflatable boat or by land depending on the sampling location. If the first location was inaccessible or was not considered part of the delineated embayment, the next randomly selected site was located until an accessible sampling point was identified. Sites were considered inaccessible if the GIS coordinates generated by the random points generator were found in the field to be on land, in an area with impermeable substrate (e.g., rip rapped channels), or that could not be accessed by land or by boat. This process was repeated for all nine pre-determined areas of the embayment. Sediment samples were collected at each of the nine sampling points per embayment and analyzed for grain size and TOC content as described below. A summary of the Phase I sampling protocol is presented in Table 5-4.

Table 5-4. Summary of Phase I field and analytical activities of the 2002/2003 Ambient Bay and Lagoon Monitoring Program.

Field Collection Parameter	Site	Analysis	Total Samples Analyzed per Embayment	Field Completion Date
Total Organic Carbon and Grain Size	Stratum 1			
	Right	Individual		
	Middle	Individual	3	
	Left	Individual		
	Stratum 2			
	Right	Individual		
	Middle	Individual	3	June 30, 2003
	Left	Individual		
	Stratum 3			
	Right	Individual		
	Middle	Individual	3	
	Left	Individual		

5.2.3 Sample Collection

Most of the sampling sites were accessed from the water with an inflatable raft powered by an 8 hp motor. Sites that were inaccessible by water were accessed by land where possible. Some sites were considered inaccessible due to difficult terrain or the presence of sensitive habitat, wildlife, or vegetation.

Once the sampling site had been located in the field, a sediment sample was taken with a push core. The coring apparatus consisted of a 10-foot long aluminum push rod attached to an aluminum block. The block consisted of a six cubic inch head connected to a six-inch long, three-inch diameter cylinder. At the bottom of the cylinder was a rubber stopper that was held in place with a line that passed through the aluminum block and out of a port near the top of the push rod. The stopper was secured inside the bottom of a three-inch diameter plastic tube approximately five feet long. The tube was then attached to the outside of the aluminum cylinder with hose clamps.

Sediment sample in push core

To remove a sediment core, the plastic tube was pushed into the sediment using the push rod to a depth of approximately six to twelve inches. The stopper, located at the sediment water interface, was pushed up the plastic tube as the tube was inserted into the sediment. When the appropriate depth had been reached, the whole apparatus was removed from sediment with the sediment core in tact within the plastic tube. The stopper creates suction within the tube that holds the sediment core in place. Once retrieved, the bottom of the sediment in the core was removed so that only the top 5 cm of sediment remained in the core. Both ends of the core were then capped, labeled with the appropriate site information, and placed on ice in a cooler. All samples were transported on ice to the laboratory. In the laboratory, each sample was split and placed into two individual baggies. The samples for TOC analysis were placed in the freezer and stored at –8 C. Samples for grain size analysis were stored in the refrigerator at 4 C.

In the laboratory, sediment TOC levels were analyzed by method ASTM D2579, modified. Sediment grain size was analyzed using a technique employed by Plumb (1981) based on procedures for Handling and Chemical Analysis of Sediment and Water Samples.

5.2.4 Phase II Priority Ranking

After sediment samples from the nine sites in each of the twelve embayments were analyzed, the sites in each embayment were ranked based on the percentage of fine grained sediments and TOC levels. The sites with the smallest grain size (i.e., the highest percentage of fine-grained sediments) received the highest rank for grain size and the sites with the highest TOC content received the highest rank for TOC. The ranks for grain size and TOC at each site were then summed to produce an overall rank for that site. The three sites in each embayment with the highest ranks will be assessed in Phase II of the program. In the case of a tie in the summed ranks, the site with the higher fines rank was selected for Phase II assessment.

5.2.5 Phase I Results

Sediment samples from the Phase I assessment were collected from the twelve coastal embayments between June 2, 2003 and June 11, 2003. A summary of the percentage of fine-grained sediment and the sediment's TOC content for the 12 embayments monitored in the 2002-2003 ABLM Program is presented in Figure 5-2. The mean percentage of fine-grained sediments (nine sites per embayment) was fairly similar among the 12 embayments. However, sediments at two embayments appeared to be distinctly different from the others. Santa Margarita River Estuary (SME) had a much smaller proportion of fine-grained sediments (i.e., a larger median grain size) than any of the other embayments in San Diego County. Sediments at Santa Margarita River Estuary also had a much lower mean TOC content (nine sites per embayment) than the other embayments. In contrast, sediments at Buena Vista Lagoon (BVL) had a distinctly higher proportion of fine-grained sediments than the other embayments in the County and a much higher TOC content.

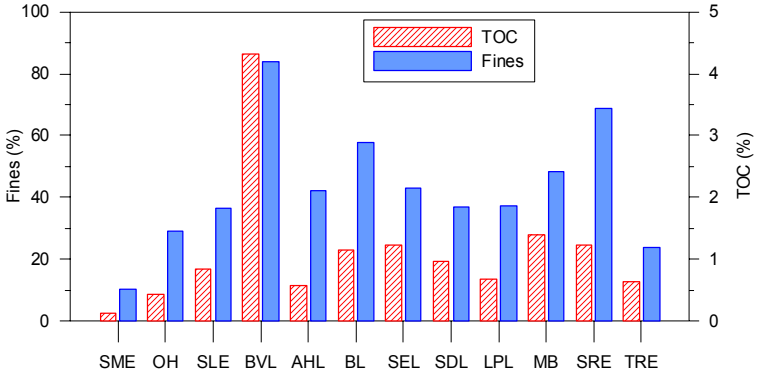

Figure 5-2. Mean percent fines and TOC content of sediment at ABLM Program embayments.

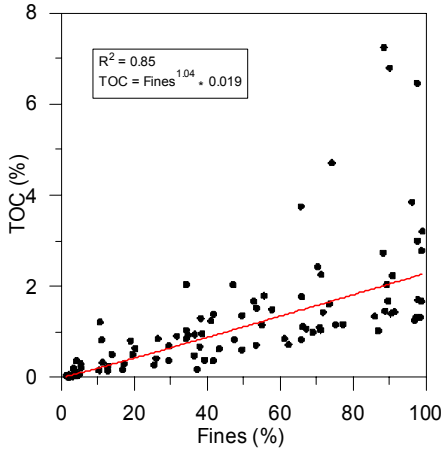

Figure 5-3. Relationship between percent fines and TOC content.

Typically, sites that had high levels of fine-grained sediments also had high levels of TOC. Figure 5-3 shows the relationship between fine grain size and TOC content for all of the 108 sites (9 sites at each of 12 embayments) monitored in the 2002-2003 ABLM Program. The high R^2 value (0.85) reflects the strong relationship between the two parameters.

The results for each embayment and the subsequent ranking of Phase II sites are presented below.

Buena Vista Lagoon

Sediment samples were collected in Buena Vista Lagoon on June 3, 2003. The nine sites sampled as part of the Phase I assessment are shown in Figure 5-7. Overall, the sites sampled in Buena Vista Lagoon had the smallest median grain size (mean of 25.3 μm), the largest percentage of fines (mean of 83.7%) and the highest TOC content (mean of 4.32%) of any of the twelve coastal embayments assessed in Phase I (Table 5-8). The grain size distribution was similar among the nine sites sampled, with clay and silt as the major components at all but one site. Sediments at Site 1L-1, situated at the mouth of the Lagoon closest to the ocean, consisted primarily of sand (87.1%). TOC content was also similar among most sites and no obvious spatial patterns were apparent. As with the grain size distribution, TOC content at Site 1L-1 was different from other sites in the Lagoon, with a much lower TOC content (0.83%).

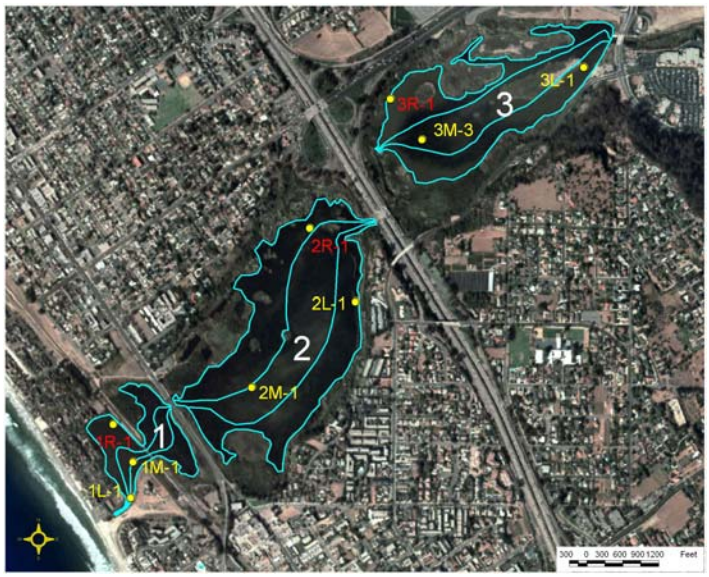

Figure 5-7. Map of Phase I site locations in Buena Vista Lagoon. Sites in red were selected for Phase II assessment.

Of the four sites that ranked highest for grain size and TOC, one was located in the outer stratum (1R-1), two were located in the middle stratum (2L-1 and 2R-1) and one was located in the inner stratum (3R-1) (Table 5-8). Of these, 1R-1, 2R-1, and 3R-1 were selected for Phase II assessment.

Table 5-8. Results of Phase I sediment analyses and subsequent ranking for Phase II site selection at Buena Vista Lagoon.

Sampling Site	TOC and Grain Size Distribution in Phase I								Ranking for Phase II				
	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Median (µm)	Mean (µm)	Fines (%)	TOC (%)	Fines Rank	TOC Rank	Rank Sum	Highest Rank	Phase II
BVL 1L-1	1.87	87.1	4.44	6.57	205	183	11.0	0.83	1	1	2		
BVL 1M-1	1.47	24.3	16.8	57.4	1.94	NC	74.2	4.71	2	6	8		
BVL 1R-1	0.35	2.00	17.5	80.1	1.59	NC	97.6	6.46	6	7	13	*	Yes
BVL 2L-1	4.52	6.99	19.5	69.0	1.69	NC	88.5	7.24	3	9	12	*	
BVL 2M-1	0.00	2.33	24.5	73.1	1.69	NC	97.7	3.00	7	3	10		
BVL 2R-1	1.06	8.87	31.9	58.2	1.81	NC	90.1	6.79	4	8	12	*	Yes
BVL 3L-1	0.30	3.49	59.4	36.8	8.51	4.38	96.2	3.85	5	5	10		
BVL 3M-3	0.10	1.10	44.5	54.3	2.98	2.54	98.8	2.78	8	2	10		
BVL 3R-1	0.00	0.88	44.7	54.4	2.86	2.10	99.1	3.21	9	4	13	*	Yes
Mean of all sites	1.07	15.2	29.3	54.4	25.3	47.9	83.7	4.32					

NC = Not calculable (%silt + %clay > 84%)

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6.3.2 Summary and Conclusions

The Carlsbad WMA included four bioassessment monitoring sites, two on Agua Hedionda Creek and two on Escondido Creek. Index of Biotic Integrity scores rated the benthic communities Very Poor at all four sites. The Elfin Forest site in Escondido Creek, with excellent physical habitat conditions, was at the upper limit of the Very Poor range and an impairment sensitive caddisfly was collected there. This likely indicates some measure of water quality improvement occurred between Harmony Grove Bridge and Elfin Forest. The Agua Hedionda Creek sites both had marginal in-stream habitat conditions, which may have limited macroinvertebrate colonization.

6.4 Ambient Bay and Lagoon Monitoring Program

There are four coastal embayments in the Carlsbad WMA that were monitored in the ABLM Program: Buena Vista Lagoon, Agua Hedionda Lagoon, Batiquitos Lagoon, and San Elijo Lagoon.

6.4.1 Results and Discussion for Buena Vista Lagoon

6.4.1.1 Phase I Results and Discussion for Buena Vista Lagoon

Sediment samples were collected in Buena Vista Lagoon for the ABLM Program on June 3, 2003. The nine sites sampled as part of the Phase I assessment are shown in Figure 6-3. Overall, the sites sampled in Buena Vista Lagoon had the smallest median grain size (mean of 25.3 μm), the largest percentage of fines (mean of 83.7%) and the highest TOC content (mean of 4.32%) of any of the twelve coastal embayments assessed in Phase I (Table 6-9). The grain size distribution was similar among the nine sites sampled, with clay and silt as the major components at all but one site. Sediments at Site 1L-1, situated at the mouth of the Lagoon closest to the ocean, consisted primarily of sand (87.1%). TOC content was also similar among most sites and no obvious spatial patterns were apparent. As with the grain size distribution, TOC content at Site 1L-1 was different from other sites in the Lagoon, with a much lower TOC content (0.83%).

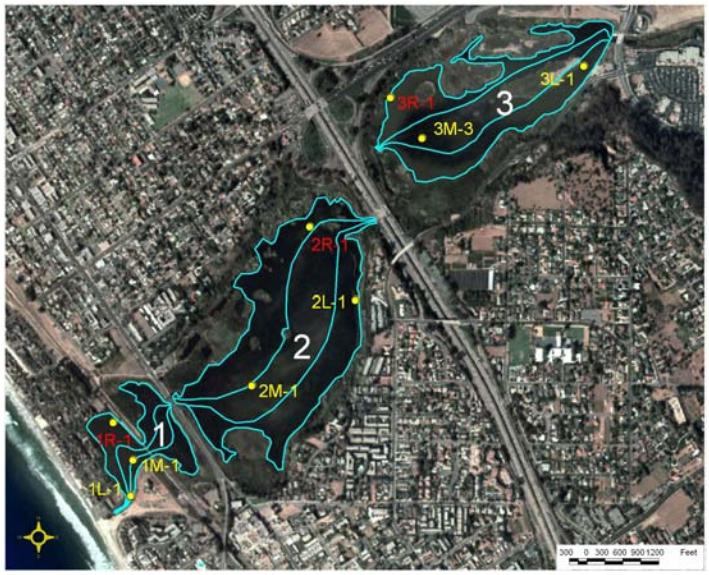

Figure 6-3. Map of Phase I site locations in Buena Vista Lagoon. Sites in red were selected for Phase II assessment.

Table 6-9. Results of Phase I sediment analyses and subsequent ranking for Phase II site selection at Buena Vista Lagoon.

Sampling Site	TOC and Grain Size Distribution in Phase I								Ranking for Phase II				
	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Median (µm)	Mean (µm)	Fines (%)	TOC (%)	Fines Rank	TOC Rank	Rank Sum	Highest Rank	Phase II
BVL 1L-1	1.87	87.1	4.44	6.57	205	183	11.0	0.83	1	1	2		
BVL 1M-1	1.47	24.3	16.8	57.4	1.94	NC	74.2	4.71	2	6	8		
BVL 1R-1	0.35	2.00	17.5	80.1	1.59	NC	97.6	6.46	6	7	13	*	Yes
BVL 2L-1	4.52	6.99	19.5	69.0	1.69	NC	88.5	7.24	3	9	12	*	
BVL 2M-1	0.00	2.33	24.5	73.1	1.69	NC	97.7	3.00	7	3	10		
BVL 2R-1	1.06	8.87	31.9	58.2	1.81	NC	90.1	6.79	4	8	12	*	Yes
BVL 3L-1	0.30	3.49	59.4	36.8	8.51	4.38	96.2	3.85	5	5	10		
BVL 3M-3	0.10	1.10	44.5	54.3	2.98	2.54	98.8	2.78	8	2	10		
BVL 3R-1	0.00	0.88	44.7	54.4	2.86	2.10	99.1	3.21	9	4	13	*	Yes
Mean of all sites	1.07	15.2	29.3	54.4	25.3	47.9	83.7	4.32					

NC = Not calculable (%silt + %clay > 84%)

Of the four sites with the highest rank sum for fines and TOC, one was located in the outer stratum (1R-1), two were located in the middle stratum (2L-1 and 2R-1) and one was located in the inner stratum (3R-1) (Table 6-9). Of these, 1R-1, 2R-1, and 3R-1 were selected for Phase II assessment.

6.4.1.2 Phase II Results and Discussion

The three sites selected in the Buena Vista Lagoon as part of Phase I were sampled in Phase II on July 18, 2003. Sediments for the three sites selected were analyzed for chemistry, toxicity, and benthic community structure. The results are summarized in Table 6-10.

Table 6-10. Summary of chemistry, toxicity, and benthic community structure in Buena Vista Lagoon.

CHEMISTRY*					TOXICITY*	BENTHIC COMMUNITY					
Analyte	ERL	ERM	Result	ERM-Q	Percent Survival	Index	1R-1	2R-1	3R-1	Mean	Total
METALS (mg/kg)						Abundance	--**	43	13	19	56
Arsenic	8.2	70	7.26	0.10		Richness	--**	3	2	1.7	3
Chromium	81	370	40.8	0.11	**63%**	Diversity	--**	0.78	0.67	0.48	--
Copper	34	270	**48.3**	0.18		Evenness	--**	0.71	0.96	0.56	--
Lead	46.7	218	31.6	0.14	Significantly Different from Control	Dominance	--**	2	2	1.33	--
Nickel	20.9	51.6	15.7	0.30							
Zinc	150	410	105	0.27							
Mean ERM-Q				0.183							

* Analysis performed on composite samples from the three sites.

** No organisms were found at this site.

Sediment Chemistry. Sediments from each of the 12 coastal embayments in the ABLM Program were analyzed for four basic constituents: metals, PCBs, PAHs, and pesticides. Of these, six metals common to all the embayments were detected above the detection limit in sediments from Buena Vista Lagoon: arsenic, chromium, copper, lead, nickel, and zinc (Table 6-10). Concentrations of these metals were higher than at most other embayments assessed in the ABLM Program, but were low compared to the ERL and ERM values. No concentrations exceeded the ERM values and only copper exceeded the ERL. There were no PAHs, PCBs, or pesticides found above the detection limit in Buena Vista Lagoon. The mean ERM quotient, which is a measure of the cumulative effects of the COCs for which ERMs are available, was 0.183. This value exceeded the threshold of 0.10, which suggests that sediments in Buena Vista Lagoon have a greater probability of producing adverse biological effects than embayments with mean ERM-Qs below the threshold (Long et al. 1998). Although the threshold was exceeded it should be noted that the concentrations of all metals assessed were low in Buena Vista Lagoon, three to ten times lower than their respective ERMs.

Toxicity. The percent survival of *E. estuarius* exposed to Buena Vista Lagoon sediments in a 10-day acute toxicity test was 63% (Table 6-9). Percent survival was significantly different from that of the Control (94%), suggesting that Buena Vista Lagoon sediments were toxic to the test organisms. The source of the toxicity was unknown.

Benthic Community Structure. A total of only 56 organisms were collected from Buena Vista Lagoon, representing 3 taxa (Table 6-11). Site 1R-1 in the outer Lagoon was very different from the other sites in the Estuary because no organisms were found at this site. The benthic indices were similar between Sites 2R-1 and 3R-1, where organisms were found. Based on these indices, the benthic community structure at Buena Vista Lagoon had a rank of 3 (where 1 represents the lowest combined index score and 12 the highest). The low relative ranking is due to the very low abundance and number of species, both of which were lower in Buena Vista Lagoon than any other embayment assessed.

Table 6-11. Dominant infaunal species found in Buena Vista Lagoon during the 2003 ABLM Program.

Embayment	Taxa (Species)	Higher Taxa	Abundance	Percent Composition
BVL	*Hyalella azteca*	Crustacean	18	32.1
	Chironomidae	Minor Phyla	29	51.8
	Trichocorixa sp	Minor Phyla	9	16.1

Values were calculated from the total of all sites assessed.

The low taxa abundance and diversity in Buena Vista Lagoon were likely related to water quality. Buena Vista Lagoon was the only embayment assessed that consisted primarily of freshwater. The mouth of the Lagoon is closed to the ocean and therefore receives no tidal exchange. The salinity was below 3.0 ppt at all three sites sampled during the Phase II assessment and large mouth bass, a freshwater game fish, were observed in the outer lagoon at the time of sampling. The freshwater nature of the Lagoon is also reflected in the benthic infaunal community. Of the three species identified, the family Chironomidae (a group that includes the aquatic larval stages of freshwater flies and midges) was most abundant, accounting for over 50% of the organisms collected. The freshwater crustacean *Hyalella azteca* (also known as a scud) was the next most abundant taxon, followed by *Trichocorixa sp.*, a genus of freshwater insects in the family Corixidae that includes the water boatmen.

Relative Ranking. The results of the chemistry, toxicity, and benthic community assessments for Buena Vista Lagoon were ranked against the same parameters for the other embayments monitored in the ABLM Program (see Section 13.4 for a complete discussion). For chemistry, a rank of 1 represents the highest ERM-Q and 12 represents the lowest. For toxicity, a rank of 1 represents the lowest percent survival of test organisms and 12 represents the highest. For benthos, a rank of 1 represents the lowest combined index score and a rank of 12 represents the highest. The results are presented in Figure 6-4. For Buena Vista Lagoon, the relative ranks were 3 for chemistry, 7 for toxicity, and 3 for benthic community structure.

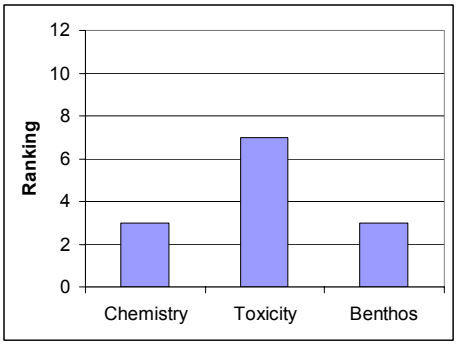

Figure 6-4. Relative rankings for sediment in Buena Vista Lagoon.

It is important to remember that the conditions in Buena Vista Lagoon are very different from all the other embayments assessed in the ABLM Program. Because this Lagoon is closed to the ocean, it receives no tidal exchange, has no salt water influence, and functions more as a freshwater lake or wetland than a coastal estuary. The depositional nature of the Lagoon was reflected in the physical nature of the sediments, which contained a much greater percentage of fines and higher TOC content than any other embayment (see Section 13.4). This likely contributed to the relatively high mean ERM-Q value and presence of toxicity in this embayment. In addition, the freshwater nature of the Lagoon was reflected in the unique benthic community assemblage, which makes it difficult to compare directly with the other embayments assessed. Thus, the low rankings for Buena Vista Lagoon relative to the other embayments are most likely due to the Lagoon's freshwater nature rather than a greater than average loading of anthropogenic contaminants.

6.4.1.3 Summary and Conclusions

Sediments in Buena Vista Lagoon were monitored as part of the 2003 ABLM Program to assess the potential for adverse effects from the watershed and to compare sediment quality with other coastal embayments in San Diego County. In Phase I, a stratified random approach was used to identify the three sites where COCs were most likely to be found (i.e., those with the highest TOC and smallest grains size): Site 1R-1 in the outer stratum, 2R-1 in the middle stratum, and 3R-1 in the inner stratum. These sites were sampled in Phase II of the assessment and analyzed for sediment chemistry, toxicity, and benthic community structure. The results of the chemistry assessment indicated that six of the nine metals analyzed were found in the Lagoon sediments. Concentrations were slightly higher than those found in other embayments, but were low compared to ERL and ERM values. Concentrations of all the metals were below their respective ERLs except copper, which was slightly higher than the ERL, but did not exceed the ERM. The mean ERM-Q for Buena Vista Lagoon was the third highest among the embayments assessed in the ABLM Program. The percent survival of test organisms exposed to the Lagoon sediments was significantly less than that of a Control, which suggests the presence of toxic agents. However, the low concentrations of the constituents monitored suggests that they did not account for the elevated toxicity. Only three taxa were found in Buena Vista Lagoon, all of which were freshwater animals. The low relative rankings are likely due to the influence of fresh water and lack of tidal flushing in the Lagoon rather than a greater than average contaminant loading. The relative ranks were developed from data collected in the summer of 2003 and presented for the first time in the 2004 report. However, attributing contaminants in the embayments directly to COCs in the watershed is premature at this time, particularly since samples for sediment chemistry and toxicity were based on a single composite for each embayment. Monitoring conducted in the future may help determine potential contaminant sources through the use of a longer-term data set.

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survey. A substantial amount of substrate alteration occurred between the October and May surveys in Escondido Creek. The Aqua Hedionda Creek sites both had marginal in-stream habitat conditions, which may have limited macroinvertebrate colonization.

6.4 Ambient Bay and Lagoon Monitoring Program

There are four coastal embayments in the Carlsbad WMA that were monitored in the ABLM Program: Buena Vista Lagoon, Agua Hedionda Lagoon, Batiquitos Lagoon, and San Elijo Lagoon.

6.4.1 Results and Discussion *Buena Vista Lagoon*

6.4.1.1 Phase I Results and Discussion

Sediment samples were collected in Buena Vista Lagoon for the ABLM Program on June 8, 2004 (See Section 3.3 for details on the sampling approach). The nine sites sampled as part of the Phase I assessment are shown in Figure 6-5. Overall, the sites sampled in Buena Vista Lagoon had the smallest median grain size (mean of 21.23 μm), the largest percentage of fines (mean of 82.74%), and the highest TOC content (mean of 5.19%) of any of the twelve coastal embayments assessed in Phase I (Table 6-9). The grain size distribution was similar among the nine sites sampled, with clay and silt as the major components at all but one site. Sediments at Site 1L-1, situated at the mouth of the Lagoon closest to the ocean, consisted primarily of sand (75.5%). TOC content was also similar among most sites and no obvious spatial patterns were apparent. As with the grain size distribution, TOC content at Site 1L-1 was different from other sites in the Lagoon, with a lower TOC content (2.43%).

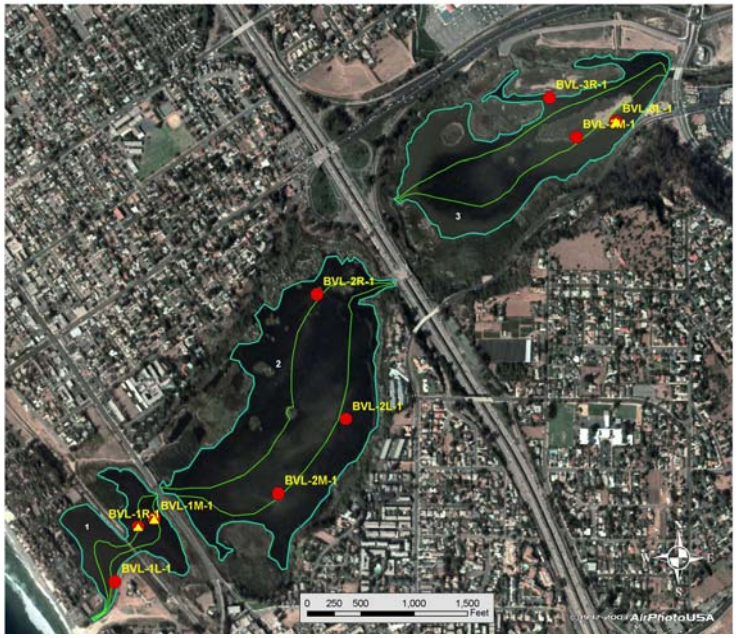


Figure 6-5. Map of Phase I site locations in Buena Vista Lagoon. Sites with yellow triangles were selected for Phase II assessment.

The sites that ranked highest for grain size and TOC and therefore selected for Phase II assessment, two were located in the outer stratum (1M-1 and 1R-1), and one was located in the inner stratum (3L-1) (Table 6-9).

Table 6-9. Results of Phase I sediment analyses and subsequent ranking for Phase II site selection at Buena Vista Lagoon.

Sampling Site	TOC and Grain Size Distribution in Phase I								Ranking for Phase II				
	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Median (µm)	Mean (µm)	Fines (%)	TOC (%)	Fines Rank	TOC Rank	Rank Sum	Highest Rank	Phase II
BVL-1L-1	0.00	75.5	11.31	13.20	153	62	24.50	2.43	1	1	2		
BVL-1M-1	0.68	5.5	19.4	74.4	1.68	NC	93.83	7.75	7	9	16	*	Yes
BVL-1R-1	0.14	6.11	19.6	74.1	1.69	NC	93.75	5.98	6	6	12	*	Yes
BVL-2L-1	0.03	2.77	25.7	71.5	1.71	NC	97.20	2.98	9	2	11		
BVL-2M-1	0.03	6.72	25.6	67.7	1.81	NC	93.25	3.57	4	3	7		
BVL-2R-1	0.00	37.65	23.2	39.2	12.50	6.35	62.35	6.40	2	7	9		
BVL-3L-1	0.09	4.62	57.8	37.5	7.42	4.85	95.29	5.29	8	4	12	*	Yes
BVL-3M-1	0.01	6.57	43.4	50.0	3.90	3.84	93.42	5.60	5	5	10		
BVL-3R-1	0.17	8.73	53.0	38.1	7.69	5.45	91.09	6.73	3	8	11		
Mean of all sites	0.13	17.13	31.00	51.74	21.23	16.47	82.74	5.19					
St. Dev.	0.22	24.34	16.30	21.49	49.54	25.45	24.27	1.81					

NC = Not calculable (%silt + %clay > 84%)

6.4.1.2 Phase II Results and Discussion

The three sites selected in the Buena Vista Lagoon as part of Phase I were sampled in Phase II on July 9, 2004. Sediments from Sites 1M-1, 1R-1 and 3L-1 were composited and analyzed for chemistry, toxicity, and benthic community structure. The results are summarized in Table 6-10.

Table 6-10. Summary of chemistry, toxicity, and benthic community structure in Buena Vista Lagoon.

CHEMISTRY*					TOXICITY*	BENTHIC COMMUNITY					
Analyte	ERL	ERM	Result	ERM-Q	Percent Survival	Index	1M-1	1R-1	3L-1	Mean	St. Dev.	Total
METALS (mg/kg)					**98%** Not Significantly Different from Control	Abundance	77	52	36	55	20.7	165
Antimony	NA	NA	<1.74	NA		Richness	6	6	3	5	1.73	10
Arsenic	8.2	70	7.38	0.105		Diversity	1.01	0.71	0.25	0.66	0.38	NA
Cadmium	1.2	9.6	0.646	0.067		Evenness	0.56	0.40	0.23	0.40	0.17	NA
Chromium	81	370	35.9	0.097		Dominance	2	1	1	1.33	0.58	NA
Copper	34	270	**43.5**	0.161								
Lead	46.7	218	32.5	0.149								
Nickel	20.9	51.6	14.1	0.273								
Selenium	NA	NA	<1.74	NA								
Zinc	150	410	**180**	0.439								
Mean ERM-Q				**0.185**								

* Analysis performed on composite samples from the three sites.
NA-Not applicable
Bold – exceeds ERL or ERM value

Sediment Chemistry. Sediments from each of the 12 coastal embayments in the ABLM Program were analyzed for four basic constituents: metals, PCBs, PAHs, and pesticides. Of these, seven metals common to all the embayments were detected above the detection limit in sediments from Buena Vista Lagoon: arsenic, cadmium, chromium, copper, lead, nickel, and zinc (Table 6-10). Concentrations of these metals were higher than at most other embayments assessed in the ABLM Program, but were low compared to the ERL and ERM values. These results are similar to the 2003 ABLM program with the exception of cadmium which was not detected. No concentrations exceeded the ERM values and only copper and zinc exceeded the ERL during 2004. During 2003 only copper exceeded the ERL. There were no PAHs, PCBs, or pesticides found above the detection limit in Buena Vista Lagoon. The mean ERM quotient, which is a measure of the cumulative effects of the COC for which ERMs are available, was 0.185. This value exceeded the threshold of 0.10, which suggests that sediments in Buena Vista Lagoon have a greater probability of producing adverse biological effects than embayments with mean ERM-Qs below the threshold (Long et al. 1998). Although the threshold was exceeded it should be noted that the concentrations of all metals assessed were low in Buena Vista Lagoon, three to ten times lower than their respective ERMs. This is also similar to the 2003 results where the mean ERM quotient was 0.183.

Toxicity. The percent survival of *E. estuarius* exposed to Buena Vista Lagoon sediments in a 10-day acute toxicity test was 98% (Table 6-10). Percent survival was not significantly different from that of the Control (99%). During the 2003 ABLM program toxicity was observed, but the source of toxicity was unknown.

Benthic Community Structure. A total of 165 organisms were collected from Buena Vista Lagoon, representing 10 taxa (Table 6-10). During the 2003 ABLM program a total of 56 organisms were collected, representing 3 taxa. The benthic indices for 2004 were similar between Sites 1M-1 and 1R-1, where the majority of the organisms were found. Based on these indices, the benthic community structure at Buena Vista Lagoon had a rank of 9, where 1 represents the healthiest community with the lowest combined index score and 12 the least-healthy community. This relative low ranking is due to the very low abundance and number of species, both of which were lower in Buena Vista Lagoon than any other embayment assessed.

The low taxa abundance and diversity in Buena Vista Lagoon were likely related to water quality. Buena Vista Lagoon was the only embayment assessed that consisted primarily of freshwater. The mouth of the Lagoon is closed to the ocean and therefore receives no tidal exchange. The salinity was below 4.3 ms/cm at all three sites sampled during the Phase II assessment and large mouth bass, a freshwater game fish, were observed in the outer lagoon at the time of sampling. The freshwater nature of the Lagoon is also reflected in the benthic infaunal community. Of the species identified, the family Chironomidae (a group that includes the aquatic larval stages of freshwater flies and midges) was most abundant, accounting for over 74% of the organisms collected (Table 6-11). The freshwater crustacean *Hyalella azteca* (also known as a scud) was the next most abundant taxon consisting of 16.9% of the organisms collected. These results are similar to the 2003 results where Chironomidae accounted for 50% of the organisms collected followed by *Hyalella azteca*.

Table 6-11. Dominant infaunal species found in Buena Vista Lagoon during the 2004 ABLM Program.

Embayment	Taxa (Species)	Higher Taxa	Abundance	Percent Composition
BVL	*Chironomidae*	Minor Phyla	123	74.5
	Hyalella azteca	Crustacean	28	16.9

Relative Ranking. The results of the chemistry, toxicity, and benthic community assessments for Buena Vista Lagoon were ranked against the same parameters for the other embayments monitored in the ABLM Program (see Section 3.3.5 for a complete discussion). For chemistry, a rank of 1 represents the lowest ERM-Q and 12 represents the highest. For toxicity, a rank of 1 represents the highest percent survival of test organisms and 12 represents the lowest. For benthos, a rank of 1 represents the highest species diversity, abundance and richness and a rank of 12 represents the lowest species diversity, abundance and richness. The results are presented in Figure 6-6. For Buena Vista Lagoon, the relative ranks were nine for chemistry, one for toxicity, and nine for benthic community structure.

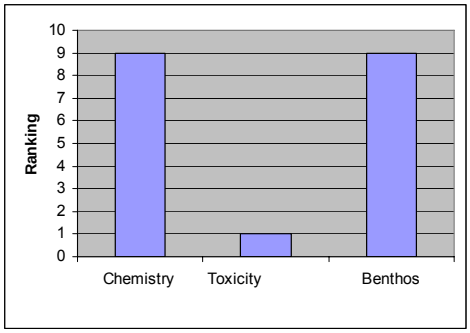


Figure 6-6. Relative rankings for sediment in Buena Vista Lagoon

It is important to remember that the conditions in Buena Vista Lagoon are very different from all the other embayments assessed in the ABLM Program. Because this Lagoon is closed to the ocean, it receives no tidal exchange, has no salt water influence, and functions more as a freshwater lake or wetland than a coastal estuary. The depositional nature of the Lagoon was reflected in the physical nature of the sediments, which contained a much greater percentage of fines and higher TOC content than any other embayment. This likely contributed to the relatively high mean ERM-Q value and presence of toxicity in this embayment. In addition, the freshwater nature of the Lagoon was reflected in the unique benthic community assemblage, which makes it difficult to compare directly with the other embayments assessed. Thus, the low rankings for Buena Vista Lagoon relative to the other embayments are most likely due to the Lagoon's freshwater nature rather than any other factor.

6.4.1.3 Summary and Conclusions

Sediments in Buena Vista Lagoon were monitored as part of the 2004 ABLM Program to assess the potential for adverse effects from the watershed and to compare sediment quality with other coastal embayments in San Diego County. In Phase I, a stratified random approach was used to identify the three sites where COC were most likely to be found (i.e., those with the highest TOC and smallest grains size): Sites 1R-1 and 1M-1 in the outer stratum, and 3L-1 in the inner stratum. These sites were sampled in Phase II of the assessment and analyzed for sediment chemistry, toxicity, and benthic community structure. The results of the chemistry assessment indicated that seven of the nine metals analyzed were found in the Lagoon sediments. Concentrations were slightly higher than those found in other embayments, but were low compared to ERL and ERM values. Concentrations of all the metals were below their respective ERLs except copper and zinc, which were slightly higher than the ERL, but did not exceed the ERMs. The mean ERM-Q for Buena Vista Lagoon was the third highest among the embayments assessed in the ABLM Program. There were no PAHs, PCBs, or pesticides found above the

detection limit in Buena Vista Lagoon. The percent survival of test organisms exposed to the Lagoon sediments was not significantly different than that of a Control, which suggests the lack of toxic agents. However, the low concentrations of the constituents monitored suggest that they did not account for the elevated toxicity. Only 10 taxa were found in Buena Vista Lagoon, most of which were freshwater animals. The low relative rankings are likely due to the influence of fresh water and lack of tidal flushing in the Lagoon rather than a greater than average contaminant loading. Compared to the other embayments in the 2004 ABLM program, Buena Vista Lagoon had an overall rank of seven. During the 2003 ABLM program the Lagoon had an overall rank of twelve. A decrease in overall ranking indicates an increase in relative quality compared with last year's ranking. More data will need to be collected before any definitive trends can be identified.

6.4.2 Results and Discussion for Agua Hedionda Lagoon

6.4.2.1 Phase I Results and Discussion

Sediment samples were collected in Agua Hedionda Lagoon on June 8, 2004 (See Section 3.3 for details on the sampling approach). The nine sites sampled as part of the Phase I assessment are shown in Figure 6-7. Sediment grain size was extremely variable in Agua Hedionda Lagoon. Among the nine stations sampled, median grain size ranged from 2.40 μm at Site 3L-1 in the inner Lagoon to 214.66 μm at Site 3M-1, also in the inner Lagoon (Table 6-12). However, strong spatial patterns were apparent among the three strata sampled. Sediments in the outer Lagoon consisted primarily of sand (88.8% to 96.7%) and had a lower TOC content (0.14% to 0.43%) than sites in the middle and outer Lagoon. Sediments at Sites 3L-1 and 3R-1 in the inner Lagoon were also distinctly different from those at other sites in the Lagoon. Sediments at these sites had a much smaller median grain size consisting primarily of clay, and a higher TOC content than the other sites in the Lagoon.

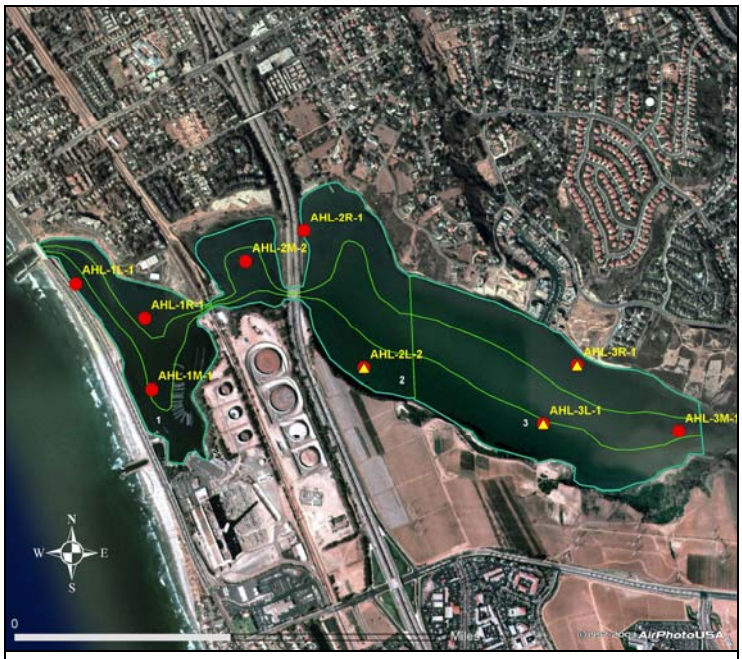


Figure 6-7. Map of Phase I site locations in Agua Hedionda Lagoon. Sites with yellow triangles were selected for Phase II assessment.

Sites 3L-1 and 3R-1 ranked highest for Phase II assessment due to the high percentage of fine sediments and high TOC content found in this part of the Lagoon (Table 6-12). Site 2L-2 in the middle stratum was also selected for Phase II assessment.

Ambient Bay and Lagoon Monitoring
Results for Buena Vista Lagoon
2005-2006

6.1.6 Ambient Bay and Lagoon Monitoring Site Description

There are four coastal embayments in the Carlsbad WMA that were monitored in the ABLM Program: Buena Vista Lagoon, Agua Hedionda Lagoon, Batiquitos Lagoon, and San Elijo Lagoon. One site in each of these basins was sampled during the Ambient Bay and Lagoon Monitoring Program.

6.4 Ambient Bay and Lagoon Monitoring Program

There are four coastal embayments in the Carlsbad WMA that were monitored in the ABLM Program: Buena Vista Lagoon, Agua Hedionda Lagoon, Batiquitos Lagoon, and San Elijo Lagoon.

6.4.1 Results and Discussion for Buena Vista Lagoon

6.4.1.1 Phase I Results and Discussion

Sediment samples were collected in Buena Vista Lagoon for the 2005 ABLM Program on June 6, 2005 (See Section 3.3 for details on the sampling approach). The nine sites sampled as part of the Phase I assessment are shown on Figure 6-10. Overall, the sites sampled in the Buena Vista Lagoon had the smallest median grain size (mean of 5.23 μm), the largest percentage of fines (mean of 85.51%), and the highest TOC content (mean of 7.18%) of any of the twelve coastal embayments assessed in Phase I (Table 6-14). The fines fraction of the sediment among the nine sites ranged from 64.78% at Site 1M-1 in the outer stratum to 99.45% at Site 3R-1 in the inner stratum. Clay was the dominant sediment constituent at the outer and middle strata sites while in the inner stratum sites silt was the dominant sediment constituent. TOC content ranged from 3.99% at Site 2L-1 to 13.10% at Site 1L-1.

Sites 1L-1 in the outer stratum, 2R-1 in the middle stratum and the inner stratum Site 3R-1 were selected for Phase II assessment (Table 6-14).

Table 6-14. Results of Phase I sediment analyses and subsequent ranking for Phase II site selection at the Buena Vista Lagoon.

Sampling Site	TOC and Grain Size Distribution in Phase I								Ranking for Phase II				
	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Median (µm)	Mean (µm)	Fines (%)	TOC (%)	Fines Rank	TOC Rank	Rank Sum	Highest Rank	Phase II
BVL 1L1	0.00	11.9	16.03	72.09	2	NC	88.12	13.10	5	9	14	*	Yes
BVL 1M1	0.00	35.2	17.5	47.3	4.74	NC	64.78	6.12	1	4	5		
BVL 1R1	0.57	19.84	25.7	53.9	2.76	NC	79.58	8.76	3	8	11		
BVL 2L1	1.61	9.37	24.6	64.4	1.89	NC	89.02	3.99	6	1	7		
BVL 2M1	0.14	16.96	23.3	59.6	1.94	NC	82.90	4.87	4	2	6		
BVL 2R1	0.46	3.92	26.3	69.3	1.79	NC	95.63	6.74	7	5	12	*	Yes
BVL 3L1	0.47	27.56	44.7	27.3	20.94	11.58	71.97	6.76	2	6	8		
BVL 3M1	0.05	1.79	54.7	43.5	5.39	3.51	98.17	5.62	8	3	11		
BVL 3R1	0.06	0.49	55.7	43.7	5.90	2.77	99.45	8.65	9	7	16	*	Yes
Mean of all sites	0.37	14.11	32.06	53.45	5.23	5.95	85.51	7.18					

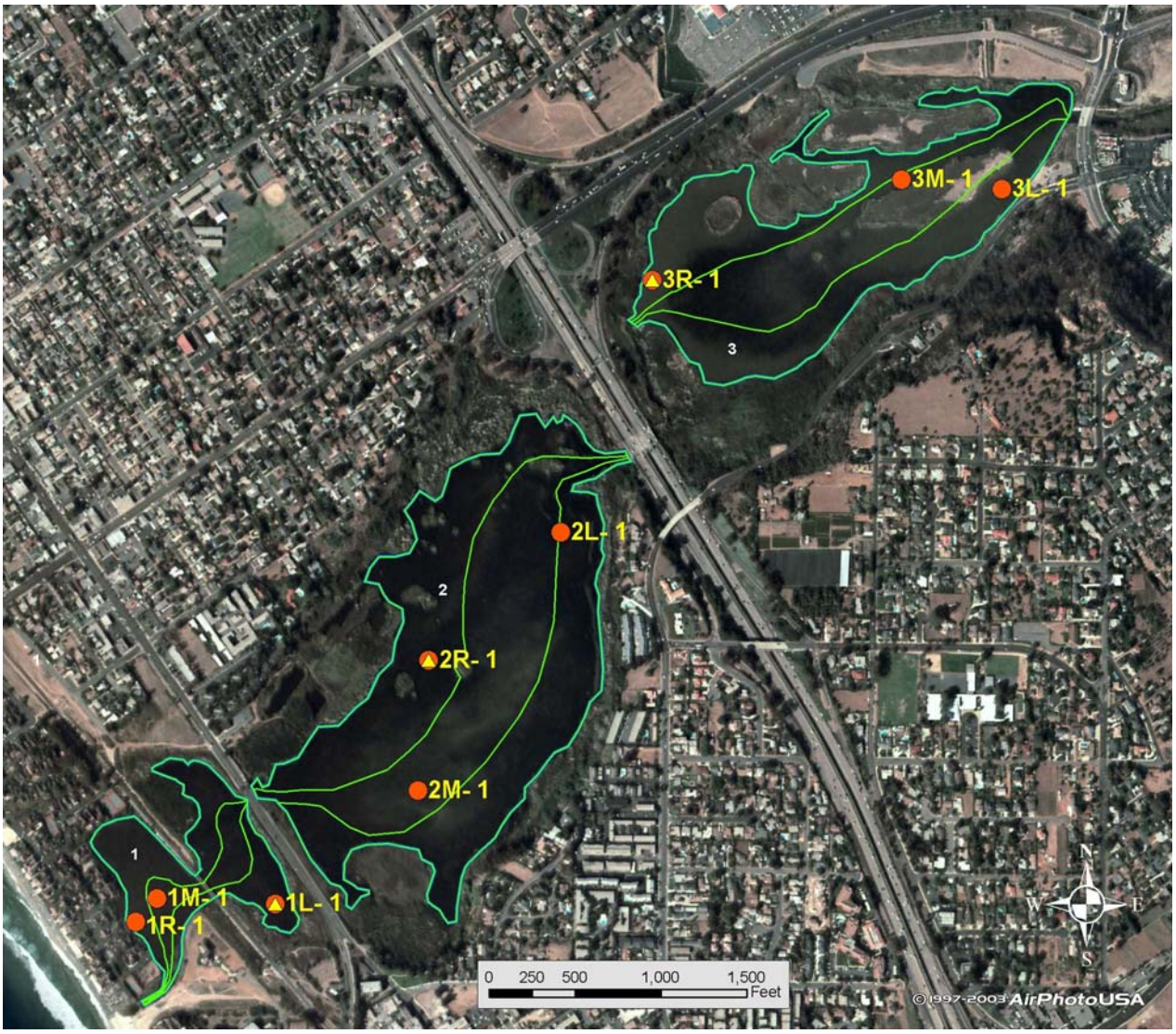


Figure 6-10. Map of Phase I site locations in Buena Vista Lagoon. Sites with yellow triangles were selected for Phase II assessment.

6.4.1.2 Phase II Results and Discussion

The three sites selected in the Buena Vista Lagoon as part of Phase I were sampled in Phase II on July 21, 2005. Sediments from Sites 1L-1, 2R-1 and 3R-1 were composited and analyzed for chemistry and toxicity; individual samples were analyzed for benthic community structure. The results are summarized in Table 6-15.

Table 6-15. Summary of chemistry, toxicity, and benthic community structure in the Buena Vista Lagoon.

CHEMISTRY*					TOXICITY*	BENTHIC COMMUNITY						
Analyte	ERL	ERM	Result	ERM-Q	Percent Survival	Index	1L-1	2R-1	3R-1	Mean	St. Dev.	Total
METALS (mg/kg)						Abundance	77	4	19	33.3	38.6	100
Antimony	NA	NA	<3.14	NA		Richness	3	2	1	2.00	1.00	4
Arsenic	8.2	70	**10.1**	0.144		Diversity	0.57	0.56	0	0.38	0.33	NA
Cadmium	1.2	9.6	0.554	0.060		Evenness	0.52	0.811	0	0.44	0.41	NA
Chromium	81	370	67.8	0.183		Dominance	1	1	1	1.00	00	NA
Copper	34	270	**66.1**	0.244								
Lead	46.7	218	46.6	0.213	**88%** Significantly Different from Control, but less than 20% lower							
Nickel	20.9	51.6	18.4	0.357								
Selenium	NA	NA	<3.14	NA								
Zinc	150	410	**186**	0.454								
PCBs (µg/kg)	NA_l	NA_l	ND	NA								
PAHs (µg/kg)	NA_l	NA_l	ND	NA								
PESTICIDES (µg/kg)	NA_l	NA_l	ND	NA								
Mean ERM-Q				**0.24**								

* Analysis performed on composite samples from the three sites.
NA-Not applicable
NA_l- ERL and ERM values are presented for detected analytes only. Refer to sediment quality guidelines for individual values.
ND-Not detected
Bold – exceeds ERL or ERM value

Sediment Chemistry. Sediments from each of the 12 coastal embayments in the ABLM Program were analyzed for four categories of constituents: metals, PCBs, PAHs, and pesticides. Of these, seven metals common to all the embayments were detected above the detection limit in sediments from the Buena Vista Lagoon: arsenic, cadmium, chromium, copper, lead, nickel, and zinc (Table 6-15). Concentrations of these metals were higher than at most other embayments assessed in the ABLM Program, but were low compared to the ERL and ERM sediment quality values. These results are similar to the 2003 and 2004 ABLM Programs with the exception of cadmium which was not detected in 2003. No concentrations exceeded the ERM values while concentrations of arsenic, copper and zinc exceeded the respective ERL values during the 2005 sediment monitoring. During the 2003 ABLM sampling only copper exceeded the ERL value while in the 2004 monitoring, both copper and zinc exceeded the respective ERL values. There were no PAHs, PCBs, or pesticides found above the detection limit in the Buena Vista Lagoon. The mean ERM-Q value, which is a measure of the cumulative effects of the constituents for which ERM values are available, was 0.24. This value exceeded the threshold of 0.10, which suggests that sediments in the Buena Vista Lagoon have a greater probability of producing adverse biological effects than embayments with mean ERM-Q values below the threshold (Long et al., 1998). Although the threshold was exceeded it should be noted that the concentrations of all metals assessed were low in Buena Vista Lagoon, three to ten times lower than their respective ERM values. This is also similar to the 2003 results where the mean ERM-Q value was 0.18 and the 2004 results where the ERM-Q value was 0.19.

Toxicity. The mean percent survival of *E. estuarius* exposed to the Buena Vista Lagoon sediments in a 10-day acute toxicity test was 88% (Table 6-15). The result was significantly different from that of the Control (97%), but not more than 20% less than the control value. Therefore, it was concluded that test organisms exposed to the sediments in the Buena Vista Lagoon displayed a non toxic response. Toxicity was also observed in 2003, but not in 2004.

Simultaneously Extracted Metals/Acid-Volatile Sulfides Ratio. In the Buena Vista Lagoon sediment, the SEM:AVS ratio was 82.5, indicating that the concentration of SEM was significantly higher than the concentration of AVS in this sediment sample. These results indicate that not all of the metals in the Lagoon sediment were bound up by AVS and therefore may be bioavailable and potentially toxic to benthic organisms. Slight toxicity was observed in the 10-day solid phase toxicity test using *E. estuarius*; survival of *E. estuarius* was significantly lower in the Buena Vista Lagoon sediment (88%) as compared to in Control sediment (97%), but the difference between the results was not greater than 20%. This indicates that bioavailable metals found in the Buena Vista Lagoon sediment were likely not toxic to the amphipod *E. estuarius*. It should be noted that the SEM:AVS ratio may inaccurately predict toxicity of a sediment sample such as the Buena Vista Lagoon, even when toxicity is not observed in toxicity tests, because of environmental factors including grain size, total organic carbon, salinity, and dissolved oxygen, which at their extremes may interfere with the metal binding properties of AVS (Long et al., 1998). Alternatively, the elevated SEM:AVS ratio may indicate the presence and bioavailability of metals that only cause toxicity to invertebrates at extremely elevated concentrations (e.g., nickel or zinc).

Benthic Community Structure. A total of 100 organisms were collected from the Buena Vista Lagoon, representing 4 taxa (Table 6-15). During the 2003 ABLM Program a total of 56 organisms were collected, representing 3 taxa while in the 2004 ABLM Program a total of 165 organisms were collected, representing 10 taxa. For the 2005 sampling, taxa abundance, diversity and richness were higher at Site 1L-1 at the outer Lagoon than the other two sites, but evenness was lower than Site 2R-1.

The low taxa abundance and diversity in the Buena Vista Lagoon samples were likely related to water salinity levels: Buena Vista Lagoon was the only embayment assessed that consisted primarily of freshwater. The mouth of the Lagoon is closed to the ocean and therefore receives no tidal exchange. The salinity was below 4.2 ppt at all three sites sampled during the Phase II assessment in 2005. The freshwater nature of the Lagoon is also reflected in the benthic infaunal community. Of the species identified, the freshwater gammarid *Parhyalella sp.* was the most abundant taxon consisting of 64% of the organisms collected. The family Chironomidae (a group that includes the aquatic larval stages of freshwater flies and midges) was the second most abundant, accounting for over 22% of the organisms collected (Table 6-16). These results are similar to the 2004 results where Chironomidae accounted for 74% of the organisms collected followed by *Hyalella azteca* with 16% of the population. In 2003, Chironomidae accounted for 50% of the organisms collected followed by *Hyalella azteca.*

Table 6-16. Dominant infaunal species found in Buena Vista Lagoon during the 2005 ABLM Program.

Embayment	Taxa (Species)	Higher Taxa	Abundance	Percent Composition
BVL	*Parhyalella sp*	Crustacea	64	64
	Chironomidae	Minor Phyla	22	22

Lagoons were analyzed using the Benthic Response Index (BRI) and Relative Benthic Index (RBI) scores as a primary indicator of lagoon health. The BRI is the abundance-weighted average pollution tolerance score of organisms occurring in a sample and is most applicable to marine environments (Smith et al., 2001; Smith et al., 2003; Ranasinghe et al., 2004). The RBI is the weighted sum of three measures of abundance: 1) total number of species, number of crustacean species, number of crustacean individuals, and number of mollusk species; 2) abundance of three positive and 3) two negative indicator organisms (Hunt et al., 2001). The RBI was included because it is less dependent on marine benthic species, and more applicable to lagoons. The BRI could not be calculated due to the freshwater nature of the Lagoon in 2003 and 2005. The RBI resulted with low scores in 2003 and 2005 and a fair score in 2004 (Table 6-17); a lower BRI score indicates better conditions, while a higher RBI score relates to better conditions.

Table 6-17. Indices of Sediment Biological Health found in the Buena Vista Lagoon during the ABLM Program.

Index	2003	2004	2005
BRI	NA	48	NA
RBI	0.17	0.31	0.14

* BRI-Good <31, Fair 31-53, Poor >53
RBI-Good >0.61, Fair 0.31-0.60, Poor <0.30

Triad Relationships. The Triad method was used to assess the relationships between chemistry, biology, and toxicity for the lagoon sediments. This method is an integrated approach that depends on "weight of evidence" (Chapman, 1996) and integrates chemistry, biological observation, and toxicity endpoints, allowing the user to classify results based on a decision framework.

The results of the chemistry, toxicity, and benthic community assessments for the Buena Vista Lagoon are presented in Figure 6-11 for the 2003, 2004 and 2005 ABLM Monitoring Programs. For the 2005 ABLM sampling, the Lagoon scored good for toxicology, poor for biology and poor for chemistry.

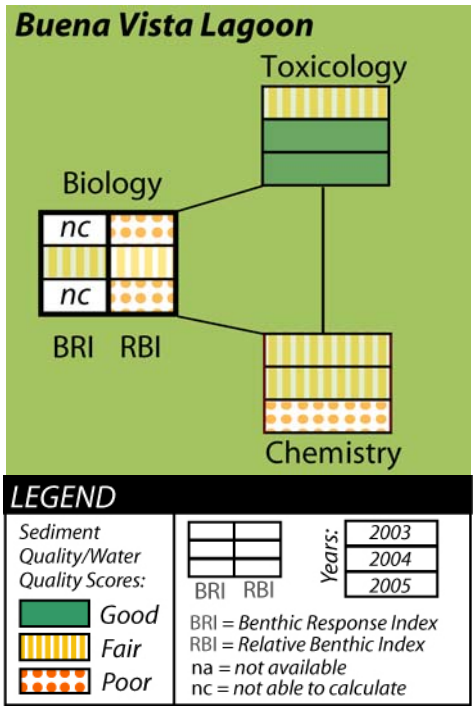


Figure 6-11. Triad relationships for sediment in the Buena Vista Lagoon

It is important to remember that the conditions in Buena Vista Lagoon are very different from all the other embayments assessed in the ABLM Program. Because this Lagoon is closed to the ocean, it receives no tidal exchange, has little/no salt water influence, and functions more as a freshwater lake or wetland than a coastal marine estuary. The depositional nature of the Lagoon was reflected in the physical nature of the sediments, which contained a much greater percentage of fines and higher TOC content than any other embayment. This likely contributed to the relatively high mean ERM-Q value in this embayment. In addition, the freshwater nature of the Lagoon was reflected in the unique benthic community assemblage, which makes it difficult to compare directly with the other embayments assessed and derive a BRI value. Thus, the poor biology and chemistry scores for the Buena Vista Lagoon are most likely due to the Lagoon's freshwater nature rather than any other factor.

6.4.1.3 Buena Vista Lagoon ABLM Summary and Conclusions

Sediments in the Buena Vista Lagoon were monitored as part of the 2005 ABLM Program to assess the potential for adverse effects from the watershed and to compare sediment quality with other coastal embayments in San Diego County. In Phase I, a stratified random approach was used to identify the three sites where COC were most likely to be found (i.e., those with the highest TOC and smallest grains size): Sites 1L-1 and in the outer stratum, 2R-1 in the middle stratum, and 3R-1 in the inner stratum. These sites were sampled in Phase II of the assessment and analyzed for sediment chemistry, toxicity, and benthic community structure. The results of the chemistry assessment indicated that seven of the nine metals analyzed were found in the Lagoon sediments. Of the metals analyzed, arsenic, copper and zinc, exceeded ER-L sediment quality values. The mean ERM-Q value for the Buena Vista Lagoon was the highest among the embayments assessed in the 2005 ABLM program with a value of 0.24. There were no PAHs, PCBs, or pesticides found above the detection limit in the Buena Vista Lagoon. The percent survival of test organisms exposed to the Lagoon sediments was not considered to be toxic. Correlated with the SEM:AVS Ratio, it was determined that bioavailable metals found in Lagoon sediment were not toxic to the amphipod *E. estuarius*. Only 4 taxa were found in the Buena Vista Lagoon, most of which were freshwater organisms. For the 2005 ABLM sampling, Buena Vista Lagoon scored good for toxicology, poor for biology and poor for chemistry.

6.4.2 Results and Discussion for Agua Hedionda Lagoon

6.4.2.1 Phase I Results and Discussion

Sediment samples were collected in the Agua Hedionda Lagoon for the 2005 ABLM Program on June 9, 2005 (See Section 3.3 for details on the sampling approach). The nine sites sampled as part of the Phase I assessment are shown in Figure 6-12. The fines fraction of the sediment among the nine sites ranged from 10.72% at Site 1R-1 in the outer stratum to 97.95% at Site 3L-1 in the inner stratum. Clay was the dominant sediment constituent at the inner strata sites while in the middle and outer strata sites sand was the dominant sediment constituent, except for Site 2L-1 where clay was dominant. TOC content ranged from 0.28% at Site 1R-1 to 1.27% at Site 3L-1.

All three sites in the inner stratum (3L-1, 3M-1 and 3R-1) were selected for Phase II assessment (Table 6-18).

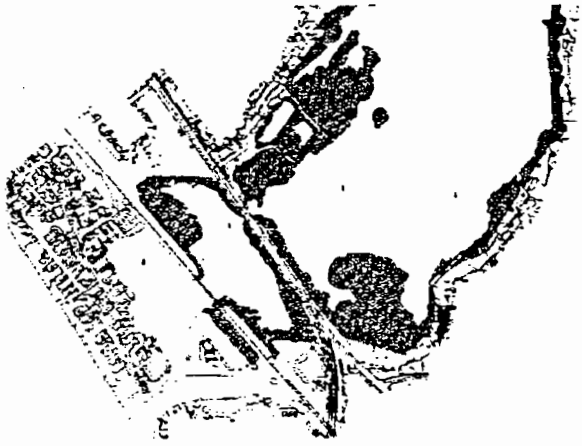
Table 6-18. Results of Phase I sediment analyses and subsequent ranking for Phase II site selection at the Agua Hedionda Lagoon.

Sampling Site	TOC and Grain Size Distribution in Phase I								Ranking for Phase II				
	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Median (µm)	Mean (µm)	Fines (%)	TOC (%)	Fines Rank	TOC Rank	Rank Sum	Highest Rank	Phase II
AHL 1L1	0.04	63.2	25.22	11.49	75	55	36.71	0.83	4	6	10		
AHL 1M1	0.00	81.0	13.60	5.36	91	77	18.96	0.60	2	3	5		
AHL 1R1	0.01	89.3	6.06	4.65	104	104	10.72	0.28	1	1	2		
AHL 2L1	0.00	25.9	34.88	39.26	11.8	NC	74.14	0.74	6	4	10		
AHL 2M1	0.09	57.3	20.66	21.98	69.7	12.52	42.64	0.81	5	5	10		
AHL 2R2	0.03	76.4	10.01	13.59	88.9	37.4	23.60	0.51	3	2	5		
AHL 3L1	0.00	2.05	35.46	62.49	1.90	NC	97.95	1.27	9	9	18	*	Yes
AHL 3M1	0.08	15.30	41.66	42.95	8.77	NC	84.62	0.92	7	7	14	*	Yes
AHL 3R1	0.5	5.0	38.19	56.29	2	NC	94.48	0.95	8	8	16	*	Yes
Mean of all sites	0.09	46.16	25.08	28.67	50.26	57.31	53.76	0.77					

NC = Not calculable (%silt + %clay > 84%)

STA LAGOON LAND MANAGEMENT PLAN ELEMENTS

Lagoon Bathymetry, Water Quality, Biological Analysis, and Soils Analysis



West and central basins of Buena Vista Lagoon

by

COASTAL ENVIRONMENTS
2166 Avenida de la Playa
La Jolla, CA 92037

for

Buena Vista Lagoon Foundation
P.O. Box 520
Vista, CA 92085

Sediment sampling with tripod drill

COASTAL ENVIRONMENTS
2166 Avenida de la Playa
La Jolla, CA 92037

15 December 2000
CE Reference No. 00-02

BUENA VISTA LAGOON LAND MANAGEMENT PLAN ELEMENTS

LAGOON BATHYMETRY, WATER QUALITY, BIOLOGICAL ANALYSIS, AND SOILS ANALYSIS

by

COASTAL ENVIRONMENTS
2166 Avenida de la Playa
La Jolla, CA 92037

for

Buena Vista Lagoon Foundation
P.O. Box 520
Vista, CA 92085

COASTAL ENVIRONMENTS
2166 Avenida de la Playa
La Jolla, CA 92037

15 December 2000
CE Reference No. 00-02

2.2.2 Floating Algal Mat

The floating algal mat is a transient plant community that typically begins to develop in May, reaches maximum coverage during July - September, and then dies back during October - November. It is composed of several species, e.g., *Enteromorpha* spp. and *Ulva* spp. The area of coverage present during 1998 (color) and 1999 (infra-red) photographs are qualitatively contrasted in Figure 4 and summarized by basin in Table 3. Cover was estimated from aerial photographs taken on June 14, 1998 and July 21, 1999. Area measurements were digitized from the original photographs and then plotted on a digital map of the lagoon for comparison. The measurements of algal mat coverage and the plots of its distribution are rough estimates. Copies of the aerial photographs taken on June 14, 1998 are included in Appendix B.

2.2.3 Submersed Aquatic Plants

We found the submersed aquatic plants *Ruppia maritima, Najas marina, Ceratophyllum demersum* are present and widely distributed throughout Buena Vista Lagoon.

2.2.4 Invasive Plant Species

A list of invasive non-native (exotic) plant species historically observed in the vicinity of Buena Vista Lagoon is given in Table 4 (these are denoted as 'Exotic' in Appendix A). Locations of invasive exotic plant species identified in the field are shown by basin in Figures 5 through 7. The marked locations represent individual plants (e.g., Brazilian pepper) or larger areas covered by numerous plants (e.g., ice plant). Invasive exotic plant species are widely distributed throughout the lagoon. Photographs of some invasive plant species can be seen in Appendix D.

2.2.5 Rare, Threatened or Endangered Plant Species

No rare, threatened or endangered plant species were observed during the field surveys, except for several that were ornamentally planted around the Audubon Nature Center.

2.3 DISCUSSION

Freshwater (including Brackish) Marsh habitat covers the largest area of the lagoon. It is noteworthy that the Freshwater Marsh habitat was a relatively minor component of the lagoon for many years. Since 1983, episodic transport of large volumes of sediment resulting in a rapid shallowing of the lagoon bed and other factors have contributed to the expansion of the Freshwater Marsh habitat. This has resulted in reduced circulation between the three lagoon basins. The second highest coverage is of Disturbed Exotic Dominated habitat (or Ruderal habitat, that is, habitat dominated by non-native, opportunistic species). The topography of the basins and landscaping of private property have accelerated the spread of exotic and ornamental species into the native plant communities. Unless exotic species are removed, Ruderal habitat may continue to increase to the detriment of native plant species.

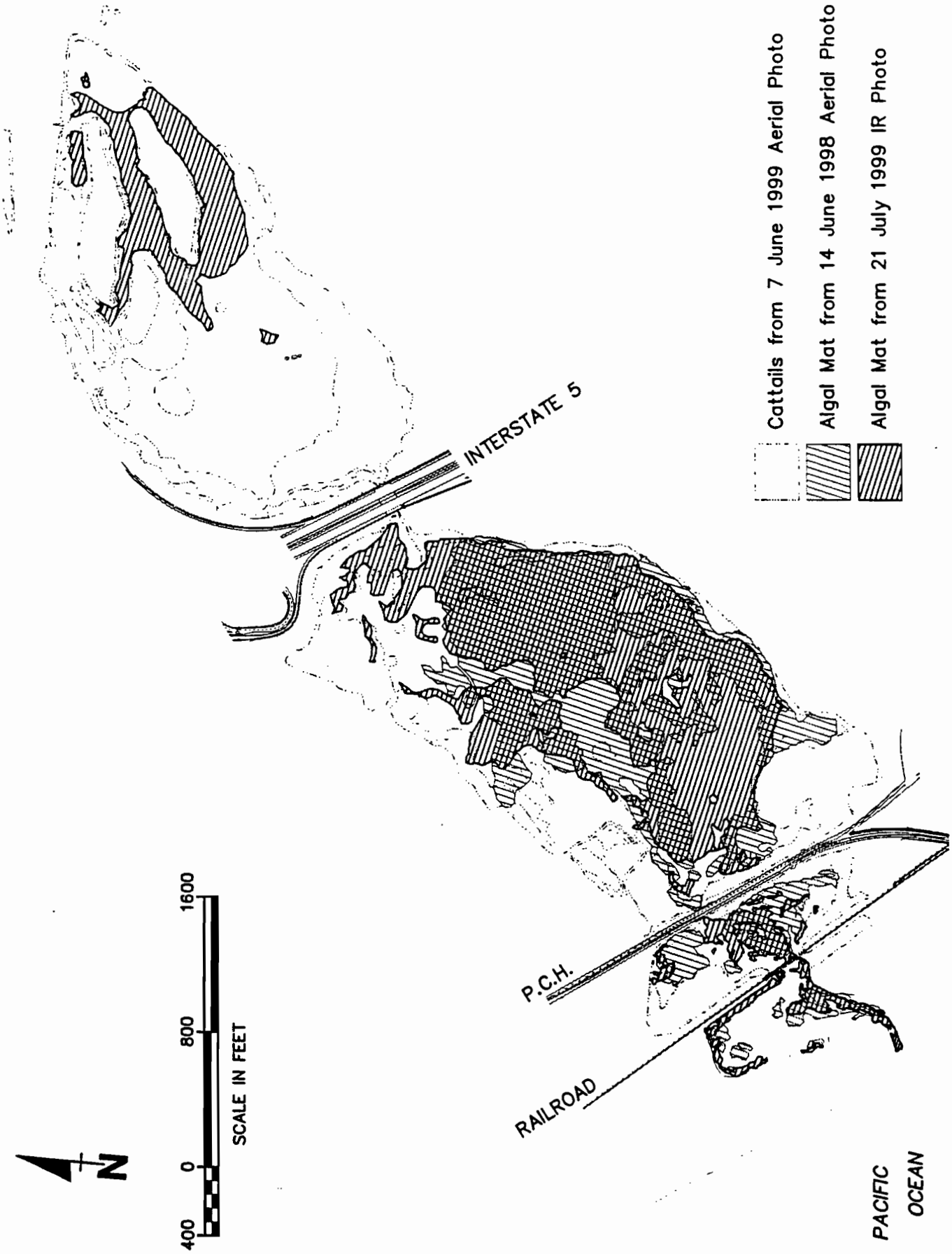


Figure 4. Distribution of floating algal mat recorded from aerial photographs taken in 1998 and 1999.

Table 3. Cover (acreage) of floating algal mat estimated from aerial photographs.

Year	Basin				Total (ac)
	Weir	Railroad	Central	East	
1998	1.7	4.8	42.8	0	49.3
1999	2.1	2.6	53.1	12.2	57.8

3.0 FISH

The fish community is a significant trophic component of the lagoon. Fish forage on a wide diversity of invertebrates and other fish, and provide important food for piscivorous avifauna, including the endangered California least tern. They also provide important recreational value to the public, for example, angling.

3.1 HISTORICAL DATA

In 1958, Carpelan (1960) initiated a field study to evaluate the feasibility of establishing a sport fishery in the coastal lagoons of San Diego County, including Buena Vista Lagoon. Factors measured included water quality, phytoplankton, zooplankton, benthos, and fish. The fish recorded in Buena Vista Lagoon were all characteristic of freshwater, and included the following species:

Black Bullhead	*Ictalurus melas*
California Killifish	*Fundulus parvipinnis*
Green Sunfish	*Lepomis cyanellus*
Mosquitofish	*Gambusia affinis*
Striped Mullet	*Mugil cephalus*

Catfish and sunfish were of potential interest as sport fish. Carpelan concluded that the environmental conditions and forage base at Buena Vista Lagoon appeared to be adequate to sustain a permitted sport fishery for these two species if water quality conditions did not deteriorate further. Additionally, there appeared to be adequate nutrients, plankton, and invertebrates to support introduction of other warm-water inland fish species. However, he cautioned that the lagoon was subject to rapid salinity increases and periods of prolonged anoxia (due to excess algal productivity or increased pollution), both detrimental to fish survival. The algal species present also indicated that the lagoon was already polluted at that time (i.e., meso-saprobic and poly-saprobic).

In May 1976, the California Department of Fish and Game (CDFG) conducted a fish survey throughout Buena Vista Lagoon by seineing and electrofishing. Species collected were:

Black Bullhead	*Ictalurus melas*
Bluegill	*Lepomis macrochirus*
Green Sunfish	*Lepomis cyanellus*
Largemouth Bass	*Micropterus salmoides*
Mosquitofish	*Gambusia affinis*
Striped Mullet	*Mugil cephalus*

They also reported that the lagoon was extremely shallow (i.e., 2 - 12 ft) and subject to frequent fish kills during summer and fall. During periods of overturn in the water column, the sediment was highly organic and reducing, the invertebrate fauna were very abundant (especially larvae in the benthos), but fish abundances were quite low. They concluded that game fish species composition and abundances were not likely to change much under these eutrophic conditions, that the fish populations were more likely to decrease, and could not be relied upon to control the abundant invertebrate fauna.

After completion of a major dredging project and construction of islands in the East Basin by Calco Construction (San Marcos, CA), the CDF&G stocked the East Basin with Channel Catfish. A City newsletter reported this event and noted that the lagoon also supported Black Bass, Blue Gill, and Bullhead Catfish (City Manager's Newsletter 12/9/1983).

In a brief anecdotal historical report, Clark (1989) mentions that about 15 species of freshwater fish, such as catfish, bluegill, small and largemouth bass, crappie, and striped mullet are caught year-round, but that domestic goldfish have become a nuisance.

3.2 FIELD STUDY

3.2.1 Methods

The fish community was characterized by conducting a qualitative field angling survey, review of existing literature, interviews with local fishermen, and casual observations. The purpose of the angling study was to document the fish species currently present and to investigate the prey species composition by conducting a gut analysis. This would enable a comparison with the availability of these forage species in the benthos and water column throughout the lagoon. The proposed seineing study was deleted due to the presence of dense submerged plant community throughout much of the lagoon.

The angling survey was conducted throughout the lagoon during the mornings of August 30, September 1, and September 2. The angling method involved use of two ocean kayaks, two anglers per kayak; each angler fished both surface and bottom waters. One basin was sampled per day, one-half basin per kayak. Areas traversed included water adjacent to cattail/bulrush habitat on both north and south sides of the lagoon, the central open water area, and any prominent channels within the cattail/bulrush habitat.

3.2.2 Results

The fish community comprises 10 freshwater species; 8 are introduced species and 2 (California killifish and Striped mullet) are native species. The species present, their adult habitat, known diet, and actual gut contents are summarized in Table 5.

Table 5. Description of species, habitat, and diet of fish found in Buena Vista Lagoon (modified from McGinnis 1984 and Moyle 1976). *=Introduced species.

Species Name	Common Name	Adult Habitat	Diet	Gut Contents
Lepomis macrochirus	**Bluegill***	Warm, shallow lakes, ponds, and sloughs. Tolerate high turbidity and low oxygen (i.e. <1 mg/l). Associate with rooted aquatic plants.	Opportunisitc. Larvae of aquatic insects(e.g. midges, mayflies, caddisflies, dragon flies), planktonic crustaceans, flying insects, snails. Small fish, fish eggs, crayfish, cladocerans, amphipods, isopods, algae.	Diptera (Tendipes) (flys) Unidentified larva
Fundulus parvipinnis	**California Killifish**	Shallow coastal waters and freshwater streams or brackish lagoons. Tolerate 0-125 ppt salinity.	Omnivorous (invertebrates and algae).	None caught
Carassius auratus	**Goldfish***	Warm, oxygen deficient water, mild winters, fertile ponds and sloughs with heavy aquatic vegetation. Tolerate 1-41° C. (15-23° C required for spawning).	Filter feeders on phytoplankton, zooplankton, organic detritus, aquatic macrophytes, chironomid larvae, cladocerans, insects, small fish. Feed on bottom and in mid-water.	None caught
Lepomis cyanellus	**Green Sunfish***	Small, warm streams, ponds, and lake edges. Shallow weedy areas. Warm turbid, muddy-bottomed pools with aquatic plants. Tolerate high temperatures (>36° C.), low oxygen (<3 mg/l), and high alkalinity (up to 2,000 mg/l).	Small fish, crustaceans, aquatic insect larvae (mayflies), aquatic insects, terrestrial insects, crayfish, fish (i.e. mosquitofish, sunfish).	Dragonfly larva Diptera sp. (flys) Mosquito larva
Gambusia affinis	**Mosquitofish***	Brackish sloughs, warm (stagnant) ponds, lakes, and streams. Tolerate 4-37° C. Adjacent to submerged aquatic plants. Short lived.	Omnivorous. Mosquito larvae, filamentous algae, diatoms, zooplankton, fish, terretrial insects, aquatic invertebrates.	None caught
Micropterus salmoides	**Large Mouth Bass***	Warm, quiet water, low turbidity, with aquatic plants. Ponds, lakes, reservoirs, sloughs, and river backwaters. Oxygen > 1.5-2.0 mg/l.	Piscivorous. Aquatic insects, fish fry, crayfish, tadpoles, frogs, fish.	Earthworm (fishing) Shrimp, large insect larva, tadpole
Mugil cephalus	**Striped Mullet**	Catadromus (eggs hatch at sea). Shallow estuaries, 0-75 ppt, above 16° C, feed on muddy shallow bottoms.	Bottom organic detritus, diatoms, bacteria, microinvertebrates, floating algae	Enteromorpha (algae)
Ictalurus melas	**Black Bullhead***	Main channels of large streams, farm ponds, reservoirs, turbid muddy bottomed rivers. Tolerate oxygen at 1-2 ppm. Tolerate temperatures of 36-38 C. Avoid brackish water.	Crustaceans and insect larvae, fish, crayfish	Not identifiable

Five species of fish were caught during a three-day survey period. Table 6 documents the species, common name, basin, and size of fish caught during the angling survey. All fish were immediately gutted and the entire gut was preserved for analysis. Three species of fish were caught in each of the West and East Basins while only one species was caught in the Central Basin. Although this survey reflects species of fish caught by anglers, it does not represent all species known to be present in each basin. Electro-fishing , as was used by CDFG (1976), might have yielded better data. Electro-fishing was feasible at that time because of the low abundance of submersed aquatic vegetation. Today, this method would be difficult because of the large quantity of submersed aquatic vegetation present throughout the entire lagoon, which would hinder use of the equipment.

3.3 DISCUSSION

The fish population is well established and is comparable to Carpelan (1960) and the California Department of Fish & Game (1976) survey in species composition. During water quality and invertebrate sampling, many juvenile fish species were seen around the shallow fringes of the lagoon. In the East Basin, a school of juvenile bullheads was observed with numbers ranging in the thousands. The fish community is utilized by recreational anglers in all three basins. Any future changes that would enable tidal flow to several of the basins would adversely impact this freshwater fish community. Such a change in the fish species community might be offset by a newly formed marine fish community.

The lagoon is dominated by highly mobile fish species which can readily move to areas of higher oxygen during periods when dissolved oxygen concentrations are low. The current eutrophic conditions that occur sporadically in the lagoon have caused fish kills in the past. The water column invertebrate community was observed to be the largest available food source. Although not sampled, the abundances of *Daphina* and *Trichocorixa* (water boatmen) in the water column appeared high.

4.0 BENTHIC INVERTEBRATES

4.1 FIELD STUDY

The benthic macroinfauna were sampled so that the results could be qualitatively compared to the study conducted by Carpelan (1960). Samples were taken in the vicinity of each of the six fixed water quality stations located along the centerline of each basin; Station 1 in the Weir Basin, Station 2 in the Railroad Basin, Stations 3 and 4 in the Central Basin, and Stations 5 and 6 in the East Basin (see Figure 1, CE Reference #00-02B). Two types of benthic samples were taken during the first survey (July) with a hand-held 15 cm (i.d.) corer: Three replicate shallow cores were taken to a depth of about 10 cm and sieved through a 1.0 mm screen to sample for shallow microfauna, and three replicate deep cores were taken to a depth of about 20 cm and sieved through a 5.0 mm screen to sample for deep macrofauna, e.g., bivalves and shrimp. During the second survey (November), the deep cores were deleted from the survey, because the results of the first survey showed very low abundances of animals below 10 cm. Surveys were done during July and November 1999.

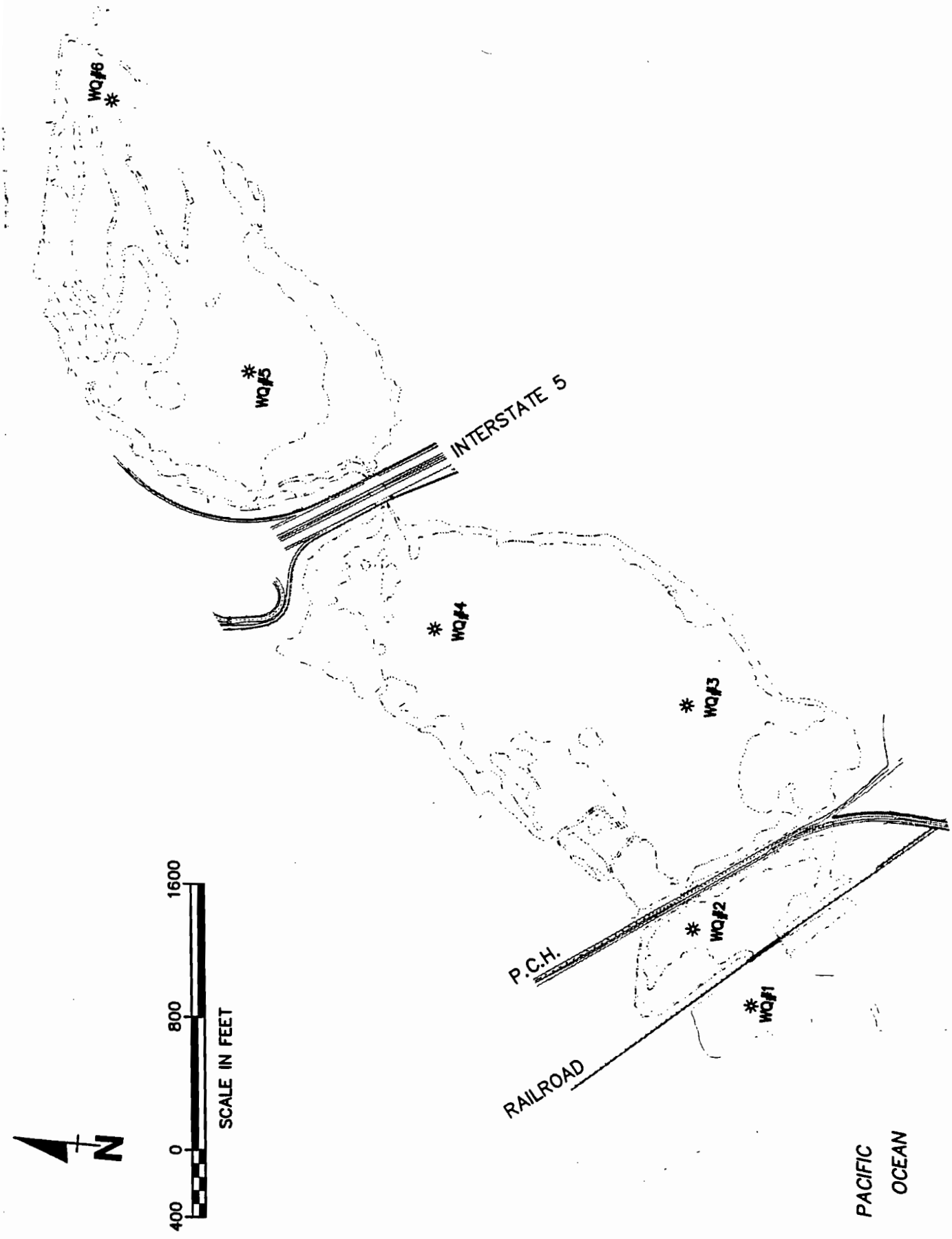


Figure 1. Location of water quality stations.

Table 6. Fish angling survey at Buena Vista Lagoon, 31 August 1999 to 2 September 1999.

Species Name	Common Name	BASIN	Size (mm)
Micropterus salmoides	Northern Largemouth Bass	West	210
		West	210
		West	190
		West	210
		Central	201
		Central	202
		Central	200
		Central	200
		Central	190
Lepomis macrochirus	Bluegill	West	133
		West	107
		West	111
		West	126
		West	136
		West	138
		West	150
		East	96
		East	83
		East	103
		East	103
		East	99
		East	102
		East	87
Ilepomis cyanellus	Green Sunfish	East	113
		East	118
Ictalurus melas	Black Bullhead	East	125
Mugil cephalus	Striped Mullet	West	243
		West	299

The sediment samples were sieved and fixed in the field, and the fauna sorted, counted, and then identified by a professional taxonomist (J. Ljubenkov).

4.1.2 Results

Invertebrates were sampled during July 1999 (the 12th and 16th) and on 15 November 1999. Table 7 shows the results from both surveys. These data show that the invertebrate taxa were dominated by Amphipoda, Cladocera, Diptera, and Annelida. Gastropoda were abundant in the first survey, but not in the second survey. The most abundant invertebrate was *Daphnia nr. pulex*, with high numbers in the first survey and lower numbers in the second survey. However, since the true habitat of this species is the water column, it was inadequately sampled by this method. Similarly, *Trichocorixa reticulata* (water boatman), another highly mobile and abundant species that lives in the water column, was also inadequately sampled by this method.

Other benthic species that were present included tadpoles, shrimps, and insect larvae which provide sources of larger food items for adult fish. Ostracods, which exhibited very high abundances in the West Basin in Carpelan's (1960) study, were not present in the current study. Similarly, gastropods were found in large numbers in the East and Central Basins by Carpelan during 1958, but by June of 1959, all three basins were nearly depleted of gastropods. The current data shows gastropods in small abundances in all basins. Seasonal trends cannot be compared at this time, because the current data only cover the June-October time period. Carpelan's data indicate large seasonal differences in abundances with the peaks occurring during the winter months.

4.2.2 Discussion

The diversity of benthic invertebrates in the lagoon is quite high (especially in the East Basin) and does not represent a system that is completely anoxic.

The East Basin exhibited the highest diversity of species and population abundances for both surveys. The West and Central Basins had low abundances of benthic invertebrates. Visual observations suggest that water column invertebrates dominate these basins. Carpelan's summer and fall data from 1960 suggests that the East Basin had a low diversity of benthic invertebrates, while the current data show that the species diversity and population abundances were greatest in the East Basin. One explanation could be that when Carpelan conducted his study, the West Basin was receiving discharges of sewage sludge, which would promote production of high numbers of some species, e.g., Ostracods. Due to the encroachment of cattails/bulrushes that have reduced circulation within and between basins, the East Basin is the only basin that receives new runoff on a continuous basis, thereby, enabling input of additional individuals and species from Buena Vista Creek.

Table 7. Results of benthic invertebrate surveys conducted in Buena Vista Lagoon.

Table ***** Buena Vista Invertebrate Sampling																				
DATE																				
SHALLOW CORES																				
Species Name	Station/replicate																			
	1/s1	1/s2	1/s3	2/s1	2/s2	2/s3	3/s1	3/s2	3/s3	4/s1	4/s2	4/s3	5/s1	5/s2	5/s3	6/s1	6/s2	6/s3	species sum	Taxon
Daphnia nr. pulex													6	3	73	5	1		88	Cladocera
Hyallela nr. azteca				9	12	3	6	2	8		1					16	9	15	81	Amphipoda
Tendipes sp., larva	1	2											18	13	22		2	3	61	Diptera
Physa nr. gyrina													1	10	3	10	18	19	61	Gastropoda
Trichocorixa reticulata													10	18	3				31	Corixidae, (water boatmen)
Oligochaeta								2					5		1	14	1		23	Annelida
Helisoma sp				1	2												2	2	7	Gastropoda
Palaemonetes paludosus					3	1												2	6	Decapoda, shrimp
Tendipes sp., pupa													2	1	1				4	Diptera
Planorbidae			1		2														3	Gastropoda
Rana nr. aurora, tadpole																1			1	Amphibia; Red-Legged Frog
Corbicula fluminea															2				2	Pelecypoda
Odonata, naiad																1			1	Insecta, (Dragonfly juvenile stage)
Diptera, larva															1				1	Insecta, damaged
station total	1	2	1	10	19	4	6	4	8	0	1	0	42	45	106	47	33	41	370	
DEEP CORES																				
Species Name	1/d1	2/d1	2/d2	2/d3	3/d1	3/d2	3/d3	4/d1	4/d2	4/d3	5/d1	5/d2	5/d3	6/d1	6/d2	6/d3	total			Taxon
Hyallela nr. azteca																	1	1	2	Amphipoda
Tendipes sp., larva	7											5	3		4	1	20		40	Diptera
Physa nr. gyrina												6		1	5	5	17		34	Gastropoda
Helisoma sp														3	4		7		14	Gastropoda
Palaemonetes paludosus		3															3		6	Decapoda, shrimp
Rana nr. aurora, tadpole															2		2		4	Amphibia; (Red-Legged Frog)
Crayfish, juv.																1	1		2	Decapoda
station total	7	3	0	0	0	0	0	0	0	0	0	11	3	4	15	8	51		102	
SHALLOW CORES																				
DATE	Station/ Replicate																			
Species name	1/s1	1/s2	1/s3	2/s1	2/s2	2/s3	3/s1	3/s2	3/s3	4/s1	4/s2	4/s3	5/s1	5/s2	5/s3	6/s1	6/s2	6/s3	species sum	Taxon
Hyallela nr. azteca			1	4		3	15	7	19			1	4	45	80		6	3	188	Amphipoda
Chironomidae	17	33	6										1	23	9	8	16	12	125	Insects
Oligochaeta														4		5	77	16	102	Annelida
Daphnia nr. pulex														1	19				20	Cladocera
Palaemonetes paludosus	1	1			1	2			1			1			2				9	Decapoda, shrimp
Platyhelminthes														2	7				9	Flatworms
Odonata, juv.									1					1	1				3	Insecta, (Dragonfly juvenile stage)
Trichocorixa reticulata																	2	1	3	Corixidae, water boatmen
Astacidae (=Crayfish), juv.							2												2	Decapoda
Plumatella repens (1=p)														1	1				2	
Physa nr. gyrina														1					1	Gastropoda
station total	18	34	7	4	1	5	17	7	21		0	2	5	78	119	13	101	32	464	

Note: The location of the Buena Vista Lagoon invertebrate sampling stations are described in Section 4.1 and

APRIL 3, 2007
Meeting to discuss recent Sewer Spills

GREG BLAKELY	O'SIDE	435-5812
DAROLD PIEPER	VISTA	639-6119
John Jardin	Encina Wastewater Authority	438-3541 ex 3120
Mark Patnode	O'side	435-5840
Bob Reinen	O'side	435-5114
John Conley	Vista	639-6100
Rick Dudley	Vista	639-6131
Jenny Peterson	Vista	643-2708
GREG MAYER	VISTA	726-1340 x1226
Jayne Strommer	Vista	726-1340 x1373
MARTIN "PETE" GROVER	VISTA	760 631-6122
Rita Geldert	Vista	809-6134
MICHAEL HOGAN	ENCINA	760-268-8800
ELAINE LUKEN	CARLSBAD	760-497-4093
Bill Paznokas	DFG	858-467-4218
Kim McKee	DFG	(858) 354-9917 cell kmckee@dfg.ca..
Keith Merkel	Merkel & Assoc.	(858)560-5465 kmerkel@merkelin..

4/7/07 Investigative Order Mtg

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Bill Plummer	Carlsbad	760-602-2768	bplum@ci.carlsbad.ca.us
Jim Elliott	CARLSBAD	760-602-2409 (w) 760-420-0424 (c)	jelli@ci.CARLSBAD.CA.US
Rita Geldert	Vista	760-639-6131 W 760-809-6184 (C)	rgeldert@ci.vista.C
Mike Calderwood	Carlsbad	760 717 3437	mcald@ci.carlsbad.ca
CHRIS HEISER	CARLSBAD	760 484-4402	CHEIS@CI.CARLSBAD.CA
PAUL HARTMAN	CARLSBAD	760 801-1416 760 602-7586 (w)	aharte ci.carlsbad.ca.
ELAINE LUKEY	CARLSBAD	760-602-7582	eluke@ci.carlsbad.ca.u
Jayne Strommer	Vista	760-726-1340 x1373	JStrommer@ci.vista.ca.us
MARK STONE	CARLSBAD	760-438-2722 x7108	MSTON@CI.CARLSBAD.CA.

April-09-2007 Encina meeting

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Jenny Peterson	Vista	jpeterson@cityofvista.ca

Lake operations

April 9, 2007 Buena Vista Lagoon Agency Meeting
13:00 On Site

Paul Hartman	City of Carlsbad Environmental Programs
Elaine Lukey	City of Carlsbad Environmental Programs
Jamie Wood	City of Carlsbad Environmental Programs
Jayne Strommer	City of Vista
Judy Gibson	USFWS
Marcie Koski	USFWS
Keith Merkel	Merkel & Associates
Brad Stein	Merkel & Associates
Bill Paznokas	CDFG
Bill Richards	CDFG
Tim Dillingham	CDFG