

CALIFORNIA BIOASSESSMENT WORKSHEET

WATERSHED/ STREAM: _____

DATE/ TIME: _____

COMPANY/ AGENCY: _____

SAMPLE ID #: _____

SITE DESCRIPTION: _____

SAMPLING GRID

SIDE CHANNELS

WATER QUALITY

Bioassessment Laboratory Information:

SEND A COPY OF THIS FORM TO:
DFG/ WPCL
7005 Nimbus Road
Sancho Cordova, CA 95670
(916) 358-2858
website: www.dfg.ca.gov/cabw/cabwhome.html

RIFFLE/ REACH CHARACTERISTICS

Point Source Sampling Design

Riffle Length: _____

Transect 1: _____

Transect 2: _____

Transect 3: _____

(record Physical/ Habitat Characteristics in Riffle 1 column)

Non-Point Source Sampling Design

Reach Length: _____

Physical Habitat Quality Score: _____

Physical/ Habitat Characteristics

	<u>Riffle 1</u>	<u>Riffle 2</u>	<u>Riffle 3</u>
Riffle Length:	_____	_____	_____
Transect Location:	_____	_____	_____
Avg. Riffle Width:	_____	_____	_____
Avg. Riffle Depth:	_____	_____	_____
Riffle Velocity:	_____	_____	_____
% Canopy Cover:	_____	_____	_____
Substrate Complexity:	_____	_____	_____
Embeddedness:	_____	_____	_____
Substrate Composition:			
Fines (<0.1"):	_____	_____	_____
Gravel (0.1-2"):	_____	_____	_____
Cobble (2-10"):	_____	_____	_____
Boulder (>10"):	_____	_____	_____
Bedrock (solid):	_____	_____	_____
Substrate Consolidation:	_____	_____	_____
Percent Gradient:	_____	_____	_____

PHYSICAL HABITAT QUALITY
 (California Stream Bioassessment Procedure)

WATERSHED/ STREAM: _____

DATE/ TIME: _____

COMPANY/ AGENCY: _____

SAMPLE ID NUMBER: _____

SITE DESCRIPTION: _____

Circle the appropriate score for all 20 habitat parameters. Record the total score on the front page of the CBW.

HABITAT PARAMETER	CONDITION CATEGORY			
	OPTIMAL	SUBOPTIMAL	MARGINAL	POOR
1. Epifaunal Substrate/ Available Cover Greater than 70% (50% for low gradient streams) of substrate favorable for epifaunal colonization and fish cover; most favorable is a mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Embeddedness Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/ Depth Regimes (deep < 0.5 m, slow < 0.3 m/s) All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow).	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated within the sampling reach

HABITAT PARAMETER	CONDITION CATEGORY																			
	OPTIMAL					SUBOPTIMAL					MARGINAL					POOR				
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.					Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.					Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.					Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.				
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.					Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.					Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.					Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.				
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
8. Bank Stability (score each bank) Note: determine left of right side by facing downstream	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.					Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.					Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.					Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.				
	Left Bank	10	9			8	7	6			5	4	3			2	1	0		
	Right Bank	10	9			8	7	6			5	4	3			2	1	0		
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zones covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.					70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.					50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.					Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.				
	Left Bank	10	9			8	7	6			5	4	3			2	1	0		
	Right Bank	10	9			8	7	6			5	4	3			2	1	0		
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.					Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.					Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.					Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.				
	Left Bank	10	9			8	7	6			5	4	3			2	1	0		
	Right Bank	10	9			8	7	6			5	4	3			2	1	0		

Parameters to be evaluated in an area longer than the sampling reach

CALIFORNIA DEPARTMENT OF FISH AND GAME WATER POLLUTION CONTROL LABORATORY
AQUATIC BIOASSESSMENT LABORATORY REVISION DATE - MAY 1999

9172R	44078	96998	25780	58455	99398	16299	30849	56199	45791	18570	29895	7607	89572	52690	70464	20532	50443	64823
56489	18412	62384	48356	75118	51724	7962	62571	13801	10633	2448	67832	89598	62241	8618	57946	20735	91040	44269
26008	30424	44745	71156	73603	52920	32012	56567	28693	22644	99987	97585	40238	5032	99367	24618	99400	42672	64405
49864	5438	98149	44583	87573	37067	80217	52738	22178	48264	19350	20110	40749	42085	32769	66135	87928	50806	64671
39666	4377	80040	38685	96850	54884	5688	88314	54190	6957	62954	20328	99145	25362	57235	21427	61430	91451	31827
83576	92168	37324	72652	78431	59142	55787	17989	81991	95926	25836	69393	13558	631	57294	68296	26794	88383	72800
23670	80579	84178	799	71974	99821	43125	50789	90272	35574	5704	42530	45130	58296	767	30820	90684	91403	10505
87975	76200	53759	19222	76617	25341	83869	89617	14629	31322	62636	75475	75436	73633	16104	46156	38179	51443	75871
26124	80985	95411	51349	9322	52887	66059	93470	20527	91142	41374	32300	43184	13209	49485	65678	13028	99745	3989
89224	48066	62669	15806	9590	64712	2723	42518	14275	12582	9893	60624	78947	40480	46413	19390	16444	49445	99840
16945	56219	70292	83056	84787	39471	8409	60760	16240	38967	52721	2834	37041	47563	80365	61660	48533	81939	13101
68995	89831	64408	65234	45348	53418	23153	7967	3207	90746	83253	23619	84503	72779	15167	58008	85127	56060	52025
83774	11014	22528	147	17261	99443	35455	92555	13866	64339	14066	97892	2900	42295	28319	37390	73110	81942	65509
42548	51674	42715	27867	39232	7665	54904	58891	1231	29431	8636	49709	42290	53164	95177	62109	39033	60637	75271
64710	20643	66849	39263	77285	57101	96155	28881	945	98860	75508	62576	62870	63572	55039	96969	43323	97335	66539
63165	93728	94343	89748	33536	5512	35890	81693	89378	94102	89666	71232	46334	75514	90964	95384	77535	96106	8001
40560	45532	29546	76068	75350	8114	78700	97206	12674	59472	79232	3529	47061	60679	89791	57068	1857	10567	60706
40497	85910	64852	78287	41305	65074	86565	36817	90469	31320	26900	6028	22247	21495	37898	25824	50810	9045	62681
78253	63886	91014	5189	27810	8425	50837	90848	15566	55301	33249	38154	71746	43830	30152	28796	32991	24347	64861
6726	60284	15637	76386	26291	82058	93008	31185	27787	27832	97355	64451	41273	50353	71747	39207	44071	71818	158
75398	44114	94338	94110	84544	24230	39688	30293	10743	80838	64143	21112	59108	53389	12792	54159	35051	47583	8138
76322	63173	16930	97452	15667	38601	92162	19744	35484	46763	89287	55276	10858	47845	69191	3803	16748	47367	50568
66649	15644	69687	45869	1547	33766	22164	16953	87813	48022	26002	83088	53066	87662	23548	83322	42079	91795	20860
37893	12167	98162	96011	91455	9461	14744	29528	12735	8861	51560	56871	81329	1819	50614	56453	30235	19327	50809
2140	94216	48465	39993	72352	35922	13664	23909	75847	77078	20539	28795	1253	98196	76344	24413	87415	68523	53665
61458	48058	32617	89494	9373	81388	98574	55392	9903	20920	62821	77929	69327	82278	45165	94453	23030	45423	96938
62625	61463	6986	43373	71397	44207	77525	65801	94388	61531	27414	66399	10635	6220	6352	87505	6859	77638	64724
75058	34685	37439	96897	1716	96907	97725	4668	58993	79548	78594	7897	16036	6669	83452	15921	12177	83870	5922
52831	73191	64944	86567	78534	36705	35228	94795	57045	29891	83312	64623	31661	52888	11672	9061	3522	26574	15936
34633	63695	99933	8600	46315	75279	82753	80519	22842	91397	32818	28634	4868	49362	51474	18688	42195	10806	88513
32432	87083	55613	38712	77856	21022	91372	62566	65890	41602	20594	4938	77394	96024	8082	86273	37304	35314	26903
44172	13651	34399	25967	52017	93718	30391	81218	70272	42931	18556	6618	27256	28236	14398	28143	79891	25227	45087
92844	78189	15041	43163	57278	16716	51717	94447	63929	32066	77237	24983	15875	82995	90914	94509	99814	29822	66623
43231	19607	27777	38990	94169	81895	68611	65469	3589	77865	95016	65072	72685	47373	82479	21491	84350	73390	42078
82916	26280	2108	97253	89662	9628	10004	86829	79043	83724	18355	78424	41804	11162	73271	28251	40180	89616	91159
49574	12138	99224	60236	1127	88024	4866	86393	93601	13793	14186	45382	75616	47801	29002	57439	39816	85482	6533
72409	56938	92585	42321	47203	97135	26727	49075	49157	121	52433	31802	66033	3487	22033	86061	31103	20172	68028
77156	14992	87483	53367	56545	34281	63976	56392	43359	57029	38782	19888	12117	38651	27799	98799	77047	67341	12936
34228	59830	28700	56993	50813	66532	58929	84038	99788	77246	14032	30597	29937	27004	14969	11078	22217	30415	41066
98423	49581	30802	87072	90228	63318	80658	92848	37173	88826	8146	80866	770	99774	53536	43431	33634	47960	39999

Monterey Bay Sanctuary Urban Runoff Data Form

Sampling Site:

pH meter calibration calibrated to: pH 7.0 pH 10.0 or 4.0? (please circle)	date	time	initial reading
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1st visit

2nd visit

date		date	
time		time	
precipitation in the last 48 hours?	<input type="checkbox"/> yes <input type="checkbox"/> no	precipitation in the last 48 hours?	<input type="checkbox"/> yes <input type="checkbox"/> no
flow depth (cm):		flow depth (cm):	
flow width (cm):		flow width (cm):	
air temp:		air temp:	
water temp:		water temp:	

trash(list types in notes section):	<input type="checkbox"/> yes <input type="checkbox"/> no	trash(list types in notes section):	<input type="checkbox"/> yes <input type="checkbox"/> no
sewage (sighted or smell?)	<input type="checkbox"/> yes <input type="checkbox"/> no	sewage (sighted or smell?)	<input type="checkbox"/> yes <input type="checkbox"/> no
oil sheen(yes or no):	<input type="checkbox"/> yes <input type="checkbox"/> no	oil sheen(yes or no):	<input type="checkbox"/> yes <input type="checkbox"/> no
surface scum	<input type="checkbox"/> yes <input type="checkbox"/> no	surface scum	<input type="checkbox"/> yes <input type="checkbox"/> no

	1st try	repeat		1st try	repeat
Detergent(ppm):			Detergent(ppm):		
Chlorine(ppm):			Chlorine(ppm):		
Phenols(ppm):			Phenols(ppm):		
Copper(ppm)			Copper(ppm)		
Ammonia Nitrogen(ppm)			Ammonia Nitrogen(ppm)		
pH(standard units)			pH(standard units)		
Turbidity:			Turbidity:		

odor number		odor number	
color number		color number	

other observations:	other observations:

team members:	what test(s) did that person do?	team members:	what test(s) did that person do?

equipment needs or problems:

