ATTACHMENT 5

CARLSBAD DESALINATION PROJECT

SUMMARY OF FISH AND TARGET SHELLFISH LARVAE COLLECTED FOR ENTRAINMENT AND SOURCE WATER STUDIES IN THE VICINITY OF AGUA HEDIONDA LAGOON FROM JUNE 2005 THROUGH MAY 2006

Carlsbad Desalination Facility – Encina Power Station

Summary of Fish and Target Shellfish Larvae Collected for Entrainment and Source Water Studies in the Vicinity of Agua Hedionda Lagoon from June 2005 through May 2006

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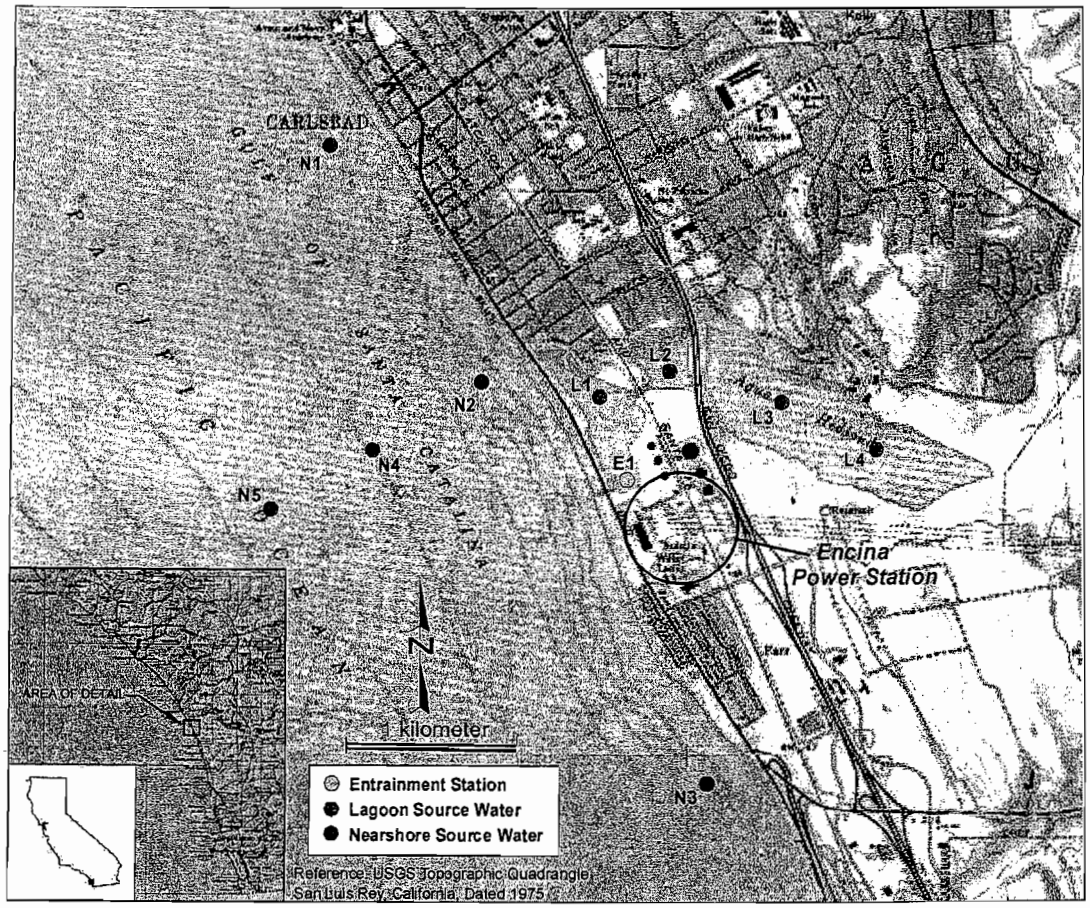

Figure 1. Location of entrainment (E1) and source water (L1–L4; N1–N5) plankton sampling stations.

Table 1. Average concentration and total number collected of larval fishes and target shellfishes in entrainment samples collected in Agua Hedionda Lagoon (Station E1), June 2004–May 2005.

Taxon	Common Name	Average Concentration (# / 1,000 m^3)	Total Count	Percentage of Total	Cumulative Percentage
Gobiidae (CIQ complex)	gobies	2,222.93	12,763	61.95	61.95
Hypsoblennius spp.	blennies	1,107.67	5,838	28.34	90.29
Engraulidae	anchovies	134.29	819	3.98	94.27
Hypsypops rubicundus	garibaldi	40.99	188	0.91	95.18
Typhlogobius californiensis	blind goby	24.65	148	0.72	95.90
Gibbonsia spp.	clinid kelpfishes	22.45	125	0.61	96.51
Labrisomidae.	labrisomid kelpfishes	17.65	81	0.39	96.90
Syngnathidae	pipefishes	16.06	83	0.40	97.30
Acanthogobius flavimanus	yellowfin goby	14.41	87	0.42	97.72
larvae, unid. fish fragment	unid. larval fishes	9.65	56	0.27	98.00
Atherinopsidae	silversides	9.18	54	0.26	98.26
larvae, unid. yolksac	unid. yolksac larvae	8.36	39	0.19	98.45
Roncador stearnsii	spotfin croaker	8.33	42	0.20	98.65
Rimicola spp.	kelp clingfishes	7.92	43	0.21	98.86
Genyonemus lineatus	white croaker	7.04	44	0.21	99.07
Seriphus politus	queenfish	5.50	29	0.14	99.21
Paraclinus integripinnis	reef finspot	4.95	31	0.15	99.36
Paralichthys californicus	California halibut	3.73	21	0.10	99.47
Sardinops sagax	Pacific sardine	2.66	16	0.08	99.54
Citharichthys spp.	sanddabs	2.24	14	0.07	99.61
Gillichthys mirabilis	longjaw mudsucker	2.14	13	0.06	99.67
Sciaenidae	croakers	1.86	11	0.05	99.73
Paralabrax spp.	sea basses	1.86	11	0.05	99.78
Hypsopsetta guttulata	diamond turbot	1.78	10	0.05	99.83
larvae, unid. post-yolksac	larval fishes	1.61	10	0.05	99.88
Pleuronectiformes	flatfishes	0.63	4	0.02	99.90
Heterostichus rostratus	giant kelpfish	0.54	3	0.01	99.91
Clinocottus analis	wooly sculpin	0.51	3	0.01	99.93
Stenobrachius leucopsarus	northern lampfish	0.37	2	0.01	99.94
Cheilotrema saturnum	black croaker	0.35	2	0.01	99.95
Scomber japonicus	Pacific mackerel	0.35	1	<0.01	99.95
Ophidiidae	cusk-eels	0.21	1	<0.01	99.96
Gobiesocidae	clingfishes	0.20	1	<0.01	99.96
Diaphus theta	Calif. headlight fish	0.19	1	<0.01	99.96
Semicossyphus pulcher	California sheephead	0.19	1	<0.01	99.97
Menticirrhus undulatus	California corbina	0.18	1	<0.01	99.97
Haemulidae	grunts	0.18	1	<0.01	99.98
Labridae	wrasses	0.17	1	<0.01	99.98
Myctophidae	lanternfishes	0.16	1	<0.01	99.99
Symbolophorus californiensis	California lanternfish	0.16	1	<0.01	99.99
Oxyjulis californica	señorita	0.14	1	<0.01	100.00
			20,601		
Cancer spp. (megalops)	cancer crabs	0.17	1		0.07

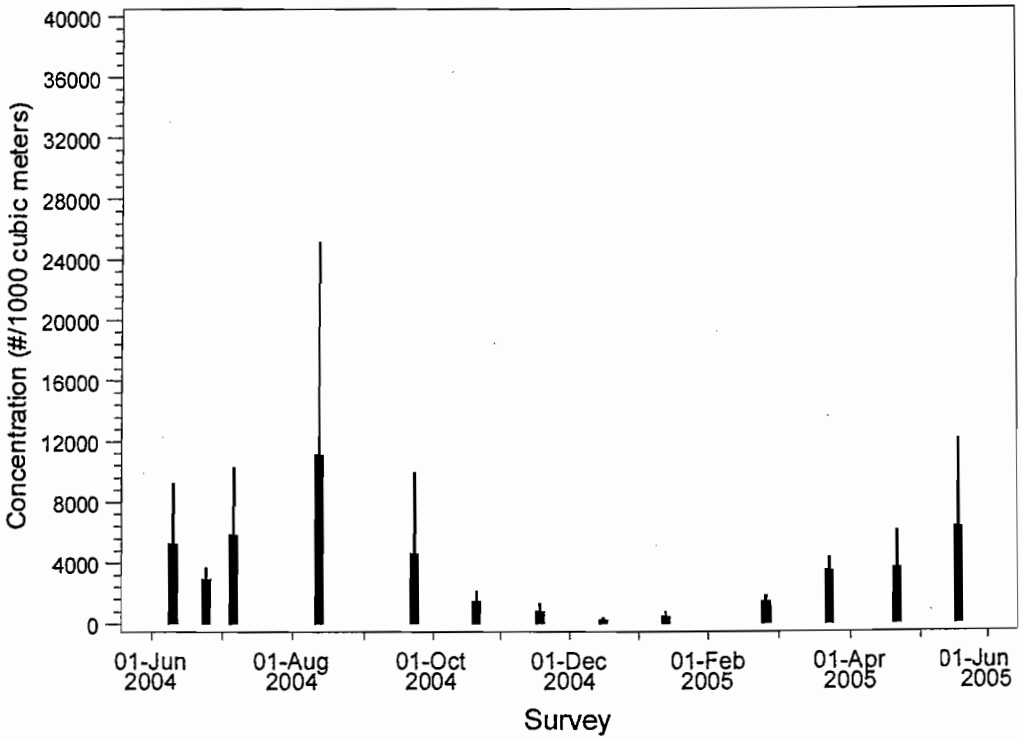

Figure 2. Mean concentration (# / 1,000 m^3 [264,172 gal]) and standard error of all larval fishes collected at entrainment Station E1 during monthly surveys, June 2004–May 2005.

Table 2. Average concentration of larval fishes and target shellfishes in source water samples collected at Agua Hedionda Lagoon and nearshore stations, June 2004–May 2005.

		Nearshore		Lagoon	
Taxon	Common Name	Average Concentration (# / 1,000 m^3)	Total Count	Average Concentration (# / 1,000 m^3)	Total Count
Fishes					
Engraulidae	anchovies	525.48	7,631	103.41	1,210
Hypsoblennius spp.	blennies	137.56	1,966	467.32	4,725
Gobiidae (CIQ complex)	gobies	69.12	921	2,718.58	30,270
Genyonemus lineatus	white croaker	64.66	921	4.25	54
larvae, unidentified yolksac	unid. yolksac larvae	45.82	678	3.12	32
Paralichthys californicus	California halibut	42.91	601	1.93	22
Paralabrax spp.	sand basses	24.88	372	0.68	8
Seriphus politus	queenfish	23.79	365	2.40	26
Sciaenidae	croaker	22.55	306	6.56	73
Citharichthys spp.	sanddabs	21.70	334	1.14	15
Roncador stearnsii	spotfin croaker	20.17	286	6.82	74
Gibbonsia spp.	clinid kelpfishes	19.29	277	16.74	182
Labrisomidae	labrisomid kelpfishes	16.36	219	35.30	366
Sardinops sagax	Pacific sardine	13.21	202	0.74	9
larval fish fragment	unid. larval fishes	10.50	145	15.02	174
Haemulidae	grunts	8.80	116	0.17	2
Scomber japonicus	Pacific mackerel	7.07	110	-	-
Hypsypops rubicundus	garibaldi	7.03	110	35.12	352
larval/post-larval fish unid.	larval fishes	6.81	93	1.36	16
Oxyjulis californica	senorita	5.55	79	0.75	8
Paralabrax nebulifer	barred sand bass	5.08	82	-	-
Sphyraena argentea	California barracuda	3.74	59	0.17	2
Xenistius californiensis	salema	3.61	55	0.30	3
Lepidogobius lepidus	bay goby	3.59	56	0.09	1
Stenobrachius leucopsarus	northern lampfish	3.26	51	-	-
Atherinopsidae	silversides	3.09	39	29.73	348
Pleuronichthys verticalis	hornyhead turbot	2.79	43	-	-
Umbrina roncador	yellowfin croaker	2.62	39	0.09	1
Ophidiidae	cusk-eels	2.61	37	0.09	1
Pleuronichthys ritteri	spotted turbot	2.51	34	0.17	2
Pleuronectidae unid.	flounders	2.28	35	0.08	1
Xystreurys liolepis	fantail sole	1.97	27	0.21	2
Hypsopsetta guttulata	diamond turbot	1.97	30	0.55	7
Rimicola spp.	kelp clingfishes	1.79	22	3.28	34
Peprilus simillimus	Pacific butterfish	1.78	28	-	-
Cheilotrema saturnum	black croaker	1.71	24	0.36	4
Semicossyphus pulcher	California sheephead	1.49	21	-	-
Diaphus theta	Calif. headlight fish	1.46	24	-	-
Acanthogobius flavimanus	yellowfin goby	1.46	22	38.98	499
Pleuronectiformes	flatfishes	1.25	21	0.07	1
Menticirrhus undulatus	California corbina	1.21	16	0.47	5
Atractoscion nobilis	white seabass	1.18	18	0.08	1
Sebastes spp.	rockfishes	1.09	18	-	-

(table continued)

Table 2 (continued). Average concentration of larval fishes and target shellfishes in source water samples collected at nearshore stations and Agua Hedionda Lagoon, June 2004-May 2005.

		Nearshore		Lagoon	
Taxon	**Common Name**	**Average Concentration (# / 1,000 m^3)**	**Total Count**	**Average Concentration (# / 1,000 m^3)**	**Total Count**
Girella nigricans	opaleye	1.06	16	-	-
Syngnathidae	pipefishes	1.02	13	5.31	53
Typhlogobius californiensis	blind goby	0.99	15	9.63	118
Trachurus symmetricus	jack mackerel	0.96	17	-	-
Halichoeres semicinctus	rock wrasse	0.95	15	-	-
Labridae	wrasses	0.83	11	-	-
Paraclinus integripinnis	reef finspot	0.81	14	2.88	31
Symphurus atricaudus	California tonguefish	0.77	11	-	-
Triphoturus mexicanus	Mexican lampfish	0.73	12	0.16	2
Nannobrachium spp.	lanternfishes	0.57	9	-	-
Medialuna californiensis	halfmoon	0.53	7	-	-
Gillichthys mirabilis	longjaw mudsucker	0.51	8	5.17	62
Chilara taylori	spotted cusk-eel	0.50	7	-	-
Heterostichus rostratus	giant kelpfish	0.50	7	-	-
Paralichthyidae	lefteye flounders	0.44	7	-	-
Parophrys vetulus	English sole	0.30	5	-	-
Myctophidae	lanternfishes	0.30	4	-	-
Hippoglossina stomata	bigmouth sole	0.29	5	-	-
Zaniolepis frenata	shortspine combfish	0.25	5	-	-
Ruscarius creaseri	roughcheek sculpin	0.22	3	-	-
Clupeiformes	herrings and anchovies	0.21	3	-	-
Gobiesocidae	clingfishes	0.18	3	0.64	7
Clupeidae	herrings	0.18	3	-	-
Lyopsetta exilis	slender sole	0.16	3	-	-
Pomacentridae	damselfishes	0.14	2	-	-
Rhinogobiops nicholsii	blackeye goby	0.14	2	-	-
Nannobrachium ritteri	broadfin lampfish	0.13	2	-	-
Cyclothone spp.	bristlemouths	0.13	2	-	-
Chromis punctipinnis	blacksmith	0.13	2	-	-
Icelinus spp.	sculpins	0.13	3	-	-
Anisotremus davidsonii	sargo	0.12	2	-	-
Sebastes jordani	shortbelly rockfish	0.10	2	-	-
Blennioidei	blennies	0.08	1	0.36	4
Clinidae	clinid kelpfishes	0.08	1	-	-
Chaenopsidae	tube blennies	0.07	1	-	-
Leptocottus armatus	Pacific staghorn sculpin	0.07	1	0.51	6
Cynoglossidae	tongue soles	0.07	1	-	-
Kyphosidae	sea chubs	0.07	1	-	-
Cyclothone acclinidens	benttooth bristlemouth	0.07	1	-	-
Hexagrammidae	greenlings	0.06	1	-	-
Bathylagus ochotensis	popeye blacksmelt	0.06	1	-	-
Hypsoblennius gentilis	bay blenny	0.05	1	-	-
Rimicola eigenmanni	slender clingfish	-	-	4.13	53
Clinocottus analis	wooly sculpin	-	-	0.31	4
Clinocottus spp.	sculpins	-	-	0.07	1
Semicossyphus pulcher	California sheephead	-	-	0.06	1
			16,763		**38,872**
Shellfishes					
Cancer spp. (megalops)	cancer crabs	9.29	158	0.17	2
Panulirus interruptus (larval)	California spiny lobster	7.04	98	0.21	2
Cancer gracilis (megalops)	slender crab	2.93	48		

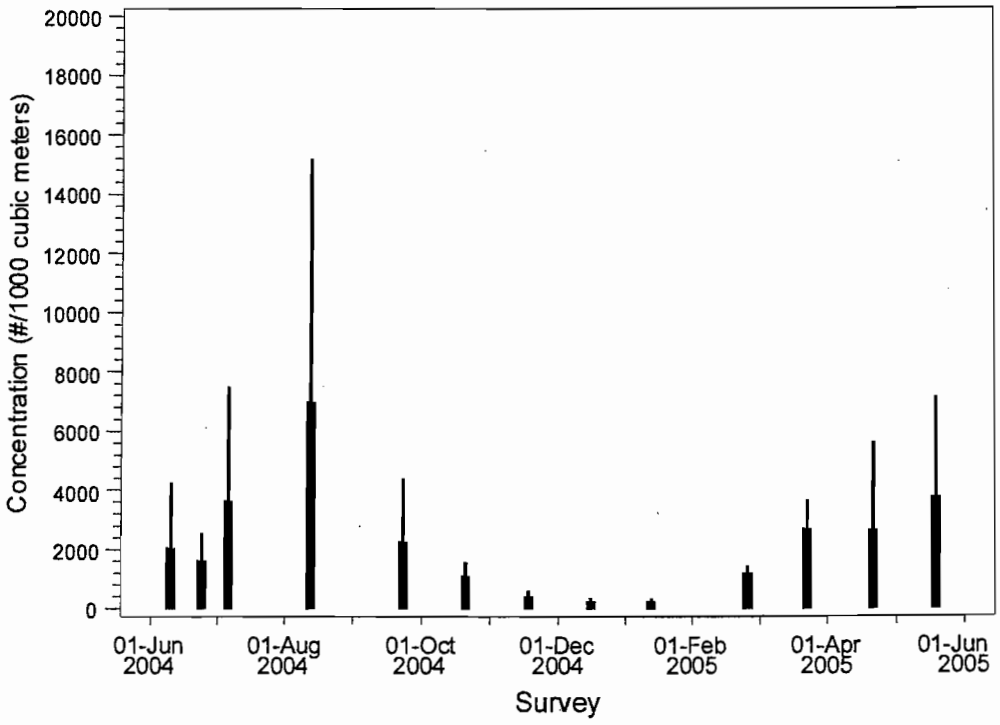

Figure 3. Comparison among surveys of mean concentration (#/1,000 m^3 [264,172 gal]) of CIQ goby complex larvae at entrainment Station E1.

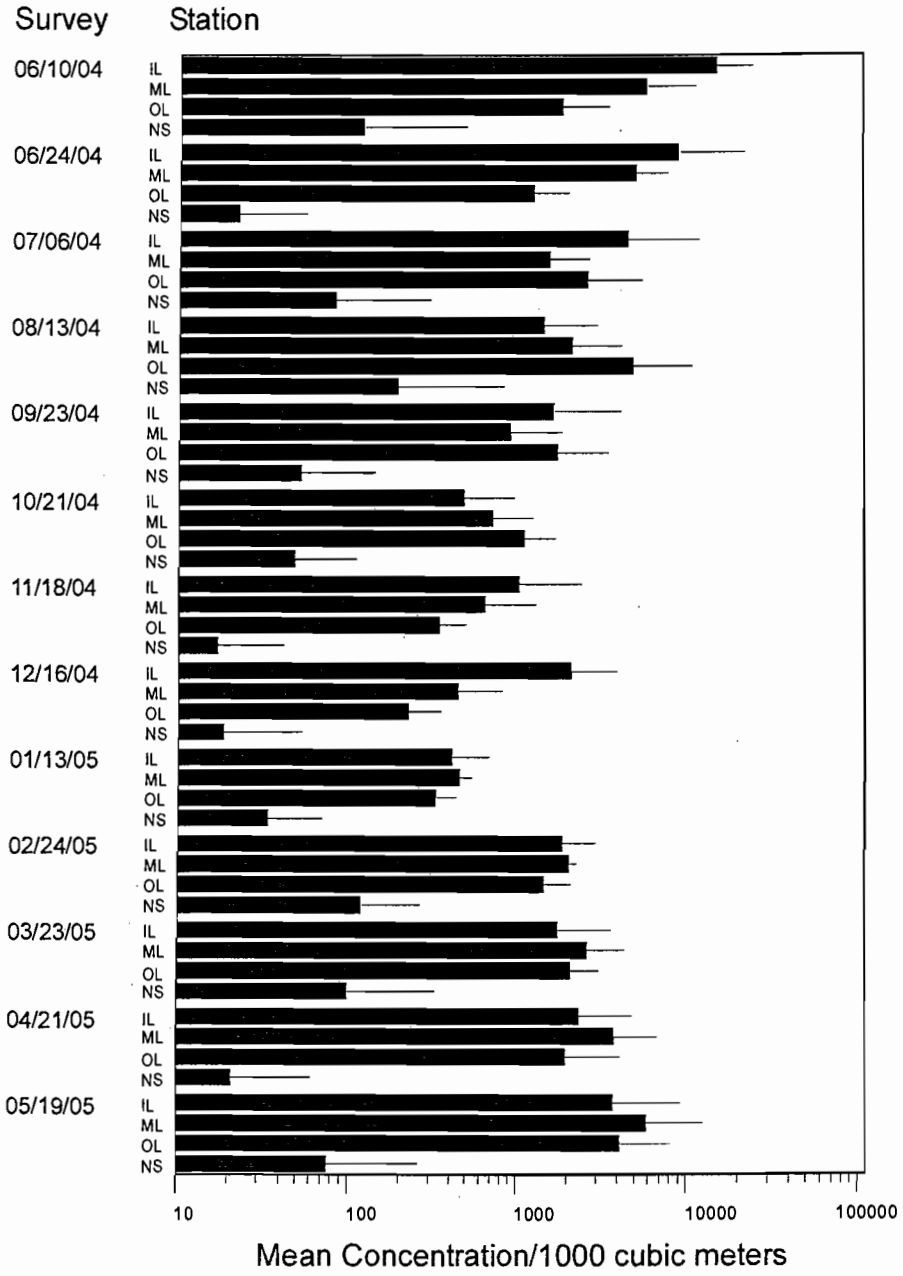

Figure 4. Mean concentration (#/1,000 m^3 [264,172 gal]) and standard error of CIQ goby complex larvae at Agua Hedionda Lagoon (inner, middle, and outer) and nearshore source water stations during the 2004 and 2005 sampling periods. Note logarithmic abundance scale.

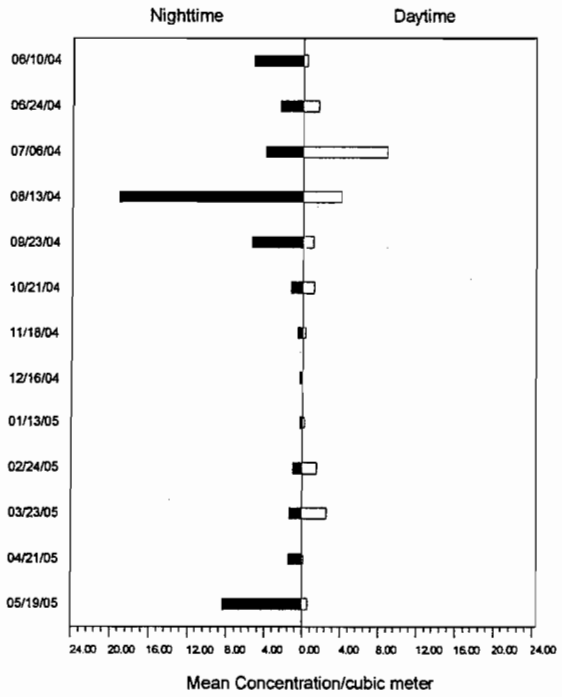

Figure 5. Mean concentration (#/1.0 m^3 [264 gal]) of CIQ goby complex larvae at entrainment Station E1 during night (Cycle 3) and day (Cycle 1) sampling.

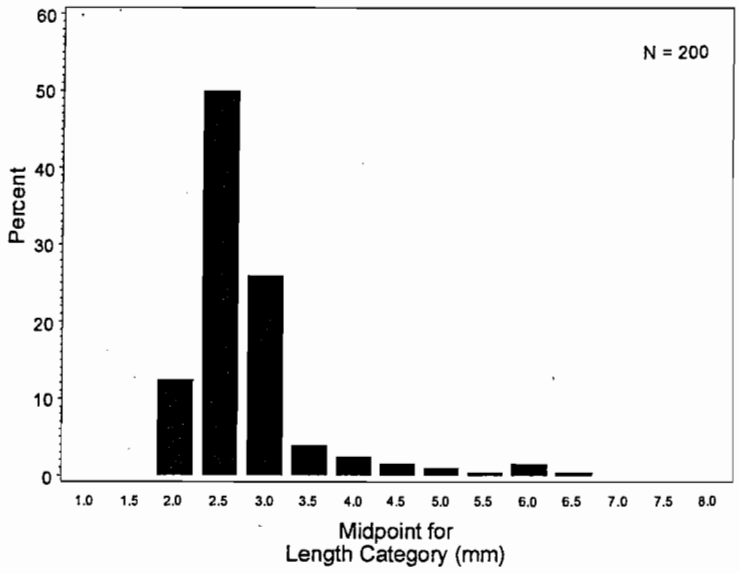

Figure 6. Length frequency of CIQ goby complex larvae at entrainment Station E1. Data from sub-samples of all surveys in 2004–2005.

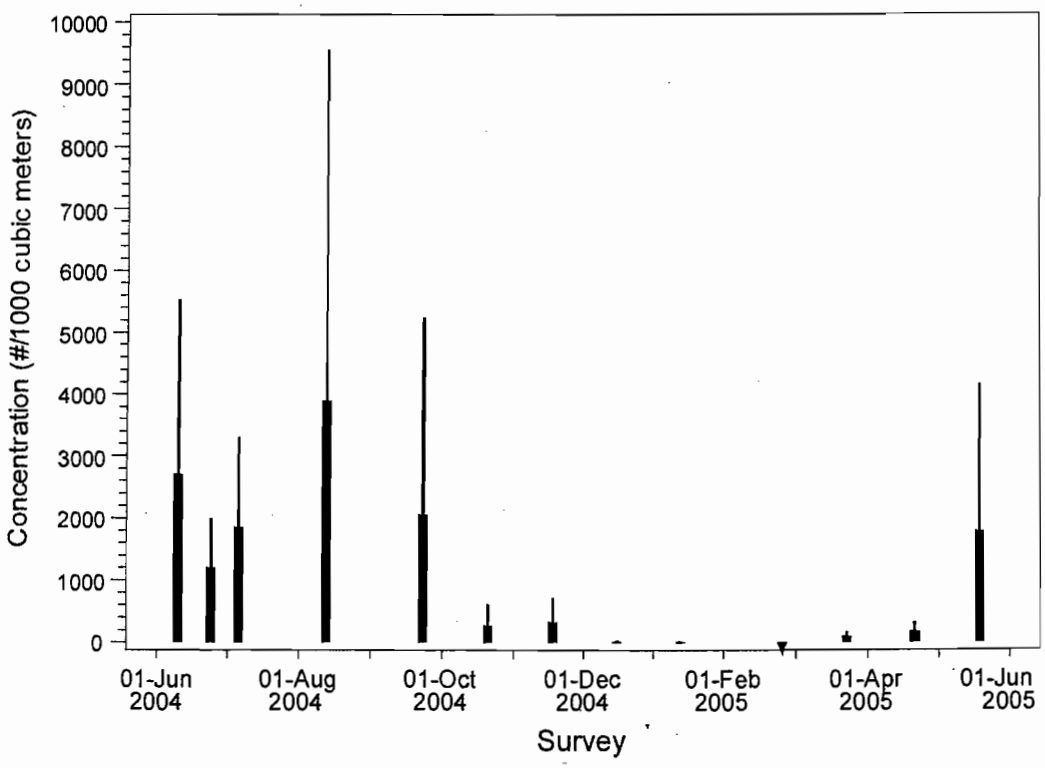

Figure 7. Comparison among surveys of mean concentration (#/1000 m^3 [264,172 gal]) of combtooth blenny larvae at entrainment Station E1. Note: downward pointing triangle indicates survey with no larvae collected.

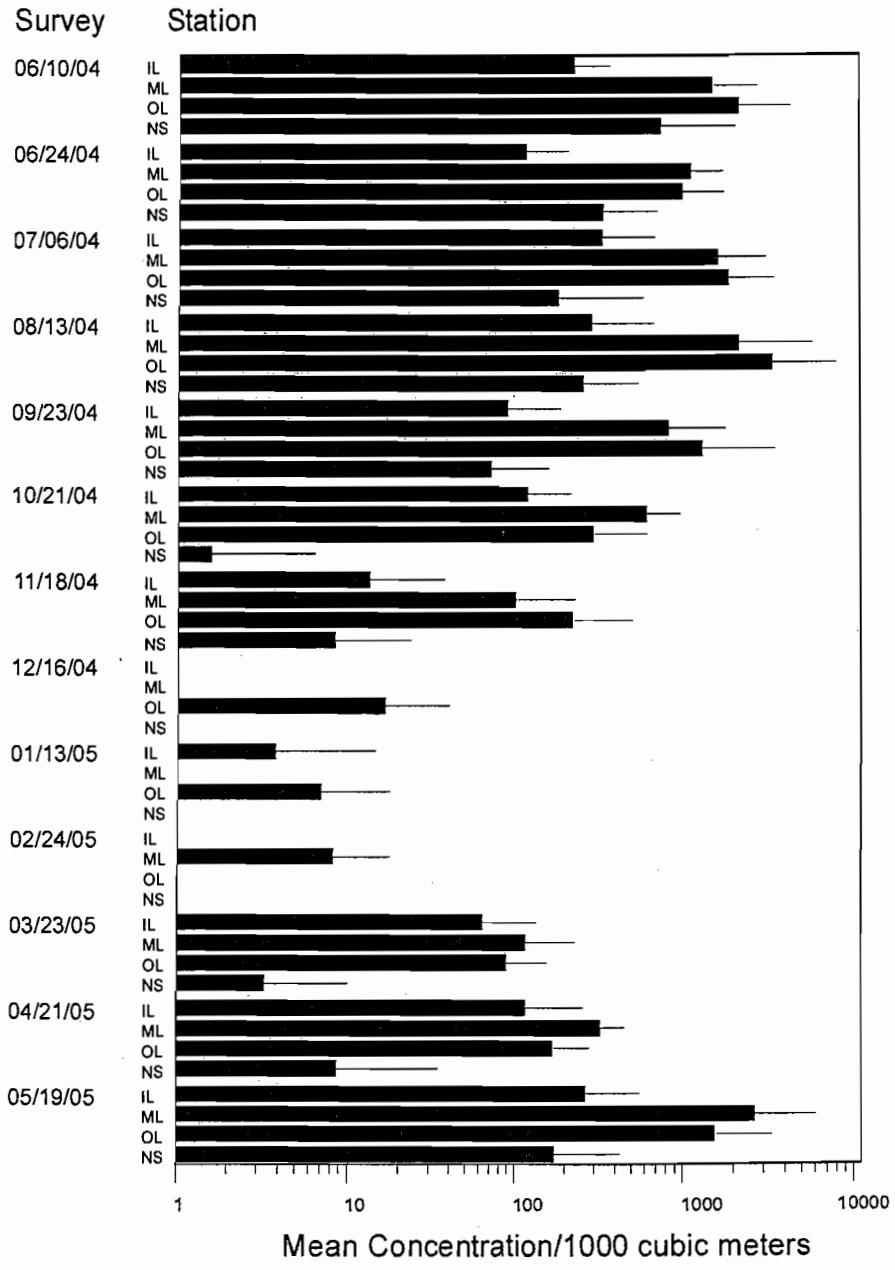

Figure 8. Mean concentration (#/1000 m^3 [264,172 gal]) and standard error of combtooth blenny larvae at Agua Hedionda Lagoon (inner, middle, and outer) and nearshore source water stations during the 2004 and 2005 sampling periods. Note logarithmic scale for mean concentration.

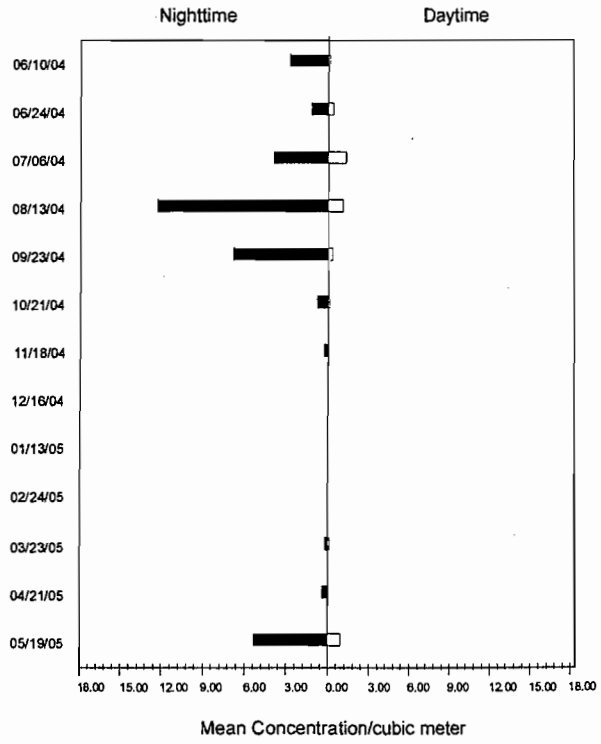

Figure 9. Mean concentration (#/1.0 m^3 [264 gal]) of combtooth blenny larvae at entrainment Station E1 during night (Cycle 3) and day (Cycle 1) sampling.

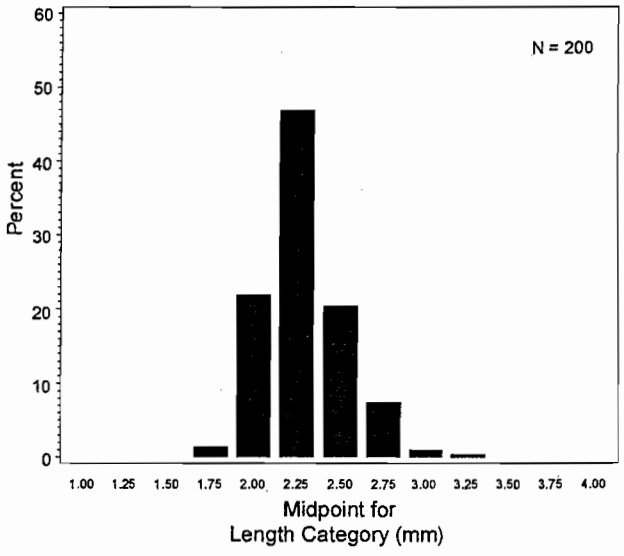

Figure 10. Length frequency of combtooth blenny larvae at entrainment and all source water stations combined. Data from sub-samples of all surveys in 2004–2005.

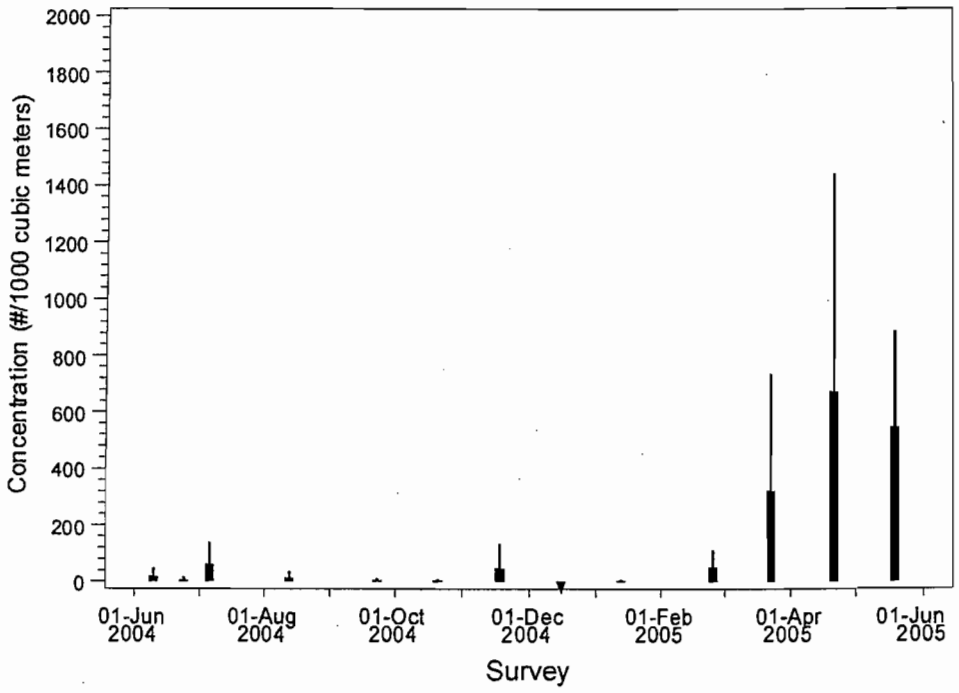

Figure 11. Comparison among surveys of mean concentration (#/1000 m^3 [264,172 gal]) of anchovy larvae at entrainment Station E1. Note: downward pointing triangle indicates survey with no larvae collected.

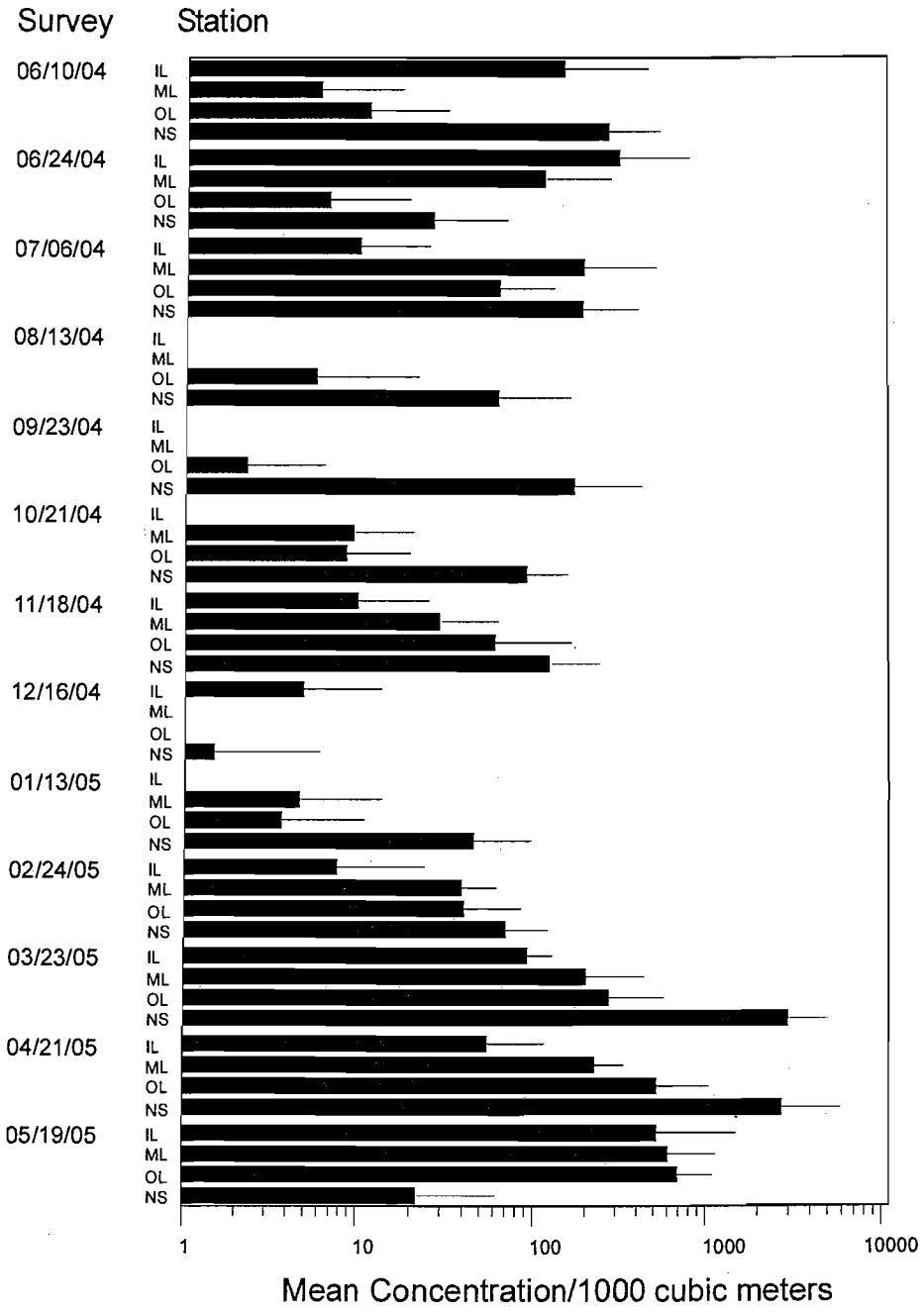

Figure 12. Mean concentration (#/1000 m^3 [264,172 gal]) and standard error of anchovy larvae at Agua Hedionda Lagoon (inner, middle, and outer) and nearshore source water stations during the 2004 and 2005 sampling periods. Note logarithmic abundance scale.

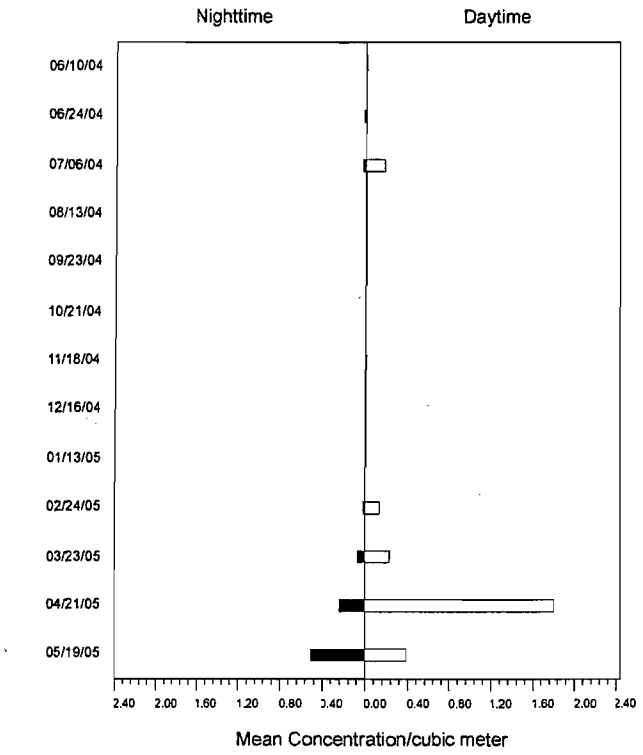

Figure 13. Mean concentration (#/1.0 m^3 [264 gal]) of anchovy larvae at entrainment Station E1 during night (Cycle 3) and day (Cycle 1) sampling.

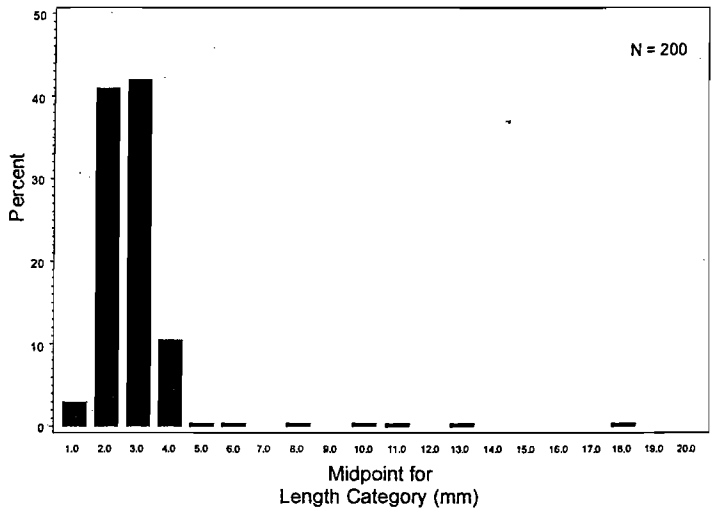

Figure 14. Length frequency of anchovy larvae at entrainment Station E1. Data from sub-samples of all surveys in 2004–2005.

Appendix A

Entrainment and Source Water Sampling Results by Survey

A1 – Entrainment

A2 – Source Water: Agua Hedionda Lagoon

A3 – Source Water: Nearshore

Table A1. Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at entrainment Station E1.

			Survey Number:		1		2	
			Survey Date:		06/10/04		06/24/04	
			Sample Count:		8		8	
	Taxon	Common Name	Total Count	Mean Conc.	Count	Conc.	Count	Conc.
	Fishes							
1	Gobiidae unid.	gobies	12,762	2,222.69	609	2,059.68	576	1,622.60
2	*Hypsoblennius* spp.	combtooth blennies	5,838	1,107.67	784	2,712.14	438	1,197.26
3	*Engraulis mordax*	northern anchovy	505	84.40	6	17.86	-	-
4	Engraulidae unid.	anchovies	314	49.88	-	-	2	5.15
5	*Hypsypops rubicundus*	garibaldi	188	40.99	79	268.68	8	23.41
6	*Typhlogobius californiensis*	blind goby	148	24.65	2	4.80	-	-
7	*Gibbonsia* spp.	clinid kelpfishes	125	22.45	3	11.11	2	5.24
8	Labrisomidae unid.	labrisomid kelpfishes	81	17.65	26	92.41	10	28.36
9	*Acanthogobius flavimanus*	yellowfin goby	87	14.41	-	-	-	-
10	larval fish fragment	larval fishes	56	9.65	8	25.54	-	-
11	larvae, unidentified yolksac	yolksac larvae	39	8.36	5	16.62	6	18.21
12	*Roncador stearnsi*	spotfin croaker	42	8.33	1	2.40	1	2.57
13	*Syngnathus leptorhynchus*	bay pipefish	36	8.20	7	21.36	8	22.75
14	*Atherinopsis californiensis*	jacksmelt	47	7.99	-	-	-	-
15	*Rimicola* spp.	kelp clingfishes	43	7.92	3	9.95	1	2.49
16	*Syngnathus* spp.	pipefishes	47	7.85	2	6.39	-	-
17	*Genyonemus lineatus*	white croaker	44	7.04	-	-	-	-
18	*Seriphus politus*	queenfish	29	5.50	2	6.65	-	-
19	*Paraclinus integripinnis*	reef finspot	31	4.95	-	-	-	-
20	*Paralichthys californicus*	California halibut	21	3.73	1	2.40	-	-
21	*Sardinops sagax*	Pacific sardine	16	2.66	-	-	-	-
22	*Gillichthys mirabilis*	longjaw mudsucker	13	2.14	-	-	-	-
23	Sciaenidae unid.	croaker	11	1.86	-	-	1	2.49
24	*Hypsopsetta guttulata*	diamond turbot	10	1.78	-	-	-	-
25	larval/post-larval fish unid.	larval fishes	10	1.61	1	2.40	-	-
26	*Citharichthys stigmaeus*	speckled sanddab	8	1.33	-	-	-	-
27	*Paralabrax* spp.	sand bass	7	1.15	-	-	-	-
28	Atherinopsidae unid.	silverside	5	0.82	-	-	-	-
29	*Citharichthys sordidus*	Pacific sanddab	5	0.79	-	-	-	-
30	*Paralabrax clathratus*	kelp bass	4	0.71	-	-	-	-
31	Pleuronectiformes unid.	flatfishes	4	0.63	-	-	-	-
32	*Heterostichus rostratus*	giant kelpfish	3	0.54	1	2.40	-	-
33	*Clinocottus analis*	wooly sculpin	3	0.51	-	-	-	-
34	*Stenobrachius leucopsarus*	northern lampfish	2	0.37	-	-	-	-
35	*Atherinops affinis*	topsmelt	2	0.36	-	-	-	-
36	*Cheilotrema saturnum*	black croaker	2	0.35	-	-	-	-
37	*Scomber japonicus*	Pacific mackerel	1	0.35	1	4.51	-	-
38	*Quietula y-cauda*	shadow goby	1	0.25	-	-	-	-
39	Ophidiidae unid.	cusk-eels	1	0.21	-	-	-	-
40	*Gobiesox* spp.	clingfishes	1	0.20	-	-	1	2.66
41	*Diaphus theta*	California headlight fish	1	0.19	-	-	-	-
42	*Semicossyphus pulcher*	California sheephead	1	0.19	-	-	-	-
43	*Menticirrhus undulatus*	California corbina	1	0.18	-	-	-	-
44	Haemulidae unid.	grunts	1	0.18	-	-	-	-
45	Labridae unid.	wrasses	1	0.17	-	-	-	-
46	Myctophidae unid.	lanternfishes	1	0.16	-	-	-	-
47	*Symbolophorus californiensis*	California lanternfish	1	0.16	-	-	-	-
48	*Oxyjulis californica*	senorita	1	0.14	-	-	-	-
49	*Citharichthys* spp.	sanddabs	1	0.13	-	-	-	-
	Invertebrates							
	Cancer anthonyi (megalops)	yellow crab	1	2.21	-	-	-	-
			20,602		1,541		1,054	

Table A1 (continued). Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at entrainment Station E1.

Survey Number:	3		4		5		6	
Survey Date:	07/06/04		08/13/04		09/23/04		10/21/04	
Sample Count:	8		8		8		8	
Taxon	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**
Fishes								
Gobiidae unid.	1,349	3,651.19	3,347	6,989.90	992	2,259.40	454	1,118.40
Hypsoblennius spp.	615	1,857.95	1,843	3,900.14	917	2,056.02	115	275.79
Engraulis mordax	7	19.60	-	-	2	4.55	2	4.43
Engraulidae unid.	17	41.45	6	11.44	-	-	-	-
Hypsypops rubicundus	24	76.54	8	16.58	-	-	-	-
Typhlogobius californiensis	1	3.57	-	-	-	-	-	-
Gibbonsia spp.	-	-	1	1.85	-	-	16	42.17
Labrisomidae unid.	20	52.50	2	4.38	20	45.30	1	2.62
Acanthogobius flavimanus	-	-	-	-	-	-	-	-
larval fish fragment	-	-	3	6.62	4	8.90	8	19.52
larvae, unidentified yolksac	16	46.61	-	-	3	7.57	-	-
Roncador stearnsi	11	34.26	1	2.09	28	67.03	-	-
Syngnathus leptorhynchus	19	57.50	-	-	-	-	1	2.83
Atherinopsis californiensis	-	-	-	-	-	-	-	-
Rimicola spp.	12	29.44	15	31.44	3	6.87	9	22.75
Syngnathus spp.	-	-	32	67.29	13	28.39	-	-
Genyonemus lineatus	-	-	1	1.93	7	16.59	-	-
Seriphus politus	-	-	3	6.38	22	53.74	2	4.77
Paraclinus integripinnis	-	-	31	64.39	-	-	-	-
Paralichthys californicus	-	-	1	2.09	5	13.58	2	5.23
Sardinops sagax	-	-	-	-	-	-	-	-
Gillichthys mirabilis	-	-	-	-	-	-	-	-
Sciaenidae unid.	1	3.20	-	-	3	6.64	1	2.62
Hypsopsetta guttulata	-	-	-	-	3	7.81	-	-
larval/post-larval fish unid.	1	2.39	5	9.76	-	-	-	-
Citharichthys stigmaeus	-	-	-	-	-	-	2	5.54
Paralabrax spp.	-	-	3	5.69	4	9.26	-	-
Atherinopsidae unid.	-	-	-	-	-	-	-	-
Citharichthys sordidus	-	-	-	-	-	-	-	-
Paralabrax clathratus	-	-	-	-	4	9.21	-	-
Pleuronectiformes unid.	-	-	-	-	-	-	-	-
Heterostichus rostratus	-	-	-	-	-	-	-	-
Clinocottus analis	-	-	-	-	-	-	-	-
Stenobrachius leucopsarus	-	-	-	-	-	-	-	-
Atherinops affinis	1	2.50	-	-	-	-	-	-
Cheilotrema saturnum	1	2.50	1	2.02	-	-	-	-
Scomber japonicus	-	-	-	-	-	-	-	-
Quietula y-cauda	1	3.20	-	-	-	-	-	-
Ophidiidae unid.	-	-	-	-	-	-	1	2.71
Gobiesox spp.	-	-	-	-	-	-	-	-
Diaphus theta	-	-	-	-	-	-	-	-
Semicossyphus pulcher	-	-	-	-	-	-	-	-
Menticirrhus undulatus	1	2.39	-	-	-	-	-	-
Haemulidae unid.	-	-	-	-	1	2.29	-	-
Labridae unid.	-	-	-	-	1	2.19	-	-
Myctophidae unid.	-	-	-	-	-	-	-	-
Symbolophorus californiensis	-	-	-	-	-	-	-	-
Oxyjulis californica	-	-	-	-	-	-	-	-
Citharichthys spp.	-	-	-	-	-	-	-	-
Invertebrates								
Cancer anthonyi (megalops)	-	-	-	-	-	-	-	-
	2,097		5,303		2,032		614	

Table A1 (continued). Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at entrainment Station E1.

Survey Number:	7		8		9		10	
Survey Date:	11/18/04		12/16/04		01/13/05		02/24/05	
Sample Count:	8		8		8		8	
Taxon	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**
Fishes								
Gobiidae unid.	203	411.13	102	233.48	118	263.27	555	1,179.31
Hypsoblennius spp.	151	320.89	5	11.75	4	8.53	-	-
Engraulis mordax	26	48.05	-	-	1	2.22	25	51.06
Engraulidae unid.	-	-	-	-	-	-	-	-
Hypsypops rubicundus	-	-	-	-	-	-	-	-
Typhlogobius californiensis	-	-	-	-	-	-	4	8.61
Gibbonsia spp.	7	13.96	6	13.51	61	141.98	11	22.93
Labrisomidae unid.	1	1.75	-	-	-	-	-	-
Acanthogobius flavimanus	-	-	-	-	19	44.01	63	133.24
larval fish fragment	2	3.95	-	-	1	2.28	4	8.48
larvae, unidentified yolksac	-	-	-	-	-	-	-	-
Roncador stearnsi	-	-	-	-	-	-	-	-
Syngnathus leptorhynchus	-	-	-	-	-	-	-	-
Atherinopsis californiensis	-	-	2	4.93	13	29.82	22	47.31
Rimicola spp.	-	-	-	-	-	-	-	-
Syngnathus spp.	-	-	-	-	-	-	-	-
Genyonemus lineatus	4	7.92	1	2.47	3	6.50	13	26.67
Seriphus politus	-	-	-	-	-	-	-	-
Paraclinus integripinnis	-	-	-	-	-	-	-	-
Paralichthys californicus	1	1.75	1	2.22	2	4.40	3	5.75
Sardinops sagax	2	3.49	-	-	-	-	5	10.93
Gillichthys mirabilis	3	7.07	1	2.15	1	2.22	5	10.56
Sciaenidae unid.	1	1.85	-	-	-	-	-	-
Hypsopsetta guttulata	2	4.02	1	1.71	4	9.59	-	-
larval/post-larval fish unid.	-	-	-	-	3	6.33	-	-
Citharichthys stigmaeus	4	7.32	-	-	-	-	-	-
Paralabrax spp.	-	-	-	-	-	-	-	-
Atherinopsidae unid.	-	-	-	-	-	-	2	4.61
Citharichthys sordidus	3	5.24	-	-	-	-	-	-
Paralabrax clathratus	-	-	-	-	-	-	-	-
Pleuronectiformes unid.	3	5.70	-	-	-	-	-	-
Heterostichus rostratus	1	2.18	-	-	-	-	1	2.41
Clinocottus analis	-	-	1	2.20	1	2.28	1	2.15
Stenobrachius leucopsarus	-	-	-	-	2	4.82	-	-
Atherinops affinis	-	-	-	-	-	-	-	-
Cheilotrema saturnum	-	-	-	-	-	-	-	-
Scomber japonicus	-	-	-	-	-	-	-	-
Quietula y-cauda	-	-	-	-	-	-	-	-
Ophidiidae unid.	-	-	-	-	-	-	-	-
Gobiesox spp.	-	-	-	-	-	-	-	-
Diaphus theta	-	-	-	-	-	-	-	-
Semicossyphus pulcher	-	-	-	-	-	-	-	-
Menticirrhus undulatus	-	-	-	-	-	-	-	-
Haemulidae unid.	-	-	-	-	-	-	-	-
Labridae unid.	-	-	-	-	-	-	-	-
Myctophidae unid.	-	-	-	-	-	-	-	-
Symbolophorus californiensis	-	-	-	-	-	-	-	-
Oxyjulis californica	-	-	-	-	-	-	-	-
Citharichthys spp.	-	-	-	-	-	-	-	-
Invertebrates								
Cancer anthonyi (megalops)	-	-	1	2.21	-	-	-	-
	414		121		233		714	

Table A1 (continued). Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at entrainment Station E1

Survey Number:	11		12		13	
Survey Date:	03/23/05		04/21/05		05/19/05	
Sample Count:	8		8		8	
Taxon	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**
Fishes						
Gobiidae unid.	1,357	2,700.63	1,314	2,649.98	1,786	3,755.99
Hypsoblennius spp.	49	99.47	86	174.14	831	1,785.69
Engraulis mordax	89	182.27	284	642.95	63	124.21
Engraulidae unid.	60	140.57	14	28.03	215	421.84
Hypsypops rubicundus	-	-	15	30.54	54	117.11
Typhlogobius californiensis	110	238.12	17	34.38	14	31.01
Gibbonsia spp.	12	26.60	2	3.96	4	8.59
Labrisomidae unid.	-	-	-	-	1	2.13
Acanthogobius flavimanus	5	10.08	-	-	-	-
larval fish fragment	12	24.32	4	8.17	10	17.70
larvae, unidentified yolksac	1	2.43	3	7.12	5	10.12
Roncador stearnsi	-	-	-	-	-	-
Syngnathus leptorhynchus	-	-	-	-	1	2.21
Atherinopsis californiensis	10	21.80	-	-	-	-
Rimicola spp.	-	-	-	-	-	-
Syngnathus spp.	-	-	-	-	-	-
Genyonemus lineatus	5	9.18	10	20.28	-	-
Seriphus politus	-	-	-	-	-	-
Paraclinus integripinnis	-	-	-	-	-	-
Paralichthys californicus	1	1.82	3	7.12	1	2.13
Sardinops sagax	1	1.86	8	18.35	-	-
Gillichthys mirabilis	2	3.89	1	1.88	-	-
Sciaenidae unid.	2	3.67	-	-	2	3.75
Hypsopsetta guttulata	-	-	-	-	-	-
larval/post-larval fish unid.	-	-	-	-	-	-
Citharichthys stigmaeus	-	-	2	4.37	-	-
Paralabrax spp.	-	-	-	-	-	-
Atherinopsidae unid.	-	-	2	3.89	1	2.21
Citharichthys sordidus	-	-	2	4.98	-	-
Paralabrax clathratus	-	-	-	-	-	-
Pleuronectiformes unid.	-	-	1	2.49	-	-
Heterostichus rostratus	-	-	-	-	-	-
Clinocottus analis	-	-	-	-	-	-
Stenobrachius leucopsarus	-	-	-	-	-	-
Atherinops affinis	-	-	-	-	1	2.21
Cheilotrema saturnum	-	-	-	-	-	-
Scomber japonicus	-	-	-	-	-	-
Quietula y-cauda	-	-	-	-	-	-
Ophidiidae unid.	-	-	-	-	-	-
Gobiesox spp.	-	-	-	-	-	-
Diaphus theta	-	-	1	2.49	-	-
Semicossyphus pulcher	-	-	1	2.49	-	-
Menticirrhus undulatus	-	-	-	-	-	-
Haemulidae unid.	-	-	-	-	-	-
Labridae unid.	-	-	-	-	-	-
Myctophidae unid.	-	-	1	2.14	-	-
Symbolophorus californiensis	-	-	1	2.14	-	-
Oxyjulis californica	-	-	-	-	1	1.78
Citharichthys spp.	1	1.72	-	-	-	-
Invertebrates						
Cancer anthonyi (megalops)	-	-	-	-	-	-
	1,717		1,772		2,990	

Table A2. Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at source water Stations L1-L4 in Agua Hedionda Lagoon.

			Survey Number:		1		2	
			Survey Date:		06/10/04		06/24/04	
			Sample Count:		16		16	
	Taxon	Common Name	Total Count	Mean Conc.	Count	Conc.	Count	Conc.
	Fishes							
1	Gobiidae unid.	gobies	30,229	2,714.74	7,936	9,400.29	4,466	5,925.43
2	*Hypsoblennius* spp.	combtooth blennies	4,725	467.32	614	901.83	398	547.24
3	Engraulidae unid.	anchovies	652	57.90	54	72.86	141	182.94
4	*Engraulis mordax*	northern anchovy	558	45.51	2	2.79	1	1.33
5	*Acanthogobius flavimanus*	yellowfin goby	499	38.98	-	-	-	-
6	Labrisomidae unid.	labrisomid kelpfishes	366	35.30	166	220.73	71	93.10
7	*Hypsypops rubicundus*	garibaldi	352	35.12	94	134.38	53	76.48
8	*Atherinopsis californiensis*	jacksmelt	279	23.93	-	-	-	-
9	*Gibbonsia* spp.	clinid kelpfishes	182	16.74	8	11.54	4	5.44
10	larval fish fragment	unid. larval fishes	174	15.02	17	19.27	21	30.99
11	*Typhlogobius californiensis*	blind goby	118	9.63	2	2.79	-	-
12	*Roncador stearnsi*	spotfin croaker	74	6.82	1	1.29	-	-
13	Sciaenidae unid.	croakers	73	6.56	23	29.17	-	-
14	*Gillichthys mirabilis*	longjaw mudsucker	62	5.17	-	-	-	-
15	*Genyonemus lineatus*	white croaker	54	4.25	2	2.14	-	-
16	*Rimicola eigenmanni*	slender clingfish	53	4.13	-	-	-	-
17	Atherinopsidae unid.	silversides	41	3.40	3	3.43	-	-
18	*Rimicola* spp.	kelp clingfishes	34	3.28	-	-	2	2.98
19	*Syngnathus leptorhynchus*	bay pipefish	33	3.19	12	15.60	9	11.57
20	larvae, unidentified yolksac	unid. yolksac larvae	32	3.12	5	8.47	-	-
21	*Paraclinus integripinnis*	reef finspot	31	2.88	-	-	-	-
22	*Seriphus politus*	queenfish	26	2.40	1	1.64	5	5.51
23	*Atherinops affinis*	topsmelt	28	2.40	5	7.00	4	5.54
24	*Quietula y-cauda*	shadow goby	26	2.38	5	5.45	5	6.68
25	*Syngnathus* spp.	pipefishes	19	2.01	-	-	2	2.99
26	*Paralichthys californicus*	California halibut	22	1.93	2	2.63	-	-
27	larval/post-larval fish unid.	larval fishes	16	1.36	-	-	-	-
28	*Ilypnus gilberti*	cheekspot goby	14	1.35	-	-	-	-
29	*Oxyjulis californica*	senorita	8	0.75	2	2.36	-	-
30	*Sardinops sagax*	Pacific sardine	9	0.74	-	-	-	-
31	*Citharichthys stigmaeus*	speckled sanddab	9	0.73	-	-	-	-
32	*Paralabrax* spp.	sand basses	8	0.68	-	-	-	-
33	*Hypsopsetta guttulata*	diamond turbot	7	0.55	-	-	-	-
34	*Leptocottus armatus*	Pacific staghorn sculpin	6	0.51	-	-	-	-
35	*Gobiesox* spp.	clingfishes	5	0.49	-	-	2	3.29
36	*Menticirrhus undulatus*	California corbina	5	0.47	-	-	-	-
37	*Cheilotrema saturnum*	black croaker	4	0.36	-	-	-	-
38	Blennioidei unid.	blennies	4	0.36	1	1.11	1	1.40
39	*Citharichthys sordidus*	Pacific sanddab	5	0.34	-	-	-	-
40	*Clinocottus analis*	wooly sculpin	4	0.31	-	-	-	-
41	*Xenistius californiensis*	salema	3	0.30	-	-	-	-
42	*Xystreurys liolepis*	fantail sole	2	0.21	-	-	-	-
43	*Pleuronichthys ritteri*	spotted turbot	2	0.17	-	-	-	-
44	Haemulidae unid.	grunts	2	0.17	-	-	-	-
45	*Sphyraena argentea*	California barracuda	2	0.17	-	-	-	-
46	*Triphoturus mexicanus*	Mexican lampfish	2	0.16	-	-	-	-
47	Gobiesocidae unid.	clingfishes	2	0.15	-	-	-	-
48	*Clevelandia ios*	arrow goby	1	0.11	-	-	-	-
49	Syngnathidae unid.	pipefishes	1	0.11	-	-	-	-
50	Ophidiidae unid.	cusk-eels	1	0.09	-	-	-	-
51	*Umbrina roncador*	yellowfin croaker	1	0.09	-	-	-	-
52	*Lepidogobius lepidus*	bay goby	1	0.09	-	-	-	-
53	*Pleuronichthys* spp.	turbots	1	0.08	-	-	-	-
54	*Atractoscion nobilis*	white seabass	1	0.08	-	-	-	-
55	Pleuronectiformes unid.	flatfishes	1	0.07	-	-	-	-
56	*Clinocottus* spp.	sculpins	1	0.07	-	-	-	-
57	*Citharichthys* spp.	sanddabs	1	0.06	-	-	-	-
58	*Semicossyphus pulcher*	California sheephead	1	0.06	1	0.78	-	-
	Invertebrates							
	Panulirus interruptus (larvae)	California spiny lobster	2	0.21	-	-	-	-
	Cancer antennarius (megalops)	brown rock crab	1	0.09	-	-	-	-
	Cancer anthonyi (megalops)	yellow crab	1	0.08	-	-	-	-
		Totals:	**38,876**		**8,958**		**5,185**	

Table A2 (continued). Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at source water Stations L1-L4 in Agua Hedionda Lagoon.

Survey Number:	3		4		5		6	
Survey Date:	07/06/04		08/13/04		09/23/04		10/21/04	
Sample Count:	16		16		20		16	
Taxon	**Conc.**	**Count**	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**
Fishes								
Gobiidae unid.	3,034.53	30,229	1,498	1,925.13	1,115	1,272.53	550	690.51
Hypsoblennius spp.	1,053.95	4,725	1,004	1,421.30	360	398.18	245	290.58
Engraulidae unid.	57.39	652	-	-	-	-	-	-
Engraulis mordax	12.07	558	-	-	-	-	4	5.58
Acanthogobius flavimanus	-	499	-	-	-	-	-	-
Labrisomidae unid.	44.54	366	23	29.27	68	70.20	-	-
Hypsypops rubicundus	122.15	352	1	1.38	-	-	-	-
Atherinopsis californiensis	1.15	279	-	-	-	-	-	-
Gibbonsia spp.	4.46	182	1	1.38	3	3.04	12	19.17
larval fish fragment	4.41	174	9	10.98	3	3.48	8	9.95
Typhlogobius californiensis	11.38	118	-	-	-	-	-	-
Roncador stearnsi	34.73	74	-	-	48	51.42	-	-
Sciaenidae unid.	10.27	73	4	4.85	17	17.20	-	-
Gillichthys mirabilis	-	62	-	-	-	-	-	-
Genyonemus lineatus	-	54	4	4.85	6	6.58	1	1.81
Rimicola eigenmanni	-	53	-	-	53	53.73	-	-
Atherinopsidae unid.	1.15	41	-	-	-	-	3	3.66
Rimicola spp.	6.03	34	-	-	9	9.96	10	13.61
Syngnathus leptorhynchus	7.04	33	-	-	5	4.97	1	1.33
larvae, unidentified yolksac	12.08	32	6	7.87	2	2.11	-	-
Paraclinus integripinnis	-	31	31	37.45	-	-	-	-
Seriphus politus	6.58	26	1	1.26	8	8.51	6	7.72
Atherinops affinis	1.15	28	-	-	-	-	-	-
Quietula y-cauda	2.29	26	4	5.80	1	1.01	-	-
Syngnathus spp.	-	19	15	20.83	-	-	1	1.09
Paralichthys californicus	1.63	22	1	1.21	7	7.51	2	3.18
larval/post-larval fish unid.	-	16	2	2.42	3	3.03	-	-
Ilypnus gilberti	-	14	3	4.46	-	-	-	-
Oxyjulis californica	-	8	5	6.24	-	-	-	-
Sardinops sagax	-	9	-	-	-	-	-	-
Citharichthys stigmaeus	1.36	9	1	1.20	2	2.12	-	-
Paralabrax spp.	-	8	3	3.63	5	5.24	-	-
Hypsopsetta guttulata	-	7	-	-	2	2.20	-	-
Leptocottus armatus	-	6	-	-	-	-	-	-
Gobiesox spp.	-	5	-	-	-	-	-	-
Menticirrhus undulatus	1.63	5	1	1.21	3	3.33	-	-
Cheilotrema saturnum	1.32	4	1	1.21	2	2.19	-	-
Blennioidei unid.	-	4	-	-	-	-	-	-
Citharichthys sordidus	-	5	-	-	-	-	-	-
Clinocottus analis	-	4	-	-	-	-	-	-
Xenistius californiensis	-	3	-	-	2	2.03	1	1.81
Xystreurys liolepis	2.77	2	-	-	-	-	-	-
Pleuronichthys ritteri	-	2	-	-	2	2.20	-	-
Haemulidae unid.	-	2	1	1.21	1	0.96	-	-
Sphyraena argentea	-	2	1	1.17	1	0.99	-	-
Triphoturus mexicanus	-	2	-	-	1	1.10	-	-
Gobiesocidae unid.	-	2	-	-	-	-	2	2.01
Clevelandia ios	-	1	1	1.45	-	-	-	-
Syngnathidae unid.	-	1	-	-	-	-	1	1.38
Ophidiidae unid.	-	1	1	1.21	-	-	-	-
Umbrina roncador	-	1	-	-	1	1.21	-	-
Lepidogobius lepidus	-	1	-	-	-	-	-	-
Pleuronichthys spp.	-	1	-	-	1	1.10	-	-
Atractoscion nobilis	-	1	-	-	-	-	-	-
Pleuronectiformes unid.	-	1	-	-	-	-	-	-
Clinocottus spp.	-	1	-	-	-	-	-	-
Citharichthys spp.	-	1	-	-	-	-	-	-
Semicossyphus pulcher	-	1	-	-	-	-	-	-
Invertebrates								
Panulirus interruptus	2.73	2	-	-	-	-	-	-
Cancer antennarius (megalops)	-	1	-	-	-	-	-	-
Cancer anthonyi (megalops)	-	1	-	-	1	1.01	-	-
		38,876	**2,622**		**1,732**		**847**	

Table A2 (continued). Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at source water Stations L1-L4 in Agua Hedionda Lagoon.

Survey Number:	7		8		9		10	
Survey Date:	11/18/04		12/16/04		01/13/05		02/24/05	
Sample Count:	16		16		16		16	
Taxon	Total Count	Conc.	Count	Conc.	Count	Conc.	Count	Conc.
Fishes								
Gobiidae unid.	706	734.73	1,032	1,201.76	368	402.81	1,873	1,867.75
Hypsoblennius spp.	59	61.74	4	5.26	3	3.22	2	2.05
Engraulidae unid.	2	2.12	-	-	2	2.42	-	-
Engraulis mordax	30	28.07	2	2.43	-	-	21	21.19
Acanthogobius flavimanus	-	-	-	-	140	152.20	300	298.81
Labrisomidae unid.	-	-	-	-	-	-	-	-
Hypsypops rubicundus	-	-	-	-	-	-	-	-
Atherinopsis californiensis	5	5.80	16	18.84	52	61.60	167	185.66
Gibbonsia spp.	13	13.30	56	65.83	43	52.02	21	20.79
larval fish fragment	11	11.11	11	12.69	-	-	49	48.54
Typhlogobius californiensis	-	-	2	2.23	-	-	8	8.22
Roncador stearnsi	-	-	-	-	-	-	-	-
Sciaenidae unid.	-	-	-	-	3	3.65	-	-
Gillichthys mirabilis	4	4.25	21	24.94	14	14.54	15	15.16
Genyonemus lineatus	1	0.95	-	-	2	2.27	23	21.56
Rimicola eigenmanni	-	-	-	-	-	-	-	-
Atherinopsidae unid.	4	4.47	-	-	-	-	12	11.64
Rimicola spp.	1	1.14	5	5.82	-	-	-	-
Syngnathus leptorhynchus	-	-	-	-	-	-	1	0.94
larvae, unidentified yolksac	-	-	1	1.31	-	-	-	-
Paraclinus integripinnis	-	-	-	-	-	-	-	-
Seriphus politus	-	-	-	-	-	-	-	-
Atherinops affinis	-	-	-	-	-	-	12	12.21
Quietula y-cauda	2	2.24	4	4.22	-	-	3	3.18
Syngnathus spp.	1	1.28	-	-	-	-	-	-
Paralichthys californicus	2	1.67	-	-	2	2.31	2	1.80
larval/post-larval fish unid.	-	-	-	-	10	11.33	1	0.89
Ilypnus gilberti	1	0.86	5	5.99	5	6.28	-	-
Oxyjulis californica	1	1.12	-	-	-	-	-	-
Sardinops sagax	-	-	-	-	1	1.23	4	4.40
Citharichthys stigmaeus	1	0.81	-	-	-	-	-	-
Paralabrax spp.	-	-	-	-	-	-	-	-
Hypsopsetta guttulata	2	1.68	-	-	1	1.34	1	1.01
Leptocottus armatus	-	-	-	-	5	6.63	-	-
Gobiesox spp.	-	-	-	-	-	-	3	3.04
Menticirrhus undulatus	-	-	-	-	-	-	-	-
Cheilotrema saturnum	-	-	-	-	-	-	-	-
Blennioidei unid.	-	-	1	1.24	-	-	1	0.94
Citharichthys sordidus	4	3.66	-	-	-	-	1	0.77
Clinocottus analis	-	-	2	2.27	-	-	2	1.74
Xenistius californiensis	-	-	-	-	-	-	-	-
Xystreurys liolepis	-	-	-	-	-	-	-	-
Pleuronichthys ritteri	-	-	-	-	-	-	-	-
Haemulidae unid.	-	-	-	-	-	-	-	-
Sphyraena argentea	-	-	-	-	-	-	-	-
Triphoturus mexicanus	1	0.95	-	-	-	-	-	-
Gobiesocidae unid.	-	-	-	-	-	-	-	-
Clevelandia ios	-	-	-	-	-	-	-	-
Syngnathidae unid.	-	-	-	-	-	-	-	-
Ophidiidae unid.	-	-	-	-	-	-	-	-
Umbrina roncador	-	-	-	-	-	-	-	-
Lepidogobius lepidus	-	-	-	-	1	1.18	-	-
Pleuronichthys spp.	-	-	-	-	-	-	-	-
Atractoscion nobilis	-	-	-	-	-	-	-	-
Pleuronectiformes unid.	-	-	-	-	-	-	-	-
Clinocottus spp.	-	-	1	0.93	-	-	-	-
Citharichthys spp.	1	0.81	-	-	-	-	-	-
Semicossyphus pulcher	-	-	-	-	-	-	-	-
Invertebrates								
Panulirus interruptus	-	-	-	-	-	-	-	-
Cancer antennarius (megalops)	-	-	1	1.22	-	-	-	-
Cancer anthonyi (megalops)	-	-	-	-	-	-	-	-
	852		1,164		653		2,522	

Table A2 (continued). Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at source water Stations L1-L4 in Agua Hedionda Lagoon.

Survey Number:	11		12		13	
Survey Date:	03/23/05		04/21/05		05/19/05	
Sample Count:	16		16		16	
Taxon	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**
Fishes						
Gobiidae unid.	1,923	1,908.93	2,314	2,455.55	3,980	4,471.69
Hypsoblennius spp.	81	80.32	175	181.27	1,013	1,128.18
Engraulidae unid.	57	55.27	22	22.80	331	356.88
Engraulis mordax	104	98.45	151	155.03	235	264.72
Acanthogobius flavimanus	54	50.65	3	2.95	2	2.12
Labrisomidae unid.	-	-	-	-	1	1.06
Hypsypops rubicundus	-	-	62	63.71	48	58.49
Atherinopsis californiensis	38	37.99	-	-	-	-
Gibbonsia spp.	4	4.30	4	4.07	10	12.22
larval fish fragment	16	15.83	14	14.73	12	13.31
Typhlogobius californiensis	85	84.34	10	10.82	4	5.36
Roncador steamsi	-	-	1	1.18	-	-
Sciaenidae unid.	7	6.96	6	5.27	6	6.88
Gillichthys mirabilis	5	5.20	3	3.16	-	-
Genyonemus lineatus	2	1.95	12	12.02	1	1.12
Rimicola eigenmanni	-	-	-	-	-	-
Atherinopsidae unid.	6	7.09	7	7.50	5	5.29
Rimicola spp.	-	-	-	-	3	3.09
Syngnathus leptorhynchus	-	-	-	-	-	-
larvae, unidentified yolksac	5	4.69	-	-	4	4.10
Paraclinus integripinnis	-	-	-	-	-	-
Seriphus politus	-	-	-	-	-	-
Atherinops affinis	1	0.81	2	2.23	2	2.27
Quietula y-cauda	-	-	-	-	-	-
Syngnathus spp.	-	-	-	-	-	-
Paralichthys californicus	2	1.92	1	1.18	-	-
larval/post-larval fish unid.	-	-	-	-	-	-
Ilypnus gilberti	-	-	-	-	-	-
Oxyjulis californica	-	-	-	-	-	-
Sardinops sagax	-	-	4	3.93	-	-
Citharichthys stigmaeus	1	1.05	3	2.97	-	-
Paralabrax spp.	-	-	-	-	-	-
Hypsopsetta guttulata	1	0.89	-	-	-	-
Leptocottus armatus	-	-	-	-	-	-
Gobiesox spp.	-	-	-	-	-	-
Menticirrhus undulatus	-	-	-	-	-	-
Cheilotrema saturnum	-	-	-	-	-	-
Blennioidei unid.	-	-	-	-	-	-
Citharichthys sordidus	-	-	-	-	-	-
Clinocottus analis	-	-	-	-	-	-
Xenistius californiensis	-	-	-	-	-	-
Xystreurys liolepis	-	-	-	-	-	-
Pleuronichthys ritteri	-	-	-	-	-	-
Haemulidae unid.	-	-	-	-	-	-
Sphyraena argentea	-	-	-	-	-	-
Triphoturus mexicanus	-	-	-	-	-	-
Gobiesocidae unid.	-	-	-	-	-	-
Clevelandia ios	-	-	-	-	-	-
Syngnathidae unid.	-	-	-	-	-	-
Ophidiidae unid.	-	-	-	-	-	-
Umbrina roncador	-	-	-	-	-	-
Lepidogobius lepidus	-	-	-	-	-	-
Pleuronichthys spp.	-	-	-	-	-	-
Atractoscion nobilis	-	-	1	0.99	-	-
Pleuronectiformes unid.	-	-	1	0.93	-	-
Clinocottus spp.	-	-	-	-	-	-
Citharichthys spp.	-	-	-	-	-	-
Semicossyphus pulcher	-	-	-	-	-	-
Invertebrates						
Panulirus interruptus	-	-	-	-	-	-
Cancer antennarius (megalops)	-	-	-	-	-	-
Cancer anthonyi (megalops)	-	-	-	-	-	-
	2,392		2,796		5,657	

Table A3. Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at source water Stations N1-N5 in nearshore area.

			Survey Number:		1		2	
			Survey Date:		06/10/04		06/24/04	
			Sample Count:		20		19	
	Taxon	Common Name	Total Count	Mean Conc.	Count	Conc.	Count	Conc.
	Fishes							
1	*Engraulis mordax*	northern anchovy	6,318	423.31	285	211.27	27	24.69
2	*Hypsoblennius* spp.	combtooth blennies	1,959	137.11	936	747.96	325	335.32
3	Engraulidae unid.	anchovies	1,313	102.17	80	54.22	2	1.74
4	Gobiidae unid.	gobies	920	69.06	150	118.83	22	22.51
5	*Genyonemus lineatus*	white croaker	921	64.66	-	-	3	2.82
6	larvae, unidentified yolksac	unid. yolksac larvae	678	45.82	86	68.17	45	40.04
7	*Paralichthys californicus*	California halibut	601	42.91	39	28.28	45	40.90
8	*Seriphus politus*	queenfish	365	23.79	81	59.98	126	109.01
9	Sciaenidae unid.	croaker	306	22.55	52	36.56	17	15.94
10	*Roncador stearnsi*	spotfin croaker	286	20.17	105	84.11	66	63.55
11	*Citharichthys stigmaeus*	speckled sanddab	309	20.01	7	5.17	11	10.03
12	*Gibbonsia* spp.	clinid kelpfishes	277	19.29	36	29.62	5	6.93
13	Labrisomidae unid.	labrisomid kelpfishes	219	16.36	87	73.38	47	48.08
14	*Paralabrax clathratus*	kelp bass	213	14.12	29	20.88	43	36.99
15	*Sardinops sagax*	Pacific sardine	202	13.21	3	1.99	-	-
16	*Paralabrax* spp.	sand bass	159	10.76	12	9.46	8	7.03
17	larval fish fragment	unid. larval fishes	145	10.50	13	9.98	11	9.51
18	Haemulidae unid.	grunts	116	8.80	10	6.71	4	3.34
19	*Scomber japonicus*	Pacific mackerel	110	7.07	32	25.62	9	7.39
20	*Hypsypops rubicundus*	garibaldi	110	7.03	84	66.63	6	5.73
21	larval/post-larval fish unid.	larval fishes	93	6.81	8	5.67	5	4.57
22	*Oxyjulis californica*	senorita	79	5.55	12	8.05	2	1.98
23	*Paralabrax nebulifer*	barred sand bass	82	5.08	-	-	2	1.67
24	*Sphyraena argentea*	California barracuda	59	3.74	8	6.51	8	6.60
25	*Xenistius californiensis*	salema	55	3.61	-	-	31	25.82
26	*Lepidogobius lepidus*	bay goby	56	3.59	-	-	-	-
27	*Stenobrachius leucopsarus*	northern lampfish	51	3.26	-	-	-	-
28	*Pleuronichthys verticalis*	hornyhead turbot	43	2.79	-	-	3	2.56
29	*Atherinopsis californiensis*	jacksmelt	35	2.78	-	-	-	-
30	*Umbrina roncador*	yellowfin croaker	39	2.62	1	0.71	24	21.89
31	*Pleuronichthys ritteri*	spotted turbot	34	2.51	-	-	-	-
32	*Xystreurys liolepis*	fantail sole	27	1.97	-	-	-	-
33	*Hypsopsetta guttulata*	diamond turbot	30	1.97	-	-	-	-
34	*Rimicola* spp.	kelp clingfishes	22	1.79	-	-	-	-
35	*Peprilus simillimus*	Pacific butterfish	28	1.78	-	-	15	12.77
36	*Cheilotrema saturnum*	black croaker	24	1.71	6	4.76	4	3.79
37	*Semicossyphus pulcher*	California sheephead	21	1.49	6	4.23	-	-
38	*Ophidion scrippsae*	basketweave cusk-eel	22	1.48	-	-	-	-
39	*Diaphus theta*	California headlight fish	24	1.46	1	0.76	1	0.83
40	*Acanthogobius flavimanus*	yellowfin goby	22	1.46	-	-	-	-
41	*Pleuronichthys* spp.	turbots	19	1.30	-	-	1	0.83
42	Pleuronectiformes unid.	flatfishes	21	1.25	-	-	-	-
43	*Menticirrhus undulatus*	California corbina	16	1.21	4	3.04	4	4.05
44	*Atractoscion nobilis*	white seabass	18	1.18	2	1.48	9	8.43
45	Ophidiidae unid.	cusk-eels	15	1.14	-	-	-	-
46	*Sebastes* spp.	rockfishes	18	1.09	-	-	-	-
47	*Girella nigricans*	opaleye	16	1.06	2	1.36	1	0.80
48	*Typhlogobius californiensis*	blind goby	15	0.99	4	3.24	1	0.81
49	*Citharichthys sordidus*	Pacific sanddab	16	0.99	-	-	1	0.83
50	Pleuronectidae unid.	flounders	16	0.98	-	-	-	-
51	*Trachurus symmetricus*	jack mackerel	17	0.96	13	9.40	-	-
52	*Halichoeres semicinctus*	rock wrasse	15	0.95	-	-	-	-
53	*Syngnathus* spp.	pipefishes	10	0.84	-	-	1	0.81
54	Labridae	wrasses	11	0.83	-	-	-	-

Table A3 (continued). Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at source water Stations N1-N5 in nearshore area.

			Survey Number:		1		2	
			Survey Date:		06/10/04		06/24/04	
			Sample Count:		20		19	
	Taxon	Common Name	Total Count	Mean Conc.	Count	Conc.	Count	Conc.
	Fishes							
55	*Paraclinus integripinnis*	reef finspot	14	0.81	7	4.25	-	-
56	*Symphurus atricauda*	California tonguefish	11	0.77	-	-	-	-
57	*Triphoturus mexicanus*	Mexican lampfish	12	0.73	-	-	1	0.83
58	*Citharichthys* spp.	sanddabs	9	0.70	-	-	1	0.83
59	*Nannobrachium* spp.	lanternfishes	9	0.57	-	-	-	-
60	*Medialuna californiensis*	halfmoon	7	0.53	2	1.69	-	-
61	*Gillichthys mirabilis*	longjaw mudsucker	8	0.51	-	-	-	-
62	*Chilara taylori*	spotted cusk-eel	7	0.50	-	-	-	-
63	*Heterostichus rostratus*	giant kelpfish	7	0.50	1	1.00	1	1.39
64	*Hypsoblennius jenkinsi*	mussel blenny	7	0.46	-	-	-	-
65	Paralichthyidae unid.	lefteye flounders & sandd	7	0.44	-	-	-	-
66	Atherinopsidae	silverside	4	0.31	-	-	-	-
67	*Parophrys vetulus*	English sole	5	0.30	-	-	-	-
68	Myctophidae unid.	lanternfishes	4	0.30	-	-	-	-
69	*Hippoglossina stomata*	bigmouth sole	5	0.29	-	-	-	-
70	*Zaniolepis frenata*	shortspine combfish	5	0.25	-	-	-	-
71	*Ruscarius creaseri*	rouchcheek sculpin	3	0.22	-	-	-	-
72	Clupeiformes	herrings and anchovies	3	0.21	2	1.92	-	-
73	*Syngnathus leptorhynchus*	bay pipefish	3	0.18	3	2.37	-	-
74	Clupeidae unid.	herrings	3	0.18	-	-	-	-
75	*Lyopsetta exilis*	slender sole	3	0.16	-	-	-	-
76	Pomacentridae	damselfishes	2	0.14	-	-	-	-
77	*Rhinogobiops nicholsi*	blackeye goby	2	0.14	-	-	-	-
78	*Nannobrachium ritteri*	broadfin lampfish	2	0.13	-	-	-	-
79	*Cyclothone* spp.	bristlemouths	2	0.13	-	-	-	-
80	*Chromis punctipinnis*	blacksmith	2	0.13	-	-	-	-
81	*Icelinus* spp.	sculpins	3	0.13	-	-	-	-
82	Gobiesocidae unid.	clingfishes	2	0.12	1	0.88	-	-
83	*Anisotremus davidsonil*	sargo	2	0.12	-	-	-	-
84	*Sebastes jordani*	shortbelly rockfish	2	0.10	-	-	-	-
85	Blennioidei	blennies	1	0.08	-	-	-	-
86	Clinidae unid.	clinid kelpfishes	1	0.08	1	1.00	-	-
87	Chaenopsidae unid.	tube blennies	1	0.07	-	-	-	-
88	*Leptocottus armatus*	Pacific staghorn sculpin	1	0.07	-	-	-	-
89	Cynoglossidae	tongue soles	1	0.07	-	-	-	-
90	Kyphosidae	sea chubs	1	0.07	-	-	-	-
91	*Cyclothone acclinidens*	bent tooth bristlemouth	1	0.07	-	-	-	-
92	*Ilypnus gilberti*	cheekspot goby	1	0.06	-	-	-	-
93	*Gobiesox* spp.	clingfishes	1	0.06	-	-	-	-
94	Hexagrammidae unid.	greenlings	1	0.06	-	-	-	-
95	*Bathylagus ochotensis*	popeye blacksmelt	1	0.06	-	-	-	-
96	*Hypsoblennius gentilis*	bay blenny	1	0.05	1	0.64	-	-
	Invertebrates							
	Panulirus interruptus (larvae)	California spiny lobster	98	7.04	1	0.82	71	64.80
	Cancer anthonyi (megalops)	yellow crab	80	4.74	-	-	2	2.38
	Cancer antennarius (megalops)	brown rock crab	71	4.11	-	-	3	3.15
	Cancer gracilis (megalops)	slender crab	48	2.93	2	1.35	-	-
	Cancer spp. (megalops)	cancer crabs	4	0.23	-	-	-	-
	Cancer productus (megalops)	red rock crab	3	0.22	-	-	-	-
		Totals:	**17,067**		**40,384**		**39,197**	

Table A3 (continued). Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at source water Stations N1-N5 in nearshore area.

	3 07/06/04 20		4 08/13/04 20		5 09/23/04 20		6 10/21/04 20	
Taxon	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**
Fishes								
Engraulis mordax	214	168.35	73	62.19	204	167.31	94	81.59
Hypsoblennius spp.	183	181.20	234	255.74	64	66.94	1	0.90
Engraulidae unid.	24	19.48	-	-	3	2.95	8	9.23
Gobiidae unid.	86	82.38	154	190.83	48	52.35	44	48.00
Genyonemus lineatus	13	10.58	12	14.77	300	280.83	33	25.28
larvae, unidentified yolksac	347	291.29	72	75.56	60	58.18	16	15.29
Paralichthys californicus	194	173.39	37	38.97	170	171.01	32	30.06
Seriphus politus	50	42.17	8	6.62	97	88.33	2	1.94
Sciaenidae unid.	102	99.70	25	28.73	39	38.37	6	4.90
Roncador stearnsi	52	47.53	10	10.18	53	56.79	-	-
Citharichthys stigmaeus	16	14.03	5	4.29	158	124.03	93	85.55
Gibbonsia spp.	4	4.35	3	3.96	2	2.46	11	11.57
Labrisomidae unid.	46	46.77	22	27.32	15	15.46	1	0.90
Paralabrax clathratus	34	27.63	2	1.75	105	96.31	-	-
Sardinops sagax	9	8.07	5	4.93	25	22.04	3	2.47
Paralabrax spp.	50	40.52	31	29.86	55	50.38	2	1.92
larval fish fragment	41	35.90	16	19.10	29	30.59	6	5.77
Haemulidae unid.	5	4.12	4	2.79	91	95.77	2	1.68
Scomber japonicus	39	30.95	-	-	29	27.04	1	0.89
Hypsypops rubicundus	13	11.43	1	1.32	-	-	-	-
larval/post-larval fish unid.	39	34.86	14	17.27	16	16.26	6	5.81
Oxyjulis californica	17	15.21	16	16.22	17	17.56	9	7.70
Paralabrax nebulifer	-	-	-	-	80	64.38	-	-
Sphyraena argentea	27	20.12	9	8.12	7	7.31	-	-
Xenistius californiensis	-	-	2	1.90	22	19.24	-	-
Lepidogobius lepidus	-	-	1	1.18	3	2.32	-	-
Stenobrachius leucopsarus	-	-	-	-	-	-	-	-
Pleuronichthys verticalis	10	7.29	3	3.18	18	15.33	2	1.69
Atherinopsis californiensis	-	-	-	-	-	-	-	-
Umbrina roncador	14	11.41	-	-	-	-	-	-
Pleuronichthys ritteri	4	3.41	5	5.87	15	14.28	6	5.25
Xystreurys liolepis	12	11.12	1	1.14	9	9.07	3	2.82
Hypsopsetta guttulata	-	-	2	1.93	8	7.31	6	4.26
Rimicola spp.	2	1.96	-	-	12	13.28	3	3.20
Peprilus simillimus	6	4.66	-	-	4	3.42	-	-
Cheilotrema saturnum	10	9.25	1	0.80	3	3.60	-	-
Semicossyphus pulcher	1	1.05	3	2.95	8	8.18	2	2.27
Ophidion scrippsae	-	-	6	6.04	11	8.98	4	3.21
Diaphus theta	1	0.81	-	-	3	2.41	1	0.89
Acanthogobius flavimanus	-	-	-	-	-	-	-	-
Pleuronichthys spp.	1	0.52	1	1.14	11	9.76	3	3.18
Pleuronectiformes unid.	-	-	-	-	1	0.78	5	3.67
Menticirrhus undulatus	-	-	2	2.14	6	6.54	-	-
Atractoscion nobilis	5	3.58	-	-	-	-	-	-
Ophidiidae unid.	-	-	1	0.93	5	5.38	8	7.74
Sebastes spp.	-	-	1	1.14	2	1.85	-	-
Girella nigricans	-	-	-	-	3	2.62	6	5.49
Typhlogobius californiensis	-	-	1	0.60	-	-	-	-
Citharichthys sordidus	-	-	-	-	2	1.53	2	1.89
Pleuronectidae unid.	-	-	-	-	1	0.76	-	-
Trachurus symmetricus	-	-	-	-	-	-	2	1.76
Halichoeres semicinctus	1	0.81	-	-	10	8.07	4	3.52
Syngnathus spp.	-	-	6	7.95	1	0.78	-	-
Labridae	7	6.83	1	1.34	-	-	1	0.68

Table A3 (continued). Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at source water Stations N1-N5 in nearshore area.

	3 07/06/04 20		4 08/13/04 20		5 09/23/04 20		6 10/21/04 20	
Taxon	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**
Fishes								
Paraclinus integripinnis	-	-	7	6.28	-	-	-	-
Symphurus atricauda	-	-	-	-	10	8.81	1	1.23
Triphoturus mexicanus	-	-	1	0.60	6	5.23	2	1.30
Citharichthys spp.	-	-	1	1.14	-	-	3	3.36
Nannobrachium spp.	-	-	-	-	-	-	-	-
Medialuna californiensis	-	-	4	4.48	-	-	1	0.68
Gillichthys mirabilis	-	-	-	-	-	-	-	-
Chilara taylori	-	-	-	-	-	-	6	5.72
Heterostichus rostratus	-	-	-	-	-	-	-	-
Hypsoblennius jenkinsi	-	-	1	0.70	5	4.55	1	0.68
Paralichthyidae unid.	2	1.04	-	-	1	1.11	-	-
Atherinopsidae	-	-	-	-	-	-	-	-
Parophrys vetulus	-	-	-	-	-	-	-	-
Myctophidae unid.	1	1.21	-	-	1	0.75	-	-
Hippoglossina stomata	-	-	1	0.78	2	1.52	-	-
Zaniolepis frenata	-	-	-	-	-	-	-	-
Ruscarius creaseri	-	-	-	-	-	-	-	-
Clupeiformes	-	-	-	-	-	-	-	-
Syngnathus leptorhynchus	-	-	-	-	-	-	-	-
Clupeidae unid.	1	0.71	-	-	-	-	1	0.89
Lyopsetta exilis	-	-	-	-	-	-	-	-
Pomacentridae	-	-	1	0.97	-	-	1	0.90
Rhinogobiops nicholsi	-	-	-	-	1	1.01	-	-
Nannobrachium ritteri	-	-	-	-	-	-	-	-
Cyclothone spp.	-	-	-	-	1	0.77	-	-
Chromis punctipinnis	-	-	-	-	-	-	1	0.83
Icelinus spp.	-	-	-	-	-	-	-	-
Gobiesocidae unid.	-	-	-	-	-	-	-	-
Anisotremus davidsonil	1	0.67	-	-	1	0.90	-	-
Sebastes jordani	-	-	-	-	-	-	-	-
Blennioidei	1	1.05	-	-	-	-	-	-
Clinidae unid.	-	-	-	-	-	-	-	-
Chaenopsidae unid.	-	-	-	-	-	-	-	-
Leptocottus armatus	-	-	-	-	-	-	-	-
Cynoglossidae	-	-	-	-	-	-	1	0.89
Kyphosidae	-	-	-	-	-	-	1	0.89
Cyclothone acclinidens	-	-	-	-	-	-	-	-
Ilypnus gilberti	-	-	-	-	-	-	-	-
Gobiesox spp.	-	-	-	-	-	-	-	-
Hexagrammidae unid.	-	-	-	-	1	0.75	-	-
Bathylagus ochotensis	-	-	-	-	-	-	-	-
Hypsoblennius gentilis	-	-	-	-	-	-	-	-
Invertebrates								
Panulirus interruptus	19	18.79	5	5.56	2	1.49	-	-
Cancer anthonyi (megalops)	29	22.66	17	11.75	16	12.25	1	0.63
Cancer antennarius (megalops)	1	0.67	50	35.14	4	3.35	2	2.08
Cancer gracilis (megalops)	-	-	33	26.49	6	4.92	-	-
Cancer spp. (megalops)	-	-	4	2.93	-	-	-	-
Cancer productus (megalops)	-	-	1	1.32	-	-	-	-
	39,931		**39,152**	**959**	**40,160**		**38,757**	

Table A3 (continued). Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at source water Stations N1-N5 in nearshore area.

	7 11/18/04 20		8 12/16/04 20		9 01/13/05 20		10 02/24/05 20	
Taxon	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**
Fishes								
Engraulis mordax	153	122.98	2	1.47	43	35.34	82	68.40
Hypsoblennius spp.	10	8.40	1	0.76	-	-	-	-
Engraulidae unid.	-	-	-	-	11	10.07	2	1.62
Gobiidae unid.	22	17.02	21	17.62	38	33.74	125	118.27
Genyonemus lineatus	78	63.14	8	6.99	46	38.44	143	124.31
larvae, unidentified yolksac	1	0.76	-	-	8	6.08	11	9.22
Paralichthys californicus	11	8.76	3	2.80	5	4.30	20	17.53
Seriphus politus	-	-	-	-	-	-	-	-
Sciaenidae unid.	1	0.67	-	-	6	5.75	3	3.04
Roncador stearnsi	-	-	-	-	-	-	-	-
Citharichthys stigmaeus	12	10.73	2	1.75	-	-	1	0.67
Gibbonsia spp.	6	5.19	40	32.33	61	57.65	52	48.45
Labrisomidae unid.	-	-	-	-	-	-	-	-
Paralabrax clathratus	-	-	-	-	-	-	-	-
Sardinops sagax	5	4.12	-	-	-	-	34	26.67
Paralabrax spp.	-	-	-	-	-	-	-	-
larval fish fragment	7	6.37	1	0.89	2	1.69	4	3.60
Haemulidae unid.	-	-	-	-	-	-	-	-
Scomber japonicus	-	-	-	-	-	-	-	-
Hypsypops rubicundus	-	-	-	-	-	-	-	-
larval/post-larval fish unid.	-	-	-	-	2	1.90	-	-
Oxyjulis californica	-	-	-	-	1	0.81	-	-
Paralabrax nebulifer	-	-	-	-	-	-	-	-
Sphyraena argentea	-	-	-	-	-	-	-	-
Xenistius californiensis	-	-	-	-	-	-	-	-
Lepidogobius lepidus	13	9.84	4	4.20	20	16.88	4	3.75
Stenobrachius leucopsarus	-	-	-	-	41	34.59	-	-
Pleuronichthys verticalis	1	1.08	-	-	-	-	-	-
Atherinopsis californiensis	-	-	3	2.10	10	9.29	7	6.78
Umbrina roncador	-	-	-	-	-	-	-	-
Pleuronichthys ritteri	-	-	-	-	2	1.77	-	-
Xystreurys liolepis	1	0.77	-	-	-	-	-	-
Hypsopsetta guttulata	2	1.51	1	1.05	8	6.75	2	1.60
Rimicola spp.	-	-	1	1.05	3	2.59	1	1.15
Peprilus simillimus	-	-	-	-	-	-	-	-
Cheilotrema saturnum	-	-	-	-	-	-	-	-
Semicossyphus pulcher	-	-	-	-	-	-	-	-
Ophidion scrippsae	1	0.95	-	-	-	-	-	-
Diaphus theta	-	-	-	-	-	-	-	-
Acanthogobius flavimanus	-	-	-	-	11	8.45	8	8.00
Pleuronichthys spp.	-	-	-	-	-	-	-	-
Pleuronectiformes unid.	10	7.45	-	-	-	-	-	-
Menticirrhus undulatus	-	-	-	-	-	-	-	-
Atractoscion nobilis	-	-	-	-	-	-	-	-
Ophidiidae unid.	1	0.76	-	-	-	-	-	-
Sebastes spp.	7	5.29	6	4.35	-	-	-	-
Girella nigricans	4	3.47	-	-	-	-	-	-
Typhlogobius californiensis	-	-	-	-	-	-	2	1.80
Citharichthys sordidus	9	7.31	-	-	-	-	-	-
Pleuronectidae unid.	1	0.88	-	-	-	-	-	-
Trachurus symmetricus	-	-	-	-	-	-	-	-
Halichoeres semicinctus	-	-	-	-	-	-	-	-
Syngnathus spp.	-	-	1	0.74	1	0.66	-	-
Labridae	-	-	-	-	-	-	-	-

Table A3 (continued). Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at source water Stations N1-N5 in nearshore area.

	7 11/18/04 20		8 12/16/04 20		9 01/13/05 20		10 02/24/05 20	
Taxon	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**
Fishes								
Paraclinus integripinnis	-	-	-	-	-	-	-	-
Symphurus atricauda	-	-	-	-	-	-	-	-
Triphoturus mexicanus	2	1.54	-	-	-	-	-	-
Citharichthys spp.	-	-	1	0.89	2	1.60	-	-
Nannobrachium spp.	1	0.76	1	0.84	4	3.51	1	0.90
Medialuna californiensis	-	-	-	-	-	-	-	-
Gillichthys mirabilis	-	-	1	0.72	4	3.37	3	2.59
Chilara taylori	1	0.81	-	-	-	-	-	-
Heterostichus rostratus	2	1.83	1	0.88	2	1.35	-	-
Hypsoblennius jenkinsi	-	-	-	-	-	-	-	-
Paralichthyidae unid.	2	1.95	-	-	1	1.01	1	0.61
Atherinopsidae	1	0.84	-	-	-	-	-	-
Parophrys vetulus	-	-	-	-	-	-	-	-
Myctophidae unid.	-	-	-	-	1	0.96	-	-
Hippoglossina stomata	2	1.49	-	-	-	-	-	-
Zaniolepis frenata	-	-	1	0.64	2	1.33	1	0.70
Ruscarius creaseri	-	-	-	-	1	0.68	-	-
Clupeiformes	-	-	-	-	-	-	1	0.78
Syngnathus leptorhynchus	-	-	-	-	-	-	-	-
Clupeidae unid.	-	-	-	-	-	-	1	0.67
Lyopsetta exilis	-	-	-	-	-	-	-	-
Pomacentridae	-	-	-	-	-	-	-	-
Rhinogobiops nicholsi	1	0.85	-	-	-	-	-	-
Nannobrachium ritteri	2	1.75	-	-	-	-	-	-
Cyclothone spp.	-	-	-	-	-	-	1	0.90
Chromis punctipinnis	1	0.82	-	-	-	-	-	-
Icelinus spp.	-	-	-	-	-	-	-	-
Gobiesocidae unid.	-	-	1	0.72	-	-	-	-
Anisotremus davidsonii	-	-	-	-	-	-	-	-
Sebastes jordani	-	-	-	-	2	1.33	-	-
Blennioidei	-	-	-	-	-	-	-	-
Clinidae unid.	-	-	-	-	-	-	-	-
Chaenopsidae unid.	-	-	-	-	-	-	1	0.97
Leptocottus armatus	-	-	-	-	-	-	1	0.90
Cynoglossidae	-	-	-	-	-	-	-	-
Kyphosidae	-	-	-	-	-	-	-	-
Cyclothone acclinidens	1	0.85	-	-	-	-	-	-
Ilypnus gilberti	-	-	1	0.84	-	-	-	-
Gobiesox spp.	-	-	-	-	-	-	-	-
Hexagrammidae unid.	-	-	-	-	-	-	-	-
Bathylagus ochotensis	-	-	-	-	-	-	-	-
Hypsoblennius gentilis	-	-	-	-	-	-	-	-
Invertebrates								
Panulirus interruptus	-	-	-	-	-	-	-	-
Cancer anthonyi (megalops)	8	5.93	2	1.26	3	2.96	1	1.01
Cancer antennarius (megalops)	4	2.91	1	1.12	-	-	-	-
Cancer gracilis (megalops)	2	1.44	2	1.73	1	1.05	-	-
Cancer spp. (megalops)	-	-	-	-	-	-	-	-
Cancer productus (megalops)	-	-	-	-	-	-	-	-
	38,722		**38,471**		**38,736**		**38,950**	

Table A3 (continued). Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at source water Stations N1-N5 in nearshore area.

	11 03/23/05 15		12 04/21/05 20		13 05/19/05 20	
Taxon	Count	Conc.	Count	Conc.	Count	Conc.
Fishes						
Engraulis mordax	1,767	1,805.85	3,356	2,740.48	18	13.11
Hypsoblennius spp.	3	3.31	11	8.69	191	173.15
Engraulidae unid.	1,163	1,211.29	10	8.62	10	8.93
Gobiidae unid.	98	99.04	21	20.98	91	76.18
Genyonemus lineatus	234	235.43	45	33.43	6	4.54
larvae, unidentified yolksac	19	20.47	2	1.58	11	9.07
Paralichthys californicus	28	27.91	11	9.12	6	4.78
Seriphus politus	-	-	1	1.22	-	-
Sciaenidae unid.	38	44.51	6	5.95	11	9.01
Roncador steamsi	-	-	-	-	-	-
Citharichthys stigmaeus	2	1.93	2	2.00	-	-
Gibbonsia spp.	15	15.39	2	2.29	40	30.54
Labrisomidae unid.	-	-	1	0.74	-	-
Paralabrax clathratus	-	-	-	-	-	-
Sardinops sagax	-	-	118	101.46	-	-
Paralabrax spp.	-	-	1	0.69	-	-
larval fish fragment	5	5.02	8	6.78	2	1.32
Haemulidae unid.	-	-	-	-	-	-
Scomber japonicus	-	-	-	-	-	-
Hypsypops rubicundus	-	-	1	0.94	5	5.36
larval/post-larval fish unid.	-	-	2	1.69	1	0.55
Oxyjulis californica	1	1.20	4	3.35	-	-
Paralabrax nebulifer	-	-	-	-	-	-
Sphyraena argentea	-	-	-	-	-	-
Xenistius californiensis	-	-	-	-	-	-
Lepidogobius lepidus	3	2.73	2	1.99	6	3.84
Stenobrachius leucopsarus	-	-	10	7.78	-	-
Pleuronichthys verticalis	4	3.45	2	1.74	-	-
Atherinopsis californiensis	15	17.97	-	-	-	-
Umbrina roncador	-	-	-	-	-	-
Pleuronichthys ritteri	1	1.34	1	0.74	-	-
Xystreurys liolepis	-	-	-	-	1	0.75
Hypsopsetta guttulata	1	1.20	-	-	-	-
Rimicola spp.	-	-	-	-	-	-
Peprilus simillimus	-	-	3	2.33	-	-
Cheilotrema saturnum	-	-	-	-	-	-
Semicossyphus pulcher	-	-	-	-	1	0.75
Ophidion scrippsae	-	-	-	-	-	-
Diaphus theta	-	-	13	10.38	4	2.94
Acanthogobius flavimanus	3	2.58	-	-	-	-
Pleuronichthys spp.	-	-	1	0.74	1	0.75
Pleuronectiformes unid.	-	-	3	1.94	2	2.42
Menticirrhus undulatus	-	-	-	-	-	-
Atractoscion nobilis	-	-	2	1.91	-	-
Ophidiidae unid.	-	-	-	-	-	-
Sebastes spp.	-	-	1	0.77	1	0.75
Girella nigricans	-	-	-	-	-	-
Typhlogobius californiensis	2	1.94	2	2.17	3	2.30
Citharichthys sordidus	-	-	2	1.29	-	-
Pleuronectidae unid.	1	0.93	13	10.21	-	-
Trachurus symmetricus	-	-	2	1.38	-	-
Halichoeres semicinctus	-	-	-	-	-	-
Syngnathus spp.	-	-	-	-	-	-
Labridae	-	-	2	1.88	-	-

Table A3 (continued). Monthly abundance and mean concentration (#/1,000 m^3) of larval fishes and target invertebrates at source water Stations N1-N5 in nearshore area.

	11 03/23/05 15		12 04/21/05 20		13 05/19/05 20	
Taxon	**Count**	**Conc.**	**Count**	**Conc.**	**Count**	**Conc.**
Fishes						
Paraclinus integripinnis	-	-	-	-	-	-
Symphurus atricauda	-	-	-	-	-	-
Triphoturus mexicanus	-	-	-	-	-	-
Citharichthys spp.	-	-	-	-	1	1.24
Nannobrachium spp.	-	-	1	0.65	1	0.75
Medialuna californiensis	-	-	-	-	-	-
Gillichthys mirabilis	-	-	-	-	-	-
Chilara taylori	-	-	-	-	-	-
Heterostichus rostratus	-	-	-	-	-	-
Hypsoblennius jenkinsi	-	-	-	-	-	-
Paralichthyidae unid.	-	-	-	-	-	-
Atherinopsidae	3	3.21	-	-	-	-
Parophrys vetulus	-	-	5	3.93	-	-
Myctophidae unid.	-	-	1	0.94	-	-
Hippoglossina stomata	-	-	-	-	-	-
Zaniolepis frenata	-	-	-	-	1	0.55
Ruscarius creaseri	2	2.15	-	-	-	-
Clupeiformes	-	-	-	-	-	-
Syngnathus leptorhynchus	-	-	-	-	-	-
Clupeidae unid.	-	-	-	-	-	-
Lyopsetta exilis	-	-	3	2.04	-	-
Pomacentridae	-	-	-	-	-	-
Rhinogobiops nicholsi	-	-	-	-	-	-
Nannobrachium ritteri	-	-	-	-	-	-
Cyclothone spp.	-	-	-	-	-	-
Chromis punctipinnis	-	-	-	-	-	-
Icelinus spp.	-	-	-	-	3	1.65
Gobiesocidae unid.	-	-	-	-	-	-
Anisotremus davidsonil	-	-	-	-	-	-
Sebastes jordani	-	-	-	-	-	-
Blennioidei	-	-	-	-	-	-
Clinidae unid.	-	-	-	-	-	-
Chaenopsidae unid.	-	-	-	-	-	-
Leptocottus armatus	-	-	-	-	-	-
Cynoglossidae	-	-	-	-	-	-
Kyphosidae	-	-	-	-	-	-
Cyclothone acclinidens	-	-	-	-	-	-
Ilypnus gilberti	-	-	-	-	-	-
Gobiesox spp.	-	-	-	-	1	0.75
Hexagrammidae unid.	-	-	-	-	-	-
Bathylagus ochotensis	-	-	1	0.75	-	-
Hypsoblennius gentilis	-	-	-	-	-	-
Invertebrates						
Panulirus interruptus	-	-	-	-	-	-
Cancer anthonyi (megalops)	-	-	-	-	1	0.77
Cancer antennarius (megalops)	-	-	-	-	6	4.99
Cancer gracilis (megalops)	-	-	-	-	2	1.10
Cancer spp. (megalops)	-	-	-	-	-	-
Cancer productus (megalops)	-	-	-	-	2	1.54
	41,868		**42,167**		**38,953**	