

CARLSBAD SEAWATER DESALINATION PROJECT

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

REGION 9, SAN DIEGO REGION

ORDER NO. R-9-2006-0065

NPDES NO. CA0109223

FLOW, ENTRAINMENT AND IMPINGEMENT MINIMIZATION PLAN

**ATTACHMENT 3 - IMPINGEMENT RESULTS, G1 - TRAVELING SCREEN
AND BAR RACK WEEKLY SURVEYS, G2 - HEAT TREATMENT SURVEYS**

March 27, 2009

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA001
Sample Count: 19

Survey Date: June 24 - 25, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Cymatogaster aggregata</i>	shiner surfperch	186	40-84	1.3-15.3	729.7
<i>Engraulis mordax</i>	northern anchovy	46	37-90	0.4-10.5	69.2
<i>Heterostichus rostratus</i>	giant kelpfish	8	81-113	4.1-8.2	47.9
<i>Heterostichus</i> spp.	kelpfish	7	81-118	4.0-12.2	47.8
<i>Anchoa compressa</i>	deepbody anchovy	6	31-107	0.1-11.6	13.7
Engraulidae	anchovies	4	-	1.6	1.6
<i>Atherinops affinis</i>	topsmelt	3	54-115	0.9-18.8	25.5
<i>Porichthys myriaster</i>	specklefin midshipman	3	300-378	210	210.0
unidentified fish	unid. fish	3	34	0.5-2.0	4.4
<i>Hyporhamphus rosae</i>	California halfbeak	2	111-125	10.9-11.7	22.6
<i>Paralabrax</i> spp.	sand bass	2	33-55	0.7-2.0	2.7
<i>Anchoa delicatissima</i>	slough anchovy	1	-	3.0	2.8
Atherinopsidae	silverside	1	46	1.0	1.0
<i>Hypsoblennius</i> spp.	blennies	1	252	267	267.0
<i>Pleuronichthys verticalis</i>	hornyhead turbot	1	291	227	226.5
<i>Sphyræna argentea</i>	California barracuda	1	136	0.8	0.8
<i>Syngnathus leptorhynchus</i>	bay pipefish	1	290	9.7	9.7
SHARKS/RAYS					
<i>Gymnura marmorata</i>	California butterfly ray	9	253-410	143-521	1,984.7
<i>Urolophus halleri</i>	round stingray	2	285-337	244-444	688.0
INVERTEBRATES					
<i>Pachygrapsus crassipes</i>	striped shore crab	7	15-34	2.0-18.0	66.1
Total:		294			

Survey: EPSIA002
Sample Count: 19

Survey Date: June 30 - July 1, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Cymatogaster aggregata</i>	shiner surfperch	242	40-115	1.6-31.0	957.0
<i>Roncador stearnsi</i>	spotfin croaker	51	33-205	0.6-106	260.4
<i>Engraulis mordax</i>	northern anchovy	36	35-103	0.2-14.0	57.6
<i>Heterostichus rostratus</i>	giant kelpfish	33	74-128	3.4-16.0	209.8
<i>Atherinops affinis</i>	topsmelt	29	34-115	0.5-15.2	117.3
<i>Strongylura exilis</i>	California needlefish	5	95-142	0.6-2.0	6.1
<i>Hypsopsetta guttulata</i>	diamond turbot	3	104-140	27.7-79.4	173.4
<i>Porichthys myriaster</i>	specklefin midshipman	3	250-305	160-312	633.0
<i>Anchoa delicatissima</i>	slough anchovy	2	65	1.1-3.1	4.2
<i>Paralichthys californicus</i>	California halibut	2	55-95	2.9-11.5	14.4
<i>Sphyræna argentea</i>	California barracuda	2	78-85	2.0-3.6	5.6
<i>Anchoa compressa</i>	deepbody anchovy	1	43	2.2	2.2
<i>Paralabrax nebulifer</i>	barred sand bass	1	230	312	312.0
<i>Seriphus politus</i>	queenfish	1	102	15.7	15.7
unidentified fish	unid. fish	1	-	0.1	0.1
unidentified fish, damaged	unid. damaged fish	1	-	0.4	0.4
SHARKS/RAYS					
<i>Gymnura marmorata</i>	California butterfly ray	5	224-505	112-600	1,505.6
<i>Myliobatis californica</i>	bat ray	1	295	392.0	391.5
INVERTEBRATES					
<i>Pachygrapsus crassipes</i>	striped shore crab	5	19-47	5.7-47.6	96.3
<i>Octopus</i> spp.	octopus	1	-	10.1	10.1
Total:		425			

Encina Power Station Impingement Abundance: : Traveling Screen and Bar Rack Survey Data

Survey: EPSIA003
Sample Count: 19

Survey Date: July 07 - 08, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	83	45-66	2.5-7.0	363.0
<i>Roncador stearnsi</i>	spotfin croaker	31	35-52	0.7-2.0	40.1
<i>Heterostichus rostratus</i>	giant kelpfish	29	75-123	3.2-14.9	181.2
<i>Anchoa compressa</i>	deepbody anchovy	17	35-99	0.9-10.5	64.1
<i>Strongylura exilis</i>	California needlefish	13	75-135	0.3-9.5	64.4
<i>Engraulis mordax</i>	northern anchovy	9	42-46	0.5-1.3	6.5
<i>Atherinops affinis</i>	topsmelt	4	60-110	2.2-28.8	43.4
<i>Anchoa delicatissima</i>	slough anchovy	3	-	1.3	1.3
<i>Paralichthys californicus</i>	California halibut	3	43-63	1.5-3.8	7.3
Engraulidae	anchovies	2	-	1.2	1.2
<i>Porichthys myriaster</i>	specklefin midshipman	2	249-270	200-250	450.0
<i>Anchoa</i> spp.	anchovy	1	65	2.5	2.5
<i>Cheilotrema saturnum</i>	black croaker	1	48	1.8	1.8
<i>Gibbonsia montereyensis</i>	crevice kelpfish	1	88	8.3	8.3
<i>Hypsopsetta guttulata</i>	diamond turbot	1	285	400	400.0
<i>Sardinops sagax</i>	Pacific sardine	1	35	0.4	0.4
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	7	225-293	165-375	1,715.1
<i>Myliobatis californica</i>	bat ray	1	245	240	239.5
<u>INVERTEBRATES</u>					
<i>Pachygrapsus crassipes</i>	striped shore crab	6	26-34.5	6.2-12.1	54.0
		Total:	215		

Survey: EPSIA004
Sample Count: 19

Survey Date: July 14 - 15, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Engraulis mordax</i>	northern anchovy	228	34-109	0.4-11.0	186.9
<i>Cymatogaster aggregata</i>	shiner surfperch	191	45-228	2.3-326	1,327.3
<i>Atherinops affinis</i>	topsmelt	126	45-139	0.8-26.9	472.1
<i>Heterostichus rostratus</i>	giant kelpfish	119	57-137	1.5-19.6	834.0
<i>Roncador stearnsi</i>	spotfin croaker	38	37-226	0.8-149	306.5
<i>Anchoa delicatissima</i>	slough anchovy	28	33-42	0.2-1.5	24.4
<i>Seriphus politus</i>	queenfish	25	35-60	0.7-3.3	41.7
<i>Strongylura exilis</i>	California needlefish	17	84-375	0.6-45.4	91.8
<i>Sardinops sagax</i>	Pacific sardine	15	35-59	0.4-2.3	15.4
<i>Anchoa compressa</i>	deepbody anchovy	10	60-116	2.5-22.5	76.1
<i>Porichthys myriaster</i>	specklefin midshipman	7	164-354	53.3-369.3	1,692.9
<i>Paralichthys californicus</i>	California halibut	5	41-99	1.3-10.6	32.5
<i>Syngnathus</i> spp.	pipefishes	4	103-179	0.8-4.2	11.6
<i>Hypsopsetta guttulata</i>	diamond turbot	1	145	79.1	79.1
<i>Scomber japonicus</i>	Pacific mackerel	1	63	2.2	2.2
<i>Symphurus atricauda</i>	California tonguefish	1	90	7.3	7.3
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	20	268-421	179-600	5,135.9
<i>Urolophus halleri</i>	round stingray	1	85	29.7	29.7
<i>Myliobatis californica</i>	bat ray	5	248-317	236.7-531.3	2,010.0
<u>INVERTEBRATES</u>					
<i>Pachygrapsus crassipes</i>	striped shore crab	3	21-33	5.8-16.1	32.7
<i>Octopus</i> spp.	octopus	1	-	239.4	239.4
		Total:	846		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA005
Sample Count: 19

Survey Date: July 21 - 22, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	70	51-71	3.5-10.0	459.0
<i>Sardinops sagax</i>	Pacific sardine	64	40-68	0.5-4.0	90.5
<i>Engraulis mordax</i>	northern anchovy	35	41-106	0.5-9.6	35.1
<i>Seriphus politus</i>	queenfish	20	36-499	0.9-97.6	160.4
<i>Heterostichus rostratus</i>	giant kelpfish	13	81-116	3.6-12.5	93.9
<i>Atherinops affinis</i>	topsmelt	9	54-129	0.8-20.1	56.6
<i>Roncador stearnsi</i>	spotfin croaker	9	46-76	2.4-7.7	35.2
<i>Porichthys myriaster</i>	specklefin midshipman	6	233-378	132-600	1,766.6
<i>Anchoa delicatissima</i>	slough anchovy	5	45	0.6	4.5
<i>Cheilotrema saturnum</i>	black croaker	5	43-52	1.3-2.3	9.3
<i>Syngnathus</i> spp.	pipefishes	4	137-207	0.8-3.8	8.0
<i>Anchoa compressa</i>	deepbody anchovy	3	80-116	5.9-19.9	32.7
<i>Atractoscion nobilis</i>	white seabass	2	79-83	7.6-11.4	19.0
<i>Hypsopsetta guttulata</i>	diamond turbot	2	141-163	73-124	196.7
unidentified fish	unid. fish	2	50-58	1.4-1.6	3.0
<i>Paralichthys californicus</i>	California halibut	1	54	2.2	2.2
<i>Scomber japonicus</i>	Pacific mackerel	1	89	7.8	7.8
<i>Strongylura exilis</i>	California needlefish	1	377	39.3	39.3
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	11	273-618	191-1212	4,244.2
<u>INVERTEBRATES</u>					
<i>Pachygrapsus crassipes</i>	striped shore crab	3	21-42	2.2-14.8	21.1
		Total:	266		

Survey: EPSIA006
Sample Count: 19

Survey Date: July 28 - 29, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Seriphus politus</i>	queenfish	95	41-240	1.1-156	530.0
<i>Cymatogaster aggregata</i>	shiner surfperch	53	52-109	2.2-25.5	341.2
<i>Heterostichus rostratus</i>	giant kelpfish	23	45-116	1.9-12.9	130.0
<i>Engraulis mordax</i>	northern anchovy	22	41-93	0.4-7.8	28.0
<i>Atherinops affinis</i>	topsmelt	17	55-107	1.2-11.9	86.1
<i>Strongylura exilis</i>	California needlefish	11	76-372	0.4-55.7	90.4
<i>Porichthys myriaster</i>	specklefin midshipman	8	285-380	226-410	2,608.8
<i>Anchoa delicatissima</i>	slough anchovy	4	65-84	3.4-6.5	17.9
<i>Sardinops sagax</i>	Pacific sardine	3	55-72	1.5-5.1	9.4
<i>Anchoa</i> spp.	anchovy	2	-	7.4	7.4
<i>Paralichthys californicus</i>	California halibut	2	87-114	8.6-16.3	24.9
<i>Anchoa compressa</i>	deepbody anchovy	1	66	2.9	2.9
<i>Cheilotrema saturnum</i>	black croaker	1	50	2.9	2.9
<i>Sphyræna argentea</i>	California barracuda	1	45	0.3	0.3
<i>Syngnathus</i> spp.	pipefishes	1	175	1.1	1.1
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	8	265-368	160-410	1,898.7
<i>Urolophus halleri</i>	round stingray	2	160-170	217-278	495.0
<i>Myliobatis californica</i>	bat ray	1	254	204.3	204.3
<u>INVERTEBRATES</u>					
<i>Pachygrapsus crassipes</i>	striped shore crab	2	25-42	8.4-24.1	32.5
		Total:	257		

Impingement Results

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA007
Sample Count: 19

Survey Date: August 04 - 05, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Seriphus politus</i>	queenfish	19	43-80	1.4-6.3	63.0
<i>Atherinops affinis</i>	topsmelt	13	57-100	0.9-9.8	38.0
<i>Cymatogaster aggregata</i>	shiner surfperch	11	55-99	2.9-21.1	77.4
<i>Heterostichus rostratus</i>	giant kelpfish	3	83-115	5.1-11.4	26.6
<i>Porichthys myriaster</i>	specklefin midshipman	3	294-309	242-331	872.5
<i>Hypsopsetta guttulata</i>	diamond turbot	2	139-270	69.5-282.5	352.0
<i>Strongylura exilis</i>	California needlefish	2	62-131	0.1-1.1	1.2
<i>Anchoa compressa</i>	deepbody anchovy	1	104	15.9	15.9
<i>Anchoa delicatissima</i>	slough anchovy	1	92	9.4	9.4
<i>Engraulis mordax</i>	northern anchovy	1	70	4.0	4.0
<i>Sardinops sagax</i>	Pacific sardine	1	57	1.4	1.4
Sciaenidae unid.	croaker	1	25	0.1	0.1
<i>Syngnathus</i> spp.	pipefishes	1	186	1.4	1.4
unidentified fish	unid. fish	1	315	700	700.0
SHARKS/RAYS					
<i>Gymnura marmorata</i>	California butterfly ray	7	252-296	133-213	1,250.8
<i>Myliobatis californica</i>	bat ray	3	240-250	175.4-183.9	537.3
INVERTEBRATES					
<i>Pachygrapsus crassipes</i>	striped shore crab	1	25	6.3	6.3
<i>Loxorhynchus crispatus</i>	moss crab	1	7.3	1.1	1.1
		Total:	72		

Survey: EPSIA008
Sample Count: 19

Survey Date: August 11 - 12, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Atherinops affinis</i>	topsmelt	375	37-156	0.5-40.8	1,068.2
<i>Cymatogaster aggregata</i>	shiner surfperch	97	56-109	5.1-29.4	895.0
<i>Anchoa compressa</i>	deepbody anchovy	43	64-169	3.1-19.9	426.7
<i>Seriphus politus</i>	queenfish	28	35-167	1.0-62.1	239.2
<i>Heterostichus rostratus</i>	giant kelpfish	24	73-137	2.9-21.6	175.2
<i>Sardinops sagax</i>	Pacific sardine	17	59-92	2.5-9.3	65.8
<i>Syngnathus</i> spp.	pipefishes	16	145-210	0.5-2.8	23.3
<i>Engraulis mordax</i>	northern anchovy	12	54-95	1.7-7.7	37.6
<i>Strongylura exilis</i>	California needlefish	12	78-297	0.8-20.2	59.6
<i>Porichthys myriaster</i>	specklefin midshipman	9	53-309	1.9-306.2	1,556.9
<i>Leuresthes tenuis</i>	California grunion	8	52-71	1.4-2.9	17.9
<i>Anchoa delicatissima</i>	slough anchovy	2	75-101	4.6-11.1	15.7
<i>Cheilotrema saturnum</i>	black croaker	2	62-119	3.7-20.7	24.4
<i>Hypsopsetta guttulata</i>	diamond turbot	2	91-202	8.4-190	198.1
<i>Anisotremus davidsonii</i>	sargo	1	243	341.2	341.2
<i>Hyperprosopon argenteum</i>	walleye surfperch	1	153	96.9	96.9
<i>Paralabrax</i> spp.	sand bass	1	32	0.9	0.9
<i>Pleuronichthys verticalis</i>	hornyhead turbot	1	152	97.3	97.3
<i>Roncador stearnsi</i>	spotfin croaker	1	164	57.1	57.1
Sciaenidae unid.	croaker	1	38	2.7	2.7
SHARKS/RAYS					
<i>Gymnura marmorata</i>	California butterfly ray	8	259-341	150-297	1,595.1
<i>Urolophus halleri</i>	round stingray	8	124-242	133-600	2,290.9
<i>Myliobatis californica</i>	bat ray	9	230-315	111.6-404.8	2,602.8
<i>Platyrrhinoidis triseriata</i>	thornback	1	53	10.2	10.2
INVERTEBRATES					
<i>Pachygrapsus crassipes</i>	striped shore crab	3	25-36	8.0-21.1	38.7
<i>Loxorhynchus crispatus</i>	moss crab	1	11	0.8	0.8
<i>Hemigrapsus oregonensis</i>	yellow shore crab	2	18-20	0.9-2.8	3.7
<i>Pelidnota tumida</i>	dwarf teardrop crab	1	13	1.9	1.9
		Total:	686		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA009
Sample Count: 19

Survey Date: August 18 - 19, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Atherinops affinis</i>	topsmelt	18	56-124	1.7-15.8	81.2
<i>Heterostichus rostratus</i>	giant kelpfish	14	66-158	3.4-33.2	122.2
<i>Strongylura exilis</i>	California needlefish	13	87-170	0.4-3.7	28.3
<i>Sardinops sagax</i>	Pacific sardine	10	65-85	3.0-9.4	90.6
<i>Cymatogaster aggregata</i>	shiner surfperch	5	57-75	5.0-11.3	41.6
<i>Seriphus politus</i>	queenfish	5	57-70	3.5-5.5	22.9
<i>Anchoa delicatissima</i>	slough anchovy	2	70-71	3.6-4.4	8.0
<i>Hermosilla azurea</i>	zebra perch	2	53-260	4.8-600	604.8
<i>Paralichthys californicus</i>	California halibut	2	81-103	6.9-16.0	22.9
<i>Porichthys myriaster</i>	specklefin midshipman	2	75-268	5.5-200	205.5
unidentified fish	unid. fish	2	37-44	2.1-2.6	4.7
<i>Hypsoblennius gentilis</i>	bay blenny	1	95	14.7	14.7
<i>Hypsopsetta guttulata</i>	diamond turbot	1	136	57.9	57.9
<i>Leuresthes tenuis</i>	California grunion	1	146	19.9	19.9
<i>Syngnathus</i> spp.	pipefishes	1	184	2.5	2.5
SHARKS/RAYS					
<i>Gymnura marmorata</i>	California butterfly ray	2	270-288	162-190	352.2
<i>Urolophus halleri</i>	round stingray	2	133-230	95-123	218.0
<i>Myliobatis californica</i>	bat ray	1	340	550	550.0
<i>Ophichthus zophochir</i>	yellow snake eel	1	420	51.8	51.8
<i>Platyrrhinoidis triseriata</i>	thornback	1	630	1,500	1,500.0
INVERTEBRATES					
<i>Pachygrapsus crassipes</i>	striped shore crab	2	22-30	6.1-15.6	21.7
<i>Pyromaia tuberculata</i>	tuberculate pea crab	1	15	3.2	3.2
<i>Octopus</i> spp.	octopus	-	-	-	-
		Total:	89		

Survey: EPSIA010
Sample Count: 19

Survey Date: August 25 - 26, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Anchoa compressa</i>	deepbody anchovy	24	39-115	0.7-16.1	110.5
<i>Seriphus politus</i>	queenfish	13	46-121	1.5-20.2	80.6
<i>Atherinops affinis</i>	topsmelt	9	64-133	2.1-17.0	68.0
<i>Heterostichus rostratus</i>	giant kelpfish	9	74-125	3.1-15.8	60.8
<i>Sardinops sagax</i>	Pacific sardine	8	-	8.0	36.8
<i>Cymatogaster aggregata</i>	shiner surfperch	7	64-80	6.3-11.3	60.7
<i>Leuresthes tenuis</i>	California grunion	6	59-81	1.6-3.4	13.4
<i>Engraulis mordax</i>	northern anchovy	3	54-56	1-1.8	4.4
<i>Porichthys myriaster</i>	specklefin midshipman	3	275-314	180-350	725.8
<i>Hermosilla azurea</i>	zebra perch	2	35-70	1.1-8.1	9.2
<i>Hypsopsetta guttulata</i>	diamond turbot	2	188-216	39.1-254	293.4
<i>Strongylura exilis</i>	California needlefish	2	105-508	1.2-290	291.2
<i>Paralabrax nebulifer</i>	barred sand bass	1	57	2.6	2.6
<i>Roncador stearnsi</i>	spotfin croaker	1	280	500	500.0
unidentified fish	unid. fish	1	-	20.1	20.1
SHARKS/RAYS					
<i>Gymnura marmorata</i>	California butterfly ray	3	260-300	145-220	546.2
<i>Urolophus halleri</i>	round stingray	3	125-147	89.4-148	353.4
<i>Myliobatis californica</i>	bat ray	2	208-240	148-185	332.4
<i>Rhinobatos productus</i>	shovelnose guitarfish	1	410	300	300.0
INVERTEBRATES					
<i>Pachygrapsus crassipes</i>	striped shore crab	4	18.5-39	0.8-24.3	25.1
<i>Lophopanopeus</i> spp.	black-clawed crabs	1	14	1.3	1.3
		Total:	105		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA011
Sample Count: 19

Survey Date: September 01 - 02, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Heterostichus rostratus</i>	giant kelpfish	10	80-97	3.8-10.1	60.6
<i>Anchoa delicatissima</i>	slough anchovy	4	60-73	2.1-4.0	10.4
<i>Leuresthes tenuis</i>	California grunion	4	65-112	2.2-13.5	25.7
<i>Seriphus politus</i>	queenfish	3	55-63	2.3-5.9	11.9
<i>Cymatogaster aggregata</i>	shiner surfperch	2	68-70	8.2-8.9	17.1
<i>Paralichthys californicus</i>	California halibut	2	59-118	3.1-25.8	28.9
<i>Anchoa compressa</i>	deepbody anchovy	1	79	7.4	7.4
<i>Paralabrax</i> spp.	sand bass	1	39	1.1	1.1
<i>Porichthys myriaster</i>	specklefin midshipman	1	400	550	550.0
<i>Sardinops sagax</i>	Pacific sardine	1	75	3.6	3.6
<i>Strongylura exilis</i>	California needlefish	1	-	1.8	1.8
<i>Syngnathus</i> spp.	pipefishes	1	152	0.6	0.6
unidentified fish, damaged	unid. damaged fish	1	-	137.4	137.4
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	1	327	233.3	233.3
<i>Myliobatis californica</i>	bat ray	1	340	400	400.0
<u>INVERTEBRATES</u>					
<i>Pachygrapsus crassipes</i>	striped shore crab	1	25	4.0	4.0
<i>Talipeus nuttallii</i>	globose kelp crab	1	11	0.7	0.7
		Total:	36		

Survey: EPSIA012
Sample Count: 19

Survey Date: September 08 - 09, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Anchoa compressa</i>	deepbody anchovy	93	42-94	0.2-12.3	301.0
<i>Leuresthes tenuis</i>	California grunion	43	54-73	1.0-5.0	94.7
<i>Seriphus politus</i>	queenfish	29	32-155	0.6-53.0	218.0
<i>Heterostichus rostratus</i>	giant kelpfish	24	60-122	2.1-16.2	172.7
<i>Engraulis mordax</i>	northern anchovy	15	52-71	1.2-4.1	29.5
<i>Cymatogaster aggregata</i>	shiner surfperch	7	53-95	4.9-25.0	79.0
<i>Porichthys notatus</i>	plainfin midshipman	5	53-400	1.6-420	723.6
<i>Sphyraena argentea</i>	California barracuda	5	48-73	0.6-3.3	10.2
<i>Xenistius californiensis</i>	salema	4	31-55	0.7-2.3	4.9
<i>Paralabrax nebulifer</i>	barred sand bass	3	46-124	2.0-28.4	43.5
<i>Sardinops sagax</i>	Pacific sardine	3	68-75	3.5-4.1	11.2
<i>Cheilotrema saturnum</i>	black croaker	2	35-55	1.2-4.3	5.5
<i>Phanerodon furcatus</i>	white surfperch	2	85-93	19.7-20.0	39.7
<i>Porichthys myriaster</i>	specklefin midshipman	2	54-360	1.8-410	411.8
<i>Atherinops affinis</i>	topsmelt	1	103	9.9	9.9
<i>Hypsopsetta guttulata</i>	diamond turbot	1	231	380	380.0
<i>Paralichthys californicus</i>	California halibut	1	105	19.0	19.0
Pleuronectiformes unid.	flatfishes	1	-	54.7	54.7
<i>Roncador stearnsi</i>	spotfin croaker	1	250	380	380.0
<i>Strongylura exilis</i>	California needlefish	1	138	2.0	2.0
<i>Syngnathus</i> spp.	pipefishes	1	133	0.9	0.9
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	4	254-599	137-265	708.2
<i>Myliobatis californica</i>	bat ray	1	-	110	110.0
<i>Urolophus halleri</i>	round stingray	1	-	200	200.0
<u>INVERTEBRATES</u>					
<i>Hemigrapsus oregonensis</i>	yellow shore crab	1	18	2.5	2.5
		Total:	251		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA013
Sample Count: 19

Survey Date: September 15 - 16, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	24	55-100	5.1-29.6	216.5
<i>Leuresthes tenuis</i>	California grunion	15	48-124	0.9-15.8	72.3
<i>Anchoa delicatissima</i>	slough anchovy	10	40-70	0.5-3.5	22.4
<i>Anchoa compressa</i>	deepbody anchovy	9	58-86	2.0-5.7	30.9
<i>Heterostichus rostratus</i>	giant kelpfish	8	82-124	3.4-15.8	59.2
<i>Sphyrna argentea</i>	California barracuda	4	81-90	2.8-3.6	13.3
<i>Trachurus symmetricus</i>	jack mackerel	4	36-40	0.6-0.9	3.0
<i>Atherinops affinis</i>	topsmelt	3	79-101	3.9-9.8	19.5
<i>Strongylura exilis</i>	California needlefish	3	184-410	4.0-64.8	89.5
<i>Porichthys myriaster</i>	specklefin midshipman	2	57-229	1.8-247	248.8
<i>Sardinops sagax</i>	Pacific sardine	2	67-73	3.1-3.2	6.3
<i>Seriphus politus</i>	queenfish	2	71-73	4.0-5.2	9.2
<i>Xenistius californiensis</i>	salema	2	37-40	0.8-1.2	2.0
<i>Brachyistius frenatus</i>	kelp surfperch	1	95	28.9	28.9
<i>Cheilotrema saturnum</i>	black croaker	1	43	0.6	0.6
<i>Engraulis mordax</i>	northern anchovy	1	72	2.6	2.6
<i>Paralichthys californicus</i>	California halibut	1	60	3.1	3.1
<i>Umbrina roncadore</i>	yellowfin croaker	1	37	1.0	1.0
unidentified fish, damaged	unid. damaged fish	1	-	20.3	20.3
<u>SHARKS/RAYS</u>					
<i>Myliobatis californica</i>	bat ray	2	299-422	201-298	499.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	5	30-58	2.5-17.5	33.2
<i>Pachygrapsus crassipes</i>	striped shore crab	2	18-35	0.5-24.8	25.3
<i>Pugettia</i> spp.	kelp crabs	1	22	4.1	4.1
		Total:	104		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA014
Sample Count: 19

Survey Date: September 22 - 23, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Anchoa compressa</i>	deepbody anchovy	52	22-94	0.8-9.3	119.4
<i>Seriphus politus</i>	queenfish	34	22-82	0.1-8.4	102.1
<i>Leuresthes tenuis</i>	California grunion	20	49-115	1.0-17.1	89.4
<i>Cymatogaster aggregata</i>	shiner surfperch	17	56-90	5.6-18.3	162.5
<i>Anchoa delicatissima</i>	slough anchovy	5	50-76	1.8-4.0	12.3
<i>Sardinops sagax</i>	Pacific sardine	4	62-80	2.8-10.6	20.3
<i>Anisotremus davidsonii</i>	sargo	3	42-72	1.9-10.6	16.9
<i>Heterostichus rostratus</i>	giant kelpfish	3	90-98	5.2-7.3	17.7
<i>Roncador stearnsi</i>	spotfin croaker	3	90-93	9.6-17.7	42.3
<i>Xenistius californiensis</i>	salema	3	30-41	0.6-1.9	4.2
<i>Atractoscion nobilis</i>	white seabass	2	36-75	0.5-3.4	3.9
<i>Cheilopogon pinnatibarbatus</i>	spotted flyingfish	2	310-313	291-310	601.1
<i>Cheilotrema saturnum</i>	black croaker	2	62-87	5.9-14.4	20.3
<i>Engraulis mordax</i>	northern anchovy	2	57-58	1.1-1.5	2.6
<i>Paralabrax nebulifer</i>	barred sand bass	2	43-50	1.5-3.0	4.5
<i>Sphyaena argentea</i>	California barracuda	2	72-111	2.3-8.3	10.6
<i>Strongylura exilis</i>	California needlefish	2	118-225	1.7-12.5	14.2
<i>Umbrina roncadore</i>	yellowfin croaker	2	50-55	2.5-3.6	6.1
<i>Atherinopsis californiensis</i>	jacksmelt	1	125	22.1	22.1
<i>Menticirrhus undulatus</i>	California corbina	1	108	18.9	18.9
<i>Oxylebius pictus</i>	painted greenling	1	66	4.8	4.8
<i>Porichthys myriaster</i>	specklefin midshipman	1	163	41.2	41.2
<i>Syngnathus</i> spp.	pipefishes	1	505	50.0	50.0
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	1	340	330	330.0
<i>Myliobatis californica</i>	bat ray	1	297	375	375.0
<u>INVERTEBRATES</u>					
<i>Loligo opalescens</i>	market squid	3	75-129	7.4-10.8	26.2
<i>Callinectes</i> spp.	crab	1	26	13.8	13.8
<i>Pachygrapsus crassipes</i>	striped shore crab	1	28	10.1	10.1
<i>Pyromaia tuberculata</i>	tuberculate pea crab	1	12	-	-
Total:		173			

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA015
Sample Count: 19

Survey Date: September 29 - 30, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Seriphus politus</i>	queenfish	28	35-78	0.5-7.0	77.4
<i>Leuresthes tenuis</i>	California grunion	16	57-150	1.5-36.0	136.0
<i>Engraulis mordax</i>	northern anchovy	11	33-116	0.2-14.0	24.7
<i>Anchoa compressa</i>	deepbody anchovy	10	45-81	0.5-5.0	22.0
<i>Hyperprosopon argenteum</i>	walleye surfperch	10	49-85	2.0-15.0	80.5
<i>Xenistius californiensis</i>	salema	10	35-63	0.5-4.0	19.5
<i>Anchoa delicatissima</i>	slough anchovy	5	56-77	1.0-5.0	14.0
<i>Anisotremus davidsonii</i>	sargo	4	38-58	1.0-5.0	9.5
<i>Heterostichus rostratus</i>	giant kelpfish	4	95-121	4.0-22.0	45.0
<i>Sphyræna argentea</i>	California barracuda	4	88-115	4.0-10.0	24.0
<i>Strongylura exilis</i>	California needlefish	4	139-325	0.7-42.0	54.7
<i>Atherinops affinis</i>	topsmelt	2	64-78	3.0-6.0	9.0
<i>Embiotoca jacksoni</i>	black surfperch	2	164-175	170-200	370.0
<i>Paralichthys californicus</i>	California halibut	2	120-133	20.0-35.0	55.0
<i>Sardinops sagax</i>	Pacific sardine	2	71-75	2.0-3.5	5.5
<i>Atherinopsis californiensis</i>	jacksmelt	1	181	47.0	47.0
<i>Atractoscion nobilis</i>	white seabass	1	145	45.0	45.0
<i>Genyonemus lineatus</i>	white croaker	1	100	2.1	2.1
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	1	81	10.5	10.5
<i>Peprilus simillimus</i>	Pacific butterfish	1	130	50.0	50.0
<i>Roncadora stearnsi</i>	spotfin croaker	1	115	20.0	20.0
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	1	292	190	190.0
<i>Urolophus halleri</i>	round stingray	1	272	270	270.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	7	18-33	2.5-9.0	36.2
<i>Cancer antennarius</i>	brown rock crab	2	11-25	0.2-1.7	1.9
<i>Lophopanopeus frontalis</i>	molarless crested crab	2	11-13	0.4	0.8
<i>Cancer productus</i>	red rock crab	1	26	3.4	3.4
<i>Loligo opalescens</i>	market squid	1	70	7.0	7.0
<i>Panulirus interruptus</i>	California spiny lobster	1	-	66.0	66.0
<i>Pyromaia tuberculata</i>	tuberculate pea crab	1	9	0.6	0.6
		Total:	137		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA016
Sample Count: 19

Survey Date: October 06 - 07, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Atherinopsidae</i>	silverside	57	48-130	0.5-20.8	289.5
<i>Seriphus politus</i>	queenfish	47	35-98	1.0-14.8	222.3
<i>Anchoa compressa</i>	deepbody anchovy	35	45-95	1.0-10.7	141.8
<i>Cymatogaster aggregata</i>	shiner surfperch	19	57-82	5.0-13.7	175.2
<i>Engraulis mordax</i>	northern anchovy	17	50-103	1.2-8.9	30.5
<i>Xenistius californiensis</i>	salema	17	27-58	0.5-4.0	22.6
<i>Anchoa delicatissima</i>	slough anchovy	5	53-85	1.0-6.0	14.0
<i>Sphyræna argentea</i>	California barracuda	4	96-435	3.0-110	139.9
<i>Porichthys myriaster</i>	specklefin midshipman	3	87-390	7.2-460	822.2
<i>Heterostichus rostratus</i>	giant kelpfish	2	72-275	1.0-195	196.0
<i>Paralichthys californicus</i>	California halibut	2	128-133	39.0-40.0	79.0
<i>Strongylura exilis</i>	California needlefish	2	73-82	0.3	0.7
<i>Leuresthes tenuis</i>	California grunion	1	68	2.0	2.0
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	1	29	1.5	1.5
<i>Sardinops sagax</i>	Pacific sardine	1	66	3.0	3.0
<u>SHARKS/RAYS</u>					
<i>Urolophus halleri</i>	round stingray	3	60-154	13.6-195	368.6
<i>Myliobatis californica</i>	bat ray	2	294	400	400.0
<u>INVERTEBRATES</u>					
<i>Loligo opalescens</i>	market squid	11	47-66	4.0-10.0	70.6
<i>Portunus xantusii</i>	Xantus' swimming crab	10	10-50	0.5-9.0	38.9
<i>Taliepus nuttallii</i>	globose kelp crab	2	5-6	0.5	1.0
<i>Cancer</i> spp.	cancer crabs	1	24	2.6	2.6
<i>Pachygrapsus crassipes</i>	striped shore crab	1	12	2.5	2.5
<i>Pachygrapsus</i> spp.	shore crab	1	15	0.9	0.9
<i>Pugettia producta</i>	northern kelp crab	1	8	-	-
<i>Pyromaia tuberculata</i>	tuberculate pea crab	1	6	-	-
Total:		246			

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA017
Sample Count: 13

Survey Date: October 13 - 14, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
Atherinopsidae	silverside	5	55-65	1.2-3.0	2.0
<i>Atractoscion nobilis</i>	white seabass	2	252	140-144	1.2
<i>Engraulis mordax</i>	northern anchovy	2	48-51	1.2	2.4
<i>Seriphus politus</i>	queenfish	2	43-65	1.1-3.9	1.3
<i>Anchoa compressa</i>	deepbody anchovy	1	56	2.0	4.6
<i>Anchoa delicatissima</i>	slough anchovy	1	58	1.2	3.1
<i>Cymatogaster aggregata</i>	shiner surfperch	1	74	8.1	8.1
<i>Sardinops sagax</i>	Pacific sardine	1	77	3.1	11.9
unidentified fish	unid. fish	1	-	4.6	284.0
<i>Xenistius californiensis</i>	salema	1	44	1.3	5.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	20	23-41	2.6-12.9	113.4
<i>Pugettia producta</i>	northern kelp crab	1	80	5.4	5.4
<i>Taliepus nuttalli</i>	globose kelp crab				
		Total:	38		

Survey: EPSIA018
Sample Count: 13

Survey Date: October 20 - 21, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
Atherinopsidae	silverside	114	52-193	1.4-32.0	905.9
<i>Seriphus politus</i>	queenfish	35	28-77	0.4-7.1	61.0
<i>Xenistius californiensis</i>	salema	32	30-50	0.4-2.0	30.0
<i>Anchoa compressa</i>	deepbody anchovy	18	40-68	1.3-3.7	41.0
<i>Engraulis mordax</i>	northern anchovy	16	54-70	1.8-4.0	42.6
<i>Brachyistius frenatus</i>	kelp surfperch	14	62-102	6.0-25.0	135.6
<i>Atractoscion nobilis</i>	white seabass	4	223-243	135.2-185.0	640.2
<i>Lepomis cyanellus</i>	green sunfish	4	104-126	26.0-68.0	194.7
<i>Ameiurus natalis</i>	yellow bullhead	3	162-175	65.0-80.0	220.0
<i>Paralichthys californicus</i>	California halibut	3	110-151	21.0-45.0	111.0
<i>Strongylura exilis</i>	California needlefish	3	370-397	67.0-84.0	221.0
<i>Acanthogobius flavimanus</i>	yellowfin goby	2	115-148	18.0-37.2	55.2
<i>Anisotremus davidsonii</i>	sargo	2	44-69	1.8-7.0	8.8
<i>Anchoa</i> spp.	anchovy	1	-	6.8	6.8
<i>Cymatogaster aggregata</i>	shiner surfperch	1	84	7.5	7.5
<i>Hypsopsetta guttulata</i>	diamond turbot	1	125	53.0	53.0
<i>Paralabrax clathratus</i>	kelp bass	1	48	2.0	2.0
<i>Porichthys myriaster</i>	specklefin midshipman	1	47	1.0	1.0
<i>Sardinops sagax</i>	Pacific sardine	1	65	3.0	3.0
<i>Sphyaena argentea</i>	California barracuda	1	72	2.0	2.0
<u>SHARKS/RAYS</u>					
<i>Myliobatis californica</i>	bat ray	1	300	200	200.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	6	21-46	2.1-12.4	38.4
<i>Pugettia producta</i>	northern kelp crab	6	4-15	0.1-1.4	2.8
<i>Loxorhynchus</i> spp.	spider crabs	2	5	0.1-0.5	0.6
Brachyuran unid.	unidentified crab	1	8	0.4	0.4
Caridean unid.	unidentified shrimp	1	159	28.0	28.0
		Total:	274		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA019

Survey Date: October 27 - 28, 2004

Sample Count: 13

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Atherinopsidae</i>	silverside	64	52-134	1.0-27.0	256.5
<i>Xenistius californiensis</i>	salema	41	19-45	0.3-1.7	43.8
<i>Seriphus politus</i>	queenfish	32	32-78	1.3-6.4	94.4
<i>Lepomis cyanellus</i>	green sunfish	10	95-117	30.5-77.5	442.8
<i>Micropterus salmoides</i>	large mouth bass	9	49-57	2.4-3.4	26.9
<i>Cymatogaster aggregata</i>	shiner surfperch	8	63-82	5.9-11.6	66.0
<i>Engraulis mordax</i>	northern anchovy	8	59-64	2.1-2.7	19.0
<i>Strongylura exilis</i>	California needlefish	5	392-577	70.0-230	635.0
<i>Anchoa delicatissima</i>	slough anchovy	4	42-66	1.7-7.1	22.2
<i>Lepomis macrochirus</i>	bluegill	3	34-121	1.8-55.5	111.3
<i>Anchoa compressa</i>	deepbody anchovy	2	60-77	2.5-5.7	8.2
<i>Paralichthys californicus</i>	California halibut	2	42-44	1.2-1.3	2.5
<i>Phanerodon furcatus</i>	white surfperch	2	89-119	13.5-27.4	40.9
<i>Sphyrnaea argentea</i>	California barracuda	2	48-63	0.9-1.6	2.5
<i>Tilapia</i> spp.	tilapia	2	27-46	2.4-4.2	6.6
<i>Trachurus symmetricus</i>	jack mackerel	2	37-38	1.1	2.2
<i>Rhacochilus vacca</i>	pile surfperch	1	263	465	465.0
<i>Heterostichus rostratus</i>	giant kelpfish	1	96	5.4	5.4
<i>Porichthys myriaster</i>	specklefin midshipman	1	342	221	221.0
<i>Porichthys notatus</i>	plainfin midshipman	1	385	460	460.0
<i>Syngnathus</i> spp.	pipefishes	1	161	1.3	1.3
unidentified fish, damaged	unid. damaged fish	1	-	16.0	16.0
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	4	272-550	165-1,100	1,775.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	31	7-41	0.9-13.9	195.5
<i>Octopus bimaculatus</i>	California two-spot octopus	4	-	5.2-25.3	58.1
<i>Loxorhynchus crispatus</i>	moss crab	1	7	0.3	0.3
<i>Pugettia</i> spp.	kelp crabs	1	2	0.1	0.1
		Total:	243		

Survey: EPSIA020

Survey Date: November 03 - 04, 2004

Sample Count: 13

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Anchoa compressa</i>	deepbody anchovy	35	37-85	0.9-7.1	101.6
<i>Engraulis mordax</i>	northern anchovy	30	57-76	1.9-4.6	85.8
<i>Atherinopsidae</i>	silverside	20	50-147	1.1-33.0	148.5
<i>Seriphus politus</i>	queenfish	9	34-66	0.8-4.3	19.8
<i>Xenistius californiensis</i>	salema	2	37-42	0.9-1.3	2.1
<i>Cymatogaster aggregata</i>	shiner surfperch	1	70	8.7	8.7
<i>Trachurus symmetricus</i>	jack mackerel	1	-	2.0	2.0
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	1	304	120	120.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	8	21-29	3.8-9.7	58.4
Brachyuran unid.	unidentified crab	1	17	2.8	2.8
<i>Crangon</i> spp.	bay shrimp	1	107	20.9	20.9
<i>Loligo opalescens</i>	market squid	1	-	-	-
<i>Rhithropanopeus harrisi</i>	Harris' mud crab	1	30	18.0	18.0
		Total:	111		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA021
Sample Count: 13

Survey Date: November 10 - 11, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Atherinopsidae</i>	silverside	14	62-164	2.0-21.3	76.0
<i>Seriphus politus</i>	queenfish	5	46-82	1.4-7.1	13.9
<i>Scorpaena guttata</i>	spotted scorpionfish	1	110	38.0	38.0
<i>Xenistius californiensis</i>	salema	1	40	1.1	1.1
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	26	15-60	0.9-15.7	193.5
<i>Pachygrapsus crassipes</i>	striped shore crab	2	12-27	0.5	0.5
<i>Cycloxanthops novemdentatus</i>	nineteenth pebble crab	1	19	2.6	2.6
Total:		50			

Survey: EPSIA022
Sample Count: 13

Survey Date: November 17 - 18, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Atherinopsis californiensis</i>	jacksmelt	29	45-146	0.8-33.0	123.9
<i>Seriphus politus</i>	queenfish	18	37-89	0.8-11.1	41.6
<i>Atherinops affinis</i>	topsmelt	4	70-124	2.5-17.6	27.3
<i>Hyperprosopon argenteum</i>	walleye surfperch	2	135-160	61.5-101	162.0
<i>Paralichthys californicus</i>	California halibut	2	49-132	1.8-35.6	37.3
<i>Anchoa compressa</i>	deepbody anchovy	1	66	3.5	3.5
<i>Cheilotrema saturnum</i>	black croaker	1	127	38.6	38.6
<i>Leuresthes tenuis</i>	California grunion	1	63	1.7	1.7
<i>Sarda chiliensis</i>	Pacific bonito	1	336	500	500.0
<i>Xenistius californiensis</i>	salema	1	48	2.0	2.0
<u>SHARKS/RAYS</u>					
<i>Urolophus halleri</i>	round stingray	1	80	27.7	27.7
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	9	16-36	2.0-17.0	68.4
<i>Pachygrapsus crassipes</i>	striped shore crab	3	32-35	15.0-18.8	49.5
Total:		73			

Impingement Results

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA023
Sample Count: 13

Survey Date: November 22 - 23, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Leuresthes tenuis</i>	California grunion	12	59-155	1.6-31.2	70.1
<i>Seriphus politus</i>	queenfish	11	30-82	0.7-6.7	22.3
<i>Anchoa compressa</i>	deepbody anchovy	5	55-70	1.5-4.8	12.9
<i>Atherinopsis californiensis</i>	jacksmelt	3	62-160	2.3-45.3	56.1
<i>Atractoscion nobilis</i>	white seabass	2	255-291	200-302	502.1
<i>Engraulis mordax</i>	northern anchovy	2	65	2.0-2.9	4.9
<i>Hypsoblennius</i> spp.	blennies	1	50	3.5	3.5
<i>Menticirrhus undulatus</i>	California corbina	1	72	5.1	5.1
<i>Micrometrus minimus</i>	dwarf surfperch	1	70	8.3	8.3
<i>Paralabrax clathratus</i>	kelp bass	1	40	1.7	1.7
<i>Paralichthys californicus</i>	California halibut	1	50	1.7	1.7
unidentified fish, damaged	unid. damaged fish	1	250	200	200.0
<i>Xenistius californiensis</i>	salema	1	47	1.8	1.8
<u>SHARKS/RAYS</u>					
<i>Myliobatis californica</i>	bat ray	1	400	460	460.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	34	18-46	2.4-18.2	154.9
<i>Cancer magister</i>	dungeness crab	1	-	-	-
<i>Pugettia richii</i>	cryptic kelp crab	1	12	1.3	1.3
<i>Pugettia</i> spp.	kelp crabs	1	-	-	-
		Total:	80		

Survey: EPSIA024
Sample Count: 19

Survey Date: December 01 - 02, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Anchoa compressa</i>	deepbody anchovy	801	50-112	0.7-12.1	2,471.4
<i>Xenistius californiensis</i>	salema	514	40-60	1.1-5.3	1,404.0
<i>Seriphus politus</i>	queenfish	320	29-100	0.5-19.3	1,941.7
<i>Cymatogaster aggregata</i>	shiner surfperch	212	61-94	5.1-18.1	2,343.6
<i>Leuresthes tenuis</i>	California grunion	65	31-125	0.3-18.5	265.2
unidentified fish, damaged	unid. damaged fish	6	-	-	-
<i>Anisotremus davidsonii</i>	sargo	4	51-70	2.9-8.3	22.5
<i>Atherinops affinis</i>	topsmelt	4	57-118	1.2-14.2	19.2
<i>Atherinopsis californiensis</i>	jacksmelt	4	63-108	2.2-10.5	19.8
<i>Sardinops sagax</i>	Pacific sardine	3	82-91	4.8-7.5	17.2
<i>Genyonemus lineatus</i>	white croaker	1	115	30.0	30.0
<i>Heterostichus rostratus</i>	giant kelpfish	1	65	5.3	5.3
<i>Hypsoblennius gentilis</i>	bay blenny	1	56	2.6	2.6
<i>Hypsoblennius gilberti</i>	rockpool blenny	1	70	4.3	4.3
<i>Menticirrhus undulatus</i>	California corbina	1	74	5.0	5.0
<i>Paralichthys californicus</i>	California halibut	1	160	60.1	60.1
<i>Sphyræna argentea</i>	California barracuda	1	115	7.4	7.4
<i>Strongylura exilis</i>	California needlefish	1	462	115.1	115.1
<i>Syngnathus</i> spp.	pipefishes	1	249	3.0	3.0
<i>Umbrina roncador</i>	yellowfin croaker	1	67	5.4	5.4
<u>SHARKS/RAYS</u>					
<i>Platyrrhinoidis triseriata</i>	thornback	2	181-192	305-342	647.0
<i>Urolophus halleri</i>	round stingray	2	149-155	183-210	393.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	13	20-65	2.7-23.6	110.9
<i>Loligo opalescens</i>	market squid	4	88-114	-	-
<i>Pachygrapsus crassipes</i>	striped shore crab	3	6-35	0.2-19.5	31.3
<i>Pugettia</i> spp.	kelp crabs	1	9	0.3	0.3
		Total:	1,968		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA025
Sample Count: 19

Survey Date: December 08 - 09, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Leuresthes tenuis</i>	California grunion	96	49-130	1.1-26.5	440.8
<i>Seriphus politus</i>	queenfish	90	27-175	0.5-58.9	512.7
<i>Anchoa compressa</i>	deepbody anchovy	71	53-111	0.9-12.6	223.8
<i>Xenistius californiensis</i>	salema	23	20-70	0.9-5.6	51.4
<i>Cymatogaster aggregata</i>	shiner surfperch	16	65-105	7.1-25.1	223.8
<i>Sardinops sagax</i>	Pacific sardine	10	73-108	3.7-13.3	70.9
<i>Atherinops affinis</i>	topsmelt	7	63-140	2.2-11.0	30.7
unidentified fish, damaged	unid. damaged fish	4	-	14.8	14.8
<i>Strongylura exilis</i>	California needlefish	2	455-482	120-125	245.0
<i>Chromis punctipinnis</i>	blacksmith	1	105	27.0	27.0
<i>Micrometrus minimus</i>	dwarf surfperch	1	54	4.4	4.4
<i>Paraclinus integripinnis</i>	reef finspot	1	65	3.7	3.7
SHARKS/RAYS					
<i>Myliobatis californica</i>	bat ray	1	305	400	400.0
<i>Platyrrhinoidis triseriata</i>	thornback	1	490	650	650.0
INVERTEBRATES					
<i>Portunus xantusii</i>	Xantus' swimming crab	14	23-60	3.0-19.0	101.5
<i>Pachygrapsus crassipes</i>	striped shore crab	4	5-40	0.1-20.9	29.7
<i>Pugettia</i> spp.	kelp crabs	2	10-13	0.4-1.1	1.5
<i>Octopus</i> spp.	octopus	1	-	200	200.0
<i>Pyromaia tuberculata</i>	tuberculate pea crab	1	22	2.3	2.3
		Total:	346		

Survey: EPSIA026
Sample Count: 19

Survey Date: December 15 - 16, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Leuresthes tenuis</i>	California grunion	99	20-124	0.6-21.2	341.8
<i>Seriphus politus</i>	queenfish	44	47-102	1.4-13.5	268.2
<i>Xenistius californiensis</i>	salema	28	38-57	1.1-3.5	55.3
<i>Cymatogaster aggregata</i>	shiner surfperch	11	64-83	7.8-16.5	112.9
<i>Atractoscion nobilis</i>	white seabass	8	229-295	150-310	1,655.0
<i>Engraulis mordax</i>	northern anchovy	6	38-109	0.5-13.6	24.1
<i>Anchoa compressa</i>	deepbody anchovy	5	55-92	1.0-8.6	15.4
<i>Atherinops affinis</i>	topsmelt	2	53-84	1.4-6.2	7.6
<i>Chromis punctipinnis</i>	blacksmith	1	39	1.0	1.0
<i>Hyperprosopon argenteum</i>	walleye surfperch	1	140	75.4	75.4
<i>Sardinops sagax</i>	Pacific sardine	1	86	4.1	4.1
<i>Umbrina roncadore</i>	yellowfin croaker	1	94	9.7	9.7
INVERTEBRATES					
<i>Portunus xantusii</i>	Xantus' swimming crab	15	25-83	3.6-11.0	103.1
<i>Pachygrapsus crassipes</i>	striped shore crab	3	9-42	0.5-28.0	33.6
<i>Loligo opalescens</i>	market squid	1	52	24.1	24.1
<i>Pugettia</i> spp.	kelp crabs	1	9	0.5	0.5
		Total:	227		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA027

Survey Date: December 20 - 21, 2004

Sample Count: 19

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Seriphus politus</i>	queenfish	25	23-95	0.5-11.7	102.4
<i>Anchoa compressa</i>	deepbody anchovy	16	40-112	0.8-14.3	93.7
<i>Leuresthes tenuis</i>	California grunion	10	57-113	1.5-10.3	37.5
<i>Atherinopsis californiensis</i>	jacksmelt	6	62-133	2.4-23.6	37.3
Atherinopsidae	silverside	3	73-105	2.3-8.3	13.5
<i>Sardinops sagax</i>	Pacific sardine	2	80-89	4.5-5.7	10.2
<i>Anchoa delicatissima</i>	slough anchovy	1	68	3.3	3.3
<i>Atractoscion nobilis</i>	white seabass	1	290	265	265.0
<i>Hyperprosopon argenteum</i>	walleye surfperch	1	169	115	115.0
<i>Xenistius californiensis</i>	salema	1	37	1.0	1.0
INVERTEBRATES					
<i>Portunus xantusii</i>	Xantus' swimming crab	17	23-61	2.8-19.6	166.1
<i>Cancer</i> spp.	cancer crabs	1	26	28.0	28.0
<i>Pachygrapsus crassipes</i>	striped shore crab	1	15	2.2	2.2
<i>Pugettia</i> spp.	kelp crabs	1	11	1.4	1.4
		Total:	86		

Survey: EPSIA028

Survey Date: December 29 - 30, 2004

Sample Count: 19

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
Atherinopsidae	silverside	721	43-145	1.2-28.2	2,746.2
<i>Xenistius californiensis</i>	salema	283	39-59	0.5-3.0	529.6
<i>Anchoa compressa</i>	deepbody anchovy	57	19-105	0.3-10.0	204.5
<i>Cymatogaster aggregata</i>	shiner surfperch	29	70-110	7.9-21.3	409.1
<i>Sardinops sagax</i>	Pacific sardine	21	72-85	2.8-5.2	83.7
<i>Seriphus politus</i>	queenfish	8	40-140	0.9-31.6	67.2
<i>Strongylura exilis</i>	California needlefish	5	400-508	79.4-160	532.0
<i>Paralabrax clathratus</i>	kelp bass	2	45-73	1.7-7.2	8.9
<i>Syngnathus</i> spp.	pipefishes	2	171-194	1.4-2.4	3.8
<i>Atherinops affinis</i>	topsmelt	1	-	-	-
Chub unid.	unid. chub	1	75	7.3	7.3
<i>Citharichthys stigmaeus</i>	speckled sanddab	1	69	4.6	4.6
<i>Hypsopsetta guttulata</i>	diamond turbot	1	225	250	250.0
<i>Lepomis</i> spp.	sunfishes	1	102	29.9	29.9
<i>Micrometrus minimus</i>	dwarf surfperch	1	56	4.5	4.5
<i>Paralichthys californicus</i>	California halibut	1	65	3.0	3.0
<i>Phanerodon furcatus</i>	white surfperch	1	69	9.4	9.4
<i>Porichthys myriaster</i>	specklefin midshipman	1	73	3.3	3.3
SHARKS/RAYS					
<i>Gymnura marmorata</i>	California butterfly ray	6	337-478	425-1,100	4,395.0
<i>Myliobatis californica</i>	bat ray	3	321-500	255-500	1,135.0
INVERTEBRATES					
<i>Cancer</i> spp.	cancer crabs	18	16-33	0.1-2.3	18.7
<i>Pachygrapsus crassipes</i>	striped shore crab	8	10-31	0.2-9.5	26.8
<i>Portunus xantusii</i>	Xantus' swimming crab	8	21-58	0.2-24.9	55.4
<i>Pugettia</i> spp.	kelp crabs	5	5-22	0.1-4.1	7.4
<i>Loligo opalescens</i>	market squid	3	78-100	19.4-34.7	80.8
<i>Talipeus mutallii</i>	globose kelp crab	2	7-8	0.2-0.5	0.7
Brachyuran unid.	unidentified crab	1	-	-	-
		Total:	1,191		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA029
Sample Count: 19

Survey Date: January 05 - 06, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Atherinops affinis</i>	topsmelt	344	48-137	0.9-33.5	2,151.8
<i>Leuresthes tenuis</i>	California grunion	60	53-159	1.2-36.4	361.6
<i>Xenistius californiensis</i>	salema	42	41-55	1.1-3.3	80.9
<i>Cymatogaster aggregata</i>	shiner surfperch	14	78-100	6.5-27.2	240.6
<i>Anchoa delicatissima</i>	slough anchovy	10	55-81	1.6-4.4	24.8
<i>Strongylura exilis</i>	California needlefish	10	408-563	90.0-270	1,620.0
unidentified fish, damaged	unid. damaged fish	10	50-65	0.4-2.4	26.5
<i>Sardinops sagax</i>	Pacific sardine	7	44-88	0.7-4.7	25.1
<i>Anisotremus davidsonii</i>	sargo	4	48-81	2.5-11.6	30.1
<i>Anchoa compressa</i>	deepbody anchovy	3	60-100	2.0-12.2	23.7
<i>Seriphys politus</i>	queenfish	3	44-144	1.2-34.0	40.4
<i>Atractoscion nobilis</i>	white seabass	2	270	85.0-180	265.0
<i>Engraulis mordax</i>	northern anchovy	2	42-45	0.6	1.3
<i>Paralabrax clathratus</i>	kelp bass	2	62-64	2.8-5.1	7.9
<i>Phanerodon furcatus</i>	white surfperch	2	179-224	115-240	355.2
<i>Hyperprosopon argenteum</i>	walleye surfperch	1	98	20.7	20.7
<i>Hyperprosopon</i> spp.	surfperch	1	165	115	115.0
<i>Hypsopsetta guttulata</i>	diamond turbot	1	28	0.5	0.5
<i>Lepomis macrochirus</i>	bluegill	1	114	45.0	45.0
<i>Lepomis</i> spp.	sunfishes	1	106	35.6	35.6
<i>Symphurus atricauda</i>	California tonguefish	1	92	8.1	8.1
<i>Syngnathus</i> spp.	pipefishes	1	248	4.5	4.5
SHARKS/RAYS					
<i>Myliobatis californica</i>	bat ray	2	274-307	320-410	730.0
<i>Ophichthus zophochir</i>	yellow snake eel	2	489-520	120	240.0
<i>Gymnura marmorata</i>	California butterfly ray	1	465	648	648.0
<i>Platyrhinoidis triseriata</i>	thornback	1	-	178.0	177.9
INVERTEBRATES					
<i>Portunus xantusii</i>	Xantus' swimming crab	22	19-55	2.6-19.7	198.2
<i>Pachygrapsus crassipes</i>	striped shore crab	5	10-31	0.4-10.2	18.7
<i>Pugettia</i> spp.	kelp crabs	3	7-25	1.1-6.1	8.7
<i>Callinassa californiensis</i>	ghost shrimp	2	41-49	1.0-1.9	2.9
<i>Cancer jordani</i>	hairy rock crab	2	21-30	1.3-5.8	7.1
<i>Octopus</i> spp.	octopus	2	-	20.4-114.8	135.2
<i>Cancer antennarius</i>	brown rock crab	1	21	2.3	2.3
<i>Cancer productus</i>	red rock crab	1	37	10.5	10.5
<i>Pugettia producta</i>	northern kelp crab	1	15	1.5	1.5
<i>Taliepus nuttallii</i>	globose kelp crab	1	10	0.5	0.5
Total:		568			

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA030
Sample Count: 19

Survey Date: January 12 - 13, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Atherinops affinis</i>	topsmelt	2,551	35-184	0.5-67.1	23,391.9
<i>Anchoa delicatissima</i>	slough anchovy	861	38-127	0.9-17.0	2,654.2
<i>Hyperprosopon argenteum</i>	walleye surfperch	460	57-195	4.0-12.8	18,405.7
<i>Anchoa compressa</i>	deepbody anchovy	222	50-122	1.1-20.8	2,131.7
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	181	43-240	1.4-31.0	1,596.9
<i>Cymatogaster aggregata</i>	shiner surfperch	118	38-136	1.9-54.9	2,175.8
<i>Seriphus politus</i>	queenfish	86	37-225	0.7-16.5	773.4
<i>Paralabrax clathratus</i>	kelp bass	79	44-154	1.0-70.0	526.4
<i>Micrometrus minimus</i>	dwarf surfperch	47	54-91	4.0-19.8	484.8
<i>Menticirrhus undulatus</i>	California corbina	39	58-341	3.0-58.0	1,599.6
<i>Phanerodon furcatus</i>	white surfperch	38	83-227	13.9-35.0	2,830.4
<i>Paralabrax nebulifer</i>	barred sand bass	33	43-88	1.2-35.0	185.7
<i>Amphistichus argenteus</i>	barred surfperch	32	68-195	8.6-22.0	1,242.5
<i>Paralichthys californicus</i>	California halibut	28	45-255	1.1-26.1	593.3
<i>Sardinops sagax</i>	Pacific sardine	28	73-180	2.5-65.0	364.7
<i>Xenistius californiensis</i>	salema	26	36-74	0.6-6.5	45.0
<i>Anisotremus davidsonii</i>	sargo	21	51-244	2.0-37.0	834.4
<i>Hypsopsetta guttulata</i>	diamond turbot	15	22-240	14.1-31.0	2,128.0
<i>Roncador stearnsi</i>	spotfin croaker	15	51-421	2.0-1,500	5,531.5
<i>Atractoscion nobilis</i>	white seabass	12	127-316	26.4-35.0	2,846.4
<i>Fundulus parvipinnis</i>	California killifish	9	49-79	1.8-7.1	48.0
<i>Engraulis mordax</i>	northern anchovy	8	65-86	1.4-5.5	26.7
<i>Umbrina roncadore</i>	yellowfin croaker	7	55-298	3.1-35.5	398.5
Chub unid.	unid. chub	4	62-81	4.5-7.6	24.5
<i>Heterostichus rostratus</i>	giant kelpfish	4	98-161	8.7-28.5	70.9
<i>Citharichthys stigmaeus</i>	speckled sanddab	3	49-65	1.5-3.6	6.6
<i>Hermosilla azurea</i>	zebra perch	3	66-71	7.3-11.9	27.3
<i>Sphyrna argentea</i>	California barracuda	3	198-224	55.4-68.5	181.4
<i>Albula vulpes</i>	bonefish	2	320-340	590-602	1,192.0
Ictaluridae	unid. catfish	2	162-177	55.0-100.5	155.5
<i>Citharichthys sordidus</i>	Pacific sanddab	1	50	0.5	0.5
<i>Cynoscion parvipinnis</i>	shortfin corvina	1	412	900	900.0
<i>Rhacochilus vacca</i>	pile surfperch	1	176	160	160.0
<i>Genyonemus lineatus</i>	white croaker	1	43	1.0	1.0
<i>Hypsoblennius gentilis</i>	bay blenny	1	65	5.0	5.0
<i>Hypsoblennius gilberti</i>	rockpool blenny	1	65	5.0	5.0
<i>Scorpaena guttata</i>	spotted scorpionfish	1	110	38.0	38.0
<i>Strongylura exilis</i>	California needlefish	1	716	90.0	90.0
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	33	275-525	185-1,520	24,459.0
<i>Urolophus halleri</i>	round stingray	10	146-206	180-630	3,834.0
<i>Ophichthus zophochir</i>	yellow snake eel	6	526-800	115-600	1,920.0
<i>Mustelus californicus</i>	gray smoothhound	3	442-687	300-1,100	1,850.0
<i>Myliobatis californica</i>	bat ray	3	355-447	640-1,300	3,240.0
<i>Platyrhinoidis triseriata</i>	thornback	1	186	550	550.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	73	13-58	1.5-42.0	492.1
<i>Octopus</i> spp.	octopus	10	-	40.0-700	2,011.5
<i>Pachygrapsus crassipes</i>	striped shore crab	5	11-35	0.5-9.0	25.7
<i>Cancer productus</i>	red rock crab	2	32-33	4.2-6.0	10.2
<i>Cancer antennarius</i>	brown rock crab	1	36	7.2	7.2
<i>Lophopanopeus</i> spp.	black-clawed crabs	1	80	8.0	8.0
<i>Pandalus platyceros</i>	spot shrimp	1	55	1.8	1.8
<i>Pugettia richii</i>	cryptic kelp crab	1	28	11.0	11.0
<i>Sicyonia ingentis</i>	Ridgeback rock shrimp	1	-	16.0	16.0
Total:		5,096			

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA031
Sample Count: 19

Survey Date: January 19 - 20, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Atherinops affinis</i>	topsmelt	492	50-179	1.0-30.0	2,256.5
<i>Sardinops sagax</i>	Pacific sardine	32	55-127	2.5-15.5	180.4
<i>Atractoscion nobilis</i>	white seabass	18	80-235	40.0-160	1,521.0
<i>Anchoa delicatissima</i>	slough anchovy	12	55-79	1.0-5.0	29.7
<i>Anchoa compressa</i>	deepbody anchovy	8	60-96	2.5-10.0	36.0
<i>Cymatogaster aggregata</i>	shiner surfperch	6	69-110	9.0-35.0	103.0
<i>Xenistius californiensis</i>	salema	5	39-55	1.0-3.0	10.0
<i>Hyperprosopon argenteum</i>	walleye surfperch	4	106-141	33.0-72.0	189.0
<i>Paralabrax clathratus</i>	kelp bass	4	53-66	3.0-6.0	20.0
<i>Anisotremus davidsonii</i>	sargo	2	55	2.5-7.0	9.5
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	2	65-79	4.5-9.5	14.0
<i>Paralabrax nebulifer</i>	barred sand bass	2	63-75	4.0-8.0	12.0
<i>Seriphus politus</i>	queenfish	2	47-74	1.0-5.0	6.0
<i>Citharichthys stigmaeus</i>	speckled sanddab	1	38	1.0	1.0
<i>Hypsoblennius</i> spp.	blennies	1	70	7.0	7.0
<i>Hypsopsetta guttulata</i>	diamond turbot	1	253	350	350.0
<i>Leuresthes tenuis</i>	California grunion	1	91	5.0	5.0
<i>Micrometrus minimus</i>	dwarf surfperch	1	67	7.5	7.5
<i>Pleuronichthys ritteri</i>	spotted turbot	1	70	6.5	6.5
<u>SHARKS/RAYS</u>					
<i>Myliobatis californica</i>	bat ray	2	182-404	460-850	1,310.0
<i>Platyrhinoidis triseriata</i>	thornback	2	159-349	200-260	460.0
<i>Gymnura marmorata</i>	California butterfly ray	1	392	380	380.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	40	12-60	1.0-22.0	286.0
<i>Pachygrapsus crassipes</i>	striped shore crab	5	12-33	1.0-10.0	24.5
<i>Blepharipoda occidentalis</i>	spiny mole crab	1	24	9.0	9.0
<i>Cancer productus</i>	red rock crab	1	35	7.0	7.0
<i>Octopus bimaculatus</i>	California two-spot octopus	1	80	110	110.0
<i>Pugettia</i> spp.	kelp crabs	1	32	7.5	7.5
Total:		649			

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA032
Sample Count: 19

Survey Date: January 26 - 27, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Atherinops affinis</i>	topsmelt	243	46-277	1.0-65.0	1,435.4
<i>Anchoa compressa</i>	deepbody anchovy	16	70-111	3.0-15.0	146.9
<i>Seriphus politus</i>	queenfish	11	35-96	1.0-13.0	75.5
<i>Atractoscion nobilis</i>	white seabass	9	159-284	50.0-210	722.0
<i>Cymatogaster aggregata</i>	shiner surfperch	5	62-110	7.0-38.0	86.0
<i>Hypsopsetta guttulata</i>	diamond turbot	3	162-225	85.0-310	615.0
<i>Sardinops sagax</i>	Pacific sardine	3	79-145	5.0-29.0	56.0
<i>Xenistius californiensis</i>	salema	3	38-52	1.5-3.0	6.5
<i>Phanerodon furcatus</i>	white surfperch	2	87-95	16.0-23.0	39.0
<i>Anchoa delicatissima</i>	slough anchovy	1	61	2.0	2.0
<i>Heterostichus rostratus</i>	giant kelpfish	1	75	3.1	3.1
<i>Hyperprosopon argenteum</i>	walleye surfperch	1	98	21.0	21.0
<i>Micrometrus minimus</i>	dwarf surfperch	1	74	16.0	16.0
<i>Paralabrax clathratus</i>	kelp bass	1	-	0.5	0.5
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	1	65	5.5	5.5
unidentified fish, damaged	unid. damaged fish	1	182	70.0	70.0
<u>SHARKS/RAYS</u>					
<i>Myliobatis californica</i>	bat ray	2	309-395	400-490	890.0
<i>Gymnura marmorata</i>	California butterfly ray	1	365	390	390.0
<i>Torpedo californica</i>	Pacific electric ray	1	311	3,750.0	3,750.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	30	24-51	1.5-23.5	325.0
<i>Pachygrapsus crassipes</i>	striped shore crab	4	12-50	2.0-18.0	42.0
<i>Cancer spp.</i>	cancer crabs	2	28-32	2.0-3.0	5.0
<i>Cancer productus</i>	red rock crab	1	35	5.0	5.0
Caridean unid.	unidentified shrimp	1	-	7.0	7.0
<i>Panulirus interruptus</i>	California spiny lobster	1	-	30.0	30.0
		Total:	345		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA033
Sample Count: 19

Survey Date: February 20 - 03, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Atherinops affinis</i>	topsmelt	189	38-325	0.5-270	1,381.3
<i>Sardinops sagax</i>	Pacific sardine	19	66-124	4.8-16.0	153.7
<i>Anchoa compressa</i>	deepbody anchovy	10	62-116	3.0-16.0	70.5
<i>Xenistius californiensis</i>	salema	6	45-59	1.0-4.0	11.5
<i>Hyperprosopon argenteum</i>	walleye surfperch	5	122-165	50.0-100	339.6
<i>Syngnathus</i> spp.	pipefishes	4	162-224	1.1-4.0	9.3
<i>Anisotremus davidsonii</i>	sargo	3	57-69	4.0-7.0	17.5
<i>Micrometrus minimus</i>	dwarf surfperch	2	62-67	7.5-9.0	16.5
<i>Anchoa delicatissima</i>	slough anchovy	1	75	5.0	5.0
<i>Atractoscion nobilis</i>	white seabass	1	307	360	360.0
<i>Cymatogaster aggregata</i>	shiner surfperch	1	77	10.0	10.0
<i>Rhacochilus vacca</i>	pile surfperch	1	214	280	280.0
<i>Paralabrax clathratus</i>	kelp bass	1	65	5.6	5.6
<i>Peprilus simillimus</i>	Pacific butterfish	1	79	11.0	11.0
<i>Phanerodon furcatus</i>	white surfperch	1	87	15.0	15.0
<i>Sarda chiliensis</i>	Pacific bonito	1	362	510	510.0
INVERTEBRATES					
<i>Portunus xantusii</i>	Xantus' swimming crab	17	20-58	2.0-18.0	137.8
<i>Pugettia</i> spp.	kelp crabs	4	6-23	0.4-9.0	11.9
<i>Cancer jordani</i>	hairy rock crab	1	33	8.5	8.5
<i>Cancer productus</i>	red rock crab	1	56	17.0	17.0
<i>Dosidicus gigas</i>	jumbo squid	1	625	500	500.0
<i>Pachygrapsus crassipes</i>	striped shore crab	1	10	0.2	0.2
<i>Podocheila hemphilli</i>	Hemphill's kelp crab	1	20	3.0	3.0
		Total:	272		

Survey: EPSIA034
Sample Count: 13

Survey Date: February 09 - 10, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Atherinops affinis</i>	topsmelt	115	58-302	2.0-205	903.8
<i>Anchoa delicatissima</i>	slough anchovy	25	39-98	0.3-9.5	60.9
<i>Anchoa compressa</i>	deepbody anchovy	17	73-112	3.0-17.0	192.2
<i>Seriphus politus</i>	queenfish	16	45-112	1.0-20.0	82.7
<i>Cymatogaster aggregata</i>	shiner surfperch	14	70-113	11.0-31.0	251.6
<i>Umbrina roncadore</i>	yellowfin croaker	8	74-96	7.0-14.5	82.5
<i>Atractoscion nobilis</i>	white seabass	5	190-265	70.0-245	675.0
<i>Engraulis mordax</i>	northern anchovy	5	42-89	1.0-5.5	14.4
<i>Xenistius californiensis</i>	salema	5	50-60	2.0-3.5	13.9
<i>Hyperprosopon argenteum</i>	walleye surfperch	4	101-135	45.0-70.0	235.0
<i>Sardinops sagax</i>	Pacific sardine	2	108-111	9.0-12.0	21.0
<i>Hypsopsetta guttulata</i>	diamond turbot	1	206	270	270.0
<i>Paralabrax clathratus</i>	kelp bass	1	65	5.0	5.0
<i>Paralabrax nebulifer</i>	barred sand bass	1	51	2.0	2.0
<i>Paralichthys californicus</i>	California halibut	1	94	13.0	13.0
<i>Roncadore stearnsi</i>	spotfin croaker	1	57	3.0	3.0
<i>Syngnathus</i> spp.	pipefishes	1	163	0.6	0.6
unidentified fish, damaged	unid. damaged fish	1	-	100	100.0
SHARKS/RAYS					
<i>Myliobatis californica</i>	bat ray	2	272-530	305-2,000	2,305.0
<i>Ophichthus zophochir</i>	yellow snake eel	1	638	295	295.0
<i>Urolophus halleri</i>	round stingray	1	140	170	170.0
INVERTEBRATES					
<i>Portunus xantusii</i>	Xantus' swimming crab	14	16-78	3.0-14.0	99.6
<i>Pachygrapsus crassipes</i>	striped shore crab	3	8-18	0.4-3.0	4.9
<i>Cancer productus</i>	red rock crab	2	33-49	12.0-17.0	29.0
		Total:	246		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA035

Survey Date: February 16 - 17, 2005

Sample Count: 13

<u>Taxon</u>	<u>Common Name</u>	<u>Survey Count</u>	<u>Length Range (mm)</u>	<u>Weight Range (g)</u>	<u>Total Weight (g)</u>
<u>FISHES</u>					
<i>Anchoa compressa</i>	deepbody anchovy	5	-	40.2	40.2
<i>Seriphus polinus</i>	queenfish	5	44-52	3.0	15.0
<i>Atherinops affinis</i>	topsmelt	4	-	8.7	8.7
<i>Hyperprosopon argenteum</i>	walleye surfperch	2	131-134	45.0-81.0	126.0
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	2	-	14.6	14.6
<i>Paralabrax nebulifer</i>	barred sand bass	2	50-84	3.2-14.0	17.2
<i>Atherinopsis californiensis</i>	jacksmelt	1	273	160	160.0
<i>Hypsoblennius jenkinsi</i>	mussel blenny	1	57	4.3	4.3
<i>Porichthys myriaster</i>	specklefin midshipman	1	380	800	800.0
<u>INVERTEBRATES</u>					
<i>Pachygrapsus</i> spp.	shore crab	417	-	50.0	871.0
<i>Pachygrapsus crassipes</i>	striped shore crab	274	3-37	0.5-21.5	768.5
<i>Cancer productus</i>	red rock crab	13	10-55	1.0-22.0	130.1
<i>Portunus xantusii</i>	Xantus' swimming crab	7	20-35	2.0-7.0	30.0
Brachyuran unid.	unidentified crab	1	-	150-200	350.0
<i>Pugettia producta</i>	northern kelp crab	1	22	3.5	3.5
<i>Pugettia</i> spp.	kelp crabs	1	-	0.5	0.5
Total:		737			

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA036

Survey Date: February 23 - 24, 2005

Sample Count: 13

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Anchoa compressa</i>	deepbody anchovy	306	54-120	2.0-21.0	3,203.2
<i>Atherinops affinis</i>	topsmelt	304	57-171	1.2-54.7	4,887.9
<i>Cymatogaster aggregata</i>	shiner surfperch	189	72-188	8.9-61.0	5,211.9
Chub unid.	unid. chub	91	62-164	3.0-100	845.5
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	88	43-315	2.0-670	1,318.9
<i>Paralabrax nebulifer</i>	barred sand bass	64	42-94	2.0-15.0	439.8
<i>Hyperprosopon argenteum</i>	walleye surfperch	36	110-164	36.0-116.4	2,564.4
Ictaluridae	unid. catfish	33	124-259	60.0-300	4,123.0
<i>Fundulus parvipinnis</i>	California killifish	31	66-91	4.0-12.0	235.5
<i>Anchoa delicatissima</i>	slough anchovy	24	57-74	2.0-5.0	73.5
<i>Seriphus politus</i>	queenfish	21	49-172	2.0-79.0	410.5
<i>Lepomis macrochirus</i>	bluegill	16	42-135	2.0-86.9	513.7
<i>Lepomis cyanellus</i>	green sunfish	15	47-168	3.0-138	532.0
<i>Anisotremus davidsonii</i>	sargo	10	53-81	3.5-13.0	68.4
<i>Hypsopsetta guttulata</i>	diamond turbot	7	25-233	0.8-260	956.8
<i>Paralichthys californicus</i>	California halibut	6	47-221	1.5-170	200.8
<i>Atractoscion nobilis</i>	white seabass	4	239-432	155-260	775.0
<i>Pylodictis olivaris</i>	flathead catfish	4	158-210	90.0-170	480.0
<i>Chromis punctipinnis</i>	blacksmith	3	55-101	4.0-21.0	32.0
<i>Phanerodon furcatus</i>	white surfperch	3	156-191	85.8-180	385.8
unidentified fish, damaged	unid. damaged fish	3	40-95	1.0-60.0	62.5
<i>Paralabrax clathratus</i>	kelp bass	2	65-90	5.0-14.0	19.0
<i>Ameiurus nebulosus</i>	brown bullhead	1	149	100	100.0
<i>Citharichthys stigmatæus</i>	speckled sanddab	1	45	3.0	3.0
<i>Embiotoca jacksoni</i>	black surfperch	1	225	370	370.0
<i>Heterostichus rostratus</i>	giant kelpfish	1	183	50.0	50.0
<i>Lepomis</i> spp.	sunfishes	1	141	130	130.0
<i>Micrometrus minimus</i>	dwarf surfperch	1	57	5.0	5.0
<i>Micropterus dolomieu</i>	smallmouth bass	1	186	150	150.0
Pleuronectiformes unid.	flatfishes	1	38	0.5	0.5
<i>Syngnathus</i> spp.	pipefishes	1	105	1.0	1.0
<i>Xenistius californiensis</i>	salema	1	48	1.8	1.8
<u>SHARKS/RAYS</u>					
<i>Ophichthus zophochir</i>	yellow snake eel	4	549-769	150-450	1,380.0
<u>INVERTEBRATES</u>					
<i>Octopus</i> spp.	octopus	17	17-117	16.0-520	3,170.0
<i>Portunus xantustii</i>	Xantus' swimming crab	15	11-52	1.3-14.0	73.8
<i>Pachygrapsus crassipes</i>	striped shore crab	6	11-22	1.0-4.0	13.0
<i>Octopus bimaculatus</i>	California two-spot octopus	3	90-95	240-370	940.0
<i>Blepharipoda occidentalis</i>	spiny mole crab	1	18	3.0	3.0
Total:		1,316			

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA037
Sample Count: 13

Survey Date: March 02 - 03, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Seriphus politus</i>	queenfish	18	47-74	1.2-5.5	45.4
<i>Atherinops affinis</i>	topsmelt	8	65-112	0.4-13.7	55.7
<i>Roncador stearnsi</i>	spotfin croaker	5	70-550	5.5-1,700	3,024.6
<i>Anchoa compressa</i>	deepbody anchovy	3	64-98	3.0-8.6	20.0
<i>Phanerodon furcatus</i>	white surfperch	3	79-175	10.9-130.8	179.1
<i>Citharichthys stigmæus</i>	speckled sanddab	2	60-68	3.4-4.0	7.4
<i>Anisotremus davidsonii</i>	sargo	1	61	4.5	4.5
<i>Cymatogaster aggregata</i>	shiner surfperch	1	107	26.5	26.5
<i>Dorosoma petenense</i>	threadfin shad	1	69	3.4	3.4
<i>Hypsopsetta guttulata</i>	diamond turbot	1	215	226	226.0
<i>Micrometrus minimus</i>	dwarf surfperch	1	69	7.9	7.9
<i>Paralabrax nebulifer</i>	barred sand bass	1	65	5.7	5.7
<i>Paralichthys californicus</i>	California halibut	1	128	30.3	30.3
<i>Syngnathus</i> spp.	pipefishes	1	127	0.5	0.5
unidentified fish, damaged	unid. damaged fish	1	-	1.2	1.2
INVERTEBRATES					
<i>Portunus xantusii</i>	Xantus' swimming crab	13	19-48	1.3-15.2	84.2
<i>Pachygrapsus crassipes</i>	striped shore crab	6	8-42	0.6-48.5	73.9
<i>Octopus</i> spp.	octopus	1	95	266.5	266.5
		Total:	68		

Survey: EPSIA038
Sample Count: 13

Survey Date: March 09 - 10, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Seriphus politus</i>	queenfish	36	45-80	1.7-7.4	124.6
<i>Atherinops affinis</i>	topsmelt	25	60-152	2.0-33.5	299.9
<i>Cymatogaster aggregata</i>	shiner surfperch	17	76-119	12.0-35.5	350.7
<i>Hypsopsetta guttulata</i>	diamond turbot	10	185-235	160-281	2,126.3
<i>Paralabrax clathratus</i>	kelp bass	6	49-65	2.2-5.6	22.9
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	5	43-80	2.0-11.1	33.2
<i>Paralabrax nebulifer</i>	barred sand bass	4	50-83	2.5-14.1	27.5
<i>Anchoa compressa</i>	deepbody anchovy	3	90-110	9.1-12.8	34.7
<i>Roncador stearnsi</i>	spotfin croaker	3	67-81	4.8-9.5	20.4
<i>Anchoa delicatissima</i>	slough anchovy	2	58-62	2.3-2.8	5.1
<i>Atherinopsis californiensis</i>	jacksmelt	2	110-158	14.8-31.8	46.6
<i>Engraulis mordax</i>	northern anchovy	2	35-38	0.3-0.5	0.8
<i>Anisotremus davidsonii</i>	sargo	1	56	3.9	3.9
<i>Citharichthys stigmæus</i>	speckled sanddab	1	60	5.2	5.2
<i>Fundulus parvipinnis</i>	California killifish	1	65	4.9	4.9
<i>Gillichthys mirabilis</i>	longjaw mudsucker	1	125	34.4	34.4
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	1	98	15.1	15.1
<i>Micrometrus minimus</i>	dwarf surfperch	1	64	7.3	7.3
<i>Peprilus simillimus</i>	Pacific butterflyfish	1	85	13.8	13.8
<i>Phanerodon furcatus</i>	white surfperch	1	123	35.9	35.9
<i>Porichthys myriaster</i>	specklefin midshipman	1	330	500	500.0
<i>Sardinops sagax</i>	Pacific sardine	1	114	8.9	8.9
unidentified fish	unid. fish	1	39	0.9	0.9
SHARKS/RAYS					
<i>Gymnura marmorata</i>	California butterfly ray	2	347-423	362-671	1,032.7
<i>Platyrrhinoidis triseriata</i>	thornback	2	196-395	365-371	735.8
<i>Myliobatis californica</i>	bat ray	1	343	647.0	647.3
<i>Urolophus halleri</i>	round stingray	1	180	448.0	447.7
INVERTEBRATES					
<i>Portunus xantusii</i>	Xantus' swimming crab	66	16-46	1.1-9.4	260.7
<i>Pachygrapsus crassipes</i>	striped shore crab	5	10-40	0.5-36.8	49.7
<i>Pyromaia tuberculata</i>	tuberculate pea crab	2	5-8	0.2-0.4	
<i>Octopus</i> spp.	octopus	1	90	319.5	319.5
		Total:	206		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EFSIA039
Sample Count: 13

Survey Date: March 16 - 17, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Atherinops affinis</i>	topsmelt	6	76-138	4.2-28.4	138.6
<i>Anchoa delicatissima</i>	slough anchovy	3	63-72	2.7-3.8	9.5
<i>Cymatogaster aggregata</i>	shiner surfperch	3	40-120	1.4-45.6	83.4
<i>Roncador stearnsi</i>	spotfin croaker	3	57-71	4.7-7.1	17.8
<i>Seriphus politus</i>	queenfish	3	55-65	2.0-3.7	9.3
<i>Hypsopsetta guttulata</i>	diamond turbot	2	210-235	233-281	513.5
<i>Anchoa compressa</i>	deepbody anchovy	1	58	1.7	1.7
<i>Brachyistius frenatus</i>	kelp surfperch	1	80	17.0	17.0
<i>Fundulus parvipinnis</i>	California killifish	1	70	5.4	5.4
<i>Hyperprosopon argenteum</i>	walleye surfperch	1	129	51.2	51.2
<i>Leuresthes tenuis</i>	California grunion	1	74	3.1	3.1
<i>Lyopsetta exilis</i>	slender sole	1	124	25.9	25.9
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	1	54	2.7	2.7
<i>Paralabrax nebulifer</i>	barred sand bass	1	62	3.9	3.9
<i>Syngnathus</i> spp.	pipefishes	1	190	1.8	1.8
<i>Xenistius californiensis</i>	salema	1	53	2.8	2.8
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	10	21-44	1.0-11.3	30.8
<i>Pachygrapsus crassipes</i>	striped shore crab	6	10-28	1.1-8.4	31.2
Total:		46			

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA040
Sample Count: 19

Survey Date: March 23 - 24, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Atherinops affinis</i>	topsmelt	77	60-155	2.0-50.2	776.2
<i>Cymatogaster aggregata</i>	shiner surfperch	62	33-123	0.8-41.6	1,385.7
<i>Seriphus politus</i>	queenfish	31	35-111	1.3-14.0	155.4
<i>Anchoa compressa</i>	deepbody anchovy	25	54-80	1.6-5.4	73.2
<i>Anchoa delicatissima</i>	slough anchovy	14	55-70	2.3-3.7	40.6
<i>Roncador stearnsi</i>	spotfin croaker	9	64-83	3.0-12.4	57.6
<i>Syngnathus</i> spp.	pipefishes	9	183-235	1.6-3.5	22.0
<i>Strongylura exilis</i>	California needlefish	6	330-538	37.5-181	592.8
<i>Genyonemus lineatus</i>	white croaker	4	31-34	0.6	2.7
<i>Leuresthes tenuis</i>	California grunion	4	70-104	3.3-9.2	20.9
<i>Paralabrax nebulifer</i>	barred sand bass	4	59-64	3.8-5.2	18.3
<i>Hypsopsetta guttulata</i>	diamond turbot	3	205-224	184.4-203.0	574.8
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	3	60-105	3.3-18.8	28.6
<i>Phanerodon furcatus</i>	white surfperch	3	41-166	8.8-87.7	116.2
<i>Anisotremus davidsonii</i>	sargo	2	55-59	4.3-5.0	9.3
<i>Chromis punctipinnis</i>	blacksmith	2	119-125	32.7-35.0	67.7
<i>Hyperprosopon argenteum</i>	walleye surfperch	2	39-177	1.5-190	191.1
<i>Paralabrax clathratus</i>	kelp bass	2	74-76	5.6-8.0	13.6
Pleuronectiformes unid.	flatfishes	2	55-60	3.2-3.7	6.9
<i>Citharichthys stigmatæus</i>	speckled sanddab	1	60	2.9	2.9
<i>Engraulis mordax</i>	northern anchovy	1	87	3.9	3.9
<i>Fundulus parvipinnis</i>	California killifish	1	66	5.2	5.2
<i>Hypsoblennius gilberti</i>	rockpool blenny	1	70	6.3	6.3
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	1	53	2.6	2.6
<i>Peprilus simillimus</i>	Pacific butterflyfish	1	87	14.3	14.3
<i>Pleuronichthys verticalis</i>	hornyhead turbot	1	138	68.9	68.9
<i>Porichthys myriaster</i>	specklefin midshipman	1	370	350	350.0
<i>Umbrina roncador</i>	yellowfin croaker	1	70	5.4	5.4
unidentified fish	unid. fish	1	156	77.6	77.6
unidentified fish, damaged	unid. damaged fish	1	65	1.6	1.6
<i>Xenistius californiensis</i>	salema	1	51	2.9	2.9
<u>SHARKS/RAYS</u>					
<i>Ophichthus zophochir</i>	yellow snake eel	2	750-752	393-457	849.4
<i>Urolophus halleri</i>	round stingray	2	119-120	95.2-98.0	193.2
<i>Gymnura marmorata</i>	California butterfly ray	1	395	185.0	185.0
<i>Rhinobatos productus</i>	shovelnose guitarfish	1	775	1,800.0	1,800.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	56	9-46	0.9-19.0	200.2
<i>Pachygrapsus crassipes</i>	striped shore crab	9	15-40	1.0-31.9	95.6
Total:		347			

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA041
Sample Count: 19

Survey Date: March 30 - 31, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Atherinops affinis</i>	topsmelt	85	58-135	2.5-21.7	552.4
<i>Seriphus politus</i>	queenfish	44	40-130	1.8-33.4	258.7
<i>Cymatogaster aggregata</i>	shiner surfperch	36	32-125	0.6-43.9	798.4
<i>Anchoa compressa</i>	deepbody anchovy	13	65-111	1.6-17.3	98.9
<i>Paralabrax nebulifer</i>	barred sand bass	11	49-75	2.4-8.6	50.9
<i>Hyperprosopon argenteum</i>	walleye surfperch	8	27-43	0.5-1.8	10.8
<i>Anchoa delicatissima</i>	slough anchovy	5	58-69	2.0-3.4	13.3
<i>Anisotremus davidsonii</i>	sargo	5	54-68	3.8-7.0	26.7
<i>Embiotoca jacksoni</i>	black surfperch	5	46-64	3.0-6.8	20.5
<i>Leuresthes tenuis</i>	California grunion	5	64-131	1.2-17.0	43.3
<i>Umbrina roncadore</i>	yellowfin croaker	5	65-108	4.8-20.0	45.2
<i>Paralichthys californicus</i>	California halibut	2	70-176	2.2-33.7	35.9
<i>Phanerodon furcatus</i>	white surfperch	2	41-50	1.8-2.5	4.3
<i>Genyonemus lineatus</i>	white croaker	1	45	1.6	1.6
<i>Hypsoblennius gentilis</i>	bay blenny	1	42	1.6	1.6
<i>Menticirrhus undulatus</i>	California corbina	1	262	277.5	277.5
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	1	80	9.6	9.6
<i>Roncadore stearnsi</i>	spotfin croaker	1	77	7.5	7.5
<i>Strongylura exilis</i>	California needlefish	1	324	26.3	26.3
<i>Syngnathus</i> spp.	pipefishes	1	207	3.6	3.6
<i>Xenistius californiensis</i>	salema	1	55	3.1	3.1
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	2	330-398	305-550	855.2
<i>Urolophus halleri</i>	round stingray	2	104-108	56.0-62.1	118.1
<i>Platyrhinoidis triseriata</i>	thornback	1	279	1,500.0	1,500.0
<i>Rhinobatos productus</i>	shovelnose guitarfish	1	1126	4,400.0	4,400.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	20	15-58	0.9-16.8	77.1
<i>Pachygrapsus crassipes</i>	striped shore crab	17	5-40	0.3-31.9	85.4
Total:		277			

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA042
Sample Count: 19

Survey Date: April 6 - 7, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	29	42-131	3.0-65.2	732.7
<i>Atherinops affinis</i>	topsmelt	23	60-127	3.0-24.0	238.0
<i>Seriphus politus</i>	queenfish	17	55-81	4.0-10.0	94.5
<i>Hyperprosopon argenteum</i>	walleye surfperch	6	40-161	2.0-100	204.0
<i>Anchoa compressa</i>	deepbody anchovy	4	68-78	4.0-6.5	19.0
<i>Atherinopsis californiensis</i>	jacksmelt	4	75-252	5.0-140	177.0
<i>Leuresthes tenuis</i>	California grunion	4	78-151	3.8-28.0	58.8
<i>Embiotoca jacksoni</i>	black surfperch	3	53-218	4.5-452	464.0
<i>Porichthys myriaster</i>	specklefin midshipman	3	370-410	800-1,250	2,950.0
<i>Paralabrax nebulifer</i>	barred sand bass	2	50-56	3.0-4.0	7.0
<i>Amphistichus argenteus</i>	barred surfperch	1	42	2.0	2.0
<i>Anchoa delicatissima</i>	slough anchovy	1	63	3.5	3.5
<i>Anisotremus davidsonii</i>	sargo	1	68	8.5	8.5
<i>Chromis punctipinnis</i>	blacksmith	1	95	18.5	18.5
<i>Engraulis mordax</i>	northern anchovy	1	57	2.5	2.5
<i>Genyonemus lineatus</i>	white croaker	1	110	21.0	21.0
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	1	65	7.0	7.0
<i>Sardinops sagax</i>	Pacific sardine	1	128	19.5	19.5
<i>Strongylura exilis</i>	California needlefish	1	345	45.0	45.0
<i>Syngnathus leptorhynchus</i>	bay pipefish	1	208	4.0	4.0
<i>Xenistius californiensis</i>	salema	1	52	4.0	4.0
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	2	415-462	600-1,050	1,650.0
<i>Urolophus halleri</i>	round stingray	1	168	420	420.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	40	17-70	1.5-20.0	300.0
<i>Pachygrapsus crassipes</i>	striped shore crab	8	17-32	3.0-13.5	43.0
Hippolytidae unid.	hippolytid shrimps	1	-	-	-
Total:		158			

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA043
Sample Count: 19

Survey Date: April 13 - 14, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	93	48-143	6.9-59.8	1,565.9
<i>Atherinops affinis</i>	topsmelt	35	65-155	3.0-39.9	415.6
<i>Anisotremus davidsonii</i>	sargo	13	40-91	3.9-25.2	127.2
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	10	65-263	3.9-259.1	398.9
<i>Anchoa compressa</i>	deepbody anchovy	9	80-120	6.6-22.5	123.9
<i>Leuresthes tenuis</i>	California grunion	6	110-160	7.6-23.1	83.4
<i>Hyperprosopon argenteum</i>	walleye surfperch	5	40-50	1.6-2.5	10.1
<i>Atherinopsis californiensis</i>	jacksmelt	3	194-325	61.4-223	462.1
<i>Paralabrax clathratus</i>	kelp bass	3	65-75	3.2-5.6	12.5
<i>Seriphys politus</i>	queenfish	3	61-84	3.5-7.7	15.2
<i>Chromis punctipinnis</i>	blacksmith	2	154-156	106.6-143.1	249.7
<i>Embiotoca jacksoni</i>	black surfperch	2	56-58	4.3-4.4	8.7
<i>Girella nigricans</i>	opaleye	2	140-190	86.0-260.1	346.1
<i>Hermosilla azurea</i>	zebra perch	2	73-255	10.9-445	455.9
<i>Hypsopsetta guttulata</i>	diamond turbot	2	155-198	107.3-185.1	292.4
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	2	58-66	3.5	7.0
<i>Porichthys myriaster</i>	specklefin midshipman	2	263-352	271-673	943.5
<i>Roncador stearnsi</i>	spotfin croaker	2	80-222	9.5-174.1	183.6
<i>Anchoa delicatissima</i>	slough anchovy	1	70	3.8	3.8
<i>Genyonemus lineatus</i>	white croaker	1	169	92.6	92.6
<i>Heterostichus rostratus</i>	giant kelpfish	1	88	4.9	4.9
<i>Hypsoblennius gentilis</i>	bay blenny	1	58	4.7	4.7
<i>Hypsoblennius jenkinsi</i>	mussel blenny	1	91	13.0	13.0
<i>Paralabrax nebulifer</i>	barred sand bass	1	221	266.7	266.7
<i>Paralichthys californicus</i>	California halibut	1	107	18.2	18.2
<i>Phanerodon furcatus</i>	white surfperch	1	213	215.1	215.1
<i>Umbrina roncadore</i>	yellowfin croaker	1	60	4.6	4.6
unidentified fish, damaged	unid. damaged fish	1	-	91.8	91.8
<i>Xenistius californiensis</i>	salema	1	50	2.4	2.4
<u>SHARKS/RAYS</u>					
<i>Urolophus halleri</i>	round stingray	9	96-198	37.6-521.1	2,298.0
<i>Gymnura marmorata</i>	California butterfly ray	2	365-393	443.8-512.9	956.7
<i>Myliobatis californica</i>	bat ray	2	352-354	673-790	1,463.2
<u>INVERTEBRATES</u>					
<i>Pachygrapsus crassipes</i>	striped shore crab	170	7-31	0.3-14.8	544.1
<i>Portunus xantusii</i>	Xantus' swimming crab	13	18-51	1.5-19.2	85.9
<i>Cancer productus</i>	red rock crab	1	19	-1.4	1.4
Total:		404			

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA044

Survey Date: April 20 - 21, 2005

Sample Count: 19

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	32	43-122	1.9-31.8	477.6
<i>Anchoa compressa</i>	deepbody anchovy	16	65-119	3.2-18.7	159.0
<i>Hyperprosopon argenteum</i>	walleye surfperch	11	41-225	1.7-275.3	465.4
<i>Anisotremus davidsonii</i>	sargo	7	60-75	4.8-9.0	46.8
<i>Atherinops affinis</i>	topsmelt	7	73-133	3.7-23.3	112.1
<i>Seriphus polinus</i>	queenfish	6	68-99	4.7-15.7	48.3
<i>Anchoa delicatissima</i>	slough anchovy	4	65-74	2.6-4.9	14.9
<i>Porichthys myriaster</i>	specklefin midshipman	2	270-335	227-482	708.8
<i>Cheilopogon pinnatibarbatus</i>	spotted flyingfish	1	114	2.9	2.9
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	1	65	4.6	4.6
<i>Leuresthes tenuis</i>	California grunion	1	110	11.0	11.0
<i>Paralabrax nebulifer</i>	barred sand bass	1	50	2.3	2.3
<i>Phanerodon furcatus</i>	white surfperch	1	36	1.0	1.0
<i>Porichthys</i> spp.	midshipman	1	-	200	200.0
<i>Roncador stearnsi</i>	spotfin croaker	1	77	8.6	8.6
<i>Strongylura exilis</i>	California needlefish	1	390	57.9	57.9
unidentified fish, damaged	unid. damaged fish	1	-	200	200.0
<u>SHARKS/RAYS</u>					
<i>Urolophus halleri</i>	round stingray	2	100	63.3-150	213.3
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	12	18-40	1.5-13.7	65.9
<i>Pachygrapsus crassipes</i>	striped shore crab	10	4-50	0.2-53.0	82.5
<i>Octopus</i> spp.	octopus	1	-	139.7	139.7
Total:		119			

Impingement Results

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA045
Sample Count: 19

Survey Date: April 27 - 28, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	63	39-122	1.2-42.0	810.1
<i>Atherinops affinis</i>	topsmelt	10	78-136	6.1-23.7	135.0
<i>Hyperprosopon argenteum</i>	walleye surfperch	5	39-115	1.1-49.3	103.2
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	4	70-80	4.9-7.7	27.5
<i>Paralabrax nebulifer</i>	barred sand bass	4	53-91	4.4-14.0	28.4
<i>Anchoa compressa</i>	deepbody anchovy	3	80-100	2.3-13.3	21.9
<i>Anchoa delicatissima</i>	slough anchovy	2	61-97	2.9-9.1	12.0
<i>Anisotremus davidsonii</i>	sargo	2	63-72	5.7-10.3	16.0
<i>Paralabrax clathratus</i>	kelp bass	2	61-76	5.1-8.1	13.2
<i>Mugil cephalus</i>	striped mullet	1	57	3.4	3.4
<i>Paralichthys californicus</i>	California halibut	1	101	14.6	14.6
<i>Peprilus simillimus</i>	Pacific butterfish	1	47	2.2	2.2
<i>Porichthys myriaster</i>	specklefin midshipman	1	252	190.0	189.5
<i>Seriphus politus</i>	queenfish	1	71	6.9	6.9
<i>Xenistius californiensis</i>	salema	1	70	7.6	7.6
<u>SHARKS/RAYS</u>					
<i>Myliobatis californica</i>	bat ray	1	566	2,500.0	2,500.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	6	19-33	1.8-4.9	18.1
<i>Pachygrapsus crassipes</i>	striped shore crab	2	11-12	2.9-3.4	6.3
		Total:	110		

Survey: EPSIA046
Sample Count: 19

Survey Date: May 4 - 5, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	169	29-148	0.6-78.6	1,251.5
<i>Anchoa compressa</i>	deepbody anchovy	35	48-100	1.5-13.7	145.2
<i>Atherinops affinis</i>	topsmelt	23	60-126	2.0-26.0	211.4
<i>Hyperprosopon argenteum</i>	walleye surfperch	14	48-157	2.2-94.9	162.4
<i>Seriphus politus</i>	queenfish	6	60-91	2.6-10.3	38.0
<i>Leuresthes tenuis</i>	California grunion	5	71-112	3.5-17.4	37.3
<i>Paralabrax nebulifer</i>	barred sand bass	5	61-80	4.7-11.6	38.1
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	4	75-82	9.1-90.0	122.6
<i>Sebastes atrovirens</i>	kelp rockfish	4	68-90	5.6-16.4	39.8
<i>Paralichthys californicus</i>	California halibut	3	22-80	6.2-9.3	21.9
<i>Citharichthys stigmaeus</i>	speckled sanddab	2	70-79	5.5-6.4	11.9
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	2	73-84	5.3-7.3	12.6
<i>Porichthys myriaster</i>	specklefin midshipman	2	80-82	9.9-12.1	22.0
<i>Anisotremus davidsonii</i>	sargo	1	64	7.4	7.4
<i>Heterostichus rostratus</i>	giant kelpfish	1	85	2.9	2.9
<i>Strongylura exilis</i>	California needlefish	1	400	66.0	66.0
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	1	555	1,508.0	1,508.0
<i>Ophichthus zophochir</i>	yellow snake eel	1	-	17.8	17.8
<i>Urolophus halleri</i>	round stingray	1	204	525	525.0
<u>INVERTEBRATES</u>					
<i>Pachygrapsus crassipes</i>	striped shore crab	4	10-30	1.3-4.8	9.2
<i>Portunus xantusii</i>	Xantus' swimming crab	3	40-50	2.2-11.9	19.4
		Total:	287		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA047
Sample Count: 19

Survey Date: May 11 - 12, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	89	33-112	0.7-39.2	1,120.1
<i>Phanerodon furcatus</i>	white surfperch	30	30-161	0.7-90.6	179.2
<i>Atherinops affinis</i>	topsmelt	20	45-145	0.7-74.5	232.0
<i>Anchoa compressa</i>	deepbody anchovy	11	75-110	4.1-15.2	103.7
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	9	68-94	5.7-15.7	82.5
<i>Seriphus politus</i>	queenfish	8	71-91	4.6-12.5	64.5
<i>Amphistichus argenteus</i>	barred surfperch	4	53-62	3.7-6.0	18.1
<i>Hyperprosopon argenteum</i>	walleye surfperch	3	50-138	2.8-65.0	72.6
<i>Leuresthes tenuis</i>	California grunion	3	64-140	2.3-17.8	25.7
<i>Porichthys myriaster</i>	specklefin midshipman	3	179-422	258-1,141	1,729.3
<i>Xenistius californiensis</i>	salema	3	56-70	3.7-7.4	18.1
<i>Anchoa delicatissima</i>	slough anchovy	2	60	2.3-2.4	4.7
<i>Strongylura exilis</i>	California needlefish	2	465-509	105-181	286.0
<i>Anisotremus davidsonii</i>	sargo	1	66	8.7	8.7
<i>Engraulis mordax</i>	northern anchovy	1	40	0.7	0.7
<i>Hypsoblennius gentilis</i>	bay blenny	1	40	1.5	1.5
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	1	73	6.9	6.9
<i>Paralabrax nebulifer</i>	barred sand bass	1	76	8.7	8.7
<i>Syngnathus leptorhynchus</i>	bay pipefish	1	223	2.9	2.9
<u>SHARKS/RAYS</u>					
<i>Urolophus halleri</i>	round stingray	7	119-250	100-541	2,377.5
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	6	15-56	2.1-21.8	43.0
<i>Pachygrapsus crassipes</i>	striped shore crab	4	12-36	1.3-27.9	59.8
<i>Octopus spp.</i>	octopus	1	110	226.0	225.6
		Total:	211		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA048
Sample Count: 19

Survey Date: May 18 - 19, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	211	30-127	0.5-34.9	782.1
<i>Phanerodon furcatus</i>	white surfperch	21	31-72	0.8-7.1	66.6
<i>Anchoa compressa</i>	deepbody anchovy	11	62-116	2.8-18.1	102.1
<i>Hyperprosopon argenteum</i>	walleye surfperch	11	33-117	0.8-31.2	69.0
<i>Atherinops affinis</i>	topsmelt	9	31-134	7.6-24.5	138.8
<i>Porichthys myriaster</i>	specklefin midshipman	9	245-315	167-392	2,419.8
<i>Paralabrax nebulifer</i>	barred sand bass	4	65-73	4.4-7.2	23.5
<i>Seriophilus politus</i>	queenfish	4	70-83	4.8-8.4	25.2
<i>Roncador stearnsi</i>	spotfin croaker	3	59-76	3.5-7.4	16.9
<i>Anchoa delicatissima</i>	slough anchovy	2	65-77	3.4-4.8	8.2
<i>Heterostichus rostratus</i>	giant kelpfish	2	63-87	1.7-4.0	5.7
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	2	68-69	6.2-6.7	12.9
<i>Anchoa</i> spp.	anchovy	1	-	1.8	1.8
<i>Anisotremus davidsonii</i>	sargo	1	74	10.3	10.3
<i>Atractoscion nobilis</i>	white seabass	1	155	37.2	37.2
<i>Citharichthys stigmæus</i>	speckled sanddab	1	63	3.6	3.6
<i>Hypsopsetta guttulata</i>	diamond turbot	1	53	3.6	3.6
<i>Leuresthes tenuis</i>	California grunion	1	40	0.7	0.7
<i>Paralichthys californicus</i>	California halibut	1	50	1.5	1.5
<i>Strongylura exilis</i>	California needlefish	1	470	145.0	145.2
<i>Syngnathus leptorhynchus</i>	bay pipefish	1	221	1.9	1.9
<i>Umbrina roncadore</i>	yellowfin croaker	1	95	14.1	14.1
<u>SHARKS/RAYS</u>					
<i>Urolophus halleri</i>	round stingray	13	74-200	23.7-504	3,456.7
<u>INVERTEBRATES</u>					
<i>Pachygrapsus crassipes</i>	striped shore crab	11	12-24	1.2-9.7	42.6
<i>Portunus xantusii</i>	Xantus' swimming crab	5	25-45	3.9-11.2	40.1
<i>Cancer productus</i>	red rock crab	1	24	2.2	2.2
<i>Loxorhynchus crispatus</i>	moss crab	1	5	0.2	0.2
<i>Pugettia producta</i>	northern kelp crab	1	20	5.2	5.2
<i>Pugettia</i> spp.	kelp crabs	1	23	6.3	6.3
Total:		332			

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA049
Sample Count: 19

Survey Date: May 25 - 26, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	94	33-110	0.9-30.1	539.1
<i>Seriphus politus</i>	queenfish	20	55-94	2.9-11.8	160.7
<i>Anchoa compressa</i>	deepbody anchovy	18	66-160	2.8-20.5	194.0
<i>Atherinops affinis</i>	topsmelt	14	47-132	1.0-32.8	151.8
<i>Phanerodon furcatus</i>	white surfperch	7	50-75	2.9-6.6	31.8
<i>Hyperprosopon argenteum</i>	walleye surfperch	6	55-147	3.6-88.1	184.8
<i>Porichthys myriaster</i>	specklefin midshipman	6	73-311	5.8-425	994.7
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	5	73-95	7.7-15.4	54.1
<i>Roncador stearnsi</i>	spotfin croaker	5	90-337	13.3-780	840.5
<i>Amphistichus argenteus</i>	barred surfperch	3	54-70	4.7-6.8	18.1
<i>Anchoa delicatissima</i>	slough anchovy	2	61-63	2.7-3.1	5.8
<i>Strongylura exilis</i>	California needlefish	2	281-367	22.8-58.4	81.2
<i>Anisotremus davidsonii</i>	sargo	1	81	11.9	11.9
<i>Rhacochilus vacca</i>	pile surfperch	1	71	10.1	10.1
<i>Embiotoca jacksoni</i>	black surfperch	1	65	7.1	7.1
<i>Engraulis mordax</i>	northern anchovy	1	77	3.3	3.3
<i>Paralabrax clathratus</i>	kelp bass	1	65	4.8	4.8
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	1	62	4.3	4.3
<i>Paralabrax nebulifer</i>	barred sand bass	1	111	30.4	30.4
<i>Paralichthys californicus</i>	California halibut	1	117	22.2	22.2
<i>Sardinops sagax</i>	Pacific sardine	1	165	47.7	47.7
<i>Syngnathus</i> spp.	pipefishes	1	85	0.2	0.2
<u>SHARKS/RAYS</u>					
<i>Urolophus halleri</i>	round stingray	2	119-176	87.3-378	465.1
<i>Gymnura marmorata</i>	California butterfly ray	1	395	581	580.9
<u>INVERTEBRATES</u>					
<i>Pachygrapsus crassipes</i>	striped shore crab	13	10-40	0.4-40.0	82.6
<i>Portunus xantusii</i>	Xantus' swimming crab	5	23-29	1.1-5.7	18.2
<i>Cancer productus</i>	red rock crab	2	26-30	2.5-3.7	6.2
		Total:	215		

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA050
Sample Count: 19

Survey Date: June 1 - 2, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	140	27-110	1.2-29.4	693.4
<i>Phanerodon furcatus</i>	white surfperch	19	51-78	3.1-8.7	115.6
<i>Atherinops affinis</i>	topsmelt	11	86-130	4.6-26.9	105.4
<i>Anchoa compressa</i>	deepbody anchovy	9	76-105	4.8-14.2	90.2
<i>Porichthys myriaster</i>	specklefin midshipman	6	240-280	134-281	1,152.8
<i>Seriphys politus</i>	queenfish	6	38-81	0.7-7.6	17.7
<i>Anchoa delicatissima</i>	slough anchovy	5	35-67	0.8-3.2	8.2
<i>Hyperprosopon argenteum</i>	walleye surfperch	5	51-60	3.6-5.3	22.8
<i>Paralichthys californicus</i>	California halibut	4	40-155	2.9-41.1	106.3
<i>Citharichthys stigmæus</i>	speckled sanddab	3	41-71	1.0-5.7	10.5
<i>Paralabrax clathratus</i>	kelp bass	3	57-75	3.8-6.2	15.8
<i>Genyonemus lineatus</i>	white croaker	2	82-86	9.0-10.7	19.7
<i>Heterostichus rostratus</i>	giant kelpfish	2	75-122	2.8-12.0	14.8
<i>Paralabrax nebulifer</i>	barred sand bass	2	63	4.2-5.9	10.1
<i>Atractoscion nobilis</i>	white seabass	1	441	980	980.0
<i>Hypsopsetta guttulata</i>	diamond turbot	1	55	3.0	3.0
<i>Leuresthes tenuis</i>	California grunion	1	51	1.1	1.1
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	1	250	293.0	292.5
<i>Sardinops sagax</i>	Pacific sardine	1	40	1.0	1.0
<u>SHARKS/RAYS</u>					
<i>Gymnura marmorata</i>	California butterfly ray	2	226-339	119-274	393.0
<i>Urolophus halleri</i>	round stingray	2	171-297	276-460	735.7
<i>Myliobatis californica</i>	bat ray	1	940	975	975.0
<i>Rhinobatos productus</i>	shovelnose guitarfish	1	374	160.8	160.8
<u>INVERTEBRATES</u>					
<i>Pachygrapsus crassipes</i>	striped shore crab	10	12-25	1.5-3.6	26.9
<i>Pyromaia tuberculata</i>	tuberculate pea crab	4	10-18	1.0-3.3	7.8
<i>Portunus xantusii</i>	Xantus' swimming crab	2	30-37	3.9-8.6	12.5
<i>Cancer</i> spp.	cancer crabs	1	28	3.0	3.0
Majidae	spider crabs	1	13	1.8	1.8
<i>Pugettia</i> spp.	kelp crabs	1	11	0.9	0.9
Total:		247			

Impingement Results

Encina Power Station Impingement Abundance: Traveling Screen and Bar Rack Survey Data

Survey: EPSIA051
Sample Count: 19

Survey Date: June 8 - 9, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Cymatogaster aggregata</i>	shiner surfperch	129	30-93	1.1-19.1	491.1
<i>Atherinops affinis</i>	topsmelt	28	18-209	0.8-51.2	366.3
<i>Anchoa compressa</i>	deepbody anchovy	14	24-82	0.4-7.3	28.5
<i>Paralichthys californicus</i>	California halibut	11	50-128	2.1-30.3	163.3
<i>Engraulis mordax</i>	northern anchovy	10	36-110	0.2-10.5	19.9
<i>Seriphus politus</i>	queenfish	10	68-110	4.6-19.2	95.4
<i>Porichthys myriaster</i>	specklefin midshipman	7	235-413	156-739	1,796.8
<i>Phanerodon furcatus</i>	white surfperch	4	48-67	3.2-7.6	19.6
<i>Amphistichus argenteus</i>	barred surfperch	3	60-74	5.5-10.9	25.7
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	3	81-85	8.5-13.7	35.3
<i>Strongylura exilis</i>	California needlefish	3	368-534	42.3-225	430.6
<i>Heterostichus rostratus</i>	giant kelpfish	2	80-95	3.6-6.0	9.6
<i>Sardinops sagax</i>	Pacific sardine	2	131-132	23.7-25.6	49.3
<i>Anchoa spp.</i>	anchovy	1	-	8.5	8.5
<i>Hyperprosopon argenteum</i>	walleye surfperch	1	57	4.2	4.2
<i>Hypsoblennius gentilis</i>	bay blenny	1	69	6.4	6.4
<i>Hypsopsetta guttulata</i>	diamond turbot	1	54	3.7	3.7
SHARKS/RAYS					
<i>Myliobatis californica</i>	bat ray	2	206-255	188-290	477.8
<i>Ophichthus zophochir</i>	yellow snake eel	1	787	595.0	594.6
INVERTEBRATES					
<i>Pachygrapsus crassipes</i>	striped shore crab	5	18-20	0.9-5.5	13.0
		Total:	239		

Survey: EPSIA052
Sample Count: 19

Survey Date: June 15 - 16, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Cymatogaster aggregata</i>	shiner surfperch	19	45-109	2.2-25.2	105.4
<i>Engraulis mordax</i>	northern anchovy	4	59-67	1.0-2.6	7.4
<i>Porichthys myriaster</i>	specklefin midshipman	3	230-290	142-243	594.3
<i>Atherinops affinis</i>	topsmelt	2	90-95	4.5-5.3	9.8
<i>Heterostichus rostratus</i>	giant kelpfish	2	61-95	1.3-5.6	6.9
<i>Anchoa compressa</i>	deepbody anchovy	1	-	4.2	4.2
<i>Atractoscion nobilis</i>	white seabass	1	340	411	411.0
<i>Citharichthys stigmaeus</i>	speckled sanddab	1	70	4.9	4.9
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	1	300	761.0	761.4
<i>Phanerodon furcatus</i>	white surfperch	1	60	5.8	5.8
<i>Seriphus politus</i>	queenfish	1	50	1.6	1.6
INVERTEBRATES					
<i>Pachygrapsus crassipes</i>	striped shore crab	7	15-27	0.5-6.6	18.4
<i>Portunus xantusii</i>	Xantus' swimming crab	1	35	6.1	6.1
		Total:	45		

Encina Power Station Impingement Abundance: Heat Treatment Survey Data

Survey: EPSTS001

Survey Date: July 03-04, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	6,554	47-115	2.9-31.1	31,301.3
<i>Anchoa compressa</i>	deepbody anchovy	6,439	65-120	2.2-20.5	61,726.7
<i>Atherinops affinis</i>	topsmelt	5,061	52-108	1.1-15.0	16,090.2
<i>Sardinops sagax</i>	Pacific sardine	4,401	47-106	0.8-8.5	8,798.2
<i>Heterostichus rostratus</i>	giant kelpfish	532	47-122	1.1-19.4	3,587.8
<i>Atractoscion nobilis</i>	white seabass	75	108-366	19.0-650	16,045.0
<i>Girella nigricans</i>	opaleye	72	44-221	3.0-390	6,223.0
<i>Seriphus politus</i>	queenfish	54	83-188	8.0-80.0	2,293.0
<i>Strongylura exilis</i>	California needlefish	53	102-630	1.0-480	806.0
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	49	100-358	30.0-980	8,941.7
<i>Embiotoca jacksoni</i>	black surfperch	39	82-197	17.0-270	1,754.0
<i>Porichthys myriaster</i>	specklefin midshipman	28	124-403	140-820	8,733.0
<i>Chromis punctipinnis</i>	blacksmith	26	65-163	6.0-140	720.0
<i>Hypsoblennius gentilis</i>	bay blenny	26	40-91	3.0-25.0	354.3
<i>Syngnathus</i> spp.	pipefishes	25	128-251	1.0-3.0	29.3
<i>Hypsoblennius</i> spp.	blennies	23	35-54	1.0-3.0	46.7
<i>Ophichthus zophochir</i>	yellow snake eel	14	488-790	110-650	4,750.0
<i>Roncador stearnsi</i>	spotfin croaker	12	80-145	11.0-48.0	395.0
<i>Hyperprosopon argenteum</i>	walleye surfperch	8	78-150	12.0-60.0	366.0
<i>Paralabrax nebulifer</i>	barred sand bass	8	119-252	40.0-320	819.0
<i>Hypsopsetta guttulata</i>	diamond turbot	4	195-228	210-300	980.0
<i>Hypsypops rubicundus</i>	garibaldi	3	122-169	73.0-230	523.0
<i>Trachurus symmetricus</i>	jack mackerel	3	111-142	17.0-40.0	78.0
<i>Umbrina roncadore</i>	yellowfin croaker	2	137-150	43.0-61.0	104.0
<i>Xenistius californiensis</i>	salema	2	88-98	17.0-60.0	77.0
<i>Anisotremus davidsonii</i>	sargo	1	130	44.0	44.0
<i>Cheilotrema saturnum</i>	black croaker	1	48	3.0	3.0
<i>Paraclinus integripinnis</i>	reef finspot	1	49	3.0	3.0
<i>Paralabrax clathratus</i>	kelp bass	1	157	82.0	82.0
<i>Pleuronichthys ritteri</i>	spotted turbot	1	152	98.0	98.0
Scorpaenidae	scorpionfishes	1	122	62.0	62.0
<i>Sphyrnaena argentea</i>	California barracuda	1	91	5.0	5.0
<u>SHARKS/RAYS</u>					
<i>Urolophus halleri</i>	round stingray	439	125-230	100-700	118,655.1
<i>Myliobatis californica</i>	bat ray	64	221-660	140-4,700	29,566.1
<i>Gymnura marmorata</i>	California butterfly ray	12	240-550	120-950	4,321.8
<i>Mustelus californicus</i>	gray smoothhound	1	575	520	520.0
<i>Triakis semifasciata</i>	leopard shark	1	411	260	260.0
<u>INVERTEBRATES</u>					
<i>Pachygrapsus crassipes</i>	striped shore crab	49	32-46	22.0-45.0	269.0
<i>Octopus</i> spp.	octopus	20	-	2,500.0	2,500.0
<i>Pyromaia tuberculata</i>	tuberculate pea crab	19	-	-	-
<i>Panulirus interruptus</i>	California spiny lobster	1	176	120	120.0
<i>Pugettia</i> spp.	kelp crabs	1	42	26.0	26.0
		Total:	24,127		

Encina Power Station Impingement Abundance: Heat Treatment Survey Data

Survey: EPSTS002

Survey Date: August 28, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Anchoa compressa</i>	deepbody anchovy	5,324	72-120	5.9-20.9	59,754.9
<i>Atherinops affinis</i>	topsmelt	3,201	51-100	1.0-10.6	17,701.4
<i>Cymatogaster aggregata</i>	shiner surfperch	2,801	56-104	5.0-24.5	28,011.1
<i>Sardinops sagax</i>	Pacific sardine	1,206	65-130	1.8-25.0	7,355.5
<i>Leuresthes tenuis</i>	California grunion	998	43-115	0.8-10.4	2,058.8
<i>Heterostichus rostratus</i>	giant kelpfish	299	78-185	2.9-53.6	3,440.4
<i>Seriphus politus</i>	queenfish	265	65-225	2.3-172.3	12,690.8
<i>Atractoscion nobilis</i>	white seabass	64	115-265	40.4-260.7	7,425.4
<i>Cheilotrema saturnum</i>	black croaker	38	64-155	4.8-53.2	617.9
<i>Strongylura exilis</i>	California needlefish	27	109-478	1.0-145.2	1,624.8
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	20	43-335	1.5-925	7,724.0
<i>Hypsoblennius jenkinsi</i>	mussel blenny	18	39-95	0.8-14.7	97.8
Sciaenidae unid.	croaker	17	120-200	32.8-138.0	1,212.0
<i>Chromis punctipinnis</i>	blacksmith	15	55-165	7.0-105	458.8
<i>Girella nigricans</i>	opaleye	14	55-211	4.5-321	1,567.7
<i>Scomber japonicus</i>	Pacific mackerel	14	67-187	14.5-86.8	650.0
<i>Hermosilla azurea</i>	zebra perch	13	35-68	1.1-8.7	41.8
<i>Hypsoblennius gentilis</i>	bay blenny	11	42-95	1.4-15.5	99.5
<i>Paralabrax nebulifer</i>	barred sand bass	11	160-278	82.3-490	2,866.9
<i>Syngnathus</i> spp.	pipefishes	11	154-208	1.0-2.0	16.0
<i>Ophichthus zophochir</i>	yellow snake eel	10	262-900	7.6-750	4,045.4
<i>Hypsoblennius gilberti</i>	rockpool blenny	8	55-101	3.2-29.4	77.1
<i>Paralichthys californicus</i>	California halibut	8	201-322	142-600	2,482.0
<i>Embiotoca jacksoni</i>	black surfperch	7	70-345	15.0-500	1,049.7
<i>Hypsoblennius</i> spp.	blennies	7	45-85	1.3-10.5	20.6
<i>Anisotremus davidsonii</i>	sargo	6	38-180	1.0-142	389.3
<i>Paralabrax</i> spp.	sand bass	6	43-75	1.5-5.8	18.5
<i>Xenistius californiensis</i>	salema	6	87-132	11.4-34.5	117.0
Atherinopsidae	silverside	5	47-55	1.1-2.9	11.3
<i>Pleuronichthys ritteri</i>	spotted turbot	5	197-220	200-250	1,158.0
<i>Seriola lalandi</i>	yellowtail jack	4	33-99	1.0-32.0	56.0
<i>Sphyrnaena argentea</i>	California barracuda	4	245-268	55.9-78.2	272.6
<i>Trachurus symmetricus</i>	jack mackerel	4	90-160	7.1-46.8	105.6
<i>Engraulis mordax</i>	northern anchovy	3	64-65	1.8-2.2	5.9
<i>Porichthys myriaster</i>	specklefin midshipman	3	255-328	151-260	586.0
<i>Umbrina roncadore</i>	yellowfin croaker	2	150-165	43.9-63.3	107.2
unidentified fish, damaged	unidentified damaged fish	2	165-308	21.6-200	221.6
<i>Hyperprosopon argenteum</i>	walleye surfperch	1	140	64.2	64.2
<i>Menticirrhus undulatus</i>	California corbina	1	510	1,600.0	1,600.0
<i>Paralabrax clathratus</i>	kelp bass	1	138	48.6	48.6
<i>Peprilus simillimus</i>	Pacific butterfish	1	117	33.4	33.4
SHARKS/RAYS					
<i>Urolophus halleri</i>	round stingray	198	198-355	75.0-412	39,361.7
<i>Myliobatis californica</i>	bat ray	31	230-484	200-900	12,310.0
<i>Gymnura marmorata</i>	California butterfly ray	3	265-460	120-700	1,220.0
<i>Mustelus californicus</i>	gray smoothhound	2	805-905	1,400-1,600	3,000.0
<i>Dasyatis dipterura</i>	diamond stingray	1	274	850	850.0

(table continued)

Encina Power Station Impingement Abundance: Heat Treatment Survey Data

Survey: EPSTS002 (continued)

Survey Date: August 28, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>INVERTEBRATES</u>					
<i>Lophopanopeus spp.</i>	black-clawed crabs	26	10-16	0.3-1.8	27.1
<i>Octopus spp.</i>	octopus	17	27-470	1.1-450	1,851.3
<i>Pachygrapsus crassipes</i>	striped shore crab	15	17-35	2.3-24.1	139.7
<i>Panulirus interruptus</i>	California spiny lobster	6	180-211	125-229	944.9
<i>Cancer spp.</i>	cancer crabs	5	21-32	1.7-6.2	16.9
<i>Pugettia producta</i>	northern kelp crab	2	12.5-25	1.3-8.7	10.0
<i>Pandalus spp.</i>	unidentified shrimp	1	42	0.7	0.7
		Total:	14,768		

Encina Power Station Impingement Abundance: Heat Treatment Survey Data

Survey: EPSTS003

Survey Date: October 23, 2004

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Atherinopsis californiensis</i>	jacksmelt	4,450	59-150	1.7-37.9	44,009.9
<i>Leuresthes tenuis</i>	California grunion	4,296	56-124	1.5-22.5	25,732.5
<i>Anchoa compressa</i>	deepbody anchovy	1,694	67-114	3.7-19.8	20,669.4
<i>Xenistius californiensis</i>	salema	718	40-68	1.4-7.7	1,510.9
<i>Cymatogaster aggregata</i>	shiner surfperch	512	58-96	4.5-20.5	6,092.9
<i>Sardinops sagax</i>	Pacific sardine	507	65-242	3.2-150	6,274.8
<i>Cheilotrema saturnum</i>	black croaker	249	93-132	16.8-61.5	8,408.2
<i>Paralabrax nebulifer</i>	barred sand bass	207	55-173	4.5-160.7	4,308.5
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	188	45-170	2.1-122.3	3,038.3
<i>Anisotremus davidsonii</i>	sargo	185	54-95	2.6-28.8	1,974.4
<i>Paralabrax clathratus</i>	kelp bass	128	28-96	0.6-23.2	876.0
<i>Hyperprosopon argenteum</i>	walleye surfperch	116	90-152	30.6-118.5	8,891.7
<i>Atractoscion nobilis</i>	white seabass	100	140-264	90.0-320	18,017.0
<i>Hypsoblennius</i> spp.	blennies	83	-	-	422.0
<i>Hypsoblennius jenkinsi</i>	mussel blenny	65	30-80	2.0-16.0	332.0
<i>Engraulis mordax</i>	northern anchovy	59	64-82	2.4-4.9	194.9
<i>Heterostichus rostratus</i>	giant kelpfish	58	80-200	5.1-79.4	1,531.1
<i>Medialuna californiensis</i>	halfmoon	49	43-117	2.5-54.6	1,278.5
<i>Seriphus politus</i>	queenfish	43	40-160	1.0-80.0	1,428.0
<i>Hermosilla azurea</i>	zebra perch	36	37-71	1.7-11.4	216.0
<i>Sphyaena argentea</i>	California barracuda	36	135-233	16.9-74.4	1,250.4
<i>Girella nigricans</i>	opaleye	24	49-256	2.8-740	6,270.3
<i>Seriola lalandi</i>	yellowtail jack	17	80-194	7.8-145.7	922.3
<i>Strongylura exilis</i>	California needlefish	17	400-574	80.0-360	2,650.0
<i>Ophichthus zophochir</i>	yellow snake eel	13	560-790	170-520	4,589.0
<i>Phanerodon furcatus</i>	white surfperch	11	69-120	8.6-39.3	195.0
<i>Chromis punctipinnis</i>	blacksmith	10	47-83	6.1-13.1	96.2
<i>Hyperprosopon</i> spp.	surfperch	7	-	-	552.0
<i>Embiotoca jacksoni</i>	black surfperch	6	78-163	13.7-171.1	525.3
<i>Fundulus parvipinnis</i>	California killifish	3	-	-	6.9
<i>Menticirrhus undulatus</i>	California corbina	3	210-340	110-550	860
<i>Amphistichus argenteus</i>	barred surfperch	1	96	25.4	25.4
<i>Hyporhamphus rosae</i>	California halfbeak	1	-	-	-
<i>Mugil cephalus</i>	striped mullet	1	152	53.9	53.9
<i>Pleuronichthys ritteri</i>	spotted turbot	1	185	180	180.0
<i>Sarda chiliensis</i>	Pacific bonito	1	340	540	540.0
<i>Scomber japonicus</i>	Pacific mackerel	1	250	230	230.0
<i>Trachurus symmetricus</i>	jack mackerel	1	144	39.6	39.6
<u>SHARKS/RAYS</u>					
<i>Urolophus halleri</i>	round stingray	55	230-350	130-560	13,610.0
<i>Myliobatis californica</i>	bat ray	4	280-480	320-1,700	2,930.0
<i>Mustelus californicus</i>	gray smoothhound	1	790	1,500.0	1,500.0
<u>INVERTEBRATES</u>					
<i>Pachygrapsus crassipes</i>	striped shore crab	375	20-40	1.5-10.1	2,489.6
<i>Octopus bimaculatus</i>	California two-spot octopus	74	-	2.1-230	2,805.9
<i>Octopus</i> spp.	octopus	36	-	1,562.0	1,562.0
<i>Cancer antennarius</i>	brown rock crab	18	-	18.0	18.0
<i>Cancer productus</i>	red rock crab	11	15-55	1.2-10.5	40.0
<i>Pilumnus spinohirsutus</i>	retiring hairy crab	4	9-23	0.6-2.5	4.6
<i>Pugettia producta</i>	northern kelp crab	4	21-28	1.7-4.3	11.3
<i>Portunus xantusii</i>	Xantus' swimming crab	2	45	4.0-6.1	10.1
<i>Panulirus interruptus</i>	California spiny lobster	1	21	8.1	8.1
Total:		14,482			

Encina Power Station Impingement Abundance: Heat Treatment Survey Data

Survey: EPSTS004

Survey Date: February 13-14, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
FISHES					
<i>Atherinops affinis</i>	topsmelt	3,847	62-151	1.5-90.0	17,444.3
Atherinopsidae	silverside	2,100	-	-	8,650.0
<i>Hyperprosopon argenteum</i>	walleye surfperch	1,828	110-177	34.9-135	80,128.0
<i>Atractoscion nobilis</i>	white seabass	1,375	104-352	65.5-600	289,213.3
<i>Anchoa compressa</i>	deepbody anchovy	643	58-122	1.9-18.8	5,786.5
<i>Xenistius californiensis</i>	salema	602	43-70	1.4-10.0	2,102.3
<i>Sardinops sagax</i>	Pacific sardine	437	45-184	1.6-71.0	3,190.0
<i>Paralabrax nebulifer</i>	barred sand bass	416	50-127	2.4-43.4	3,323.5
<i>Cymatogaster aggregata</i>	shiner surfperch	343	11-134	1.1-72.8	10,082.7
<i>Leuresthes tenuis</i>	California grunion	330	56-82	1.4-4.8	706.0
<i>Paralabrax clathratus</i>	kelp bass	293	53-102	2.2-20.5	2,397.8
<i>Hypsoblennius gentilis</i>	bay blenny	288	38-102	1.3-23.7	1,334.3
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	271	43-265	1.4-440	3,222.3
<i>Anisotremus davidsonii</i>	sargo	195	49-352	3.4-1,300	33,558.2
<i>Girella nigricans</i>	opaleye	171	28-240	1.6-510	2,674.8
<i>Seriphus politus</i>	queenfish	57	38-292	0.1-225	641.0
<i>Atherinopsis californiensis</i>	jacksmelt	18	112-299	10.9-210	1,142.0
<i>Roncador stearnsi</i>	spotfin croaker	13	238-555	300-3,400	13,831.0
<i>Hypsopsetta guttulata</i>	diamond turbot	12	36-246	1.0-350	2,694.6
<i>Syngnathus</i> spp.	pipefishes	12	146-233	0.3-4.4	20.5
<i>Chromis punctipinnis</i>	blacksmith	11	46-102	2.2-79.5	179.2
<i>Ophichthus zophochir</i>	yellow snake eel	11	394-758	32.7-470	3,222.7
<i>Embiotoca jacksoni</i>	black surfperch	10	105-255	40.9-600	1,403.2
<i>Amphistichus argenteus</i>	barred surfperch	9	96-227	27.3-377.6	680.4
<i>Heterostichus rostratus</i>	giant kelpfish	9	90-225	5.1-110.0	322.1
<i>Genyonemus lineatus</i>	white croaker	8	80-95	8.2-14.3	68.8
<i>Anchoa delicatissima</i>	slough anchovy	7	51-60	0.9-1.9	9.7
Chub, unid.	unid. chub	7	68-81	4.5-7.8	43.7
<i>Hermosilla azurea</i>	zebra perch	7	50-365	2.8-590	2,481.3
<i>Brachyistius frenatus</i>	kelp surfperch	6	76-120	11.0-55.8	198.4
<i>Engraulis mordax</i>	northern anchovy	6	80-125	3.8-15.2	54.1
<i>Pleuronichthys ritteri</i>	spotted turbot	5	200-230	215-250	1,145.0
<i>Mugil cephalus</i>	striped mullet	4	345-400	800-1,100	3,800.0
<i>Phanerodon furcatus</i>	white surfperch	4	112-126	37.7-55.0	190.4
<i>Umbrina roncadore</i>	yellowfin croaker	4	185-280	70.0-300	730.0
<i>Paraclinus integripinnis</i>	reef finspot	3	58-70	2.0-4.0	9.2
<i>Paralichthys californicus</i>	California halibut	3	222-350	113-700	1,433.0
<i>Sphyrnaea argentea</i>	California barracuda	3	167-222	21.9-65.0	127.6
<i>Trachurus symmetricus</i>	jack mackerel	3	95-110	10.0-17.0	42.4
<i>Fundulus parvipinnis</i>	California killifish	2	7.5-7.8	0.4	0.8
<i>Porichthys myriaster</i>	specklefin midshipman	2	395-396	820-900	1,720.0
<i>Strongylura exilis</i>	California needlefish	2	480-490	120-150	270.0
<i>Albula vulpes</i>	bonefish	1	380	900	900.0
<i>Citharichthys</i> spp.	sanddabs	1	-	3.4	3.4
<i>Medialuna californiensis</i>	halfmoon	1	234	410	410.0
<i>Sarda chiliensis</i>	Pacific bonito	1	-	0.1	0.1
Scorpaenidae	scorpionfishes	1	44	1.9	1.9
unidentified fish, damaged	unidentified damaged fish	-	-	-	1,543.2

(table continued)

Encina Power Station Impingement Abundance: Heat Treatment Survey Data

Survey: EPSTS004 (continued)

Survey Date: February 13-14, 2005

<u>Taxon</u>	<u>Common Name</u>	<u>Survey Count</u>	<u>Length Range (mm)</u>	<u>Weight Range (g)</u>	<u>Total Weight (g)</u>
<u>SHARKS/RAYS</u>					
<i>Urolophus halleri</i>	round stingray	10	135-245	101-530	2,576.1
<i>Myliobatis californica</i>	bat ray	4	335-460	200-1,500	3,130.0
<i>Gymnura marmorata</i>	California butterfly ray	2	430-450	800	1,600.0
<u>INVERTEBRATES</u>					
<i>Portunus xantusii</i>	Xantus' swimming crab	44	20-67	1.1-34.4	337.5
<i>Cancer jordani</i>	hairy rock crab	18	28-47	3.2-16.3	85.5
<i>Octopus bimaculatus</i>	California two-spot octopus	11	19-180	12-590	2,424.3
<i>Pachygrapsus crassipes</i>	striped shore crab	9	13-23	1.0-4.4	16.6
<i>Cancer antennarius</i>	brown rock crab	8	40-50	14.9-27.8	138.2
<i>Cancer magister</i>	dungeness crab	1	50	18.1	18.1
Caridean unid.	unidentified shrimp	1	-	-	-
<i>Octopus</i> spp.	octopus	1	30	300	300.0
<i>Pandalus</i> spp.	unidentified shrimp	1	12	2.3	2.3
<i>Panulirus interruptus</i>	California spiny lobster	1	93	150	150.0
<i>Pugettia producta</i>	northern kelp crab	1	17	1.8	1.8
		Total:	13,494		

Encina Power Station Impingement Abundance: Heat Treatment Survey Data

Survey: EPSTS005					
Survey Date: April 10, 2005					
Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Cymatogaster aggregata</i>	shiner surfperch	2,372	90-120	18.0-46.0	93,799.4
<i>Leuresthes tenuis</i>	California grunion	1,443	75-145	3.5-37.9	12,351.6
<i>Anchoa compressa</i>	deepbody anchovy	1,112	58-120	2.0-21.0	10,598.8
<i>Paralabrax nebulifer</i>	barred sand bass	508	54-97	2.6-98.0	4,270.9
<i>Seriphus politus</i>	queenfish	306	56-152	3.1-49.6	2,284.2
<i>Hyperproson argenteum</i>	walleye surfperch	298	101-167	30.2-119	19,132.6
<i>Paralabrax clathratus</i>	kelp bass	181	50-94	3.4-18.3	1,546.0
<i>Anisotremus davidsonii</i>	sargo	180	55-100	3.6-30.3	22,582.2
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	139	50-185	3.0-140.3	2,564.2
<i>Hypsoblennius jenkinsi</i>	mussel blenny	92	25-90	1.1-11.6	516.3
<i>Umbrina roncadore</i>	yellowfin croaker	90	73-290	7.4-474.2	20,568.5
<i>Xenistius californiensis</i>	salema	90	50-74	2.1-7.4	409.2
<i>Girella nigricans</i>	opaleye	72	33-197	1.4-309	13,859.1
<i>Hypsopsetta guttulata</i>	diamond turbot	51	75-260	11.2-424	11,199.9
<i>Hypsoblennius gentilis</i>	bay blenny	27	65-105	4.5-23.5	172.7
<i>Porichthys myriaster</i>	specklefin midshipman	24	320-440	100-1,300	20,380.0
<i>Amphistichus argenteus</i>	barred surfperch	19	110-130	26.2-66.4	1,562.7
<i>Chromis punctipinnis</i>	blacksmith	12	60-115	6.4-41.2	294.7
<i>Brachyistius frenatus</i>	kelp surfperch	9	95-145	20.9-65.7	324.9
<i>Strongylura exilis</i>	California needlefish	9	336-490	45.5-148.4	733.3
<i>Engraulis mordax</i>	northern anchovy	7	67-120	2.9-16.5	41.6
<i>Hermosilla azurea</i>	zebra perch	6	104-249	16.2-535	778.7
<i>Syngnathus</i> spp.	pipefishes	5	160-340	1.4-12.5	20.4
<i>Roncadore stearnsi</i>	spotfin croaker	4	85-285	10.5-407	574.8
<i>Atractoscion nobilis</i>	white seabass	3	251-320	211-440	1,010.5
<i>Embiotoca jacksoni</i>	black surfperch	3	55-138	5.0-103	199.6
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	3	60-65	3.0-5.0	12.9
<i>Medialuna californiensis</i>	halfmoon	3	117-147	43.6-77.6	175.5
<i>Trachurus symmetricus</i>	jack mackerel	3	115-430	15.9-270	360.5
<i>Ophichthus zophochir</i>	yellow snake eel	2	379-664	29.4-319	348.7
<i>Citharichthys stigmaeus</i>	speckled sanddab	1	115	29.5	29.5
<i>Fundulus parvipinnis</i>	California killifish	1	53	3.2	3.2
<i>Genyonemus lineatus</i>	white croaker	1	79	10.0	10.0
<i>Halichoeres semicinctus</i>	rock wrasse	1	124	32.5	32.5
<i>Heterostichus rostratus</i>	giant kelpfish	1	176	46.1	46.1
<i>Menticirrhus undulatus</i>	California corbina	1	305	430	430.0
<i>Phanerodon furcatus</i>	white surfperch	1	115	56.0	56.0
<i>Pleuronichthys ritteri</i>	spotted turbot	1	175	163.7	163.7
<i>Pleuronichthys verticalis</i>	hornyhead turbot	1	55	3.7	3.7
<u>SHARKS/RAYS</u>					
<i>Urolophus halleri</i>	round stingray	25	100-450	50.0-634	8,199.8
<i>Gymnura marmorata</i>	California butterfly ray	12	256-568	150-1,714	6,682.1
<i>Myliobatis californica</i>	bat ray	6	258-420	230-2,189	5,049.5
<i>Heterodontus francisci</i>	horn shark	1	460	850	850.0
<i>Mustelus californicus</i>	gray smoothhound	1	975	1,800.0	1,800.0

(table continued)

Encina Power Station Impingement Abundance: Heat Treatment Survey Data

Survey: EPSTS005 (continued)

Survey Date: April 10, 2005

<u>Taxon</u>	<u>Common Name</u>	<u>Survey Count</u>	<u>Length Range (mm)</u>	<u>Weight Range (g)</u>	<u>Total Weight (g)</u>
<u>INVERTEBRATES</u>					
<i>Pachygrapsus crassipes</i>	striped shore crab	38	8-43	0.1-45.1	125.2
<i>Cancer spp.</i>	cancer crabs	31	20-30	1.2-3.4	70.4
<i>Portunus xantusii</i>	Xantus' swimming crab	13	20-50	2.1-18.1	95.4
<i>Octopus bimaculatus</i>	California two-spot octopus	6	25-80	5.6-100	233.7
<i>Pugettia producta</i>	northern kelp crab	2	20-30	4.0-11.5	15.5
<i>Cancer antennarius</i>	brown rock crab	1	46	14.2	14.2
<i>Crangon nigromaculata</i>	spotted bay shrimp	1	60	3.7	3.7
Total:		7,219			

Encina Power Station Impingement Abundance: Heat Treatment Survey Data

Survey: EPSTS006

Survey Date: June 05, 2005

Taxon	Common Name	Survey Count	Length Range (mm)	Weight Range (g)	Total Weight (g)
<u>FISHES</u>					
<i>Anchoa compressa</i>	deepbody anchovy	8,144	29-130	1.3-24.3	95,729.6
<i>Cymatogaster aggregata</i>	shiner surfperch	5,779	37-100	1.1-28.1	50,780.1
<i>Atherinops affinis</i>	topsmelt	3,587	30-105	0.2-12.5	16,261.1
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	869	52-204	3.2-255	82,072.6
<i>Paralabrax nebulifer</i>	barred sand bass	843	60-115	5.4-42.0	17,169.5
<i>Anisotremus davidsonii</i>	sargo	396	44-135	1.2-42.6	9,980.1
<i>Paralabrax clathratus</i>	kelp bass	372	45-136	2.1-63.1	8,328.2
<i>Hyperprosopon argenteum</i>	walleye surfperch	296	20-159	0.3-300	16,851.8
<i>Seriphus politus</i>	queenfish	204	26-170	2.1-105	2,053.4
<i>Porichthys myriaster</i>	specklefin midshipmar	161	190-440	49.3-1,085	35,440.5
<i>Xenistius californiensis</i>	salema	159	45-175	4.7-60.5	1,937.9
<i>Hypsoblennius gentilis</i>	bay blenny	88	50-100	2.4-19.0	853.0
<i>Chromis punctipinnis</i>	blacksmith	77	60-186	8.0-100	2,682.2
<i>Roncador stearnsi</i>	spotfin croaker	77	85-140	15.1-55.2	2,359.5
<i>Strongylura exilis</i>	California needlefish	50	260-543	28.4-294	5,815.3
<i>Hypsopsetta guttulata</i>	diamond turbot	45	121-300	146-374	9,509.2
<i>Phanerodon furcatus</i>	white surfperch	37	60-100	5.0-23.1	381.5
<i>Umbrina roncadore</i>	yellowfin croaker	29	95-125	16.3-42.7	889.7
<i>Sardinops sagax</i>	Pacific sardine	27	70-178	1.8-56.5	648.0
<i>Engraulis mordax</i>	northern anchovy	17	36-129	0.7-19.4	77.5
<i>Menticirrhus undulatus</i>	California corbina	11	125-388	30.4-806	2,034.7
<i>Fundulus parvipinnis</i>	California killifish	10	-	-	30.2
<i>Paralichthys californicus</i>	California halibu	10	72-264	6.7-172	854.2
<i>Heterostichus rostratus</i>	giant kelpfish	9	60-203	1.1-75.2	160.8
<i>Amphistichus argenteus</i>	barred surfperch	5	60-160	6.2-75.2	259.3
<i>Embiotoca jacksoni</i>	black surfperch	4	65-155	15.2-151	435.1
<i>Syngnathus</i> spp.	pipefishes	3	20-217	0.4-1.8	3.8
<i>Brachyistius frenatus</i>	kelp surfperch	2	115-130	23.1-51.9	75.0
<i>Girella nigricans</i>	opaleye	2	160-180	87.6-140.9	228.5
<i>Hypsypops rubicundus</i>	garibaldi	2	222-232	668-705	1,373.7
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	2	75	5.2-8.3	13.5
<i>Sphyrnaena argentea</i>	California barracuda	2	95-105	4.7-6.6	11.3
<i>Atractoscion nobilis</i>	white seabass	1	252	345.0	344.8
<i>Ophichthus zophochir</i>	yellow snake eel	1	650	347	347.0
<i>Pleuronichthys verticalis</i>	hornyhead turbot	1	197	248.0	247.7
<i>Trachurus symmetricus</i>	jack mackerel	1	200	75.8	75.8
Zoarcidae	eelpouts	1	152	17.1	17.1
<u>SHARKS/RAYS</u>					
<i>Urolophus halleri</i>	round stingray	363	105-239	54.3-800	118,389.8
<i>Gymnura marmorata</i>	California butterfly ray	41	244-609	182-1,629	22,997.3
<i>Myliobatis californica</i>	bat ray	23	226-649	205-1,925	15,585.9
<i>Mustelus californicus</i>	gray smoothhound	17	460-882	225-2,100	13,056.0
<i>Dasyatis dipterura</i>	diamond stingray	1	275	618.0	617.6
<i>Triakis semifasciata</i>	leopard shark	1	455	428.0	428.4
<u>INVERTEBRATES</u>					
<i>Cancer productus</i>	red rock crab	491	10-55	1.8-12.8	2,835.9
<i>Pachygrapsus crassipes</i>	striped shore crab	8	19-29	3.7-10.5	61.3
Majidae	spider crabs	6	10-15	2.1-5.2	20.2
<i>Octopus</i> spp.	octopus	2	20-45	9.7-86.2	95.9
<i>Pugettia producta</i>	northern kelp crab	2	22-30	2.4-5.4	7.8
Total:		22,279			