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Data and Quality Assurance/Quality Control Report For Trace Metals

Coastal Fish Contaminant Project Year 2, 1999-2000

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Quality Assurance/Quality Control Report
For Trace Metals
Coastal Fish Contaminant Project Year 2, 1999-2000

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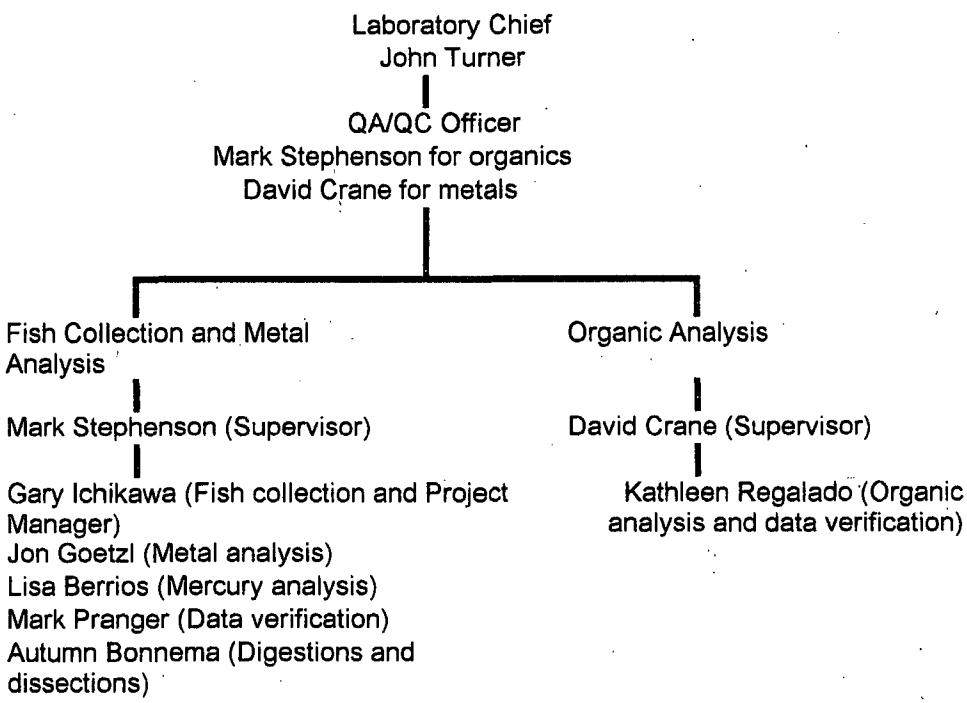
Introduction

In July 1998, the State Water Resources Control Board (SWRCB) initiated the Coastal Fish Contamination Project. By February 1999, the planning phase was completed and the Department of Fish and Game (DFG) initiated the field work. The purpose of the program was twofold: 1: Determine if sport-caught fish contained concentrations of pollutants that were too high for human consumption based on the Office of Environmental Health Hazard Assessment (OEHHA) criteria and, if so, OEHHA would issue health advisories, and 2: Determine if the concentration of pollutants in sport-caught fish was increasing or decreasing. This report contains the QA/QC evaluation of the trace metal data from the second year of the program. Trace metal results from the first year are contained in a previous document. The station information and analysis results are listed in Appendix A by order of the region.

Laboratory Organization

The Department of Fish and Game was contracted to conduct the study for the State Water Resources Control Board and coastal Regional Water Quality Control Boards. This involved catching the fish and analyzing the samples for pollutants. The organizational chart is as follows:



Description of Methods:

The Field Sampling Methods Standard Operating Procedures (SOPs) and the Analytical Methods SOPs are contained in the Department of Fish and Game Quality Assurance Plan for the Marine Pollution Studies Laboratories (Moss Landing, CA) and the Water Pollution Control Laboratory (Nimbus, CA), which are available by request from David Crane or Mark Stephenson.

Standard collection and laboratory procedures were followed in preparing samples. Fish collected that were too large to fit in our clean bags (>500 mm) were initially dissected in the field. A large cross section from behind the pectoral fins to the gut was saved. These sections were wrapped in Teflon®, double bagged and packed in dry ice before transfer to the freezer. During lab dissection, a subsection of the filet was removed, discarding any tissue exposed by field dissection.

Sampling SOPs call for the smallest fish in a sample to be no less then 75% of the largest fish. Four samples analyzed were outside this range, indicated by a Y in the >25% column in Appendix A. Three of these samples were within 70% of the largest fish size. Weights and lengths for individual fish and crabs are given in Appendix A. For bivalves, fifteen were chosen at random from each sample for length measurements. Total weights, final weight of all individuals, were reported in Appendix A. Samples were analyzed for arsenic, cadmium, mercury and selenium.

QAPP and Control Limits

A Quality Assurance Project Plan (QAPP) has not yet been written for this program. In lieu of this document, the QA/QC parameters for collection and analysis are contained in the Department of Fish and Game Quality Assurance Plan for each lab as described in the preceding paragraph. In addition, guidelines that are specific to fish contamination studies have been modified from the EPA document entitled "Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories. Volume 1. Fish Sampling and Analysis. Second edition. 1995." The control limits adapted from this document are found in Table 1. These limits have been agreed to by DFG, OEHHA, and SWRCB, and are the interim parameters until a QAPP can be written.

Table 1. QA Control Limits for Coastal Fish Contaminant Year 1

Sample Type (definition)	Frequency of Analysis	Recommended Control Limits	Recommended Corrective Action
External Calibration Calibration Standards (3-5 standards over the expected range of sample target analyte conc., with the lowest conc. Std at or near the MDL)	Follow manufacturer's or procedures in specific analytical protocols. A min., 3 point calib. Each set up, major disruption, and when routine calib check exceeds specific control limits	Linear regression, r>0.995	Determine cause and take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data
Continuing Calibration Verification (CCV) Calibration Check Standards (*minimum of one mid-range* standard prepared independently from initial calibration standards: an instrument internal standard must be added to each calib. check std. when internal std. calib. is being used)	After initial calibration (ICV) *or recalibration.* Every 10 samples (CCV) or every 2 hr., whichever is more frequent	Mercury %R = 80-120%, all other metals %R = 90-110%	Determine cause and take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data
Method Detection Limit Determination Spiked matrix samples (analyte-free tissue samples to which known amounts of target analytes have been added; one spike for each target analyte at 3-10 times the estimated MDL)	Seven replicate analyses prior to use of method. Reevaluation of MDL annually	MDLs (in ppm, dry weight) are as follows; Arsenic 0.1, Cadmium 0.01, Mercury 0.06, Selenium 0.1	Redetermine MDL

.001

0.015

How about wet wt ??

(2) are wet wt Ok ?

Table 1 (continued)

Sample Type	Frequency of Analysis	Recommended Control Limits	Recommended Corrective Actions
Accuracy and Precision Assessment			
Reference materials (SRMs or CRMs, prepared from actual contaminated fish or shellfish tissue if possible, covering the range of expected target analyte conc.)	Method validation: As many as required to assess accuracy and precision of method before routine analysis of samples. Routine accuracy assessment: one per 20 samples or one per batch.	Method validation and Routine accuracy assessment: %R = 75-125%	If matrix spikes are in control then proceed. If not, determine cause and take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data
Matrix spikes (MS) (composite tissue homogenates of field samples to which known amounts of target analytes have been added: 0.5 to 10 times the concentration of the analyte of interest or 10 times the MQL).	One per 20 samples or one per batch, whichever is more frequent.	%R = 75-125%	If SRMs are in control then proceed. If not, determine cause and take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data. Zero percent recovery requires rejection of all suspect data.
Matrix spike replicates (replicate aliquots of matrix spike samples; 0.5 to10 times the concentration of the analyte of interest or 10 times the MQL.). MS-MSD	One duplicate per 20 samples or one per batch, whichever is more frequent.	RPD <25% for duplicates.	Determine cause and take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data
Laboratory replicates (replicate aliquots of composite tissue homogenates of field samples).	One replicate (duplicate) sample per 20 samples or one per batch, whichever is more frequent.	RPD <25% for duplicates.	Determine cause and take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data

Table 1 (continued)

Sample Type	Frequency of Analysis	Recommended Control Limits	Recommended Corrective Actions
Analytical replicates (replicate aliquots of final sample extract or digestate)	One duplicate per 20 samples or one per batch, if laboratory replicates are out of control	RPD <25% for replicates.	Determine cause of problem, take appropriate corrective action, and reanalyze sample
Field replicates (replicate composite tissue samples)	No field replicates for the screening sites. The number of replicates used in the health risk assessment sites will be determined by consensus of program manager, OEHHA, State and Regional Board.		Determined by program manager
External QA Assessment			
Accuracy-based performance evaluation samples (NOAA intercalibration)	Once prior to routine analysis of field samples	%R=85-115%	Determine cause of problem and reanalyze sample
	One exercise per year	%R = 75-125%	Determine cause of problem and reanalyze sample. Do not continue analysis of field samples until laboratory capability is clearly demonstrated

General Provisions

For a data set to be considered acceptable the CCV Recoveries must be within control limits and either the SRM or spiked matrix recoveries must also be within control limits

Quality Assurance and Quality Control

The following summarizes the results of the main QA/QC parameters for trace metals that are shown in Table 2. For this data set, the mercury and other trace metals were analyzed in four batches. Appendix B lists the batch number for mercury and the other metals and the samples associated with each batch.

Accuracy

Mercury

The QA/QC parameters for accuracy include SRM and spiked matrix recoveries. They were within control limits (75-125%) 8 of 8 times for the SRMs and 13 of 16 times for spiked matrices. The three matrix spikes out of range were from Hg Batch 3. This batch contained acceptable SRM percent recoveries. Using the General Provisions at the bottom of Table 1, that the CCVs and either the SRMs or spiked matrix had to be within the control limits, the data sets passed QA/QC for accuracy.

Arsenic, Selenium, and Cadmium

All SRMs for arsenic and cadmium were within control limits. One SRM for selenium was out of the percent recovery range in TM Batch 1 (139%). For this batch and all other batches matrix spike samples were within control limits (75-125%). Overall, the accuracy QA/QC checks were very good and the out of control measurements were rare and not thought to affect data quality.

Precision

The QA/QC parameters for precision are sample, SRM, and spiked matrix duplicates relative percent differences (RPDs). Only 2 of 60 RPDs were out of range (>25%). Both RPDs were for selenium sample duplicates, one in TM Batch 1 (48.9%) and one in TM Batch 2 (33.7%). Both of these batches had a second sample duplicate that was within control limits as well as three other RPDs from matrix spikes and SRMs.

SRM duplicate RPDs were within control limits 12 of 12 times. These were not required in our agreed upon QA/QC parameters, but makes the data quality better. Overall, the precision QA/QC checks were very good and the out of control measurements were rare and not thought to affect data quality.

Continuing Calibration Verification

The continuing calibration verifications were all within the control limits (90-110 for trace metals other than mercury, 80-120 % for mercury).

Table 2. QA/QC values for trace metal analysis reported in µg/g dry weight.

Mercury Batch 1

Sample		Mercury Conc.	Recovery %
	MDL	0.0600	
	RL	0.180	
		ppm	
SRM			
	Certified Value ±	4.64 0.260	
DORM2 (50)		4.72	102%
DORM2 (51)		4.91	106%
	RPD	3.95	
Duplicates			
99-1059		0.578	
99-1059-D		0.510	
	RPD	12.5	
99-1139		0.227	
99-1139-D		0.229	
	RPD	0.877	
Blank			
Blank-317		-0.0600	
Blank-318		-0.0600	
MS/MSD			
99-1059		0.578	
99-1059-SP		2.55	109%
99-1059-SP-D		2.37	102%
	RPD	7.32	
99-1139		0.227	
99-1139-SP		1.16	101%
99-1139-SP-D		1.13	96.0%
	RPD	2.62	
Continuing Calibration Verification (ppb)			
Standard Concentration		1000	
CCV-57		1072	
CCV-58		1048	
CCV-59		1014	
CCV-60		1045	

Mercury Batch 2

Sample		Mercury Conc.	Recovery %
	MDL	0.0600	
	RL	0.180	
		ppm	
SRM			
	Certified Value ±	4.64 0.260	
DORM2 (52)		4.67	101%
DORM2 (53)		4.43	95.5%
	RPD	5.25	
Duplicates			
99-1257		0.137	
99-1257-D		0.155	
	RPD	12.3	
99-1993		0.100	
99-1993-D		0.106	
	RPD	5.83	
Blank			
Blank-319		-0.0600	
Blank-320		-0.0600	
MS/MSD			
99-1257		0.137	
99-1257-SP		0.498	84.7%
99-1257-SP-D		0.553	97.4%
	RPD	10.5	
99-1993		0.100	
99-1993-SP		0.397	102%
99-1993-SP-D		0.414	101%
	RPD	4.19	
Continuing Calibration Verification (ppb)			
Standard Concentration		1000	
CCV-62		1061	
CCV-63		1014	
CCV-64		1007	

Mercury Batch 3

Sample		Mercury Conc.	Recovery %
	MDL	0.0600	
	RL	0.180	
		ppm	
SRM			
	Certified Value ±	4.64 0.260	
DORM2 (54)		4.93	106%
DORM2 (55)		4.81	104%
	RPD	2.46	
Duplicates			
99-1495		0.242	
99-1495-D		0.234	
	RPD	3.36	
99-1248		0.558	
99-1248-D		0.591	
	RPD	5.74	
Blank			
Blank-321		-0.0600	
Blank-322		-0.0600	
MS/MSD			
99-1495		0.242	
99-1495-SP		1.36	174%
99-1495-SP-D		1.35	170%
	RPD	0.738	
99-1248		0.558	
99-1248-SP		1.84	74.5%
99-1248-SP-D		2.25	97.9%
	RPD	20.0	
Continuing Calibration Verification (ppb)			
Standard Concentration		1000	
CCV-67		1060	
CCV-68		1060	
CCV-69		1045	

Mercury Batch 4

Sample		Mercury Conc.	Recovery %
	MDL	0.0600	
	RL	0.180	
		ppm	
SRM			
	Certified Value ±	4.64 0.260	
DORM2 (62)		5.39	116%
DORM2 (63)		5.44	117%
	RPD	0.923	
Duplicates			
99-1089		0.118	
99-1089-D		0.114	
	RPD	3.45	
99-664		0.546	
99-664-D		0.667	
	RPD	20.0	
Blank			
Blank-329		-0.0600	
Blank-330		-0.0600	
MS/MSD			
99-1089		0.118	
99-1089-SP		0.419	98.9%
99-1089-SP-D		0.439	104%
	RPD	4.66	
99-664		0.546	
99-664-SP		2.22	103%
99-664-SP-D		2.18	101%
	RPD	1.82	
Continuing Calibration Verification (ppb)			
Standard Concentration		1000	
CCV-71		1019	
CCV-72		1029	
CCV-73		1002	
CCV-74		1019	

Table 2. Continued

Batch 1

Sample	Arsenic Conc.	% Recovery	Cadmium Conc.	% Recovery	Selenium Conc.	% Recovery
MDL	0.100		0.0100		0.100	
RL	0.300		0.0300		0.300	
	ppm		ppm		ppm	
SRM						
Certified	18.0		0.0430		1.40	
Value ±	1.10		0.00800		0.0900	
DORM2-50	15.8	87.8%	0.0400	93.0%	1.60	114%
DORM2-51	16.0	88.9%	0.0430	100%	1.94	139%
RPD	1.26		7.23		19.2	
Duplicates						
99-1059	2.53		-0.0100		1.06	
99-1059-D	2.70		-0.0100		1.16	
RPD	6.50		0.000		9.01	
99-1139	11.3		7.60		3.63	
99-1139-D	11.9		7.60		5.98	
RPD	5.17		0.00		48.9	
Blank						
Blank-317	-0.100		-0.0100		-0.100	
Blank-318	-0.100		-0.0100		-0.100	
MS/MSD						
99-1059	2.53		-0.0100		1.06	
99-1059-SP	11.5	93.0%	0.220	81.0%	5.04	84.0%
99-1059-SP-D	11.8	90.0%	0.210	87.0%	5.25	80.0%
RPD	2.58		4.65		4.08	
99-1139	11.3		7.60		3.63	
99-1139-SP	107	91.0%	16.3	91.0%	15.3	116%
99-1139-SP-D	105	92.0%	16.8	95.0%	16.0	124%
RPD	1.89		3.02		4.47	
Continuing Calibration Verification (ppb)						
Standard Concentration	100		100		100	
CCV-45	100		100		100	
CCV-46	99		100		101	
CCV-47	100		100		100	
CCV-48	100		99		102	

Batch 2

Sample	Arsenic Conc.	% Recovery	Cadmium Conc.	% Recovery	Selenium Conc.	% Recovery
MDL	0.100		0.0100		0.100	
RL	0.300		0.0300		0.300	
	ppm		ppm		ppm	
SRM						
Certified	18.0		0.0430		1.40	
Value ±	1.10		0.00800		0.0900	
DORM2-52	15.9	88.3%	0.0400	93.0%	1.30	92.9%
DORM2-53	15.9	88.3%	0.0350	81.4%	1.43	102%
RPD	0.00		13.3		9.52	
Duplicates						
99-1257	1.77		-0.0100		0.840	
99-1257-D	2.13		-0.0100		1.18	
RPD	18.5		0.000		33.7	
99-1993	3.48		-0.0100		1.39	
99-1993-D	3.40		-0.0100		1.42	
RPD	2.33		0.00		2.14	
Blank						
Blank-319	-0.100		-0.0100		-0.100	
Blank-320	-0.100		-0.0100		-0.100	
MS/MSD						
99-1257	1.77		-0.0100		0.840	
99-1257-SP	9.83	94.0%	0.190	88.0%	4.88	95.0%
99-1257-SP-D	10.0	97.0%	0.180	87.0%	4.63	89.0%
RPD	1.71		5.405		5.26	
99-1993	3.48		-0.0100		1.39	
99-1993-SP	12.5	95.0%	0.210	85.0%	5.69	91.0%
99-1993-SP-D	12.6	96.0%	0.220	92.0%	5.59	88.0%
RPD	0.797		4.65		1.77	
Continuing Calibration Verification (ppb)						
Standard Concentration	100		100		100	
CCV-50	100		99		104	
CCV-51	99		101		98	
CCV-52	99		100		100	
CCV-53	100		101		104	

Table 2. Continued

Batch 3

Sample		*Arsenic* Conc.	% Recovery	*Cadmium* Conc.	% Recovery	*Selenium* Conc.	% Recovery
	MDL	0.100		0.0100		0.100	
	RL	0.300		0.0300		0.300	
		ppm		ppm		ppm	
SRM							
	Certified	18.0		0.0430		1.40	
	Value ±	1.10		0.00800		0.0900	
DORM2-54		17.5	97.2%	0.0430	100.0%	1.46	104%
DORM2-55		17.6	97.8%	0.0420	98%	1.65	118%
	RPD	0.570		2.35		12.2	
Duplicates							
99-1495		21.4		0.0100		1.78	
99-1495-D		21.60		0.0100		1.61	
	RPD	0.930		0.000		10.0	
99-1248		4.25		0.010		1.38	
99-1248-D		4.35		0.010		1.56	
	RPD	2.33		0.00		12.2	
Blank							
Blank-321		-0.100		-0.0100		-0.100	
Blank-322		-0.100		-0.0100		-0.100	
MS/MSD							
99-1495		21.4		0.0100		1.78	
99-1495-SP		117	89.0%	0.240	87.0%	6.01	79.0%
99-1495-SP-D		117	90.0%	0.230	83.0%	5.99	79.0%
	RPD	0.00		4.26		0.333	
99-1248		4.25		0.010		1.38	
99-1248-SP		14.2	93.0%	0.230	82.0%	5.92	85.0%
99-1248-SP-D		14.1	92.0%	0.240	83.0%	5.88	84.0%
	RPD	0.707		4.26		0.678	
Continuing Calibration Verification (ppb)							
Standard Concentration		100		100		100	
CCV-56		99		100		103	
CCV-57		99		100		100	
CCV-58		99		100		102	
CCV-59		101		100		100	

Batch 4

Sample		Arsenic Conc.	% Recovery	Cadmium Conc.	% Recovery	Selenium Conc.	% Recovery
	MDL	0.100		0.0100		0.100	
	RL	0.300		0.0300		0.300	
		ppm		ppm		ppm	
SRM							
	Certified	18.0		0.0430		1.40	
	Value ±	1.10		0.00800		0.0900	
DORM2-62		17.9	99.4%	0.0450	105%	1.50	107%
DORM2-63		17.6	97.8%	0.0390	90.7%	1.51	108%
	RPD	1.69		14.3		0.664	
Duplicates							
99-1089		5.43		-0.0100		1.57	
99-1089-D		5.36		-0.0100		1.52	
	RPD	1.30		0.000		3.24	
00-0664		8.92		-0.0100		1.41	
00-0664-D		8.89		-0.0100		1.42	
	RPD	0.337		0.000		0.707	
Blank							
Blank-329		-0.100		-0.0100		-0.100	
Blank-330		-0.100		-0.0100		-0.100	
MS/MSD							
99-1089		5.43		-0.0100		1.57	
99-1089-SP		12.9	94.0%	0.176	88.0%	4.67	82.0%
99-1089-SP-D		12.3	92.0%	0.168	86.0%	4.43	81.0%
	RPD	4.76		4.65		5.27	
00-0664		8.92		-0.0100		1.41	
00-0664-SP		75.0	92.0%	0.169	92.0%	4.38	87.0%
00-0664-SP-D		71.2	91.0%	0.159	90.0%	4.11	83.0%
	RPD	5.20		6.10		6.36	
Continuing Calibration Verification (ppb)							
Standard Concentration		50		50		50	
CCV-62		51		51		49	
CCV-63		51		50		51	
CCV-64		51		49		51	
CCV-65		51		50		51	

Frequency of analysis of QA/QC parameters

The requirements for frequency of analysis outlined in Table 1 have been met for all the parameters listed.

Completeness

The samples were analyzed for all the trace metal contaminants required and all batches were analyzed for the appropriate QA/QC parameters.

Summary of QA/QC

Overall, the data set passed QA/QC. There was one matrix spike set for mercury, Batch 3, that was substantially out of control, but because the SRM percent recovery was good the batch is thought to be spike error and not thought to affect the quality of the data from this batch. The other data sets were considered valid and passed QA/QC since they contained only a few minor out of control QA/QC measurements.

List of Abbreviations

CCV	Continuing Calibration Verification (one independent standard)
DFG	Department of Fish and Game
EPA	Environmental Protection Agency
ICV	Initial Calibration Verification (one independent standard)
Matrix Spikes (MS)	Also called Spiked Matrix. A composite tissue homogenate of field sample to which known amounts of target analytes have been added.
Matrix Spike Replicate	Also called (MSD). Replicate aliquots of Matrix Spike samples
MDL	Method of Detection
MQL	Method Quantitation Limit
NOAA	National Oceanographic and Atmospheric Administration
OEHHA	Office of Environmental Health Hazard Assessment
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RPD	Relative Percent Difference
Sample Duplicate	Also called Laboratory Replicate. Replicate aliquot of composite tissue homogenate of field sample.
SOPs	Standard Operating Procedures
SRM or CRM	Standard Reference Material or Certified Reference Material
SWRCB	State Water Resources Control Board

Appendix A

Year 2 Coastal Fish Contamination Program Station Information and Trace Metal Data

Year 2 Coastal Fish Contamination Program Station Information And Trace Metal Data

Sample ID	STATION NUMBER	STATION NAME	Station Location	SPECIES CODE	SPECIES NAME	SKIN PREP	LATITUDE	LONGITUDE	COLLECTION DATE	YEAR Access	Special Treatment	N (Number per sample)	>25%	Length (1) mm	Length (2) mm	Length (3) mm	Length (4) mm	Length (5) mm	Length (6) mm	Length (7) mm	Length (8) mm	Length (9) mm	Length (10) mm	Length (11) mm	Length (12) mm	Length (13) mm	Length (14) mm	Length (15) mm	Length (16) mm	Length (17) mm	Length (18) mm	Length (19) mm	Length (20) mm	Weight (1) g
99-1058-t	1010	Crescent City		TPS	Top Smelt	N	41 44.50	124 10.97	8/31/99	2		5		327	343	345	362	372																246
99-1059-t	1010	Crescent City		WHS	White Surfperch	S	41 44.50	124 10.97	8/31/99	2		5		233	234	236	251	286																140
99-1064-t	1020	Trinidad		BLR	Black Rockfish	N	41 03.40	124 08.84	9/1/99	2		3		436	479	487																		918
99-1077-t	1020	Trinidad		DC	Dungeness Crab		41 03.40	124 08.84	9/14/99	2		3		152	155	171																		392
99-1061-t	1020	Trinidad		RCM	California Mussel		41 03.40	124 08.84	9/1/99	2		45		91	91	90	89	88	87	85	85	81	80	80	78	77	73	71						
99-1062-t	1020	Trinidad		RCM	California Mussel		41 03.40	124 08.84	9/1/99	2		45		80	73	72	72	70	68	66	65	65	64	64	62	62	61	60						
99-1080-t	1030	Humboldt Bay/Del Norte Pier		RRC	Red Rock Crab		40 47.42	124 11.37	9/14/99	2		5		109	119	132	133	135																173
99-1078-t	1030	Humboldt Bay/Del Norte Pier		SHS	Shiner Surfperch	S	40 47.42	124 11.37	9/14/99	2		4		129	131	141	144																	24.9
99-1081-t	1040	Elk River		PSP	Pile Surfperch	N	40 46.47	124 11.90	9/16/99	2		3		332	372	382																		410
99-1083-t	1040	Elk River		RRC	Red Rock Crab		40 46.47	124 11.90	9/15/99	2		5		109	112	129	139	143																146
99-1084-t	1050	Humboldt Bay/North Jetty		RCM	California Mussel		40 46.11	124 14.77	9/15/99	2		45		50	53	55	58	58	58	60	62	64	68	68	71	74	74	78						
99-1085-t	1050	Humboldt Bay/North Jetty		RCM	California Mussel		40 46.11	124 14.77	9/15/99	2		45		62	61	72	52	56	62	62	60	52	62	63	59	72	62	64						
99-1088-t	1050	Humboldt Bay/North Jetty		RRC	Red Rock Crab		40 46.11	124 14.77	9/16/99	2		3		125	135	135																		162
99-1132-t	1060	Point Arena		RRC	Red Rock Crab		34 54.86	123 42.55	9/21/99	2		5		116	116	120	125	135																187
99-1136-t	1070	Spud Point Breakwater		RRC	Red Rock Crab		38 19.64	123 03.43	9/22/99	2		5		106	116	126	132	140																149
99-1137-t	1070	Spud Point Breakwater		SHS	Shiner Surfperch	S	38 19.64	123 03.43	9/22/99	2		11		94	102	113	117	118	120	121	122	125	132	135										12
99-1135-t	1070	Spud Point Breakwater		WHS	White Surfperch	S	38 19.64	123 03.43	9/22/99	2		10		92	98	98	101	105	106	107	110	110	112											10
99-1138-t	1080	Salt Point State Park		RCM	California Mussel		38 35.38	123 20.62	9/22/99	2		45		46	46	48	49	49	50	51	52	53	53	55	63	65	66	74						
99-1139-t	1080	Salt Point State Park		RCM	California Mussel		38 35.38	123 20.62	9/22/99	2		45		64	55	56	62	60	60	61	52	55	64	69	75	65	62	62						
99-1140-t	1090	Bodega Harbor		RCM	California Mussel		38 19.15	123 03.27	9/23/99	2		45		81	66	84	85	76	81	78	65	64	66	65	65	65	70	60						
99-1141-t	1090	Bodega Harbor		RCM	California Mussel		38 19.15	123 03.27	9/23/99	2		45		90	87	89	67	72	66	68	69	70	64	77	66	71	63	87						
99-1142-t	1090	Bodega Harbor		RRC	Red Rock Crab		38 19.15	123 03.27	9/23/99	2		5		113	115	120	129	135																162
00-0649-t	2050	Marin Coast		CHS	Chinook Salmon	N	37 45.18	122 58.48	5/10/00	2		5		671	671	704	715	809																Not
00-0712-t	2100	San Francisco Coastline		CHS	Chinook Salmon	N	37 23.86	122 37.31	5/23/00	2		3		649	661	686																		Not
00-0657-t-Comp1	2150	Devils Slide		DC	Dungeness Crab-Claw		37 35.15	122 31.38	5/9/00	2		5		155	158	159	166	171																408
00-0657-t-Comp2	2150	Devils Slide		DC	Dungeness Crab-Hepato		37 35.15	122 31.38	5/9/00	2		5		155	158	159	166	171																408
00-0457-t-Comp1	2200	Pacifica Pier		DC	Dungeness Crab-Claw		37 38.01	122 29.79	4/18/00	2		5		158	163	163	164	178																462.96
00-0457-t-Comp2	2200	Pacifica Pier		DC	Dungeness Crab-Hepato		37 38.01	122 29.79	4/18/00	2		5		158	163	163	164	178																462.96
00-0611-t-Comp1	2200	Pacifica Pier		RRC	Red Rock Crab-Claw		37 38.00	122 29.86	5/3/00	2		5	Y	111	121	125	141	151																203.66
00-0611-t-Comp2	2200	Pacifica Pier		RRC	Red Rock Crab-Hepato		37 38.00	122 29.86	5/3/00	2		5	Y	111	121	125	141	151																203.66
00-0775-t	2200	Pacifica Pier		WHS	White Surfperch	S	37 38.00	122 29.86	6/13/00	2		6		150	150	150	150	151	152															115.86
00-0458-t	2200	Pacifica Pier		WSP	Walleye Surfperch	S	37 38.00	122 29.86	4/18/00	2		7		151	145	142	142	138	136	134														46
00-0664-t	2250	Princeton Jetty		PSP	Pile Surfperch	N	37 28.75	122 27.28	5/10/00	2		3		254	300	340																		301.08
00-0661-t	2250	Princeton Jetty		RBS	Rainbow Surfperch	S	37 28.75	122 27.28	5/11/00	2		9		201	211	218	221	221	225	226	230	239	246											156
00-0609-t-Comp1	2250	Princeton Jetty		RRC	Red Rock Crab-Claw		37 28.75	122 27.28	5/3/00	2		5		111	114	115	116	147																244.56
00-0609-t-Comp2	2250	Princeton Jetty		RRC	Red Rock Crab-Hepato		37 28.75	122 27.28	5/3/00	2		5		111	114	115	116	147																244.56

note crab claw
crab hepatopancreas

Sample ID	Weight (2) g	Weight (3) g	Weight (4) g	Weight (5) g	Weight (6) g	Weight (7) g	Weight (8) g	Weight (9) g	Weight (10) g	Weight (11) g	Weight (12) g	Weight (13) g	Weight (14) g	Weight (15) g	Weight (16) g	Weight (17) g	Weight (18) g	Weight (19) g	Weight (20) g	Total Weight g	Ag_w µg/g	Ag_QA	As_w µg/g	As_QA	Cd_w µg/g	Cd_QA	Cr_w µg/g	Cr_QA	Cu_w µg/g	Cu_QA	Hg_w µg/g	Hg_QA	Ni_w µg/g	Ni_QA	Pb_w µg/g	Pb_QA	Se_w µg/g	Se_QA	Zn_w µg/g	Zn_QA	TM QA Data Set #	Hg QA Data Set #	% Moisture ML/ML	ANALYSES
99-1058-t	270	284	316	333																			0.482		0.00300						0.107						0.249				1	1	74.81	M
99-1059-t	143	151	181	254																			0.585		-0.002						0.134						0.244				1	1	76.87	M
99-1064-t	1490	1680																					0.466		-0.002						0.231						0.438				1	1	78.77	M
99-1077-t	447	537																					9.95		0.220						0.208						0.814				1	1	79.39	M
99-1061-t																				298.68			1.46		1.31						0.0216						0.670				1	1	80.21	M
99-1062-t																				369.35																								
99-1080-t	179	231	237	244																			13.4		0.282						0.0828						0.519				1	1	80.05	M
99-1078-t	27	41	46																				0.934		0.0424						0.0907						0.441				1	1	72.84	M
99-1081-t	574	695																					0.550		0.00507						0.167						0.283				1	1	77.84	M
99-1083-t	165	187	233	285																			8.04		0.353						0.103						0.790				1	1	81.19	M
99-1084-t																				266			1.40		0.940						0.0212						0.707				1	1	78.98	M
99-1085-t																				237																								
99-1088-t	221	328																					5.85		0.678						0.130						0.688				1	1	80.88	M
99-1132-t	205	215	248	305																			7.22		0.139						0.239						0.612				1	1	78.32	M
99-1136-t	175	219	243	287																			3.33		0.0461						0.173						0.349				1	1	79.59	M
99-1137-t	12	17	19	22	23	25	26	26	26	40													0.777		0.0256						0.0844						0.377				1	1	72.15	M
99-1135-t	10	11	12	12	13	14	16	16	16														0.496		0.00876						0.0280						0.231				1	1	75.86	M
99-1138-t																				126																								
99-1139-t																				177			1.72		1.24						0.0381						0.663				1	1	84.24	M
99-1140-t																				361																								
99-1141-t																				266			1.16		1.26						0.0203						0.796				1	1	80.84	M
99-1142-t	209	241	297	309																			3.86		0.0993						0.291						0.721				1	1	79.23	M
00-0649-t	Available																						0.302		-0.002						0.0689						0.262				4	4	73.30	M
00-0712-t	Available																						0.244		-0.002						0.0620						0.236				4	4	73.18	M
00-0657-t-Comp1	445	498	585	619																			12.3		0.297						0.402						0.799				4	4	80.31	M
00-0657-t-Comp2	445	498	585	619																			10.6		9.06						0.234						1.67				4	4	78.93	M
00-0457-t-Comp1	483	531	533	675																			15.3		0.431						0.439						0.716				4	4	79.37	M
00-0457-t-Comp2	483	531	533	675																			9.67		2.00						0.141						1.04				4	4	89.26	M
00-0611-t-Comp1	261	289	328	464																			12.0		0.724						0.164						1.10				4	4	76.56	M
00-0611-t-Comp2	261	289	328	464																			8.34		33.6						0.0868						1.98				4	4	75.33	M
00-0775-t	124	129	142	164	191																		0.708		-0.002						0.0679						0.270				4	4	77.51	M
00-0458-t	42	39	39	39	38	32																	0.717		0.00853						0.0849						0.382				4	4	78.67	M
00-0664-t	415	578																					2.08		-0.002						0.127						0.329				4	4	76.70	M
00-0661-t	180	183	191	215	216	255	275	278															0.955		0.00238						0.0698						0.229				4	4	76.18	M
00-0609-t-Comp1	288	289	315	446																			9.01		0.134						0.139						0.773				4	4	79.71	M
00-0609-t-Comp2	288	289	315	446																			9.08		15.9						0.125						1.70				4	4	78.63	M

Sample ID	STATION NUMBER	STATION NAME	Station Location	SPECIES CODE	SPECIES NAME	SKIN PREP	LATITUDE	LONGITUDE	COLLECTION DATE	YEAR Access	Special Treatment	N (Number per sample)	>25%	Length (1) mm	Length (2) mm	Length (3) mm	Length (4) mm	Length (5) mm	Length (6) mm	Length (7) mm	Length (8) mm	Length (9) mm	Length (10) mm	Length (11) mm	Length (12) mm	Length (13) mm	Length (14) mm	Length (15) mm	Length (16) mm	Length (17) mm	Length (18) mm	Length (19) mm	Length (20) mm	Weight (1) g
00-0654-t	2250	Princeton Jetty		WC	White Croaker	N	37 28.75	122 27.28	5/8/00	2		5		241	253	255	256	274																110.59
00-0663-t	2250	Princeton Jetty		WHS	White Surfperch	S	37 28.75	122 27.28	5/10/00	2		6		210	214	220	223	229	232															100
00-0659t	2300	San Mateo Coast		BLR	Black Rockfish	N	37 29.70	122 30.74	5/9/00	2		5		225	248	252	256	266																210.02
00-0713-t	2300	San Mateo Coast		BRR	Brown Rockfish	N	37 29.70	122 30.74	5/23/00	2		4		246	286	293	295																	285.37
00-0714-t	2300	San Mateo Coast		LC	Lingcod	N	37 29.70	122 30.74	5/23/00	2		4		660	679	696	756																	Not
00-0660-t	2300	San Mateo Coast		RTR	Rosethorn Rockfish	N	37 29.70	122 30.74	5/9/00	2		4		298	312	346	358																	300.62
00-0711-t	2300	San Mateo Coast		SFS	Spotfin Surfperch	N	37 29.70	122 30.74	5/22/00	2		13		140	139	139	135	135	134	133	132	126	125	115	114	109								44.75
99-1272-t	3010	Santa Cruz Wharf		YC	Yellowfin Croaker	N	36 57.52	122 00.96	10/14/99	2		5		165	175	180	190	205																46
99-1099-t	3040	Santa Barbara Jetty		DT	Diamond Turbot	S	34 24.56	119 41.08	9/16/99	2		5		194	195	198	214	256																88.5
99-1458-t	3040	Santa Barbara Jetty		OPE	Opal Eye	N	34 24.56	119 41.08	10/18/99	2		5		135	136	139	152	152																36.1
00-0752-t	3050	Capitola Wharf		BRS	Barred Surfperch	N	36 58.08	121 57.22	6/5/00	2		4		146	165	167	169																	43.8
00-0753-t-Comp1	3050	Capitola Wharf		WC	White Croaker-on	S	36 58.08	121 57.22	6/5/00	2		5		235	237	238	240	258																134
00-0753-t-Comp2	3050	Capitola Wharf		WC	White Croaker-off	N	36 58.08	121 57.22	6/5/00	2		5		220	236	250	254	263																130
99-1027-t	3050	Capitola Wharf		YC	Yellowfin Croaker	N	36 58.08	121 57.22	8/24/99	2		5		185	204	204	215	235																75.1
00-0617-t	3060	Cayucos Pier		WC	White Croaker	N	35 26.78	120 54.49	5/3/00	2		5		283	291	292	293	267																267
00-0616-t	3070	Pismo Pier		WC	White Croaker	N	35 8.13	120 38.84	5/4/00	2		3		266	230	228																		202
99-1246-t	3120	Monterey Bay		BLS	Black Surfperch	N	36 37.90	121 55.12	10/13/99	2		5		258	271	275	283	290																390
99-1248-t	3120	Monterey Bay		BRR	Brown Rockfish	N	36 37.90	121 55.12	10/13/99	2		5		296	310	311	311	332																397
99-1247-t	3120	Monterey Bay		BUR	Blue Rockfish	N	36 37.90	121 55.12	10/13/99	2		5		284	304	317	326	340																397
00-0354-t	3130	Moss Landing Beach		WC	White Croaker	N	36 81.92	121 80.11	3/14/00	2		5		231	237	251	254	276																115
99-1089-t	3140	Goleta Pier		CC	California Corbina	N	34 24.99	119 49.73	9/14/99	2		5		201	185	181	165	162																64.7
99-1090-t	3140	Goleta Pier		YC	Yellowfin Croaker	N	34 24.99	119 49.73	9/14/99	2		5		175	175	171	169	164																63.9
99-1190-t	3170	Pajaro River Beach		BRS	Barred Surfperch	N	36 51.27	121 48.73	9/30/99	2		5		150	184	195	195	198																45.6
00-0353-t	3170	Pajaro River Beach		WC	White Croaker	N	36 50.75	121 48.96	3/14/00	2		5		211	224	226	227	238																87.4
99-1029-t	3180	Salinas River Beach		BRS	Barred Surfperch	N	36 47.64	121 47.89	8/25/99	2		3		197	165	208																		122
00-0333-t	3180	Salinas River Beach		WC	White Croaker	N	36 47.64	121 47.89	3/13/00	2		5		199	208	235	236	239																66.7
00-0675-t	3200	Elkhorn Slough		LS	Leopard Shark	N	36 48.67	121 46.96	5/19/00	2		5		1040	1160	1210	1270	1280																296
00-0725-t	3200	Elkhorn Slough		SHS	Shiner Surfperch	S	36 48.67	121 46.96	5/26/00	2		10		133	134	134	135	135	136	140	140	145	146											25.35
99-1464-t	4020	Hollywood South Beach		FS	Fantail Sole	S	34 01.45	119 14.40	10/19/99	2		5		183	183	186	220	240																59
99-1465-t	4020	Hollywood South Beach		SSD	Speckled Sanddab	N	34 01.45	119 14.4	10/19/99	2		15		95	95	95	96	97	97	97	98	101	101	102	105	105	105	105						4
99-1097-t	4030	Channel Island Harbor		RBS	Rainbow Surfperch	S	34 09.53	119 13.41	9/15/99	2		7		101	110	112	112	113	113	115														18
99-1098-t	4030	Channel Island Harbor		STR	Spotted Turbot	S	34 09.53	119 13.41	9/15/99	2		3		245	245	230																		237
99-1092-t	4040	Ventura Pier		BRS	Barred Surfperch	N	34 16.55	119 17.47	9/15/99	2		5		111	115	121	122	124																17.3
99-1091-t	4040	Ventura Pier		CC	California Corvina	N	34 16.55	119 17.47	9/15/99	2		5		165	176	177	192	194																38.6
00-0373-t	4040	Ventura Pier		WC	White Croaker-off	N	34 16.21	119 17.28	3/22/00	2		5		177	176	176	163	162																50.2
00-0375-t	4040	Ventura Pier		WC	White Croaker-on	S	34 16.21	119 17.28	3/22/00	2		5		164	166	180	180	181																12.3
99-1462-t	4050	Port Hueneme		BRS	Barred Surfperch	N	34 08.29	119 12.09	10/19/99	2		5		136	135	134	132	128																37.2
99-1463-t	4050	Port Hueneme		SSD	Speckled Sanddab	S	34 08.29	119 12.09	10/19/99	2		10		115	116	116	117	117	118	119	120	121	122											12.01

Sample ID	Weight (2) g	Weight (3) g	Weight (4) g	Weight (5) g	Weight (6) g	Weight (7) g	Weight (8) g	Weight (9) g	Weight (10) g	Weight (11) g	Weight (12) g	Weight (13) g	Weight (14) g	Weight (15) g	Weight (16) g	Weight (17) g	Weight (18) g	Weight (19) g	Weight (20) g	Total Weight g	Ag_w µg/g	Ag_QA	As_w µg/g	As_QA	Cd_w µg/g	Cd_QA	Cr_w µg/g	Cr_QA	Cu_w µg/g	Cu_QA	Hg_w µg/g	Hg_QA	Ni_w µg/g	Ni_QA	Pb_w µg/g	Pb_QA	Se_w µg/g	Se_QA	Zn_w µg/g	Zn_QA	TM QA Data Set #	Hg QA Data Set #	% Moisture ML/ML	ANALYSES
00-0654-t	123	124	141	172																			1.33		0.00218						0.244						0.281				4	4	78.21	M
00-0663-t	120	121	125	153	178																		0.725		0.00491						0.0636						0.263				4	4	75.43	M
00-0659t	239	241	255	304																			0.479		-0.002						0.0665						0.328				4	4	79.53	M
00-0713-t	466	592	659																				1.18		0.00209						0.491						0.314				4	4	79.09	M
00-0714-t	Available																						0.670		0.00412						0.313						0.301				4	4	79.39	M
00-0660-t	460	670	808																				0.393		-0.002						0.255						0.255				4	4	79.42	M
00-0711-t	44	38	35	34	34	32	31	27	24	18	17	14											0.382		0.00460						0.0372						0.345				4	4	77.01	M
99-1272-t	56	78	89	204																			0.837		0.00544						0.147						0.366				3	3	77.57	M
99-1099-t	90	101	137	202																			3.43		-0.002						0.0433						0.339				3	3	78.76	M
99-1458-t	42	44	60	79																			4.90		-0.002						0.0701						0.291				3	3	77.09	M
00-0752-t	66	73	76																				1.36		-0.002						0.0321						0.384				3	3	78.71	M
00-0753-t-Comp1	135	154	160	195																			0.668		0.00345						0.0843						0.316				3	3	77.64	M
00-0753-t-Comp2	140	142	189	200																			0.800		-0.002						0.0899						0.254				3	3	77.57	M
99-1027-t	84	91	110	153																			0.772		0.00679						0.0892						0.351				3	3	76.58	M
00-0617-t	285	285	293	210																			1.35		0.00232						0.0356						0.291				3	3	78.94	M
00-0616-t	126	122																					0.748		0.00209						0.218						0.292				3	3	79.27	M
99-1246-t	441	450	472	473																			0.866		-0.002						0.0584						0.244				3	3	78.83	M
99-1248-t	408	429	456	482																			0.907		0.00300						0.119						0.294				3	3	78.67	M
99-1247-t	505	542	552	659																			0.490		-0.002						0.0756						0.482				3	3	77.49	M
00-0354-t	134	139	167	215																			0.844		0.00344						0.297						0.310				3	3	79.53	M
99-1089-t	51	46	39	37																			1.15		-0.002						0.0250						0.333				4	4	78.78	M
99-1090-t	64	59	55	54																			0.722		-0.002						0.0319						0.283				4	4	77.51	M
99-1190-t	95	102	110	115																			0.494		0.00220						0.0727						0.238				4	4	77.96	M
00-0353-t	99	106	124	131																			0.871		0.0230						0.172						0.297				4	4	79.11	M
99-1029-t	63	155																					0.648		-0.002						0.0792						0.273				4	4	77.95	M
00-0333-t	78	127	128	142																			0.845		0.00640						0.237						0.303				4	4	78.66	M
00-0675-t	372	415	423	454																			5.81		0.0148						1.09						0.389				4	4	75.39	M
00-0725-t	26	28	28	29	31	34	35	36	42														0.981		0.0398						0.0719						0.374				4	4	73.48	M
99-1464-t	64	70	127	157																			1.16		-0.002						0.0246						0.422				1	1	76.61	M
99-1465-t	6	7	8	8	8	9	9	9	9	9	9	11	11	13									0.450		0.0598						-0.015						0.267				1	1	77.60	M
99-1097-t	24	27	28	29	30	37																	0.524		-0.002						-0.015						0.241				1	1	77.47	M
99-1098-t	194	191																					5.00		0.00250						0.0418						0.332				1	1	77.89	M
99-1092-t	19	20	24	28																			0.690		-0.002						0.0243						0.497				1	1	78.51	M
99-1091-t	41	44	53	58																			0.388		-0.002						-0.015						0.391				1	1	78.88	M
00-0373-t	47	50	39	34																			0.401		0.00615						0.0746						0.305				1	1	77.65	M
00-0375-t	20	21	21	25																			0.546		0.00668						0.0296						0.306				1	1	75.51	M
99-1462-t	31	29	27	21																			0.702		-0.002						-0.015						0.368				1	1	77.85	M
99-1463-t	12	12	13	13	13	13	14	14	14														0.816		0.0635						-0.015						0.457				1	1	77.61	M

Sample ID	STATION NUMBER	STATION NAME	Station Location	SPECIES CODE	SPECIES NAME	SKIN PREP	LATITUDE	LONGITUDE	COLLECTION DATE	YEAR Access	Special Treatment	N (Number per sample)	>25%	Length (1) mm	Length (2) mm	Length (3) mm	Length (4) mm	Length (5) mm	Length (6) mm	Length (7) mm	Length (8) mm	Length (9) mm	Length (10) mm	Length (11) mm	Length (12) mm	Length (13) mm	Length (14) mm	Length (15) mm	Length (16) mm	Length (17) mm	Length (18) mm	Length (19) mm	Length (20) mm	Weight (1) g
99-1095-t	4060	Ventura Marina Jetty		RBS	Rainbow Surfperch	S	34 14.93	119 16.37	9/15/99	2		4		185	187	190	197																	131
99-1096-t	4060	Ventura Marina Jetty		RBS	Rainbow Surfperch	S	34 14.93	119 16.37	9/15/99	2		15		112	115	116	116	118	120	121	122	123	124	126	127	129	133	133						24
99-1093-t-Comp1	4060	Ventura Marina Jetty		WC	White Croaker-on	S	34 14.93	119 16.37	9/15/99	2		10		156	169	174	175	178	179	180	185	191	195											50
99-1093-t-Comp2	4060	Ventura Marina Jetty		WC	White Croaker-off	N	34 14.93	119 16.37	9/15/99	2		10		156	169	174	175	178	179	180	185	191	195											50
99-1094-t	4060	Ventura Marina Jetty		WHS	White Surfperch	S	34 14.95	119 16.37	9/15/99	2		15		109	113	113	115	115	117	118	119	119	119	120	122	128	128	135						14
99-1759-t	4080	Santa Cruz Island		BUR	Blue Rockfish	N	34 02.03	119 23.22	11/2/99	2		5		283	298	333	349	368																411
99-1760-t	4080	Santa Cruz Island		RTR	Rosethorn Rockfish	N	34 02.03	119 23.22	11/2/99	2		5		209	222	224	227	238																167
99-1257-t	4090	Belmont Pier		QUF	Queenfish	S	33 43.73	118 04.65	10/12/99	2		5		148	149	152	154	162																27.1
99-1256-t	4090	Belmont Pier		STR	Spotted Turbot	S	33 45.26	118 08.74	10/12/99	2		5		211	228	243	248	260																104
99-1255-t	4090	Belmont Pier		WC	White Croaker	N	33 45.26	118 08.74	10/12/99	2		5		192	214	220	226	255																69.6
99-2527-t	4100	Catalina Island		HFM	Halfmoon	N	33 22.89	118 21.47	12/15/99	2		5		248	274	280	288	296																197
99-2525-t	4100	Catalina Island		KB	Kelp bass	N	33 22.89	118 21.47	12/15/99	2		5		305	305	305	314	357																275
99-2526-t	4100	Catalina Island		OPE	Opaleye	N	33 22.89	118 21.47	12/15/99	2		5		278	286	297	308	320																289
99-1758-t	4110	Santa Monica Pier		BRS	Barred Surfperch	N	34 00.61	118 29.91	11/1/99	2		10		131	132	133	140	142	143	146	152	154	157											24
99-1989-t	4110	Santa Monica Pier		QUF	Queenfish	S	33 59.91	118 29.54	11/9/99	2		5		159	168	169	170	174																32.4
99-1991-t	4120	Venice Pier		QUF	Queenfish	S	33 58.79	118 28.41	11/9/99	2		5		169	173	174	176	186																38.3
99-1990-t	4120	Venice Pier		WC	White Croaker	N	33 58.79	118 28.41	11/9/99	2		5		184	157	156	152	142																77.9
99-1992-t	4120	Venice Pier		WSP	Walleye Surfperch	S	33 58.79	118 28.41	11/9/99	2		5		140	142	145	146	153																32.8
99-1466-t	4140	San Gabriel		YC	Yellowfin Croaker	N	33 44.90	118 06.74	10/20/99	2		5		231	235	260	290	299																126
99-1253-t-Comp 1	8010	Seal Beach		WC	White Croaker-off	N	33 44.08	118 06.64	10/12/99	2		4		132	135	141	157																	20.2
99-1253-t-Comp-2	8010	Seal Beach		WC	White Croaker-on	S	33 44.08	118 06.64	10/12/99	2		4		130	133	138	142																	18.8
99-1250-t	8010	Seal Beach		YC	Yellowfin Croaker	N	33 44.08	118 06.64	10/12/99	2		5		232	236	259	268	284																136
99-1467-t	8030	Huntington Beach		BRS	Barred Surfperch	N	33 39.86	118 01.34	10/20/99	2		10		133	134	134	135	136	138	138	140	144	144											32
99-1468-t	8030	Huntington Beach		SHS	Shiner Surfperch	S	33 39.86	118 01.34	10/20/99	2		10		109	111	112	113	113	116	117	118	119	121											12
99-1994-t	8040	Newport Beach		BRS	Barred Surfperch	N	33 36.10	117 55.20	11/11/99	2		10		143	146	149	152	153	156	158	159	160	162											42
99-1995-t	8040	Newport Beach		SHS	Shiner Surfperch	S	33 36.10	117 55.20	11/11/99	2		10		110	115	116	116	117	117	118	119	119	121											14
99-1993-t	8040	Newport Beach		WC	White Croaker	N	33 36.10	117 55.20	11/11/99	2		5		172	173	175	176	179																53.5
99-1998-t	8050	Newport Beach Pier		BRS	Barred Surfperch	N	33 36.29	117 55.73	11/11/99	2		10		146	147	147	148	148	149	152	152	153	153											45.67
99-1996	8050	Newport Beach Pier		WC	White Croaker	N	33 36.29	117 55.73	11/11/99	2		5		169	174	179	181	183																43.2
00-0449-t	8060	Balboa Pier		BRS	Barred Surfperch	N	33 35.89	117 54.13	4/6/00	2		3	Y	179	170	264																		76.8
00-0453-t	8060	Balboa Pier		DT	Diamond Turbot	S	33 35.89	117 54.13	4/6/00	2		4		246	242	234	222																	176
99-1268-t	8070	Newport Jetty		BLS	Black Surfperch	N	33 35.84	117 52.82	10/14/99	2		5		120	127	129	130	139																23
99-1269-t	8070	Newport Jetty		SHS	Shiner Surfperch	S	33 35.84	117 52.82	10/14/99	2		10		97	98	99	101	102	103	103	105	107	108											10
99-1266-t	8070	Newport Jetty		STR	Spotted Turbot	S	33 35.84	117 52.82	10/14/99	2		5		183	194	202	227	230																65.1
99-1265-t	8080	Newport Bay		SHS	Shiner Surfperch	S	33 36.48	117 54.04	10/13/99	2		13		97	98	99	101	102	102	103	103	104	105	105	105	106								10
99-1264-t	8080	Newport Bay		STR	Spotted Turbot	S	33 36.48	117 54.04	10/13/99	2		5		206	208	209	210	234																99.6
99-1263-t	8080	Newport Bay		YC	Yellowfin Croaker	N	33 36.48	117 54.04	10/13/99	2		4		252	259	300	320																	149
99-1215-t	8100	Emma Oil Platform		BLS	Black Surfperch	N	33 39.75	118 02.71	10/5/99	2		4		267	284	290	298																	439
99-1214-t	8100	Emma Oil Platform		KB	Kelp Bass	N	33 39.75	118 02.71	10/5/99	2		5		325	326	334	336	338																445

Sample ID	Weight (2) g	Weight (3) g	Weight (4) g	Weight (5) g	Weight (6) g	Weight (7) g	Weight (8) g	Weight (9) g	Weight (10) g	Weight (11) g	Weight (12) g	Weight (13) g	Weight (14) g	Weight (15) g	Weight (16) g	Weight (17) g	Weight (18) g	Weight (19) g	Weight (20) g	Total Weight g	Ag_w µg/g	Ag_QA	As_w µg/g	As_QA	Cd_w µg/g	Cd_QA	Cr_w µg/g	Cr_QA	Cu_w µg/g	Cu_QA	Hg_w µg/g	Hg_QA	Ni_w µg/g	Ni_QA	Pb_w µg/g	Pb_QA	Se_w µg/g	Se_QA	Zn_w µg/g	Zn_QA	TM QA Data Set #	Hg QA Data Set #	% Moisture MLML	ANALYSES
99-1095-t	132	138	164																				0.936		0.00483						0.0229						0.340				2	2	76.82	M
99-1096-t	27	28	31	31	31	32	33	33	38	39	39	39	40	46									0.814		0.0150						-0.015	U	U				0.406				2	2	75.98	M
99-1093-t-Comp1	56	61	63	66	66	66	72	81	89														0.828		-0.002						0.0401						0.446				1	1	75.82	M
99-1093-t-Comp2	56	61	63	66	66	66	72	81	89														1.24		0.0444						0.0268						0.891				1	1	68.44	M
99-1094-t	14	16	16	17	17	18	18	18	21	21	21	22	25	33									0.563		-0.002						-0.015	U	U				0.318				1	1	78.16	M
99-1759-t	437	591	597	876																			0.762		0.00428						0.116						0.659				2	2	77.34	M
99-1760-t	174	182	185	210																			1.87		-0.002						0.411						0.453				2	2	77.18	M
99-1257-t	29	31	32	32																			0.481		-0.002						0.0372						0.227				2	2	72.83	M
99-1256-t	114	180	194	217																			3.82		-0.002						0.0481						0.444				2	2	78.98	M
99-1255-t	115	115	133	208																			0.768		-0.002						0.0581						0.320				2	2	76.76	M
99-2527-t	261	274	279	378																			2.90		0.00344						0.0463						0.272				2	2	76.52	M
99-2525-t	281	290	319	493																			1.03		-0.002						0.207						0.376				2	2	77.44	M
99-2526-t	317	380	524	550																			7.94		0.00573						0.0574						0.182				2	2	79.72	M
99-1758-t	31	33	37	42	42	48	62	66	68														0.948		-0.002						0.0357						0.395				2	2	76.82	M
99-1989-t	39	45	45	52																			0.852		0.00871						0.0753						0.369				2	2	72.63	M
99-1991-t	39	45	50	63																			0.394		-0.002						0.0916						0.274				2	2	76.51	M
99-1990-t	39	36	32	20																			0.758		-0.002						0.0457						0.391				2	2	78.33	M
99-1992-t	36	39	39	42																			0.749		-0.002						0.0263						0.296				2	2	76.32	M
99-1466-t	138	205	245	252																			0.478		-0.002						0.0687						0.385				2	2	74.57	M
99-1253-t-Comp 1	26	43	44																				0.641		-0.002						-0.015						0.359				2	2	78.92	M
99-1253-t-Comp-2	27	41	45																				0.517		-0.002						-0.015						0.342				2	2	77.77	M
99-1250-t	151	180	208	219																			0.367		-0.002						0.0728						0.309				2	2	76.95	M
99-1467-t	33	34	37	38	39	39	42	43	51														0.903		-0.002						0.0315						0.285				2	2	78.25	M
99-1468-t	13	14	15	15	17	18	18	20	22														0.787		0.00619						-0.015	U	U				0.367				2	2	74.99	M
99-1994-t	46	47	50	51	52	55	56	56	60														0.601		-0.002						0.0317						0.333				2	2	77.53	M
99-1995-t	14	15	15	15	16	16	18	20	20														1.13		0.00717						-0.015	U	U				0.404				2	2	74.48	M
99-1993-t	54	58	58	63																			0.778		-0.002						0.0223						0.311				2	2	77.65	M
99-1998-t	46	47	47	48	49	50	53	55	56														0.577		-0.002						0.0298						0.276				2	2	77.28	M
99-1996	50	53	57	61																			0.668		-0.002						0.0316						0.331				2	2	77.11	M
00-0449-t	53	303																					0.911		0.004						0.0483						0.374				2	2	78.53	M
00-0453-t	170	166	122																				3.09		0.00203						0.0646						0.589				2	2	80.72	M
99-1268-t	31	33	36	44																			0.774		-0.002						0.0223						0.331				2	2	78.81	M
99-1269-t	11	11	11	12	12	14	14	14	14														0.906		0.00532						-0.015	U	U				0.344				2	2	76.92	M
99-1266-t	84	119	143	143																			3.67		-0.002						0.0459						0.319				2	2	76.08	M
99-1265-t	11	11	11	12	12	12	12	12	12	16	16	16											0.969		0.00793						0.0420						0.495				2	2	73.45	M
99-1264-t	105	118	139	149																			1.77		-0.002						-0.015						0.865				2	2	77.06	M
99-1263-t	183	261	337																				0.585		-0.002						0.104						0.439				2	2	77.69	M
99-1215-t	508	511	599																				1.32		-0.002						0.0545						0.257				2	2	73.78	M
99-1214-t	497	507	507	574																			0.777		-0.002						0.0941						0.349				2	2	76.47	M

Sample ID	STATION NUMBER	STATION NAME	Station Location	SPECIES CODE	SPECIES NAME	SKIN PREP	LATITUDE	LONGITUDE	COLLECTION DATE	YEAR Access	Special Treatment	N (Number per sample)	>25%	Length (1) mm	Length (2) mm	Length (3) mm	Length (4) mm	Length (5) mm	Length (6) mm	Length (7) mm	Length (8) mm	Length (9) mm	Length (10) mm	Length (11) mm	Length (12) mm	Length (13) mm	Length (14) mm	Length (15) mm	Length (16) mm	Length (17) mm	Length (18) mm	Length (19) mm	Length (20) mm	Weight (1) g
99-1217-t	8100	Emma Oil Platform		OPE	Opaleye	N	33 39.75	118 02.71	10/5/99	2		5		311	331	334	341	380																557
99-1260-t	8110	Anaheim Bay		BLS	Black Surfperch	N	33 43.73	118 04.65	10/13/99	2		5		148	154	156	157	162																65.5
99-1262-t	8110	Anaheim Bay		SHS	Shiner Surfperch	S	33 43.73	118 04.65	10/13/99	2		10		106	110	110	110	112	113	114	115	118	120											12.69
99-1259-t	8110	Anaheim Bay		YC	Yellowfin Croaker	N	33 43.73	118 04.65	10/13/99	2		4		242	295	299	300																	155
00-0672-t	8130	Esther Oil Platform		BLS	Black Surfperch	N	33 43.16	118 06.81	5/17/00	2		5		260	262	270	286	290																378
00-0673-t	8130	Esther Oil Platform		KB	Kelp Bass	N	33 43.16	118 06.81	5/17/00	2		5		312	316	324	336	356																342
99-1495-t	9030	Oceanside Pier		DT	Diamond Turbot	S	33 11.80	117 23.51	10/26/99	2		5		231	233	236	237	254																154
99-1497-t-Comp1	9030	Oceanside Pier		WC	White Croaker-off	N	33 11.80	117 23.51	10/26/99	2		5		176	176	181	182	183																18
99-1497-t-Comp2	9030	Oceanside Pier		WC	White Croaker-on	S	33 11.80	117 23.51	10/26/99	2		5		169	171	173	180	181																29.7
00-0670-t	9040	La Jolla Kelpbed		KB	Kelp Bass	N	32 50.13	117 17.26	5/16/00	2		4		306	309	330	314																	188
99-1794-t	9050	Mission Bay Jetty (South)		BRS	Barred Surfperch	N	32 45.14	117 15.07	11/3/99	2		5		122	130	135	139	139																24.7
99-1499-t	9060	Ocean Beach Pier		CC	California Corbina	N	32 45.08	117 15.63	12/27/99	2		3		235	255	185																		91.4
99-1498-t-Comp1	9060	Ocean Beach Pier		WC	White Croaker-on	S	32 45.08	117 15.63	10/27/99	2		5		125	125	128	131	147																19
99-1498-t-Comp2	9060	Ocean Beach Pier		WC	White Croaker-off	N	32 45.08	117 15.63	10/27/99	2		5		123	124	125	127	139																18.3
00-0667-t	9070	Point Loma Kelpbed		CSH	California Sheephead	N	32 39.63	117 14.58	5/16/00	2		3	Y	237	241	330																		232
00-0668-t	9070	Point Loma Kelpbed		QBR	Quillback Rockfish	N	32 39.63	117 14.58	5/16/00	2		4		310	320	347	351																	439
99-1792-t	9090	5th Ave Marina Pier		DT	Diamond Turbot	S	32 42.21	117 10.12	11/2/99	2		5		205	219	219	236	239																119
99-1791-t	9090	5th Ave Marina Pier		SSB	Spotted Sand Bass	N	32 42.21	117 10.12	11/2/99	2		5		309	309	315	335	335																362
00-0450-t	9100	Imperial Beach Pier		BRS	Barred Surfperch	N	32 34.48	117 07.55	4/4/00	2		10		134	137	137	138	139	142	144	145	149	149											48.64
00-0409-t	9100	Chula Vista		SHS	Shiner Surfperch	S	32 37.46	117 06.42	3/28/00	2		10		162	159	147	147	146	146	145	144	141	140											64
00-0411-t	9100	Chula Vista		SSB	Spotted Sand Bass	N	32 37.46	117 06.42	3/28/00	2		5		305	305	310	310	320																344
00-0414-t	9100	Imperial Beach Pier		WSP	Walleye Surfperch	S	32 34.48	117 07.55	4/4/00	2		3		180	167	155																		97.3
00-0407-t	9110	Aqua Hedionda Lagoon		SHS	Shiner Surfperch	S	33 08.36	117 19.39	3/29/00	2		10		132	133	133	135	136	139	139	141	142	146											26.23
00-0406-t	9110	Aqua Hedionda Lagoon		SSB	Spotted Sand Bass	N	33 08.36	117 19.39	3/29/00	2		5		321	342	342	356	359																384
00-0451-t	9120	Crystal Pier		QUF	Queenfish	S	32 46.73	117 15.20	4/5/00	2		5		146	152	164	166	166																31.1

ANALYSES

M- Arsenic, Cadmium, Mercury and Selenium

O- Organics

PAH- Ph and Organic

Sample ID	Weight (2) g	Weight (3) g	Weight (4) g	Weight (5) g	Weight (6) g	Weight (7) g	Weight (8) g	Weight (9) g	Weight (10) g	Weight (11) g	Weight (12) g	Weight (13) g	Weight (14) g	Weight (15) g	Weight (16) g	Weight (17) g	Weight (18) g	Weight (19) g	Weight (20) g	Total Weight g	Ag_w µg/g	Ag_QA	As_w µg/g	As_QA	Cd_w µg/g	Cd_QA	Cr_w µg/g	Cr_QA	Cu_w µg/g	Cu_QA	Hg_w µg/g	Hg_QA	Ni_w µg/g	Ni_QA	Pb_w µg/g	Pb_QA	Se_w µg/g	Se_QA	Zn_w µg/g	Zn_QA	TM QA Data Set #	Hg QA Data Set #	% Moisture ML/ML	ANALYSES
99-1214-t	497	507	507	574																			0.777		-0.002						0.0941						0.349				2	2	76.47	M
99-1217-t	574	627	771	1020																			2.16		-0.002						0.0874						0.409				2	2	76.31	M
99-1260-t	70	73	78	80																			0.323		-0.002						-0.015						0.248				2	2	77.20	M
99-1262-t	14	14	14	15	15	18	22	22	24														1.09		-0.002						-0.015						0.314				2	2	74.65	M
99-1259-t	314	340	413																				0.811		-0.002						0.107						0.300				2	2	77.10	M
00-0672-t	406	415	517	569																			0.595		-0.002						0.0831						0.195				3	3	77.23	M
00-0673-t	386	497	542	729																			0.601		-0.002						0.102						0.322				3	3	76.62	M
99-1495-t	157	165	178	249																			4.53		-0.002						0.0527						0.362				3	3	78.24	M
99-1497-t-Comp1	40	41	43	45																			0.365		-0.002						-0.015						0.230				3	3	79.71	M
99-1497-t-Comp2	32	39	49	64																			0.449		-0.002						-0.015						0.300				3	3	79.71	M
00-0670-t	198	438	291																				1.08		-0.002						0.0925						0.370				3	3	78.08	M
99-1794-t	32	35	44	46																			1.49		0.00525						0.0376						0.258				3	3	78.24	M
99-1499-t	156	52																					1.77		0.00300						0.0442						0.296				3	3	78.63	M
99-1498-t-Comp1	19	20	22	32																			0.714		0.00282						-0.015						0.275				3	3	78.41	M
99-1498-t-Comp2	20	22	23	29																			0.509		0.00254						0.0280						0.262				3	3	79.54	M
00-0667-t	244	768																					1.60		-0.002						0.184						0.216				3	3	77.47	M
00-0668-t	617	657	666																				0.720		-0.002						0.130						0.185				3	3	78.59	M
99-1792-t	138	144	185	194																			3.93	>	-0.002						-0.015						0.369				3	3	74.95	M
99-1791-t	386	387	469	470																			0.602		-0.002						0.202						0.371				3	3	79.13	M
00-0450-t	46	43	45	39	38	36	36	36	29														0.798		-0.002						0.0323						0.247				3	3	78.63	M
00-0409-t	59	55	48	44	40	40	38	33	31														0.908		0.0130						-0.015						0.352				3	3	77.43	M
00-0411-t	353	370	391	417																			0.394		-0.002						0.124						0.354				3	3	78.05	M
00-0414-t	72	52																					0.603		-0.002						0.0579						0.205				3	3	78.08	M
00-0407-t	27	31	32	32	36	37	38	41	44														0.934		0.00483						-0.015						0.280				3	3	75.09	M
00-0406-t	565	584	617	620																			0.328		-0.002						0.0685						0.269				3	3	77.18	M
00-0451-t	36	38	40	47																			0.764		-0.002						0.0381						0.295				3	3	74.77	M

ANALYSES
M- Arsenic, Cadmi
O- Organics
PAH- Ph and Orga

Appendix B

Mercury Batch Numbers and Associated Samples

Mercury Batch Numbers and Associated Samples.					
Hg QA Data Set #	Sample ID	STATION NUMBER	STATION NAME	SPECIES CODE	SPECIES NAME
1	00-0373-t	4040	Ventura Pier	WC	White Croaker-off
1	00-0375-t	4040	Ventura Pier	WC	White Croaker-on
1	99-1058-t	1010	Crescent City	TPS	Top Smelt
1	99-1059-t	1010	Crescent City	WHS	White Surfperch
1	99-1061-t	1020	Trinidad	RCM	California Mussel
1	99-1064-t	1020	Trinidad	BLR	Black Rockfish
1	99-1077-t	1020	Trinidad	DC	Dungeness Crab
1	99-1078-t	1030	Humboldt Bay/Del Norte Pier	SHS	Shiner Surfperch
1	99-1080-t	1030	Humboldt Bay/Del Norte Pier	RRC	Red Rock Crab
1	99-1081-t	1040	Elk River	PSP	Pile Surfperch
1	99-1083-t	1040	Elk River	RRC	Red Rock Crab
1	99-1084-t	1050	Humboldt Bay/North Jetty	RCM	California Mussel
1	99-1088-t	1050	Humboldt Bay/North Jetty	RRC	Red Rock Crab
1	99-1091-t	4040	Ventura Pier	CC	California Corvina
1	99-1092-t	4040	Ventura Pier	BRS	Barred Surfperch
1	99-1093-t-Comp1	4060	Ventura Marina Jetty	WC	White Croaker-on
1	99-1093-t-Comp2	4060	Ventura Marina Jetty	WC	White Croaker-off
1	99-1094-t	4060	Ventura Marina Jetty	WHS	White Surfperch
1	99-1097-t	4030	Channel Island Harbor	RBS	Rainbow Surfperch
1	99-1098-t	4030	Channel Island Harbor	STR	Spotted Turbot
1	99-1132-t	1060	Point Arena	RRC	Red Rock Crab
1	99-1135-t	1070	Spud Point Breakwater	WHS	White Surfperch
1	99-1136-t	1070	Spud Point Breakwater	RRC	Red Rock Crab
1	99-1137-t	1070	Spud Point Breakwater	SHS	Shiner Surfperch
1	99-1139-t	1080	Salt Point State Park	RCM	California Mussel
1	99-1141-t	1090	Bodega Harbor	RCM	California Mussel
1	99-1142-t	1090	Bodega Harbor	RRC	Red Rock Crab
1	99-1462-t	4050	Port Hueneme	BRS	Barred Surfperch
1	99-1463-t	4050	Port Hueneme	SSD	Speckled Sanddab
1	99-1464-t	4020	Hollywood South Beach	FS	Fantail Sole
1	99-1465-t	4020	Hollywood South Beach	SSD	Speckled Sanddab
2	00-0449-t	8060	Balboa Pier	BRS	Barred Surfperch
2	00-0453-t	8060	Balboa Pier	DT	Diamond Turbot
2	99-1095-t	4060	Ventura Marina Jetty	RBS	Rainbow Surfperch
2	99-1096-t	4060	Ventura Marina Jetty	RBS	Rainbow Surfperch
2	99-1214-t	8100	Emma Oil Platform	KB	Kelp Bass
2	99-1215-t	8100	Emma Oil Platform	BLS	Black Surfperch
2	99-1217-t	8100	Emma Oil Platform	OPE	Opaleye
2	99-1250-t	8010	Seal Beach	YC	Yellowfin Croaker
2	99-1253-t-Comp 1	8010	Seal Beach	WC	White Croaker-off
2	99-1253-t-Comp-2	8010	Seal Beach	WC	White Croaker-on
2	99-1255-t	4090	Belmont Pier	WC	White Croaker
2	99-1256-t	4090	Belmont Pier	STR	Spotted Turbot
2	99-1257-t	4090	Belmont Pier	QUF	Queenfish
2	99-1259-t	8110	Anaheim Bay	YC	Yellowfin Croaker

2	99-1260-t	8110	Anaheim Bay	BLS	Black Surfperch
2	99-1262-t	8110	Anaheim Bay	SHS	Shiner Surfperch
2	99-1263-t	8080	Newport Bay	YC	Yellowfin Croaker
2	99-1264-t	8080	Newport Bay	STR	Spotted Turbot
2	99-1265-t	8080	Newport Bay	SHS	Shiner Surfperch
2	99-1266-t	8070	Newport Jetty	STR	Spotted Turbot
2	99-1268-t	8070	Newport Jetty	BLS	Black Surfperch
2	99-1269-t	8070	Newport Jetty	SHS	Shiner Surfperch
2	99-1466-t	4140	San Gabriel	YC	Yellowfin Croaker
2	99-1467-t	8030	Huntington Beach	BRS	Barred Surfperch
2	99-1468-t	8030	Huntington Beach	SHS	Shiner Surfperch
2	99-1758-t	4110	Santa Monica Pier	BRS	Barred Surfperch
2	99-1759-t	4080	Santa Cruz Island	BUR	Blue Rockfish
2	99-1760-t	4080	Santa Cruz Island	RTR	Rosethorn Rockfish
2	99-1989-t	4110	Santa Monica Pier	QUF	Queenfish
2	99-1990-t	4120	Venice Pier	WC	White Croaker
2	99-1991-t	4120	Venice Pier	QUF	Queenfish
2	99-1992-t	4120	Venice Pier	WSP	Walleye Surfperch
2	99-1993-t	8040	Newport Beach	WC	White Croaker
2	99-1994-t	8040	Newport Beach	BRS	Barred Surfperch
2	99-1995-t	8040	Newport Beach	SHS	Shiner Surfperch
2	99-1996	8050	Newport Beach Pier	WC	White Croaker
2	99-1998-t	8050	Newport Beach Pier	BRS	Barred Surfperch
2	99-2525-t	4100	Catalina Island	KB	Kelp bass
2	99-2526-t	4100	Catalina Island	OPE	Opaleye
2	99-2527-t	4100	Catalina Island	HFM	Halfmoon
3	00-0354-t	3130	Moss Landing Beach	WC	White Croaker
3	00-0406-t	9110	Aqua Hedionda Lagoon	SSB	Spotted Sand Bass
3	00-0407-t	9110	Aqua Hedionda Lagoon	SHS	Shiner Surfperch
3	00-0409-t	9100	Chula Vista	SHS	Shiner Surfperch
3	00-0411-t	9100	Chula Vista	SSB	Spotted Sand Bass
3	00-0414-t	9100	Imperial Beach Pier	WSP	Walleye Surfperch
3	00-0450-t	9100	Imperial Beach Pier	BRS	Barred Surfperch
3	00-0451-t	9120	Crystal Pier	QUF	Queenfish
3	00-0616-t	3070	Pismo Pier	WC	White Croaker
3	00-0617-t	3060	Cayucos Pier	WC	White Croaker
3	00-0667-t	9070	Point Loma Kelpbed	CSH	California Sheephead
3	00-0668-t	9070	Point Loma Kelpbed	QBR	Quillback Rockfish
3	00-0670-t	9040	La Jolla Kelpbed	KB	Kelp Bass
3	00-0672-t	8130	Esther Oil Platform	BLS	Black Surfperch
3	00-0673-t	8130	Esther Oil Platform	KB	Kelp Bass
3	00-0752-t	3050	Capitola Wharf	BRS	Barred Surfperch
3	00-0753-t-Comp1	3050	Capitola Wharf	WC	White Croaker-on
3	00-0753-t-Comp2	3050	Capitola Wharf	WC	White Croaker-off
3	99-1027-t	3050	Capitola Wharf	YC	Yellowfin Croaker
3	99-1099-t	3040	Santa Barbara Jetty	DT	Diamond Turbot
3	99-1246-t	3120	Monterey Bay	BLS	Black Surfperch
3	99-1247-t	3120	Monterey Bay	BUR	Blue Rockfish
3	99-1248-t	3120	Monterey Bay	BRR	Brown Rockfish
3	99-1272-t	3010	Santa Cruz Wharf	YC	Yellowfin Croaker

3	99-1458-t	3040	Santa Barbara Jetty	OPE	Opal Eye
3	99-1495-t	9030	Oceanside Pier	DT	Diamond Turbot
3	99-1497-t-Comp1	9030	Oceanside Pier	WC	White Croaker-off
3	99-1497-t-Comp2	9030	Oceanside Pier	WC	White Croaker-on
3	99-1498-t-Comp1	9060	Ocean Beach Pier	WC	White Croaker-on
3	99-1498-t-Comp2	9060	Ocean Beach Pier	WC	White Croaker-off
3	99-1499-t	9060	Ocean Beach Pier	CC	California Corbina
3	99-1791-t	9090	5th Ave Marina Pier	SSB	Spotted Sand Bass
3	99-1792-t	9090	5th Ave Marina Pier	DT	Diamond Turbot
3	99-1794-t	9050	Mission Bay Jetty (South)	BRS	Barred Surfperch
4	00-0333-t	3180	Salinas River Beach	WC	White Croaker
4	00-0353-t	3170	Pajaro River Beach	WC	White Croaker
4	00-0457-t-Comp1	2200	Pacifica Pier	DC	Dungeness Crab-Claw
4	00-0457-t-Comp2	2200	Pacifica Pier	DC	Dungeness Crab-Hepato
4	00-0458-t	2200	Pacifica Pier	WSP	Walleye Surfperch
4	00-0609-t-Comp1	2250	Princeton Jetty	RRC	Red Rock Crab-Claw
4	00-0609-t-Comp2	2250	Princeton Jetty	RRC	Red Rock Crab-Hepato
4	00-0611-t-Comp1	2200	Pacifica Pier	RRC	Red Rock Crab-Claw
4	00-0611-t-Comp2	2200	Pacifica Pier	RRC	Red Rock Crab-Hepato
4	00-0649-t	2050	Marin Coast	CHS	Chinook Salmon
4	00-0654-t	2250	Princeton Jetty	WC	White Croaker
4	00-0657-t-Comp1	2150	Devils Slide	DC	Dungeness Crab-Claw
4	00-0657-t-Comp2	2150	Devils Slide	DC	Dungeness Crab-Hepato
4	00-0659t	2300	San Mateo Coast	BLR	Black Rockfish
4	00-0660-t	2300	San Mateo Coast	RTR	Rosethorn Rockfish
4	00-0661-t	2250	Princeton Jetty	RBS	Rainbow Surfperch
4	00-0663-t	2250	Princeton Jetty	WHS	White Surfperch
4	00-0664-t	2250	Princeton Jetty	PSP	Pile Surfperch
4	00-0675-t	3200	Elkhorn Slough	LS	Leopard Shark
4	00-0711-t	2300	San Mateo Coast	SFS	Spotfin Surfperch
4	00-0712-t	2100	San Francisco Coastline	CHS	Chinook Salmon
4	00-0713-t	2300	San Mateo Coast	BRR	Brown Rockfish
4	00-0714-t	2300	San Mateo Coast	LC	Lingcod
4	00-0725-t	3200	Elkhorn Slough	SHS	Shiner Surfperch
4	00-0775-t	2200	Pacifica Pier	WHS	White Surfperch
4	99-1029-t	3180	Salinas River Beach	BRS	Barred Surfperch
4	99-1089-t	3140	Goleta Pier	CC	California Corbina
4	99-1090-t	3140	Goleta Pier	YC	Yellowfin Croaker
4	99-1190-t	3170	Pajaro River Beach	BRS	Barred Surfperch

Appendix C

Trace Metal Batch Numbers and Associated Samples

Trace Metal Batch Numbers and Associated Samples.					
Hg QA Data Set #	Sample ID	STATION NUMBER	STATION NAME	SPECIES CODE	SPECIES NAME
1	00-0373-t	4040	Ventura Pier	WC	White Croaker-off
1	00-0375-t	4040	Ventura Pier	WC	White Croaker-on
1	99-1058-t	1010	Crescent City	TPS	Top Smelt
1	99-1059-t	1010	Crescent City	WHS	White Surfperch
1	99-1061-t	1020	Trinidad	RCM	California Mussel
1	99-1064-t	1020	Trinidad	BLR	Black Rockfish
1	99-1077-t	1020	Trinidad	DC	Dungeness Crab
1	99-1078-t	1030	Humboldt Bay/Del Norte Pier	SHS	Shiner Surfperch
1	99-1080-t	1030	Humboldt Bay/Del Norte Pier	RRC	Red Rock Crab
1	99-1081-t	1040	Elk River	PSP	Pile Surfperch
1	99-1083-t	1040	Elk River	RRC	Red Rock Crab
1	99-1084-t	1050	Humboldt Bay/North Jetty	RCM	California Mussel
1	99-1088-t	1050	Humboldt Bay/North Jetty	RRC	Red Rock Crab
1	99-1091-t	4040	Ventura Pier	CC	California Corvina
1	99-1092-t	4040	Ventura Pier	BRS	Barred Surfperch
1	99-1093-t-Comp1	4060	Ventura Marina Jetty	WC	White Croaker-on
1	99-1093-t-Comp2	4060	Ventura Marina Jetty	WC	White Croaker-off
1	99-1094-t	4060	Ventura Marina Jetty	WHS	White Surfperch
1	99-1097-t	4030	Channel Island Harbor	RBS	Rainbow Surfperch
1	99-1098-t	4030	Channel Island Harbor	STR	Spotted Turbot
1	99-1132-t	1060	Point Arena	RRC	Red Rock Crab
1	99-1135-t	1070	Spud Point Breakwater	WHS	White Surfperch
1	99-1136-t	1070	Spud Point Breakwater	RRC	Red Rock Crab
1	99-1137-t	1070	Spud Point Breakwater	SHS	Shiner Surfperch
1	99-1139-t	1080	Salt Point State Park	RCM	California Mussel
1	99-1141-t	1090	Bodega Harbor	RCM	California Mussel
1	99-1142-t	1090	Bodega Harbor	RRC	Red Rock Crab
1	99-1462-t	4050	Port Hueneme	BRS	Barred Surfperch
1	99-1463-t	4050	Port Hueneme	SSD	Speckled Sanddab
1	99-1464-t	4020	Hollywood South Beach	FS	Fantail Sole
1	99-1465-t	4020	Hollywood South Beach	SSD	Speckled Sanddab
2	00-0449-t	8060	Balboa Pier	BRS	Barred Surfperch
2	00-0453-t	8060	Balboa Pier	DT	Diamond Turbot
2	99-1095-t	4060	Ventura Marina Jetty	RBS	Rainbow Surfperch
2	99-1096-t	4060	Ventura Marina Jetty	RBS	Rainbow Surfperch
2	99-1214-t	8100	Emma Oil Platform	KB	Kelp Bass
2	99-1215-t	8100	Emma Oil Platform	BLS	Black Surfperch
2	99-1217-t	8100	Emma Oil Platform	OPE	Opaleye
2	99-1250-t	8010	Seal Beach	YC	Yellowfin Croaker
2	99-1253-t-Comp 1	8010	Seal Beach	WC	White Croaker-off
2	99-1253-t-Comp-2	8010	Seal Beach	WC	White Croaker-on
2	99-1255-t	4090	Belmont Pier	WC	White Croaker
2	99-1256-t	4090	Belmont Pier	STR	Spotted Turbot

2	99-1257-t	4090	Belmont Pier	QUF	Queenfish
2	99-1259-t	8110	Anaheim Bay	YC	Yellowfin Croaker
2	99-1260-t	8110	Anaheim Bay	BLS	Black Surfperch
2	99-1262-t	8110	Anaheim Bay	SHS	Shiner Surfperch
2	99-1263-t	8080	Newport Bay	YC	Yellowfin Croaker
2	99-1264-t	8080	Newport Bay	STR	Spotted Turbot
2	99-1265-t	8080	Newport Bay	SHS	Shiner Surfperch
2	99-1266-t	8070	Newport Jetty	STR	Spotted Turbot
2	99-1268-t	8070	Newport Jetty	BLS	Black Surfperch
2	99-1269-t	8070	Newport Jetty	SHS	Shiner Surfperch
2	99-1466-t	4140	San Gabriel	YC	Yellowfin Croaker
2	99-1467-t	8030	Huntington Beach	BRS	Barred Surfperch
2	99-1468-t	8030	Huntington Beach	SHS	Shiner Surfperch
2	99-1758-t	4110	Santa Monica Pier	BRS	Barred Surfperch
2	99-1759-t	4080	Santa Cruz Island	BUR	Blue Rockfish
2	99-1760-t	4080	Santa Cruz Island	RTR	Rosethorn Rockfish
2	99-1989-t	4110	Santa Monica Pier	QUF	Queenfish
2	99-1990-t	4120	Venice Pier	WC	White Croaker
2	99-1991-t	4120	Venice Pier	QUF	Queenfish
2	99-1992-t	4120	Venice Pier	WSP	Walleye Surfperch
2	99-1993-t	8040	Newport Beach	WC	White Croaker
2	99-1994-t	8040	Newport Beach	BRS	Barred Surfperch
2	99-1995-t	8040	Newport Beach	SHS	Shiner Surfperch
2	99-1996	8050	Newport Beach Pier	WC	White Croaker
2	99-1998-t	8050	Newport Beach Pier	BRS	Barred Surfperch
2	99-2525-t	4100	Catalina Island	KB	Kelp bass
2	99-2526-t	4100	Catalina Island	OPE	Opaleye
2	99-2527-t	4100	Catalina Island	HFM	Halfmoon
3	00-0354-t	3130	Moss Landing Beach	WC	White Croaker
3	00-0406-t	9110	Aqua Hedionda Lagoon	SSB	Spotted Sand Bass
3	00-0407-t	9110	Aqua Hedionda Lagoon	SHS	Shiner Surfperch
3	00-0409-t	9100	Chula Vista	SHS	Shiner Surfperch
3	00-0411-t	9100	Chula Vista	SSB	Spotted Sand Bass
3	00-0414-t	9100	Imperial Beach Pier	WSP	Walleye Surfperch
3	00-0450-t	9100	Imperial Beach Pier	BRS	Barred Surfperch
3	00-0451-t	9120	Crystal Pier	QUF	Queenfish
3	00-0616-t	3070	Pismo Pier	WC	White Croaker
3	00-0617-t	3060	Cayucos Pier	WC	White Croaker
3	00-0667-t	9070	Point Loma Kelpbed	CSH	California Sheephead
3	00-0668-t	9070	Point Loma Kelpbed	QBR	Quillback Rockfish
3	00-0670-t	9040	La Jolla Kelpbed	KB	Kelp Bass
3	00-0672-t	8130	Esther Oil Platform	BLS	Black Surfperch
3	00-0673-t	8130	Esther Oil Platform	KB	Kelp Bass
3	00-0752-t	3050	Capitola Wharf	BRS	Barred Surfperch
3	00-0753-t-Comp1	3050	Capitola Wharf	WC	White Croaker-on
3	00-0753-t-Comp2	3050	Capitola Wharf	WC	White Croaker-off
3	99-1027-t	3050	Capitola Wharf	YC	Yellowfin Croaker
3	99-1099-t	3040	Santa Barbara Jetty	DT	Diamond Turbot

3	99-1246-t	3120	Monterey Bay	BLS	Black Surfperch
3	99-1247-t	3120	Monterey Bay	BUR	Blue Rockfish
3	99-1248-t	3120	Monterey Bay	BRR	Brown Rockfish
3	99-1272-t	3010	Santa Cruz Wharf	YC	Yellowfin Croaker
3	99-1458-t	3040	Santa Barbara Jetty	OPE	Opal Eye
3	99-1495-t	9030	Oceanside Pier	DT	Diamond Turbot
3	99-1497-t-Comp1	9030	Oceanside Pier	WC	White Croaker-off
3	99-1497-t-Comp2	9030	Oceanside Pier	WC	White Croaker-on
3	99-1498-t-Comp1	9060	Ocean Beach Pier	WC	White Croaker-on
3	99-1498-t-Comp2	9060	Ocean Beach Pier	WC	White Croaker-off
3	99-1499-t	9060	Ocean Beach Pier	CC	California Corbina
3	99-1791-t	9090	5th Ave Marina Pier	SSB	Spotted Sand Bass
3	99-1792-t	9090	5th Ave Marina Pier	DT	Diamond Turbot
3	99-1794-t	9050	Mission Bay Jetty (South)	BRS	Barred Surfperch
4	00-0333-t	3180	Salinas River Beach	WC	White Croaker
4	00-0353-t	3170	Pajaro River Beach	WC	White Croaker
4	00-0457-t-Comp1	2200	Pacifica Pier	DC	Dungeness Crab-Claw
4	00-0457-t-Comp2	2200	Pacifica Pier	DC	Dungeness Crab-Hepato
4	00-0458-t	2200	Pacifica Pier	WSP	Walleye Surfperch
4	00-0609-t-Comp1	2250	Princeton Jetty	RRC	Red Rock Crab-Claw
4	00-0609-t-Comp2	2250	Princeton Jetty	RRC	Red Rock Crab-Hepato
4	00-0611-t-Comp1	2200	Pacifica Pier	RRC	Red Rock Crab-Claw
4	00-0611-t-Comp2	2200	Pacifica Pier	RRC	Red Rock Crab-Hepato
4	00-0649-t	2050	Marin Coast	CHS	Chinook Salmon
4	00-0654-t	2250	Princeton Jetty	WC	White Croaker
4	00-0657-t-Comp1	2150	Devils Slide	DC	Dungeness Crab-Claw
4	00-0657-t-Comp2	2150	Devils Slide	DC	Dungeness Crab-Hepato
4	00-0659t	2300	San Mateo Coast	BLR	Black Rockfish
4	00-0660-t	2300	San Mateo Coast	RTR	Rosethorn Rockfish
4	00-0661-t	2250	Princeton Jetty	RBS	Rainbow Surfperch
4	00-0663-t	2250	Princeton Jetty	WHS	White Surfperch
4	00-0664-t	2250	Princeton Jetty	PSP	Pile Surfperch
4	00-0675-t	3200	Elkhorn Slough	LS	Leopard Shark
4	00-0711-t	2300	San Mateo Coast	SFS	Spotfin Surfperch
4	00-0712-t	2100	San Francisco Coastline	CHS	Chinook Salmon
4	00-0713-t	2300	San Mateo Coast	BRR	Brown Rockfish
4	00-0714-t	2300	San Mateo Coast	LC	Lingcod
4	00-0725-t	3200	Elkhorn Slough	SHS	Shiner Surfperch
4	00-0775-t	2200	Pacifica Pier	WHS	White Surfperch
4	99-1029-t	3180	Salinas River Beach	BRS	Barred Surfperch
4	99-1089-t	3140	Goleta Pier	CC	California Corbina
4	99-1090-t	3140	Goleta Pier	YC	Yellowfin Croaker
4	99-1190-t	3170	Pajaro River Beach	BRS	Barred Surfperch