SWAMP
Surface Water Ambient Monitoring Program

Final Technical Report	2005

Concentrations in Fish Tissues from Selected Reservoirs and Coastal Areas in the San Francisco Bay Region

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UNIVERSITY OF CALIFORNIA, DAVIS
CALIFORNIA DEPARTMENT OF FISH AND GAME
SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD

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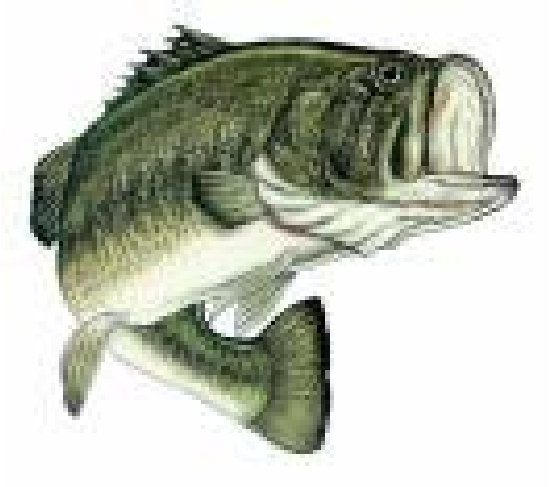
SURFACE WATER AMBIENT MONITORING PROGRAM
(SWAMP)

Chemical Concentrations in Fish Tissues from Selected Reservoirs and Coastal Areas in the San Francisco Bay Region

FINAL REPORT



2005

UNIVERSITY OF CALIFORNIA, DAVIS
CALIFORNIA DEPARTMENT OF FISH AND GAME
SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD

Executive Summary

As part of the California Surface Waters Ambient Monitoring Program (SWAMP), the State Water Resources Control Board (State Board) and Regional Water Quality Control Boards (Regional Boards) have undertaken a series of studies to evaluate the condition of California's water resources. This SWAMP report describes surveys of reservoirs and coastal areas conducted by the San Francisco Bay Regional Water Quality Control Board, in which edible fish were collected and their tissues analyzed to determine the concentrations of contaminants which may affect human health. These and other data have been used by staff from the State Office of Environmental Health Hazard Assessment (OEHHA) to determine whether and what type of advisories should be issued related to the consumption of fish from the surveyed reservoirs and coastal waters.

Fish from one regional reservoir, San Pablo, were previously found to contain high concentrations of mercury, PCBs, and pesticides (Brodberg and Pollock 1999). Fish from Tomales Bay have been investigated in response to Regional Board concerns over the transport of mercury-laden sediments from the inoperative Gambonini mercury mine. These and other water quality concerns prompted the Regional Board to direct SWAMP funds to the Toxic Substances Monitoring Program and Coastal Fish Contamination Program to better characterize the potential risk to human health from consuming species caught while fishing in the Region's reservoirs and coastal waters.

Edible fish tissues were sampled and analyzed from ten reservoirs: Bon Tempe, Nicasio and Soulajule Reservoirs in Marin County; San Pablo and Lafayette Reservoirs in Contra Costa County; Lake Chabot, Shadow Cliffs and Del Valle Reservoirs in Alameda County; and Stevens Creek and Anderson Reservoirs in Santa Clara County. Fish samples were also collected and analyzed from Tomales Bay and coastal areas along the San Mateo and San Francisco County coasts, as well as near the Farallone Islands.

These studies resulted in the following findings:

1. All the reservoirs sampled yielded fish with edible tissue concentrations of mercury that exceed the OEHHA mercury Screening Value (SV) and U.S. Environmental Protection Agency (EPA) water quality criterion of 0.3 ppm (wet weight).
2. Largemouth bass accumulated higher levels of mercury than the other fish species sampled, with concentrations averaging about 3 to 5 times higher than those for carp, channel catfish, and black crappie. Largemouth bass exceeded the OEHHA SV in all nine reservoirs from which they were collected. Largemouth bass from Soulajule, Stevens Creek and Anderson Reservoirs had the highest concentrations of mercury.
3. With the exception of Nicasio Reservoir, all nine of the reservoirs surveyed for organic chemicals (pesticides and PCBs) had edible fish tissue PCB concentrations above the OEHHA SV of 20 ppb (wet weight).
4. PCB concentrations were highest in carp, followed by channel catfish, and largemouth bass. Carp in Lake Chabot had the highest mean concentrations of PCBs.
5. Dieldrin exceeded the SV of 2 ppb (wet weight) in edible fish tissues from Lake Chabot, San Pablo and Stevens Creek Reservoirs, with the highest mean concentrations in carp and channel catfish from San Pablo Reservoir.
6. Total chlordanes and total DDTs were both found above SVs in carp and channel catfish from Lake Chabot, San Pablo, and Stevens Creek Reservoirs.
7. The highest tissue concentrations of total chlordanes were found in San Pablo Reservoir, while the highest total DDTs were found in Lake Chabot.
8. OEHHA and county health officials have worked together to develop Interim Advisories for consuming fish in the sampled reservoirs, based on the data in this report and earlier data collected by OEHHA
9. Sufficient mercury data were available from Tomales Bay for OEHHA to set consumption guidelines for California halibut, redtail surfperch, shiner surfperch, jacksmelt, leopard shark, brown smoothhound shark, Pacific angel shark, bat ray, and red rock crab. Pile surfperch

were also included in the advisory, based on data for other surfperch species. The advisory is included in Appendix I.

10. It is important to note that the OEHHA mercury advisory does NOT apply to commercial oysters, clams, or mussels from Tomales Bay. Mercury concentrations have been measured in commercially grown Tomales Bay shellfish, and elevated levels have not been found.
11. Along the San Mateo coast, two of four crab samples and three of eleven fish samples had mercury concentrations above the OEHHA SV. One walleye surfperch sample exceeded the SV for PCBs.
12. Salmon composites from the San Francisco coast and the Farallone Islands did not exceed any screening values.

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Cover Image: Largemouth Bass. Courtesy of www.droppinaline.com.

1 Introduction

As part of the California Surface Waters Ambient Monitoring Program (SWAMP), the State Water Resources Control Board (State Board) and Regional Water Quality Control Boards (Regional Boards) have undertaken a series of studies to evaluate the condition of California's water resources. These studies are designed to provide information to the public and to decision makers considering questions such as:

Is the water safe to drink?

Is the water safe to swim in?

Is it safe to eat the fish?

Can the waterways support aquatic life?

This SWAMP report describes surveys of reservoirs and coastal areas in the San Francisco Bay Region, in which edible fish were collected and their tissues analyzed to determine the concentrations of contaminants which may affect human health. These and other data have been used by staff from the State Office of Environmental Health Hazard Assessment (OEHHA) to determine whether and what type of health advisories should be issued related to the consumption of fish from the surveyed reservoirs and coastal waters.

1.1 Overview of the Surface Water Ambient Monitoring Program in California

SWAMP was created to address requirements for a comprehensive surface water monitoring program under California Assembly Bill 982 (Water Code Section 13192; Statutes of 1999). Many previously existing water quality monitoring programs, such as the Toxic Substances Monitoring Program (TSMP) and the Coastal Fish Contamination Program (CFCP), have been combined under SWAMP. The program is designed to provide information necessary for water quality management in California, and to address federal Clean Water Act (CWA) requirements for water quality reporting and water body listing under Sections 305 (b) and 303 (d) of the CWA. Details of SWAMP objectives and methods can be found in the SWAMP Quality Assurance Management Plan (QAMP; Puckett 2002).

1.2 Goals and Objectives of SWAMP in the San Francisco Bay Region

In October 1999, the San Francisco Bay Regional Board developed a Regional Monitoring and Assessment Strategy (RMAS) in order to collect information on all water bodies in the San Francisco Bay Region. SWAMP is being used in this Region to implement the RMAS, which consists of activities led by the Regional Board, by collaborating partner agencies, and by the San Francisco Estuary Regional Monitoring Program (RMP). The activities led by the Regional Board under SWAMP include:

1) Monitoring watersheds to assess water quality impacts and establish regional reference sites; and
2) Monitoring edible fish tissue contaminant levels in reservoirs and coastal areas where people catch and consume fish.

This report addresses the second objective. Under SWAMP, edible fish tissue contaminant monitoring was conducted by the TSMP and CFCP in reservoirs and coastal areas popular for fishing. TSMP reservoir data were generated from fish collected between 2000 and 2002; CFCP coastal data were from fish collected between 1998 and 2001.

2 Selection and Description of Water Bodies Sampled for Contaminants in Edible Fish

In order to characterize the potential risk to human health from consuming species caught while fishing, edible fish tissues were sampled and analyzed from 10 reservoirs and four coastal areas (Figure 1): Bon Tempe, Nicasio and Soulajule Reservoirs in Marin County; San Pablo and Lafayette Reservoirs in Contra Costa County; Lake Chabot, Shadow Cliffs and Del Valle Reservoirs in Alameda County; Stevens Creek and Anderson Reservoirs in Santa Clara County; and coastal waters in Tomales Bay, along the San Mateo and San Francisco County coasts and near the Farallone Islands. These water bodies were selected for sampling based on fishing pressure and geographic balance within the Region. Concentrations of contaminants in fish from San Francisco Bay are monitored through the San Francisco Estuary Regional Monitoring Program (http://www.sfei.org). All edible fish tissue studies have been conducted in cooperation with OEHHA.

2.1 Reservoirs

Fish sampling in reservoirs was conducted through the Toxic Substances Monitoring Program (TSMP). The TSMP was initiated in 1976 by the SWRCB to provide a uniform statewide approach to the detection and evaluation of toxic substances in freshwater, estuarine, and marine waters of the State through the analysis of fish and other aquatic life. In a study conducted by OEHHA, fish from San Pablo Reservoir (located in the Wildcat/San Pablo Watershed) were previously found to contain high mercury concentrations (California Lakes Study; Brodberg and Pollock 1999). Based on those results, an interim advisory was issued by the Contra Costa County Health Services Department for the consumption of largemouth bass collected from San Pablo Reservoir (http://www.co.contra-costa.ca.us). These findings, the paucity of recent data from other reservoirs, and the knowledge that fish from Regional reservoirs are commonly caught and consumed, led the Regional Board to direct SWAMP funds towards an assessment of chemical concentrations in edible fish tissues in the ten selected reservoirs.

2.2 Coastal Waters

Fish sampling in coastal waters was conducted through the Coastal Fish Contamination Program (CFCP). Fish sampling in Tomales Bay was conducted in response to Regional Board concerns over the transport of mercury-laden sediments from the inoperative Gambonini mercury mine. The mine was located in the Walker Creek basin, the second largest watershed draining to Tomales Bay. The US EPA and the Regional Board initiated an emergency Superfund cleanup action for the Gambonini mine in 1998. The Regional Board has supported a number of studies to assess the fate, transport, and effects of mercury in the watershed and its receiving waters in Tomales Bay.

Because shellfish aquaculture is an important economic activity in Tomales Bay, the Regional Board used state Mussel Watch funds in the late 1990s to measure mercury concentrations in commercially grown oysters. These studies found that mercury concentrations in oysters were all well below the FDA action level for commercial fish and shellfish (1.0 ppm wet wt.), as well as the OEHHA SV (0.3 ppm wet wt.), and ranged from 0.029 to 0.049 ppm wet wt. Similarly,

mercury concentrations in mussels transplanted to the Walker Creek Delta for three months during the 1996/97 rainy season, ranged from 0.044 to 0.055 ppm (wet wt.), while mussels transplanted in Tomales Bay north and south of the Delta ranged from 0.033 to 0.036 ppm. Mercury concentrations in resident bivalves (cockles) harvested from sediments in the Walker Creek Delta contained up to 0.56 ppm (wet wt.). This was an order of magnitude greater than for both the mussels and oysters, which were suspended above the sediment, and for the resident cockles harvested at the McDonald sediment sampling location 11 km south of Walker Creek. However, when methylmercury concentrations, the toxic form of mercury, were measured in the resident cockles from Walker Creek Delta the concentrations were low. In all cases, the mercury concentrations in shellfish were below the 1 ppm action level set by the US Food and Drug Administration, which oversees commercially grown shellfish. There are no OEHHA advisories in effect for Tomales Bay bivalves (OEHHA 2004).

In 1998, 1999, and 2001, CFCP funds were used to investigate mercury contamination in fish in Tomales Bay. Tomales Bay is a popular salt-water fishing area, with anglers catching a variety of species, including halibut, surfperch, jack smelt, brown smoothhound sharks, leopard sharks, bat rays, and angel sharks. The CFCP sampled edible fish tissues in these species, and detected high levels of mercury. In order to alert the fishing community to potential health risks associated with mercury, the County of Marin, in cooperation with OEHHA, issued an interim fish consumption advisory for Tomales Bay (County of Marin 2000). More tissues were sampled in 2001. These additional data allowed OEHHA to more reliably determine tissue concentrations, and to issue a Health Advisory for consumption of fish and red rock crab from Tomales Bay (Appendix I; OEHHA 2004). The methods and results of these fish tissue analyses are covered in this report.

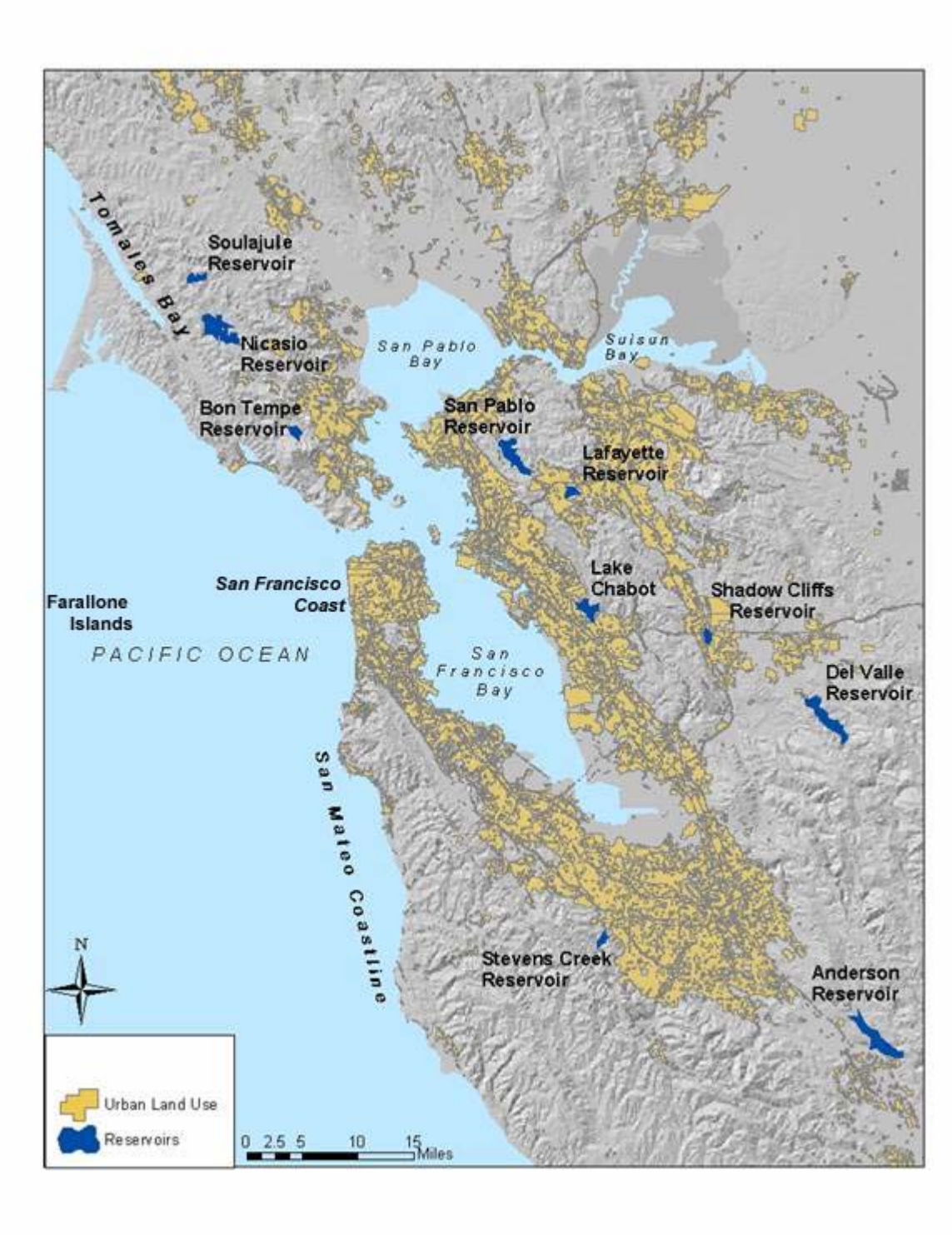
In 2000 the CFCP sampled edible fish and shellfish tissues in other coastal areas. Along the San Mateo County coast samples consisted of composites of between 3 to 13 individuals per sample of the following species: Dungeness crab, red rock crab, chinook salmon, white croaker, walleye surfperch, white surfperch, pile surfperch, rainbow surfperch, spotfin surfperch, brown rockfish, rosethorn rockfish, black rockfish, and lingcod. Crab hepatopancreas were also sampled. In

addition, two composite samples of salmon were collected; one from the San Francisco County coast and one near the Farallone Islands.

2.3 Use of Screening Values

U.S. EPA recommends that states use screening values (SVs) as part of the process of monitoring fish for contaminants and determining which target chemicals and specific fish species are of potential health concern when consumed by the public. Screening values are not regulatory and do not correspond to an advisory level. Measurements that exceed SVs in pilot or screening studies indicate where further sampling would be appropriate. They are used to determine which chemicals and fish species are most important to sample more intensively in a water body. Exceedences of SVs also serve to indicate when evaluation of human health risks should be conducted and are used to determine which chemicals and species should be considered in risk assessments to determine consumption advice.

Figure 1. Location of sampled water bodies in the San Francisco Bay Region.



3 Methods

All sampling, chain of custody procedures, and laboratory analyses were performed according to objectives and procedures outlined in the SWAMP QAMP and its appendices (Puckett 2002), unless otherwise noted. Regional Board contacts, as well as participants contracted for field and laboratory studies, are also listed in the QAMP (Puckett 2002, Appendix A). All station locations were measured using global positioning system (GPS) units.

3.1 Reservoir Sampling

Fish targeted for collection in Regional reservoirs in 2000-2002 included those species frequently caught and consumed by recreational anglers: channel catfish, carp, rainbow trout, largemouth bass, bluegill, crappie and other sunfish. Of these, all but rainbow trout were collected. Two or more species were collected in most reservoirs. Sampling effort was designed to catch enough fish to make two to four composite samples of four fish each, for each species collected. Within each composite, the smallest fish was at least 75% the length of the largest fish. Larger, older fish were targeted, with a minimum size set at the legal angling size or practical eating size for each species.

Fish collection was performed by the Department of Fish and Game (DFG) Aquatic Bioassessment Laboratory using an electrofishing boat. Fish species and length were recorded before fish were wrapped in aluminum foil or Teflon®. The heads and tails of fish larger than the wrapping material were removed prior to wrapping (gut contents were kept intact). Fish were kept on dry ice in the field, then frozen at -20º C prior to analysis. Tissues were analyzed for mercury, pesticides, polychlorinated biphenyls (PCBs), moisture, and lipids (Table 1). Details of fish sampling and analysis methods used in the TSMP can be found in their most recent data report (Rasmussen 1997). Chemical concentrations in edible fish tissues from reservoirs were compared to OEHHA screening values (SVs; Table 2). SVs were not available for all analytes.

Table 1. Analytes measured in edible tissue under the Toxic Substances Monitoring Program and the Coastal Fish Contamination Program.

Analyte	CFCP, Coastal Samples (1)	TSMP, reservoirs (2)
Organics		
Aldrin	X	X
Chlordane, cis	X	X
Chlordane, trans	X	X
Chlordane, alpha	X	X
Chlordane, gamma	X	X
Chlorpyrifos	X	X
Dacthal	X	X
DDD(o,p')	X	X
DDD(p,p')	X	X
DDE(o,p')	X	X
DDE(p,p')	X	X
DDMU(p,p')	X	X
DDT(o,p')	X	X
DDT(p,p')	X	X
Diazinon	X	X
Dichlorobenzophenone-p,p'		X
Dieldrin	X	X
Endosulfan I	X	X
Endosulfan II	X	
Endosulfan sulfate	X	
Endrin	X	X
Ethion	X	X
HCH, alpha	X	X
HCH, beta	X	X
HCH, delta	X	X
HCH, gamma	X	X

Table 1 (Continued). Analytes measured in edible tissue under the Toxic Substances Monitoring Program and the Coastal Fish Contamination Program.

Analyte	CFCP, Coastal Samples (1)	TSMP, reservoirs (2)
Heptachlor	X	X
Heptachlor epoxide	X	X
Hexachlorobenzene	X	X
Methoxychlor	X	X
Mirex	X	
Nonachlor, cis	X	X
Nonachlor, trans	X	X
Oxadiazon	X	X
Oxychlordane	X	X
Parathion, Ethyl	X	X
Parathion, Methyl	X	X
PCBs (various congeners)		X
PCBs (Aroclor 1248, 1254, 1260)	X	
Tetrachlorophenol, 2,3,5,6-	X	
Toxaphene	X	X
Inorganics		
Arsenic (Total or Inorganic)	X	
Cadmium	X	
Chromium	X	
Copper	X	
Lead	X	
Mercury (Total or Methyl-)	X	X
Nickel	X	
Selenium	X	
Silver	X	
Zinc	X	
Other analytes		
Lipid	X	X
Moisture	X	X

(1) These data are not part of the SWAMP database; see OEHHA 2004 for analysis details.
(2) These data are not part of the SWAMP database; see Rasmussen 1997 for analysis details.

Table 2. Screening Values for contaminants in edible fish tissue from reservoirs.

Constituent	OEHHA Screening Values (1)
Mercury	0.3 ppm
Total Chlordanes	30 ppb
Total DDTs	100 ppb
Dieldrin	2.0 ppb
Endrin	1,000 ppb
Lindane (gamma-HCH)	30 ppb
Heptachlor epoxide	4.0 ppb
HCB	20 ppb
Toxaphene	30 ppb
Diazinon	300 ppb
Chlorpyrifos	10,000 ppb
Total PCBs	20 ppb

(1) From Brodberg and Pollock 1999, for California reservoirs. Screening values (SVs) were calculated based on EPA guidance (1995), using the dose-response variables published in current EPA guidelines (USEPA 2000) and a consumption rate of 21 g/d for recreational fishers. The current EPA SVs (USEPA 2000) were calculated with a consumption rate of 17.5 g/d; because OEHHA used higher consumption rates and rounded their calculations, their SVs are more protective than EPA values, with the exception of chlorpyrifos (EPA = 1200 ppb).

3.2 Coastal Sampling

All methods for sampling and analysis of coastal fish were consistent under the Coastal Fish Contamination Program. Coastal fish were collected by scientists from the DFG Marine Pollution Studies Laboratory. Fish were collected using nets or by hook and line. From 1998 to 2001 fish were sampled in Tomales Bay, along the San Mateo and San Francisco coasts and near the Farallone Islands.

Information from past sampling efforts helped determine the fish species to target for collection from Tomales Bay. Where target species or numbers were not attainable, other species were collected. Species (and number of samples each) collected during one or both of the two sampling periods were California halibut (12), redtail surfperch (3), shiner surfperch (7), jacksmelt (7), leopard shark (18), brown smoothhound shark (12), Pacific angel shark (18), bat

ray (12), pile surfperch (1), red rock crab (6), and resident clams (10). Tissue samples were analyzed for organic chemicals and trace metals.

In Tomales Bay composite samples of three to five individuals each (or enough to yield 100 g of tissue) were collected for each species. Both individual fish and composite samples were analyzed. Composite samples (including tissues taken from more than one individual of a given species) were used to maximize the amount of information gained without incurring higher analytical costs from additional individual samples. Differences in the size of the smallest and largest fish in each composite were no greater than 25 percent, with the exception of two composites of shiner surfperch and one composite of bat ray, each of which exceeded the acceptable range by two to three millimeters. For some species, individual fish were analyzed in order to provide information on the relationship between size of fish and mercury concentration, and to provide additional information on the amount of variability among individual fish. The species analyzed as individuals in 1999 were leopard shark and Pacific angel shark. In 2001, individual samples were analyzed for all shark species, bat rays, and California halibut. Organisms were wrapped in Teflon® and plastic bags; some large fish were dissected in the field prior to wrapping. Samples were kept on ice in the field, then frozen at -20ºC until analysis.

Tissue samples were homogenized in the laboratory, and all samples were analyzed for total mercury. Most fish samples were also analyzed for arsenic, cadmium, and selenium. Redtail surfperch and jacksmelt were only analyzed for mercury and arsenic. California halibut and shiner surfperch were analyzed for a full suite of trace metals including silver, arsenic, cadmium, chromium, copper, mercury, lead, nickel, selenium, and zinc. Clams were also analyzed for the full suite of trace metals and for methylmercury. Red rock crabs were analyzed for mercury, methylmercury, arsenic, cadmium, and selenium (Table 1; OEHHA 2004). In 1999, California halibut and shiner surfperch were analyzed for organic contaminants. Additional details of fish sampling methods in Tomales Bay can be found in the following documents: SWAMP QAMP (Puckett 2002, Appendix D); "Health Advisory: Guidelines for Consumption of Fish and Shellfish from Tomales Bay" (Marin County 2000); and OEHHA (2004). The main OEHHA webpage for all Tomales Bay advisory information is:
http://www.oehha.ca.gov/fish/so_cal/tomales.html

In 2000 fish and crab samples were collected from the San Mateo County coast. Species included Dungeness crab, red rock crab, walleye surfperch, white surfperch, white croaker, pile surfperch, rainbow surfperch, brown rockfish, lingcod, rosethorn rockfish, black rockfish and spotfin surfperch. All samples were composites made up of from 3 to 13 individuals. Four composite samples of crab hepatopancreas were also sampled; two Dungeness and two red rock crab. In addition, two composite samples of salmon were collected; one from the San Francisco County coast and one near the Farallone Islands. All of the fish and crab muscle tissue samples were analyzed for arsenic, cadmium, mercury, selenium and organics, including PCBs and pesticides. Hepatopancreas samples were only analyzed for mercury.

3.3 Analytical Methods

Homogenized tissue from the samples was digested using acid, and analyzed for total mercury by cold vapor atomic fluorescence spectrometry using a Perkin Elmer Flow Injection Mercury System at DFG Moss Landing Marine Laboratory. Methylmercury was measured in several clam and red rock crab samples. Methylmercury was analyzed by cold vapor atomic fluorescence spectrometry at CDFG Moss Landing Marine Laboratory. For analysis of organic chemicals (including pesticides and PCBs), homogenized tissue was extracted and analyzed by capillary gas chromatography for chlorinated hydrocarbons utilizing an electron capture detector (GC/ECD), and for aromatic hydrocarbons by gas chromatography mass spectrometry (GC/MS) at the CDFG Water Pollution Control Laboratory (OEHHA 2004).

3.3.1 PCB Congeners Analysis of Fish Tissue

Digestion procedure

A 1-5 g (tissue homogenate) sample is weighed into a pre-weighed aluminum planchet and placed in a 70 ^{o}C oven for 48 hours to determine moisture content. A 10 g sample is mixed using a clean glass stirring rod with approximately 7 g of pre-extracted Hydromatrix in a 250 mL trace clean wide mouth jar until the mixture is free flowing. The mixture is then poured into a 33 mL stainless steel Dionex Accelerated Solvent Extractor (ASE 200) extractor cell and packed by tamping the mixture. A solution containing pesticide and PCB surrogate compounds is added to the cell and the cap is screwed onto the cell. The extractor cells (maximum of 24) are placed on

the ASE 200 autosampler rack and the samples are extracted with a 50/50 mixture of acetone/dichloromethane (DCM) using heat and pressure. The extracts are automatically collected in 60 mL VOA vials. The extracts are dried using sodium sulfate, evaporated to approximately 0.5 mL using Kuderna-Danish (K-D) glassware equipped with 3-ball Snyder columns and micro-Snyder apparatus and diluted to 10 mL using DCM. The extracts are then filtered through a 0.45 µm syringe filter into J2 Scientific AccuPrep 170 (GPC) autosampler tubes. (Crane, 2004)

Analytical Method

The GPC autosampler tubes are then placed on the GPC autosampler for initial sample cleanup. The cleaned-up extracts are evaporated using K-D apparatus and solvent exchanged into petroleum ether. The extracts are then fractionated using 5 grams of Florisil in a 11 mm x 300 mm column with a 250 mL reservoir. The Florisil columns are eluted with petroleum ether (PE) (Fraction 1), 6% diethyl ether/PE (Fraction 2), 15% diethyl ether/PE (Fraction 3), and 50% diethyl ether/PE (Fraction 4). The fractions are concentrated to an appropriate volume using K-D/micro K-D apparatus prior to analysis by dual column high resolution gas chromatography. A mixture of synthetic organic standards is eluted through the Florisil column to determine the recovery and separation characteristics of the column. (Crane, 2004)

3.3.2 Total Mercury Analysis of Fish Tissue

Digestion procedure

Step 1: Place approximately 1 gram of homogenized sample or 0.25 gram of SRM in a 40 mL I-Chem™ vial.

Step 2: Pipette 10.0 mL of 70:30 (v/v) HNO3/H2SO4 solution into the 40 mL vial and swirl.

Step 3: Place vial on a hot plate with a glass reflux cap.

Step 4: Heat sample to 125º C for a minimum of 2 hours after the onset of refluxing or until all organic matter is dissolved.

Step 5: After samples cool, dilute to 40 mL with a 5% (v/v) solution of 0.2 N BrCl in ASTM Type II water. (Ichikawa et al., 2001)

Analytical method

Samples were analyzed using a Perkin Elmer Flow Injection Mercury System (FIMS) with an AS-90 autosampler. Mercury concentrations were determined by analyzing 1 mL of digestate. Stannous chloride was used as the reducing agent with argon as the carrier gas. Samples, blanks, reductant, and standards were prepared using clean techniques. ASTM Type II water and ultra clean chemicals were used for all standard preparations. Continuing calibration verification was performed after every 10 samples and samples run between CCVs that drifted greater than 10% were rerun. Three blanks, a standard reference material (DORM-2), as well as a method duplicate and a matrix spike pair were run with each set of samples. Digestion batches contained 20 or less samples. Each batch has its own blank, SRM, matrix spike, matrix spike duplicate, and laboratory duplicate. (Ichikawa et al. 2001).

3.4 Quality Assurance

The CFCP and TSMP programs have defined data quality objectives (DQOs) and quality control requirements for edible fish tissue chemistry. The DQOs are summarized in Tables A1-1 and A1-2 in Appendix II. Details of the DQOs are available in recent TSMP reports (http://www.swrcb.ca.gov/programs/smw/index.html) and in the SWAMP's Quality Assurance Management Plan (Puckett 2002). All samples reported in this study were collected, analyzed and reported following CFCP and TSMP quality assurance protocols.

PCB congener samples were analyzed using high resolution gas chromatography using electron capture detection by the Water Pollution Control Laboratory in Rancho Cordova, California. Total mercury samples were analyzed using cold vapor atomic fluorescence spectrometry (a modified version of EPA 1631) by Moss Landing Marine Laboratory in Moss Landing, CA. This report presents quality control (QC) data associated with PCB congeners and total mercury (Appendix II). Recent TSMP reports detail QC data for all analytes from 1996-2002.

4 Results and Discussion

Edible fish tissue data from reservoirs are presented in Appendix III (metals) and Appendix IV (organics). Metals and organics data for the San Mateo and San Francisco County coasts and the Farallone Islands can be found in Appendix V. Data for Tomales Bay can be found in OEHHA (2004).

4.1 Mercury in Reservoirs

All the reservoirs sampled in this study yielded fish with edible tissue concentrations of mercury that exceed the OEHHA mercury SV and U.S. EPA water quality criterion of 0.3 ppm wet weight (Table 3). Mercury was the only trace metal analyzed in tissue samples from the reservoirs. Largemouth bass accumulated higher levels of mercury than the other fish species sampled, with concentrations averaging about 3 to 5 times higher than those for carp, channel catfish, and black crappie (Figures 2 - 5). Largemouth bass exceeded the OEHHA SV in all nine reservoirs from which they were collected. Soulajule, Stevens Creek and Anderson Reservoirs had the highest levels of mercury, based on results from largemouth bass (Table 3, Figure 2).

In this study, largemouth bass were collected from all reservoirs except San Pablo. In a previous study (Brodberg and Pollock 1999), largemouth bass were collected from San Pablo Reservoir, and had average mercury concentrations of 0.520 ppm (wet weight), a level above the OEHHA SV. At that time, largemouth bass were the only species collected from San Pablo Reservoir that exceeded the SV. Likewise in the current study, none of the carp, channel catfish, or black crappie from San Pablo Reservoir exceeded 0.3 ppm.

Fifty-four percent of all samples collected in the current study exceeded the OEHHA SV for mercury (0.3 ppm); all were tissues from largemouth bass, black crappie, channel catfish, and carp. Carp exceeded the SV in Anderson Reservoir and Lake Chabot, black crappie exceeded the SV in Soulajule, Anderson, and Stevens Creek Reservoirs, and channel catfish exceeded the SV in Stevens Creek and Del Valle Reservoirs (Table 3). Tissues from goldfish collected in

Lafayette reservoir exceeded the SV, with concentrations similar to those found in carp at other reservoirs.

No samples from redear sunfish or bluegill exceeded the SV, and numerous samples from various species had low concentrations, depending on the reservoirs from which they were collected (Table 3). Anglers may still eat some fish caught in the reservoirs if they follow the advice provided in the interim advisories available on the OEHHA website (www.oehha.ca.gov/fish.html).

Mercury concentrations tended to be higher in larger fish, as exemplified by the statistically significant trend in largemouth bass (Figure 6; $p << 0.001$). Fish age (as inferred from length) is known to be an important determinant of tissue mercury concentration. Because the biological half-life of methylmercury in fish is approximately 2 years, tissue concentrations increase with increased duration of exposure. Thus, with increasing age (length) within a given species, tissue methylmercury concentrations are expected to increase (OEHHA 2004).

Table 3. Total mercury concentrations (ppm wet weight) in fish collected from Regional reservoirs. Shaded values exceed the OEHHA Screening Value of 0.3 ppm.

Reservoir	Sampling Date	Species	Mean Length (mm)	Total Mercury
Anderson	9/13/2001	Black Crappie	139	0.090
Anderson	9/13/2001	Black Crappie	184	0.254
Anderson	9/13/2001	Black Crappie	232	0.375
Anderson	9/13/2001	Largemouth Bass	298	0.680
Anderson	9/13/2001	Largemouth Bass	361	1.170
Anderson	9/13/2001	Largemouth Bass	450	1.460
Anderson	9/13/2001	Carp	373	0.399
Anderson	9/13/2001	Carp	412	0.457
Anderson	9/13/2001	Carp	480	0.425
Bon Tempe	9/20/2001	Largemouth Bass	480	0.899
Bon Tempe	9/20/2001	Largemouth Bass	365	0.536
Del Valle	4/25/2001	Channel Catfish	445	0.393
Del Valle	4/25/2001	Channel Catfish	420	0.152
Del Valle	4/25/2001	Channel Catfish	398	0.289
Del Valle	4/25/2001	Largemouth Bass	428	0.918
Del Valle	4/25/2001	Largemouth Bass	353	0.829
Del Valle	4/25/2001	Largemouth Bass	332	0.812
Del Valle	4/25/2001	Redear Sunfish	265	0.213
Del Valle	4/25/2001	Redear Sunfish	248	0.178
Del Valle	4/25/2001	Redear Sunfish	227	0.223
Del Valle	4/25/2001	Bluegill	174	0.268
Del Valle	4/25/2001	Bluegill	153	0.193
Del Valle	4/25/2001	Bluegill	138	0.178
Lafayette	9/9/2002	Black Crappie	125.0	0.059
Lafayette	9/9/2002	Black Crappie	142.0	0.053
Lafayette	9/9/2002	Black Crappie	135.0	0.047
Lafayette	9/9/2002	Channel Catfish	485.0	0.181
Lafayette	9/9/2002	Goldfish	366.0	0.514
Lafayette	9/9/2002	Goldfish	418.0	0.302
Lafayette	9/9/2002	Goldfish	354.0	0.477
Lafayette	9/9/2002	Largemouth Bass	396.0	0.347
Lafayette	9/9/2002	Largemouth Bass	496.0	0.656
Lafayette	9/9/2002	Largemouth Bass	345.0	0.292

Table 3 (continued). Total mercury concentrations (ppm wet weight) in fish collected from Regional reservoirs. Shaded values exceed the OEHHA Screening Value of 0.3 ppm.

Reservoir	Sampling Date	Species	Mean Length (mm)	Total Mercury
Lake Chabot	4/24/2001	Channel Catfish	420	0.127
Lake Chabot	4/24/2001	Channel Catfish	393	0.050
Lake Chabot	4/24/2001	Channel Catfish	500	0.127
Lake Chabot	4/24/2001	Redear Sunfish	130	0.118
Lake Chabot	4/24/2001	Redear Sunfish	155	0.192
Lake Chabot	4/24/2001	Largemouth Bass	388	0.577
Lake Chabot	4/24/2001	Largemouth Bass	357	0.559
Lake Chabot	4/24/2001	Largemouth Bass	347	0.523
Lake Chabot	6/6/2001	Carp	478	0.662
Lake Chabot	6/6/2001	Carp	449	0.728
Lake Chabot	6/6/2001	Carp	431	0.613
Nicasio	9/19/2001	Bluegill	150	0.213
Nicasio	9/19/2001	Bluegill	158	0.163
Nicasio	9/19/2001	Bluegill	165	0.128
Nicasio	9/19/2001	Largemouth Bass	303	0.173
Nicasio	9/19/2001	Largemouth Bass	367	0.372
Nicasio	9/19/2001	Largemouth Bass	454	1.290
Nicasio	9/19/2001	Carp	394	0.213
Nicasio	9/19/2001	Carp	404	0.289
Nicasio	9/19/2001	Carp	445	0.253
San Pablo	4/17/2000	Carp	508	0.185
San Pablo	4/17/2000	Carp	530	0.182
San Pablo	4/17/2000	Carp	537	0.197
San Pablo	4/17/2000	Black Crappie	203	0.152
San Pablo	4/17/2000	Black Crappie	194	0.146
San Pablo	4/17/2000	Black Crappie	191	0.129
San Pablo	4/17/2000	Channel Catfish	494	0.114
San Pablo	4/17/2000	Channel Catfish	456	0.062
San Pablo	4/17/2000	Channel Catfish	504	0.131
Shadow Cliffs	8/13/2002	Carp	583.0	0.162
Shadow Cliffs	8/13/2002	Channel Catfish	395.0	0.029
Shadow Cliffs	8/13/2002	Largemouth Bass	487.0	0.712
Shadow Cliffs	8/13/2002	Largemouth Bass	382.0	0.693

Table 3 (continued). Total mercury concentrations (ppm wet weight) in fish collected from Regional reservoirs. Shaded values exceed the OEHHA Screening Value of 0.3 ppm.

Reservoir	Sampling Date	Species	Mean Length (mm)	Total Mercury
Soulajule	5/2/2000	Largemouth Bass	326	0.812
Soulajule	5/2/2000	Largemouth Bass	373	1.030
Soulajule	5/2/2000	Largemouth Bass	216	0.405
Soulajule	5/2/2001	Black Crappie	171	0.355
Soulajule	5/2/2001	Black Crappie	173	0.306
Soulajule	5/2/2001	Black Crappie	164	0.336
Soulajule	9/20/2001	Channel Catfish	620	0.229
Soulajule	9/20/2001	Channel Catfish	605	0.294
Soulajule	9/20/2001	Largemouth Bass	297	0.671
Soulajule	9/20/2001	Largemouth Bass	343	0.752
Soulajule	9/20/2001	Largemouth Bass	370	0.880
Soulajule	9/20/2001	Largemouth Bass	380	0.540
Soulajule	9/20/2001	Largemouth Bass	465	1.450
Soulajule	9/20/2001	Largemouth Bass	495	1.870
Stevens Creek	5/4/2001	Largemouth Bass	476	1.460
Stevens Creek	5/4/2001	Largemouth Bass	457	1.560
Stevens Creek	5/4/2001	Largemouth Bass	410	1.400
Stevens Creek	5/4/2001	Black Crappie	204	0.616
Stevens Creek	5/4/2001	Black Crappie	195	0.604
Stevens Creek	5/4/2001	Black Crappie	198	0.557
Stevens Creek	5/4/2001	Black Crappie	203	0.610
Stevens Creek	5/4/2001	Channel Catfish	475.0	0.192
Stevens Creek	5/4/2001	Channel Catfish	506.0	0.507
Stevens Creek	6/6/2001	Channel Catfish	640.0	0.455
Detection limit				0.01
Total detections				90
OEHHA Screening Value				0.3
Total exceedences				49
Percent exceedences in all samples				54%

Figure 2. Mean mercury concentrations (± sd) in Largemouth Bass from Regional reservoirs. Line indicates OEHHA Mercury Screening Value.

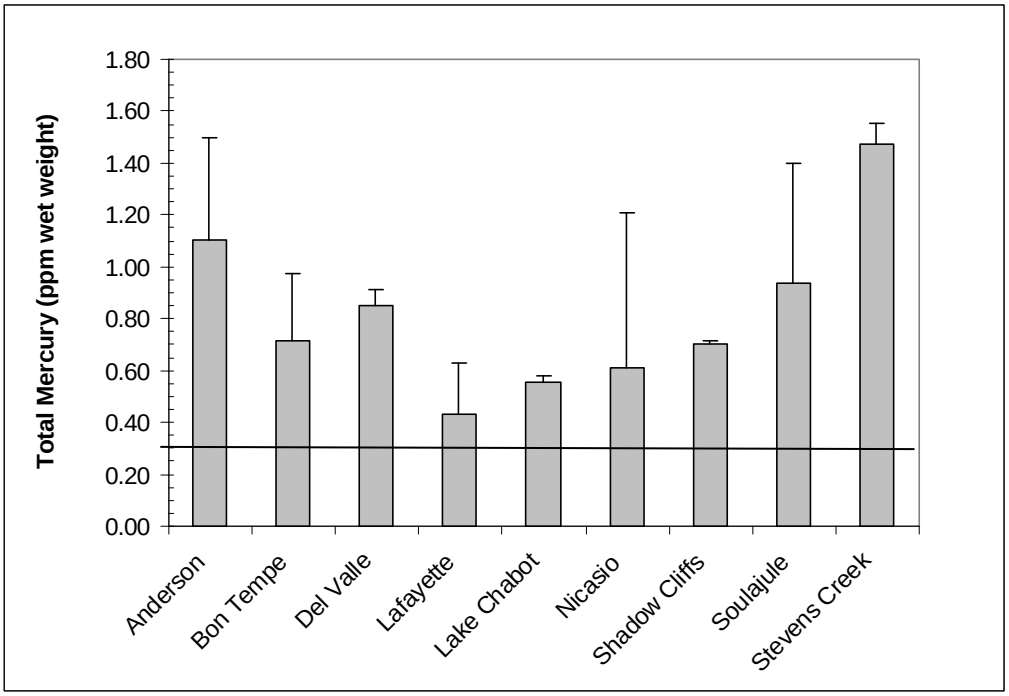


Figure 3. Mean mercury concentrations (± sd) in Carp from Regional reservoirs. Line indicates OEHHA Mercury Screening Value. * Lafayette values are for goldfish.

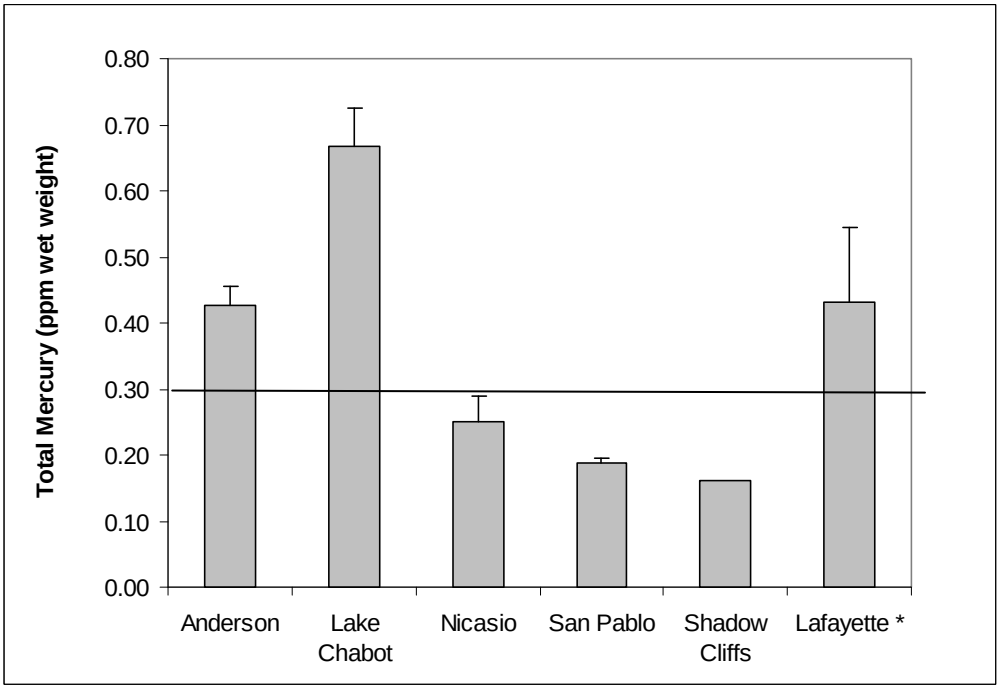


Figure 4. Mean mercury concentrations (± sd) in Black Crappie from Regional reservoirs. Line indicates OEHHA Mercury Screening Value.

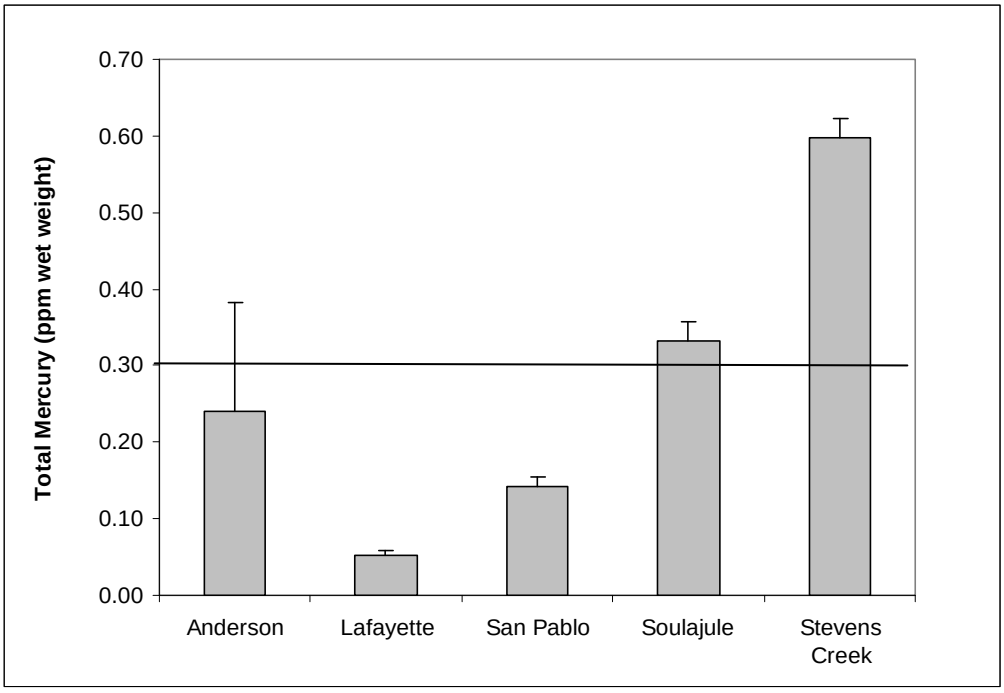


Figure 5. Mean mercury concentrations (± sd) in Channel Catfish from Regional reservoirs. Line indicates OEHHA Mercury Screening Value.

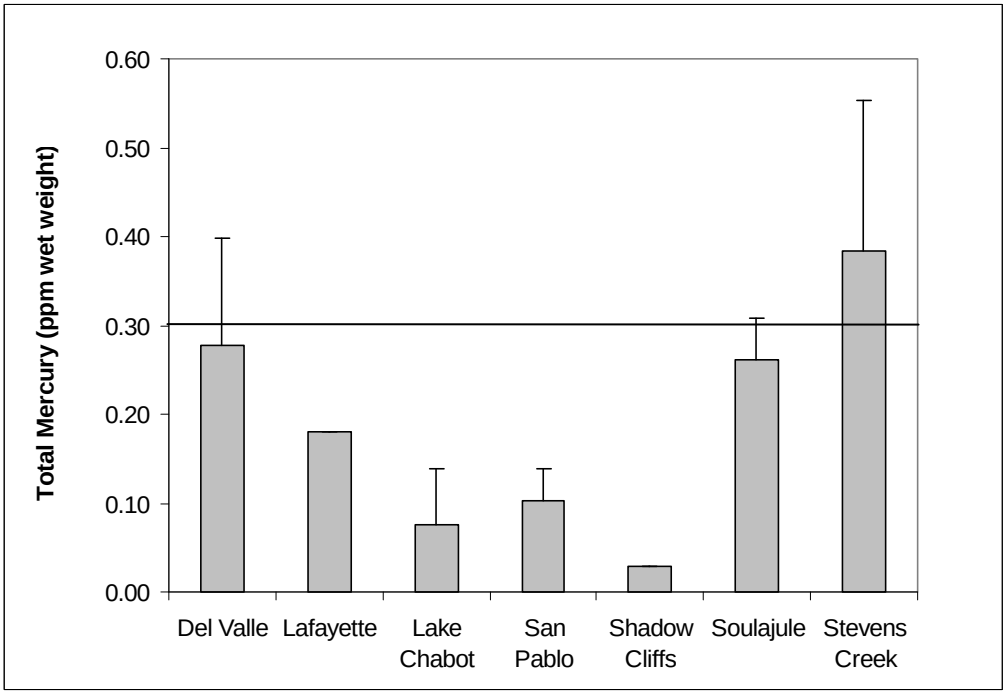
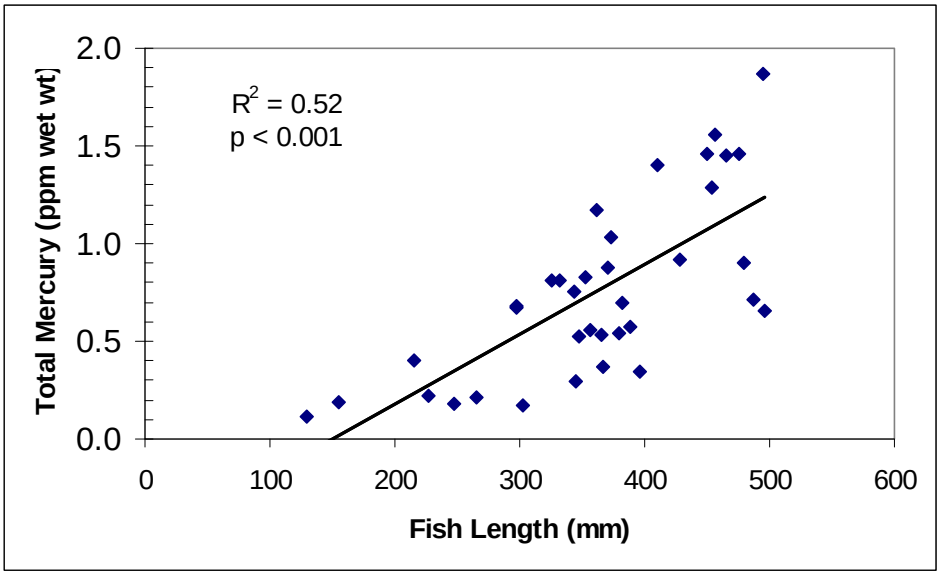


Figure 6. Relationship between fish length and mercury concentration in largemouth bass.



4.2 PCBs and Pesticides in Reservoirs

With the exception of Nicasio Reservoir, all of the reservoirs surveyed and tested for organic chemicals had edible fish tissue PCB concentrations above the OEHHA SV of 20 ppb (wet weight; Table 4). PCB concentrations were highest in carp (Figure 7), followed by channel catfish (Figure 8), and largemouth bass (Figure 9). Carp from Lake Chabot had the highest mean PCB concentrations measured (406 ppb wet wt.). Channel catfish from seven reservoirs had mean PCB tissue concentrations exceeding the SV. Stevens Creek Reservoir was the only reservoir in which largemouth bass were found to contain PCBs above the SV. Fish collected from Bon Tempe Reservoir were not analyzed for organic chemicals.

Dieldrin exceeded the SV of 2 ppb (wet weight) in edible fish tissues from Lake Chabot, San Pablo and Stevens Creek Reservoirs (Figures 10 – 12); with the highest mean concentrations in carp and channel catfish from San Pablo Reservoir. Black crappie from San Pablo Reservoir also exceeded the dieldrin SV (Figure 10).

Total chlordanes and total DDTs had similar distributions, with both found above SVs in carp and channel catfish from Lake Chabot, San Pablo, and Stevens Creek Reservoirs (Table 4). The highest

concentrations of total chlordanes were found in San Pablo Reservoir, while the highest total DDTs were found in Lake Chabot. Patterns of SV exceedence for heptachlor epoxide and toxaphene were identical: both were found in carp and channel catfish from San Pablo Reservoir (Table 4). Hexachlorobenzene (HCB) was the only other detected pesticide for which SVs were available, and it was not found above its SV of 20 ppb.

As in the current study, tissues sampled from San Pablo reservoir for the California Lakes Study (Brodberg and Pollock 1999) contained concentrations of chlordanes, DDTs, dieldrin, PCBs, heptachlor epoxide, and toxaphene in exceedence of OEHHA SVs. Because sample size was low in that study, tissues collected from San Pablo Reservoir for the current study were analyzed for these and other organic chemicals, and concentrations of the same six analytes exceeded OEHHA SVs (Table 4). It is important to note that there are no SVs for some organic analytes, because they are not on the list of target analytes recommended by EPA for screening studies in fish; these analytes were not evaluated here. Data from the present study, the California Lakes Study (Brodberg and Pollock 1999), and additional data have been used by OEHHA to establish interim advisories for human health related to consumption of fish from regional reservoirs (www.oehha.ca.gov/fish.html).

Table 4. Concentrations of detected pesticides and PCBs (ppb wet weight) in fish collected from Regional reservoirs. Shaded values exceed the OEHHA Screening Values.

Reservoir	Sampling Date	Species	Total Chlordanes	Total DDTs	Dieldrin	Heptachlor Epoxide	HCB	Total PCBs	Toxaphene
Anderson	9/13/2001	Black Crappie	ND	ND	ND	ND	ND	ND	ND
Anderson	9/13/2001	Black Crappie	ND	3.1	ND	ND	ND	10	ND
Anderson	9/13/2001	Black Crappie	ND	ND	ND	ND	ND	ND	ND
Anderson	9/13/2001	Carp	5.9	17.9	ND	ND	ND	38	ND
Anderson	9/13/2001	Carp	13.3	30.2	ND	ND	ND	46	ND
Anderson	9/13/2001	Carp	8.0	26.5	ND	ND	19.5	40	ND
Del Valle	4/25/2001	Channel Catfish	1.6	51.5	ND	ND	0.3	28	ND
Del Valle	4/25/2001	Channel Catfish	2.0	44.3	ND	ND	0.4	21	ND
Del Valle	4/25/2001	Channel Catfish	1.9	46.7	ND	ND	0.4	21	ND
Lafayette	9/9/2002	Black Crappie	NA	-99.0	ND	ND	ND	NA	ND
Lafayette	9/9/2002	Channel Catfish	1.9	16.8	0.8	ND	ND	41.0	ND
Lafayette	9/9/2002	Goldfish	10.8	24.7	1.4	ND	0.4	59.0	ND
Lafayette	9/9/2002	Largemouth Bass	NA	3.3	ND	ND	ND	12.0	ND
Lake Chabot	4/24/2001	Channel Catfish	8.6	17.2	3.6	ND	0.4	15	ND
Lake Chabot	4/24/2001	Channel Catfish	27.3	42.3	5.7	1.5	0.6	75	ND
Lake Chabot	4/24/2001	Channel Catfish	15.8	31.1	3.7	ND	0.4	42	ND
Lake Chabot	4/24/2001	Largemouth Bass	ND	ND	ND	ND	ND	ND	ND
Lake Chabot	4/24/2001	Largemouth Bass	ND	ND	ND	ND	ND	ND	ND
Lake Chabot	4/24/2001	Largemouth Bass	1.8	5.6	ND	ND	ND	15	ND
Lake Chabot	6/6/2001	Carp	92.4	166.4	13.7	1.6	1.1	406	ND
Lake Chabot	6/6/2001	Carp	99.9	159.9	13.5	1.8	1.3	354	ND
Lake Chabot	6/6/2001	Carp	58.9	91.6	7.0	ND	0.8	253	ND
Nicasio	9/19/2001	Carp	ND	12.5	ND	ND	ND	10	ND
Nicasio	9/19/2001	Carp	ND	12.6	ND	ND	ND	10	ND
Nicasio	9/19/2001	Carp	ND	7.4	ND	ND	ND	ND	ND
San Pablo	4/17/2000	Carp	101.0	86.2	111.0	4.1	1.1	127	33.5
San Pablo	4/17/2000	Carp	100.7	86.9	95.2	4.1	0.9	121	34.5

Table 4 (continued). Concentrations of detected pesticides and PCBs (ppb wet weight) in fish collected from Regional reservoirs. Shaded values exceed the OEHHA Screening Values.

Reservoir	Sampling Date	Species	Total Chlordanes	Total DDTs	Dieldrin	Heptachlor Epoxide	HCB	Total PCBs	Toxaphene
San Pablo	4/17/2000	Carp	84.0	75.8	62.7	2.7	0.8	105	21.0
San Pablo	4/17/2000	Black Crappie	1.8	3.6	5.3	ND	ND	ND	ND
San Pablo	4/17/2000	Black Crappie	1.7	3.5	5.2	ND	ND	ND	ND
San Pablo	4/17/2000	Black Crappie	1.6	3.0	5.3	ND	ND	ND	ND
San Pablo	4/17/2000	Channel Catfish	82.1	72.0	120.0	4.1	0.8	110	40.4
San Pablo	4/17/2000	Channel Catfish	30.5	27.5	63.1	2.2	0.5	43	ND
San Pablo	4/17/2000	Channel Catfish	148.0	125.8	110.0	4.4	1.1	198	61.1
Shadow Cliffs	8/13/2002	Carp	6.4	38.7	1.1	ND	ND	95.0	ND
Shadow Cliffs	8/13/2002	Channel Catfish	2.1	14.7	1.1	ND	ND	24.0	ND
Soulajule	9/20/2001	Channel Catfish	1.6	19.5	ND	ND	0.5	24	ND
Soulajule	9/20/2001	Channel Catfish	1.6	13.5	ND	ND	0.4	23	ND
Stevens Creek	5/4/2001	Largemouth Bass	14.6	47.2	ND	ND	ND	48	ND
Stevens Creek	5/4/2001	Largemouth Bass	4.5	30.8	ND	ND	ND	59	ND
Stevens Creek	5/4/2001	Largemouth Bass	4.6	29.8	ND	ND	ND	30	ND
Stevens Creek	5/4/2001	Channel Catfish	39.5	100.3	5.2	1.6	0.5	95.0	ND
Stevens Creek	5/4/2001	Channel Catfish	37.4	85.1	5.6	1.2	0.4	74.0	ND
Stevens Creek	6/6/2001	Channel Catfish	31.7	73.5	4.7	1.1	0.3	100.0	ND
Detection limit			none	none	2.0	1.0	0.3	none	20.0
Total detections			27	31	15	9	18	27	5
Percent detections			77%	89%	43%	26%	51%	77%	14%
*OEHHA Screening Value			30	100	2.0	4.0	20	20	30
Total exceedences			9	3	15	4	0	22	4
Percent exceedences in all samples			26%	9%	43%	11%	0%	63%	11%

Shaded values exceed OEHHA Screening Values.
ND = not detected; replaced by 0 for summation calculations. none = no detection limit applicable to summed data
Total Chlordanes includes cis-Chlordane, trans-Chlordane, cis-Nonachlor, trans-Nonachlor, and Oxychlordane
Total DDTs includes o,p- and p,p- homologues of DDD, DDE, DDT Total PCBs includes Aroclors 1248, 1254 and 1260

Figure 7. Mean total PCB concentrations (± sd) in Carp from Regional reservoirs. Line indicates OEHHA PCB Screening Value. * Lafayette values are for goldfish.

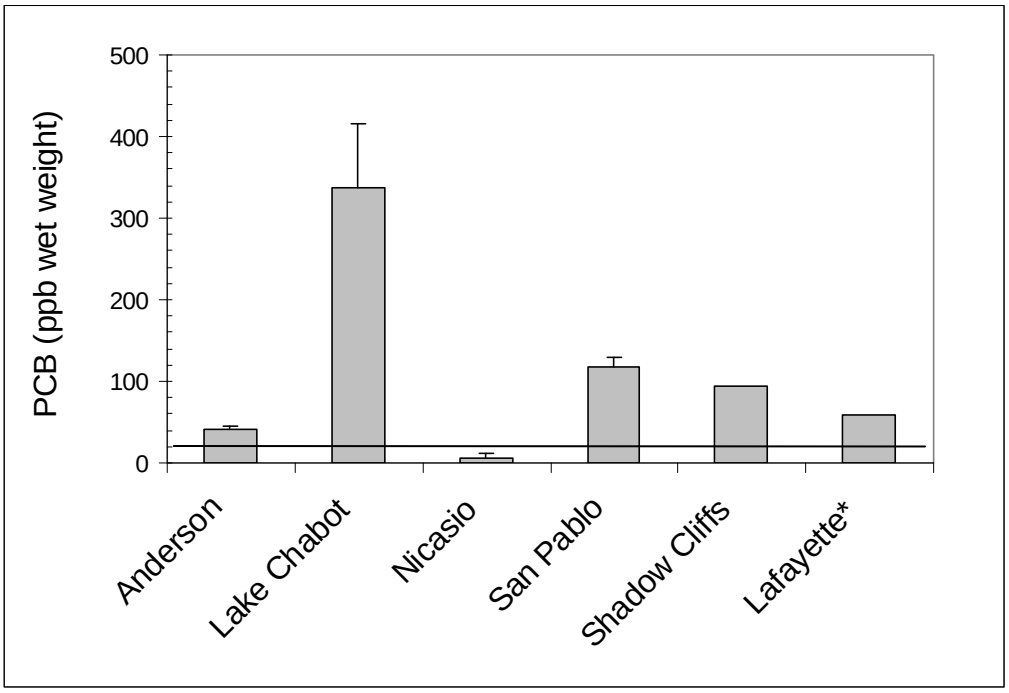


Figure 8. Mean total PCB concentrations (± sd) in Channel Catfish from Regional reservoirs. Line indicates OEHHA PCB Screening Value.

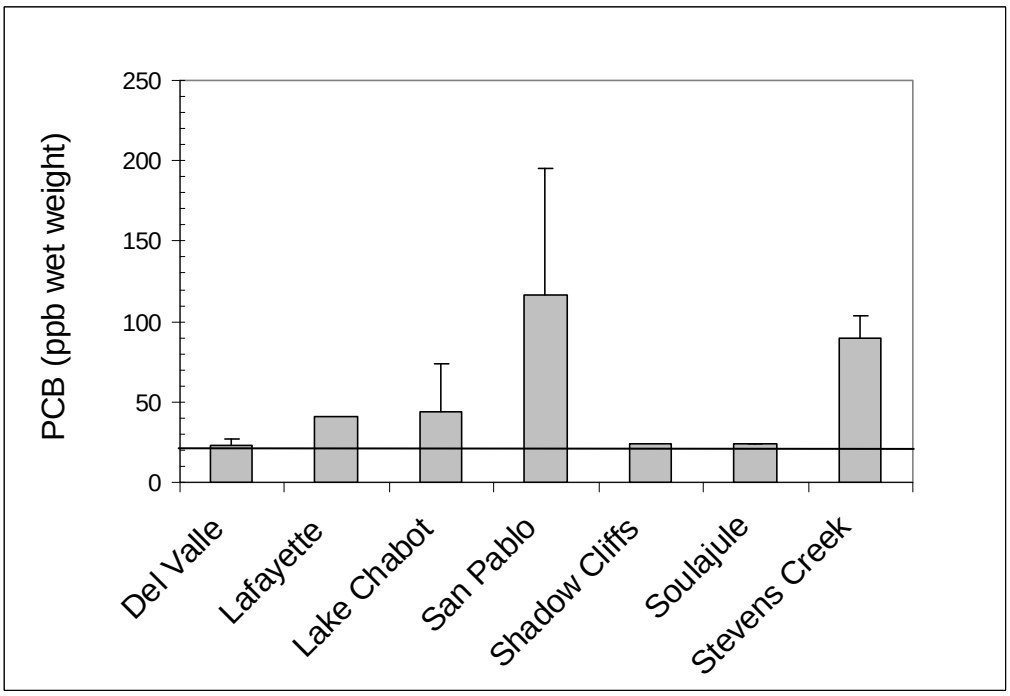


Figure 9. Mean total PCB concentrations (± sd) in Largemouth Bass from Regional reservoirs. Line indicates OEHHA PCB Screening Value.

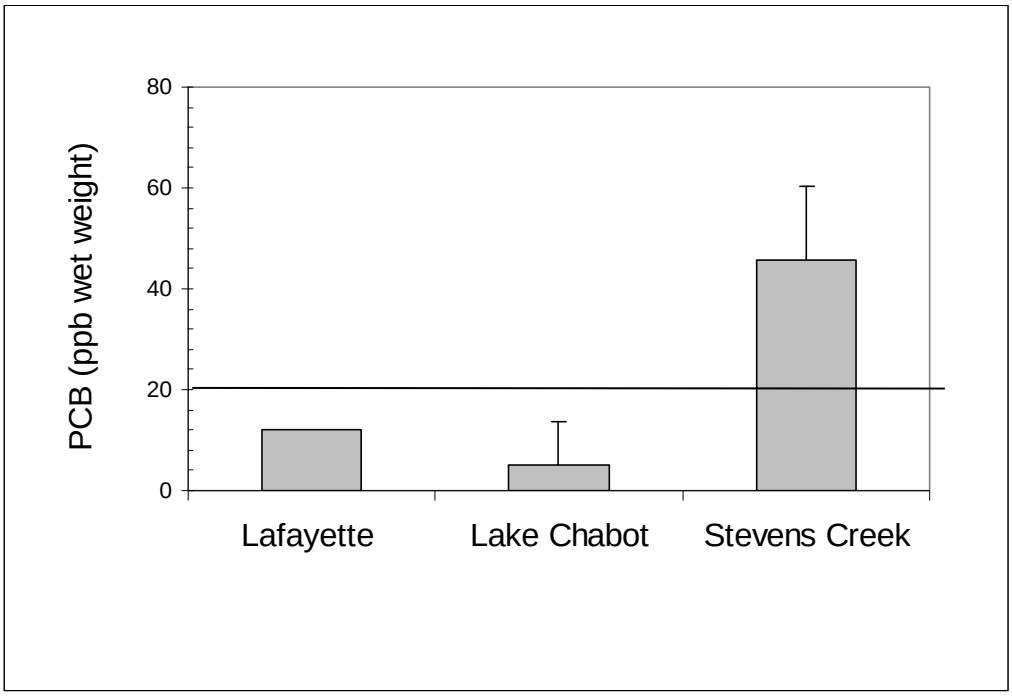


Figure 10. Mean total Dieldrin concentrations (± sd) in Black Crappie from Regional reservoirs. Line indicates OEHHA Dieldrin Screening Value. ND = Not Detected.

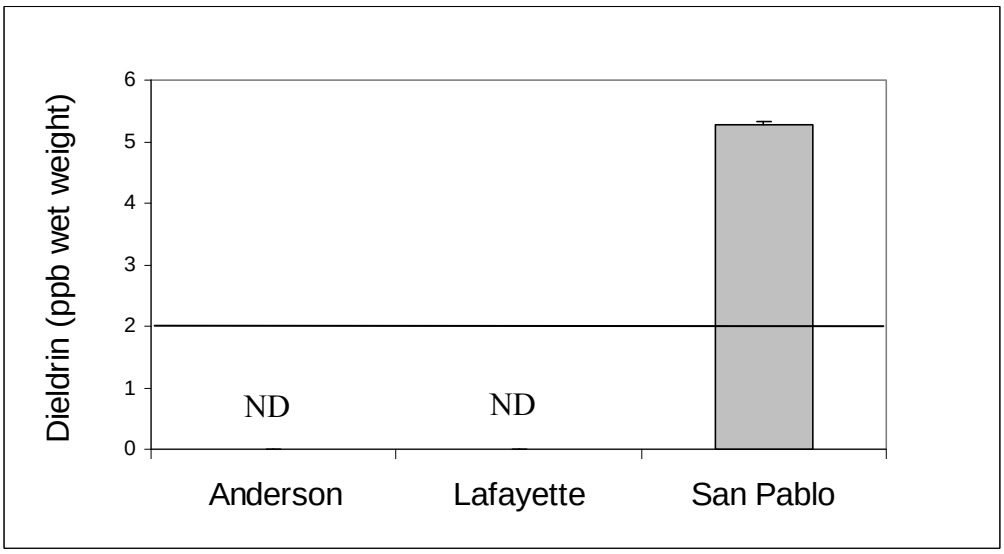


Figure 11. Mean total Dieldrin concentrations (± sd) in Carp from Regional reservoirs. Line indicates OEHHA Dieldrin Screening Value. ND = Not Detected.

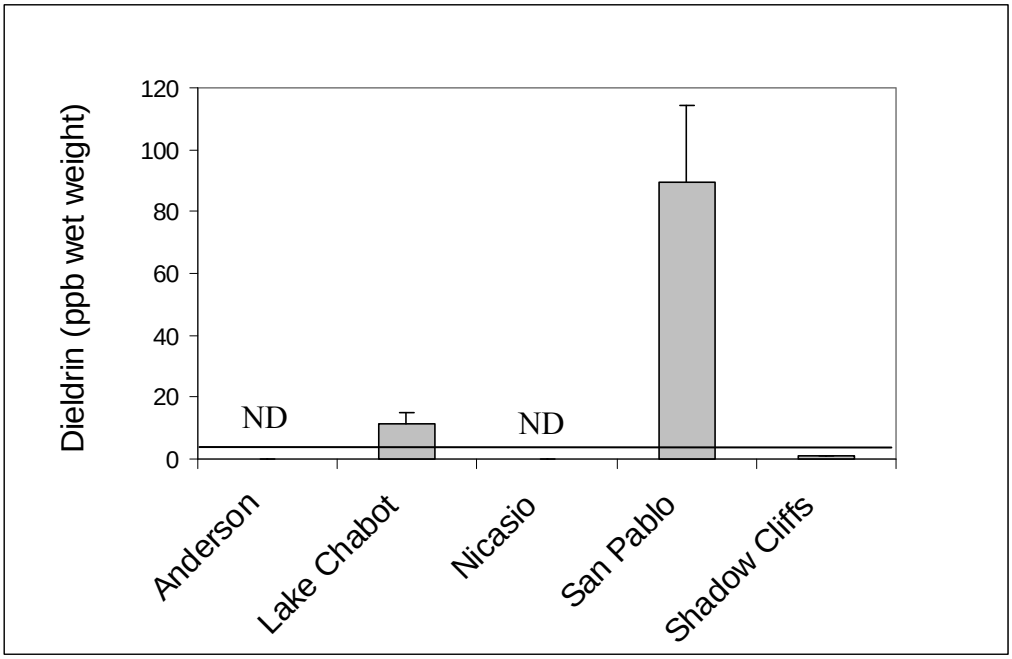
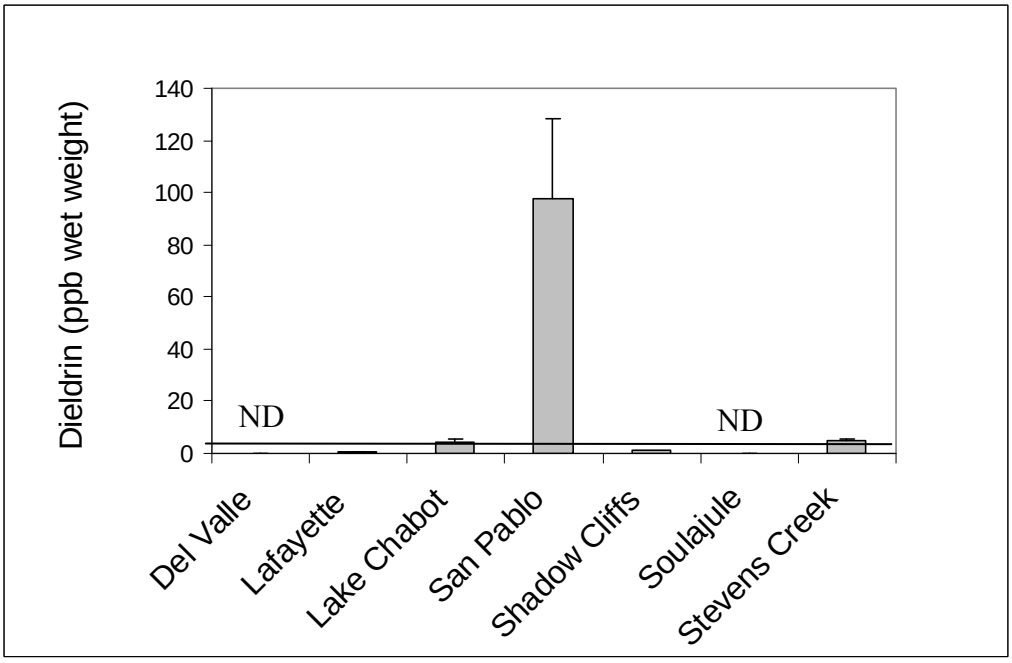


Figure 12. Mean total Dieldrin concentrations (± sd) in Channel Catfish from Regional reservoirs. Line indicates OEHHA Dieldrin Screening Value.



4.3 Tomales Bay

Mercury and arsenic were measured in all samples of fish and shellfish collected from Tomales Bay in 1998, 1999, and 2001. Other trace metals were measured in selected samples during those surveys, and organic chemicals were measured in a subset of samples from 1998 and 1999 (Appendix II).

Concentrations of total mercury were found above the OEHHA screening value (0.3 ppm wet weight) in edible tissues of four elasmobranch fish species: smoothhound shark, leopard shark, Pacific angel shark, and bat rays (Figure 13). Based on a preliminary review of initial data from the 1998 and 1999 Tomales Bay surveys, an interim health advisory was issued by the Marin County Department of Health and Human Services, in consultation with OEHHA, on December 4, 2000 (OEHHA 2004).

Further evaluation of data on Tomales Bay edible fish tissues, including those from the 2001 survey, as well as consideration of representative consumption rates and established reference doses for two distinct human populations, led OEHHA to issue a Health Advisory for fish consumption in Tomales Bay (OEHHA 2004). The Health Advisory can be found in Appendix I, and online at:
http://www.oehha.ca.gov/fish/so_cal/tomales.html (OEHHA 2004).

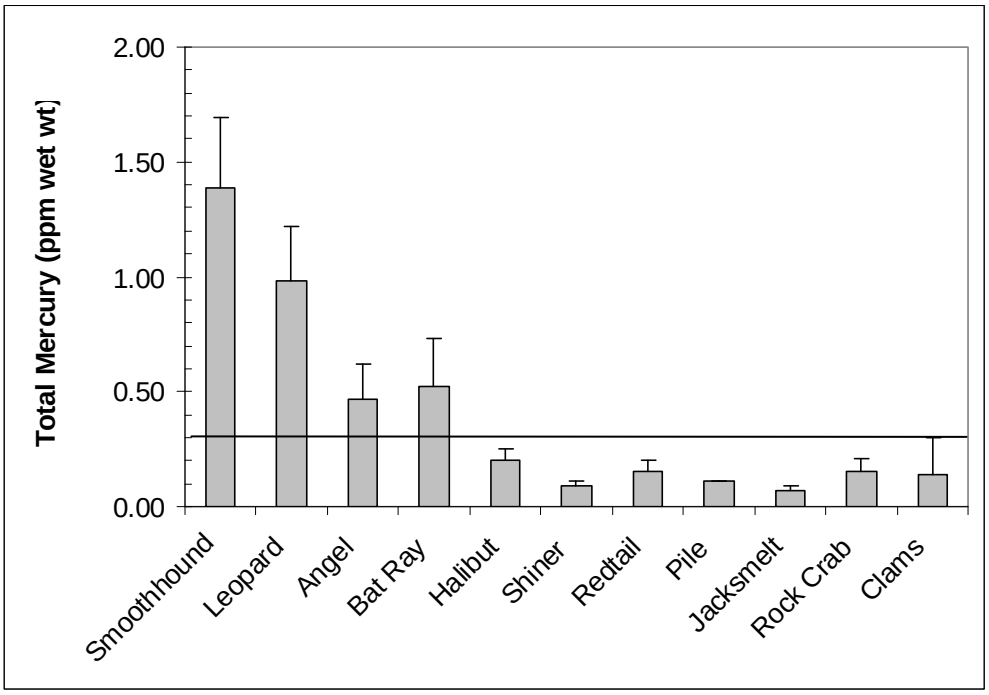
It is important to note that the OEHHA advisory does NOT apply to commercial oysters, clams, or mussels from Tomales Bay. Mercury concentrations have been measured in commercially grown Tomales Bay shellfish, and elevated levels have not been found (OEHHA, 2004).

Trace metals other than mercury were analyzed selectively for different fish species. The analysis of trace elements showed relatively high concentrations of total arsenic in several shark species. However, most of the arsenic in marine fish and shellfish tissues is present in the organic form as arsenobetaine, arsenocholine, and organosugars (Balin *et al.*, 1994), not as inorganic arsenic (the most toxic form). Samples of species exceeding the total arsenic SV were

subsequently analyzed for inorganic arsenic. Inorganic arsenic was not detected in any of the fish samples that exceeded the SV (OEHHA 2004). No other trace metals were measured at concentrations of concern for human health.

PCBs and pesticides analyzed in California halibut and shiner surfperch collected from Tomales Bay in 1999 were all below detection limits (OEHHA 2004), indicating that organic contaminants do not pose a health risk when these species are consumed.

Figure 13. Mean mercury concentrations (± sd) in fish and shellfish species collected from Tomales Bay. Line indicates OEHHA Mercury Screening Value.



4.4 Other Coastal Studies

Mercury was detected in all samples of fish and shellfish collected from the San Mateo Coast in the year 2000. Dungeness crab claw tissue from the Devil's Slide and Pacifica Pier areas, and fish tissues collected from the Pillar Point area (San Mateo Coast), had mercury concentrations above the OEHHA screening value of 0.3 ppm wet weight (Table 5; Figure 14). In total 3 of 11 fish composites had mercury exceedences above the SV. Tissue concentrations of organic compounds were generally low along the coast, with one exceedence of the screening value for total PCBs, in walleye surfperch from the Pacifica Pier. Crab hepatopancreas showed no mercury exceedences. Salmon composites from the San Francisco County coast and the Farallone Islands had no screening value exceedences (Table 5; Figure 14).

Table 5. Concentrations of mercury and PCBs in fish and shellfish collected in coastal studies. Shaded values exceed the OEHHA Screening Values.

Station Name	Species Name	Collection Date	Individuals per Sample	Mercury (ppm) wet weight	Total PCBs (ppb) wet weight
Marin/Farallone	Chinook Salmon	10-May-00	5	0.061	5.0
San Francisco Coast	Chinook Salmon	23-May-00	3	0.052	5.0
Devils Slide	Dungeness Crab-Claw	9-May-00	5	0.398	5.0
Devils Slide	Dungeness Crab - Hep	9-May-00	5	0.234	NA
Pacifica Pier	Dungeness Crab-Claw	18-Apr-00	5	0.429	10.8
Pacifica Pier	Red Rock Crab-Claw	3-May-00	5	0.140	5.0
Pacifica Pier	Dungeness Crab - Hep	18-Apr-00	5	0.141	NA
Pacifica Pier	Red Rock Crab-Hep	3-May-00	5	0.087	NA
Pacifica Pier	Walleye Surfperch	18-Apr-00	7	0.087	25.0
Pacifica Pier	White Surfperch	13-Jun-00	6	0.066	5.0
Princeton Jetty	White Croaker	8-May-00	5	0.261	5.0
Princeton Jetty	Red Rock Crab-Claw	3-May-00	5	0.133	5.0
Princeton Jetty	Pile Surfperch	10-May-00	3	0.121	5.0
Princeton Jetty	Red Rock Crab-Hep	3-May-00	5	0.125	NA
Princeton Jetty	Rainbow Surfperch	11-May-00	9	0.067	5.0
Princeton Jetty	White Surfperch	10-May-00	6	0.056	11.1
San Mateo Coast	Brown Rockfish	23-May-00	4	0.518	5.0
San Mateo Coast	Lingcod	23-May-00	4	0.334	5.0
San Mateo Coast	Rosethorn Rockfish	9-May-00	5	0.301	5.0
San Mateo Coast	Black Rockfish	9-May-00	5	0.064	5.0
San Mateo Coast	Spotfin Surfperch	22-May-00	13	0.038	5.0

Total PCBs is the sum of aroclors 1248, 1254 & 1260;
if none of the 3 aroclors were detected, the value entered was 5.0 (1/2 the lowest MDL).
Hep = hepatopancreas

Figure 14. Map of the San Mateo County coast between the San Francisco County line and the Half Moon Bay City limit. Fish tissues were collected from the four labeled locations. The symbols 'H' and 'P' indicate collection locations where some tissue concentrations exceeded OEHHA screening levels for mercury or total PCBs, respectively.

5 Conclusions

The data described in this report address a key question of the SWAMP program: Is it safe to eat the fish from water bodies in the San Francisco Bay Region? The results indicate that some types of fish in some water bodies must be consumed with caution, following advice available in interim and final health advisories developed by OEHHA in cooperation with county agencies. These results will also be useful for watershed management, Clean Water Act §305(b) reporting, CWA §303(d) listing of impaired water bodies, and development of total maximum daily load (TMDL) allocations to limit pollutants to acceptable levels.

6 References

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APPENDIX I

PUBLIC HEALTH ADVISORY

FOR TOMALES BAY

APPENDIX II

QUALITY CONTROL DATA

FOR ANALYTICAL CHEMISTRY

OF RESERVOIR FISH TISSUE SAMPLES

APPENDIX III

EDIBLE FISH TISSUE

TRACE METAL CHEMISTRY DATA

FOR RESERVOIRS

Database Notes:
The database description is identical to that found in reports by the Toxic Substances Monitoring Program (TSMP), which can be found at: http://www.swrcb.ca.gov/programs/smw/index.html. Negative numbers: -888 indicates the sample was not analyzed. Other negative numbers indicate that the measurement was below the detection limit, with each detection limit being equal to the absolute value of the negative number indicated.

APPENDIX IV

EDIBLE FISH TISSUE

TRACE ORGANIC CHEMISTRY DATA

FOR RESERVOIRS

Database Notes:
The database description is identical to that found in reports by the Toxic Substances Monitoring Program (TSMP), which can be found at: http://www.swrcb.ca.gov/programs/smw/index.html. Negative numbers: -888 indicates the sample was not analyzed. Other negative numbers indicate that the measurement was below the detection limit, with each detection limit being equal to the absolute value of the negative number indicated.

APPENDIX V

EDIBLE FISH AND SHELLFISH TISSUE

TRACE METAL AND ORGANIC CHEMISTRY DATA

FOR THE SAN MATEO COUNTY COAST

Appendix I

Public Health Advisory for Tomales Bay

PUBLIC HEALTH ADVISORY*FOR TOMALES BAY

*This new state advisory replaces the Interim advisory issued in 2000

Fish are nutritious, providing a good source of protein and other nutrients, and are recommended as part of a healthy, balanced diet. As with many other kinds of food, however, it is prudent to eat fish in moderation and to make informed choices about which fish are safe to eat. OEHHA provides this consumption advice so that people can continue to eat fish without putting their health at risk.

TOMALES BAY
FISH AND SHELLFISH CONSUMPTION GUIDELINES

WOMEN OF CHILDBEARING AGE AND CHILDREN AGED 17 YEARS AND YOUNGER EAT NO MORE THAN:	
DO NOT EAT	ALL SHARKS including brown smoothhound shark, leopard shark, and Pacific angel shark
ONCE A MONTH	Bat rays ***OR***
ONCE A WEEK	California halibut; redtail, pile, or shiner surfperch; or red rock crab ***OR***
3 TIMES A WEEK	Jacksmelt
WOMEN BEYOND CHILDBEARING AGE AND MEN EAT NO MORE THAN:	
ONCE A MONTH	Brown smoothhound sharks or leopard sharks ***OR***
ONCE A WEEK	Pacific angel sharks or bat rays ***OR***
3 TIMES A WEEK	California halibut; redtail or pile surfperch; or red rock crab ***OR***
UNRESTRICTED	Jacksmelt or shiner surfperch

***MANY OTHER WATER BODIES ARE KNOWN OR SUSPECTED TO HAVE ELEVATED MERCURY LEVELS.** If guidelines are not already in place for the water body where you fish, women of childbearing age and children aged 17 and younger should eat no more than one sport fish meal per week and women beyond childbearing age and men should eat no more than three sport fish meals per week **from any location**.

EAT SMALLER FISH OF LEGAL SIZE. Fish accumulate mercury as they grow.

DO NOT COMBINE FISH CONSUMPTION ADVICE. If you eat multiple species or catch fish from other water bodies, the recommended guidelines for different species and locations should not be combined. For example, if you eat a meal of fish from the one meal per month category, you should not eat another fish species containing mercury for at least one month.

SERVE SMALLER MEALS TO CHILDREN. MEAL SIZE IS ASSUMED TO BE EIGHT OUNCES FOR A 160-POUND ADULT. If you weigh more or less than 160 pounds, add or subtract 1 oz to your meal size, respectively, for each 20-pound difference in body weight.

CONSIDER YOUR TOTAL FISH CONSUMPTION. Fish from many sources (including stores and restaurants) can contain elevated levels of mercury and other contaminants. If you eat fish with lower contaminant levels (including commercial fish) you can safely eat more fish. The American Heart Association recommends that healthy adults eat at least two servings of fish per week. Shrimp, king crab, scallops, farmed catfish, wild salmon, oysters, tilapia, flounder, and sole generally contain some of the lowest levels of mercury.

This advisory does <u>NOT</u> apply to commercial oysters, clams, and mussels from Tomales Bay; elevated levels of mercury have not been found in commercially grown shellfish.

October 2004

Appendix II

QUALITY CONTROL DATA

FOR ANALYTICAL CHEMISTRY

OF FISH TISSUE SAMPLES

Table A1-1. SWAMP Quality Control (QC) Requirements* for PCB Congeners in Tissue.

Type of QC Sample	Purpose	Required Frequency	Control Limit
Method Blank	Reagent contamination	1 per 20 samples or 1 per batch, whichever is more frequent	< MDL for analyte of interest
Calibration standards	Establish relationship between instrument response and target analyte concentration	As specified in method or laboratory SOP	Linear regression r>0.995
Calibration verification standard	Assess instrument drift	Every 10 samples	85-115% recovery
Certified reference material	Accuracy	1 per 20 samples or 1 per batch, whichever is more frequent	70-130% recovery of the 95% confidence level
Matrix spike (MS) and matrix spike duplicate (MSD)	Matrix effects and method performance	1 MS and 1 MSD 20 samples or 1 MS/MSD pair per batch, whichever is more frequent	50-150% recovery and RPD<25%
Surrogate spikes	Assess method performance and estimate recovery of target analytes	Added to every calibration standard, sample, and blank	As specified in method or by project manager
Field replicate	Method precision, homogeneity of sample	1 per 20 samples or 1 per batch, whichever is more frequent	RPD<25% if samples is 10 times MDL

Table A1-2. SWAMP Quality Control Requirements* for Total Mercury in Tissue.

Type of QC Sample	Purpose	Required Frequency	Control Limit
Method Blank	Reagent contamination	1 per 20 samples or 1 per batch, whichever is more frequent	< MDL for analyte of interest
Calibration standards	Establish relationship between instrument response and target analyte concentration	As specified in method or laboratory SOP	Linear regression r>0.995
Calibration verification standard	Assess instrument drift	Every 10 samples	80-120% recovery
Certified reference material	Accuracy	1 per 20 samples or 1 per batch, whichever is more frequent	75-125% recovery
Matrix spike (MS) and matrix spike duplicate (MSD)	Matrix effects and method performance	1 MS and 1 MSD 20 samples or 1 MS/MSD pair per batch, whichever is more frequent	75-125% recovery and RPD<25%
Field replicate	Method precision, homogeneity of sample	1 per 20 samples or 1 per batch, whichever is more frequent	RPD<25% if samples is 10 times MDL

*The two tables represent *some* of the QC requirements for tissue analysis under the SWAMP QA program
RPD = relative percent difference (sample difference divided by sample mean and multiplied by 100%)
SOP = standard operating procedure
MDL = method detection limit
RL = reporting limit

Table A1-3. Method blank results for PCB Congeners. Results reported in ppb (wet weight). MDL = 0.1 ppb and RL = 0.2 ppb.

QA-Designated Batch Identification	PCB Congener	Method Blank Sample Result	Method Blank Sample Result
TSM2000	18	ND	ND
TSM2000	28	0.096	0.088
TSM2000	31	0.099	0.091
TSM2000	99	0.044	0.060
TSM2000	118	0.212	0.237
TSM2000	128	ND	ND
TSM2000	138	0.112	0.129
TSM2000	149	ND	0.044
TSM2000	153	0.053	0.065
TSM2000	180	ND	ND
TSM2000	194	ND	ND
TSM2000	195	ND	ND
TSM2000	201	ND	ND
TSM2000	203	ND	ND
TSM2001	18	ND	NA
TSM2001	28	ND	NA
TSM2001	31	ND	NA
TSM2001	99	ND	NA
TSM2001	118	0.296	NA
TSM2001	128	ND	NA
TSM2001	138	0.198	NA
TSM2001	149	ND	NA
TSM2001	153	ND	NA
TSM2001	180	ND	NA
TSM2001	194	ND	NA
TSM2001	195	ND	NA
TSM2001	201	ND	NA
TSM2001	203	ND	NA

NA = not analyzed
ND = non-detect (below the MDL)

Table A1-4. Method blank results for Total Mercury. Results reported in ppm (dry weight). MDL = 0.011 and RL = 0.024 ppm.(dry weight).

Lab Batch Identification	Lab Sample ID	Result
TSM00THg1	MB-1	ND
TSM00THg1	MB-2	ND
TSM00THg1	MB-3	ND
TSM00THg2	MB-1	ND
TSM00THg2	MB-2	ND
TSM00THg2	MB-3	ND
TSM00THg3	MB-1	ND
TSM00THg3	MB-2	ND
TSM00THg3	MB-3	ND
TSM01THg1	MB-1	ND
TSM01THg1	MB-2	ND
TSM01THg1	MB-3	ND
TSM01THg2	MB-1	ND
TSM01THg2	MB-2	ND
TSM01THg2	MB-3	ND

ND = non-detect (below the MDL)

Table A1-5. Certified reference material results for PCB Congeners. NIST SRM-2978 mussel tissue. Results reported in ppb (dry weight).

QA-Designated Batch Identification	PCB Congener	Certified Value	95% CI Ranges +/-	Lower	Upper	70-130% of the 95% Confidence Interval		Result	Result	RPD
TSM2000	28	7.91	0.9	7.01	8.81	4.91	11.45	7.45	7.78	4.3
TSM2000	31	21.4	0.43	21.0	21.83	14.68	28.38	6.05	6.34	4.7
TSM2000	44	11.8	0.64	11.16	12.44	7.81	16.17	11.3	10.9	3.9
TSM2000	49	16.84	0.86	16.0	17.7	11.19	23.01	14.6	13.2	10.0
TSM2000	52	17.7	2.8	14.9	20.5	10.43	26.65	17.8	16.3	8.7
TSM2000	66	18.4	1.5	16.9	19.9	11.83	25.87	24.5	22.5	8.8
TSM2000	87	10.2	0.29	9.91	10.49	6.94	13.64	12.3	11.9	3.2
TSM2000	95	20.8	2.1	18.7	22.9	13.09	29.77	23.0	19.4	17.3
TSM2000	99	18.84	0.44	18.4	19.28	12.88	25.06	20.2	19.0	6.0
TSM2000	101	35.9	1.6	34.3	37.5	24.01	48.75	46.6	45.2	3.1
TSM2000	105	10.8	0.45	10.35	11.25	7.25	14.63	7.28	12.8	54.7
TSM2000	110	35.34	0.71	34.63	36.05	24.24	46.87	37.0	42.3	13.3
TSM2000	118	35.1	1.0	34.1	36.1	23.87	46.93	40.0	41.7	4.1
TSM2000	128	5.25	0.17	5.08	5.42	3.56	7.05	4.90	5.47	10.9
TSM2000	138	35.7	1.5	34.2	37.2	23.94	48.36	46.5	46.5	0.1
TSM2000	149	34.73	0.69	34.0	35.42	23.83	46.05	29.8	29.0	2.6
TSM2000	151	10.92	0.25	10.67	11.17	7.47	14.52	11.1	11.3	1.8
TSM2000	153	56.9	3.5	53.4	60.4	37.38	78.52	55.3	54.7	1.1
TSM2000	156	1.97	0.11	1.86	2.08	1.30	2.70	1.99	2.09	4.7
TSM2000	180	7.81	0.63	7.18	8.44	5.03	10.97	6.48	6.17	4.9
TSM2000	183	5.25	0.15	5.10	5.40	3.57	7.02	4.65	4.14	11.6
TSM2000	187	16.7	1.3	15.40	18.00	10.78	23.40	16.9	16.4	3.0

Table A1-5 (continued). Certified reference material results for PCB Congeners. NIST SRM-2978 mussel tissue. Results reported in ppb (dry weight).

QA-Designated Batch Identification	PCB Congener	Certified Value	+/-	95% CI Ranges Lower	Upper	70-130% of the 95% Confidence Interval		Result
TSM2001	28	7.91	0.9	7.01	8.81	4.91	11.45	5.30
TSM2001	31	21.4	0.43	21.0	21.83	14.68	28.38	5.26
TSM2001	44	11.8	0.64	11.16	12.44	7.81	16.17	11.0
TSM2001	49	16.84	0.86	16.0	17.7	11.19	23.01	12.4
TSM2001	52	17.7	2.8	14.9	20.5	10.43	26.65	15.5
TSM2001	66	18.4	1.5	16.9	19.9	11.83	25.87	17.6
TSM2001	87	10.2	0.29	9.91	10.49	6.94	13.64	10.4
TSM2001	95	20.8	2.1	18.7	22.9	13.09	29.77	19.6
TSM2001	99	18.84	0.44	18.4	19.28	12.88	25.06	18.3
TSM2001	101	35.9	1.6	34.3	37.5	24.01	48.75	42.3
TSM2001	105	10.8	0.45	10.35	11.25	7.25	14.63	9.19
TSM2001	110	35.34	0.71	34.63	36.05	24.24	46.87	37.4
TSM2001	118	35.1	1.0	34.1	36.1	23.87	46.93	36
TSM2001	128	5.25	0.17	5.08	5.42	3.56	7.05	4.86
TSM2001	138	35.7	1.5	34.2	37.2	23.94	48.36	46.6
TSM2001	149	34.73	0.69	34.0	35.42	23.83	46.05	29.9
TSM2001	151	10.92	0.25	10.67	11.17	7.47	14.52	9.54
TSM2001	153	56.9	3.5	53.4	60.4	37.38	78.52	59.8
TSM2001	156	1.97	0.11	1.86	2.08	1.30	2.70	1.76
TSM2001	180	7.81	0.63	7.18	8.44	5.03	10.97	5.64
TSM2001	183	5.25	0.15	5.10	5.40	3.57	7.02	4.43
TSM2001	187	16.7	1.3	15.40	18.00	10.78	23.40	16.1

Table A1-6. Certified reference material results for Total Mercury. NIST DORM-2 dogfish muscle certified value = 4.64 ± 0.24 ppm. Results reported in ppm (dry weight).

Lab Batch Identification	Result	Percent Recovery
TSM00THg1	4.71	101.5
TSM00THg2	4.61	99.4
TSM00THg3	4.46	96.1
TSM01THg1	5.12	110.3
TSM01THg2	4.85	104.5

Figure A1-1. Control chart for percent recovery in DORM-2 for Total Mercury.

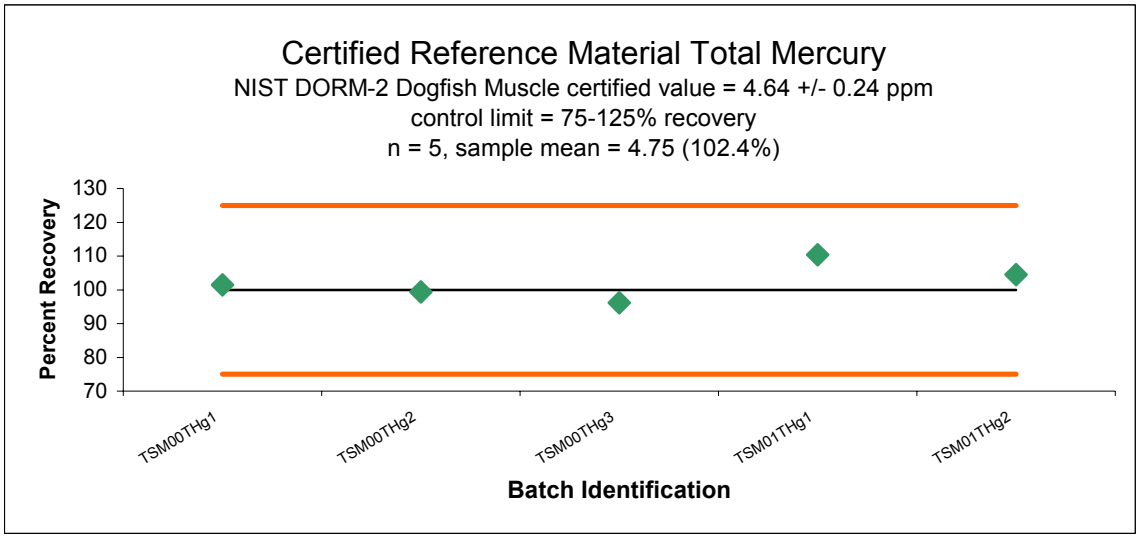


Table A1-7. Replicate analysis samples for PCB Congeners. RPD = relative percent difference (sample difference divided by sample mean and multiplied by 100%). Results reported in ppb (wet weight).

QA-Designated Batch Identification	Parent Sample Identification	PCB Congener	Parent Sample Result	Replicate Sample Result	RPD	Sample <10xMDL
TSM2000	384.010.F.00	18	0.314	0.334	6.2	x
TSM2000	384.010.F.00	28	1.17	1.18	0.2	
TSM2000	384.010.F.00	31	1.01	1.01	0.2	
TSM2000	384.010.F.00	99	6.26	6.16	1.6	
TSM2000	384.010.F.00	118	15.3	15.9	3.6	
TSM2000	384.010.F.00	128	3.89	4.95	24.0	
TSM2000	384.010.F.00	138	37.8	39.4	4.0	
TSM2000	384.010.F.00	149	11.2	11.3	1.4	
TSM2000	384.010.F.00	153	44.0	46.5	5.6	
TSM2000	384.010.F.00	180	21.6	22.5	4.1	
TSM2000	384.010.F.00	194	3.09	3.09	0.1	
TSM2000	384.010.F.00	195	0.596	0.497	18.1	x
TSM2000	384.010.F.00	201	4.85	4.97	2.5	
TSM2000	384.010.F.00	203	3.51	3.57	1.6	
TSM2000	384.001.F.00	18	0.135	0.126	7.2	x
TSM2000	384.001.F.00	28	0.288	0.302	5.0	x
TSM2000	384.001.F.00	31	0.230	0.277	18.9	x
TSM2000	384.001.F.00	99	0.479	0.509	6.0	x
TSM2000	384.001.F.00	118	1.04	1.14	9.2	
TSM2000	384.001.F.00	128	0.240	0.264	9.7	x
TSM2000	384.001.F.00	138	1.66	1.81	8.4	

Table A1-7 (continued). Replicate analysis samples for PCB Congeners. RPD = relative percent difference (sample difference divided by sample mean and multiplied by 100%). Results reported in ppb (wet weight).

QA-Designated Batch Identification	Parent Sample Identification	PCB Congener	Parent Sample Result	Replicate Sample Result	RPD	Sample <10xMDL
TSM2000	384.001.F.00	149	0.752	0.818	8.4	x
TSM2000	384.001.F.00	153	1.51	1.63	7.5	
TSM2000	384.001.F.00	180	0.662	0.696	4.9	x
TSM2000	384.001.F.00	194	0.107	0.105	2.3	x
TSM2000	384.001.F.00	195	ND	ND	ND	
TSM2000	384.001.F.00	201	0.174	0.173	0.8	x
TSM2000	384.001.F.00	203	0.122	0.169	32.6	x
TSM2001	013.002.F.01	18	ND	ND	ND	x
TSM2001	013.002.F.01	28	0.102	0.276	92.1	x
TSM2001	013.002.F.01	31	0.093	0.224	82.6	x
TSM2001	013.002.F.01	99	0.235	0.273	15.0	x
TSM2001	013.002.F.01	118	0.655	0.834	24.0	x
TSM2001	013.002.F.01	128	0.113	0.112	0.9	x
TSM2001	013.002.F.01	138	0.950	0.846	11.6	x
TSM2001	013.002.F.01	149	0.298	0.287	3.8	x
TSM2001	013.002.F.01	153	0.750	0.680	9.8	x
TSM2001	013.002.F.01	180	0.251	0.238	5.3	x
TSM2001	013.002.F.01	194	0.038	0.024	<MDL	x
TSM2001	013.002.F.01	195	ND	ND	ND	x
TSM2001	013.002.F.01	201	0.031	0.027	<MDL	x
TSM2001	013.002.F.01	203	0.043	0.039	<MDL	x

Figure A1-2. Control chart for replicate sample analysis RPD for PCB Congeners. Only results >10 times the MDL are shown on control chart.

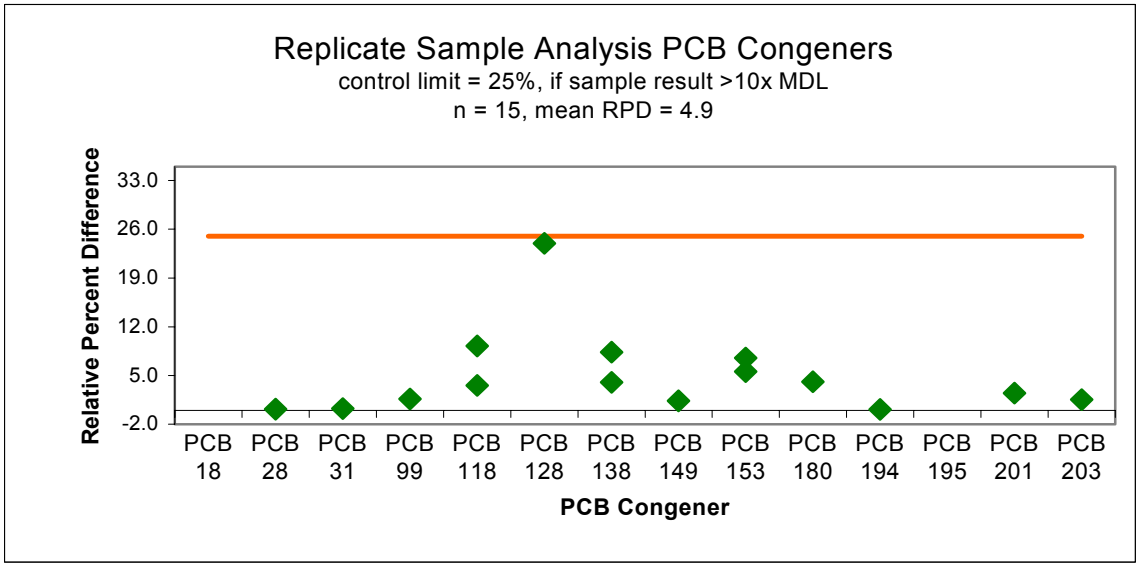


Table A1-8. Replicate analysis samples for Total Mercury. RPD = relative percent difference (sample difference divided by sample mean and multiplied by 100%). Results reported in ppm (dry weight).

Lab Batch Identification	Parent Sample Identification	Parent Sample Result	Replicate Sample Result	RPD
TSM00THg1	049.002.F.00	5.26	5.53	5
TSM00THg2	107.006.F.00	3.68	3.63	1.37
TSM00THg3	384.006.F.00	0.914	0.861	5.97
TSM01THg1	064.001.F.01	0.449	0.456	1.55
TSM01THg2	387.009.F.01	1.14	1.11	2.67

Figure A1-3. Control chart for replicate sample analysis RPD for Total Mercury.

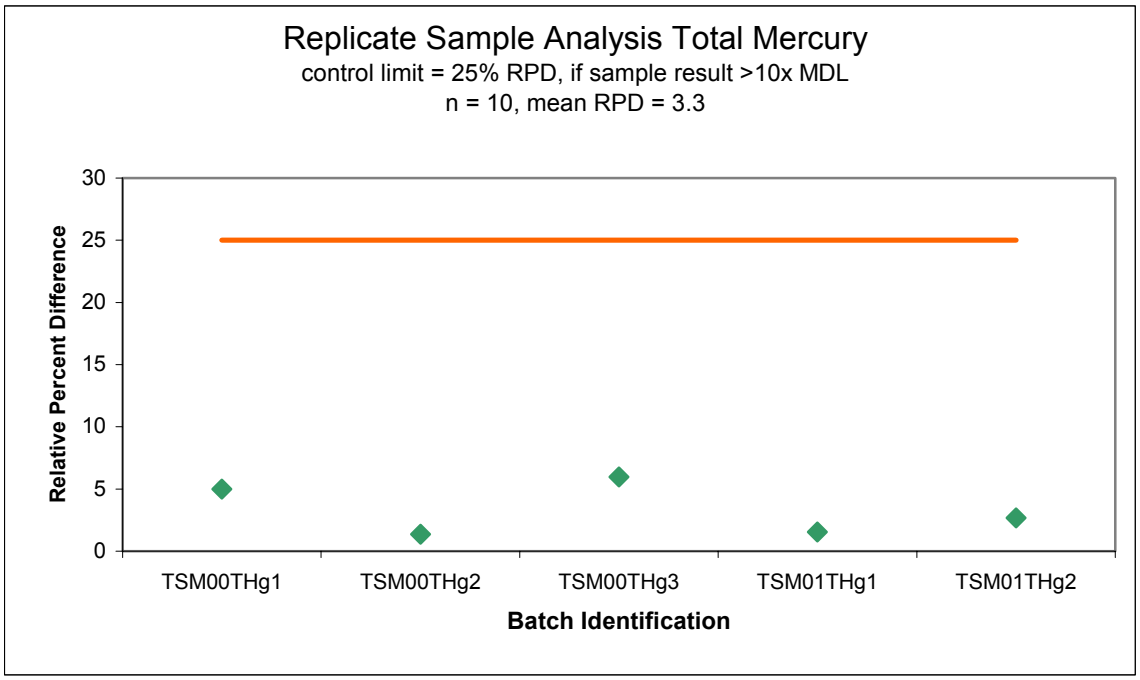


Table A1-10. Matrix spike (MS) and matrix spike duplicate (MSD) analysis samples for PCB Congeners. Results reported in ppb (wet weight). **Spike-level too low, result discarded.

QA-Designated Batch Identification	Parent Sample Identification	PCB Congener	MS Result	Percent Recovery	MSD Result	Percent Recovery
TSM2000	384.012.F.00	18	2.06	91.3	2.00	87.9
TSM2000	384.012.F.00	28	3.23	121	3.18	118
TSM2000	384.012.F.00	31	2.86	108	2.50	88.8
TSM2000	384.012.F.00	99	6.23	110	6.16	106
TSM2000	384.012.F.00	118	12.4	**	12.5	**
TSM2000	384.012.F.00	128	4.96	117	5.16	126
TSM2000	384.012.F.00	138	27.1	**	26.7	**
TSM2000	384.012.F.00	149	8.29	115	8.26	113
TSM2000	384.012.F.00	153	31.2	**	30.7	**
TSM2000	384.012.F.00	180	17.1	**	17.0	**
TSM2000	384.012.F.00	194	4.23	108	4.32	112
TSM2000	384.012.F.00	195	2.98	110	2.97	109
TSM2000	384.012.F.00	201	5.38	111	5.36	109
TSM2000	384.012.F.00	203	3.46	57.0	4.14	90.3
TSM2000	384.002.F.00	18	1.90	89.6	2.00	95.7
TSM2000	384.002.F.00	28	2.59	105	2.54	103
TSM2000	384.002.F.00	31	2.10	91.3	2.09	91.7
TSM2000	384.002.F.00	99	3.65	97.1	3.57	94.0
TSM2000	384.002.F.00	118	6.41	121	6.29	116
TSM2000	384.002.F.00	128	2.97	105	2.93	104
TSM2000	384.002.F.00	138	8.38	112	8.20	104
TSM2000	384.002.F.00	149	3.32	97.3	3.24	94.2
TSM2000	384.002.F.00	153	10.6	126	10.3	112
TSM2000	384.002.F.00	180	5.35	112	5.25	108
TSM2000	384.002.F.00	194	2.31	90.4	2.32	92.0
TSM2000	384.002.F.00	195	2.59	121	2.59	122
TSM2000	384.002.F.00	201	2.71	100	2.69	100
TSM2000	384.002.F.00	203	2.40	89.1	2.18	79.0
TSM2001	064.8.F.01	18	1.61	64.7	1.66	67.4
TSM2001	064.8.F.01	28	1.95	95.3	1.95	95.4
TSM2001	064.8.F.01	31	2.16	103	2.18	104
TSM2001	064.8.F.01	99	2.60	98.5	2.49	93.3
TSM2001	064.8.F.01	118	3.42	105	3.26	96.9
TSM2001	064.8.F.01	128	1.92	72.0	1.92	72.1
TSM2001	064.8.F.01	138	6.87	125	6.39	101
TSM2001	064.8.F.01	149	4.65	122	4.29	104
TSM2001	064.8.F.01	153	7.47	137	6.87	107
TSM2001	064.8.F.01	180	5.28	117	4.84	95.2
TSM2001	064.8.F.01	194	2.25	90.3	2.14	85.2
TSM2001	064.8.F.01	195	2.03	93.3	1.98	90.6
TSM2001	064.8.F.01	201	2.55	97.2	2.40	90.0
TSM2001	064.8.F.01	203	2.65	106	2.48	97.6

Figure A1-4. Control chart for MS/MSD sample analysis for PCB.

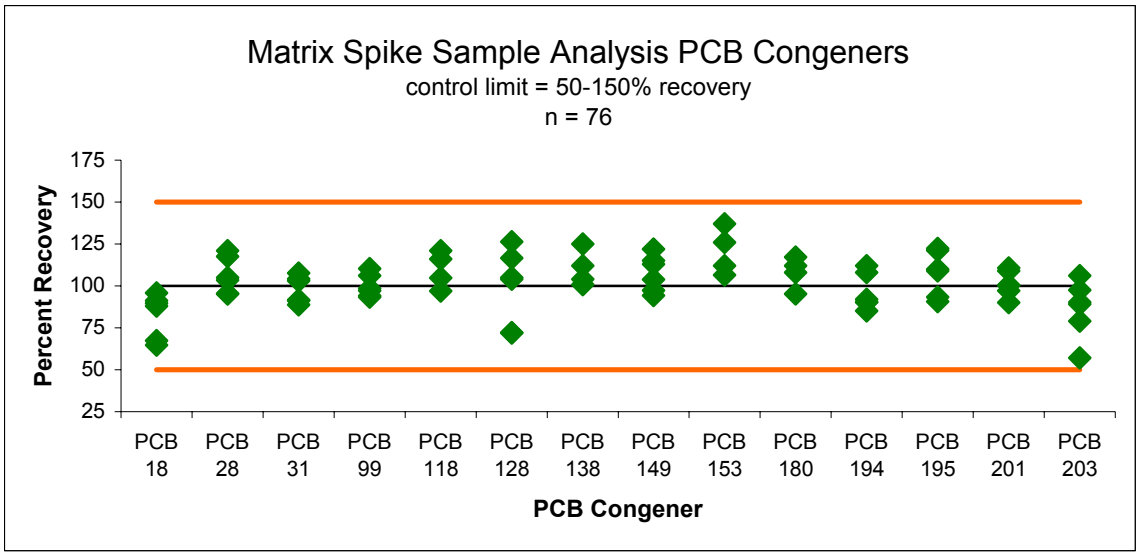
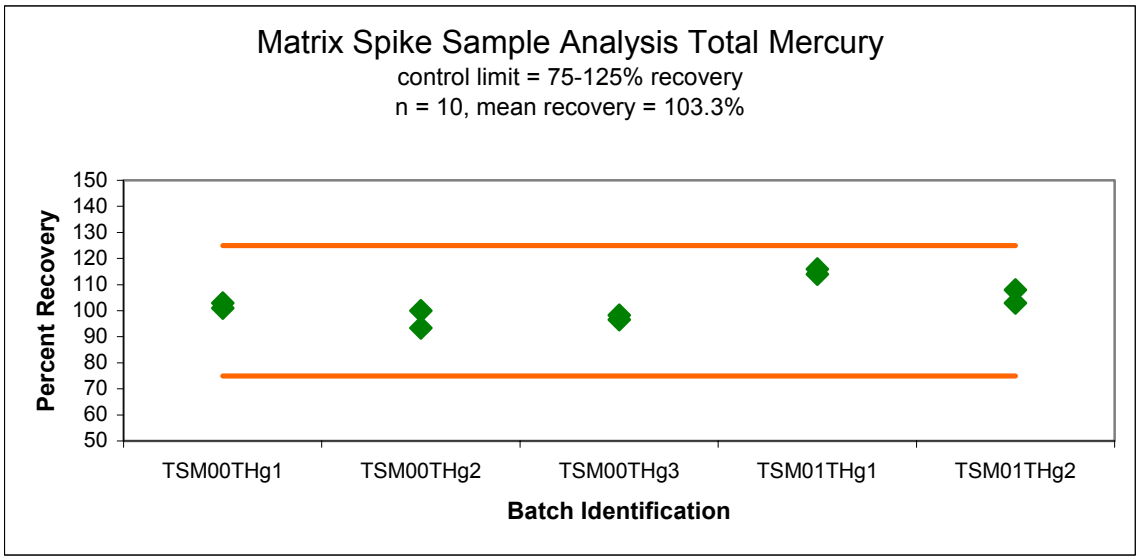


Table A1-11. Matrix spike (MS) and matrix spike duplicate (MSD) analysis samples for Total Mercury. Results reported in ppm (dry weight).

Lab Batch Identification	Parent Sample Identification	Parent Sample Result	MS Result	Percent Recovery	MSD Result	Percent Recovery
TSM00THg1	049.002.F.00	5.26	21.8	101.0	22.2	103.0
TSM00THg2	107.006.F.00	3.68	14.0	93.4	14.7	100.0
TSM00THg3	384.006.F.00	0.91	3.49	96.5	3.54	98.3
TSM01THg1	064.001.F.01	0.45	2.07	116.0	2.04	114.0
TSM01THg2	387.009.F.01	1.14	4.81	108.0	4.63	103.0

Figure A1-5. Control chart for MS/MSD sample analysis for Total Mercury.



Appendix III

Edible Fish Tissue
Trace Metal Chemistry Data
for Reservoirs

RESERVOIR	COMMON	GENUS	SPECIES	CDATE	STANUM	BOT
Anderson	Black Crappie	Pomoxis	nigromaculatus	9/13/2001	205.30.30	064.001.F.01
Anderson	Black Crappie	Pomoxis	nigromaculatus	9/13/2001	205.30.30	064.002.F.01
Anderson	Black Crappie	Pomoxis	nigromaculatus	9/13/2001	205.30.30	064.003.F.01
Anderson	Carp	Cyprinus	carpio	9/13/2001	205.30.30	064.007.F.01
Anderson	Carp	Cyprinus	carpio	9/13/2001	205.30.30	064.008.F.01
Anderson	Carp	Cyprinus	carpio	9/13/2001	205.30.30	064.009.F.01
Anderson	Largemouth Bass	Micropterus	salmoides	9/13/2001	205.30.30	064.004.F.01
Anderson	Largemouth Bass	Micropterus	salmoides	9/13/2001	205.30.30	064.005.F.01
Anderson	Largemouth Bass	Micropterus	salmoides	9/13/2001	205.30.30	064.006.F.01
Bon Tempe	Largemouth Bass	Micropterus	salmoides	9/20/2001	201.13.18	386.001.F.01
Bon Tempe	Largemouth Bass	Micropterus	salmoides	9/20/2001	201.13.18	386.002.F.01
Del Valle	Bluegill	Lepomis	macrochirus	4/25/2001	204.30.26	107.010.F.00
Del Valle	Bluegill	Lepomis	macrochirus	4/25/2001	204.30.26	107.011.F.00
Del Valle	Bluegill	Lepomis	macrochirus	4/25/2001	204.30.26	107.012.F.00
Del Valle	Channel Catfish	Ictalurus	punctatus	4/25/2001	204.30.26	107.001.F.00
Del Valle	Channel Catfish	Ictalurus	punctatus	4/25/2001	204.30.26	107.002.F.00
Del Valle	Channel Catfish	Ictalurus	punctatus	4/25/2001	204.30.26	107.003.F.00
Del Valle	Largemouth Bass	Micropterus	salmoides	4/25/2001	204.30.26	107.004.F.00
Del Valle	Largemouth Bass	Micropterus	salmoides	4/25/2001	204.30.26	107.005.F.00
Del Valle	Largemouth Bass	Micropterus	salmoides	4/25/2001	204.30.26	107.006.F.00
Del Valle	Redear Sunfish	Lepomis	microlophus	4/25/2001	204.30.26	107.007.F.00
Del Valle	Redear Sunfish	Lepomis	microlophus	4/25/2001	204.30.26	107.008.F.00
Del Valle	Redear Sunfish	Lepomis	microlophus	4/25/2001	204.30.26	107.009.F.00
Lafayette	Black Crappie	Pomoxis	nigromaculatus	9/9/02	207.32.04	324.008.F.02
Lafayette	Black Crappie	Pomoxis	nigromaculatus	9/9/02	207.32.04	324.009.F.02
Lafayette	Black Crappie	Pomoxis	nigromaculatus	9/9/02	207.32.04	324.010.F.02
Lafayette	Black Crappie	Pomoxis	nigromaculatus	9/9/02	207.32.04	324.010.L.02
Lafayette	Channel Catfish	Ictalurus	punctatus	9/9/02	207.32.04	324.004.F.02
Lafayette	Channel Catfish	Ictalurus	punctatus	9/9/02	207.32.04	324.004.L.02
Lafayette	Goldfish	Carassius	auratus	9/9/02	207.32.04	324.005.F.02
Lafayette	Goldfish	Carassius	auratus	9/9/02	207.32.04	324.006.F.02
Lafayette	Goldfish	Carassius	auratus	9/9/02	207.32.04	324.007.F.02
Lafayette	Largemouth Bass	Micropterus	salmoides	9/9/02	207.32.04	324.001.F.02
Lafayette	Largemouth Bass	Micropterus	salmoides	9/9/02	207.32.04	324.002.F.02
Lafayette	Largemouth Bass	Micropterus	salmoides	9/9/02	207.32.04	324.002.L.02
Lafayette	Largemouth Bass	Micropterus	salmoides	9/9/02	207.32.04	324.003.F.02
Lake Chabot	Carp	Cyprinus	carpio	6/6/2001	204.20.06	384.010.F.00
Lake Chabot	Carp	Cyprinus	carpio	6/6/2001	204.20.06	384.011.F.00
Lake Chabot	Carp	Cyprinus	carpio	6/6/2001	204.20.06	384.012.F.00
Lake Chabot	Channel Catfish	Ictalurus	punctatus	4/24/2001	204.20.06	384.002.F.00
Lake Chabot	Channel Catfish	Ictalurus	punctatus	4/24/2001	204.20.06	384.003.F.00
Lake Chabot	Channel Catfish	Ictalurus	punctatus	4/24/2001	204.20.06	384.004.F.00
Lake Chabot	Largemouth Bass	Micropterus	salmoides	4/24/2001	204.20.06	384.007.F.00
Lake Chabot	Largemouth Bass	Micropterus	salmoides	4/24/2001	204.20.06	384.008.F.00
Lake Chabot	Largemouth Bass	Micropterus	salmoides	4/24/2001	204.20.06	384.009.F.00
Lake Chabot	Redear Sunfish	Lepomis	microlophus	4/24/2001	204.20.06	384.005.F.00
Lake Chabot	Redear Sunfish	Lepomis	microlophus	4/24/2001	204.20.06	384.006.F.00

RESERVOIR	COMMON	GENUS	SPECIES	CDATE	STANUM	BOT
Nicasio	Bluegill	Lepomis	macrochirus	9/19/2001	201.13.06	387.001.F.01
Nicasio	Bluegill	Lepomis	macrochirus	9/19/2001	201.13.06	387.002.F.01
Nicasio	Bluegill	Lepomis	macrochirus	9/19/2001	201.13.06	387.003.F.01
Nicasio	Carp	Cyprinus	carpio	9/19/2001	201.13.06	387.007.F.01
Nicasio	Carp	Cyprinus	carpio	9/19/2001	201.13.06	387.008.F.01
Nicasio	Carp	Cyprinus	carpio	9/19/2001	201.13.06	387.009.F.01
Nicasio	Largemouth Bass	Micropterus	salmoides	9/19/2001	201.13.06	387.004.F.01
Nicasio	Largemouth Bass	Micropterus	salmoides	9/19/2001	201.13.06	387.005.F.01
Nicasio	Largemouth Bass	Micropterus	salmoides	9/19/2001	201.13.06	387.006.F.01
San Pablo	Black Crappie	Pomoxis	nigromaculatus	4/17/2000	206.60.11	114.004.F.99
San Pablo	Black Crappie	Pomoxis	nigromaculatus	4/17/2000	206.60.11	114.005.F.99
San Pablo	Black Crappie	Pomoxis	nigromaculatus	4/17/2000	206.60.11	114.006.F.99
San Pablo	Carp	Cyprinus	carpio	4/17/2000	206.60.11	114.001.F.99
San Pablo	Carp	Cyprinus	carpio	4/17/2000	206.60.11	114.002.F.99
San Pablo	Carp	Cyprinus	carpio	4/17/2000	206.60.11	114.003.F.99
San Pablo	Channel Catfish	Ictalurus	punctatus	4/17/2000	206.60.11	114.009.F.99
San Pablo	Channel Catfish	Ictalurus	punctatus	4/17/2000	206.60.11	114.010.F.99
San Pablo	Channel Catfish	Ictalurus	punctatus	4/17/2000	206.60.11	114.011.F.99
Shadow Cliffs	Carp	Cyprinus	carpio	8/13/02	204.30.13	388.003.F.02
Shadow Cliffs	Channel Catfish	Ictalurus	punctatus	8/13/02	204.30.13	388.004.F.02
Shadow Cliffs	Channel Catfish	Ictalurus	punctatus	8/13/02	204.30.13	388.004.L.02
Shadow Cliffs	Largemouth Bass	Micropterus	salmoides	8/13/02	204.30.13	388.001.F.02
Shadow Cliffs	Largemouth Bass	Micropterus	salmoides	8/13/02	204.30.13	388.002.F.02
Soulajule	Black Crappie	Pomoxis	nigromaculatus	5/2/2001	201.12.14	325.001.F.00
Soulajule	Black Crappie	Pomoxis	nigromaculatus	5/2/2001	201.12.14	325.002.F.00
Soulajule	Black Crappie	Pomoxis	nigromaculatus	5/2/2001	201.12.14	325.003.F.00
Soulajule	Channel Catfish	Ictalurus	punctatus	9/20/2001	201.12.14	325.001.F.01
Soulajule	Channel Catfish	Ictalurus	punctatus	9/20/2001	201.12.14	325.002.F.01
Soulajule	Largemouth Bass	Micropterus	salmoides	5/2/2000	201.12.14	325.001.F.99
Soulajule	Largemouth Bass	Micropterus	salmoides	5/2/2000	201.12.14	325.002.F.99
Soulajule	Largemouth Bass	Micropterus	salmoides	5/2/2000	201.12.14	325.003.F.99
Soulajule	Largemouth Bass	Micropterus	salmoides	9/20/2001	201.12.14	325.004.F.01
Soulajule	Largemouth Bass	Micropterus	salmoides	9/20/2001	201.12.14	325.005.F.01
Soulajule	Largemouth Bass	Micropterus	salmoides	9/20/2001	201.12.14	325.006.F.01
Soulajule	Largemouth Bass	Micropterus	salmoides	9/20/2001	201.12.14	325.007.F.01
Soulajule	Largemouth Bass	Micropterus	salmoides	9/20/2001	201.12.14	325.008.F.01
Soulajule	Largemouth Bass	Micropterus	salmoides	9/20/2001	201.12.14	325.009.F.01
Stevens Creek	Black Crappie	Pomoxis	nigromaculatus	5/4/2001	205.50.10	238.004.F.00
Stevens Creek	Black Crappie	Pomoxis	nigromaculatus	5/4/2001	205.50.10	238.005.F.00
Stevens Creek	Black Crappie	Pomoxis	nigromaculatus	5/4/2001	205.50.10	238.006.F.00
Stevens Creek	Black Crappie	Pomoxis	nigromaculatus	5/4/2001	205.50.10	238.007.F.00
Stevens Creek	Channel Catfish	Ictalurus	punctatus	5/4/01	205.50.10	238.008.F.00
Stevens Creek	Channel Catfish	Ictalurus	punctatus	5/4/01	205.50.10	238.009.F.00
Stevens Creek	Channel Catfish	Ictalurus	punctatus	6/6/01	205.50.10	238.010.F.00
Stevens Creek	Largemouth Bass	Micropterus	salmoides	5/4/2001	205.50.10	238.001.F.00
Stevens Creek	Largemouth Bass	Micropterus	salmoides	5/4/2001	205.50.10	238.002.F.00
Stevens Creek	Largemouth Bass	Micropterus	salmoides	5/4/2001	205.50.10	238.003.F.00

RESERVOIR	COMMON	SPECTYPE	NUMBER	AGE	WEIGHT	LENGTH
Anderson	Black Crappie	FF	4	1-2	42.6	139.0
Anderson	Black Crappie	FF	4	2	95.4	184.0
Anderson	Black Crappie	FF	4	2-3	219.3	232.0
Anderson	Carp	FF	4	3	986.5	373.0
Anderson	Carp	FF	4	3	1325.9	412.0
Anderson	Carp	FF	4	3-5	1988.2	480.0
Anderson	Largemouth Bass	FF	4	2-3	454.8	298.0
Anderson	Largemouth Bass	FF	4	3-5	866.4	361.0
Anderson	Largemouth Bass	FF	4	4-7	1924.6	450.0
Bon Tempe	Largemouth Bass	FF	1	7	2597.4	480.0
Bon Tempe	Largemouth Bass	FF	1	3-4	915.8	365.0
Del Valle	Bluegill	FF	4	2-5	129.2	174.0
Del Valle	Bluegill	FF	4	2-3	84.8	153.0
Del Valle	Bluegill	FF	4	2	68.2	138.0
Del Valle	Channel Catfish	FF	3	4-6	1071.8	445.0
Del Valle	Channel Catfish	FF	3	4-6	870.7	420.0
Del Valle	Channel Catfish	FF	3	3-6	891.1	398.0
Del Valle	Largemouth Bass	FF	3	4-5	1267.8	428.0
Del Valle	Largemouth Bass	FF	3	3-4	680.4	353.0
Del Valle	Largemouth Bass	FF	3	2-4	570.7	332.0
Del Valle	Redear Sunfish	FF	3	5-7	463.3	265.0
Del Valle	Redear Sunfish	FF	3	5-6	389.7	248.0
Del Valle	Redear Sunfish	FF	3	4-6	296.0	227.0
Lafayette	Black Crappie	FF	3	1	29.5	125.0
Lafayette	Black Crappie	FF	3	1	32.9	135.0
Lafayette	Black Crappie	FF	3	37988	41.6	142.0
Lafayette	Black Crappie	FF	3	37988	41.6	142.0
Lafayette	Channel Catfish	FF	3	38150	1708.5	485.0
Lafayette	Channel Catfish	FF	3	38150	1708.5	485.0
Lafayette	Goldfish	FF	3	4+	1477.7	354.0
Lafayette	Goldfish	FF	3	4+	1565.2	366.0
Lafayette	Goldfish	FF	3	4+	1814.8	418.0
Lafayette	Largemouth Bass	FF	3	38050	698.6	345.0
Lafayette	Largemouth Bass	FF	3	4	1221.2	396.0
Lafayette	Largemouth Bass	FF	3	4	1221.2	396.0
Lafayette	Largemouth Bass	FF	3	38146	2548.5	496.0
Lake Chabot	Carp	FF	4	4-5	1974.0	478.0
Lake Chabot	Carp	FF	4	4-5	1720.4	449.0
Lake Chabot	Carp	FF	4	3-5	1646.0	431.0
Lake Chabot	Channel Catfish	FF	3	4-6	1033.7	420.0
Lake Chabot	Channel Catfish	FF	3	3-6	793.5	393.0
Lake Chabot	Channel Catfish	FF	1	6-8	2456.5	500.0
Lake Chabot	Largemouth Bass	FF	3	3-5	1148.6	388.0
Lake Chabot	Largemouth Bass	FF	3	3-4	812.7	357.0
Lake Chabot	Largemouth Bass	FF	3	3-4	747.3	347.0
Lake Chabot	Redear Sunfish	FF	3	2-3	48.6	130.0
Lake Chabot	Redear Sunfish	FF	3	2-4	98.8	155.0

RESERVOIR	COMMON	SPECTYPE	NUMBER	AGE	WEIGHT	LENGTH
Nicasio	Bluegill	FF	5	4	74.5	150.0
Nicasio	Bluegill	FF	5	4	85.3	158.0
Nicasio	Bluegill	FF	5	4	96.0	165.0
Nicasio	Carp	FF	4	3	1197.9	394.0
Nicasio	Carp	FF	4	3	1258.1	404.0
Nicasio	Carp	FF	4	4	1634.2	445.0
Nicasio	Largemouth Bass	FF	4	3	464.5	303.0
Nicasio	Largemouth Bass	FF	4	3-4	802.3	367.0
Nicasio	Largemouth Bass	FF	4	5-7	1902.1	454.0
San Pablo	Black Crappie	FF	4	2	141.8	203.0
San Pablo	Black Crappie	FF	4	2	128.6	194.0
San Pablo	Black Crappie	FF	7	2	128.9	191.0
San Pablo	Carp	FF	4	3-6	2874.7	508.0
San Pablo	Carp	FF	4	3-6	3007.8	530.0
San Pablo	Carp	FF	4	3-6	3013.4	537.0
San Pablo	Channel Catfish	FF	4	3-9	1973.0	494.0
San Pablo	Channel Catfish	FF	4	3-7	1456.4	456.0
San Pablo	Channel Catfish	FF	4	5-9	1938.6	504.0
Shadow Cliffs	Carp	FF	3	38114	3983.2	583.0
Shadow Cliffs	Channel Catfish	FF	3	38146	760.1	395.0
Shadow Cliffs	Channel Catfish	FF	3	38146	760.1	395.0
Shadow Cliffs	Largemouth Bass	FF	1	4	929.1	382.0
Shadow Cliffs	Largemouth Bass	FF	1	7	2324.8	487.0
Soulajule	Black Crappie	FF	5	2-3	83.0	171.0
Soulajule	Black Crappie	FF	5	2-3	86.6	173.0
Soulajule	Black Crappie	FF	5	2-3	77.5	164.0
Soulajule	Channel Catfish	FF	1	8	3958.0	620.0
Soulajule	Channel Catfish	FF	1	8	3901.0	605.0
Soulajule	Largemouth Bass	FF	6	2-4	640.9	326.0
Soulajule	Largemouth Bass	FF	5	2-4	940.5	373.0
Soulajule	Largemouth Bass	FF	6	1-2	163.4	216.0
Soulajule	Largemouth Bass	FF	4	2-3	475.8	297.0
Soulajule	Largemouth Bass	FF	4	3-4	834.0	343.0
Soulajule	Largemouth Bass	FF	1	4	1004.9	370.0
Soulajule	Largemouth Bass	FF	1	4	1068.6	380.0
Soulajule	Largemouth Bass	FF	1	6	1925.7	465.0
Soulajule	Largemouth Bass	FF	1	7	2646.6	495.0
Stevens Creek	Black Crappie	FF	5	2-3	147.5	204.0
Stevens Creek	Black Crappie	FF	5	2-3	129.9	195.0
Stevens Creek	Black Crappie	FF	5	2-3	137.8	198.0
Stevens Creek	Black Crappie	FF	5	2-3	148.8	203.0
Stevens Creek	Channel Catfish	FF	1	9	1595.4	475.0
Stevens Creek	Channel Catfish	FF	1	10	2731.9	506.0
Stevens Creek	Channel Catfish	FF	1	13	4735.0	640.0
Stevens Creek	Largemouth Bass	FF	4	4-7	1980.3	476.0
Stevens Creek	Largemouth Bass	FF	4	4-5	1518.1	457.0
Stevens Creek	Largemouth Bass	FF	4	3-5	1151.9	410.0

RESERVOIR	COMMON	TISSUE	PWATER	AG_W	AS_W	CD_W
Anderson	Black Crappie	F	80.0	-888.000	-888.00	-888.000
Anderson	Black Crappie	F	79.7	-888.000	-888.00	-888.000
Anderson	Black Crappie	F	79.4	-888.000	-888.00	-888.000
Anderson	Carp	F	77.6	-888.000	-888.00	-888.000
Anderson	Carp	F	76.7	-888.000	-888.00	-888.000
Anderson	Carp	F	76.4	-888.000	-888.00	-888.000
Anderson	Largemouth Bass	F	78.0	-888.000	-888.00	-888.000
Anderson	Largemouth Bass	F	78.4	-888.000	-888.00	-888.000
Anderson	Largemouth Bass	F	78.3	-888.000	-888.00	-888.000
Bon Tempe	Largemouth Bass	F	76.1	-888.000	-888.00	-888.000
Bon Tempe	Largemouth Bass	F	76.9	-888.000	-888.00	-888.000
Del Valle	Bluegill	F	78.2	-888.000	-888.000	-888.000
Del Valle	Bluegill	F	78.3	-888.000	-888.000	-888.000
Del Valle	Bluegill	F	78.4	-888.000	-888.000	-888.000
Del Valle	Channel Catfish	F	78.3	-888.000	-888.000	-888.000
Del Valle	Channel Catfish	F	78.6	-888.000	-888.000	-888.000
Del Valle	Channel Catfish	F	76.5	-888.000	-888.000	-888.000
Del Valle	Largemouth Bass	F	77.8	-888.000	-888.000	-888.000
Del Valle	Largemouth Bass	F	78.7	-888.000	-888.000	-888.000
Del Valle	Largemouth Bass	F	77.9	-888.000	-888.000	-888.000
Del Valle	Redear Sunfish	F	77.7	-888.000	-888.000	-888.000
Del Valle	Redear Sunfish	F	77.3	-888.000	-888.000	-888.000
Del Valle	Redear Sunfish	F	77.9	-888.000	-888.000	-888.000
Lafayette	Black Crappie	F	79.3	-888.000	0.220	-0.002
Lafayette	Black Crappie	F	79.5	-888.000	0.200	-0.002
Lafayette	Black Crappie	F	80.0	-888.000	0.160	-0.002
Lafayette	Black Crappie	L	76.5	-0.003	-888.000	-888.000
Lafayette	Channel Catfish	F	74.2	-888.000	0.060	-0.002
Lafayette	Channel Catfish	L	79.8	-0.003	-888.000	-888.000
Lafayette	Goldfish	F	70.2	-888.000	0.170	-0.002
Lafayette	Goldfish	F	67.7	-888.000	0.170	-0.002
Lafayette	Goldfish	F	70.3	-888.000	0.160	-0.002
Lafayette	Largemouth Bass	F	74.2	-888.000	0.060	-0.002
Lafayette	Largemouth Bass	F	77.2	-888.000	0.060	-0.002
Lafayette	Largemouth Bass	L	77.8	0.006	-888.000	-888.000
Lafayette	Largemouth Bass	F	75.9	-888.000	0.090	-0.002
Lake Chabot	Carp	F	70.1	-888.000	-888.000	-888.000
Lake Chabot	Carp	F	69.7	-888.000	-888.000	-888.000
Lake Chabot	Carp	F	73.2	-888.000	-888.000	-888.000
Lake Chabot	Channel Catfish	F	75.0	-888.000	-888.000	-888.000
Lake Chabot	Channel Catfish	F	76.2	-888.000	-888.000	-888.000
Lake Chabot	Channel Catfish	F	74.2	-888.000	-888.000	-888.000
Lake Chabot	Largemouth Bass	F	78.2	-888.000	-888.000	-888.000
Lake Chabot	Largemouth Bass	F	78.7	-888.000	-888.000	-888.000
Lake Chabot	Largemouth Bass	F	78.4	-888.000	-888.000	-888.000
Lake Chabot	Redear Sunfish	F	79.3	-888.000	-888.000	-888.000
Lake Chabot	Redear Sunfish	F	79.0	-888.000	-888.000	-888.000

RESERVOIR	COMMON	TISSUE	PWATER	AG_W	AS_W	CD_W
Nicasio	Bluegill	F	78.2	-888.000	-888.00	-888.000
Nicasio	Bluegill	F	77.7	-888.000	-888.00	-888.000
Nicasio	Bluegill	F	79.2	-888.000	-888.00	-888.000
Nicasio	Carp	F	76.6	-888.000	-888.00	-888.000
Nicasio	Carp	F	76.9	-888.000	-888.00	-888.000
Nicasio	Carp	F	77.8	-888.000	-888.00	-888.000
Nicasio	Largemouth Bass	F	77.7	-888.000	-888.00	-888.000
Nicasio	Largemouth Bass	F	78.4	-888.000	-888.00	-888.000
Nicasio	Largemouth Bass	F	77.8	-888.000	-888.00	-888.000
San Pablo	Black Crappie	F	78.3	-888.000	-888.000	-888.000
San Pablo	Black Crappie	F	77.6	-888.000	-888.000	-888.000
San Pablo	Black Crappie	F	78.0	-888.000	-888.000	-888.000
San Pablo	Carp	F	65.7	-888.000	-888.000	-888.000
San Pablo	Carp	F	68.3	-888.000	-888.000	-888.000
San Pablo	Carp	F	67.9	-888.000	-888.000	-888.000
San Pablo	Channel Catfish	F	69.3	-888.000	-888.000	-888.000
San Pablo	Channel Catfish	F	72.8	-888.000	-888.000	-888.000
San Pablo	Channel Catfish	F	70.7	-888.000	-888.000	-888.000
Shadow Cliffs	Carp	F	72.5	-888.000	0.240	-0.002
Shadow Cliffs	Channel Catfish	F	74.7	-888.000	0.080	-0.002
Shadow Cliffs	Channel Catfish	L	78.8	-0.003	-888.000	-888.000
Shadow Cliffs	Largemouth Bass	F	77.7	-888.000	0.250	-0.002
Shadow Cliffs	Largemouth Bass	F	72.9	-888.000	0.250	-0.002
Soulajule	Black Crappie	F	79.1	-888.000	-888.000	-888.000
Soulajule	Black Crappie	F	79.1	-888.000	-888.000	-888.000
Soulajule	Black Crappie	F	78.2	-888.000	-888.000	-888.000
Soulajule	Channel Catfish	F	66.5	-888.000	-888.00	-888.000
Soulajule	Channel Catfish	F	80.5	-888.000	-888.00	-888.000
Soulajule	Largemouth Bass	F	77.7	-888.000	-888.000	-888.000
Soulajule	Largemouth Bass	F	78.9	-888.000	-888.000	-888.000
Soulajule	Largemouth Bass	F	78.1	-888.000	-888.000	-888.000
Soulajule	Largemouth Bass	F	78.0	-888.000	-888.00	-888.000
Soulajule	Largemouth Bass	F	77.2	-888.000	-888.00	-888.000
Soulajule	Largemouth Bass	F	77.9	-888.000	-888.00	-888.000
Soulajule	Largemouth Bass	F	77.6	-888.000	-888.00	-888.000
Soulajule	Largemouth Bass	F	78.1	-888.000	-888.00	-888.000
Soulajule	Largemouth Bass	F	77.2	-888.000	-888.00	-888.000
Stevens Creek	Black Crappie	F	78.8	-888.000	-888.000	-888.000
Stevens Creek	Black Crappie	F	78.6	-888.000	-888.000	-888.000
Stevens Creek	Black Crappie	F	79.0	-888.000	-888.000	-888.000
Stevens Creek	Black Crappie	F	79.2	-888.000	-888.000	-888.000
Stevens Creek	Channel Catfish	F	69.1	-888.000	-0.050	-0.002
Stevens Creek	Channel Catfish	F	73.7	-888.000	-0.050	-0.002
Stevens Creek	Channel Catfish	F	72.2	-888.000	-0.050	-0.002
Stevens Creek	Largemouth Bass	F	77.2	-888.000	-888.000	-888.000
Stevens Creek	Largemouth Bass	F	77.7	-888.000	-888.000	-888.000
Stevens Creek	Largemouth Bass	F	77.7	-888.000	-888.000	-888.000

RESERVOIR	COMMON	CR_W	CU_W	HG_W	NI_W	PB_W
Anderson	Black Crappie	-888.000	-888.000	0.090	-888.000	-888.000
Anderson	Black Crappie	-888.000	-888.000	0.254	-888.000	-888.000
Anderson	Black Crappie	-888.000	-888.000	0.375	-888.000	-888.000
Anderson	Carp	-888.000	-888.000	0.399	-888.000	-888.000
Anderson	Carp	-888.000	-888.000	0.457	-888.000	-888.000
Anderson	Carp	-888.000	-888.000	0.425	-888.000	-888.000
Anderson	Largemouth Bass	-888.000	-888.000	0.680	-888.000	-888.000
Anderson	Largemouth Bass	-888.000	-888.000	1.170	-888.000	-888.000
Anderson	Largemouth Bass	-888.000	-888.000	1.460	-888.000	-888.000
Bon Tempe	Largemouth Bass	-888.000	-888.000	0.899	-888.000	-888.000
Bon Tempe	Largemouth Bass	-888.000	-888.000	0.536	-888.000	-888.000
Del Valle	Bluegill	-888.000	-888.000	0.268	-888.000	-888.000
Del Valle	Bluegill	-888.000	-888.000	0.193	-888.000	-888.000
Del Valle	Bluegill	-888.000	-888.000	0.178	-888.000	-888.000
Del Valle	Channel Catfish	-888.000	-888.000	0.393	-888.000	-888.000
Del Valle	Channel Catfish	-888.000	-888.000	0.152	-888.000	-888.000
Del Valle	Channel Catfish	-888.000	-888.000	0.289	-888.000	-888.000
Del Valle	Largemouth Bass	-888.000	-888.000	0.918	-888.000	-888.000
Del Valle	Largemouth Bass	-888.000	-888.000	0.829	-888.000	-888.000
Del Valle	Largemouth Bass	-888.000	-888.000	0.812	-888.000	-888.000
Del Valle	Redear Sunfish	-888.000	-888.000	0.213	-888.000	-888.000
Del Valle	Redear Sunfish	-888.000	-888.000	0.178	-888.000	-888.000
Del Valle	Redear Sunfish	-888.000	-888.000	0.223	-888.000	-888.000
Lafayette	Black Crappie	-888.000	-888.000	0.059	0.011	-888.000
Lafayette	Black Crappie	-888.000	-888.000	0.047	0.005	-888.000
Lafayette	Black Crappie	-888.000	-888.000	0.053	0.011	-888.000
Lafayette	Black Crappie	0.068	2.536	-888.000	-888.000	-0.001
Lafayette	Channel Catfish	-888.000	-888.000	0.181	0.005	-888.000
Lafayette	Channel Catfish	0.109	2.340	-888.000	-888.000	0.019
Lafayette	Goldfish	-888.000	-888.000	0.477	0.003	-888.000
Lafayette	Goldfish	-888.000	-888.000	0.514	-0.003	-888.000
Lafayette	Goldfish	-888.000	-888.000	0.302	0.012	-888.000
Lafayette	Largemouth Bass	-888.000	-888.000	0.292	0.008	-888.000
Lafayette	Largemouth Bass	-888.000	-888.000	0.347	0.004	-888.000
Lafayette	Largemouth Bass	0.051	17.510	-888.000	-888.000	0.001
Lafayette	Largemouth Bass	-888.000	-888.000	0.656	0.003	-888.000
Lake Chabot	Carp	-888.000	-888.000	0.662	-888.000	-888.000
Lake Chabot	Carp	-888.000	-888.000	0.728	-888.000	-888.000
Lake Chabot	Carp	-888.000	-888.000	0.613	-888.000	-888.000
Lake Chabot	Channel Catfish	-888.000	-888.000	0.127	-888.000	-888.000
Lake Chabot	Channel Catfish	-888.000	-888.000	0.050	-888.000	-888.000
Lake Chabot	Channel Catfish	-888.000	-888.000	0.127	-888.000	-888.000
Lake Chabot	Largemouth Bass	-888.000	-888.000	0.577	-888.000	-888.000
Lake Chabot	Largemouth Bass	-888.000	-888.000	0.559	-888.000	-888.000
Lake Chabot	Largemouth Bass	-888.000	-888.000	0.523	-888.000	-888.000
Lake Chabot	Redear Sunfish	-888.000	-888.000	0.118	-888.000	-888.000
Lake Chabot	Redear Sunfish	-888.000	-888.000	0.192	-888.000	-888.000

RESERVOIR	COMMON	CR_W	CU_W	HG_W	NI_W	PB_W
Nicasio	Bluegill	-888.000	-888.000	0.213	-888.000	-888.000
Nicasio	Bluegill	-888.000	-888.000	0.163	-888.000	-888.000
Nicasio	Bluegill	-888.000	-888.000	0.128	-888.000	-888.000
Nicasio	Carp	-888.000	-888.000	0.213	-888.000	-888.000
Nicasio	Carp	-888.000	-888.000	0.289	-888.000	-888.000
Nicasio	Carp	-888.000	-888.000	0.253	-888.000	-888.000
Nicasio	Largemouth Bass	-888.000	-888.000	0.173	-888.000	-888.000
Nicasio	Largemouth Bass	-888.000	-888.000	0.372	-888.000	-888.000
Nicasio	Largemouth Bass	-888.000	-888.000	1.290	-888.000	-888.000
San Pablo	Black Crappie	-888.000	-888.000	0.152	-888.000	-888.000
San Pablo	Black Crappie	-888.000	-888.000	0.146	-888.000	-888.000
San Pablo	Black Crappie	-888.000	-888.000	0.129	-888.000	-888.000
San Pablo	Carp	-888.000	-888.000	0.185	-888.000	-888.000
San Pablo	Carp	-888.000	-888.000	0.182	-888.000	-888.000
San Pablo	Carp	-888.000	-888.000	0.197	-888.000	-888.000
San Pablo	Channel Catfish	-888.000	-888.000	0.114	-888.000	-888.000
San Pablo	Channel Catfish	-888.000	-888.000	0.062	-888.000	-888.000
San Pablo	Channel Catfish	-888.000	-888.000	0.131	-888.000	-888.000
Shadow Cliffs	Carp	-888.000	-888.000	0.162	-0.003	-888.000
Shadow Cliffs	Channel Catfish	-888.000	-888.000	0.029	-0.003	-888.000
Shadow Cliffs	Channel Catfish	0.102	4.536	-888.000	-888.000	0.028
Shadow Cliffs	Largemouth Bass	-888.000	-888.000	0.693	-0.003	-888.000
Shadow Cliffs	Largemouth Bass	-888.000	-888.000	0.712	-0.003	-888.000
Soulajule	Black Crappie	-888.000	-888.000	0.355	-888.000	-888.000
Soulajule	Black Crappie	-888.000	-888.000	0.306	-888.000	-888.000
Soulajule	Black Crappie	-888.000	-888.000	0.336	-888.000	-888.000
Soulajule	Channel Catfish	-888.000	-888.000	0.229	-888.000	-888.000
Soulajule	Channel Catfish	-888.000	-888.000	0.294	-888.000	-888.000
Soulajule	Largemouth Bass	-888.000	-888.000	0.812	-888.000	-888.000
Soulajule	Largemouth Bass	-888.000	-888.000	1.030	-888.000	-888.000
Soulajule	Largemouth Bass	-888.000	-888.000	0.405	-888.000	-888.000
Soulajule	Largemouth Bass	-888.000	-888.000	0.671	-888.000	-888.000
Soulajule	Largemouth Bass	-888.000	-888.000	0.752	-888.000	-888.000
Soulajule	Largemouth Bass	-888.000	-888.000	0.880	-888.000	-888.000
Soulajule	Largemouth Bass	-888.000	-888.000	0.540	-888.000	-888.000
Soulajule	Largemouth Bass	-888.000	-888.000	1.450	-888.000	-888.000
Soulajule	Largemouth Bass	-888.000	-888.000	1.870	-888.000	-888.000
Stevens Creek	Black Crappie	-888.000	-888.000	0.616	-888.000	-888.000
Stevens Creek	Black Crappie	-888.000	-888.000	0.604	-888.000	-888.000
Stevens Creek	Black Crappie	-888.000	-888.000	0.557	-888.000	-888.000
Stevens Creek	Black Crappie	-888.000	-888.000	0.610	-888.000	-888.000
Stevens Creek	Channel Catfish	-888.000	-888.000	0.192	0.006	-888.000
Stevens Creek	Channel Catfish	-888.000	-888.000	0.507	0.007	-888.000
Stevens Creek	Channel Catfish	-888.000	-888.000	0.455	-0.003	-888.000
Stevens Creek	Largemouth Bass	-888.000	-888.000	1.460	-888.000	-888.000
Stevens Creek	Largemouth Bass	-888.000	-888.000	1.560	-888.000	-888.000
Stevens Creek	Largemouth Bass	-888.000	-888.000	1.400	-888.000	-888.000

RESERVOIR	COMMON	SE_W	ZN_W
Anderson	Black Crappie	-888.00	-888.0
Anderson	Black Crappie	-888.00	-888.0
Anderson	Black Crappie	-888.00	-888.0
Anderson	Carp	-888.00	-888.0
Anderson	Carp	-888.00	-888.0
Anderson	Carp	-888.00	-888.0
Anderson	Largemouth Bass	-888.00	-888.0
Anderson	Largemouth Bass	-888.00	-888.0
Anderson	Largemouth Bass	-888.00	-888.0
Bon Tempe	Largemouth Bass	-888.00	-888.0
Bon Tempe	Largemouth Bass	-888.00	-888.0
Del Valle	Bluegill	-888.000	-888.0
Del Valle	Bluegill	-888.000	-888.0
Del Valle	Bluegill	-888.000	-888.0
Del Valle	Channel Catfish	-888.000	-888.0
Del Valle	Channel Catfish	-888.000	-888.0
Del Valle	Channel Catfish	-888.000	-888.0
Del Valle	Largemouth Bass	-888.000	-888.0
Del Valle	Largemouth Bass	-888.000	-888.0
Del Valle	Largemouth Bass	-888.000	-888.0
Del Valle	Redear Sunfish	-888.000	-888.0
Del Valle	Redear Sunfish	-888.000	-888.0
Del Valle	Redear Sunfish	-888.000	-888.0
Lafayette	Black Crappie	0.370	-888.0
Lafayette	Black Crappie	0.340	-888.0
Lafayette	Black Crappie	0.330	-888.0
Lafayette	Black Crappie	-888.000	80.3
Lafayette	Channel Catfish	0.220	-888.0
Lafayette	Channel Catfish	-888.000	90.1
Lafayette	Goldfish	0.250	-888.0
Lafayette	Goldfish	0.250	-888.0
Lafayette	Goldfish	0.170	-888.0
Lafayette	Largemouth Bass	0.250	-888.0
Lafayette	Largemouth Bass	0.240	-888.0
Lafayette	Largemouth Bass	-888.000	107.0
Lafayette	Largemouth Bass	0.350	-888.0
Lake Chabot	Carp	-888.000	-888.0
Lake Chabot	Carp	-888.000	-888.0
Lake Chabot	Carp	-888.000	-888.0
Lake Chabot	Channel Catfish	-888.000	-888.0
Lake Chabot	Channel Catfish	-888.000	-888.0
Lake Chabot	Channel Catfish	-888.000	-888.0
Lake Chabot	Largemouth Bass	-888.000	-888.0
Lake Chabot	Largemouth Bass	-888.000	-888.0
Lake Chabot	Largemouth Bass	-888.000	-888.0
Lake Chabot	Redear Sunfish	-888.000	-888.0
Lake Chabot	Redear Sunfish	-888.000	-888.0

RESERVOIR	COMMON	SE_W	ZN_W
Nicasio	Bluegill	-888.00	-888.0
Nicasio	Bluegill	-888.00	-888.0
Nicasio	Bluegill	-888.00	-888.0
Nicasio	Carp	-888.00	-888.0
Nicasio	Carp	-888.00	-888.0
Nicasio	Carp	-888.00	-888.0
Nicasio	Largemouth Bass	-888.00	-888.0
Nicasio	Largemouth Bass	-888.00	-888.0
Nicasio	Largemouth Bass	-888.00	-888.0
San Pablo	Black Crappie	-888.000	-888.0
San Pablo	Black Crappie	-888.000	-888.0
San Pablo	Black Crappie	-888.000	-888.0
San Pablo	Carp	-888.000	-888.0
San Pablo	Carp	-888.000	-888.0
San Pablo	Carp	-888.000	-888.0
San Pablo	Channel Catfish	-888.000	-888.0
San Pablo	Channel Catfish	-888.000	-888.0
San Pablo	Channel Catfish	-888.000	-888.0
Shadow Cliffs	Carp	0.820	-888.0
Shadow Cliffs	Channel Catfish	0.260	-888.0
Shadow Cliffs	Channel Catfish	-888.000	106.0
Shadow Cliffs	Largemouth Bass	0.760	-888.0
Shadow Cliffs	Largemouth Bass	0.600	-888.0
Soulajule	Black Crappie	-888.000	-888.0
Soulajule	Black Crappie	-888.000	-888.0
Soulajule	Black Crappie	-888.000	-888.0
Soulajule	Channel Catfish	-888.00	-888.0
Soulajule	Channel Catfish	-888.00	-888.0
Soulajule	Largemouth Bass	-888.000	-888.0
Soulajule	Largemouth Bass	-888.000	-888.0
Soulajule	Largemouth Bass	-888.000	-888.0
Soulajule	Largemouth Bass	-888.00	-888.0
Soulajule	Largemouth Bass	-888.00	-888.0
Soulajule	Largemouth Bass	-888.00	-888.0
Soulajule	Largemouth Bass	-888.00	-888.0
Soulajule	Largemouth Bass	-888.00	-888.0
Soulajule	Largemouth Bass	-888.00	-888.0
Stevens Creek	Black Crappie	-888.000	-888.0
Stevens Creek	Black Crappie	-888.000	-888.0
Stevens Creek	Black Crappie	-888.000	-888.0
Stevens Creek	Black Crappie	-888.000	-888.0
Stevens Creek	Channel Catfish	0.220	-888.0
Stevens Creek	Channel Catfish	0.170	-888.0
Stevens Creek	Channel Catfish	0.170	-888.0
Stevens Creek	Largemouth Bass	-888.000	-888.0
Stevens Creek	Largemouth Bass	-888.000	-888.0
Stevens Creek	Largemouth Bass	-888.000	-888.0

Appendix IV

Edible Fish Tissue
Trace Organic Chemistry Data
for Reservoirs

RESERVOIR	COMMON	GENUS	SPECIES	STANUM	CDATE	BOT
Anderson	Black Crappie	Pomoxis	nigromaculatus	205.30.30	9/13/01	064.002.F.01
Anderson	Black Crappie	Pomoxis	nigromaculatus	205.30.30	9/13/01	064.003.F.01
Anderson	Black Crappie	Pomoxis	nigromaculatus	205.30.30	9/13/01	064.001.F.01
Anderson	Carp	Cyprinus	carpio	205.30.30	9/13/01	064.009.F.01
Anderson	Carp	Cyprinus	carpio	205.30.30	9/13/01	064.007.F.01
Anderson	Carp	Cyprinus	carpio	205.30.30	9/13/01	064.008.F.01
Del Valle	Channel Catfish	Ictalurus	punctatus	204.30.26	4/25/01	107.001.F.00
Del Valle	Channel Catfish	Ictalurus	punctatus	204.30.26	4/25/01	107.002.F.00
Del Valle	Channel Catfish	Ictalurus	punctatus	204.30.26	4/25/01	107.003.F.00
Lafayette	Channel Catfish	Ictalurus	punctatus	207.32.04	9/9/02	324.004.F.02
Lafayette	Black Crappie	Pomoxis	nigromaculatus	207.32.04	9/9/02	324.010.F.02
Lafayette	Goldfish	Carassius	auratus	207.32.04	9/9/02	324.007.F.02
Lafayette	Largemouth Bass	Micropterus	salmoides	207.32.04	9/9/02	324.002.F.02
Lake Chabot	Carp	Cyprinus	carpio	204.20.06	6/6/01	384.011.F.00
Lake Chabot	Carp	Cyprinus	carpio	204.20.06	6/6/01	384.012.F.00
Lake Chabot	Carp	Cyprinus	carpio	204.20.06	6/6/01	384.010.F.00
Lake Chabot	Channel Catfish	Ictalurus	punctatus	204.20.06	4/24/01	384.002.F.00
Lake Chabot	Channel Catfish	Ictalurus	punctatus	204.20.06	4/24/01	384.003.F.00
Lake Chabot	Channel Catfish	Ictalurus	punctatus	204.20.06	4/24/01	384.001.F.00
Lake Chabot	Largemouth Bass	Micropterus	salmoides	204.20.06	4/24/01	384.007.F.00
Lake Chabot	Largemouth Bass	Micropterus	salmoides	204.20.06	4/24/01	384.009.F.00
Lake Chabot	Largemouth Bass	Micropterus	salmoides	204.20.06	4/24/01	384.008.F.00
Nicasio	Carp	Cyprinus	carpio	201.13.06	9/19/01	387.007.F.01
Nicasio	Carp	Cyprinus	carpio	201.13.06	9/19/01	387.009.F.01
Nicasio	Carp	Cyprinus	carpio	201.13.06	9/19/01	387.008.F.01
San Pablo	Black Crappie	Pomoxis	nigromaculatus	206.60.11	4/17/00	114.004.F.99
San Pablo	Black Crappie	Pomoxis	nigromaculatus	206.60.11	4/17/00	114.006.F.99
San Pablo	Black Crappie	Pomoxis	nigromaculatus	206.60.11	4/17/00	114.005.F.99
San Pablo	Carp	Cyprinus	carpio	206.60.11	4/17/00	114.001.F.99
San Pablo	Carp	Cyprinus	carpio	206.60.11	4/17/00	114.002.F.99
San Pablo	Carp	Cyprinus	carpio	206.60.11	4/17/00	114.003.F.99
San Pablo	Channel Catfish	Ictalurus	punctatus	206.60.11	4/17/00	114.010.F.99
San Pablo	Channel Catfish	Ictalurus	punctatus	206.60.11	4/17/00	114.009.F.99
San Pablo	Channel Catfish	Ictalurus	punctatus	206.60.11	4/17/00	114.011.F.99
Shadow Cliffs	Carp	Cyprinus	carpio	204.30.13	8/13/02	388.003.F.02
Shadow Cliffs	Channel Catfish	Ictalurus	punctatus	204.30.13	8/13/02	388.004.F.02
Soulajule	Channel Catfish	Ictalurus	punctatus	201.12.14	9/20/01	325.001.F.01
Soulajule	Channel Catfish	Ictalurus	punctatus	201.12.14	9/20/01	325.002.F.01
Stevens Creek	Channel Catfish	Ictalurus	punctatus	205.50.10	5/4/01	238.008.F.00
Stevens Creek	Channel Catfish	Ictalurus	punctatus	205.50.10	5/4/01	238.009.F.00
Stevens Creek	Channel Catfish	Ictalurus	punctatus	205.50.10	6/6/01	238.010.F.00
Stevens Creek	Largemouth Bass	Micropterus	salmoides	205.50.10	5/4/01	238.002.F.00
Stevens Creek	Largemouth Bass	Micropterus	salmoides	205.50.10	5/4/01	238.003.F.00
Stevens Creek	Largemouth Bass	Micropterus	salmoides	205.50.10	5/4/01	238.001.F.00

RESERVOIR	COMMON	SPECTYPE	NUMBER	AGE	WEIGHT	LENGTH
Anderson	Black Crappie	FF	4	2	95.4	184.0
Anderson	Black Crappie	FF	4	2-3	219.3	232.0
Anderson	Black Crappie	FF	4	1-2	42.6	139.0
Anderson	Carp	FF	4	3-5	1988.2	480.0
Anderson	Carp	FF	4	3	986.5	373.0
Anderson	Carp	FF	4	3	1325.9	412.0
Del Valle	Channel Catfish	FF	3	4-6	1071.8	445.0
Del Valle	Channel Catfish	FF	3	4-6	870.7	420.0
Del Valle	Channel Catfish	FF	3	3-6	891.1	398.0
Lafayette	Channel Catfish	FF	3	6-12	1708.5	485.0
Lafayette	Black Crappie	FF	3	1-2	41.6	142.0
Lafayette	Goldfish	FF	3	4+	1814.8	418.0
Lafayette	Largemouth Bass	FF	3	4	1221.2	396.0
Lake Chabot	Carp	FF	4	4-5	1720.4	449.0
Lake Chabot	Carp	FF	4	3-5	1646.0	431.0
Lake Chabot	Carp	FF	4	4-5	1974.0	478.0
Lake Chabot	Channel Catfish	FF	3	4-6	1033.7	420.0
Lake Chabot	Channel Catfish	FF	3	3-6	793.5	393.0
Lake Chabot	Channel Catfish	FF	3	4-6	1128.1	435.0
Lake Chabot	Largemouth Bass	FF	3	3-5	1148.6	388.0
Lake Chabot	Largemouth Bass	FF	3	3-4	747.3	347.0
Lake Chabot	Largemouth Bass	FF	3	3-4	812.7	357.0
Nicasio	Carp	FF	4	3	1197.9	394.0
Nicasio	Carp	FF	4	4	1634.2	445.0
Nicasio	Carp	FF	4	3	1258.1	404.0
San Pablo	Black Crappie	FF	4	2	141.8	203.0
San Pablo	Black Crappie	FF	7	2	128.9	191.0
San Pablo	Black Crappie	FF	4	2	128.6	194.0
San Pablo	Carp	FF	4	3-6	2874.7	508.0
San Pablo	Carp	FF	4	3-6	3007.8	530.0
San Pablo	Carp	FF	4	3-6	3013.4	537.0
San Pablo	Channel Catfish	FF	4	3-7	1456.4	456.0
San Pablo	Channel Catfish	FF	4	3-9	1973.0	494.0
San Pablo	Channel Catfish	FF	4	5-9	1938.6	504.0
Shadow Cliffs	Carp	FF	3	5-7	3983.2	583.0
Shadow Cliffs	Channel Catfish	FF	3	6-8	760.1	395.0
Soulajule	Channel Catfish	FF	1	8	3958.0	620.0
Soulajule	Channel Catfish	FF	1	8	3901.0	605.0
Stevens Creek	Channel Catfish	FF	1	9	1595.4	475.0
Stevens Creek	Channel Catfish	FF	1	10	2731.9	506.0
Stevens Creek	Channel Catfish	FF	1	13	4735.0	640.0
Stevens Creek	Largemouth Bass	FF	4	4-5	1518.1	457.0
Stevens Creek	Largemouth Bass	FF	4	3-5	1151.9	410.0
Stevens Creek	Largemouth Bass	FF	4	4-7	1980.3	476.0

RESERVOIR	COMMON	TISSUE	PWATER	PLIPID	ALDRN_W	ACDEN_W
Anderson	Black Crappie	F	79.9	0.447	-1.0	-1.0
Anderson	Black Crappie	F	79.6	0.548	-1.0	-1.0
Anderson	Black Crappie	F	81.1	0.591	-1.0	-1.0
Anderson	Carp	F	77.4	2.150	-1.0	-1.0
Anderson	Carp	F	78.2	1.820	-1.0	-1.0
Anderson	Carp	F	77.6	2.680	-1.0	-1.0
Del Valle	Channel Catfish	F	78.4	2.93	-1.0	-1.0
Del Valle	Channel Catfish	F	79.1	1.86	-1.0	-1.0
Del Valle	Channel Catfish	F	78.0	3.96	-1.0	-1.0
Lafayette	Channel Catfish	F	76.1	4.8	-1.0	-0.5
Lafayette	Black Crappie	F	79.0	0.4	-1.0	-0.5
Lafayette	Goldfish	F	68.3	9.1	-1.0	-0.5
Lafayette	Largemouth Bass	F	77.2	1.6	-1.0	-0.5
Lake Chabot	Carp	F	71.6	11.50	-1.0	1.1
Lake Chabot	Carp	F	74.2	6.85	-1.0	-1.0
Lake Chabot	Carp	F	71.4	10.80	-1.0	-1.0
Lake Chabot	Channel Catfish	F	76.1	5.07	-1.0	-1.0
Lake Chabot	Channel Catfish	F	76.6	4.35	-1.0	-1.0
Lake Chabot	Channel Catfish	F	76.8	4.91	-1.0	-1.0
Lake Chabot	Largemouth Bass	F	79.4	0.57	-1.0	-1.0
Lake Chabot	Largemouth Bass	F	79.0	0.70	-1.0	-1.0
Lake Chabot	Largemouth Bass	F	79.4	0.50	-1.0	-1.0
Nicasio	Carp	F	77.6	2.090	-1.0	-1.0
Nicasio	Carp	F	79.0	1.000	-1.0	-1.0
Nicasio	Carp	F	78.2	1.480	-1.0	-1.0
San Pablo	Black Crappie	F	79.1	0.59	-1.0	-1.0
San Pablo	Black Crappie	F	79.6	0.70	-1.0	-1.0
San Pablo	Black Crappie	F	79.8	0.69	-1.0	-1.0
San Pablo	Carp	F	67.2	13.50	-1.0	1.6
San Pablo	Carp	F	69.7	9.82	1.1	1.3
San Pablo	Carp	F	69.8	7.77	1.1	1.4
San Pablo	Channel Catfish	F	74.0	6.17	-1.0	-1.0
San Pablo	Channel Catfish	F	70.6	10.50	1.2	1.3
San Pablo	Channel Catfish	F	71.5	9.24	1.7	2.3
Shadow Cliffs	Carp	F	73.2	4.7	-1.0	-0.5
Shadow Cliffs	Channel Catfish	F	72.9	1.0	-1.0	-0.5
Soulajule	Channel Catfish	F	67.8	13.200	-1.0	-1.0
Soulajule	Channel Catfish	F	68.5	15.000	-1.0	-1.0
Stevens Creek	Channel Catfish	F	68.8	14.2	-1.0	0.9
Stevens Creek	Channel Catfish	F	72.5	7.9	-1.0	0.9
Stevens Creek	Channel Catfish	F	71.1	9.6	-1.0	0.9
Stevens Creek	Largemouth Bass	F	79.1	0.99	-1.0	-1.0
Stevens Creek	Largemouth Bass	F	78.6	0.93	-1.0	-1.0
Stevens Creek	Largemouth Bass	F	78.0	1.89	-1.0	-1.0

RESERVOIR	COMMON	CCDAN_W	GCDEN_W	TCDAN_W	CNONA_W	TNONA_W
Anderson	Black Crappie	-2.0	-1.0	-2.0	-2.0	-1.0
Anderson	Black Crappie	-2.0	-1.0	-2.0	-2.0	-1.0
Anderson	Black Crappie	-2.0	-1.0	-2.0	-2.0	-1.0
Anderson	Carp	2.8	-1.0	-2.0	-2.0	5.2
Anderson	Carp	2.5	-1.0	-2.0	-2.0	3.4
Anderson	Carp	4.2	-1.0	-2.0	2.4	6.7
Del Valle	Channel Catfish	-2.0	-1.0	-2.0	-2.0	1.6
Del Valle	Channel Catfish	-2.0	-1.0	-2.0	-2.0	2.0
Del Valle	Channel Catfish	-2.0	-1.0	-2.0	-2.0	1.9
Lafayette	Channel Catfish	-1.00	-0.5	-1.0	-1.0	1.9
Lafayette	Black Crappie	-1.00	-0.5	-1.0	-1.0	-1.0
Lafayette	Goldfish	2.50	-0.5	1.6	1.8	4.8
Lafayette	Largemouth Bass	-1.00	-0.5	-1.0	-1.0	-1.0
Lake Chabot	Carp	27.9	1.5	13.5	22.2	32.9
Lake Chabot	Carp	16.8	1.0	7.3	13.3	19.6
Lake Chabot	Carp	26.6	1.2	11.7	20.8	30.5
Lake Chabot	Channel Catfish	8.6	-1.0	4.1	5.6	7.8
Lake Chabot	Channel Catfish	5.2	-1.0	2.8	3.2	4.6
Lake Chabot	Channel Catfish	3.9	-1.0	2.2	-2.0	2.5
Lake Chabot	Largemouth Bass	-2.0	-1.0	-2.0	-2.0	-1.0
Lake Chabot	Largemouth Bass	-2.0	-1.0	-2.0	-2.0	1.8
Lake Chabot	Largemouth Bass	-2.0	-1.0	-2.0	-2.0	-1.0
Nicasio	Carp	-2.0	-1.0	-2.0	-2.0	-1.0
Nicasio	Carp	-2.0	-1.0	-2.0	-2.0	-1.0
Nicasio	Carp	-2.0	-1.0	-2.0	-2.0	-1.0
San Pablo	Black Crappie	-2.0	-1.0	-2.0	-2.0	1.8
San Pablo	Black Crappie	-2.0	-1.0	-2.0	-2.0	1.6
San Pablo	Black Crappie	-2.0	-1.0	-2.0	-2.0	1.7
San Pablo	Carp	32.8	2.3	15.1	14.8	34.0
San Pablo	Carp	33.7	2.0	14.6	16.1	31.4
San Pablo	Carp	27.5	2.0	13.0	12.1	27.5
San Pablo	Channel Catfish	9.9	1.0	4.1	3.7	11.4
San Pablo	Channel Catfish	28.2	1.9	12.6	12.0	26.2
San Pablo	Channel Catfish	51.2	3.1	23.6	23.0	45.4
Shadow Cliffs	Carp	1.70	-0.5	-1.0	1.4	3.3
Shadow Cliffs	Channel Catfish	-1.00	-0.5	-1.0	-1.0	2.1
Soulajule	Channel Catfish	-2.0	-1.0	-2.0	-2.0	1.6
Soulajule	Channel Catfish	-2.0	-1.0	-2.0	-2.0	1.6
Stevens Creek	Channel Catfish	6.30	1.5	6.3	3.8	18.0
Stevens Creek	Channel Catfish	6.80	1.7	5.0	3.5	17.7
Stevens Creek	Channel Catfish	4.60	1.7	4.1	3.1	15.4
Stevens Creek	Largemouth Bass	-2.0	-1.0	-2.0	-2.0	4.5
Stevens Creek	Largemouth Bass	-2.0	-1.0	-2.0	-2.0	4.6
Stevens Creek	Largemouth Bass	2.6	-1.0	-2.0	2.6	7.9

RESERVOIR	COMMON	OCDAN_W	TOTCL_W	CLPYR_W	DACTH_W	DDDOP_W
Anderson	Black Crappie	-1.0	-99.0	-2.0	-2.0	-2.0
Anderson	Black Crappie	-1.0	-99.0	-2.0	-2.0	-2.0
Anderson	Black Crappie	-1.0	-99.0	-2.0	-2.0	-2.0
Anderson	Carp	-1.0	7.9	-2.0	-2.0	-2.0
Anderson	Carp	-1.0	5.9	-2.0	-2.0	-2.0
Anderson	Carp	-1.0	13.2	-2.0	-2.0	-2.0
Del Valle	Channel Catfish	-1.0	1.6	-2.0	-2.0	-2.0
Del Valle	Channel Catfish	-1.0	2.0	-2.0	-2.0	-2.0
Del Valle	Channel Catfish	-1.0	1.9	-2.0	-2.0	-2.0
Lafayette	Channel Catfish	-1.0	1.9	-1.0	-0.5	-1.0
Lafayette	Black Crappie	-1.0	-99.0	-1.0	-0.5	-1.0
Lafayette	Goldfish	-1.0	10.8	-1.0	-0.5	-1.0
Lafayette	Largemouth Bass	-1.0	-99.0	-1.0	-0.5	-1.0
Lake Chabot	Carp	3.4	102.5	-2.0	-2.0	14.0
Lake Chabot	Carp	1.9	60.0	-2.0	-2.0	7.5
Lake Chabot	Carp	2.8	93.6	-2.0	-2.0	12.0
Lake Chabot	Channel Catfish	1.2	27.2	-2.0	-2.0	2.7
Lake Chabot	Channel Catfish	-1.0	15.8	-2.0	-2.0	4.8
Lake Chabot	Channel Catfish	-1.0	8.6	-2.0	-2.0	-2.0
Lake Chabot	Largemouth Bass	-1.0	-99.0	-2.0	-2.0	-2.0
Lake Chabot	Largemouth Bass	-1.0	1.8	-2.0	-2.0	-2.0
Lake Chabot	Largemouth Bass	-1.0	-99.0	-2.0	-2.0	-2.0
Nicasio	Carp	-1.0	-99.0	-2.0	-2.0	-2.0
Nicasio	Carp	-1.0	-99.0	-2.0	-2.0	-2.0
Nicasio	Carp	-1.0	-99.0	-2.0	-2.0	-2.0
San Pablo	Black Crappie	-1.0	1.8	-2.0	-2.0	-2.0
San Pablo	Black Crappie	-1.0	1.6	-2.0	-2.0	-2.0
San Pablo	Black Crappie	-1.0	1.7	-2.0	-2.0	-2.0
San Pablo	Carp	4.3	105.0	-2.0	3.0	-2.0
San Pablo	Carp	4.9	104.1	-2.0	-2.0	2.1
San Pablo	Carp	3.9	87.4	-2.0	-2.0	2.1
San Pablo	Channel Catfish	1.4	31.6	-2.0	-2.0	-2.0
San Pablo	Channel Catfish	3.1	85.3	-2.0	2.3	-2.0
San Pablo	Channel Catfish	4.8	153.4	-2.0	-2.0	2.3
Shadow Cliffs	Carp	-1.0	6.4	-1.0	-0.5	-1.0
Shadow Cliffs	Channel Catfish	-1.0	2.1	-1.0	-0.5	-1.0
Soulajule	Channel Catfish	-1.0	1.6	-2.0	-2.0	-2.0
Soulajule	Channel Catfish	-1.0	1.6	-2.0	-2.0	-2.0
Stevens Creek	Channel Catfish	2.7	39.5	-1.0	1.4	1.5
Stevens Creek	Channel Catfish	1.9	37.4	-1.0	-0.5	1.2
Stevens Creek	Channel Catfish	2.0	31.7	-1.0	-0.5	1.3
Stevens Creek	Largemouth Bass	-1.0	4.5	-2.0	-2.0	-2.0
Stevens Creek	Largemouth Bass	-1.0	4.6	-2.0	-2.0	-2.0
Stevens Creek	Largemouth Bass	1.5	14.6	-2.0	-2.0	-2.0

RESERVOIR	COMMON	DDDPP_W	DDEOP_W	DDEPP_W	DDTOP_W	DDTPP_W
Anderson	Black Crappie	-2.0	-2.0	3.1	-3.0	-5.0
Anderson	Black Crappie	-2.0	-2.0	-2.0	-3.0	-5.0
Anderson	Black Crappie	-2.0	-2.0	-2.0	-3.0	-5.0
Anderson	Carp	2.4	-2.0	24.1	-3.0	-5.0
Anderson	Carp	2.0	-2.0	15.9	-3.0	-5.0
Anderson	Carp	2.9	-2.0	27.3	-3.0	-5.0
Del Valle	Channel Catfish	5.5	-2.0	46.0	-3.0	-5.0
Del Valle	Channel Catfish	7.1	-2.0	37.2	-3.0	-5.0
Del Valle	Channel Catfish	6.4	-2.0	40.3	-3.0	-5.0
Lafayette	Channel Catfish	1.6	-2.0	15.2	-3.0	-5.0
Lafayette	Black Crappie	-1.0	-2.0	-2.0	-3.0	-5.0
Lafayette	Goldfish	1.4	-2.0	23.3	-3.0	-5.0
Lafayette	Largemouth Bass	-1.0	-2.0	3.3	-3.0	-5.0
Lake Chabot	Carp	52.0	-2.0	93.9	-3.0	-5.0
Lake Chabot	Carp	27.3	-2.0	56.8	-3.0	-5.0
Lake Chabot	Carp	47.4	-2.0	107.0	-3.0	-5.0
Lake Chabot	Channel Catfish	12.4	-2.0	27.2	-3.0	-5.0
Lake Chabot	Channel Catfish	11.6	-2.0	14.7	-3.0	-5.0
Lake Chabot	Channel Catfish	5.0	-2.0	12.2	-3.0	-5.0
Lake Chabot	Largemouth Bass	-2.0	-2.0	-2.0	-3.0	-5.0
Lake Chabot	Largemouth Bass	2.1	-2.0	3.5	-3.0	-5.0
Lake Chabot	Largemouth Bass	-2.0	-2.0	-2.0	-3.0	-5.0
Nicasio	Carp	2.4	-2.0	10.1	-3.0	-5.0
Nicasio	Carp	2.0	-2.0	5.4	-3.0	-5.0
Nicasio	Carp	2.5	-2.0	10.1	-3.0	-5.0
San Pablo	Black Crappie	-2.0	-2.0	3.6	-3.0	-5.0
San Pablo	Black Crappie	-2.0	-2.0	3.0	-3.0	-5.0
San Pablo	Black Crappie	-2.0	-2.0	3.5	-3.0	-5.0
San Pablo	Carp	15.4	-2.0	70.8	-3.0	-5.0
San Pablo	Carp	16.3	-2.0	68.5	-3.0	-5.0
San Pablo	Carp	14.8	-2.0	58.9	-3.0	-5.0
San Pablo	Channel Catfish	5.1	-2.0	22.4	-3.0	-5.0
San Pablo	Channel Catfish	10.4	-2.0	55.5	-3.0	6.1
San Pablo	Channel Catfish	17.7	-2.0	93.8	-3.0	12.0
Shadow Cliffs	Carp	5.0	-2.0	30.1	-3.0	-5.0
Shadow Cliffs	Channel Catfish	2.0	-2.0	12.7	-3.0	-5.0
Soulajule	Channel Catfish	2.2	-2.0	17.3	-3.0	-5.0
Soulajule	Channel Catfish	-2.0	-2.0	13.5	-3.0	-5.0
Stevens Creek	Channel Catfish	9.4	-2.0	83.3	-3.0	6.1
Stevens Creek	Channel Catfish	7.6	-2.0	66.7	-3.0	6.7
Stevens Creek	Channel Catfish	7.6	-2.0	57.6	-3.0	7.0
Stevens Creek	Largemouth Bass	2.3	-2.0	28.5	-3.0	-5.0
Stevens Creek	Largemouth Bass	2.4	-2.0	27.4	-3.0	-5.0
Stevens Creek	Largemouth Bass	4.6	-2.0	42.6	-3.0	-5.0

RESERVOIR	COMMON	DDMUPP_W	DDMSPP_W	TDDT_W	DIAZN_W	DICOF_W
Anderson	Black Crappie	-3.0	-888.0	3.1	-20.0	-888.0
Anderson	Black Crappie	-3.0	-888.0	-99.0	-20.0	-888.0
Anderson	Black Crappie	-3.0	-888.0	-99.0	-20.0	-888.0
Anderson	Carp	-3.0	-888.0	26.5	-20.0	-888.0
Anderson	Carp	-3.0	-888.0	17.9	-20.0	-888.0
Anderson	Carp	-3.0	-888.0	30.2	-20.0	-888.0
Del Valle	Channel Catfish	-3.0	-888.0	51.5	-20.0	-888.0
Del Valle	Channel Catfish	-3.0	-888.0	44.3	-20.0	-888.0
Del Valle	Channel Catfish	-3.0	-888.0	46.7	-20.0	-888.0
Lafayette	Channel Catfish	-3.0	-888.0	16.8	-20.0	-888.0
Lafayette	Black Crappie	-3.0	-888.0	-99.0	-20.0	-888.0
Lafayette	Goldfish	-3.0	-888.0	24.7	-20.0	-888.0
Lafayette	Largemouth Bass	-3.0	-888.0	3.3	-20.0	-888.0
Lake Chabot	Carp	29.3	-888.0	189.2	-20.0	-888.0
Lake Chabot	Carp	12.8	-888.0	104.4	-20.0	-888.0
Lake Chabot	Carp	22.5	-888.0	188.9	-20.0	-888.0
Lake Chabot	Channel Catfish	4.5	-888.0	46.8	-20.0	-888.0
Lake Chabot	Channel Catfish	7.8	-888.0	38.9	-20.0	-888.0
Lake Chabot	Channel Catfish	-3.0	-888.0	17.2	-20.0	-888.0
Lake Chabot	Largemouth Bass	-3.0	-888.0	-99.0	-20.0	-888.0
Lake Chabot	Largemouth Bass	-3.0	-888.0	5.7	-20.0	-888.0
Lake Chabot	Largemouth Bass	-3.0	-888.0	-99.0	-20.0	-888.0
Nicasio	Carp	-3.0	-888.0	12.5	-20.0	-888.0
Nicasio	Carp	-3.0	-888.0	7.4	-20.0	-888.0
Nicasio	Carp	-3.0	-888.0	12.6	-20.0	-888.0
San Pablo	Black Crappie	-3.0	-888.0	3.6	-20.0	-888.0
San Pablo	Black Crappie	-3.0	-888.0	3.0	-20.0	-888.0
San Pablo	Black Crappie	-3.0	-888.0	3.5	-20.0	-888.0
San Pablo	Carp	3.3	-888.0	89.5	-20.0	-888.0
San Pablo	Carp	3.3	-888.0	90.2	-20.0	-888.0
San Pablo	Carp	3.0	-888.0	78.8	-20.0	-888.0
San Pablo	Channel Catfish	-3.0	-888.0	27.5	-20.0	-888.0
San Pablo	Channel Catfish	-3.0	-888.0	72.0	-20.0	-888.0
San Pablo	Channel Catfish	3.9	-888.0	129.6	-20.0	-888.0
Shadow Cliffs	Carp	3.6	-888.0	38.7	-20.0	-888.0
Shadow Cliffs	Channel Catfish	-3.0	-888.0	14.7	-20.0	-888.0
Soulajule	Channel Catfish	-3.0	-888.0	19.5	-20.0	-888.0
Soulajule	Channel Catfish	-3.0	-888.0	13.5	-20.0	-888.0
Stevens Creek	Channel Catfish	-3.0	-888.0	100.3	-20.0	-888.0
Stevens Creek	Channel Catfish	3.0	-888.0	85.1	-20.0	-888.0
Stevens Creek	Channel Catfish	-3.0	-888.0	73.5	-20.0	-888.0
Stevens Creek	Largemouth Bass	-3.0	-888.0	30.8	-20.0	-888.0
Stevens Creek	Largemouth Bass	-3.0	-888.0	29.8	-20.0	-888.0
Stevens Creek	Largemouth Bass	-3.0	-888.0	47.2	-20.0	-888.0

RESERVOIR	COMMON	DBP_W	DIELD_W	ENDO1_W	ENDO2_W	ENDOS_W
Anderson	Black Crappie	-10.0	-2.0	-2.0	-888.0	-888.0
Anderson	Black Crappie	-10.0	-2.0	-2.0	-888.0	-888.0
Anderson	Black Crappie	-10.0	-2.0	-2.0	-888.0	-888.0
Anderson	Carp	-10.0	-2.0	-2.0	-888.0	-888.0
Anderson	Carp	-10.0	-2.0	-2.0	-888.0	-888.0
Anderson	Carp	-10.0	-2.0	-2.0	-888.0	-888.0
Del Valle	Channel Catfish	-10.0	-2.0	-2.0	-888.0	-888.0
Del Valle	Channel Catfish	-10.0	-2.0	-2.0	-888.0	-888.0
Del Valle	Channel Catfish	-10.0	-2.0	-2.0	-888.0	-888.0
Lafayette	Channel Catfish	-10.0	0.8	-2.0	-888.0	-888.0
Lafayette	Black Crappie	-10.0	-0.5	-2.0	-888.0	-888.0
Lafayette	Goldfish	-10.0	1.4	-2.0	-888.0	-888.0
Lafayette	Largemouth Bass	-10.0	-0.5	-2.0	-888.0	-888.0
Lake Chabot	Carp	-10.0	13.5	-2.0	-888.0	-888.0
Lake Chabot	Carp	-10.0	7.0	-2.0	-888.0	-888.0
Lake Chabot	Carp	-10.0	13.7	-2.0	-888.0	-888.0
Lake Chabot	Channel Catfish	-10.0	5.7	-2.0	-888.0	-888.0
Lake Chabot	Channel Catfish	-10.0	3.7	-2.0	-888.0	-888.0
Lake Chabot	Channel Catfish	-10.0	3.6	-2.0	-888.0	-888.0
Lake Chabot	Largemouth Bass	-10.0	-2.0	-2.0	-888.0	-888.0
Lake Chabot	Largemouth Bass	-10.0	-2.0	-2.0	-888.0	-888.0
Lake Chabot	Largemouth Bass	-10.0	-2.0	-2.0	-888.0	-888.0
Nicasio	Carp	-10.0	-2.0	-2.0	-888.0	-888.0
Nicasio	Carp	-10.0	-2.0	-2.0	-888.0	-888.0
Nicasio	Carp	-10.0	-2.0	-2.0	-888.0	-888.0
San Pablo	Black Crappie	-10.0	5.3	-2.0	-888.0	-888.0
San Pablo	Black Crappie	-10.0	5.3	-2.0	-888.0	-888.0
San Pablo	Black Crappie	-10.0	5.2	-2.0	-888.0	-888.0
San Pablo	Carp	-10.0	111.0	-2.0	-888.0	-888.0
San Pablo	Carp	-10.0	95.2	-2.0	-888.0	-888.0
San Pablo	Carp	-10.0	62.7	-2.0	-888.0	-888.0
San Pablo	Channel Catfish	-10.0	63.1	-2.0	-888.0	-888.0
San Pablo	Channel Catfish	-10.0	120.0	-2.0	-888.0	-888.0
San Pablo	Channel Catfish	-10.0	110.0	-2.0	-888.0	-888.0
Shadow Cliffs	Carp	-10.0	1.1	-2.0	-888.0	-888.0
Shadow Cliffs	Channel Catfish	-10.0	1.1	-2.0	-888.0	-888.0
Soulajule	Channel Catfish	-10.0	-2.0	-2.0	-888.0	-888.0
Soulajule	Channel Catfish	-10.0	-2.0	-2.0	-888.0	-888.0
Stevens Creek	Channel Catfish	-10.0	5.2	-2.0	-888.0	-888.0
Stevens Creek	Channel Catfish	-10.0	5.6	-2.0	-888.0	-888.0
Stevens Creek	Channel Catfish	-10.0	4.7	-2.0	-888.0	-888.0
Stevens Creek	Largemouth Bass	-10.0	-2.0	-2.0	-888.0	-888.0
Stevens Creek	Largemouth Bass	-10.0	-2.0	-2.0	-888.0	-888.0
Stevens Creek	Largemouth Bass	-10.0	-2.0	-2.0	-888.0	-888.0

RESERVOIR	COMMON	ENDOS_W	TENDO_W	ENDRN_W	ETHIO_W	HCHA_W
Anderson	Black Crappie	-888.0	-99.0	-2.0	-888.0	-1.0
Anderson	Black Crappie	-888.0	-99.0	-2.0	-888.0	-1.0
Anderson	Black Crappie	-888.0	-99.0	-2.0	-888.0	-1.0
Anderson	Carp	-888.0	-99.0	-2.0	-888.0	-1.0
Anderson	Carp	-888.0	-99.0	-2.0	-888.0	-1.0
Anderson	Carp	-888.0	-99.0	-2.0	-888.0	-1.0
Del Valle	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-1.0
Del Valle	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-1.0
Del Valle	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-1.0
Lafayette	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-0.5
Lafayette	Black Crappie	-888.0	-99.0	-2.0	-888.0	-0.5
Lafayette	Goldfish	-888.0	-99.0	-2.0	-888.0	-0.5
Lafayette	Largemouth Bass	-888.0	-99.0	-2.0	-888.0	-0.5
Lake Chabot	Carp	-888.0	-99.0	-2.0	-888.0	-1.0
Lake Chabot	Carp	-888.0	-99.0	-2.0	-888.0	-1.0
Lake Chabot	Carp	-888.0	-99.0	-2.0	-888.0	-1.0
Lake Chabot	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-1.0
Lake Chabot	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-1.0
Lake Chabot	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-1.0
Lake Chabot	Largemouth Bass	-888.0	-99.0	-2.0	-888.0	-1.0
Lake Chabot	Largemouth Bass	-888.0	-99.0	-2.0	-888.0	-1.0
Lake Chabot	Largemouth Bass	-888.0	-99.0	-2.0	-888.0	-1.0
Nicasio	Carp	-888.0	-99.0	-2.0	-888.0	-1.0
Nicasio	Carp	-888.0	-99.0	-2.0	-888.0	-1.0
Nicasio	Carp	-888.0	-99.0	-2.0	-888.0	-1.0
San Pablo	Black Crappie	-888.0	-99.0	-2.0	-888.0	-1.0
San Pablo	Black Crappie	-888.0	-99.0	-2.0	-888.0	-1.0
San Pablo	Black Crappie	-888.0	-99.0	-2.0	-888.0	-1.0
San Pablo	Carp	-888.0	-99.0	-2.0	-888.0	-1.0
San Pablo	Carp	-888.0	-99.0	-2.0	-888.0	-1.0
San Pablo	Carp	-888.0	-99.0	-2.0	-888.0	-1.0
San Pablo	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-1.0
San Pablo	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-1.0
San Pablo	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-1.0
Shadow Cliffs	Carp	-888.0	-99.0	-2.0	-888.0	-0.5
Shadow Cliffs	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-0.5
Soulajule	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-1.0
Soulajule	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-1.0
Stevens Creek	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-0.5
Stevens Creek	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-0.5
Stevens Creek	Channel Catfish	-888.0	-99.0	-2.0	-888.0	-0.5
Stevens Creek	Largemouth Bass	-888.0	-99.0	-2.0	-888.0	-1.0
Stevens Creek	Largemouth Bass	-888.0	-99.0	-2.0	-888.0	-1.0
Stevens Creek	Largemouth Bass	-888.0	-99.0	-2.0	-888.0	-1.0

RESERVOIR	COMMON	HCHB_W	HCHD_W	HCHG_W	THCH_W	HEP_W
Anderson	Black Crappie	-2.0	-888.0	-1.0	-99.0	-2.0
Anderson	Black Crappie	-2.0	-888.0	-1.0	-99.0	-2.0
Anderson	Black Crappie	-2.0	-888.0	-1.0	-99.0	-2.0
Anderson	Carp	-2.0	-888.0	-1.0	-99.0	-2.0
Anderson	Carp	-2.0	-888.0	-1.0	-99.0	-2.0
Anderson	Carp	-2.0	-888.0	-1.0	-99.0	-2.0
Del Valle	Channel Catfish	-2.0	-888.0	-1.0	-99.0	-2.0
Del Valle	Channel Catfish	-2.0	-888.0	-1.0	-99.0	-2.0
Del Valle	Channel Catfish	-2.0	-888.0	-1.0	-99.0	-2.0
Lafayette	Channel Catfish	-1.0	-2.0	-0.5	-99.0	-1.0
Lafayette	Black Crappie	-1.0	-2.0	-0.5	-99.0	-1.0
Lafayette	Goldfish	-1.0	-2.0	-0.5	-99.0	-1.0
Lafayette	Largemouth Bass	-1.0	-2.0	-0.5	-99.0	-1.0
Lake Chabot	Carp	-2.0	-888.0	-1.0	-99.0	-2.0
Lake Chabot	Carp	-2.0	-888.0	-1.0	-99.0	-2.0
Lake Chabot	Carp	-2.0	-888.0	-1.0	-99.0	-2.0
Lake Chabot	Channel Catfish	-2.0	-888.0	-1.0	-99.0	-2.0
Lake Chabot	Channel Catfish	-2.0	-888.0	-1.0	-99.0	-2.0
Lake Chabot	Channel Catfish	-2.0	-888.0	-1.0	-99.0	-2.0
Lake Chabot	Largemouth Bass	-2.0	-888.0	-1.0	-99.0	-2.0
Lake Chabot	Largemouth Bass	-2.0	-888.0	-1.0	-99.0	-2.0
Lake Chabot	Largemouth Bass	-2.0	-888.0	-1.0	-99.0	-2.0
Nicasio	Carp	-2.0	-888.0	-1.0	-99.0	-2.0
Nicasio	Carp	-2.0	-888.0	-1.0	-99.0	-2.0
Nicasio	Carp	-2.0	-888.0	-1.0	-99.0	-2.0
San Pablo	Black Crappie	-2.0	-888.0	-1.0	-99.0	-2.0
San Pablo	Black Crappie	-2.0	-888.0	-1.0	-99.0	-2.0
San Pablo	Black Crappie	-2.0	-888.0	-1.0	-99.0	-2.0
San Pablo	Carp	-2.0	-888.0	-1.0	-99.0	-2.0
San Pablo	Carp	-2.0	-888.0	-1.0	-99.0	-2.0
San Pablo	Carp	-2.0	-888.0	-1.0	-99.0	-2.0
San Pablo	Channel Catfish	-2.0	-888.0	-1.0	-99.0	-2.0
San Pablo	Channel Catfish	-2.0	-888.0	-1.0	-99.0	-2.0
San Pablo	Channel Catfish	-2.0	-888.0	-1.0	-99.0	-2.0
Shadow Cliffs	Carp	-1.0	-2.0	-0.5	-99.0	-1.0
Shadow Cliffs	Channel Catfish	-1.0	-2.0	-0.5	-99.0	-1.0
Soulajule	Channel Catfish	-2.0	-888.0	-1.0	-99.0	-2.0
Soulajule	Channel Catfish	-2.0	-888.0	-1.0	-99.0	-2.0
Stevens Creek	Channel Catfish	-1.0	-2.0	-0.5	-99.0	-1.0
Stevens Creek	Channel Catfish	-1.0	-2.0	-0.5	-99.0	-1.0
Stevens Creek	Channel Catfish	-1.0	-2.0	-0.5	-99.0	-1.0
Stevens Creek	Largemouth Bass	-2.0	-888.0	-1.0	-99.0	-2.0
Stevens Creek	Largemouth Bass	-2.0	-888.0	-1.0	-99.0	-2.0
Stevens Creek	Largemouth Bass	-2.0	-888.0	-1.0	-99.0	-2.0

RESERVOIR	COMMON	HEPOX_W	HCB_W	EPARA_W	MPARA_W	MTHOX_W
Anderson	Black Crappie	-1.0	-0.3	-2.0	-4.0	-5.0
Anderson	Black Crappie	-1.0	-0.3	-2.0	-4.0	-5.0
Anderson	Black Crappie	-1.0	-0.3	-2.0	-4.0	-5.0
Anderson	Carp	-1.0	19.5	-2.0	-4.0	-5.0
Anderson	Carp	-1.0	-0.3	-2.0	-4.0	-5.0
Anderson	Carp	-1.0	-0.3	-2.0	-4.0	-5.0
Del Valle	Channel Catfish	-1.0	0.3	-2.0	-4.0	-5.0
Del Valle	Channel Catfish	-1.0	0.4	-2.0	-4.0	-5.0
Del Valle	Channel Catfish	-1.0	0.4	-2.0	-4.0	-5.0
Lafayette	Channel Catfish	-0.5	-0.3	-2.0	-4.0	-3.0
Lafayette	Black Crappie	-0.5	-0.3	-2.0	-4.0	-3.0
Lafayette	Goldfish	-0.5	0.4	-2.0	-4.0	-3.0
Lafayette	Largemouth Bass	-0.5	-0.3	-2.0	-4.0	-3.0
Lake Chabot	Carp	1.8	1.3	-2.0	-4.0	-5.0
Lake Chabot	Carp	-1.0	0.8	-2.0	-4.0	-5.0
Lake Chabot	Carp	1.6	1.1	-2.0	-4.0	-5.0
Lake Chabot	Channel Catfish	1.5	0.6	-2.0	-4.0	-5.0
Lake Chabot	Channel Catfish	-1.0	0.4	-2.0	-4.0	-5.0
Lake Chabot	Channel Catfish	-1.0	0.4	-2.0	-4.0	-5.0
Lake Chabot	Largemouth Bass	-1.0	-0.3	-2.0	-4.0	-5.0
Lake Chabot	Largemouth Bass	-1.0	-0.3	-2.0	-4.0	-5.0
Lake Chabot	Largemouth Bass	-1.0	-0.3	-2.0	-4.0	-5.0
Nicasio	Carp	-1.0	-0.3	-2.0	-4.0	-5.0
Nicasio	Carp	-1.0	-0.3	-2.0	-4.0	-5.0
Nicasio	Carp	-1.0	-0.3	-2.0	-4.0	-5.0
San Pablo	Black Crappie	-1.0	-0.3	-2.0	-4.0	-5.0
San Pablo	Black Crappie	-1.0	-0.3	-2.0	-4.0	-5.0
San Pablo	Black Crappie	-1.0	-0.3	-2.0	-4.0	-5.0
San Pablo	Carp	4.1	1.1	-2.0	-4.0	-5.0
San Pablo	Carp	4.1	0.9	-2.0	-4.0	-5.0
San Pablo	Carp	2.7	0.8	-2.0	-4.0	-5.0
San Pablo	Channel Catfish	2.2	0.5	-2.0	-4.0	-5.0
San Pablo	Channel Catfish	4.1	0.8	-2.0	-4.0	-5.0
San Pablo	Channel Catfish	4.4	1.1	-2.0	-4.0	-5.0
Shadow Cliffs	Carp	-0.5	-0.3	-2.0	-4.0	-3.0
Shadow Cliffs	Channel Catfish	-0.5	-0.3	-2.0	-4.0	-3.0
Soulajule	Channel Catfish	-1.0	0.5	-2.0	-4.0	-5.0
Soulajule	Channel Catfish	-1.0	0.4	-2.0	-4.0	-5.0
Stevens Creek	Channel Catfish	1.6	0.5	-2.0	-4.0	-3.0
Stevens Creek	Channel Catfish	1.2	0.4	-2.0	-4.0	-3.0
Stevens Creek	Channel Catfish	1.1	0.3	-2.0	-4.0	-3.0
Stevens Creek	Largemouth Bass	-1.0	-0.3	-2.0	-4.0	-5.0
Stevens Creek	Largemouth Bass	-1.0	-0.3	-2.0	-4.0	-5.0
Stevens Creek	Largemouth Bass	-1.0	-0.3	-2.0	-4.0	-5.0

RESERVOIR	COMMON	PCB48_W	PCB54_W	PCB60_W	TPCB_W	PCP_W
Anderson	Black Crappie	-25.0	-10.0	10.0	10.0	-888.0
Anderson	Black Crappie	-25.0	-10.0	-10.0	-99.0	-888.0
Anderson	Black Crappie	-25.0	-10.0	-10.0	-99.0	-888.0
Anderson	Carp	-25.0	23.0	17.0	40.0	-888.0
Anderson	Carp	-25.0	27.0	11.0	38.0	-888.0
Anderson	Carp	-25.0	25.0	21.0	46.0	-888.0
Del Valle	Channel Catfish	-25.0	18.0	10.0	28.0	-888.0
Del Valle	Channel Catfish	-25.0	21.0	-10.0	21.0	-888.0
Del Valle	Channel Catfish	-25.0	21.0	-10.0	21.0	-888.0
Lafayette	Channel Catfish	-25.0	30.0	11.0	41	-888.0
Lafayette	Black Crappie	-25.0	-10.0	-10.0	-99	-888.0
Lafayette	Goldfish	-25.0	45.0	14.0	59	-888.0
Lafayette	Largemouth Bass	-25.0	12.0	-10.0	12	-888.0
Lake Chabot	Carp	30.0	230.0	94.0	354.0	-888.0
Lake Chabot	Carp	-25.0	160.0	93.0	253.0	-888.0
Lake Chabot	Carp	26.0	260.0	120.0	406.0	-888.0
Lake Chabot	Channel Catfish	-25.0	53.0	22.0	75.0	-888.0
Lake Chabot	Channel Catfish	-25.0	30.0	12.0	42.0	-888.0
Lake Chabot	Channel Catfish	-25.0	15.0	-10.0	15.0	-888.0
Lake Chabot	Largemouth Bass	-25.0	-10.0	-10.0	-99.0	-888.0
Lake Chabot	Largemouth Bass	-25.0	15.0	-10.0	15.0	-888.0
Lake Chabot	Largemouth Bass	-25.0	-10.0	-10.0	-99.0	-888.0
Nicasio	Carp	-25.0	-10.0	10.0	10.0	-888.0
Nicasio	Carp	-25.0	-10.0	-10.0	-99.0	-888.0
Nicasio	Carp	-25.0	-10.0	10.0	10.0	-888.0
San Pablo	Black Crappie	-25.0	-10.0	-10.0	-99.0	-888.0
San Pablo	Black Crappie	-25.0	-10.0	-10.0	-99.0	-888.0
San Pablo	Black Crappie	-25.0	-10.0	-10.0	-99.0	-888.0
San Pablo	Carp	-25.0	90.0	37.0	127.0	-888.0
San Pablo	Carp	-25.0	80.0	41.0	121.0	-888.0
San Pablo	Carp	-25.0	67.0	38.0	105.0	-888.0
San Pablo	Channel Catfish	-25.0	28.0	15.0	43.0	-888.0
San Pablo	Channel Catfish	-25.0	81.0	29.0	110.0	-888.0
San Pablo	Channel Catfish	-25.0	158.0	40.0	198.0	-888.0
Shadow Cliffs	Carp	-25.0	73.0	22.0	95	-888.0
Shadow Cliffs	Channel Catfish	-25.0	24.0	-10.0	24	-888.0
Soulajule	Channel Catfish	-25.0	24.0	-10.0	24.0	-888.0
Soulajule	Channel Catfish	-25.0	23.0	-10.0	23.0	-888.0
Stevens Creek	Channel Catfish	25.0	38.0	32.0	95	-888.0
Stevens Creek	Channel Catfish	-25.0	45.0	29.0	74	-888.0
Stevens Creek	Channel Catfish	40.0	37.0	23.0	100	-888.0
Stevens Creek	Largemouth Bass	-25.0	49.0	10.0	59.0	-888.0
Stevens Creek	Largemouth Bass	-25.0	20.0	10.0	30.0	-888.0
Stevens Creek	Largemouth Bass	-25.0	33.0	15.0	48.0	-888.0

RESERVOIR	COMMON	TCP_W	TOXAP_W	OXADI_W	CMGPA_W
Anderson	Black Crappie	-888.0	-20.0	-3.0	-99.0
Anderson	Black Crappie	-888.0	-20.0	-3.0	-99.0
Anderson	Black Crappie	-888.0	-20.0	-3.0	-99.0
Anderson	Carp	-888.0	-20.0	-3.0	7.9
Anderson	Carp	-888.0	-20.0	-3.0	5.9
Anderson	Carp	-888.0	-20.0	-3.0	13.2
Del Valle	Channel Catfish	-888.0	-20.0	-3.0	1.6
Del Valle	Channel Catfish	-888.0	-20.0	-3.0	2.0
Del Valle	Channel Catfish	-888.0	-20.0	-3.0	1.9
Lafayette	Channel Catfish	-888.0	-20.0	-1.0	2.8
Lafayette	Black Crappie	-888.0	-20.0	-1.0	-99
Lafayette	Goldfish	-888.0	-20.0	-1.0	12.2
Lafayette	Largemouth Bass	-888.0	-20.0	-1.0	-99
Lake Chabot	Carp	-888.0	-20.0	11.9	117.9
Lake Chabot	Carp	-888.0	-20.0	6.6	66.9
Lake Chabot	Carp	-888.0	-20.0	12.8	109.0
Lake Chabot	Channel Catfish	-888.0	-20.0	7.9	34.4
Lake Chabot	Channel Catfish	-888.0	-20.0	5.9	19.4
Lake Chabot	Channel Catfish	-888.0	-20.0	6.3	12.2
Lake Chabot	Largemouth Bass	-888.0	-20.0	-3.0	-99.0
Lake Chabot	Largemouth Bass	-888.0	-20.0	-3.0	1.8
Lake Chabot	Largemouth Bass	-888.0	-20.0	-3.0	-99.0
Nicasio	Carp	-888.0	-20.0	-3.0	-99.0
Nicasio	Carp	-888.0	-20.0	-3.0	-99.0
Nicasio	Carp	-888.0	-20.0	-3.0	-99.0
San Pablo	Black Crappie	-888.0	-20.0	-3.0	7.1
San Pablo	Black Crappie	-888.0	-20.0	-3.0	6.9
San Pablo	Black Crappie	-888.0	-20.0	-3.0	6.9
San Pablo	Carp	-888.0	33.5	87.4	253.6
San Pablo	Carp	-888.0	34.5	73.4	239.0
San Pablo	Carp	-888.0	21.0	50.3	174.9
San Pablo	Channel Catfish	-888.0	-20.0	42.5	96.9
San Pablo	Channel Catfish	-888.0	40.4	92.3	251.0
San Pablo	Channel Catfish	-888.0	61.1	69.0	330.5
Shadow Cliffs	Carp	-888.0	-20.0	-1.0	7.5
Shadow Cliffs	Channel Catfish	-888.0	-20.0	-1.0	3.2
Soulajule	Channel Catfish	-888.0	-20.0	-3.0	1.6
Soulajule	Channel Catfish	-888.0	-20.0	-3.0	1.6
Stevens Creek	Channel Catfish	-888.0	-20.0	4.0	46.3
Stevens Creek	Channel Catfish	-888.0	-20.0	6.0	44.2
Stevens Creek	Channel Catfish	-888.0	-20.0	2.5	37.5
Stevens Creek	Largemouth Bass	-888.0	-20.0	-3.0	4.5
Stevens Creek	Largemouth Bass	-888.0	-20.0	-3.0	4.6
Stevens Creek	Largemouth Bass	-888.0	-20.0	-3.0	14.6

Appendix V

Edible Fish and Shellfish Tissue Trace Metal and Organic Chemistry Data for Tomales Bay and the San Mateo County and San Francisco coasts

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	N (Number per sample)	Length (1) mm	Length (2) mm	Length (3) mm	Ag_w µg/g	As_w µg/g	Inorg Arsenic	Cd_w µg/g	Cr_w µg/g	Cu_w µg/g	Hg_w µg/g
Tomales Bay/Outer Bay lat 38 11.87, long 122 55.82	California Halibut	26-Aug-98	3	660	560	650	-0.0020	0.7890		-0.0010	0.1010	0.1190	0.2270
Tomales Bay/Outer Bay	California Halibut	1-Sep-98	3	700	700	720	-0.0020	0.6830		-0.0010	0.1110	0.1420	0.2820
Tomales Bay/Outer Bay	California Halibut	4-May-99	3	630	680	730	-0.0020	0.5670		-0.0010	0.1560	0.1500	0.1985
Tomales Bay/Outer Bay	Jacksmelt	4-May-99	5	270	270	275	NA	0.4080		NA	NA	NA	0.0813
Tomales Bay/Outer Bay	Jacksmelt	4-May-99	5	240	260	275	NA	0.3590		NA	NA	NA	0.0915
Tomales Bay/Outer Bay	Jacksmelt	4-May-99	5	250	270	270	NA	0.3640		NA	NA	NA	0.0739
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99	3	130	134	135	NA	3.8300		NA	NA	NA	0.2055
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99	3	122	122	140	NA	6.2200		NA	NA	NA	0.2150
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99	3	112	126	143	NA	1.9000		NA	NA	NA	0.1010
Tomales Bay/Outer Bay	Red Rock Crab	29-May-01	1	135	130	129		2.7910		0.1446			0.0709
Tomales Bay/Outer Bay	Red Rock Crab	31-May-01	49	124	112	120		6.5204		0.7099			0.2109
Tomales Bay/Outer Bay	Red Rock Crab	31-May-01	10	134	140	148		NA		NA			0.1258
Tomales Bay/Hamlet 1 lat 38 12.38, long 122 55.82	Cockle	29-Jul-99	5	38	39	39	0.0058	1.5200		0.2000	0.2290	0.6240	0.2980
Tomales Bay/Hamlet 2	Cockle	29-Jul-99	5	39	39	40	0.0103	1.3300		0.2200	0.2730	0.5700	0.3040
Tomales Bay/Hamlet 3	Cockle	29-Jul-99	5	38	39	39	0.1650	1.4700		0.1880	0.2510	0.6440	0.5610
Tomales Bay/Hamlet 1	Cockle	29-Jul-99	5	38	39	39	0.0103	1.2500		0.2180	0.1110	0.5440	0.3390
Tomales Bay/Hamlet 2	Cockle	29-Jul-99	5	38	39	41	0.1230	1.6000		0.1800	0.1590	0.5970	0.4280
Tomales Bay/Hamlet 3	Cockle	29-Jul-99	5	39	39	40	0.0099	1.6300		0.2170	0.1870	0.7300	0.3985
Tomales Bay/McDonald lat 38 11.00, long 122 54.38	Cockle	11-May-99	22	43	42	44	0.0118	1.6100		0.1840	1.1800	1.1200	0.0356
Tomales Bay/S. Millerton Ramp lat 38 05.83, long 122 49.95	Cockle	11-May-99	16	31	31	33	0.0075	2.4100		0.3170	0.4770	0.7210	0.0676
Tomales Bay/Millerton Park lat 38 06.28, long 122 50.45	Cockle	10-May-99	23	47	38	37	0.0092	1.5300		0.1930	0.4900	1.1600	0.0557
Tomales Bay/Blake's Landing lat 38 12.67, long 122 55.20	Cockle	10-May-99	20	46	44	46	0.0105	1.5500		0.1930	0.6560	1.1900	0.0467
Tomales Bay/Mid Bay lat 38 09.31, long 122 54.36	Bat Ray	11-Aug-98	3	510	450	510	NA	4.3100		NA	NA	NA	0.4800
Tomales Bay/Mid Bay	Bat Ray	5-May-99	3	730	690	630	NA	1.8900		NA	NA	NA	0.9115
Tomales Bay/Mid Bay	Bat Ray	5-May-99	3	390	370	290	NA	4.7600		NA	NA	NA	0.4035
Tomales Bay/Mid Bay	Brown Smoothhound	11-Aug-98	3	850	850	880	NA	6.1800		NA	NA	NA	1.2700
Tomales Bay/Mid Bay	Brown Smoothhound	11-Aug-98	3	900	920	940	NA	2.4700		NA	NA	NA	1.5150
Tomales Bay/Mid Bay	Brown Smoothhound	4-May-99	3	940	930	860	NA	4.9100		NA	NA	NA	1.7050
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01	1	861	910	889		6.9111		0.0069			1.5767
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01	1	861				4.3408	-0.0300	NA			1.1697
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01	1	910				7.4530	-0.0300	NA			1.3415
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01	1	889				8.1571	-0.0300	NA			1.8441
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01	3	790	882	924		6.1048		0.0070			1.0502
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01	1	790				7.3323	-0.0300	NA			0.6633

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	Methyl Mercury	Ni_w µg/g	Pb_w µg/g	Se_w µg/g	Zn_w µg/g	Analysis	aldrn_w ng/g	ccdan_w ng/g	tcdan_w ng/g	acden_w ng/g	gcden_w ng/g	clpyr_w ng/g	dacth_w ng/g	dddop_w ng/g	dddpp_w ng/g	ddeop_w ng/g
Tomales Bay/Outer Bay lat 38 11.87, long 122 55.82	California Halibut	26-Aug-98		-0.0020	-0.0005	0.3440	2.4300	EM	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Tomales Bay/Outer Bay	California Halibut	1-Sep-98		-0.0020	-0.0005	0.3470	4.6000	EM	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Tomales Bay/Outer Bay	California Halibut	4-May-99		-0.0020	-0.0005	0.2790	3.0700	EM	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Tomales Bay/Outer Bay	Jacksmelt	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Jacksmelt	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Jacksmelt	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Red Rock Crab	29-May-01	0.0636			0.4502												
Tomales Bay/Outer Bay	Red Rock Crab	31-May-01	0.1880			0.8315												
Tomales Bay/Outer Bay	Red Rock Crab	31-May-01	0.1130			NA												
Tomales Bay/Hamlet 1 lat 38 12.38, long 122 55.82	Cockle	29-Jul-99	0.0404	0.5660	0.0389	0.2600	8.4100	EM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 2	Cockle	29-Jul-99	0.0476	0.5990	0.0405	0.2590	9.6800	EM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 3	Cockle	29-Jul-99	0.0859	1.1100	0.0539	0.3500	7.8700	EM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 1	Cockle	29-Jul-99	0.0465	0.3470	-0.0005	0.3430	8.8700	EM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 2	Cockle	29-Jul-99	0.0595	0.6420	-0.0005	0.4220	7.5900	EM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 3	Cockle	29-Jul-99	0.1050	0.4270	-0.0005	0.4600	10.1000	EM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/McDonald lat 38 11.00, long 122 54.38	Cockle	11-May-99	0.0168	1.3500	0.0494	0.3980	13.4000	EM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/S. Millerton Ramp lat 38 05.83, long 122 49.95	Cockle	11-May-99	0.0318	0.8270	0.0450	0.3130	10.6000	EM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Millerton Park lat 38 06.28, long 122 50.45	Cockle	10-May-99	0.0364	0.7590	0.0384	0.4200	14.1000	EM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Blake's Landing lat 38 12.67, long 122 55.20	Cockle	10-May-99	0.0241	0.8130	0.0613	0.3760	15.4000	EM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay lat 38 09.31, long 122 54.36	Bat Ray	11-Aug-98		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Bat Ray	5-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Bat Ray	5-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Brown Smoothhound	11-Aug-98		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Brown Smoothhound	11-Aug-98		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Brown Smoothhound	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01				0.2357												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01				NA												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01				NA												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01				NA												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01				0.2409												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01				NA												

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	ddepp_w ng/g	ddmupp_w ng/g	ddtop_w ng/g	ddtpp_w ng/g	diazn_w ng/g	dield_w ng/g	endo1_w ng/g	endo2_w ng/g	endos_w ng/g	endrn_w ng/g	ethion_w ng/g	hcha_w ng/g	hchb_w ng/g	hchd_w ng/g	hchg_w ng/g
Tomales Bay/Outer Bay lat 38 11.87, long 122 55.82	California Halibut	26-Aug-98	4.52	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	-5.00	-20.00	-2.00	-10.00	-1.00	-2.00	NA	-1.00
Tomales Bay/Outer Bay	California Halibut	1-Sep-98	16.70	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	-5.00	-20.00	-2.00	-10.00	-1.00	-2.00	NA	-1.00
Tomales Bay/Outer Bay	California Halibut	4-May-99	3.89	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	-5.00	-20.00	-2.00	-10.00	-1.00	-2.00	NA	-1.00
Tomales Bay/Outer Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Red Rock Crab	29-May-01															
Tomales Bay/Outer Bay	Red Rock Crab	31-May-01															
Tomales Bay/Outer Bay	Red Rock Crab	31-May-01															
Tomales Bay/Hamlet 1 lat 38 12.38, long 122 55.82	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 2	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 3	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 1	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 2	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 3	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/McDonald lat 38 11.00, long 122 54.38	Cockle	11-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/S. Millerton Ramp lat 38 05.83, long 122 49.95	Cockle	11-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Millerton Park lat 38 06.28, long 122 50.45	Cockle	10-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Blake's Landing lat 38 12.67, long 122 55.20	Cockle	10-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay lat 38 09.31, long 122 54.36	Bat Ray	11-Aug-98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Bat Ray	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Bat Ray	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Brown Smoothhound	11-Aug-98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Brown Smoothhound	11-Aug-98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Brown Smoothhound	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01															
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01															
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01															
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01															
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01															
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01															

Station name and coordinates	Species name	Collection date	hep_w ng/g	hepox_w ng/g	hcb_w ng/g	mthox_w ng/g	mirex ng/g	CNONA_ W ng/g	TNONA_ W ng/g	oxadzn_ w ng/g	ocdan_w ng/g	epara_w ng/g	mpara_w ng/g	tetra_w ng/g	toxap_w ng/g	pcb1248_ w ng/g	pcb1254_ w ng/g	pcb1260_ w ng/g
Tomales Bay/Outer Bay lat 38 11.87, long 122 55.82	California Halibut	26-Aug-98	-2.00	-1.00	-0.30	-10.00	-3.00	-2.00	-1.00	-6.00	-1.00	-8.00	-6.00	-4.00	-50.00	-50.00	-10.00	-10.00
Tomales Bay/Outer Bay	California Halibut	1-Sep-98	-2.00	-1.00	-0.30	-10.00	-3.00	-2.00	-1.00	-6.00	-1.00	-8.00	-6.00	-4.00	-50.00	-50.00	-10.00	-10.00
Tomales Bay/Outer Bay	California Halibut	4-May-99	-2.00	-1.00	-0.30	-10.00	-3.00	-2.00	-1.00	-6.00	-1.00	-8.00	-6.00	-4.00	-50.00	-50.00	-10.00	-10.00
Tomales Bay/Outer Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Outer Bay	Red Rock Crab	29-May-01																
Tomales Bay/Outer Bay	Red Rock Crab	31-May-01																
Tomales Bay/Outer Bay	Red Rock Crab	31-May-01																
Tomales Bay/Hamlet 1 lat 38 12.38, long 122 55.82	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 2	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 3	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 1	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 2	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Hamlet 3	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/McDonald lat 38 11.00, long 122 54.38	Cockle	11-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/S. Millerton Ramp lat 38 05.83, long 122 49.95	Cockle	11-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Millerton Park lat 38 06.28, long 122 50.45	Cockle	10-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Blake's Landing lat 38 12.67, long 122 55.20	Cockle	10-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay lat 38 09.31, long 122 54.36	Bat Ray	11-Aug-98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Bat Ray	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Bat Ray	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Brown Smoothhound	11-Aug-98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Brown Smoothhound	11-Aug-98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Brown Smoothhound	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01																
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01																
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01																
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01																
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01																
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01																

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	pcb1248_w ng/g	pcb1254_w ng/g	pcb1260_w ng/g	Total PCBs (Sum 1248, 1254 & 1260; if all 3 are ND, then value entered is 5=1/2 the lowest MDL)	dddop_w ng/g	dddpp_w ng/g	ddeop_w ng/g	ddepp_w ng/g	ddtop_w ng/g	ddtpp_w ng/g	Total DDTs (Sum ddeop, ddepp, dddop, dddpp, ddtop, ddtpp; if all 3 are ND, then value entered is 1=1/2 the lowest MDL)	Total chlordanes (sum ccdan, tcdan, cnona, tnona & ocdan) if all 3 are ND then value entered is .5 (1/2 lowest MDL)
Tomales Bay/Outer Bay lat 38 11.87, long 122 55.82	California Halibut	26-Aug-98	0.00	0.00	0.00	5.00	0.00	0.00	0.00	4.52	0.00	0.00	4.52	0.50
Tomales Bay/Outer Bay	California Halibut	1-Sep-98	0.00	0.00	0.00	5.00	0.00	0.00	0.00	16.70	0.00	0.00	16.70	0.50
Tomales Bay/Outer Bay	California Halibut	4-May-99	0.00	0.00	0.00	5.00	0.00	0.00	0.00	3.89	0.00	0.00	3.89	0.50
Tomales Bay/Outer Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Outer Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Outer Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Outer Bay	Red Rock Crab	3-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Outer Bay	Red Rock Crab	29-May-01												
Tomales Bay/Outer Bay	Red Rock Crab	31-May-01												
Tomales Bay/Outer Bay	Red Rock Crab	31-May-01												
Tomales Bay/Hamlet 1 lat 38 12.38, long 122 55.82	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Hamlet 2	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Hamlet 3	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Hamlet 1	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Hamlet 2	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Hamlet 3	Cockle	29-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/McDonald lat 38 11.00, long 122 54.38	Cockle	11-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/S. Millerton Ramp lat 38 05.83, long 122 49.95	Cockle	11-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Millerton Park lat 38 06.28, long 122 50.45	Cockle	10-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Blake's Landing lat 38 12.67, long 122 55.20	Cockle	10-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay lat 38 09.31, long 122 54.36	Bat Ray	11-Aug-98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Bat Ray	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Bat Ray	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Brown Smoothhound	11-Aug-98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Brown Smoothhound	11-Aug-98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Brown Smoothhound	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01												

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	N (Number per sample)	Length (1) mm	Length (2) mm	Length (3) mm	Ag_w µg/g	As_w µg/g	Inorg Arsenic	Cd_w µg/g	Cr_w µg/g	Cu_w µg/g	Hg_w µg/g
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01	1	882				4.9795	-0.0300	NA			1.2997
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01	1	924				5.1024	-0.0300	NA			1.6831
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01	4	807	841	836		4.7571		0.0091			1.1938
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01	22	807				6.5884	-0.0300	NA			0.9511
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01	5	841				2.9213	-0.0300	NA			1.1685
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01	1	836				4.5674	-0.0300	NA			1.4832
Tomales Bay/Mid Bay	Jacksmelt	11-Aug-98	5	230	250	250	NA	0.4530		NA	NA	NA	0.0479
Tomales Bay/Mid Bay	Jacksmelt	4-May-99	5	250	255	265	NA	0.5210		NA	NA	NA	0.0754
Tomales Bay/Mid Bay	Jacksmelt	4-May-99	5	250	255	260	NA	0.5300		NA	NA	NA	0.0541
Tomales Bay/Mid Bay	Jacksmelt	4-May-99	5	250	255	265	NA	0.3230		NA	NA	NA	0.0568
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	1	1150			NA	6.4400		NA	NA	NA	1.3100
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	1	900			NA	9.6900		NA	NA	NA	0.6660
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	1	980			NA	6.2200		NA	NA	NA	0.8445
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	1	1010			NA	6.2400		NA	NA	NA	1.0950
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	1	970			NA	10.9000		NA	NA	NA	0.9425
Tomales Bay/Mid Bay	Leopard Shark	5-May-99	1	900			NA	5.4400		NA	NA	NA	0.7435
Tomales Bay/Mid Bay	Leopard Shark	5-May-99	1	1140			NA	9.8700		NA	NA	NA	0.9310
Tomales Bay/Mid Bay	Leopard Shark	5-May-99	1	1010			NA	6.1000		NA	NA	NA	1.2450
Tomales Bay/Mid Bay	Leopard Shark	6-May-99	1	1200			NA	2.6900		NA	NA	NA	1.0010
Tomales Bay/Mid Bay	Bat Ray	29-May-01	1	990	930	915		3.6458		0.0353			0.6421
Tomales Bay/Mid Bay	Bat Ray	29-May-01	1	990				3.2804	-0.0300	NA			0.8056
Tomales Bay/Mid Bay	Bat Ray	30-May-01	5	1050	881	1156		2.7158		0.0708			0.4393
Tomales Bay/Mid Bay	Bat Ray	30-May-01	2	1050				3.8028	-0.0300	NA			0.5039
Tomales Bay/Mid Bay	Bat Ray	30-May-01	2	881				2.5779	-0.0300	NA			0.3926
Tomales Bay/Mid Bay	Bat Ray	30-May-01	1	815	914	1030		3.2863		0.0480			0.5277
Tomales Bay/Mid Bay	Bat Ray	30-May-01	8	815				4.6227	-0.0300	NA			0.4841
Tomales Bay/Mid Bay	Bat Ray	31-May-01	5	930				12.6684	-0.0300	NA			0.3742
Tomales Bay/Mid Bay	Bat Ray	31-May-01	3	1156				1.7854	-0.0300	NA			0.3915
Tomales Bay/Mid Bay	Bat Ray	31-May-01	25	915				2.4916	-0.0300	NA			0.4049
Tomales Bay/Mid Bay	Bat Ray	31-May-01	5	914				1.8644	-0.0300	NA			0.2745
Tomales Bay/Mid Bay	Bat Ray	31-May-01	1	1030				2.4189	-0.0300	NA			0.2758
Tomales Bay/Mid Bay	California Halibut	29-May-01	1	566	641	876		0.8535		-0.0020			0.1151
Tomales Bay/Mid Bay	California Halibut	29-May-01	3	566				0.8939	-0.0300	NA			0.1186
Tomales Bay/Mid Bay	California Halibut	31-May-01	1	599	578	648		0.7870		-0.0020			0.1228
Tomales Bay/Mid Bay	California Halibut	31-May-01	1	599				0.8016	0.0762	NA			0.1280
Tomales Bay/Mid Bay	California Halibut	1-Jun-01	5	641				0.6693	-0.0300	NA			0.1811
Tomales Bay/Mid Bay	California Halibut	15-Jun-01	20	876				0.6330	0.0987	NA			0.1613
Tomales Bay/Mid Bay	California Halibut	28-Jun-01	5	578				1.1071	0.0867	NA			0.1576
Tomales Bay/Mid Bay	California Halibut	7-Jul-01	5	648				0.6501	0.0625	NA			0.1751

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	Methyl Mercury	Ni_w µg/g	Pb_w µg/g	Se_w µg/g	Zn_w µg/g	Analysis	aldrn_w ng/g	ccdan_w ng/g	tcdan_w ng/g	acden_w ng/g	gcden_w ng/g	clpyr_w ng/g	dacth_w ng/g	dddop_w ng/g	dddpp_w ng/g	ddeop_w ng/g
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01				NA												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01				NA												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01				0.1944												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01				NA												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01				NA												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01				NA												
Tomales Bay/Mid Bay	Jacksmelt	11-Aug-98		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Jacksmelt	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Jacksmelt	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Jacksmelt	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	5-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	5-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	5-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	6-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Bat Ray	29-May-01				0.2917												
Tomales Bay/Mid Bay	Bat Ray	29-May-01				NA												
Tomales Bay/Mid Bay	Bat Ray	30-May-01				0.2763												
Tomales Bay/Mid Bay	Bat Ray	30-May-01				NA												
Tomales Bay/Mid Bay	Bat Ray	30-May-01				NA												
Tomales Bay/Mid Bay	Bat Ray	30-May-01				0.2591												
Tomales Bay/Mid Bay	Bat Ray	30-May-01				NA												
Tomales Bay/Mid Bay	Bat Ray	31-May-01				NA												
Tomales Bay/Mid Bay	Bat Ray	31-May-01				NA												
Tomales Bay/Mid Bay	Bat Ray	31-May-01				NA												
Tomales Bay/Mid Bay	Bat Ray	31-May-01				NA												
Tomales Bay/Mid Bay	Bat Ray	31-May-01				NA												
Tomales Bay/Mid Bay	California Halibut	29-May-01				0.4351												
Tomales Bay/Mid Bay	California Halibut	29-May-01				NA												
Tomales Bay/Mid Bay	California Halibut	31-May-01				0.4257												
Tomales Bay/Mid Bay	California Halibut	31-May-01				NA												
Tomales Bay/Mid Bay	California Halibut	1-Jun-01				NA												
Tomales Bay/Mid Bay	California Halibut	15-Jun-01				NA												
Tomales Bay/Mid Bay	California Halibut	28-Jun-01				NA												
Tomales Bay/Mid Bay	California Halibut	7-Jul-01				NA												

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	ddepp_w ng/g	ddmupp_w ng/g	ddtop_w ng/g	ddtpp_w ng/g	diazn_w ng/g	dield_w ng/g	endo1_w ng/g	endo2_w ng/g	endos_w ng/g	endrn_w ng/g	ethion_w ng/g	hcha_w ng/g	hchb_w ng/g	hchd_w ng/g	hchg_w ng/g
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01															
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01															
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01															
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01															
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01															
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01															
Tomales Bay/Mid Bay	Jacksmelt	11-Aug-98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	6-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Bat Ray	29-May-01															
Tomales Bay/Mid Bay	Bat Ray	29-May-01															
Tomales Bay/Mid Bay	Bat Ray	30-May-01															
Tomales Bay/Mid Bay	Bat Ray	30-May-01															
Tomales Bay/Mid Bay	Bat Ray	30-May-01															
Tomales Bay/Mid Bay	Bat Ray	30-May-01															
Tomales Bay/Mid Bay	Bat Ray	30-May-01															
Tomales Bay/Mid Bay	Bat Ray	31-May-01															
Tomales Bay/Mid Bay	Bat Ray	31-May-01															
Tomales Bay/Mid Bay	Bat Ray	31-May-01															
Tomales Bay/Mid Bay	Bat Ray	31-May-01															
Tomales Bay/Mid Bay	Bat Ray	31-May-01															
Tomales Bay/Mid Bay	California Halibut	29-May-01															
Tomales Bay/Mid Bay	California Halibut	29-May-01															
Tomales Bay/Mid Bay	California Halibut	31-May-01															
Tomales Bay/Mid Bay	California Halibut	31-May-01															
Tomales Bay/Mid Bay	California Halibut	1-Jun-01															
Tomales Bay/Mid Bay	California Halibut	15-Jun-01															
Tomales Bay/Mid Bay	California Halibut	28-Jun-01															
Tomales Bay/Mid Bay	California Halibut	7-Jul-01															

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	hep_w ng/g	hepox_w ng/g	hcb_w ng/g	mthox_w ng/g	mirex ng/g	CNONA_W ng/g	TNONA_W ng/g	oxadzn_w ng/g	ocdan_w ng/g	epara_w ng/g	mpara_w ng/g	tetra_w ng/g	toxap_w ng/g	pcb1248_w ng/g	pcb1254_w ng/g	pcb1260_w ng/g
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01																
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01																
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01																
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01																
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01																
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01																
Tomales Bay/Mid Bay	Jacksmelt	11-Aug-98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Leopard Shark	6-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Bat Ray	29-May-01																
Tomales Bay/Mid Bay	Bat Ray	29-May-01																
Tomales Bay/Mid Bay	Bat Ray	30-May-01																
Tomales Bay/Mid Bay	Bat Ray	30-May-01																
Tomales Bay/Mid Bay	Bat Ray	30-May-01																
Tomales Bay/Mid Bay	Bat Ray	30-May-01																
Tomales Bay/Mid Bay	Bat Ray	30-May-01																
Tomales Bay/Mid Bay	Bat Ray	31-May-01																
Tomales Bay/Mid Bay	Bat Ray	31-May-01																
Tomales Bay/Mid Bay	Bat Ray	31-May-01																
Tomales Bay/Mid Bay	Bat Ray	31-May-01																
Tomales Bay/Mid Bay	Bat Ray	31-May-01																
Tomales Bay/Mid Bay	California Halibut	29-May-01																
Tomales Bay/Mid Bay	California Halibut	29-May-01																
Tomales Bay/Mid Bay	California Halibut	31-May-01																
Tomales Bay/Mid Bay	California Halibut	31-May-01																
Tomales Bay/Mid Bay	California Halibut	1-Jun-01																
Tomales Bay/Mid Bay	California Halibut	15-Jun-01																
Tomales Bay/Mid Bay	California Halibut	28-Jun-01																
Tomales Bay/Mid Bay	California Halibut	7-Jul-01																

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	pcb1248_w ng/g	pcb1254_w ng/g	pcb1260_w ng/g	Total PCBs (Sum 1248, 1254 & 1260; if all 3 are ND, then value entered is 5=1/2 the lowest MDL)	dddop_w ng/g	dddpp_w ng/g	ddeop_w ng/g	ddepp_w ng/g	ddtop_w ng/g	ddtpp_w ng/g	Total DDTs (Sum ddeop, ddepp, dddop, dddpp, ddtop, ddtpp; if all 3 are ND, then value entered is 1=1/2 the lowest MDL)	Total chlordanes (sum ccdan, tcdan, cnona, tnona & ocdan) if all 3 are ND then value entered is .5 (1/2 lowest MDL)
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01												
Tomales Bay/Mid Bay	Brown Smoothhound	30-May-01												
Tomales Bay/Mid Bay	Jacksmelt	11-Aug-98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Jacksmelt	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Leopard Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Leopard Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Leopard Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Leopard Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Leopard Shark	6-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Bat Ray	29-May-01												
Tomales Bay/Mid Bay	Bat Ray	29-May-01												
Tomales Bay/Mid Bay	Bat Ray	30-May-01												
Tomales Bay/Mid Bay	Bat Ray	30-May-01												
Tomales Bay/Mid Bay	Bat Ray	30-May-01												
Tomales Bay/Mid Bay	Bat Ray	30-May-01												
Tomales Bay/Mid Bay	Bat Ray	30-May-01												
Tomales Bay/Mid Bay	Bat Ray	31-May-01												
Tomales Bay/Mid Bay	Bat Ray	31-May-01												
Tomales Bay/Mid Bay	Bat Ray	31-May-01												
Tomales Bay/Mid Bay	Bat Ray	31-May-01												
Tomales Bay/Mid Bay	Bat Ray	31-May-01												
Tomales Bay/Mid Bay	California Halibut	29-May-01												
Tomales Bay/Mid Bay	California Halibut	29-May-01												
Tomales Bay/Mid Bay	California Halibut	31-May-01												
Tomales Bay/Mid Bay	California Halibut	31-May-01												
Tomales Bay/Mid Bay	California Halibut	1-Jun-01												
Tomales Bay/Mid Bay	California Halibut	15-Jun-01												
Tomales Bay/Mid Bay	California Halibut	28-Jun-01												
Tomales Bay/Mid Bay	California Halibut	7-Jul-01												

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	N (Number per sample)	Length (1) mm	Length (2) mm	Length (3) mm	Ag_w µg/g	As_w µg/g	Inorg Arsenic	Cd_w µg/g	Cr_w µg/g	Cu_w µg/g	Hg_w µg/g
Tomales Bay/Mid Bay	California Halibut	17-Jul-01	5	654	559	800		0.8393		-0.0020			0.1978
Tomales Bay/Mid Bay	California Halibut	17-Jul-01	30	654				0.6032	0.0697	NA			0.2084
Tomales Bay/Mid Bay	California Halibut	17-Jul-01	5	559				1.2925	0.0668	NA			0.1453
Tomales Bay/Mid Bay	California Halibut	31-Jul-01	5	800				1.0238	0.0683	NA			0.2107
Tomales Bay/Mid Bay	Leopard Shark	30-May-01	3	900	905	913		8.6111		0.0142			0.8257
Tomales Bay/Mid Bay	Leopard Shark	30-May-01	1	900				14.7044	-0.0300	0.0214			1.4077
Tomales Bay/Mid Bay	Leopard Shark	30-May-01	1	915	1036	946		4.8319		0.0095			0.6893
Tomales Bay/Mid Bay	Leopard Shark	30-May-01	3	915				5.4455	-0.0300	NA			0.6504
Tomales Bay/Mid Bay	Leopard Shark	30-May-01	1	905				7.3819	-0.0300	NA			0.9475
Tomales Bay/Mid Bay	Leopard Shark	30-May-01	1	1051	1215	1085		6.7587		0.0213			1.0624
Tomales Bay/Mid Bay	Leopard Shark	30-May-01	1	1051				5.6746	-0.0300	NA			0.8369
Tomales Bay/Mid Bay	Leopard Shark	30-May-01	1	1215				6.2919	-0.0300	NA			1.4392
Tomales Bay/Mid Bay	Leopard Shark	30-May-01	1	913				7.4638	-0.0300	NA			0.7587
Tomales Bay/Mid Bay	Leopard Shark	30-May-01	1	1085				8.5008	-0.0300	NA			1.0110
Tomales Bay/Mid Bay	Leopard Shark	30-May-01	3	1036				6.9434	-0.0300	NA			0.9822
Tomales Bay/Mid Bay	Leopard Shark	30-May-01	1	946				4.4573	-0.0300	NA			0.8596
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99	1	930			NA	5.2800		NA	NA	NA	0.2240
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99	1	1030			NA	9.2400		NA	NA	NA	0.4625
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99	1	1060			NA	9.5300		NA	NA	NA	0.3260
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	1	980			NA	4.9900		NA	NA	NA	0.2790
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	1	1050			NA	10.5000		NA	NA	NA	0.4695
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	1	1060			NA	16.1000		NA	NA	NA	0.4825
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	1	1090			NA	10.3000		NA	NA	NA	0.6210
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	1	1070			NA	11.7000		NA	NA	NA	0.6055
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	1	1090			NA	10.8000		NA	NA	NA	0.4210
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01	3	1065	1024	1021		10.5547		-0.0020			0.4425
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01	1	1065				18.1434	-0.0300	NA			0.4807
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01	1	1024				8.3266	-0.0300	NA			0.3995
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01	1	1021				6.9283	-0.0300	NA			0.3693
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01	3	1035	1012	1011		9.7259		-0.0020			0.5442
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01	1	1035				4.9491	-0.0300	NA			0.3471
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01	1	1012				13.3993	-0.0300	NA			0.7071
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01	1	1011				9.7847	-0.0300	NA			0.4750
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01	3	1030	1035	990		12.5913		-0.0020			0.6086
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01	1	1030				12.5864	-0.0300	NA			0.6269
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01	1	1035				17.6219	-0.0300	NA			0.7921
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01	1	990				9.8483	-0.0300	NA			0.4101
Tomales Bay/Mid Bay	Pile Surfperch	30-May-01	1	302	328	315		0.9587		-0.0020			0.1116
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99	3	280	300	320	NA	1.0200		NA	NA	NA	0.1080
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99	3	280	300	320	NA	0.9760		NA	NA	NA	0.2085
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99	3	280	280	330	NA	0.8380		NA	NA	NA	0.1350

Station name and coordinates	Species name	Collection date	Methyl Mercury	Ni_w µg/g	Pb_w µg/g	Se_w µg/g	Zn_w µg/g	Analysis	aldrn_w ng/g	ccdan_w ng/g	tcdan_w ng/g	acden_w ng/g	gcden_w ng/g	clpyr_w ng/g	dacth_w ng/g	dddop_w ng/g	dddpp_w ng/g	ddeop_w ng/g
Tomales Bay/Mid Bay	California Halibut	17-Jul-01				0.5118												
Tomales Bay/Mid Bay	California Halibut	17-Jul-01				NA												
Tomales Bay/Mid Bay	California Halibut	17-Jul-01				NA												
Tomales Bay/Mid Bay	California Halibut	31-Jul-01				NA												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01				0.5851												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01				0.9502												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01				0.5637												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01				0.3178												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01				0.1508												
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01				NA												
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01				NA												
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01				NA												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01				0.2782												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01				0.2538												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01				NA												
Tomales Bay/Mid Bay	Pile Surfperch	30-May-01				0.2733												
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99		NA	NA	NA	NA	As,Hg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	ddepp_w ng/g	ddmupp_w ng/g	ddtop_w ng/g	ddtpp_w ng/g	diazn_w ng/g	dield_w ng/g	endo1_w ng/g	endo2_w ng/g	endos_w ng/g	endrn_w ng/g	ethion_w ng/g	hcha_w ng/g	hchb_w ng/g	hchd_w ng/g	hchg_w ng/g
Tomales Bay/Mid Bay	California Halibut	17-Jul-01															
Tomales Bay/Mid Bay	California Halibut	17-Jul-01															
Tomales Bay/Mid Bay	California Halibut	17-Jul-01															
Tomales Bay/Mid Bay	California Halibut	31-Jul-01															
Tomales Bay/Mid Bay	Leopard Shark	30-May-01															
Tomales Bay/Mid Bay	Leopard Shark	30-May-01															
Tomales Bay/Mid Bay	Leopard Shark	30-May-01															
Tomales Bay/Mid Bay	Leopard Shark	30-May-01															
Tomales Bay/Mid Bay	Leopard Shark	30-May-01															
Tomales Bay/Mid Bay	Leopard Shark	30-May-01															
Tomales Bay/Mid Bay	Leopard Shark	30-May-01															
Tomales Bay/Mid Bay	Leopard Shark	30-May-01															
Tomales Bay/Mid Bay	Leopard Shark	30-May-01															
Tomales Bay/Mid Bay	Leopard Shark	30-May-01															
Tomales Bay/Mid Bay	Leopard Shark	30-May-01															
Tomales Bay/Mid Bay	Leopard Shark	30-May-01															
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01															
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01															
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01															
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01															
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01															
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01															
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01															
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01															
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01															
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01															
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01															
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01															
Tomales Bay/Mid Bay	Pile Surfperch	30-May-01															
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	hep_w ng/g	hepox_w ng/g	hcb_w ng/g	mthox_w ng/g	mirex ng/g	CNONA_W ng/g	TNONA_W ng/g	oxadzn_w ng/g	ocdan_w ng/g	epara_w ng/g	mpara_w ng/g	tetra_w ng/g	toxap_w ng/g	pcb1248_w ng/g	pcb1254_w ng/g	pcb1260_w ng/g
Tomales Bay/Mid Bay	California Halibut	17-Jul-01																
Tomales Bay/Mid Bay	California Halibut	17-Jul-01																
Tomales Bay/Mid Bay	California Halibut	17-Jul-01																
Tomales Bay/Mid Bay	California Halibut	31-Jul-01																
Tomales Bay/Mid Bay	Leopard Shark	30-May-01																
Tomales Bay/Mid Bay	Leopard Shark	30-May-01																
Tomales Bay/Mid Bay	Leopard Shark	30-May-01																
Tomales Bay/Mid Bay	Leopard Shark	30-May-01																
Tomales Bay/Mid Bay	Leopard Shark	30-May-01																
Tomales Bay/Mid Bay	Leopard Shark	30-May-01																
Tomales Bay/Mid Bay	Leopard Shark	30-May-01																
Tomales Bay/Mid Bay	Leopard Shark	30-May-01																
Tomales Bay/Mid Bay	Leopard Shark	30-May-01																
Tomales Bay/Mid Bay	Leopard Shark	30-May-01																
Tomales Bay/Mid Bay	Leopard Shark	30-May-01																
Tomales Bay/Mid Bay	Leopard Shark	30-May-01																
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01																
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01																
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01																
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01																
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01																
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01																
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01																
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01																
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01																
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01																
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01																
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01																
Tomales Bay/Mid Bay	Pile Surfperch	30-May-01																
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	pcb1248_w ng/g	pcb1254_w ng/g	pcb1260_w ng/g	Total PCBs (Sum 1248, 1254 & 1260; if all 3 are ND, then value entered is 5=1/2 the lowest MDL)	dddop_w ng/g	dddpp_w ng/g	ddeop_w ng/g	ddepp_w ng/g	ddtop_w ng/g	ddtpp_w ng/g	Total DDTs (Sum ddeop, ddepp, dddop, dddpp, ddtop, ddtpp; if all 3 are ND, then value entered is 1=1/2 the lowest MDL)	Total chlordanes (sum ccdan, tcdan, cnona, tnona & ocdan) if all 3 are ND then value entered is .5 (1/2 lowest MDL)
Tomales Bay/Mid Bay	California Halibut	17-Jul-01												
Tomales Bay/Mid Bay	California Halibut	17-Jul-01												
Tomales Bay/Mid Bay	California Halibut	17-Jul-01												
Tomales Bay/Mid Bay	California Halibut	31-Jul-01												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01												
Tomales Bay/Mid Bay	Leopard Shark	30-May-01												
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Pacific Angel Shark	4-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Pacific Angel Shark	5-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01												
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01												
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01												
Tomales Bay/Mid Bay	Pacific Angel Shark	29-May-01												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01												
Tomales Bay/Mid Bay	Pacific Angel Shark	30-May-01												
Tomales Bay/Mid Bay	Pile Surfperch	30-May-01												
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Tomales Bay/Mid Bay	Redtail Surfperch	6-May-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	N (Number per sample)	Length (1) mm	Length (2) mm	Length (3) mm	Ag_w µg/g	As_w µg/g	Inorg Arsenic	Cd_w µg/g	Cr_w µg/g	Cu_w µg/g	Hg_w µg/g
Tomales Bay/Mid Bay	Shiner Surfperch	10-Oct-98	20	101	98	97	0.0098	0.5360		0.0361	0.2730	0.6340	0.1095
Tomales Bay/Mid Bay	Shiner Surfperch	10-Oct-98	19	110	100	95	0.0073	0.4930		0.0281	0.2260	0.5720	0.0853
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99	20	130	110	100	0.0073	0.6780		0.0263	0.2700	0.4420	0.1185
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99	20	120	130	110	0.0073	0.7160		0.0270	0.2890	0.4860	0.0869
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99	20	130	115	115	0.0078	0.6220		0.0237	0.2600	0.4530	0.0775
Tomales Bay/Mid Bay	Shiner Surfperch	29-May-01	1	129	110	127		1.0311		0.0119			0.0672
Tomales Bay/Mid Bay	Shiner Surfperch	30-May-01	1	120	155	125		1.1670		0.0174			0.0940
Marin Coast/Farallon Islands lat 37 45.18. long 122 58.48	Chinook Salmon	10-May-00	5	671	671	704	NA	0.3017		-0.0020	NA	NA	0.0610
San Francisco Coast lat 37 23.86, long 122 37.31	Chinook Salmon	23-May-00	3	649	661	686	NA	0.2441		-0.0020	NA	NA	0.0521
Devils Slide lat 37 35.15, long 122 31.38	Dungeness Crab-Claw	9-May-00	5	155	158	159	NA	12.3063		0.2973	NA	NA	0.3980
Devils Slide	Dungeness Crab-Hepato	9-May-00	5	155	158	159	NA	10.5561		9.0601	NA	NA	0.2339
Pacifica Pier lat 27 38.00, long 122 29.86	Dungeness Crab-Claw	18-Apr-00	5	158	163	163	NA	15.3487		0.4312	NA	NA	0.4285
Pacifica Pier	Dungeness Crab-Hepato	18-Apr-00	5	158	163	163	NA	9.6660		1.9976	NA	NA	0.1407
Pacifica Pier	Red Rock Crab-Claw	3-May-00	5	111	121	125	NA	12.0013		0.7243	NA	NA	0.1395
Pacifica Pier	Red Rock Crab-Hepato	3-May-00	5	111	121	125	NA	8.3385		33.5512	NA	NA	0.0868
Pacifica Pier	White Surfperch	13-Jun-00	6	150	150	150	NA	0.7084		-0.0020	NA	NA	0.0656
Pacifica Pier	Walleye Surfperch	18-Apr-00	7	151	145	142	NA	0.7167		0.0085	NA	NA	0.0871
Princeton Harbor Jetty lat 37 28.75, long 122.27.28	Pile Surfperch	10-May-00	3	254	300	340	NA	2.0784		-0.0020	NA	NA	0.1205
Princeton Harbor Jetty	Rainbow Surfperch	11-May-00	9	201	211	218	NA	0.9552		0.0024	NA	NA	0.0675
Princeton Harbor Jetty	Rainbow Surfperch	28-Aug-01	5	260	249	267		0.5230		-0.0020			0.0628
Princeton Harbor Jetty	Red Rock Crab-Claw	3-May-00	5	111	114	115	NA	9.0088		0.1339	NA	NA	0.1394
Princeton Harbor Jetty	Red Rock Crab-Hepato	3-May-00	5	111	114	115	NA	9.0823		15.9207	NA	NA	0.1254
Princeton Harbor Jetty	Shiner Surfperch	28-Aug-01	5	100				0.4462		0.0022			0.0929
Princeton Harbor Jetty	White Croaker	8-May-00	5	241	253	255	NA	1.3292		0.0022	NA	NA	0.2605
Princeton Harbor Jetty	White Surfperch	10-May-00	6	210	214	220	NA	0.7248		0.0049	NA	NA	0.0555
Princeton Harbor Jetty	White Surfperch	11-Dec-00	4	240	172	190		0.5002		-0.0020			0.0432
San Mateo Coast lat 37 29.42, long 122 30.44	Black Rockfish	9-May-00	5	225	248	252	NA	0.4790		-0.0020	NA	NA	0.0637
San Mateo Coast	Black Rockfish	12-Sep-01	6	339	376	359		0.6745		-0.0020			0.0624
San Mateo Coast	Brown Rockfish	23-May-00	4	246	286	293	NA	1.1835		0.0021	NA	NA	0.5180
San Mateo Coast	Lingcod	23-May-00	4	660	679	696	NA	0.6698		0.0041	NA	NA	0.3340
San Mateo Coast	California Halibut	26-Jul-01	9	589				0.2876		-0.0020			0.1516
San Mateo Coast	Gopher Rockfish	12-Sep-01	10	305	289			1.0599		0.0022			0.3955
San Mateo Coast	Lingcod	12-Sep-01	5	663				0.3424		-0.0020			0.1678
San Mateo Coast	Vermillion Rockfish	12-Sep-01	10	440	365			2.9131		-0.0020			0.0704
San Mateo Coast	Rosethorn Rockfish	9-May-00	5	298	312	346	NA	0.3931		-0.0020	NA	NA	0.3010
San Mateo Coast	Spotfin Surfperch	22-May-00	13	140	139	139	NA	0.3816		0.0046	NA	NA	0.0382

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	Methyl Mercury	Ni_w µg/g	Pb_w µg/g	Se_w µg/g	Zn_w µg/g	Analysis	aldrn_w ng/g	ccdan_w ng/g	tcdan_w ng/g	acden_w ng/g	gcden_w ng/g	clpyr_w ng/g	dacth_w ng/g	dddop_w ng/g	dddpp_w ng/g	ddeop_w ng/g
Tomales Bay/Mid Bay	Shiner Surfperch	10-Oct-98		0.1850	0.0370	0.3740	14.0000	EMO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Tomales Bay/Mid Bay	Shiner Surfperch	10-Oct-98		0.0894	-0.0005	0.3120	13.1000	EMO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99		0.0999	-0.0005	0.2060	8.6900	EMO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99		0.1200	0.0503	0.2250	11.1000	EMO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99		0.0846	0.0371	0.2370	11.8000	EMO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Tomales Bay/Mid Bay	Shiner Surfperch	29-May-01				0.2399												
Tomales Bay/Mid Bay	Shiner Surfperch	30-May-01				0.2563												
Marin Coast/Farallon Islands lat 37 45.18. long 122 58.48	Chinook Salmon	10-May-00		NA	NA	0.2617	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
San Francisco Coast lat 37 23.86, long 122 37.31	Chinook Salmon	23-May-00		NA	NA	0.2360	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Devils Slide lat 37 35.15, long 122 31.38	Dungeness Crab-Claw	9-May-00		NA	NA	0.7994	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Devils Slide	Dungeness Crab-Hepato	9-May-00		NA	NA	1.6730	NA	M	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pacifica Pier lat 27 38.00, long 122 29.86	Dungeness Crab-Claw	18-Apr-00		NA	NA	0.7159	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Pacifica Pier	Dungeness Crab-Hepato	18-Apr-00		NA	NA	1.0375	NA	M	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pacifica Pier	Red Rock Crab-Claw	3-May-00		NA	NA	1.1040	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Pacifica Pier	Red Rock Crab-Hepato	3-May-00		NA	NA	1.9810	NA	M	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pacifica Pier	White Surfperch	13-Jun-00		NA	NA	0.2699	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Pacifica Pier	Walleye Surfperch	18-Apr-00		NA	NA	0.3818	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Princeton Harbor Jetty lat 37 28.75, long 122.27.28	Pile Surfperch	10-May-00		NA	NA	0.3285	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Princeton Harbor Jetty	Rainbow Surfperch	11-May-00		NA	NA	0.2287	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Princeton Harbor Jetty	Rainbow Surfperch	28-Aug-01				0.1994												
Princeton Harbor Jetty	Red Rock Crab-Claw	3-May-00		NA	NA	0.7730	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Princeton Harbor Jetty	Red Rock Crab-Hepato	3-May-00		NA	NA	1.6989	NA	M	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Princeton Harbor Jetty	Shiner Surfperch	28-Aug-01				0.2220												
Princeton Harbor Jetty	White Croaker	8-May-00		NA	NA	0.2811	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Princeton Harbor Jetty	White Surfperch	10-May-00		NA	NA	0.2629	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
Princeton Harbor Jetty	White Surfperch	11-Dec-00				0.1624												
San Mateo Coast lat 37 29.42, long 122 30.44	Black Rockfish	9-May-00		NA	NA	0.3275	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
San Mateo Coast	Black Rockfish	12-Sep-01				0.4420												
San Mateo Coast	Brown Rockfish	23-May-00		NA	NA	0.3137	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
San Mateo Coast	Lingcod	23-May-00		NA	NA	0.3009	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
San Mateo Coast	California Halibut	26-Jul-01				0.4550												
San Mateo Coast	Gopher Rockfish	12-Sep-01				0.2757												
San Mateo Coast	Lingcod	12-Sep-01				0.2414												
San Mateo Coast	Vermillion Rockfish	12-Sep-01				0.2694												
San Mateo Coast	Rosethorn Rockfish	9-May-00		NA	NA	0.2552	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00
San Mateo Coast	Spotfin Surfperch	22-May-00		NA	NA	0.3449	NA	MO	-1.00	-2.00	-2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-2.00	-2.00

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	ddepp_w ng/g	ddmupp_w ng/g	ddtop_w ng/g	ddtpp_w ng/g	diazn_w ng/g	dield_w ng/g	endo1_w ng/g	endo2_w ng/g	endos_w ng/g	endrn_w ng/g	ethion_w ng/g	hcha_w ng/g	hchb_w ng/g	hchd_w ng/g	hchg_w ng/g
Tomales Bay/Mid Bay	Shiner Surfperch	10-Oct-98	3.00	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	-5.00	-20.00	-2.00	-10.00	-1.00	-2.00	NA	-1.00
Tomales Bay/Mid Bay	Shiner Surfperch	10-Oct-98	3.79	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	-5.00	-20.00	-2.00	-10.00	-1.00	-2.00	NA	-1.00
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99	10.30	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	-5.00	-20.00	-2.00	-10.00	-1.00	-2.00	NA	-1.00
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99	10.30	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	-5.00	-20.00	-2.00	-10.00	-1.00	-2.00	NA	-1.00
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99	27.90	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	-5.00	-20.00	-2.00	-10.00	-1.00	-2.00	NA	-1.00
Tomales Bay/Mid Bay	Shiner Surfperch	29-May-01															
Tomales Bay/Mid Bay	Shiner Surfperch	30-May-01															
Marin Coast/Farallon Islands lat 37 45.18. long 122 58.48	Chinook Salmon	10-May-00	15.70	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
San Francisco Coast lat 37 23.86, long 122 37.31	Chinook Salmon	23-May-00	10.20	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
Devils Slide lat 37 35.15, long 122 31.38	Dungeness Crab-Claw	9-May-00	3.23	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
Devils Slide	Dungeness Crab-Hepato	9-May-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pacifica Pier lat 27 38.00, long 122 29.86	Dungeness Crab-Claw	18-Apr-00	8.38	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
Pacifica Pier	Dungeness Crab-Hepato	18-Apr-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pacifica Pier	Red Rock Crab-Claw	3-May-00	3.28	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
Pacifica Pier	Red Rock Crab-Hepato	3-May-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pacifica Pier	White Surfperch	13-Jun-00	4.53	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
Pacifica Pier	Walleye Surfperch	18-Apr-00	7.12	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
Princeton Harbor Jetty lat 37 28.75, long 122.27.28	Pile Surfperch	10-May-00	2.18	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
Princeton Harbor Jetty	Rainbow Surfperch	11-May-00	8.86	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
Princeton Harbor Jetty	Rainbow Surfperch	28-Aug-01															
Princeton Harbor Jetty	Red Rock Crab-Claw	3-May-00	2.18	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
Princeton Harbor Jetty	Red Rock Crab-Hepato	3-May-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Princeton Harbor Jetty	Shiner Surfperch	28-Aug-01															
Princeton Harbor Jetty	White Croaker	8-May-00	3.04	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
Princeton Harbor Jetty	White Surfperch	10-May-00	6.73	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
Princeton Harbor Jetty	White Surfperch	11-Dec-00															
San Mateo Coast lat 37 29.42, long 122 30.44	Black Rockfish	9-May-00	2.36	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
San Mateo Coast	Black Rockfish	12-Sep-01															
San Mateo Coast	Brown Rockfish	23-May-00	3.18	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
San Mateo Coast	Lingcod	23-May-00	8.65	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
San Mateo Coast	California Halibut	26-Jul-01															
San Mateo Coast	Gopher Rockfish	12-Sep-01															
San Mateo Coast	Lingcod	12-Sep-01															
San Mateo Coast	Vermillion Rockfish	12-Sep-01															
San Mateo Coast	Rosethorn Rockfish	9-May-00	4.53	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00
San Mateo Coast	Spotfin Surfperch	22-May-00	4.92	-3.00	-3.00	-5.00	-20.00	-2.00	-2.00	NA	NA	-2.00	-6.00	-1.00	-2.00	NA	-1.00

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	hep_w ng/g	hepox_w ng/g	hcb_w ng/g	mthox_w ng/g	mirex ng/g	CNONA_W ng/g	TNONA_W ng/g	oxadzn_w ng/g	ocdan_w ng/g	epara_w ng/g	mpara_w ng/g	tetra_w ng/g	toxap_w ng/g	pcb1248_w ng/g	pcb1254_w ng/g	pcb1260_w ng/g
Tomales Bay/Mid Bay	Shiner Surfperch	10-Oct-98	-2.00	-1.00	-0.30	-10.00	-3.00	-2.00	-1.00	-6.00	-1.00	-8.00	-6.00	-4.00	-50.00	-50.00	-10.00	-10.00
Tomales Bay/Mid Bay	Shiner Surfperch	10-Oct-98	-2.00	-1.00	-0.30	-10.00	-3.00	-2.00	-1.00	-6.00	-1.00	-8.00	-6.00	-4.00	-50.00	-50.00	-10.00	-10.00
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99	-2.00	-1.00	0.41	-10.00	-3.00	-2.00	-1.00	-6.00	-1.00	-8.00	-6.00	-4.00	-50.00	-50.00	-10.00	-10.00
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99	-2.00	-1.00	0.43	-10.00	-3.00	-2.00	-1.00	-6.00	-1.00	-8.00	-6.00	-4.00	-50.00	-50.00	-10.00	-10.00
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99	-2.00	-1.00	0.42	-10.00	-3.00	-2.00	-1.00	-6.00	-1.00	-8.00	-6.00	-4.00	-50.00	-50.00	-10.00	-10.00
Tomales Bay/Mid Bay	Shiner Surfperch	29-May-01																
Tomales Bay/Mid Bay	Shiner Surfperch	30-May-01																
Marin Coast/Farallon Islands lat 37 45.18. long 122 58.48	Chinook Salmon	10-May-00	-2.00	-1.00	0.60	-5.00	-3.00	-2.00	-1.00	4.84	-1.00	5.07	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00
San Francisco Coast lat 37 23.86, long 122 37.31	Chinook Salmon	23-May-00	-2.00	-1.00	0.53	-5.00	-3.00	-2.00	-1.00	6.33	-1.00	7.60	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00
Devils Slide lat 37 35.15, long 122 31.38	Dungeness Crab-Claw	9-May-00	-2.00	-1.00	-0.30	-5.00	-3.00	-2.00	-1.00	-3.00	-1.00	-2.00	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00
Devils Slide	Dungeness Crab-Hepato	9-May-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pacifica Pier lat 27 38.00, long 122 29.86	Dungeness Crab-Claw	18-Apr-00	-2.00	-1.00	-0.30	-5.00	-3.00	-2.00	-1.00	-3.00	-1.00	-2.00	-4.00	-2.00	-20.00	-50.00	10.85	-10.00
Pacifica Pier	Dungeness Crab-Hepato	18-Apr-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pacifica Pier	Red Rock Crab-Claw	3-May-00	-2.00	-1.00	-0.30	-5.00	-3.00	-2.00	-1.00	-3.00	-1.00	-2.00	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00
Pacifica Pier	Red Rock Crab-Hepato	3-May-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pacifica Pier	White Surfperch	13-Jun-00	-2.00	-1.00	-0.30	-5.00	-3.00	-2.00	-1.00	-3.00	-1.00	-2.00	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00
Pacifica Pier	Walleye Surfperch	18-Apr-00	-2.00	-1.00	-0.30	-5.00	-3.00	-2.00	-1.00	-3.00	-1.00	-2.00	-4.00	-2.00	-20.00	-50.00	24.96	-10.00
Princeton Harbor Jetty lat 37 28.75, long 122.27.28	Pile Surfperch	10-May-00	-2.00	-1.00	-0.30	-5.00	-3.00	-2.00	-1.00	-3.00	-1.00	-2.00	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00
Princeton Harbor Jetty	Rainbow Surfperch	11-May-00	-2.00	-1.00	0.34	-5.00	-3.00	-2.00	-1.00	6.00	-1.00	2.66	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00
Princeton Harbor Jetty	Rainbow Surfperch	28-Aug-01																
Princeton Harbor Jetty	Red Rock Crab-Claw	3-May-00	-2.00	-1.00	-0.30	-5.00	-3.00	-2.00	-1.00	-3.00	-1.00	-2.00	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00
Princeton Harbor Jetty	Red Rock Crab-Hepato	3-May-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Princeton Harbor Jetty	Shiner Surfperch	28-Aug-01																
Princeton Harbor Jetty	White Croaker	8-May-00	-2.00	-1.00	-0.30	-5.00	-3.00	-2.00	-1.00	-3.00	-1.00	-2.00	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00
Princeton Harbor Jetty	White Surfperch	10-May-00	-2.00	-1.00	0.32	-5.00	-3.00	-2.00	-1.00	-3.00	-1.00	-2.00	-4.00	-2.00	-20.00	-50.00	11.11	-10.00
Princeton Harbor Jetty	White Surfperch	11-Dec-00																
San Mateo Coast lat 37 29.42, long 122 30.44	Black Rockfish	9-May-00	-2.00	-1.00	-0.30	-5.00	-3.00	-2.00	-1.00	-3.00	-1.00	-2.00	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00
San Mateo Coast	Black Rockfish	12-Sep-01																
San Mateo Coast	Brown Rockfish	23-May-00	-2.00	-1.00	-0.30	-5.00	-3.00	-2.00	-1.00	-3.00	-1.00	-2.00	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00
San Mateo Coast	Lingcod	23-May-00	-2.00	-1.00	-0.30	-5.00	-3.00	-2.00	-1.00	-3.00	-1.00	-2.00	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00
San Mateo Coast	California Halibut	26-Jul-01																
San Mateo Coast	Gopher Rockfish	12-Sep-01																
San Mateo Coast	Lingcod	12-Sep-01																
San Mateo Coast	Vermillion Rockfish	12-Sep-01																
San Mateo Coast	Rosethorn Rockfish	9-May-00	-2.00	-1.00	-0.30	-5.00	-3.00	-2.00	-1.00	-3.00	-1.00	-2.00	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00
San Mateo Coast	Spotfin Surfperch	22-May-00	-2.00	-1.00	-0.30	-5.00	-3.00	-2.00	-1.00	4.23	-1.00	4.02	-4.00	-2.00	-20.00	-50.00	-10.00	-10.00

Appendix V: Coastal Results

Station name and coordinates	Species name	Collection date	pcb1248_w ng/g	pcb1254_w ng/g	pcb1260_w ng/g	Total PCBs (Sum 1248, 1254 & 1260; if all 3 are ND, then value entered is 5=1/2 the lowest MDL)	dddop_w ng/g	dddpp_w ng/g	ddeop_w ng/g	ddepp_w ng/g	ddtop_w ng/g	ddtpp_w ng/g	Total DDTs (Sum ddeop, ddepp, dddop, dddpp, ddtop, ddtpp; if all 3 are ND, then value entered is 1=1/2 the lowest MDL)	Total chlordanes (sum ccdan, tcdan, cnona, tnona & ocdan) if all 3 are ND then value entered is .5 (1/2 lowest MDL)
Tomales Bay/Mid Bay	Shiner Surfperch	10-Oct-98	0.00	0.00	0.00	5.00	0.00	0.00	0.00	3.00	0.00	0.00	3.00	0.50
Tomales Bay/Mid Bay	Shiner Surfperch	10-Oct-98	0.00	0.00	0.00	5.00	0.00	0.00	0.00	3.79	0.00	0.00	3.79	0.50
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99	0.00	0.00	0.00	5.00	0.00	0.00	0.00	10.30	0.00	0.00	10.30	0.50
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99	0.00	0.00	0.00	5.00	0.00	0.00	0.00	10.30	0.00	0.00	10.30	0.50
Tomales Bay/Mid Bay	Shiner Surfperch	4-May-99	0.00	0.00	0.00	5.00	0.00	0.00	0.00	27.90	0.00	0.00	27.90	0.50
Tomales Bay/Mid Bay	Shiner Surfperch	29-May-01												
Tomales Bay/Mid Bay	Shiner Surfperch	30-May-01												
Marin Coast/Farallon Islands lat 37 45.18. long 122 58.48	Chinook Salmon	10-May-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	15.70	0.00	0.00	15.70	0.50
San Francisco Coast lat 37 23.86, long 122 37.31	Chinook Salmon	23-May-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	10.20	0.00	0.00	10.20	0.50
Devils Slide lat 37 35.15, long 122 31.38	Dungeness Crab-Claw	9-May-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	3.23	0.00	0.00	3.23	0.50
Devils Slide	Dungeness Crab-Hepato	9-May-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Pacifica Pier lat 27 38.00, long 122 29.86	Dungeness Crab-Claw	18-Apr-00	0.00	10.85	0.00	10.85	0.00	0.00	0.00	8.38	0.00	0.00	8.38	0.50
Pacifica Pier	Dungeness Crab-Hepato	18-Apr-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Pacifica Pier	Red Rock Crab-Claw	3-May-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	3.28	0.00	0.00	3.28	0.50
Pacifica Pier	Red Rock Crab-Hepato	3-May-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Pacifica Pier	White Surfperch	13-Jun-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	4.53	0.00	0.00	4.53	0.50
Pacifica Pier	Walleye Surfperch	18-Apr-00	0.00	24.96	0.00	24.96	0.00	0.00	0.00	7.12	0.00	0.00	7.12	0.50
Princeton Harbor Jetty lat 37 28.75, long 122.27.28	Pile Surfperch	10-May-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	2.18	0.00	0.00	2.18	0.50
Princeton Harbor Jetty	Rainbow Surfperch	11-May-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	8.86	0.00	0.00	8.86	0.50
Princeton Harbor Jetty	Rainbow Surfperch	28-Aug-01												
Princeton Harbor Jetty	Red Rock Crab-Claw	3-May-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	2.18	0.00	0.00	2.18	0.50
Princeton Harbor Jetty	Red Rock Crab-Hepato	3-May-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	.
Princeton Harbor Jetty	Shiner Surfperch	28-Aug-01												
Princeton Harbor Jetty	White Croaker	8-May-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	3.04	0.00	0.00	3.04	0.50
Princeton Harbor Jetty	White Surfperch	10-May-00	0.00	11.11	0.00	11.11	0.00	0.00	0.00	6.73	0.00	0.00	6.73	0.50
Princeton Harbor Jetty	White Surfperch	11-Dec-00												
San Mateo Coast lat 37 29.42, long 122 30.44	Black Rockfish	9-May-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	2.36	0.00	0.00	2.36	0.50
San Mateo Coast	Black Rockfish	12-Sep-01												
San Mateo Coast	Brown Rockfish	23-May-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	3.18	0.00	0.00	3.18	0.50
San Mateo Coast	Lingcod	23-May-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	8.65	0.00	0.00	8.65	0.50
San Mateo Coast	California Halibut	26-Jul-01												
San Mateo Coast	Gopher Rockfish	12-Sep-01												
San Mateo Coast	Lingcod	12-Sep-01												
San Mateo Coast	Vermillion Rockfish	12-Sep-01												
San Mateo Coast	Rosethorn Rockfish	9-May-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	4.53	0.00	0.00	4.53	0.50
San Mateo Coast	Spotfin Surfperch	22-May-00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	4.92	0.00	0.00	4.92	0.50

Chemicals Analyzed

CHEMICALS ANALYZED	Chemical	Weight Unit	Weight Unit	WET	TYPE	MDL
Ag_w µg/g	silver	ppm	µg/g	wet	Metal	0.0025
As_w µg/g	arsenic	ppm	µg/g	wet	Metal	0.0200
Inorganic As_w µg/g	inorganic arsenic	ppm	µg/g	wet	Metal	0.0300
Cd_w µg/g	cadmium	ppm	µg/g	wet	Metal	0.0025
Cr_w µg/g	chromium	ppm	µg/g	wet	Metal	0.1000
Cu_w µg/g	copper	ppm	µg/g	wet	Metal	0.0150
Hg_w µg/g	mercury	ppm	µg/g	wet	Metal	0.0150
MMHg_w µg/g	methylmercury	ppm	µg/g	wet	Metal	0.0150
Ni_w µg/g	nickel	ppm	µg/g	wet	Metal	0.0150
Pb_w µg/g	lead	ppm	µg/g	wet	Metal	0.0350
Se_w µg/g	selenium	ppm	µg/g	wet	Metal	0.0600
Zn_w µg/g	zinc	ppm	µg/g	wet	Metal	0.2000
aldrn_w ng/g	aldrin	ppb	ng/g	wet	Organic	1.0000
ccdan_w ng/g	cis-chlordane	ppb	ng/g	wet	Organic	2.0000
tcdan_w ng/g	trans-chlordane	ppb	ng/g	wet	Organic	2.0000
acden_w ng/g	alpha-chlordene	ppb	ng/g	wet	Organic	1.0000
gcden_w ng/g	gamma-chlordene	ppb	ng/g	wet	Organic	1.0000
clpyr_w ng/g	chlorpyrifos	ppb	ng/g	wet	Organic	2.0000
dacth_w ng/g	dacthal	ppb	ng/g	wet	Organic	2.0000
dddop_w ng/g	o, p' - DDD	ppb	ng/g	wet	Organic	2.0000
dddpp_w ng/g	p, p' - DDD	ppb	ng/g	wet	Organic	2.0000
ddeop_w ng/g	o, p' - DDE	ppb	ng/g	wet	Organic	2.0000
ddepp_w ng/g	p, p' - DDE	ppb	ng/g	wet	Organic	2.0000
ddmupp_w ng/g	p, p' - DDMU	ppb	ng/g	wet	Organic	3.0000
ddtop_w ng/g	o, p' - DDT	ppb	ng/g	wet	Organic	3.0000
ddtpp_w ng/g	p,p' - DDT	ppb	ng/g	wet	Organic	5.0000
diazn_w ng/g	diazinon	ppb	ng/g	wet	Organic	20.0000
dield_w ng/g	dieldrin	ppb	ng/g	wet	Organic	2.0000
endo1_w ng/g	endosulfan I	ppb	ng/g	wet	Organic	2.0000
endo2_w ng/g	endosulfan II	ppb	ng/g	wet	Organic	5.0000
endos_w ng/g	endosulfan sulfate	ppb	ng/g	wet	Organic	20.0000
endrn_w ng/g	endrin	ppb	ng/g	wet	Organic	2.0000
ethion_w ng/g	ethion	ppb	ng/g	wet	Organic	6.0000
hcha_w ng/g	alpha HCH	ppb	ng/g	wet	Organic	1.0000
hchb_w ng/g	beta HCH	ppb	ng/g	wet	Organic	2.0000
hchd_w ng/g	delta HCH	ppb	ng/g	wet	Organic	2.0000
hchg_w ng/g	gamma HCH	ppb	ng/g	wet	Organic	1.0000
hep_w ng/g	heptachlor	ppb	ng/g	wet	Organic	2.0000
hepox_w ng/g	heptachlor epoxide	ppb	ng/g	wet	Organic	1.0000
hcb_w ng/g	hexachlorobenzene	ppb	ng/g	wet	Organic	0.3000
mthox_w ng/g	methoxychlor	ppb	ng/g	wet	Organic	5.0000
mirex ng/g	mirex	ppb	ng/g	wet	Organic	3.0000
CNONA_W ng/g	cis-nonachlor	ppb	ng/g	wet	Organic	2.0000
TNONA_W ng/g	trans-nonachlor	ppb	ng/g	wet	Organic	1.0000
oxadzn_w ng/g	oxadiazon	ppb	ng/g	wet	Organic	3.0000
ocdan_w ng/g	oxychlordane	ppb	ng/g	wet	Organic	1.0000
epara_w ng/g	ethyl parathion	ppb	ng/g	wet	Organic	2.0000
mpara_w ng/g	methyl parathion	ppb	ng/g	wet	Organic	4.0000
tetra_w ng/g	2,3,5,6 tetrachlorophenol	ppb	ng/g	wet	Organic	2.0000
toxap_w ng/g	toxaphene	ppb	ng/g	wet	Organic	20.0000
pcb1248_w ng/g	pcb1248	ppb	ng/g	wet	Organic	50.0000
pcb1254_w ng/g	pcb1254	ppb	ng/g	wet	Organic	10.0000
pcb1260_w ng/g	pcb1260	ppb	ng/g	wet	Organic	10.0000
total PCBs (Sum 1248, 1254 & 1260; if all 3 are ND, then value entered is 5=1/2 the lowest MDL)	total PCBs	ppb	ng/g	wet	Organic	
total DDTs (Sum ddeop, ddepp, dddop, dddpp, ddtop, ddtpp; if all 3 are ND, then value entered is 1=1/2 the lowest MDL)	total DDTs	ppb	ng/g	wet	Organic	