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Mercury Concentrations in Fishes from Select Water Bodies in Trinity County, California, 2000–2002



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Cover photo: Trinity River arm of Trinity Lake, showing tailings from historical mining of placer gold deposits (Jason May, U.S. Geological Survey).

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Abbreviations and Datum Used

Horizontal coordinate information is referenced to North American Datum of 1983, (NAD 83)

BLM, Bureau of Land Management

CRV, certified reference value

CVAAS, cold-vapor atomic absorption spectroscopy

LOD, limit of detection

NRCC, National Research Council Canada

OEHHA, Office of Environmental Health Hazard Assessment (California)

QA, quality assurance

QC, quality control

RPD, relative percentage difference

SRM, standard reference material

SWRCB, State Water Resources Control Board (California)

TERL, Trace Element Research Laboratory

USDA–FS, U.S. Department of Agriculture–Forest Service

USEPA, U.S. Environmental Protection Agency

USGS, U.S. Geological Survey

Hg, mercury

Hg⁰, elemental mercury

Hg²⁺, mercuric ion

g, gram

mm, millimeter

ppm, part per million

ww, wet weight

µg/g, microgram per gram

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Abstract

Sites of historical gold and mercury mining in the Trinity River watershed continue to release mercury to downstream water bodies. To evaluate the extent of mercury (Hg) contamination in the watershed, the U.S. Geological Survey collected samples of sediment, water, invertebrates, amphibians, and fishes from select water bodies and mine sites in Trinity County, California. This report presents total mercury data for 368 fishes collected during 2000–2002, from 4 locations within Trinity Lake, from 16 stream sites, and from 3 pond sites within the Trinity River watershed. The following species of fish were sampled (scientific name and number of samples in parentheses): brook trout (*Salvelinus fontinalis*, 13), brown bullhead (*Ameiurus nebulosus*, 5), green sunfish (*Lepomis cyanellus*, 13), largemouth bass (*Micropterus salmoides*, 33), marbled sculpin (*Cottus klamathensis*, 24), rainbow trout (*Oncorhynchus mykiss*, 237), smallmouth bass (*Micropterus dolomieu*, 41), and white catfish (*Ameiurus catus*, 2). Total mercury in 74 black bass (largemouth and smallmouth bass; *Micropterus* spp.) samples ranged from 0.046 to 1.225 micrograms per gram (equivalent to parts per million or ppm) wet weight (ww). Mercury concentrations in 26 of the 34 black bass (76 percent) of “legal catch size” (≥ 305 millimeters in length) were ≥ 0.3 ppm (ww), the U.S. Environmental Protection Agency water-quality criterion for the protection of human health. Mercury concentrations exceeded 1.0 ppm (ww), the Food and Drug Administration action level for commercial fish in 3 of the 34 black bass (9 percent) of legal catch size. In contrast, only 3 of the 237 (about 1 percent) rainbow trout of all sizes sampled from stream, pond, and lake sites had Hg concentrations ≥ 0.3 ppm (ww). These results indicate that some fish species inhabiting select water bodies of Trinity County contain undesirably high concentrations of mercury in their skinless fillets. In response to data generated by this study and other related investigations, the California Environmental Protection Agency’s Office of Environmental Health Hazard Assessment (OEHHA) issued a draft fish-consumption advisory

report that offered guidelines for human consumption of fish. The final version of the OEHHA fish-consumption advisory was approved by the State of California in July 2005 and is scheduled for publication in October 2005 (http://www.oehha.ca.gov/fish/so_cal/TrinRiverF2.html)

Introduction

Considerable mining of placer (alluvial) gold deposits, using hydraulic methods that employed mercury to process ore, took place in Trinity County, California, during the latter half of the 19th century and the first part of the 20th century (Clark, 1963; Alpers and others, 2005). In addition, mercury was mined by underground methods in the Altoona Mining district (Swinney, 1950).

During 2000–2002, the U.S. Geological Survey (USGS) conducted an investigation, in cooperation with other federal and state agencies, to assess mercury contamination associated with historical mining in the Trinity River watershed. Agencies that provided funding and in-kind services for the investigation included the U.S. Department of Agriculture–Forest Service (USDA–FS) Shasta-Trinity National Forest, the Bureau of Land Management (BLM), and the California State Water Resources Control Board (SWRCB). During 2000–2002, the USGS collected 368 fishes from 4 locations within Trinity Lake, from 16 stream sites, and from 3 pond sites within the Trinity River watershed (fig. 1; tables 1 and 2). The following species of fish were sampled and analyzed for total mercury (scientific name and number of samples in parentheses): brook trout (*Salvelinus fontinalis*, 13), brown bullhead (*Ameiurus nebulosus*, 5), green sunfish (*Lepomis cyanellus*, 13), largemouth bass (*Micropterus salmoides*, 33), marbled sculpin (*Cottus klamathensis*, 24), rainbow trout (*Oncorhynchus mykiss*, 237), smallmouth bass (*Micropterus dolomieu*, 41), and white catfish (*Ameiurus catus*, 2).

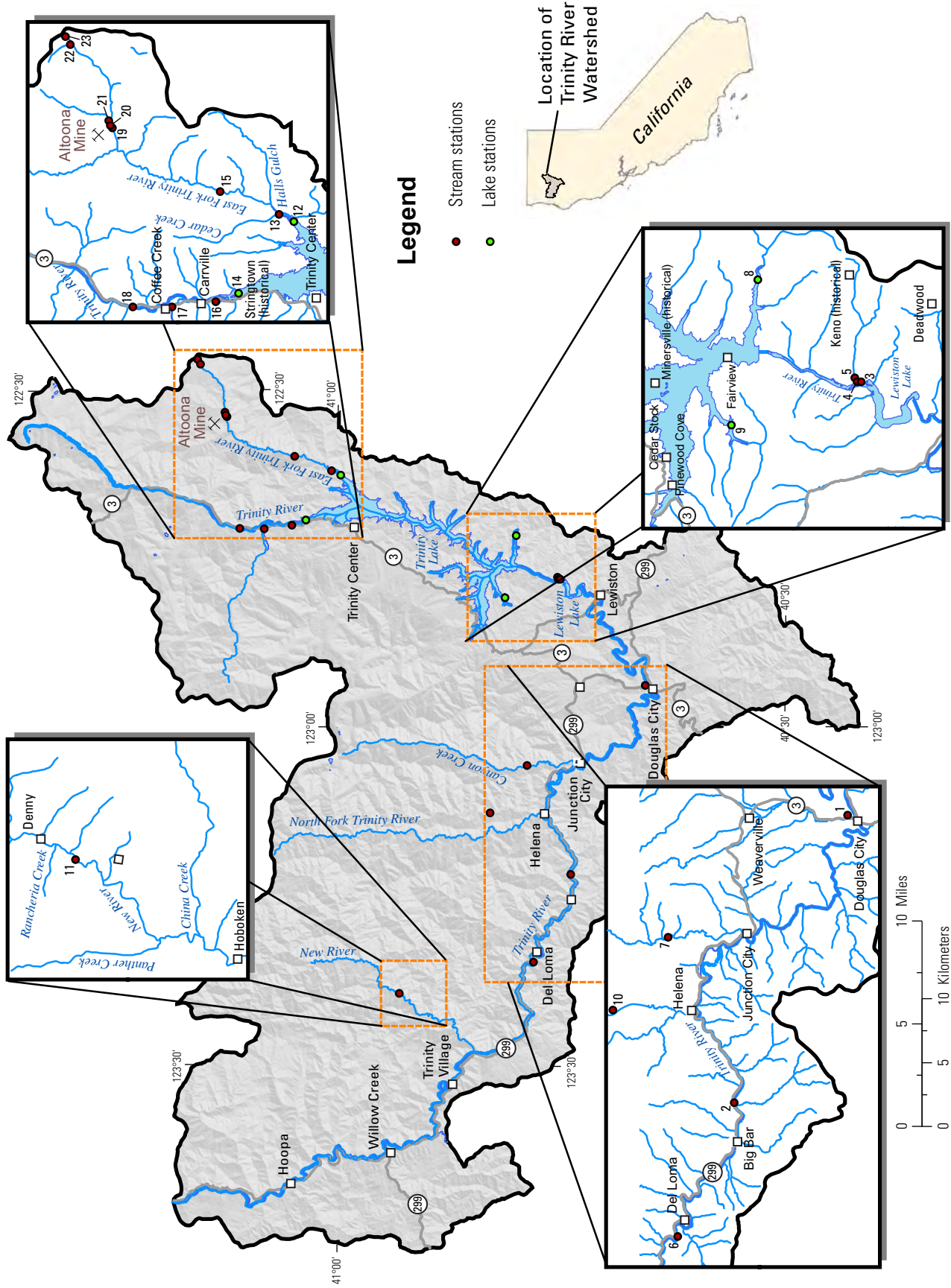


Figure 1. Fish sampling locations within the Trinity River watershed, Trinity County, California.

Table 1. Fish sampling sites and data-collection years, Trinity County, California, 2000–2002.

[Hwy, highway; Mt, Mount. USGS, U.S. Geological Survey. Horizontal coordinate information is referenced to the North American Datum of 1983 (NAD83)]

Site number on fig. 1	Station Name	Station Number	Latitude	Longitude	2000	2001	2002
1	Union Hill Gulch near Douglas City	403927122561401	40°39'27"	122°56'18"	x		
2	Trinity River at Big Flat Day Use Area near Big Bar	404427123125701	40°44'27"	123°13'01"			x
3	Eastman Dredge Pond No.2 near Lewiston	404509122465001	40°45'09"	122°46'54"	x		
4	Eastman Dredge Pond No.1 near Lewiston	404516122465001	40°45'16"	122°46'54"	x		
5	Eastman Gulch near Lewiston	404520122464101	40°45'20"	122°46'45"	x		
6	Trinity River at Hayden Flat near Big Bar	404656123204501	40°46'56"	123°20'49"			x
7	Canyon Creek below Conrad Gulch near Junction City	404723123032001	40°47'23"	123°03'24"			x
8	Papoose Arm of Trinity Lake near Trinity Dam	404806122425801	40°48'06"	122°43'02"			x
9	Buckeye Arm of Trinity Lake near Trinity Dam	404852122482701	40°48'52"	122°48'31"		x	
10	East Fork of North Fork Trinity River 0.53 mile above Barney Gulch	404940123072901	40°49'40"	123°07'33"		x	
11	New River at Denny Campground near Denny	405557123233401	40°55'56"	123°23'38"			x
12	East Fork Trinity Arm of Trinity Lake near Trinity Center	405953122373301	40°59'53"	122°37'37"	x	x	
13	East Fork Trinity River below County Road 106 near Trinity Center	410031122370901	41°00'31"	122°37'13"		x	x
14	Trinity Lake near Trinity Center	410214122413201	41°02'14"	122°41'36"	x	x	
15	East Fork Trinity River 1.2 mile below Devils Creek near Trinity Center	410259122355201	41°02'59"	122°35'56"		x	x
16	Carrville Pond near Carrville	410311122420001	41°03'11"	122°42'04"	x		
17	Coffee Creek at Hwy 3 near Carrville	410502122421701	41°05'02"	122°42'21"	x		
18	Trinity River above Coffee Creek near Trinity Center	11523200	41°06'41"	122°42'20"	x		
19	East Fork Trinity River below Altoona Mine Drain near Trinity Center	410731122321801	41°07'31"	122°32'22"	x	x	x
20	East Fork Trinity River Upstream Altoona Mine Drain near Castella	410736122320901	41°07'36"	122°32'13"	x	x	x
21	Crow Creek above Confluence of East Fork Trinity River near Trinity	410740122315401	41°07'40"	122°31'58"		x	x
22	Tamarack Creek at East Fork Trinity River near Mt. Shasta	410916122273801	41°09'16"	122°27'42"		x	x
23	East Fork Trinity River at Horse Heaven Meadow near Mt. Shasta	410928122271201	41°09'28"	122°27'16"		x	x

Table 2. Data for fishes collected in Trinity County, California, 2000–2002.

[Fillet samples dissected from left fillet of fish; whole body, whole body fish analyzed with gastrointestinal tract cleaned out. Hwy, highway; Mt, Mount. Hg, mercury; HgT, total mercury. Sex: F, female; M, male; U, unknown. mm, millimeter; g, gram; %, percent; µg/g, microgram per gram (equivalent to part per million)]

Collection date	Common name	Scientific name	Total length (mm)	Total weight (g)	Moisture (%)	HgT-dry (µg/g)	HgT-wet (µg/g)	Sample type	Sample identification	Sex
Site 1 (fig. 1), Union Hill Gulch near Douglas City:										
10/25/2000	Green sunfish	<i>Lepomis cyanellus</i>	103	23.0	77.2	1.080	0.246	Whole body	TR-2000-W-036	M
Site 2 (fig. 1), Trinity River at Big Flat Day Use Area near Big Bar:										
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	74	3.5	76.6	0.142	0.033	Fillet	TR-2002-F-020	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	75	3.7	77.8	0.128	0.028	Fillet	TR-2002-F-019	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	85	5.9	80.5	0.102	0.020	Fillet	TR-2002-F-018	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	87	6.5	78	0.102	0.022	Fillet	TR-2002-F-017	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	92	7.6	79.6	0.161	0.033	Fillet	TR-2002-F-016	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	93	7.6	78	0.141	0.031	Fillet	TR-2002-F-015	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	100	9.0	79.9	0.164	0.033	Fillet	TR-2002-F-014	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	124	16.8	78.6	0.214	0.046	Fillet	TR-2002-F-013	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	146	25.8	78.4	0.182	0.039	Fillet	TR-2002-F-012	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	147	28.2	79.2	0.203	0.042	Fillet	TR-2002-F-011	F

Table 2. Data for fishes collected in Trinity County, California, 2000–2002—Continued.

[Fillet samples dissected from left fillet of fish; whole body, whole body fish analyzed with gastrointestinal tract cleaned out. Hwy, highway; Mt, Mount. Hg, mercury; HgT, total mercury. Sex: F, female; M, male; U, unknown. mm, millimeter; g, gram; %, percent; µg/g, microgram per gram (equivalent to part per million)]

Collection date	Common name	Scientific name	Total length (mm)	Total weight (g)	Moisture (%)	HgT-dry (µg/g)	HgT-wet (µg/g)	Sample type	Sample identification	Sex
Site 3 (fig. 1), Eastman Dredge Pond No. 2 near Lewiston:										
10/23/2000	Green sunfish	<i>Lepomis cyanellus</i>	122	25.4	77.7	0.842	0.188	Whole body	TR-2000-W-032	F
10/23/2000	Green sunfish	<i>Lepomis cyanellus</i>	125	27.2	78.2	0.652	0.142	Whole body	TR-2000-W-031	F
10/23/2000	Green sunfish	<i>Lepomis cyanellus</i>	129	27.6	79.2	0.550	0.114	Whole body	TR-2000-W-034	U
10/23/2000	Green sunfish	<i>Lepomis cyanellus</i>	130	27.0	78.1	0.755	0.165	Whole body	TR-2000-W-033	F
10/23/2000	Green sunfish	<i>Lepomis cyanellus</i>	162	57.1	77.8	0.486	0.108	Whole body	TR-2000-W-035	M
Site 3 (fig. 1), Eastman Dredge Pond No. 1 near Lewiston:										
9/26/2000	Green sunfish	<i>Lepomis cyanellus</i>	91	13.2	75	0.409	0.102	Whole body	TR-2000-W-039	M
9/26/2000	Green sunfish	<i>Lepomis cyanellus</i>	92	15.0	76.9	0.432	0.100	Whole body	TR-2000-W-040	M
9/26/2000	Green sunfish	<i>Lepomis cyanellus</i>	109	21.8	76.7	0.843	0.196	Whole body	TR-2000-W-038	F
10/23/2000	Green sunfish	<i>Lepomis cyanellus</i>	84	8.4	74.8	0.806	0.203	Whole body	TR-2000-W-041	F
10/23/2000	Green sunfish	<i>Lepomis cyanellus</i>	125	29.7	77.9	0.730	0.161	Whole body	TR-2000-W-037	M
Site 5 (fig. 1), Eastman Gulch near Lewiston:										
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	136	26.1	74.2	0.430	0.111	Whole body	TR-2000-W-002	M
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	140	25.7	76.3	0.420	0.100	Whole body	TR-2000-W-001	M
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	142	30.5	74.6	0.448	0.114	Whole body	TR-2000-W-003	M
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	144	30.0	75.1	0.353	0.088	Whole body	TR-2000-W-004	M
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	150	35.5	72	0.345	0.097	Whole body	TR-2000-W-005	M
Site 6 (fig. 1), Trinity River at Hayden Flat near Big Bar:										
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	91	8.1	75.5	0.132	0.032	Fillet	TR-2002-F-010	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	93	8.2	76.8	0.151	0.035	Fillet	TR-2002-F-009	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	100	10.4	78.1	0.187	0.041	Fillet	TR-2002-F-008	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	102	10.5	81.5	0.350	0.065	Fillet	TR-2002-F-007	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	115	15.9	79.5	0.278	0.057	Fillet	TR-2002-F-006	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	116	17.9	80	0.209	0.042	Fillet	TR-2002-F-004	M
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	116	14.8	78.9	0.236	0.050	Fillet	TR-2002-F-005	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	137	24.7	79.1	0.250	0.052	Fillet	TR-2002-F-003	M
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	138	25.7	76.3	0.252	0.060	Fillet	TR-2002-F-002	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	166	40.9	78.7	0.306	0.065	Fillet	TR-2002-F-001	F
Site 7 (fig. 1), Canyon Creek below Conrad Gulch near Junction City:										
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	113	12.5	79.5	0.176	0.036	Fillet	TR-2002-F-050	U
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	126	18.2	80.2	0.243	0.048	Fillet	TR-2002-F-049	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	131	20.7	79.3	0.183	0.038	Fillet	TR-2002-F-048	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	137	23.1	80	0.173	0.035	Fillet	TR-2002-F-047	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	138	22.9	80.4	0.181	0.035	Fillet	TR-2002-F-046	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	144	25.6	79.1	0.221	0.046	Fillet	TR-2002-F-045	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	150	30.6	79.4	0.175	0.036	Fillet	TR-2002-F-044	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	158	32.9	79.8	0.189	0.038	Fillet	TR-2002-F-043	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	163	38.4	79.4	0.208	0.043	Fillet	TR-2002-F-042	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	235	122.2	78.6	0.296	0.063	Fillet	TR-2002-F-041	F
Site 8 (fig. 1), Papoose Arm of Trinity Lake near Trinity Dam:										
5/16/2001	Largemouth bass	<i>Micropterus salmoides</i>	484	2427.0	75.2	2.760	0.684	Fillet	TR-2001-F-314	F
5/16/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	332	302.0	76.6	0.278	0.065	Fillet	TR-2001-F-300	F
5/16/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	360	416.0	75.8	0.152	0.037	Fillet	TR-2001-F-301	F
5/16/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	379	496.0	77.4	0.274	0.062	Fillet	TR-2001-F-302	F
5/16/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	240	169.0	78.3	0.759	0.165	Fillet	TR-2001-F-303	M
5/16/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	279	297.0	78.4	1.340	0.289	Fillet	TR-2001-F-305	F
5/16/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	298	327.0	76.7	1.270	0.296	Fillet	TR-2001-F-306	M
5/16/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	300	379.0	78.6	1.200	0.257	Fillet	TR-2001-F-304	F
5/16/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	310	470.0	77.4	1.160	0.262	Fillet	TR-2001-F-307	F

Table 2. Data for fishes collected in Trinity County, California, 2000–2002—Continued.

[Fillet samples dissected from left fillet of fish; whole body, whole body fish analyzed with gastrointestinal tract cleaned out. Hwy, highway; Mt, Mount. Hg, mercury; HgT, total mercury. Sex: F, female; M, male; U, unknown. mm, millimeter; g, gram; %, percent; µg/g, microgram per gram (equivalent to part per million)]

Collection date	Common name	Scientific name	Total length (mm)	Total weight (g)	Moisture (%)	HgT-dry (µg/g)	HgT-wet (µg/g)	Sample type	Sample identification	Sex
Site 9 (fig. 1), Buckeye Arm of Trinity Lake near Trinity Dam:										
5/16/2001	Largemouth bass	<i>Micropterus salmoides</i>	219	138.0	79	0.654	0.137	Fillet	TR-2001-F-297	M
5/16/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	268	244.0	78.7	1.180	0.251	Fillet	TR-2001-F-290	M
5/16/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	275	292.0	78	1.090	0.240	Fillet	TR-2001-F-294	M
5/16/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	275	298.0	78.2	0.900	0.196	Fillet	TR-2001-F-291	M
5/16/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	289	310.0	78.1	1.290	0.283	Fillet	TR-2001-F-292	M
5/16/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	295	350.0	77.6	0.911	0.204	Fillet	TR-2001-F-293	M
5/16/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	308	360.0	78	1.220	0.268	Fillet	TR-2001-F-295	M
5/16/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	329	494.0	76.7	1.150	0.268	Fillet	TR-2001-F-296	M
Site 10 (fig. 1), East Fork of Trinity River 0.53 mile above Barney Gulch:										
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	121	16.8	79.9	0.370	0.074	Fillet	TR-2002-F-040	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	125	18.2	79.4	0.315	0.065	Fillet	TR-2002-F-039	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	126	19.0	78.9	0.672	0.142	Fillet	TR-2002-F-038	M
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	129	20.1	79.5	0.524	0.107	Fillet	TR-2002-F-037	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	133	20.8	79.2	0.371	0.077	Fillet	TR-2002-F-036	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	142	26.5	79.8	0.325	0.066	Fillet	TR-2002-F-035	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	144	28.8	79.2	0.293	0.061	Fillet	TR-2002-F-034	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	155	32.1	80	0.590	0.118	Fillet	TR-2002-F-032	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	155	32.8	79.3	0.636	0.132	Fillet	TR-2002-F-033	F
8/27/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	176	52.1	79.3	0.480	0.099	Fillet	TR-2002-F-031	M
Site 11 (fig. 1), New River at Denny Campground near Denny:										
8/26/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	120	17.5	78.1	0.202	0.044	Fillet	TR-2002-F-030	F
8/26/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	125	17.9	77.4	0.232	0.052	Fillet	TR-2002-F-029	F
8/26/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	137	25.4	78.9	0.307	0.065	Fillet	TR-2002-F-028	F
8/26/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	149	28.7	78.4	0.300	0.065	Fillet	TR-2002-F-027	M
8/26/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	155	36.1	78.6	0.235	0.050	Fillet	TR-2002-F-026	F
8/26/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	156	33.4	78	0.191	0.042	Fillet	TR-2002-F-025	F
8/26/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	160	37.0	77.8	0.222	0.049	Fillet	TR-2002-F-024	F
8/26/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	167	42.8	78.9	0.207	0.044	Fillet	TR-2002-F-023	F
8/26/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	171	46.1	78.7	0.184	0.039	Fillet	TR-2002-F-022	F
8/26/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	202	74.0	78.6	0.260	0.056	Fillet	TR-2002-F-021	F
Site 12 (fig. 1), East Fork Trinity Arm of Trinity Lake near Trinity Center:										
11/9/2000	Brown bullhead	<i>Ameiurus nebulosus</i>	360	694.6	78.5	0.961	0.207	Fillet	TR-2000-F-248	F
11/9/2000	Smallmouth bass	<i>Micropterus dolomieu</i>	305	495.5	75.8	1.110	0.269	Fillet	TR-2000-F-200	M
11/9/2000	Smallmouth bass	<i>Micropterus dolomieu</i>	308	471.5	76.7	1.470	0.343	Fillet	TR-2000-F-201	M
11/9/2000	Smallmouth bass	<i>Micropterus dolomieu</i>	310	537.5	75	2.160	0.540	Fillet	TR-2000-F-202	F
11/9/2000	Smallmouth bass	<i>Micropterus dolomieu</i>	325	583.4	75.9	1.370	0.330	Fillet	TR-2000-F-203	M
11/9/2000	Smallmouth bass	<i>Micropterus dolomieu</i>	330	599.8	75.6	1.330	0.325	Fillet	TR-2000-F-204	F
11/9/2000	Smallmouth bass	<i>Micropterus dolomieu</i>	349	706.1	75.9	1.960	0.472	Fillet	TR-2000-F-205	M
11/9/2000	Smallmouth bass	<i>Micropterus dolomieu</i>	350	683.6	74.7	1.480	0.374	Fillet	TR-2000-F-206	M
11/9/2000	Smallmouth bass	<i>Micropterus dolomieu</i>	355	828.9	75.9	2.100	0.506	Fillet	TR-2000-F-207	M
11/9/2000	White catfish	<i>Ameiurus catus</i>	325	523.5	77.5	2.620	0.590	Fillet	TR-2000-F-247	F
11/9/2000	White catfish	<i>Ameiurus catus</i>	370	712.6	79.7	0.693	0.141	Fillet	TR-2000-F-249	M
5/15/2001	Brown bullhead	<i>Ameiurus nebulosus</i>	278	369.9	80	0.339	0.068	Fillet	TR-2001-F-284	F
5/15/2001	Brown bullhead	<i>Ameiurus nebulosus</i>	330	697.9	79.1	0.473	0.099	Fillet	TR-2001-F-285	F
5/15/2001	Brown bullhead	<i>Ameiurus nebulosus</i>	339	733.9	78.6	0.386	0.083	Fillet	TR-2001-F-286	F
5/15/2001	Largemouth bass	<i>Micropterus salmoides</i>	450	1936.4	74.2	3.900	1.006	Fillet	TR-2001-F-312	M
5/15/2001	Largemouth bass	<i>Micropterus salmoides</i>	489	2438.4	75.1	4.920	1.225	Fillet	TR-2001-F-313	M
5/15/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	315	338.9	76	0.141	0.034	Fillet	TR-2001-F-287	F
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	188	66.9	79.9	1.570	0.316	Fillet	TR-2001-F-271	M
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	189	70.6	79	0.788	0.165	Fillet	TR-2001-F-270	F
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	194	92.9	78.8	0.558	0.118	Fillet	TR-2001-F-273	M
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	206	94.9	79.3	3.840	0.795	Fillet	TR-2001-F-276	F
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	208	113.8	78.7	0.808	0.172	Fillet	TR-2001-F-280	M

Table 2. Data for fishes collected in Trinity County, California, 2000–2002—Continued.

[Fillet samples dissected from left fillet of fish; whole body, whole body fish analyzed with gastrointestinal tract cleaned out. Hwy, highway; Mt, Mount. Hg, mercury; HgT, total mercury. Sex: F, female; M, male; U, unknown. mm, millimeter; g, gram; %, percent; µg/g, microgram per gram (equivalent to part per million)]

Collection date	Common name	Scientific name	Total length (mm)	Total weight (g)	Moisture (%)	HgT-dry (µg/g)	HgT-wet (µg/g)	Sample type	Sample identification	Sex
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	210	107.2	78	1.230	0.271	Fillet	TR-2001-F-275	M
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	220	120.7	78.9	0.836	0.176	Fillet	TR-2001-F-272	M
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	224	121.8	77.7	0.876	0.195	Fillet	TR-2001-F-274	M
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	224	128.7	78.1	0.593	0.130	Fillet	TR-2001-F-278	M
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	224	132.8	77.8	3.190	0.708	Fillet	TR-2001-F-277	M
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	229	134.1	79.7	0.755	0.153	Fillet	TR-2001-F-279	F
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	280	267.1	77.7	1.410	0.314	Fillet	TR-2001-F-282	M
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	294	329.5	77.2	1.160	0.264	Fillet	TR-2001-F-281	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	280	334.0	78.7	1.740	0.371	Fillet	TR-2001-F-308	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	349	650.0	77.7	2.070	0.462	Fillet	TR-2001-F-322	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	352	651.0	78.7	1.220	0.260	Fillet	TR-2001-F-309	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	353	738.0	77.9	1.270	0.281	Fillet	TR-2001-F-310	F
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	365	744.0	78.7	2.080	0.443	Fillet	TR-2001-F-323	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	408	1182.0	76.8	4.330	1.005	Fillet	TR-2001-F-311	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	463	1978.0	74.8	3.940	0.993	Fillet	TR-2001-F-324	M
5/17/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	267	225.0	78.3	3.540	0.768	Fillet	TR-2001-F-283	M
Site 13 (fig. 1), East Fork Trinity River below County Road 106 near Trinity Center:										
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	67	4.3	75.5	0.273	0.067	Whole body	TR-2001-W-052	U
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	72	5.2	73.8	0.289	0.076	Whole body	TR-2001-W-051	U
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	74	6.7	74	0.273	0.071	Whole body	TR-2001-W-049	U
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	75	6.3	72.3	0.312	0.086	Whole body	TR-2001-W-050	U
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	79	6.9	76.2	0.277	0.066	Whole body	TR-2001-W-048	U
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	80	8.7	75.9	0.463	0.112	Whole body	TR-2001-W-045	U
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	80	8.3	75.2	0.198	0.049	Whole body	TR-2001-W-046	U
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	80	7.1	72.4	0.253	0.070	Whole body	TR-2001-W-047	U
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	86	9.3	73.7	0.215	0.057	Whole body	TR-2001-W-043	U
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	86	9.0	73.5	0.247	0.065	Whole body	TR-2001-W-044	U
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	89	10.2	77.7	0.621	0.138	Fillet	TR-2001-F-346	U
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	90	12.1	76.2	0.661	0.157	Fillet	TR-2001-F-344	U
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	92	11.4	77.8	0.476	0.106	Fillet	TR-2001-F-345	U
9/6/2001	Marbled sculpin	<i>Cottus klamathensis</i>	103	16.5	75.8	1.030	0.249	Fillet	TR-2001-F-343	U
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	85	6.9	73.6	0.372	0.098	Fillet	TR-2001-F-341	U
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	87	6.6	73.9	0.444	0.116	Fillet	TR-2001-F-342	U
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	95	10.1	72.6	0.567	0.155	Fillet	TR-2001-F-340	U
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	136	25.1	76.6	0.379	0.089	Fillet	TR-2001-F-339	U
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	180	64.8	75.5	0.429	0.105	Fillet	TR-2001-F-338	U
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	200	81.5	74.9	0.357	0.090	Fillet	TR-2001-F-337	M
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	210	94.7	78.2	0.313	0.068	Fillet	TR-2001-F-336	M
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	218	102.7	75.1	0.560	0.139	Fillet	TR-2001-F-335	M
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	227	127.8	74.8	0.618	0.156	Fillet	TR-2001-F-334	M
8/12/2002	Marbled sculpin	<i>Cottus klamathensis</i>	81	9.4	72	0.359	0.101	Whole body	TR-2002-W-010	F
8/12/2002	Marbled sculpin	<i>Cottus klamathensis</i>	83	8.6	73.7	0.233	0.061	Whole body	TR-2002-W-009	U
8/12/2002	Marbled sculpin	<i>Cottus klamathensis</i>	85	8.4	73.6	0.375	0.099	Whole body	TR-2002-W-008	U
8/12/2002	Marbled sculpin	<i>Cottus klamathensis</i>	86	12.1	74.1	0.373	0.097	Whole body	TR-2002-W-007	U
8/12/2002	Marbled sculpin	<i>Cottus klamathensis</i>	92	13.8	75.8	0.581	0.141	Whole body	TR-2002-W-006	U
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	120	19.2	76.9	0.309	0.071	Fillet	TR-2002-F-102	U
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	124	19.4	77.6	0.392	0.088	Fillet	TR-2002-F-101	U
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	133	20.4	78.4	0.657	0.142	Fillet	TR-2002-F-100	U
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	141	25.3	78	0.585	0.129	Fillet	TR-2002-F-099	U
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	148	31.1	78.2	0.903	0.197	Fillet	TR-2002-F-098	U
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	165	45.6	78.1	0.613	0.134	Fillet	TR-2002-F-097	U
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	168	56.3	78.4	0.470	0.102	Fillet	TR-2002-F-096	M
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	199	74.4	78.2	0.477	0.104	Fillet	TR-2002-F-095	M
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	294	276.7	77.3	1.180	0.268	Fillet	TR-2002-F-094	F
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	344	408.7	76.7	1.370	0.319	Fillet	TR-2002-F-093	F
8/12/2002	Smallmouth bass	<i>Micropterus dolomieu</i>	76	6.2	75.6	0.493	0.120	Fillet	TR-2002-F-092	U
8/12/2002	Smallmouth bass	<i>Micropterus dolomieu</i>	81	7.9	78.6	1.180	0.253	Fillet	TR-2002-F-091	U
8/12/2002	Smallmouth bass	<i>Micropterus dolomieu</i>	89	10.8	78.3	0.214	0.046	Fillet	TR-2002-F-090	U
8/12/2002	Smallmouth bass	<i>Micropterus dolomieu</i>	93	11.6	77.8	0.687	0.153	Fillet	TR-2002-F-089	U
8/12/2002	Smallmouth bass	<i>Micropterus dolomieu</i>	137	38.0	78.4	0.987	0.213	Fillet	TR-2002-F-088	M

Table 2. Data for fishes collected in Trinity County, California, 2000–2002—Continued.

[Fillet samples dissected from left fillet of fish; whole body, whole body fish analyzed with gastrointestinal tract cleaned out. Hwy, highway; Mt, Mount. Hg, mercury; HgT, total mercury. Sex: F, female; M, male; U, unknown. mm, millimeter; g, gram; %, percent; µg/g, microgram per gram (equivalent to part per million)]

Collection date	Common name	Scientific name	Total length (mm)	Total weight (g)	Moisture (%)	HgT-dry (µg/g)	HgT-wet (µg/g)	Sample type	Sample identification	Sex
Site 14 (fig. 1), Trinity Lake near Trinity Center:										
10/24/2000	Largemouth bass	<i>Micropterus salmoides</i>	102	16.7	75.5	0.229	0.056	Whole body	TR-2000-W-026	U
10/24/2000	Largemouth bass	<i>Micropterus salmoides</i>	103	16.7	75.5	0.220	0.054	Whole body	TR-2000-W-027	U
10/24/2000	Largemouth bass	<i>Micropterus salmoides</i>	104	18.1	76	0.210	0.050	Whole body	TR-2000-W-030	M
10/24/2000	Largemouth bass	<i>Micropterus salmoides</i>	109	19.1	74.7	0.359	0.091	Whole body	TR-2000-W-028	M
10/24/2000	Largemouth bass	<i>Micropterus salmoides</i>	110	20.6	75.6	0.196	0.048	Whole body	TR-2000-W-029	U
11/9/2000	Brown bullhead	<i>Ameiurus nebulosus</i>	220	151.8	80.6	0.133	0.026	Fillet	TR-2000-F-246	M
11/9/2000	Green sunfish	<i>Lepomis cyanellus</i>	170	91.5	81.9	0.610	0.110	Fillet	TR-2000-F-212	M
11/9/2000	Green sunfish	<i>Lepomis cyanellus</i>	180	113.7	80.7	0.830	0.160	Fillet	TR-2000-F-213	M
11/9/2000	Largemouth bass	<i>Micropterus salmoides</i>	235	185.8	79.7	0.584	0.119	Fillet	TR-2000-F-219	F
11/9/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	194	65.3	77.4	0.143	0.032	Fillet	TR-2000-F-211	U
11/9/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	238	128.8	78.6	0.311	0.067	Fillet	TR-2000-F-210	M
11/9/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	295	248.3	79.3	0.573	0.119	Fillet	TR-2000-F-215	M
11/9/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	309	302.4	77	0.457	0.105	Fillet	TR-2000-F-217	M
11/9/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	310	289.8	77	0.425	0.098	Fillet	TR-2000-F-216	M
11/9/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	345	342.5	77.1	0.448	0.103	Fillet	TR-2000-F-208	F
11/9/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	364	442.9	76.7	0.854	0.199	Fillet	TR-2000-F-209	F
11/9/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	375	484.9	75.4	0.750	0.185	Fillet	TR-2000-F-214	M
11/9/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	—	215.5	76.5	0.362	0.085	Fillet	TR-2000-F-218	M
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	172	56.2	79.9	1.070	0.215	Fillet	TR-2001-F-289	F
5/15/2001	Smallmouth bass	<i>Micropterus dolomieu</i>	181	72.5	80.2	1.200	0.238	Fillet	TR-2001-F-288	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	260	248.3	78.3	1.880	0.408	Fillet	TR-2001-F-315	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	303	487.8	77.5	0.993	0.223	Fillet	TR-2001-F-316	F
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	307	492.6	77.9	1.130	0.250	Fillet	TR-2001-F-320	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	310	507.1	76.6	1.280	0.300	Fillet	TR-2001-F-317	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	310	655.1	76.9	1.460	0.337	Fillet	TR-2001-F-318	F
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	315	593.2	76.5	1.220	0.287	Fillet	TR-2001-F-319	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	350	705.1	77.4	1.580	0.357	Fillet	TR-2001-F-321	F
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	355	864.8	76.6	1.690	0.395	Fillet	TR-2001-F-325	F
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	358	718.2	77.1	3.210	0.735	Fillet	TR-2001-F-326	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	385	976.9	75.3	2.290	0.566	Fillet	TR-2001-F-329	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	385	1040.5	77.2	1.630	0.372	Fillet	TR-2001-F-327	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	393	1302.4	76.7	2.380	0.555	Fillet	TR-2001-F-331	F
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	395	1155.1	76.3	1.510	0.358	Fillet	TR-2001-F-328	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	411	1411.3	75.2	2.430	0.603	Fillet	TR-2001-F-330	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	450	2023.2	75.1	3.600	0.896	Fillet	TR-2001-F-332	M
5/17/2001	Largemouth bass	<i>Micropterus salmoides</i>	450	2088.9	75.2	2.740	0.680	Fillet	TR-2001-F-333	M
Site 15 (fig. 1), East Fork Trinity River 1.2 mile below Devils Creek near Trinity Center:										
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	103	9.7	76.6	0.626	0.146	Fillet	TR-2001-F-413	U
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	108	11.2	76.5	0.719	0.169	Fillet	TR-2001-F-412	U
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	113	13.0	75.1	0.666	0.166	Fillet	TR-2001-F-411	U
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	119	14.9	78.5	0.617	0.133	Fillet	TR-2001-F-410	U
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	142	24.7	78.3	0.732	0.159	Fillet	TR-2001-F-408	M
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	148	28.0	75.6	0.719	0.175	Fillet	TR-2001-F-407	M
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	165	41.8	77.1	1.140	0.261	Fillet	TR-2001-F-402	U
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	168	41.4	78.7	0.833	0.177	Fillet	TR-2001-F-403	M
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	196	66.1	77.5	0.716	0.161	Fillet	TR-2001-F-400	M
9/6/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	220	117.8	77.3	1.810	0.411	Fillet	TR-2001-F-399	M
8/12/2002	Marbled sculpin	<i>Cottus klamathensis</i>	63	3.1	76.2	0.525	0.125	Whole body	TR-2002-W-004	U
8/12/2002	Marbled sculpin	<i>Cottus klamathensis</i>	63	3.1	75.9	0.967	0.233	Whole body	TR-2002-W-005	U
8/12/2002	Marbled sculpin	<i>Cottus klamathensis</i>	65	2.7	75.4	0.441	0.108	Whole body	TR-2002-W-002	U
8/12/2002	Marbled sculpin	<i>Cottus klamathensis</i>	65	3.3	76.4	0.738	0.174	Whole body	TR-2002-W-003	U
8/12/2002	Marbled sculpin	<i>Cottus klamathensis</i>	66	3.1	73.5	0.515	0.136	Whole body	TR-2002-W-001	U
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	121	15.4	79.1	0.733	0.153	Fillet	TR-2002-F-086	U
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	121	15.8	80.6	0.911	0.177	Fillet	TR-2002-F-087	U
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	129	19.1	80.7	0.622	0.120	Fillet	TR-2002-F-085	U
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	137	23.5	79.1	0.970	0.203	Fillet	TR-2002-F-084	M
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	161	35.4	79.5	0.840	0.172	Fillet	TR-2002-F-083	F
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	165	40.5	79.1	0.752	0.157	Fillet	TR-2002-F-082	F

Table 2. Data for fishes collected in Trinity County, California, 2000–2002—Continued.

[Fillet samples dissected from left fillet of fish; whole body, whole body fish analyzed with gastrointestinal tract cleaned out. Hwy, highway; Mt, Mount. Hg, mercury; HgT, total mercury. Sex: F, female; M, male; U, unknown. mm, millimeter; g, gram; %, percent; µg/g, microgram per gram (equivalent to part per million)]

Collection date	Common name	Scientific name	Total length (mm)	Total weight (g)	Moisture (%)	HgT-dry (µg/g)	HgT-wet (µg/g)	Sample type	Sample identification	Sex
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	170	40.2	79.4	0.534	0.110	Fillet	TR-2002-F-081	F
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	194	66.4	78.5	0.730	0.157	Fillet	TR-2002-F-080	F
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	202	73.2	77.7	0.775	0.173	Fillet	TR-2002-F-079	F
8/12/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	216	92.2	78.9	1.120	0.236	Fillet	TR-2002-F-078	F
Site 16 (fig. 1), Carrville Pond near Carrville:										
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	276	189.6	78.2	0.172	0.037	Fillet	TR-2000-F-229	M
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	260	209.3	75.3	0.096	0.024	Fillet	TR-2000-F-220	M
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	280	262.2	76.8	0.092	0.021	Fillet	TR-2000-F-223	M
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	282	204.6	76.4	0.109	0.026	Fillet	TR-2000-F-221	M
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	283	275.9	75.6	0.099	0.024	Fillet	TR-2000-F-222	M
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	292	248.6	74.7	0.089	0.023	Fillet	TR-2000-F-226	M
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	296	328.3	75	0.086	0.021	Fillet	TR-2000-F-227	M
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	300	272.8	75.9	0.078	0.019	Fillet	TR-2000-F-225	M
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	315	319.6	75.5	0.089	0.022	Fillet	TR-2000-F-224	M
9/26/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	325	355.4	75.6	0.126	0.031	Fillet	TR-2000-F-228	M
Site 17 (fig. 1), Coffee Creek at Hwy 3 near Carrville:										
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	135	24.0	74.8	0.126	0.032	Whole body	TR-2000-W-006	U
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	154	34.5	73.8	0.096	0.025	Whole body	TR-2000-W-007	M
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	163	45.0	74.6	0.152	0.039	Whole body	TR-2000-W-010	M
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	170	46.9	73.4	0.080	0.021	Whole body	TR-2000-W-008	M
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	177	52.4	75.3	0.081	0.020	Whole body	TR-2000-W-009	U
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	206	83.6	77	0.141	0.032	Fillet	TR-2000-F-236	M
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	218	105.3	77.4	0.819	0.185	Fillet	TR-2000-F-237	M
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	229	125.7	77.6	0.184	0.041	Fillet	TR-2000-F-238	F
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	242	145.8	75.9	0.165	0.040	Fillet	TR-2000-F-239	F
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	358	390.9	75.7	0.410	0.100	Fillet	TR-2000-F-240	F
Site 18 (fig. 1), Trinity River above Coffee Creek near Trinity Center:										
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	125	18.4	78.5	0.166	0.036	Whole body	TR-2000-W-012	U
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	139	26.6	75.7	0.124	0.030	Whole body	TR-2000-W-013	M
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	141	30.2	75.2	0.141	0.035	Whole body	TR-2000-W-011	M
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	148	33.2	75.5	0.141	0.035	Whole body	TR-2000-W-014	M
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	166	43.6	78.6	0.154	0.033	Whole body	TR-2000-W-015	U
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	179	55.0	78.1	0.323	0.071	Fillet	TR-2000-F-241	M
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	216	97.4	75.9	0.244	0.059	Fillet	TR-2000-F-242	M
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	258	181.3	75.9	0.351	0.085	Fillet	TR-2000-F-244	M
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	259	161.0	78.4	0.098	0.021	Fillet	TR-2000-F-243	M
9/12/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	269	199.7	78.4	0.164	0.035	Fillet	TR-2000-F-245	M
Site 19 (fig. 1), East Fork Trinity River below Altoona Mine Drain near Trinity Center:										
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	116	16.6	75.8	0.503	0.122	Whole body	TR-2000-W-023	M
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	119	18.2	74.3	0.586	0.151	Whole body	TR-2000-W-024	M
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	120	16.8	76.1	0.535	0.128	Whole body	TR-2000-W-025	U
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	142	28.7	76.2	0.576	0.137	Whole body	TR-2000-W-022	F
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	144	29.9	76.1	0.553	0.132	Whole body	TR-2000-W-021	F
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	160	50.0	75.6	0.866	0.211	Fillet	TR-2000-F-230	F
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	173	52.3	77.9	1.040	0.230	Fillet	TR-2000-F-232	M
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	176	52.7	78.1	0.766	0.168	Fillet	TR-2000-F-231	F
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	89	5.9	68.9	0.621	0.193	Fillet	TR-2001-F-398	U
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	100	9.0	75.6	0.550	0.134	Fillet	TR-2001-F-397	U
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	107	11.9	75.7	0.691	0.168	Fillet	TR-2001-F-394	M
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	121	15.1	77	0.734	0.169	Fillet	TR-2001-F-392	M
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	126	18.7	76.5	0.609	0.143	Fillet	TR-2001-F-390	U
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	134	20.8	78.4	0.638	0.138	Fillet	TR-2001-F-389	U
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	138	25.0	79	0.844	0.177	Fillet	TR-2001-F-388	F
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	144	30.0	78.2	0.883	0.192	Fillet	TR-2001-F-386	M
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	149	32.1	75.7	0.754	0.183	Fillet	TR-2001-F-384	M

Table 2. Data for fishes collected in Trinity County, California, 2000–2002—Continued.

[Fillet samples dissected from left fillet of fish; whole body, whole body fish analyzed with gastrointestinal tract cleaned out. Hwy, highway; Mt, Mount. Hg, mercury; HgT, total mercury. Sex: F, female; M, male; U, unknown. mm, millimeter; g, gram; %, percent; µg/g, microgram per gram (equivalent to part per million)]

Collection date	Common name	Scientific name	Total length (mm)	Total weight (g)	Moisture (%)	HgT-dry (µg/g)	HgT-wet (µg/g)	Sample type	Sample identification	Sex
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	154	31.6	77.1	0.822	0.188	Fillet	TR-2001-F-385	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	130	23.6	80.1	0.901	0.179	Fillet	TR-2002-F-112	U
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	133	21.9	79.8	0.853	0.172	Fillet	TR-2002-F-111	U
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	134	23.0	80	0.872	0.174	Fillet	TR-2002-F-109	U
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	134	22.2	79.2	1.610	0.335	Fillet	TR-2002-F-110	U
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	137	25.0	79.7	0.924	0.188	Fillet	TR-2002-F-108	M
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	144	30.0	79.1	0.675	0.141	Fillet	TR-2002-F-107	U
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	155	38.9	80.4	1.100	0.216	Fillet	TR-2002-F-105	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	155	36.3	79.4	1.100	0.227	Fillet	TR-2002-F-106	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	156	39.5	79.8	1.110	0.224	Fillet	TR-2002-F-104	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	160	41.6	80.4	0.670	0.131	Fillet	TR-2002-F-103	F
Site 20 (fig. 1), East Fork Trinity River Upstream Altoona Mine Drain near Castella:										
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	121	18.4	73.6	0.509	0.134	Whole body	TR-2000-W-017	M
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	133	22.8	75	0.462	0.116	Whole body	TR-2000-W-018	M
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	139	26.5	77.1	0.444	0.102	Whole body	TR-2000-W-016	M
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	142	27.6	76.6	0.388	0.091	Whole body	TR-2000-W-019	M
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	148	28.2	78	0.542	0.119	Whole body	TR-2000-W-020	M
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	189	71.8	76.8	1.230	0.285	Fillet	TR-2000-F-235	F
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	198	82.7	75.8	0.943	0.228	Fillet	TR-2000-F-233	M
9/11/2000	Rainbow trout	<i>Oncorhynchus mykiss</i>	200	76.1	77.4	1.120	0.253	Fillet	TR-2000-F-234	F
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	90	7.8	77	0.565	0.130	Fillet	TR-2001-F-382	U
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	94	6.7	76.5	0.351	0.082	Fillet	TR-2001-F-383	U
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	106	11.3	73.9	0.548	0.143	Fillet	TR-2001-F-380	U
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	108	10.5	77.7	0.554	0.124	Fillet	TR-2001-F-381	M
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	110	12.1	77.3	0.563	0.128	Fillet	TR-2001-F-379	U
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	134	21.2	75.9	0.790	0.190	Fillet	TR-2001-F-378	F
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	138	23.7	75.8	0.528	0.128	Fillet	TR-2001-F-377	F
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	140	27.3	75.2	0.748	0.186	Fillet	TR-2001-F-376	M
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	148	28.8	76.1	0.725	0.173	Fillet	TR-2001-F-374	M
9/5/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	165	43.6	75.2	0.716	0.178	Fillet	TR-2001-F-373	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	133	23.0	80.1	0.893	0.178	Fillet	TR-2002-F-077	U
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	134	23.0	80.6	0.660	0.128	Fillet	TR-2002-F-076	U
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	136	25.9	79.8	0.708	0.143	Fillet	TR-2002-F-075	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	138	25.7	79.3	0.774	0.160	Fillet	TR-2002-F-074	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	141	29.1	78.8	0.591	0.125	Fillet	TR-2002-F-073	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	142	26.5	79.3	1.150	0.238	Fillet	TR-2002-F-072	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	144	31.0	79.1	0.673	0.141	Fillet	TR-2002-F-071	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	152	35.7	80.4	1.110	0.218	Fillet	TR-2002-F-070	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	162	40.0	79.7	0.849	0.172	Fillet	TR-2002-F-069	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	175	58.3	79.3	0.696	0.144	Fillet	TR-2002-F-068	F
Site 21 (fig. 1), Crow Creek above Confluence of East Fork Trinity River near Trinity:										
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	108	14.2	76.4	0.369	0.087	Fillet	TR-2001-F-427	U
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	110	13.0	78.3	0.553	0.120	Fillet	TR-2001-F-428	U
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	115	16.1	73.1	0.461	0.124	Fillet	TR-2001-F-426	U
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	127	20.0	75.9	0.340	0.082	Fillet	TR-2001-F-425	M
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	129	23.7	78.2	0.700	0.153	Fillet	TR-2001-F-422	M
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	130	22.8	76.4	0.530	0.125	Fillet	TR-2001-F-423	F
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	132	24.9	77.3	0.619	0.141	Fillet	TR-2001-F-420	F
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	134	24.1	77.6	0.768	0.172	Fillet	TR-2001-F-421	M
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	145	28.9	77	0.509	0.117	Fillet	TR-2001-F-417	F
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	160	42.0	77.4	1.210	0.273	Fillet	TR-2001-F-414	M
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	130	21.9	79.2	0.577	0.120	Fillet	TR-2002-F-122	U
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	131	20.4	80	0.741	0.148	Fillet	TR-2002-F-121	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	132	22.3	79.2	0.545	0.113	Fillet	TR-2002-F-120	M
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	133	27.0	79.4	0.585	0.121	Fillet	TR-2002-F-119	M
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	143	32.9	79.6	0.572	0.117	Fillet	TR-2002-F-118	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	150	31.9	79.7	0.578	0.117	Fillet	TR-2002-F-117	F

Table 2. Data for fishes collected in Trinity County, California, 2000–2002—Continued.

[Fillet samples dissected from left fillet of fish; whole body, whole body fish analyzed with gastrointestinal tract cleaned out. Hwy, highway; Mt, Mount. Hg, mercury; HgT, total mercury. Sex: F, female; M, male; U, unknown. mm, millimeter; g, gram; %, percent; µg/g, microgram per gram (equivalent to part per million)]

Collection date	Common name	Scientific name	Total length (mm)	Total weight (g)	Moisture (%)	HgT-dry (µg/g)	HgT-wet (µg/g)	Sample type	Sample identification	Sex
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	161	47.2	78.4	0.412	0.089	Fillet	TR-2002-F-116	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	165	43.8	79.6	1.090	0.222	Fillet	TR-2002-F-115	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	176	52.0	79	0.620	0.130	Fillet	TR-2002-F-114	F
8/13/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	186	66.3	79.2	0.811	0.169	Fillet	TR-2002-F-113	F
Site 22 (fig. 1), Tamarack Creek at East Fork Trinity Rvier near Mt. Shasta:										
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	96	8.4	78.8	0.294	0.062	Fillet	TR-2001-F-362	U
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	101	9.7	74.9	0.183	0.046	Fillet	TR-2001-F-361	U
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	102	11.9	75.9	0.592	0.143	Fillet	TR-2001-F-360	U
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	120	16.1	71.5	0.167	0.048	Fillet	TR-2001-F-358	M
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	125	20.3	75.8	0.228	0.055	Fillet	TR-2001-F-356	M
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	126	20.8	75.1	0.130	0.032	Fillet	TR-2001-F-354	M
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	128	22.4	77.5	0.248	0.056	Fillet	TR-2001-F-353	U
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	144	27.5	76.4	0.515	0.122	Fillet	TR-2001-F-351	M
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	167	44.0	79.8	0.438	0.088	Fillet	TR-2001-F-348	M
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	178	50.2	81.3	0.604	0.113	Fillet	TR-2001-F-347	M
8/14/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	110	13.1	78.6	0.210	0.045	Fillet	TR-2002-F-060	M
8/14/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	121	16.9	78.8	0.204	0.043	Fillet	TR-2002-F-059	F
8/14/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	122	20.3	79.3	0.254	0.053	Fillet	TR-2002-F-058	F
8/14/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	125	18.4	79.4	0.211	0.043	Fillet	TR-2002-F-057	M
8/14/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	130	22.8	79.4	0.219	0.045	Fillet	TR-2002-F-056	M
8/14/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	133	26.0	78.1	0.151	0.033	Fillet	TR-2002-F-054	F
8/14/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	133	21.0	79.3	0.235	0.049	Fillet	TR-2002-F-055	F
8/14/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	139	23.4	81	0.317	0.060	Fillet	TR-2002-F-053	F
8/14/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	143	29.1	79	0.202	0.042	Fillet	TR-2002-F-052	M
8/14/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	149	29.6	79.9	0.370	0.074	Fillet	TR-2002-F-051	F
Site 23 (fig. 1), East Fork Trinity River at Horse Heaven Meadow near Mt. Shasta:										
9/7/2001	Brook trout	<i>Salvelinus fontinalis</i>	83	5.3	79.5	0.584	0.120	Fillet	TR-2001-F-370	U
9/7/2001	Brook trout	<i>Salvelinus fontinalis</i>	91	7.3	78.7	0.554	0.118	Fillet	TR-2001-F-369	F
9/7/2001	Brook trout	<i>Salvelinus fontinalis</i>	119	15.4	77	0.409	0.094	Fillet	TR-2001-F-368	F
9/7/2001	Brook trout	<i>Salvelinus fontinalis</i>	144	29.2	77.4	0.426	0.096	Fillet	TR-2001-F-367	M
9/7/2001	Brook trout	<i>Salvelinus fontinalis</i>	148	32.2	76.3	0.517	0.123	Fillet	TR-2001-F-366	U
9/7/2001	Brook trout	<i>Salvelinus fontinalis</i>	158	36.1	81.1	1.190	0.225	Fillet	TR-2001-F-365	F
9/7/2001	Brook trout	<i>Salvelinus fontinalis</i>	210	69.4	80.3	0.835	0.164	Fillet	TR-2001-F-364	M
9/7/2001	Brook trout	<i>Salvelinus fontinalis</i>	230	144.7	77.2	0.572	0.130	Fillet	TR-2001-F-371	M
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	115	14.6	78.3	0.649	0.141	Fillet	TR-2001-F-372	M
9/7/2001	Rainbow trout	<i>Oncorhynchus mykiss</i>	169	34.3	81.3	1.170	0.219	Fillet	TR-2001-F-363	U
8/14/2002	Brook trout	<i>Salvelinus fontinalis</i>	133	26.2	78.1	0.384	0.084	Fillet	TR-2002-F-067	F
8/14/2002	Brook trout	<i>Salvelinus fontinalis</i>	136	23.4	78.3	0.405	0.088	Fillet	TR-2002-F-066	F
8/14/2002	Brook trout	<i>Salvelinus fontinalis</i>	137	28.2	78.7	0.546	0.116	Fillet	TR-2002-F-065	F
8/14/2002	Brook trout	<i>Salvelinus fontinalis</i>	138	28.2	78.8	0.293	0.062	Fillet	TR-2002-F-064	F
8/14/2002	Brook trout	<i>Salvelinus fontinalis</i>	143	26.7	79.4	0.372	0.077	Fillet	TR-2002-F-063	F
8/14/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	138	29.8	78.4	0.632	0.137	Fillet	TR-2002-F-062	M
8/14/2002	Rainbow trout	<i>Oncorhynchus mykiss</i>	183	60.2	80	1.120	0.224	Fillet	TR-2002-F-061	M

Field Methods and Sample Preservation Techniques

Field and laboratory methods were similar to those used by May and others (2000). Most fish were collected using electrofishing equipment and dip nets. Additional collection techniques included gill netting, hook and line capture, as well as dip netting. Fish were held in clean containers with ambient water until they were weighed, to the nearest gram, and measured for standard and total length, in millimeters. After recording the length and mass, spines or scales were removed for future age determination. Each fish was then wrapped in clean, heavy-duty aluminum foil, labeled, placed in a plastic bag on wet ice and held for less than 8 hours. The fish were then taken to the laboratory where they were stored frozen until processing.

The processing of fish followed standard procedures (U.S. Environmental Protection Agency, 1995). Fish were handled with powder-free latex gloves, and dissections were performed on a new sheet of heavy-duty aluminum foil for each fish. High-quality stainless steel instruments and disposable scalpel blades were used in the processing of the fish samples. Scalpel blades were changed and instruments were cleaned thoroughly between samples. Cleaning the instruments involved washing with deionized water and laboratory detergent, acid washing, and finally rinsing with deionized water before and after dissection of each fish specimen.

Larger fish were thawed and scaled or the skin was removed (on scaleless fish such as catfish) before dissection. Boneless and skinless fillet portions were dissected from the upper medial-axial region of the fish in an approximately rectangular shape. Excised tissues were placed directly into labeled, chemically cleaned borosilicate-glass jars on a pre-tared balance. The sample mass was recorded, and a Teflon-lined lid was screwed atop each jar and sealed with Parafilm. Fish tissue samples were stored frozen in sealed sample jars until they were packed in coolers with dry ice and shipped to the analytical laboratory.

Muscle tissues were removed from both the left and right fillet of the larger fish processed during this study. Tissues dissected from the left fillet were labeled with sample numbers beginning with "F-" for individual samples. Tissues removed from the right fillet were labeled with sample numbers beginning with "R-"; these samples served as archive samples, as well as replicates for additional quality-assurance purposes.

For larger fish (longer than about 175-mm total length), concentrations of total mercury (Hg) were determined from fillet samples of axial muscle. For some smaller fish, such as marbled sculpin (*Cottus klamathensis*), rainbow trout (*Oncorhynchus mykiss*), and green sunfish (*Lepomis cyanellus*), whole-body samples (with the gastrointestinal contents removed) were submitted for total mercury analysis.

Laboratory Methods of Chemical Analysis

Analysis of mercury (Hg) in fish samples was done at the Trace Element Research Laboratory (TERL) at Texas A&M University in College Station, Texas, under the direction of Dr. Robert Taylor. Before samples were analyzed for Hg by cold-vapor atomic absorption spectroscopy (CVAAS), the Hg was converted to the divalent mercury (Hg^{2+}) form. Mercury was digested using a modified version of U.S. Environmental Protection Agency (USEPA) methods 245.5 and 245.6 (U.S. Environmental Protection Agency, 1991). Tissue samples were homogenized in the original sample containers using a Tekmar Tissumizer, and then subsampled. Tissue subsamples were digested with nitric acid, sulfuric acid, potassium permanganate, and potassium persulfate in polypropylene tubes in a water bath at 90 to 95 degrees Celsius ($^{\circ}\text{C}$). Before analysis, hydroxylamine hydrochloride was added to reduce excess permanganate, and the samples were brought to volume using distilled-deionized water.

In the CVAAS procedure for determination of Hg, divalent mercury (Hg^{2+}) in aqueous samples (digests of tissue samples) is reduced to the elemental state (Hg^0) by a strong reducing agent (stannous chloride). Gaseous Hg^0 enters the sweep gas and is introduced into an atomic absorption cell, where light produced by a Hg vapor lamp is absorbed by the free Hg atoms. Mercury concentration in the sample is determined by comparing light absorption of the sample with that of external calibration standards. The range limit of detection (LOD) for these analyses was 0.009 to 0.0613 micrograms per gram ($\mu\text{g/g}$), dry weight.

Procedures that require tissue samples to be freeze-dried to determine mercury concentrations result in removal of the original moisture in the sample. Therefore, it is necessary to determine tissue moisture content to provide an estimate of mercury concentration on a "live" or "wet weight" basis. Mercury concentration in tissue is regulated on wet weight basis (U.S. Food and Drug Administration, 1994; U.S. Environmental Protection Agency, 2001). Additionally, tissue moisture is a relative measure of the quality of the tissue sample.

Moisture content was determined by weight loss upon freeze drying and is expressed as weight percentage of the original wet sample. Depending on sample size, either the whole sample or a representative aliquot was frozen and then dried under vacuum until a constant weight was attained. Samples were prepared and dried using plastic materials to minimize potential contamination artifacts.

Quality Assurance and Quality Control

As part of normal quality-assurance (QA) and quality-control (QC) procedures, a standard number of procedural blanks, laboratory duplicate samples, blind duplicate samples, spiked samples, and standard reference materials were analyzed for each set of samples. Three sets of fish samples from Trinity County were analyzed at the TERL during the period 2000–2002.

Procedural blanks were analyzed to quantify the amount of total mercury that may have been added inadvertently during sample processing. A total of 18 procedural blanks were analyzed in the three sample sets, with results ranging from 0.00001 to 0.0047 µg/g (dry weight); results were within acceptable limits for all the samples.

Laboratory replicate samples were analyzed to provide a measure of the precision of the methods used for analysis. After the sample was homogenized, two separate subsamples were taken and analyzed. Replicate analyses were evaluated in accordance with a two-tiered acceptance criterion as follows: if the sample concentration was within the range of 2 to 10 times the limit of detection (LOD), the variation in terms of a 95-percent confidence interval had to be within 20 percent of the original value to meet the criterion, or if the sample concentration was greater than 10 times the LOD, then the replicate sample had to be within 10 percent of the original value to fall within the 95-percent confidence interval.

Relative percentage difference (RPD) is a measure of variability or precision for replicate analyses, and is computed as 100 times the absolute value of the difference between two replicate analyses divided by the mean of the replicate analyses. Values of RPD for the 15 laboratory replicates analyzed in the

three sample sets ranged from 0.24 to 9.17 percent, well within acceptable limits.

Spiked samples were analyzed to provide a measure of the accuracy of the methods used for analysis. After the sample was homogenized, two separate subsamples were taken: one was processed as a sample, and the other subsample had a known quantity of analyte added prior to analysis. Spike recoveries were considered acceptable if the average recovery was 85 to 115 percent of the spike concentration after subtraction of the sample concentration. For the 18 spiked samples in the three sample sets, the recovered percentage of the added spike total concentration ranged from 93.5 to 107 percent.

Standard reference material (SRM) was analyzed to provide an estimate of range in accuracy of the laboratory instrument used for the determination of total mercury concentration and to ensure that this method produced results that were comparable to those obtained by an independent organization. The SRM used by the TERL was dogfish (*Squalus* sp.) muscle (DORM-2), certified by the National Research Council Canada (NRCC) as having a certified reference value (CRV) of 4.64 µg/g mercury (dry). The percentage recovery for the 18 analyses of DORM-2 in the three sample sets ranged from 82.7 to 107 percent, which is within acceptable limits.

Blind replicate samples were submitted to the TERL as additional QA-QC check on laboratory procedures. A total of 39 blind replicate samples from the three sample sets were submitted to the TERL. Data for these analyses are listed in table 3. Most of the blind replicate samples showed little variation. The median value of RPD for the 39 replicates was 3.8 percent, and the mean value was 8.0 percent. Thirty-two of the 39 blind replicate pairs (82 percent) had RPD values less than 10 percent, and 36 of 39 pairs (92 percent) had RPD values less than 20 percent. These results are considered to be within acceptable limits of variability.

Table 3. Data from replicate analyses of fishes collected in Trinity County, California, 2000–2002

[Sample dissected from left fillet of fish; replicate sample dissected from right fillet of fish. Hwy, highway; Mt, Mount. Hg, mercury. HgT, total mercury. Sex: F, female; M, male; U, unknown. mm, millimeter; g, gram; %, percent; µg/g, microgram per gram (equivalent to part per million)]

Collection date	Common name	Total length (mm)	Total weight (g)	Left fillet moisture (%)	Right fillet moisture (%)	Left fillet HgT-dry (µg/g)	Right fillet HgT-dry (µg/g)	Absolute value of relative percentage difference, HgT-dry	Left fillet sample ID	Right fillet sample ID	Sex
Site 2 (fig. 1), Trinity River at Big Flat Day Use Area near Big Bar:											
8/27/2002	Rainbow trout	166	40.9	78.7	78.4	0.306	0.278	9.6	TR-2002-F-001	TR-2002-R-001	F
Site 6, (fig. 1): Trinity River at Hayden Flat near Big Bar:											
8/27/2002	Rainbow trout	147	28.2	79.2	80.1	0.203	0.199	2.0	TR-2002-F-011	TR-2002-R-011	F
Site 7 (fig. 1), Canyon Creek below Conrad Gulch near Junction City:											
8/27/2002	Rainbow trout	235	122.2	78.6	78.5	0.296	0.300	1.3	TR-2002-F-041	TR-2002-R-041	F
Site 10 (fig. 1), East Fork of North Fork Trinity River, 0.53 mile above Barney Gulch:											
8/27/2002	Rainbow trout	176	52.1	79.3	79.3	0.480	0.428	11.5	TR-2002-F-031	TR-2002-R-031	M
Site 11 (fig. 1), New River at Denny Campground near Denny:											
9/7/2001	Rainbow trout	202	74.0	78.6	78.1	0.260	0.245	5.9	TR-2002-F-021	TR-2002-R-021	F

Table 3. Data from replicate analyses of fishes collected in Trinity County, California, 2000–2002—Continued.

[Sample dissected from left fillet of fish; replicate sample dissected from right fillet of fish. Hwy, highway; Mt, Mount. Hg, mercury. HgT, total mercury. Sex: F, female; M, male; U, unknown. mm, millimeter; g, gram; %, percent; µg/g, microgram per gram (equivalent to part per million)]

Collection date	Common name	Total length (mm)	Total weight (g)	Left fillet moisture (%)	Right fillet moisture (%)	Left fillet HgT-dry (µg/g)	Right fillet HgT-dry (µg/g)	Absolute value of relative percentage difference, HgT-dry	Left fillet sample ID	Right fillet sample ID	Sex
Site 12 (fig. 1), East Fork Trinity Arm of Trinity Lake near Trinity Center:											
11/9/2000	Smallmouth bass	308	471.5	76.7	76.6	1.470	1.430	2.8	TR-2000-F-201	TR-2000-R-201	M
11/9/2000	Smallmouth bass	325	583.4	75.9	76.4	1.370	1.390	1.4	TR-2000-F-203	TR-2000-R-203	M
11/9/2000	Smallmouth bass	330	599.8	75.6	55.0	1.330	1.280	3.8	TR-2000-F-204	TR-2000-R-204	F
11/9/2000	White catfish	325	523.5	77.5	71.4	2.620	2.030	25.4	TR-2000-F-247	TR-2000-R-247	F
5/15/2001	Smallmouth bass	224	121.8	77.7	77.5	0.876	0.893	1.9	TR-2001-F-274	TR-2001-R-274	M
5/15/2001	Smallmouth bass	206	94.9	79.3	79.0	3.840	3.710	3.4	TR-2001-F-276	TR-2001-R-276	F
5/15/2001	Smallmouth bass	229	134.1	79.7	79.5	0.755	0.754	0.1	TR-2001-F-279	TR-2001-R-279	F
5/15/2001	Smallmouth bass	294	329.5	77.2	77.2	1.160	1.180	1.7	TR-2001-F-281	TR-2001-R-281	M
5/17/2001	Largemouth bass	353	738.0	77.9	77.7	1.270	1.210	4.8	TR-2001-F-310	TR-2001-R-310	F
5/17/2001	Largemouth bass	463	1978.0	74.8	74.9	3.940	4.130	4.7	TR-2001-F-324	TR-2001-R-324	M
Site 13 (fig. 1), East Fork Trinity River below County Road 106 near Trinity Center:											
9/6/2001	Rainbow trout	227	127.8	74.8	75.1	0.618	0.600	3.0	TR-2001-F-334	TR-2001-R-334	M
8/12/2002	Rainbow trout	344	408.7	76.7	76.2	1.370	1.390	1.4	TR-2002-F-093	TR-2002-R-093	F
Site 14 (fig. 1), Trinity Lake near Trinity Center:											
11/9/2000	green sunfish	180	113.7	80.7	80.6	0.830	0.810	2.4	TR-2000-F-213	TR-2000-R-213	M
11/9/2000	Rainbow trout	364	442.9	76.7	77.8	0.854	0.869	1.7	TR-2000-F-209	TR-2000-R-209	F
5/17/2001	Largemouth bass	393	1302.4	76.7	77.8	2.380	2.820	16.9	TR-2001-F-331	TR-2001-R-331	F
5/17/2001	Largemouth bass	450	2023.2	75.1	74.6	3.600	3.250	10.2	TR-2001-F-332	TR-2001-R-332	M
Site 15 (fig. 1), East Fork Trinity River 1.2 mile below Devils Creek near Trinity Center:											
9/6/2001	Rainbow trout	220	117.8	77.3	77.1	1.810	1.760	2.8	TR-2001-F-399	TR-2001-R-369	M
8/12/2002	Rainbow trout	216	92.2	78.9	78.4	1.120	1.100	1.8	TR-2002-F-078	TR-2002-R-078	F
Site 16 (fig. 1), Carrville Pond near Carrville:											
9/26/2000	Rainbow trout	283	275.9	76.8	75.5	0.092	0.110	17.8	TR-2000-F-223	TR-2000-R-222	M
9/26/2000	Rainbow trout	296	328.3	75.0	74.9	0.086	0.090	4.5	TR-2000-F-227	TR-2000-R-227	M
Site 17 (fig. 1), Coffee Creek at Hwy 3 near Carrville:											
9/12/2000	Rainbow trout	206	83.6	77.0	77.1	0.141	0.130	8.1	TR-2000-F-236	TR-2000-R-236	M
Site 18 (fig. 1), Trinity River above Coffee Creek near Trinity Center:											
9/12/2000	Rainbow trout	216	97.4	75.9	76.2	0.244	0.232	5.0	TR-2000-F-242	TR-2000-R-242	M
9/12/2000	Rainbow trout	259	161.0	78.4	78.8	0.098	0.096	1.7	TR-2000-F-243	TR-2000-R-243	M
Site 19 (fig. 1), East Fork Trinity River below Altoona Mine Drain below Trinity Center:											
9/5/2001	Rainbow trout	144	30.0	78.2	78.5	0.883	0.910	3.0	TR-2001-F-386	TR-2001-R-364	M
8/13/2002	Rainbow trout	156	39.5	79.8	80.0	1.110	1.160	4.4	TR-2002-F-104	TR-2002-R-104	F
Site 20 (fig. 1), East Fork Trinity River Upstream Altoona Mine Drain near Castella:											
9/11/2000	Rainbow trout	189	71.8	76.8	77.6	1.230	1.190	3.3	TR-2000-F-235	TR-2000-R-235	F
9/5/2001	Rainbow trout	138	23.7	75.8	75.8	0.528	0.212	85.4	TR-2001-F-377	TR-2001-R-360	F
8/13/2002	Rainbow trout	175	58.3	79.3	79.3	0.696	0.668	4.1	TR-2002-F-068	TR-2002-R-068	F
Site 21 (fig. 1), Crow Creek above Confluence of East Fork Trinity River near Trinity:											
9/7/2001	Rainbow trout	130	22.8	76.4	76.7	0.530	0.505	4.8	TR-2001-F-423	TR-2001-R-388	F
8/13/2002	Rainbow trout	186	66.3	79.2	79.2	0.811	0.850	4.7	TR-2002-F-113	TR-2002-R-113	F

Table 3. Data from replicate analyses of fishes collected in Trinity County, California, 2000–2002—Continued.

[Sample dissected from left fillet of fish; replicate sample dissected from right fillet of fish. Hwy, highway; Mt, Mount. Hg, mercury. HgT, total mercury. Sex: F, female; M, male; U, unknown. mm, millimeter; g, gram; %, percent; µg/g, microgram per gram (equivalent to part per million)]

Collection date	Common name	Total length (mm)	Total weight (g)	Left fillet moisture (%)	Right fillet moisture (%)	Left fillet HgT-dry (µg/g)	Right fillet HgT-dry (µg/g)	Absolute value of relative percentage difference, HgT-dry	Left fillet sample ID	Right fillet sample ID	Sex
Site 22 (fig. 1), Tamarack Creek at East Fork Trinity River near Mt. Shasta:											
9/7/2001	Rainbow trout	178	50.2	81.3	81.4	0.604	0.600	0.7	TR-2001-F-347	TR-2001-R-340	M
8/14/2002	Rainbow trout	133	26.0	78.1	78.3	0.151	0.164	8.3	TR-2002-F-054	TR-2002-R-054	F
Site 23 (fig. 1), East Fork Trinity River at Horse Heaven Meadow near Mt. Shasta:											
9/7/2001	Brook trout	230	144.7	77.2	80.5	0.572	0.776	30.3	TR-2001-F-371	TR-2001-R-351	M
9/7/2001	Rainbow trout	169	34.3	81.3	83.1	1.170	1.210	3.4	TR-2001-F-363	TR-2001-R-350	U

Results

A total of 368 fishes were collected and processed for the analysis of total mercury (table 2). Total mercury in 74 black bass (largemouth and smallmouth bass; *Micropterus* spp.) samples ranged from 0.046 to 1.225 µg/g (equivalent to parts per million or ppm) wet weight (ww). Mercury concentrations in 26 of the 34 black bass (76 percent) of legal catch size (≥ 305 millimeters in length) were ≥ 0.3 ppm (ww), the U.S. Environmental Protection Agency water-quality criterion for the protection of human health (U.S. Environmental Protection Agency, 2001). Mercury concentrations exceeded 1.0 ppm (ww), the Food and Drug Administration action level for commercial fish (U.S. Food and Drug Administration, 1994), in 3 of the 34 black bass (9 percent) of legal catch size. In contrast, only 3 of the 237 (about 1 percent) rainbow trout of all sizes sampled from stream, pond, and lake sites had Hg concentrations ≥ 0.3 ppm (ww) (table 2).

In response to data generated by this study and other related investigations, the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) issued a draft fish-consumption advisory report that offered guidelines for human consumption of fish (Klasing and Brodberg, 2005). The final version of the OEHHA fish-consumption advisory (Klasing and Brodberg, in press) was approved by the State of California in July 2005 and is scheduled for publication in October 2005 (http://www.oehha.ca.gov/fish/so_cal/TrinRiverF2.html)

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