A-1—Harrison Marina Trailhead

A-2—Harrison Slough

A-3—Anderson Lake Wayside.

A-4—Springston

A-5—Thompson Lake

A-6—Upstream Cottonwood

A-7—Black Lake Breach

A-8—Medimont Boating Ramp

A-9—Rainy Hill Boat Ramp

A-10—Killarney Lake Boat Ramp

A-11—Black Rock

A-12—Midway Black Rock-Bull Run

A-13—Bull Run.

A-14—Rose Lake Boat Ramp.

A-15—Cedar Grove.

A-16—Downstream Dudley.

A-17—Dudley.

A-18—River Bend Wayside.

A-19—Cataldo Boat Ramp

A-20—Midway Latour Creek-River Bend

A-21—Cataldo South

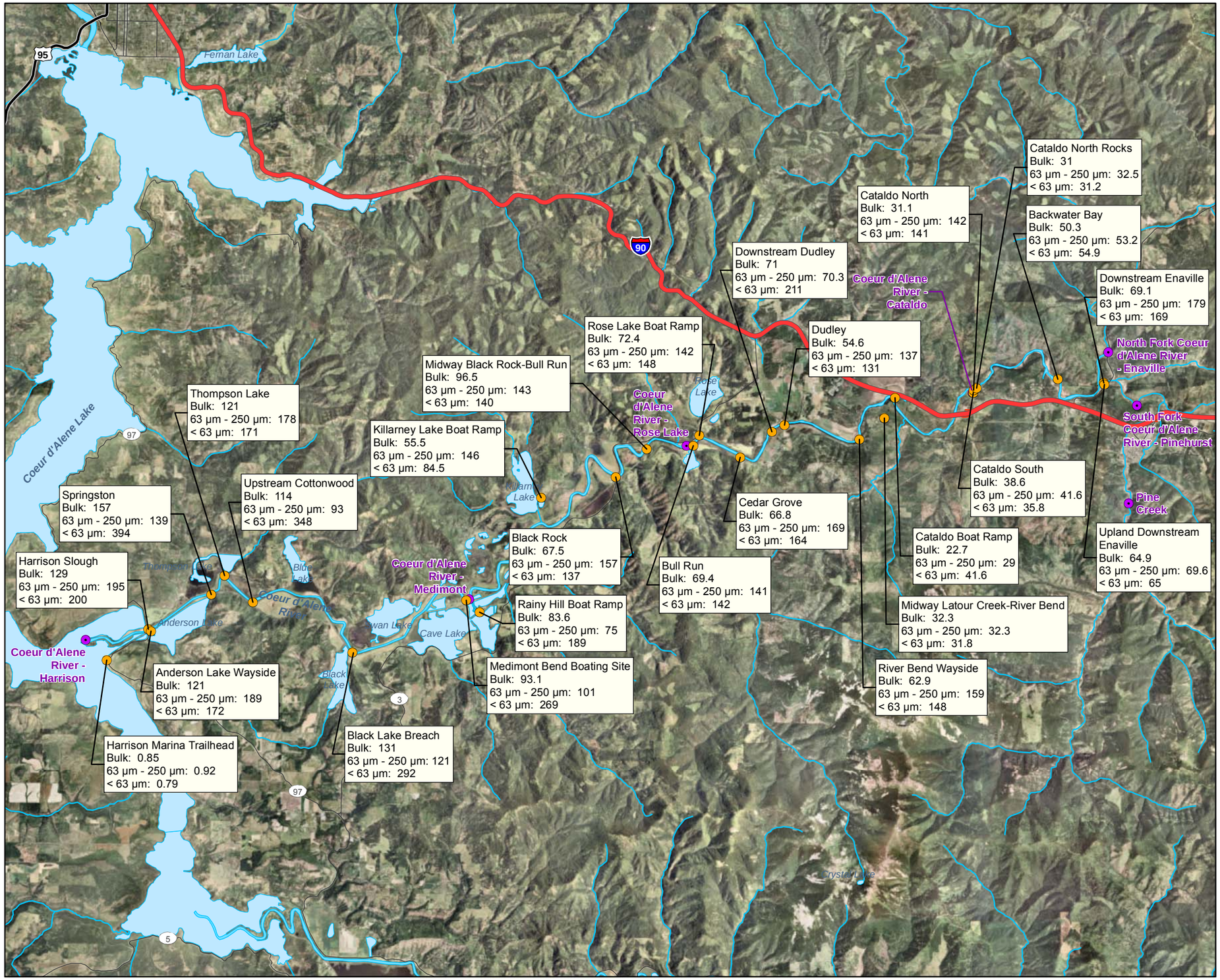
A-22—Cataldo North

A-23— Cataldo North Rocks

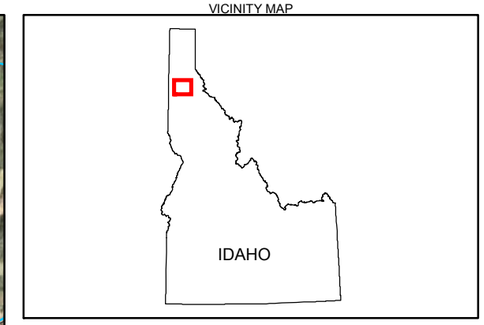
A-24—Backwater Bay.

A-25—Downstream Enaville

A-26— Upland Downstream Enaville



VICINITY MAP



LEGEND

- Sediment Sample Location and Arsenic Concentration (mg/kg)
- BEMP Annual Sediment Sampling Location
- Stream
- Lake

N

0 1.25 2.5
Miles

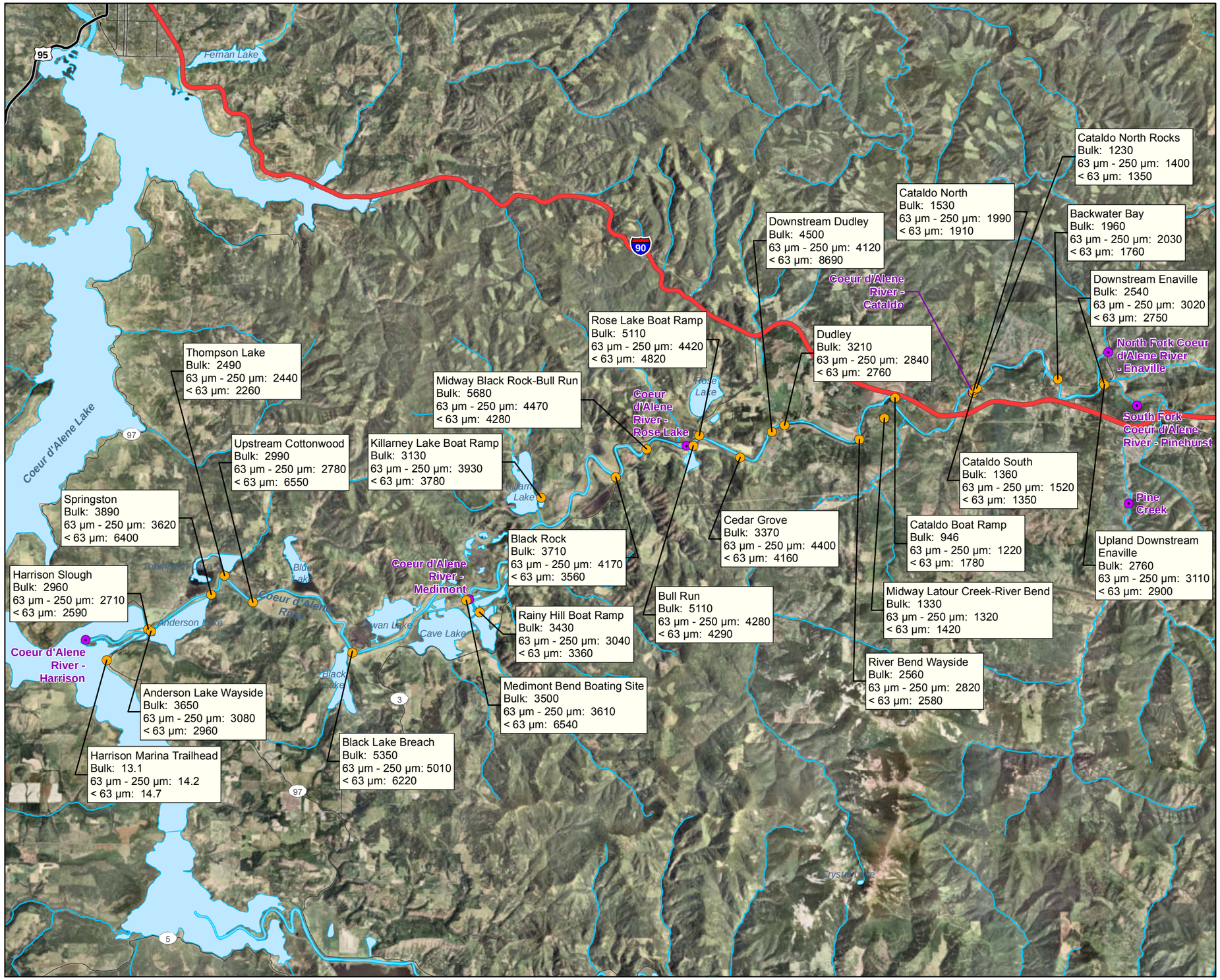
Figure 1

Arsenic Concentrations in Sediment - June 2008

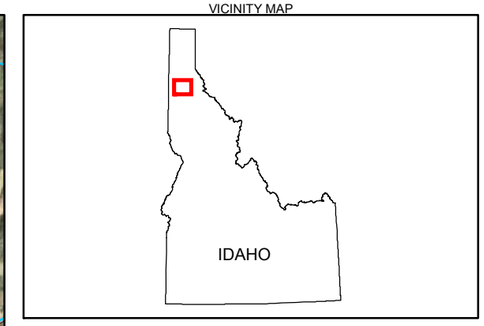
Post Flood 2008 Lower Coeur D'Alene River Basin
Opportunistic Sediment Sampling
Coeur d'Alene Basin

CH2MHILL

File Path: \\simba\proj\USEPA\333911CDrB\GIS\MXD\SamplingResults_200808\ArsenicResults.mxd, Date: August 12, 2008



VICINITY MAP



LEGEND

- Sediment Sample Location and Lead Concentration (mg/kg)
- BEMP Annual Sediment Sampling Location
- Stream
- Lake

N

0 1.25 2.5
Miles

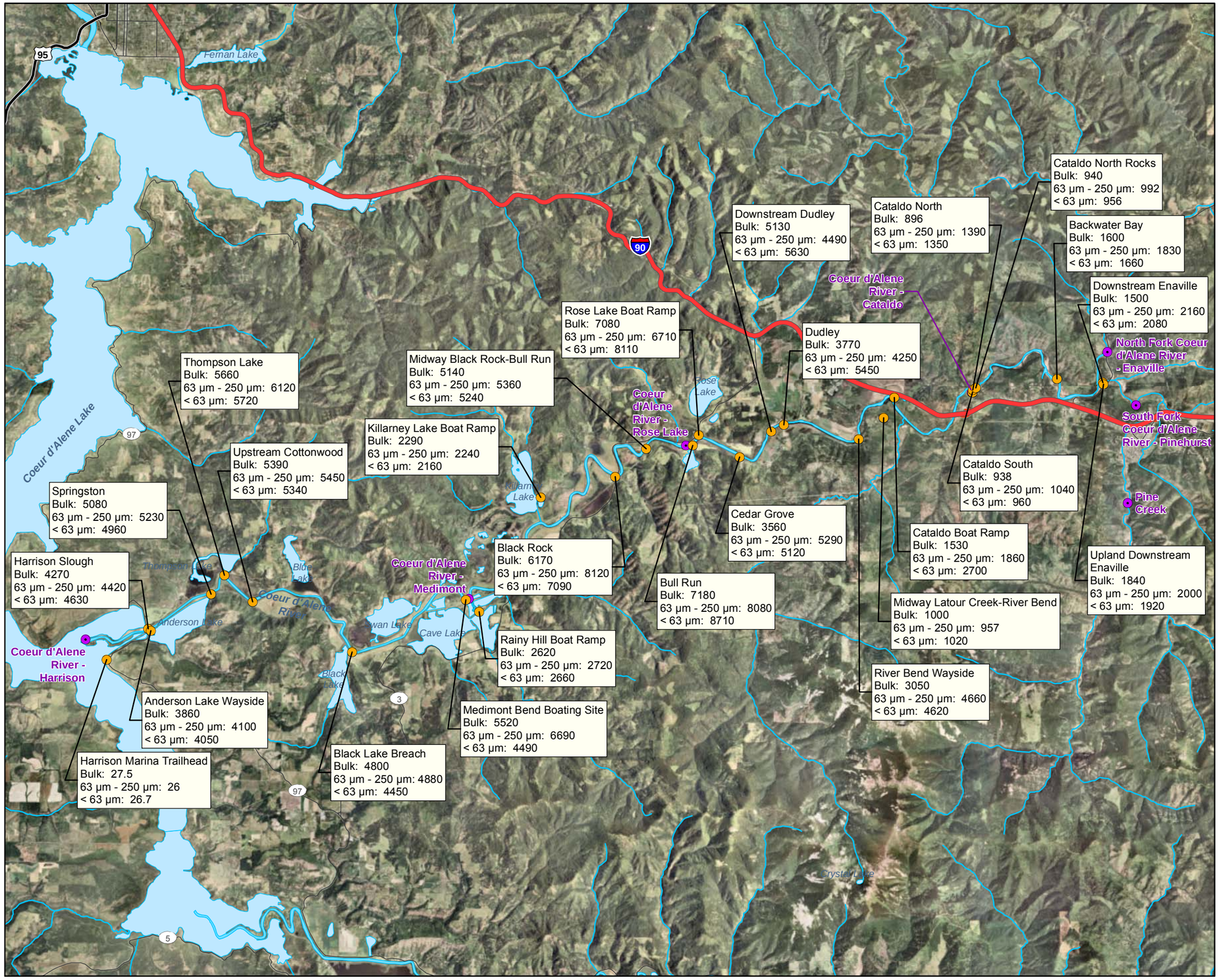
Figure 2

Lead Concentrations in Sediment - June 2008

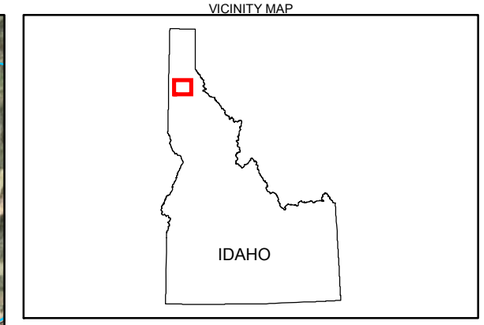
Post Flood 2008 Lower Coeur D'Alene River Basin
Opportunistic Sediment Sampling
Coeur d'Alene Basin

CH2MHILL

File Path: \\simba\proj\USEPA\333911CDrB\GIS\MXD\SamplingResults_200808\LeadResults.mxd, Date: August 12, 2008



VICINITY MAP



LEGEND

- Sediment Sample Location and Zinc Concentration (kg/mg)
- BEMP Annual Sediment Sampling Location
- Stream
- Lake

N

0 1.25 2.5
Miles

Figure 3

Zinc Concentrations in Sediment - June 2008

Post Flood 2008 Lower Coeur D'Alene River Basin
Opportunistic Sediment Sampling
Coeur d'Alene Basin

CH2MHILL

File Path: \\simba\proj\USEPA\333911CDrB\GIS\MXD\SamplingResults_200808\ZincResults.mxd, Date: August 12, 2008

Figure 4. 2008 LBCDR Opportunistic Sediment Sampling Size Fraction

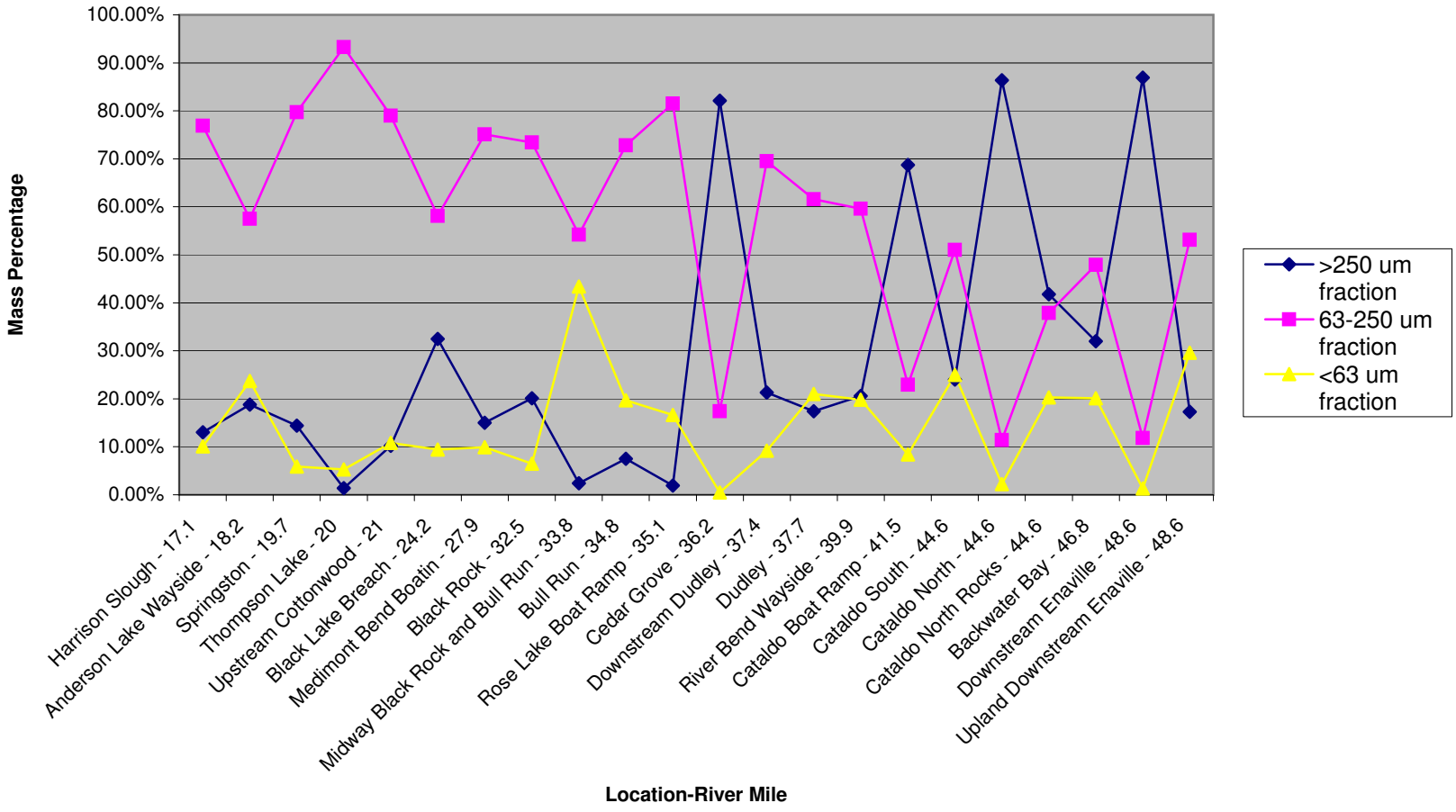


Figure 5. 2008 LBCDR Opportunistic Sediment Sampling
Arsenic concentration by fraction

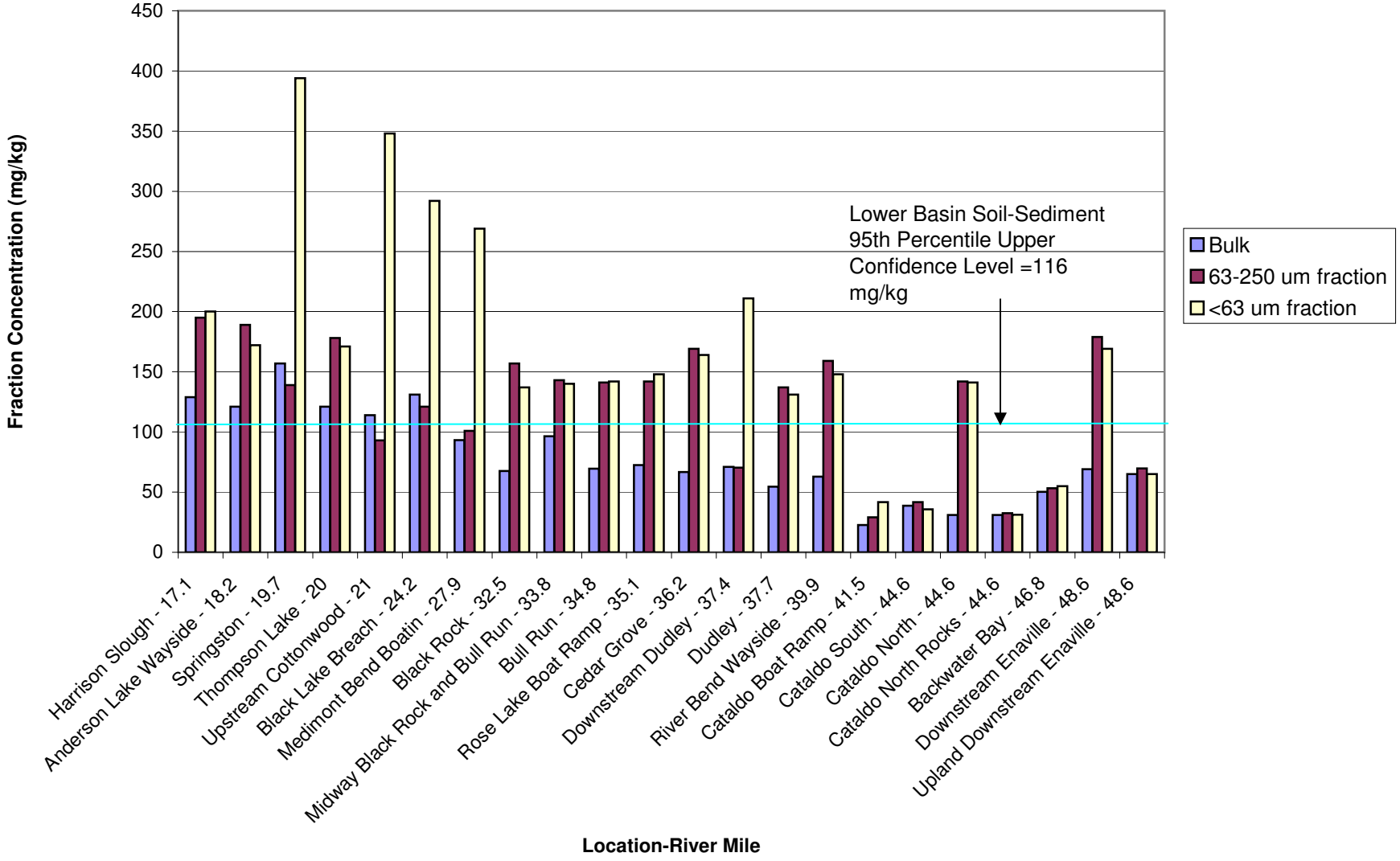
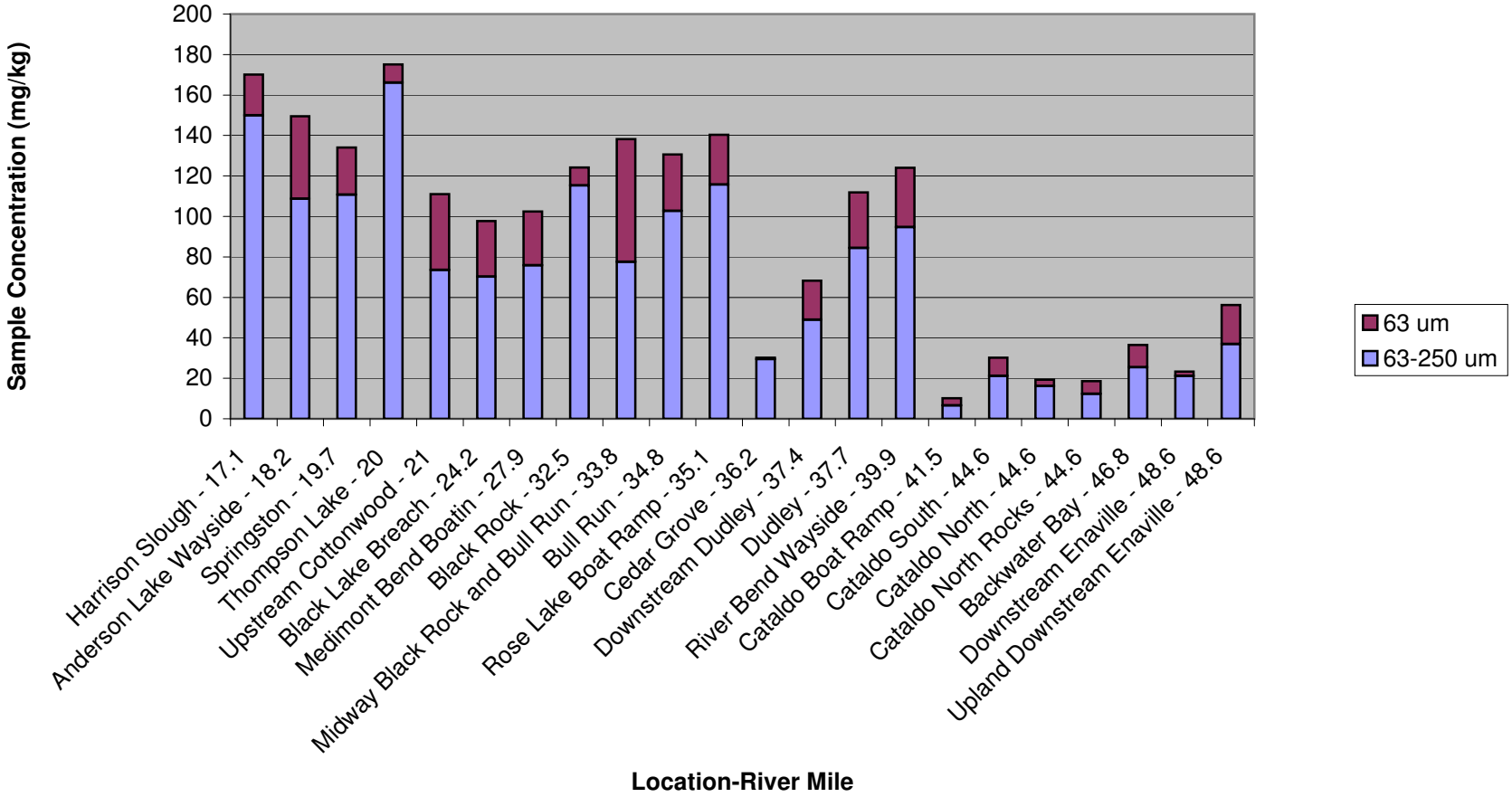


Figure 6. 2008 LBCDR Opportunistic Sediment Sampling
Silt and Sand Fraction Contribution to Arsenic Concentration



Note: The contribution was calculated by multiplying each fraction concentration by the fraction mass percentage.

Figure 7. 2008 LBCDR Opportunistic Sediment Sampling
Cadmium concentration by fraction

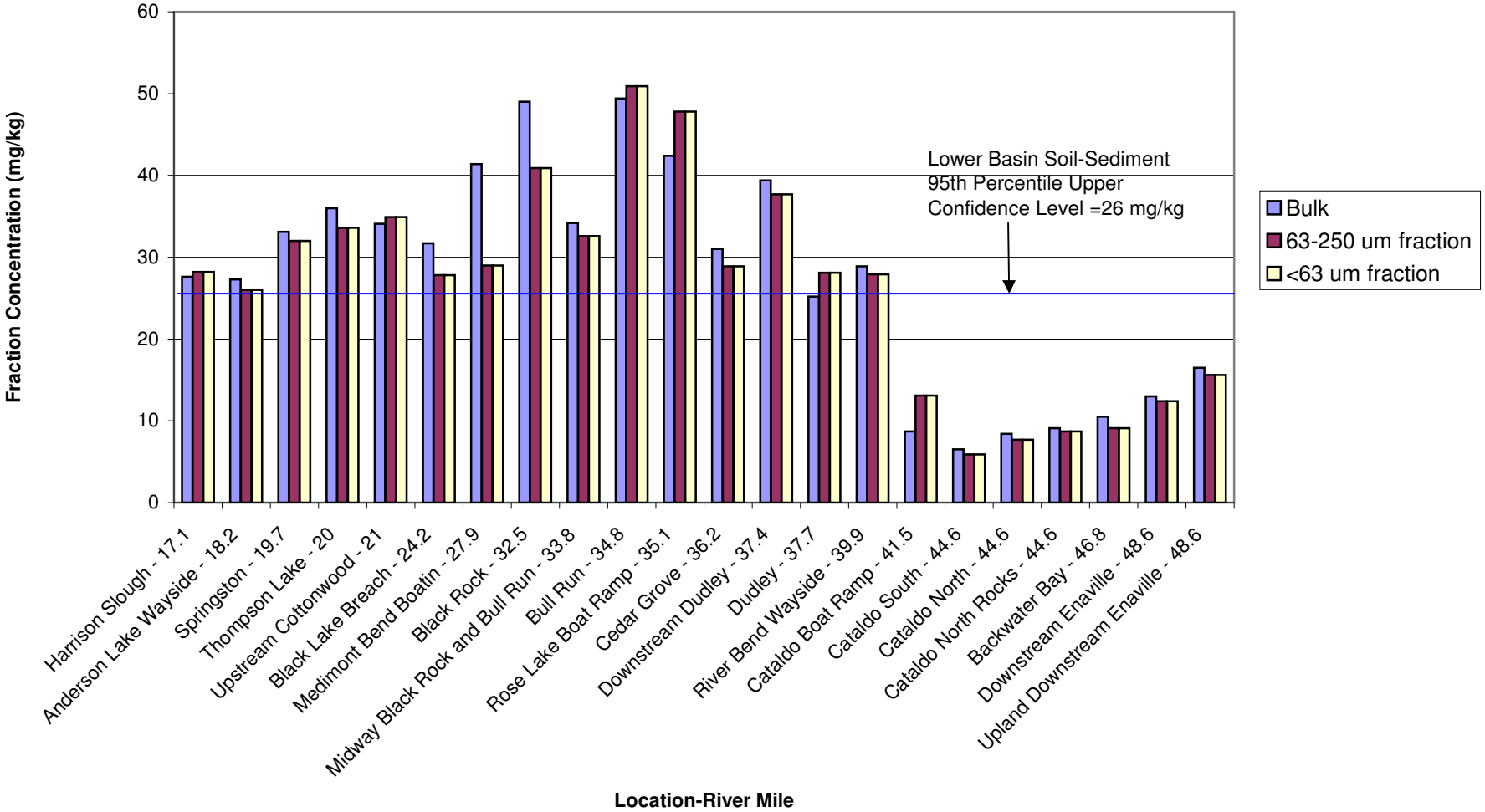
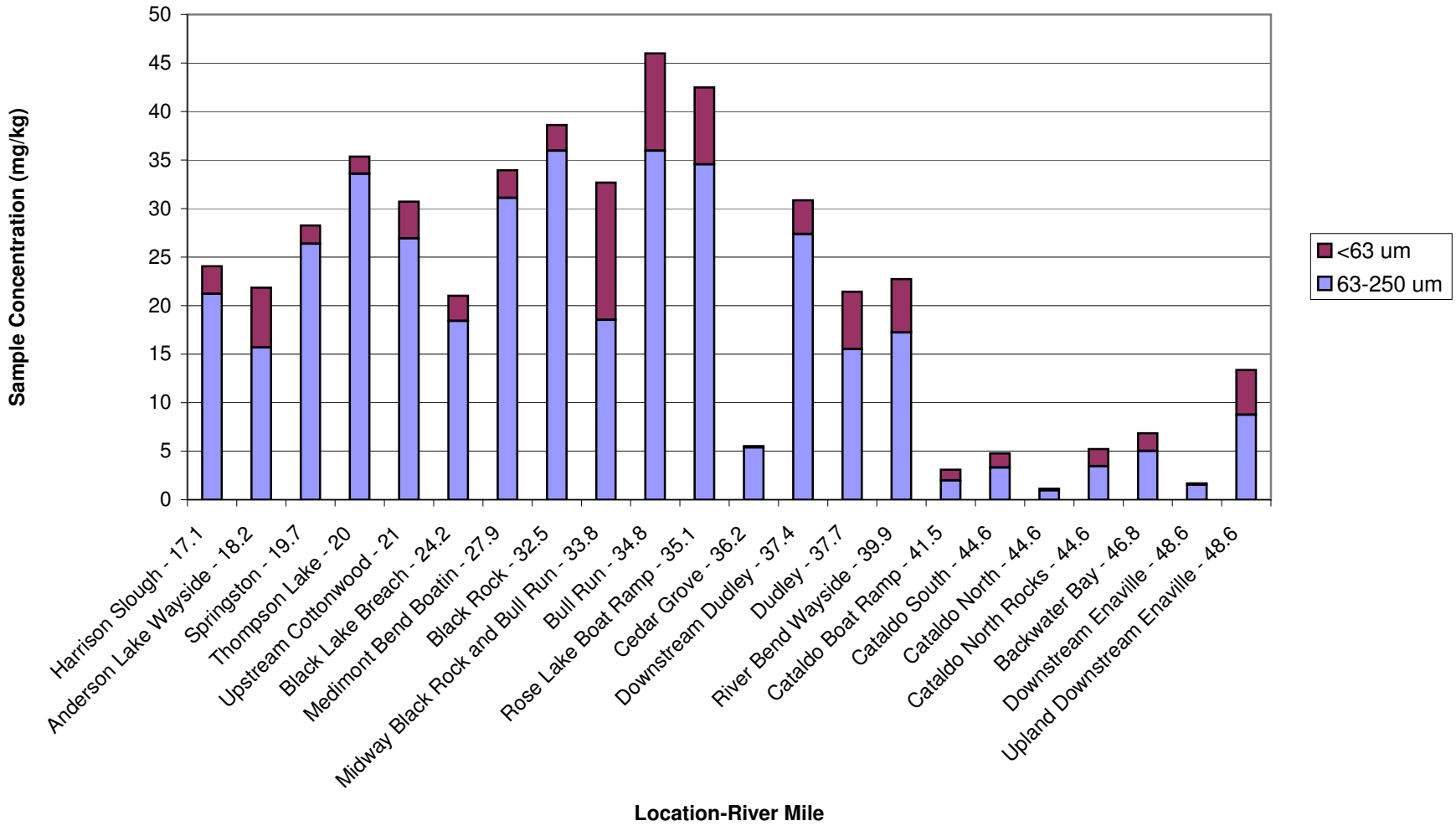


Figure 8. 2008 LBCDR Opportunistic Sediment Sampling
Silt and Sand Fraction Cadmium Contribution to Sample Concentration



Note: The contribution was calculated by multiplying each mass fraction concentration by the corresponding mass percentage.

Figure 9. 2008 LBCDR Sediment Sampling
Copper Concentration by Fraction

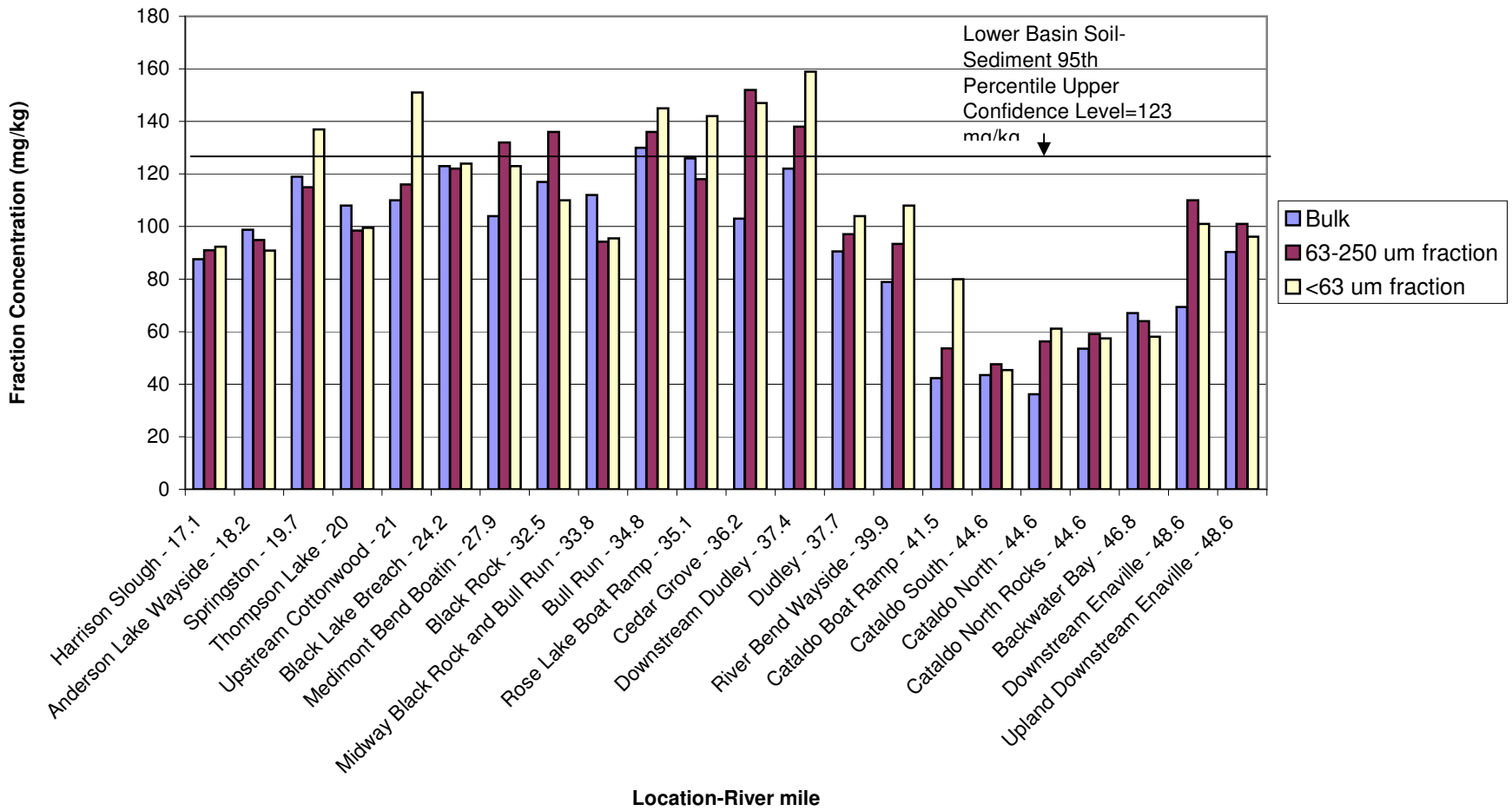
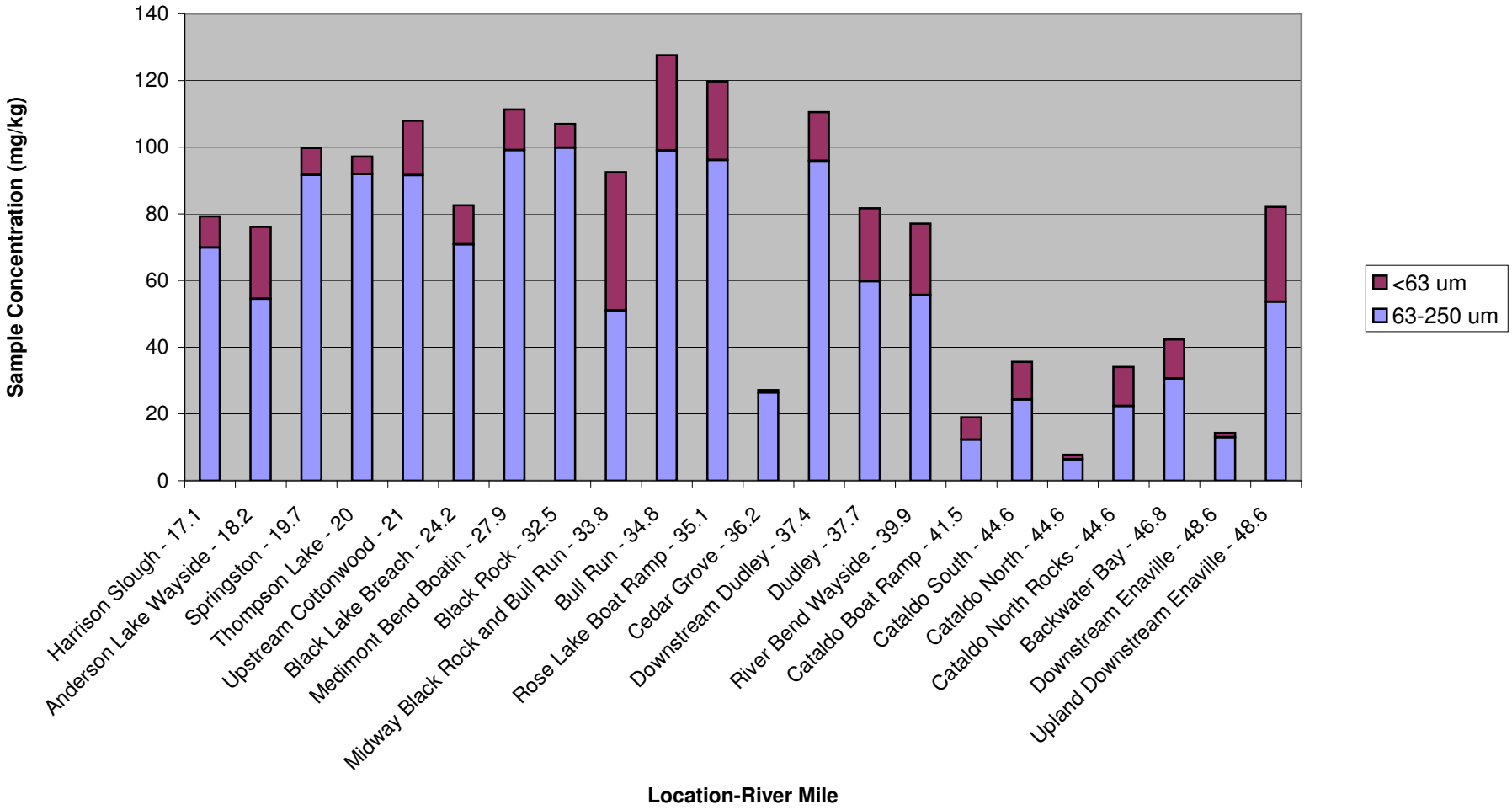


Figure 10. 2008 LBCDR Opportunistic Sediment Sampling
Silt and Sand Fraction contribution to Copper Concentration



Note: The contribution was calculated by multiplying each mass fraction concentration by the corresponding mass percentage.

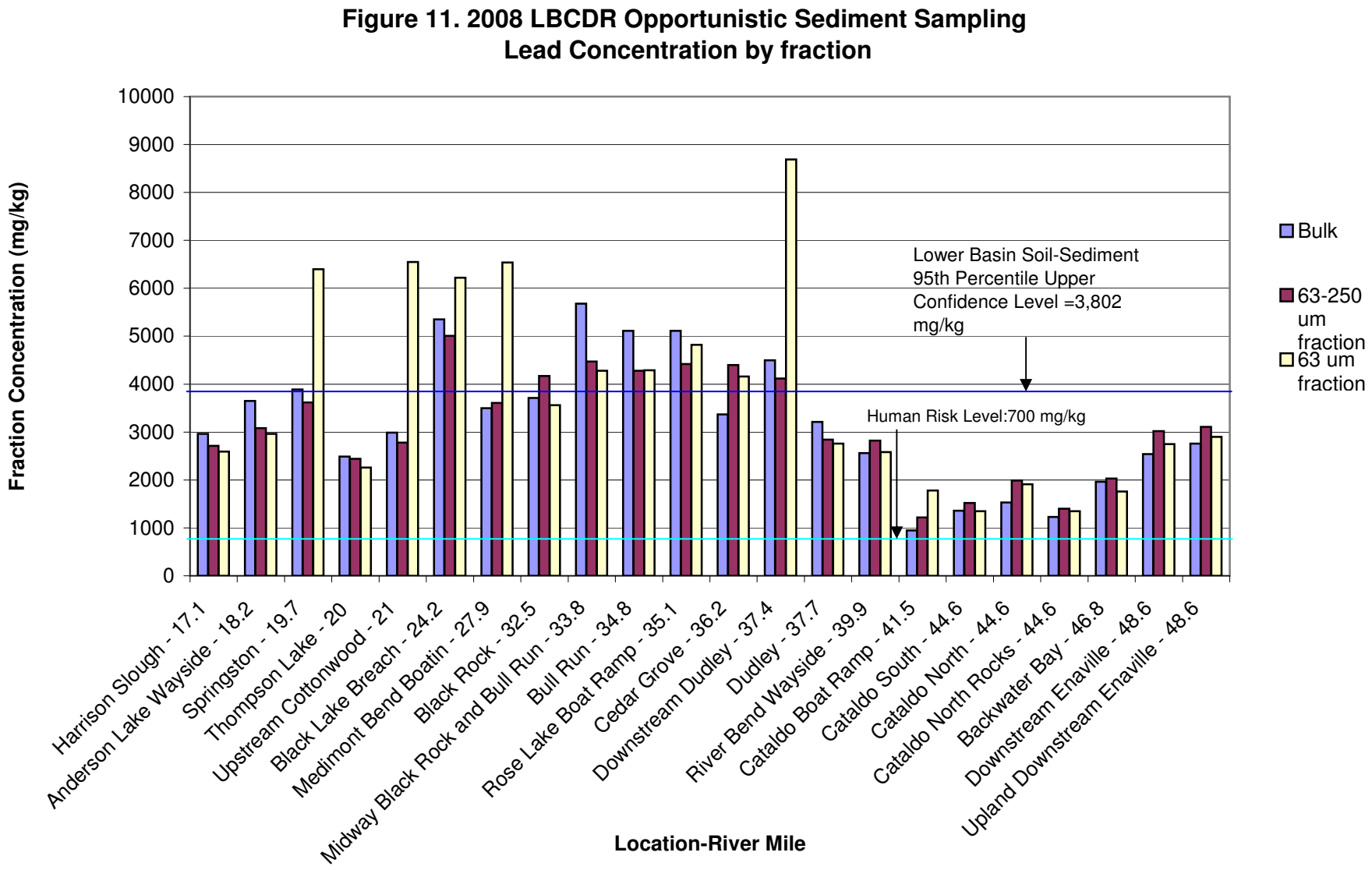
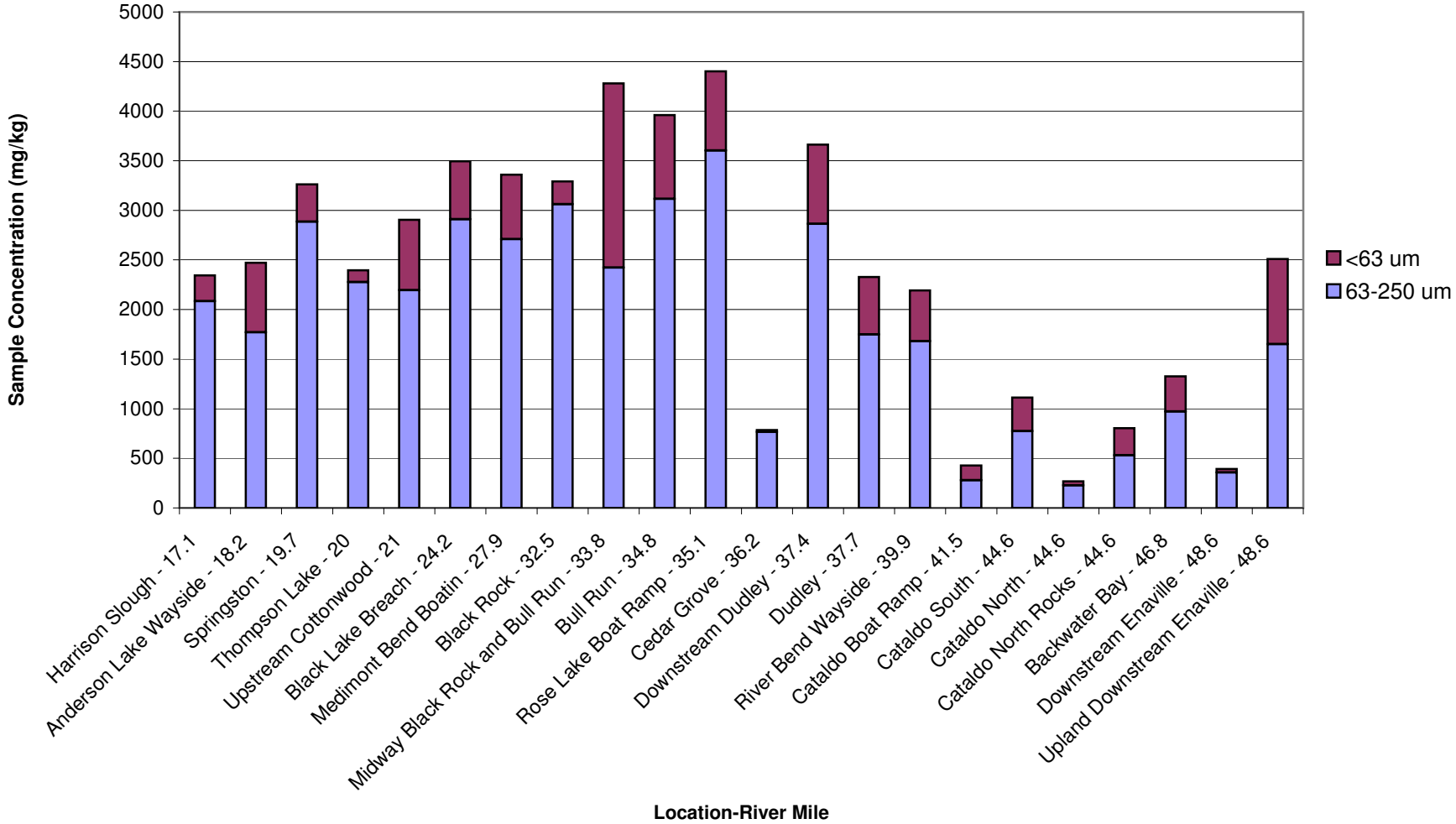


Figure 11. 2008 LBCDR Opportunistic Sediment Sampling
Lead Concentration by fraction
Fraction Concentration (mg/kg)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Lower Basin Soil-Sediment 95th Percentile Upper Confidence Level =3,802 mg/kg
Human Risk Level:700 mg/kg
Bulk
63-250 um fraction
63 um fraction
Harrison Slough - 17.1
Anderson Lake Wayside - 18.2
Springston - 19.7
Thompson Lake - 20
Upstream Cottonwood - 21
Black Lake Breach - 24.2
Medimont Bend Boatin - 27.9
Black Rock - 32.5
Midway Black Rock and Bull Run - 33.8
Bull Run - 34.8
Rose Lake Boat Ramp - 35.1
Cedar Grove - 36.2
Downstream Dudley - 37.4
Dudley - 37.7
River Bend Wayside - 39.9
Cataldo Boat Ramp - 41.5
Cataldo South - 44.6
Cataldo North - 44.6
Cataldo North Rocks - 44.6
Backwater Bay - 46.8
Downstream Enaville - 48.6
Upland Downstream Enaville - 48.6
Location-River Mile

Figure 12. 2008 LBCDR Opportunistic Sediment Sampling
Silt and Sand Fraction contribution to Lead Concentration



Note: The contribution was calculated by multiplying each mass fraction concentration by the corresponding mass percentage.

Figure 13. 2008 LBDCR Opportunistic Sediment Sampling
Mercury Concentration by Fraction

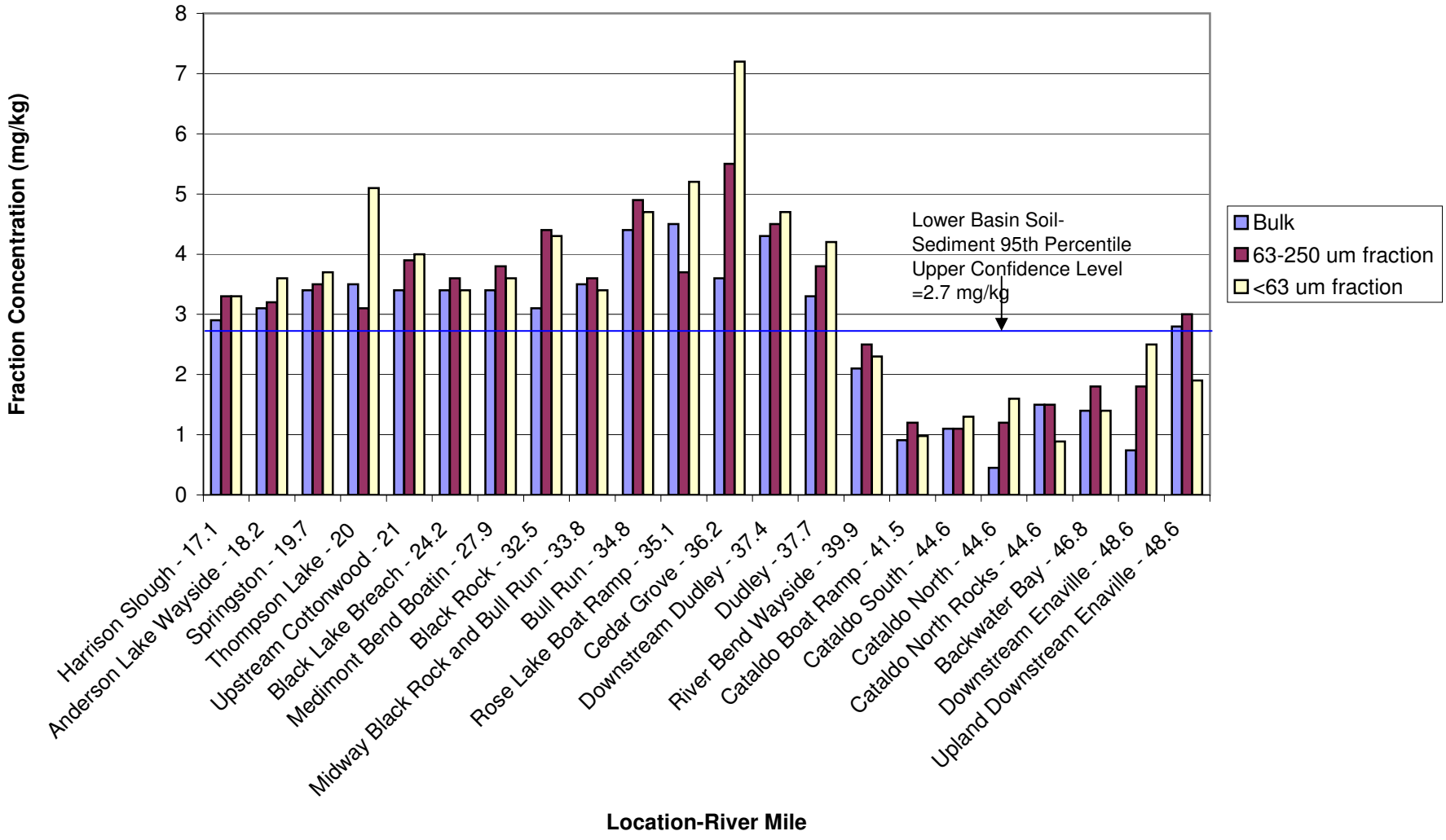
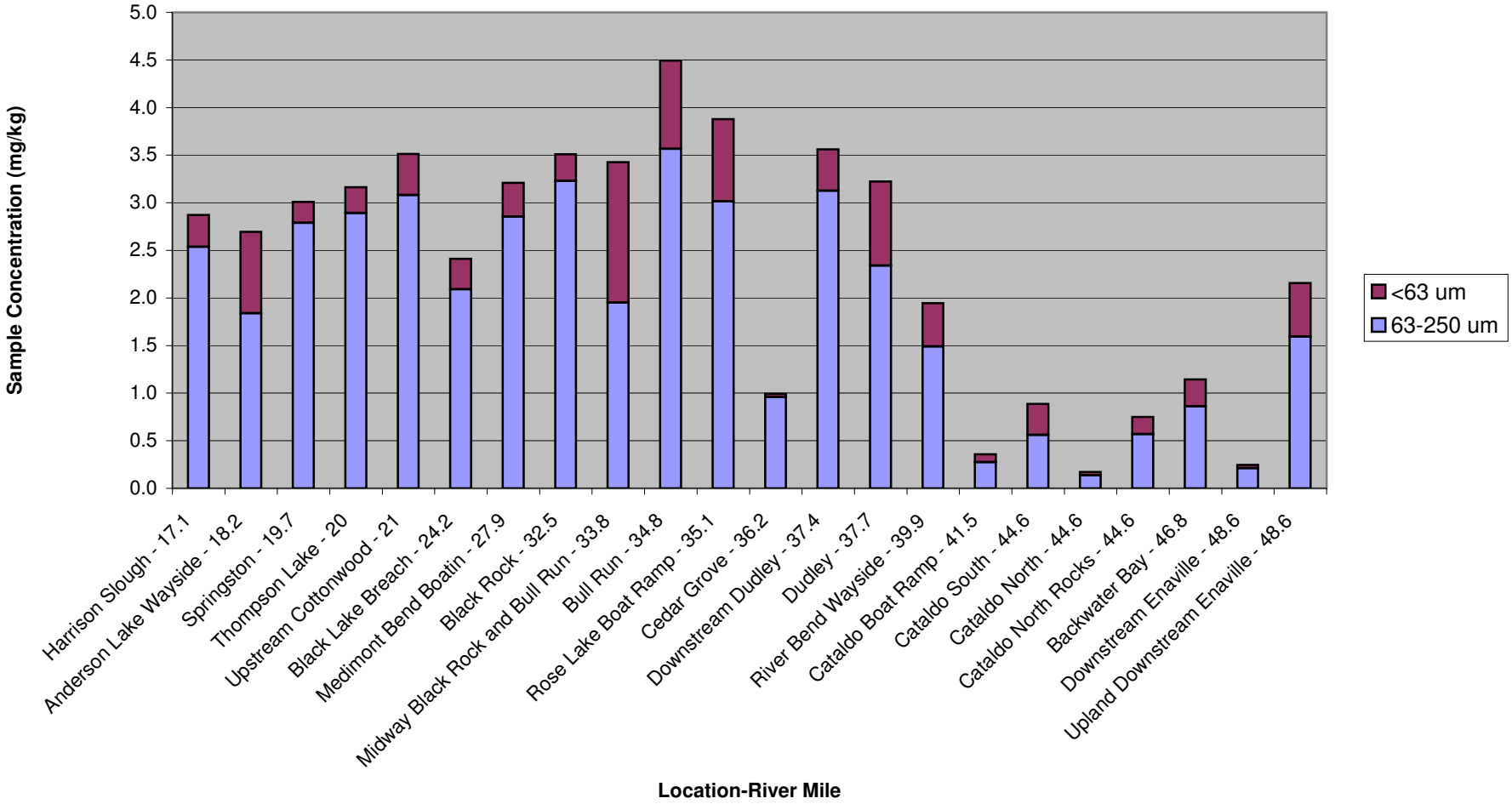


Figure 14. 2008 LBCDR Opportunistic Sediment Sampling
Silt and Sand Contribution to Mercury Concentrations



Note: The contribution was calculated by multiplying each mass fraction concentration by the corresponding mass percentage.

Figure 15. 2008 LBCDR Opportunistic Sediment Sampling Silver
Silver Concentration by Fraction

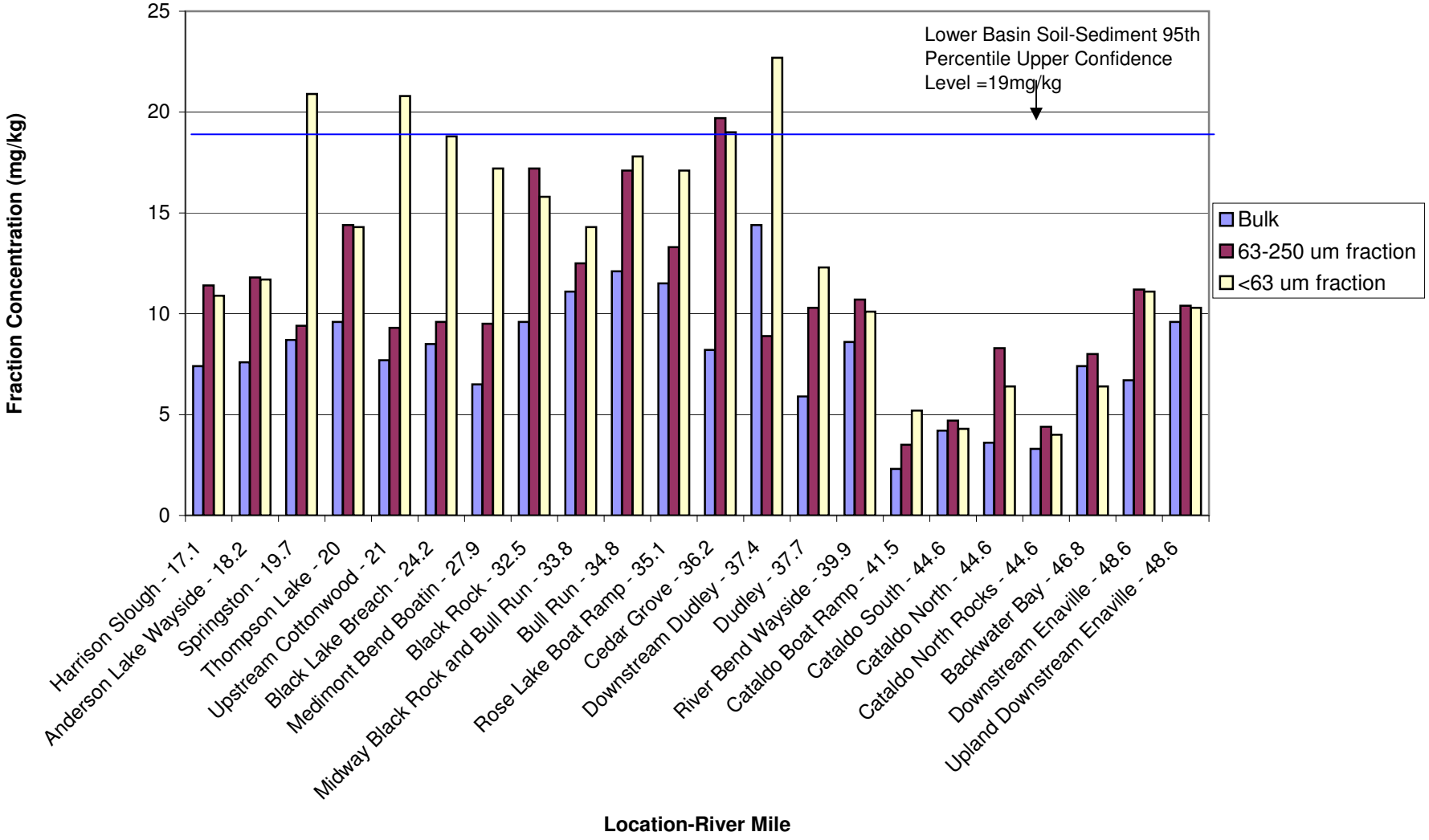
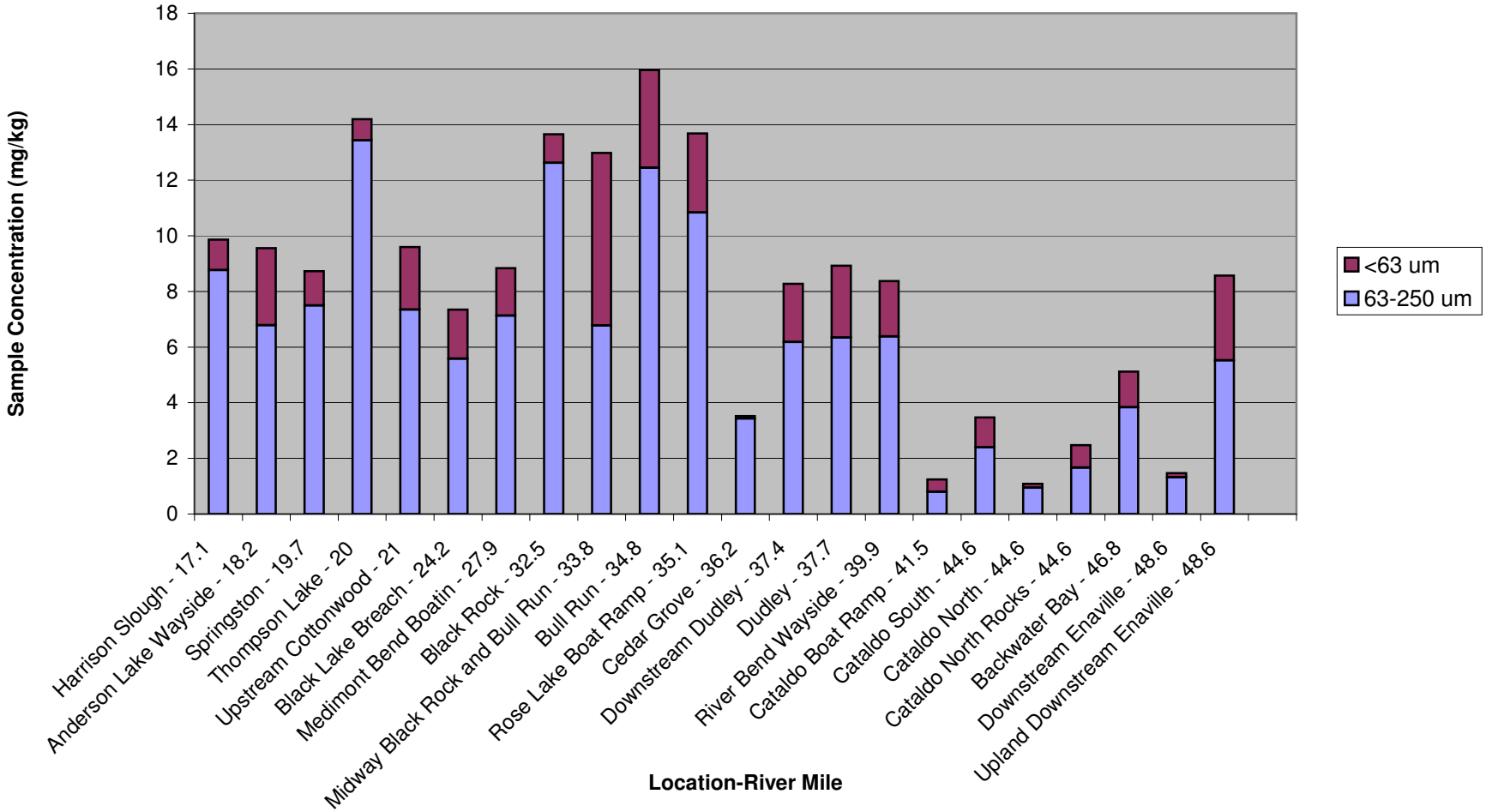


Figure 16. 2008 LBCDR Opportunistic Sediment Sampling
Silt and Sand Contribution to Silver Concentration



Note: The contribution was calculated by multiplying each mass fraction concentration by the corresponding mass percentage.

Figure 17. 2008 LBCDR Opportunistic Sediment Sampling
Zinc Concentration by fraction

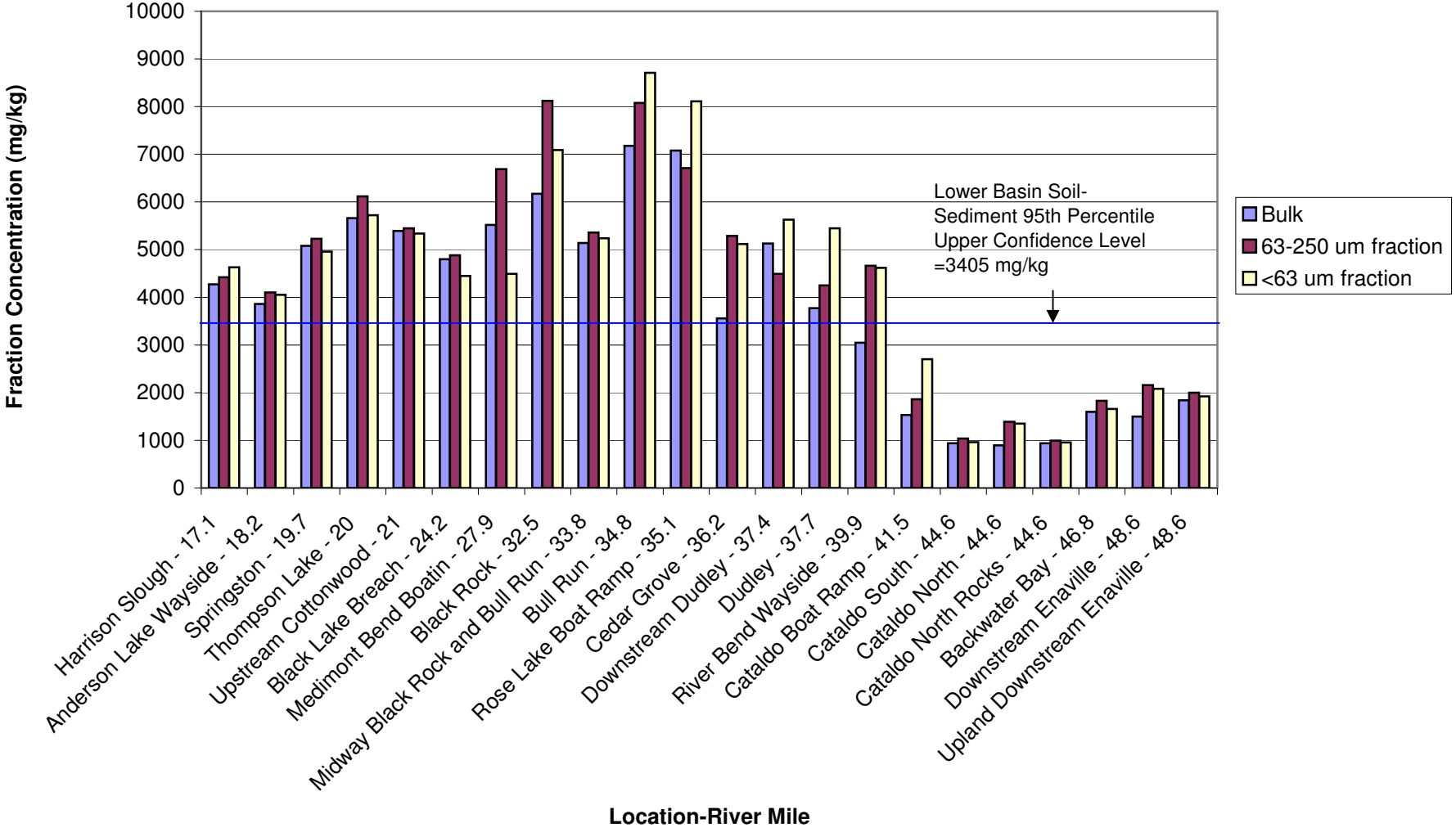
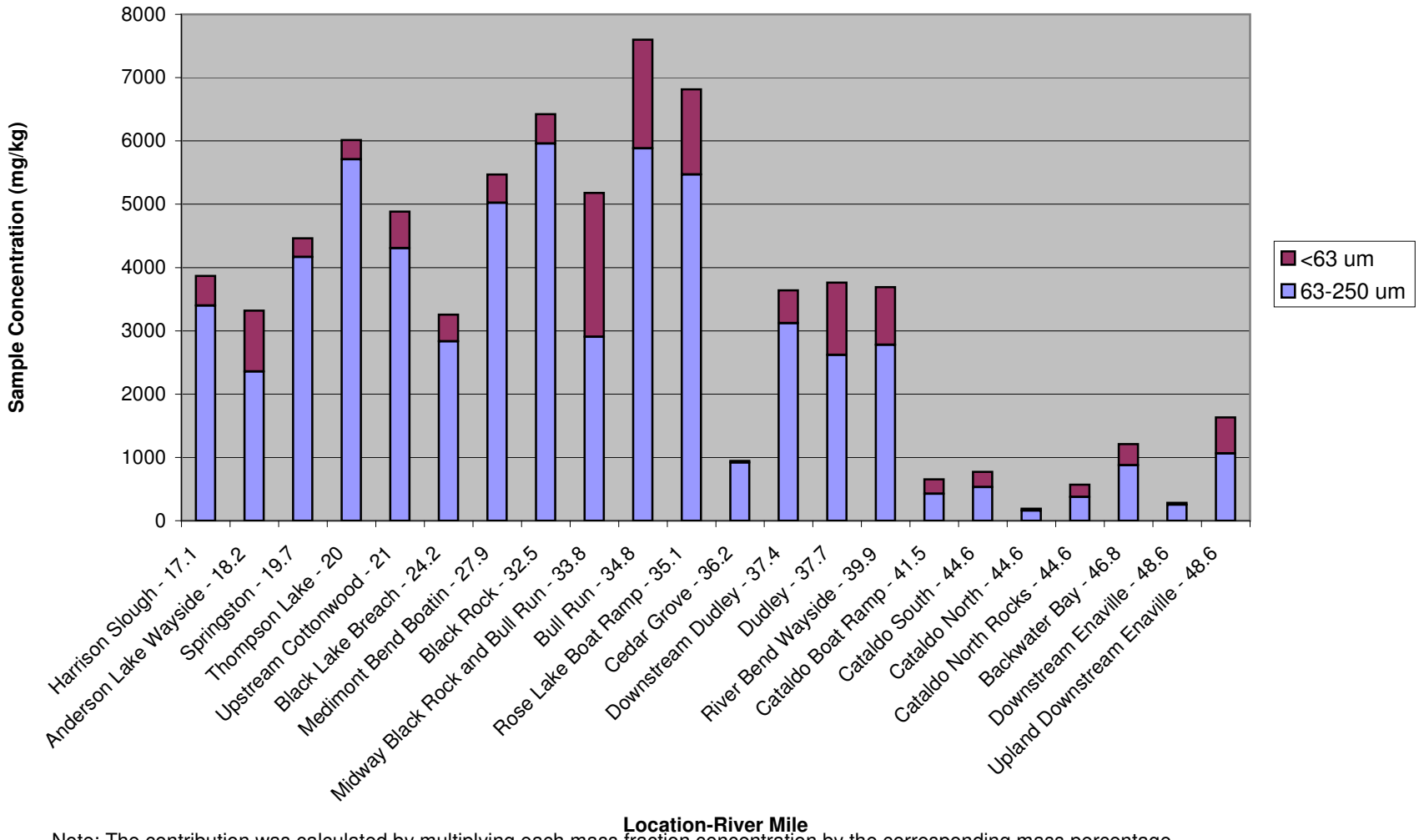
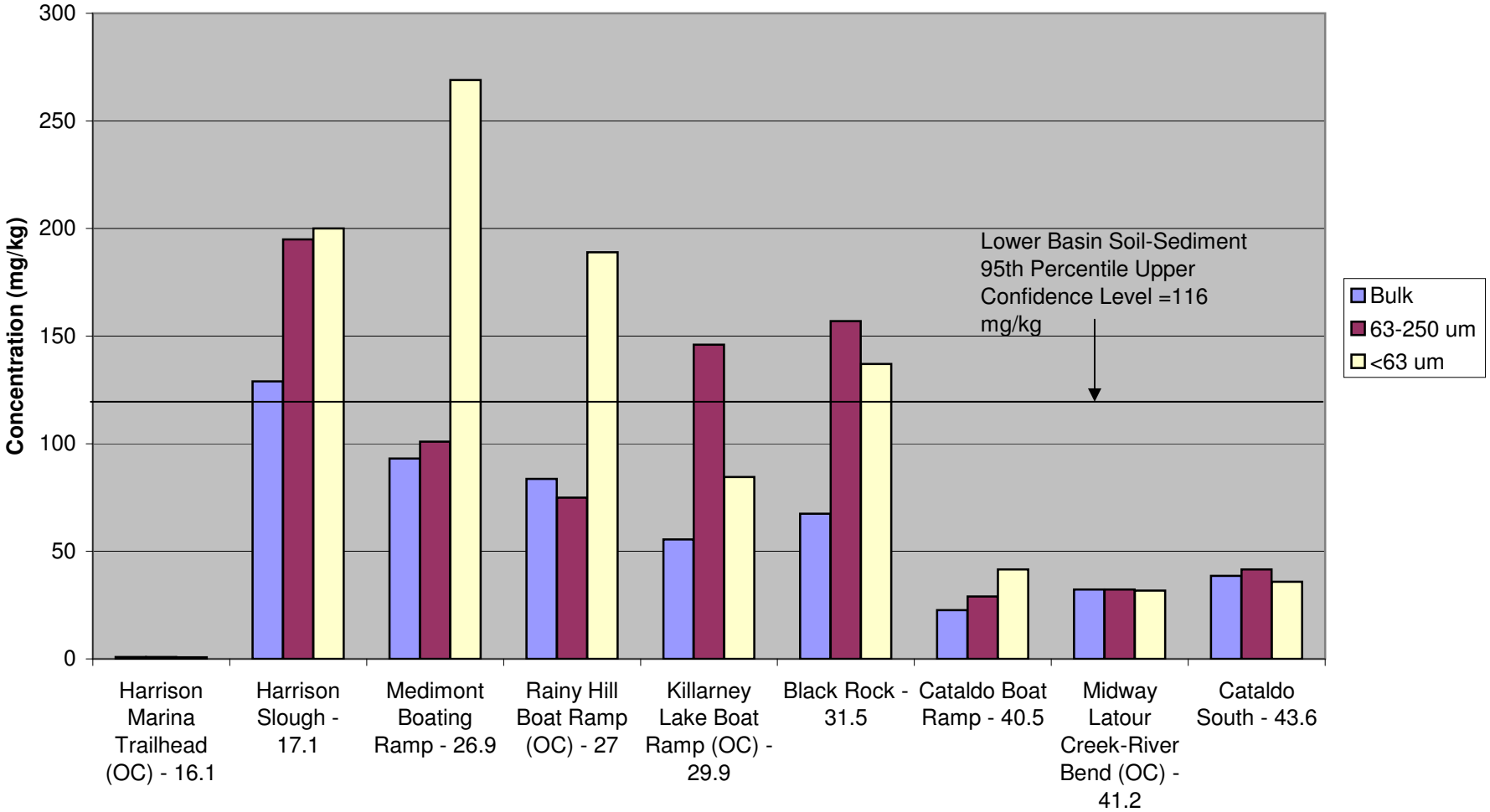


Figure 18. 2008 LBCDR Opportunistic Sediment Sampling
Silt and Sand Fractions Contribution to Zinc Concentration



Note: The contribution was calculated by multiplying each mass fraction concentration by the corresponding mass percentage.

Figure 19. 2008 LBCDR Opportunistic Sediment Sampling
Arsenic Concentration by fraction



Note: OC (Off Channel Location)

Figure 20. 2008 LBCDR Opportunistic Sediment Sampling
Cadmium Concentration by fraction

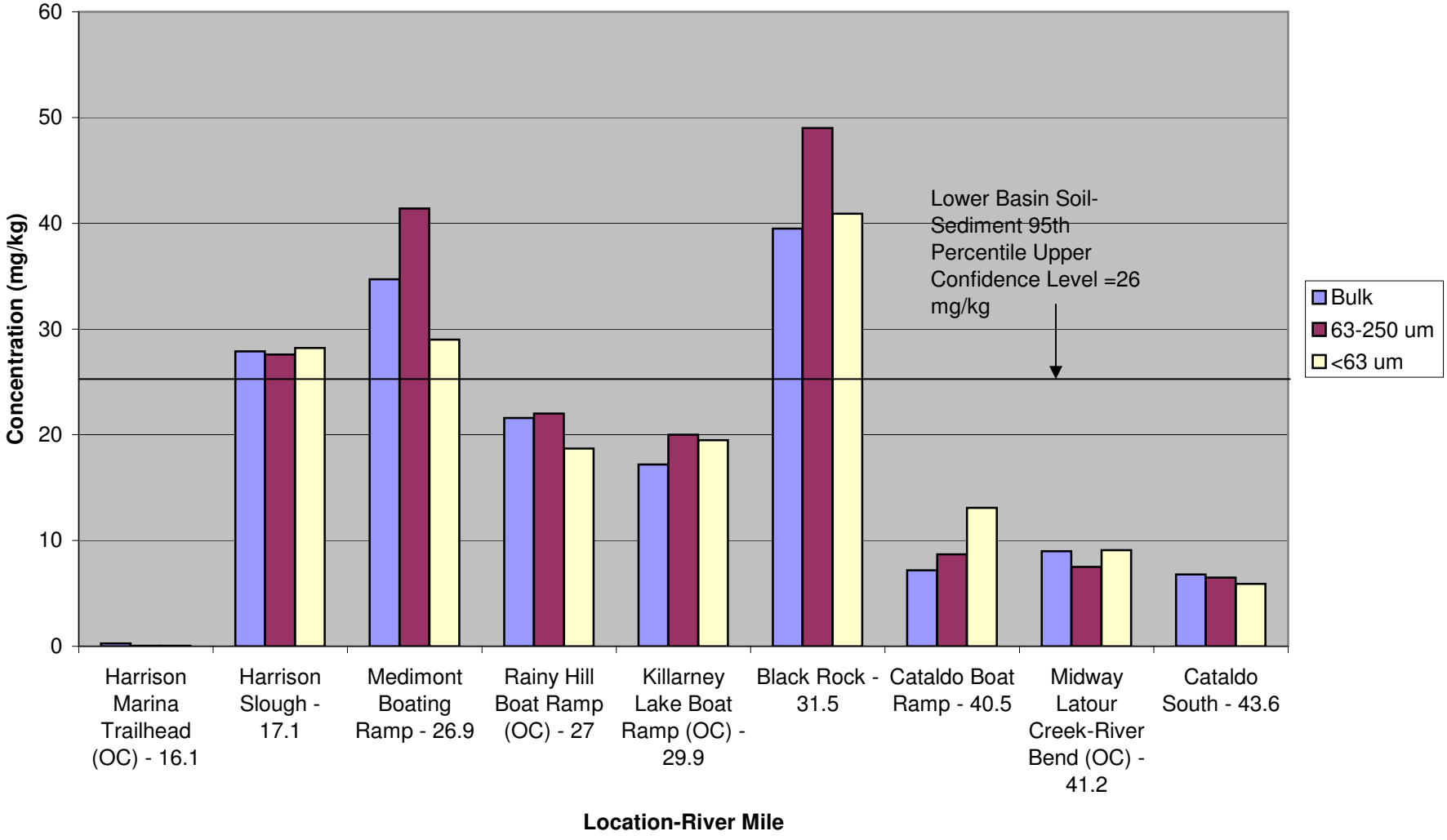


Figure 21. 2008 LBCDR Opportunistic Sediment Sampling
Copper Concentration by fraction

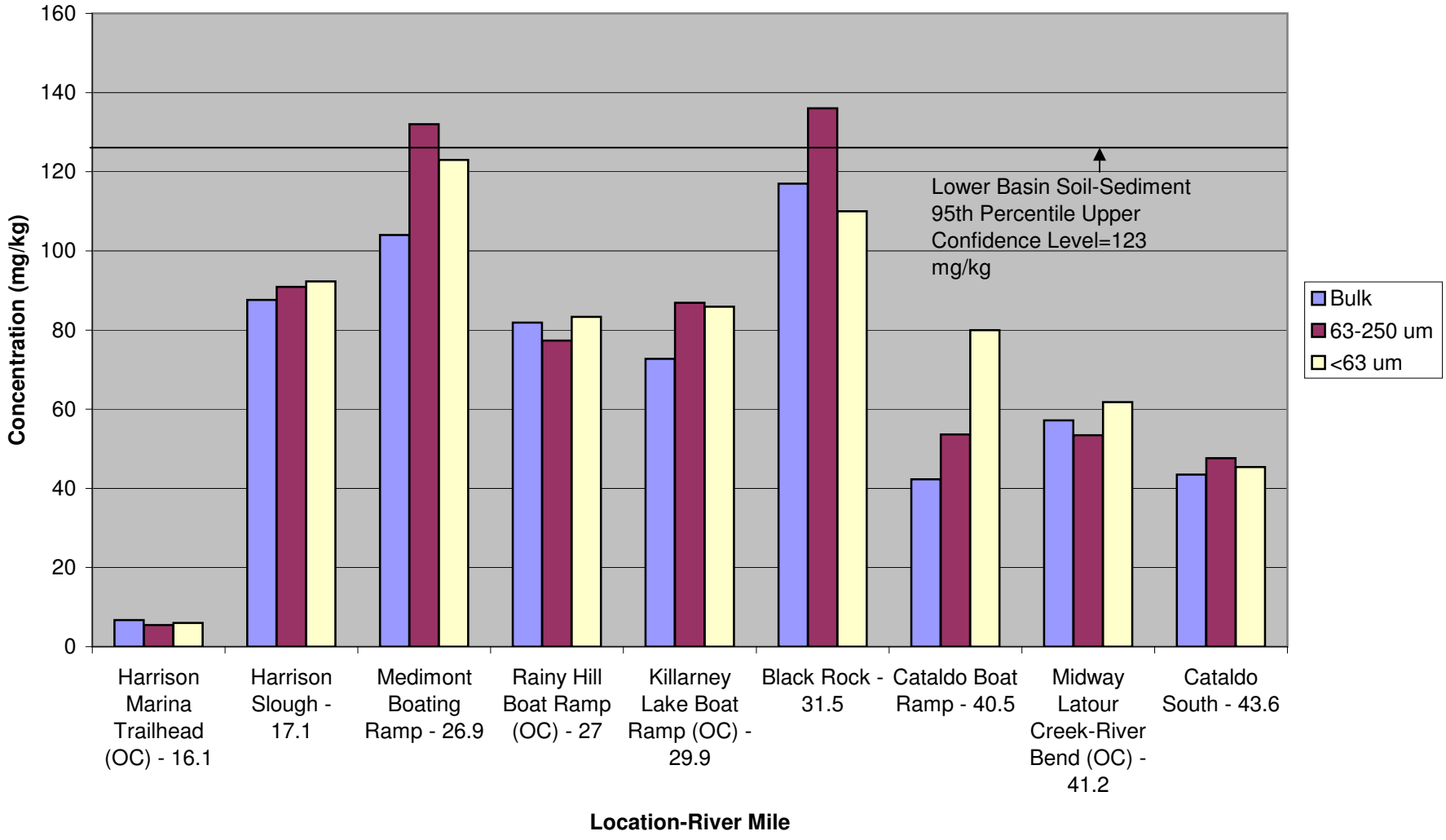


Figure 22. 2008 LBCDR Opportunistic Sediment Sampling
Lead Concentration by fraction

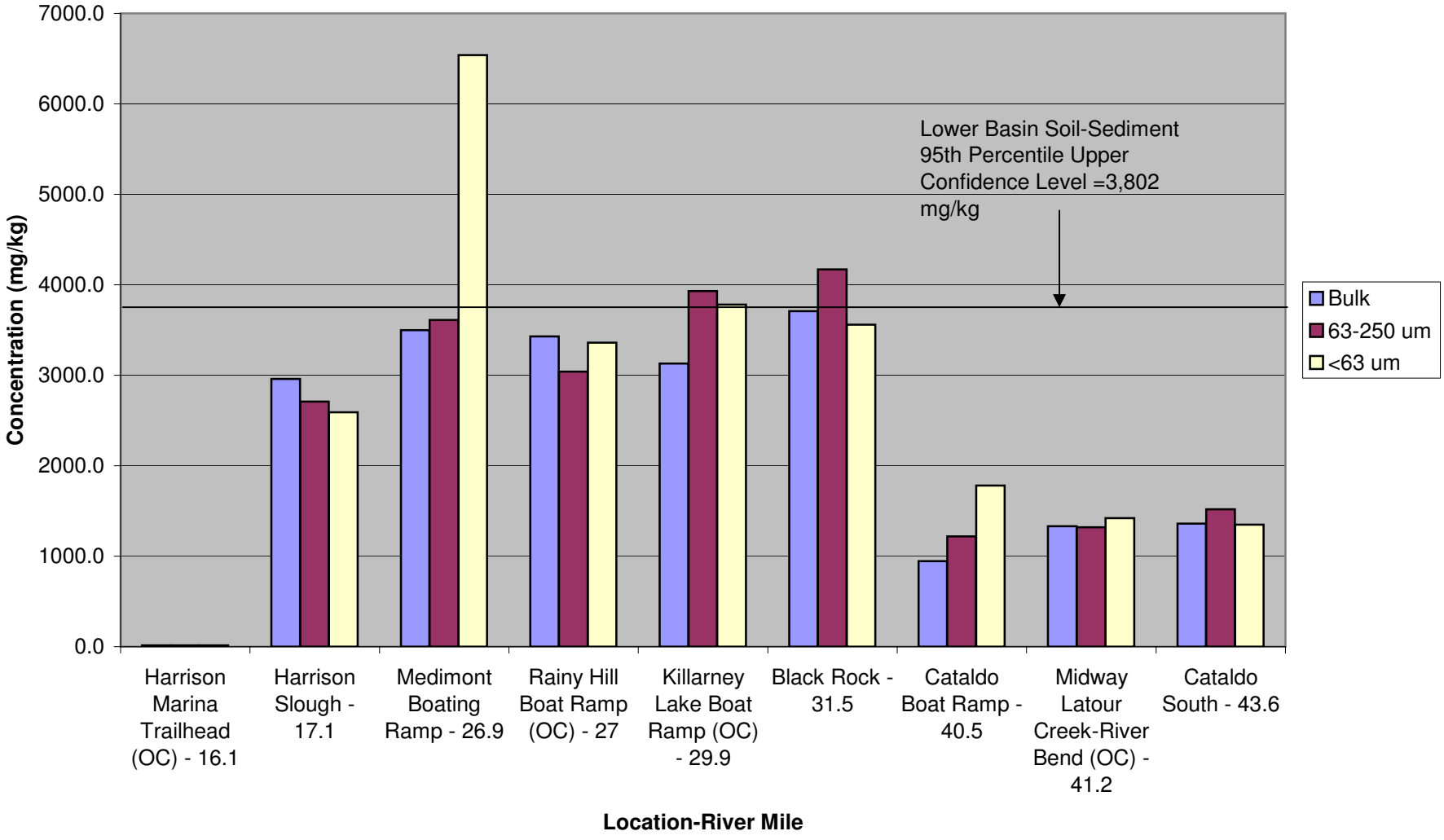


Figure 23. 2008 LBCDR Opportunistic Sediment Sampling
Mercury Concentration by fraction

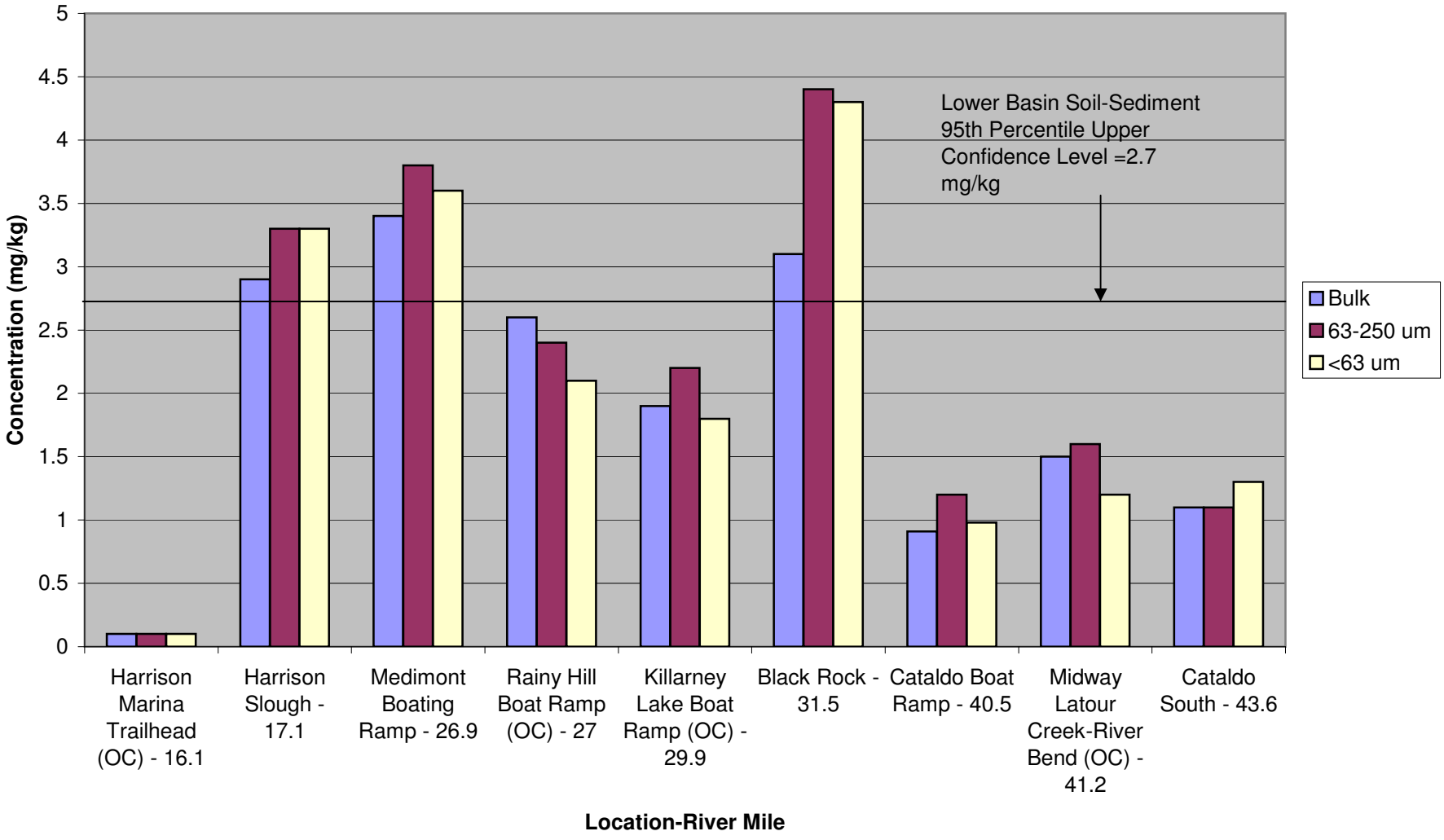


Figure 24. 2008 LBCDR Opportunistic Sediment Sampling
Silver Concentration by fraction

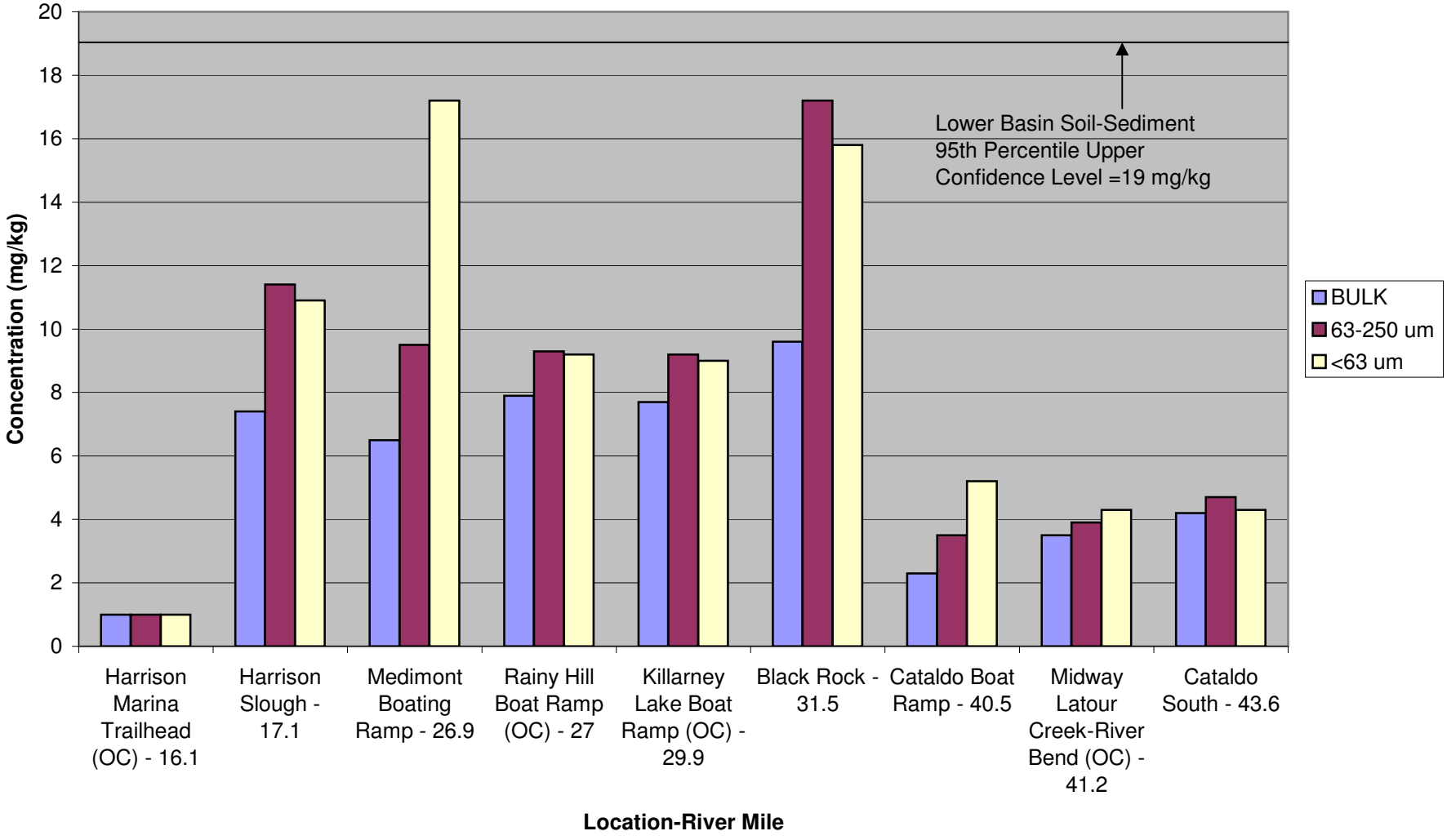


Figure 25. 2008 LBCDR Opportunistic Sediment Sampling
Zinc Concentration by fraction

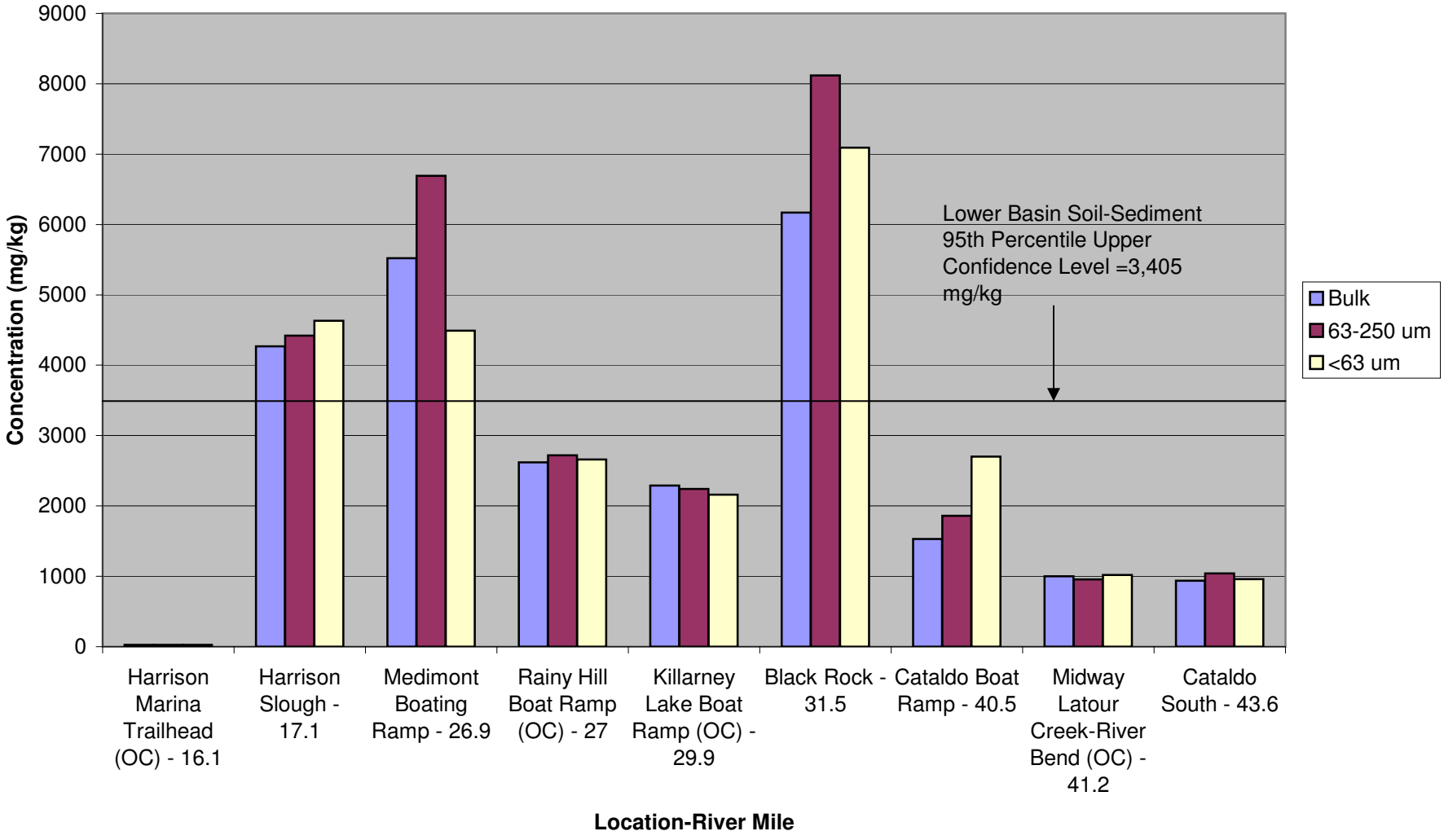


Table 1. 2008 Post-Flood Lower Coeur d'Alene River Basin Opportunistic Sediment Sampling

Sampling Date: June 10-12

				ANALYTE CONCENTRATION (mg/kg)						
RM	Station Description	Location	Size Fraction	ARSENIC	CADMIUM	COPPER	LEAD	MERCURY	SILVER	ZINC
0	Harrison Marina Trailhead	Off Channel	BULK	0.85	0.28	6.7	13.1	0.1	1.0	27.5
			63 um - 250 um	0.92	0.04	5.5	14.2	0.1	1.0	26
			< 63 um	0.79	0.05	6	14.7	0.1	1.0	26.7
1	Harrison Slough	In Channel	BULK	129	28	88	2,960	2.9	7.4	4,270
			63 um - 250 um	195	28	91	2,710	3.3	11.4	4,420
			< 63 um	200	28	92	2,590	3.3	10.9	4,630
1.1	Anderson Lake Wayside	Floodplain	BULK	121	28	99	3,650	3.1	7.6	3,860
			63 um - 250 um	189	27	95	3,080	3.2	11.8	4,100
			< 63 um	172	26	91	2,960	3.6	11.7	4,050
2.6	Springston	In Channel	BULK	157	33	119	3,890	3.4	8.7	5,080
			63 um - 250 um	139	33	115	3,620	3.5	9.4	5,230
			< 63 um	394	32	137	6,400	3.7	20.9	4,960
2.9	Thompson Lake	Floodplain	BULK	121	35	108	2,490	3.5	9.6	5,660
			63 um - 250 um	178	36	99	2,440	3.1	14.4	6,120
			< 63 um	171	34	100	2,260	5.1	14.3	5,720
3.9	Upstream Cottonwood	In Channel	BULK	114	35	110	2,990	3.4	7.7	5,390
			63 um - 250 um	93	34	116	2,780	3.9	9.3	5,450
			< 63 um	348	35	151	6,550	4.0	20.8	5,340
7.1	Black Lake Breach	In Channel	BULK	131	33	123	5,350	3.4	8.5	4,800
			63 um - 250 um	121	32	122	5,010	3.6	9.6	4,880
			< 63 um	292	28	124	6,220	3.4	18.8	4,450
10.8	Medimont Boating Ramp	In Channel	BULK	93	35	104	3,500	3.4	6.5	5,520
			63 um - 250 um	101	41	132	3,610	3.8	9.5	6,690
			< 63 um	269	29	123	6,540	3.6	17.2	4,490
10.9	Rainy Hill Boat Ramp	Off Channel	BULK	84	22	82	3,430	2.6	7.9	2,620
			< 63 um	189	19	83	3,360	2.1	9.2	2,660
			63 um - 250 um	75	22	77	3,040	2.4	9.3	2,720
13.8	Killarney Lake Boat Ramp	Off Channel	BULK	56	17	73	3,130	1.9	7.7	2,290
			63 um - 250 um	146	20	87	3,930	2.2	9.2	2,240
			< 63 um	85	20	86	3,780	1.8	9.0	2,160
15.4	Black Rock	Floodplain	BULK	68	40	117	3,710	3.1	9.6	6,170
			63 um - 250 um	157	49	136	4,170	4.4	17.2	8,120
			< 63 um	137	41	110	3,560	4.3	15.8	7,090
16.7	Midway Black Rock-Bull Run	Floodplain	BULK	97	35	112	5,680	3.5	11.1	5,140
			63 um - 250 um	143	34	94	4,470	3.6	12.5	5,360
			< 63 um	140	33	96	4,280	3.4	14.3	5,240
17.7	Bull Run	In Channel	BULK	69	46	130	5,110	4.4	12.1	7,180
			63 um - 250 um	141	49	136	4,280	4.9	17.1	8,080
			< 63 um	142	51	145	4,290	4.7	17.8	8,710
18	Rose Lake Boat Ramp	Floodplain	BULK	72	45	126	5,110	4.5	11.5	7,080
			63 um - 250 um	142	42	118	4,420	3.7	13.3	6,710
			< 63 um	148	48	142	4,820	5.2	17.1	8,110
19.1	Cedar Grove	Floodplain	BULK	67	21	103	3,370	3.6	8.2	3,560
			63 um - 250 um	169	31	152	4,400	5.5	19.7	5,290
			< 63 um	164	29	147	4,160	7.2	19.0	5,120
20.3	Downstream Dudley	Floodplain	BULK	71	36	122	4,500	4.3	14.4	5,130
			63 um - 250 um	70	39	138	4,120	4.5	8.9	4,490
			< 63 um	211	38	159	8,690	4.7	22.7	5,630

20.6	Dudley	Floodplain	BULK	55	24	91	3,210	3.3	5.9	3,770
			63 um - 250 um	137	25	97	2,840	3.8	10.3	4,250
			< 63 um	131	28	104	2,760	4.2	12.3	5,450
22.8	River Bend Wayside	In Channel	BULK	63	22	79	2,560	2.1	8.6	3,050
			63 um - 250 um	159	29	93	2,820	2.5	10.7	4,660
			< 63 um	148	28	108	2,580	2.3	10.1	4,620
24.4	Cataldo Boat Ramp	Floodplain	BULK	23	7	42	946	0.9	2.3	1,530
			63 um - 250 um	29	9	54	1,220	1.2	3.5	1,860
			< 63 um	42	13	80	1,780	1.0	5.2	2,700
25.1	Midway Latour Creek-River Be	Off Channel	BULK	32	9	57	1,330	1.5	3.5	1,000
			63 um - 250 um	32	8	53	1,320	1.6	3.9	957
			< 63 um	32	9	62	1,420	1.2	4.3	1,020
27.5	Cataldo South	Floodplain	BULK	39	7	44	1,360	1.1	4.2	938
			63 um - 250 um	42	7	48	1,520	1.1	4.7	1,040
			< 63 um	36	6	45	1,350	1.3	4.3	960
27.5	Cataldo North	Floodplain	BULK	31	5	36	1,530	0.5	3.6	896
			63 um - 250 um	142	8	56	1,990	1.2	8.3	1,390
			< 63 um	141	8	61	1,910	1.6	6.4	1,350
27.5	Cataldo North Rocks	Floodplain	BULK	31	9	54	1,230	1.5	3.3	940
			63 um - 250 um	33	9	59	1,400	1.5	4.4	992
			< 63 um	31	9	57	1,350	0.9	4.0	956
29.7	Backwater Bay	In Channel	BULK	50	10	67	1,960	1.4	7.4	1,600
			63 um - 250 um	53	11	64	2,030	1.8	8.0	1,830
			< 63 um	55	9	58	1,760	1.4	6.4	1,660
31.5	Downstream Enaville	In Channel	BULK	69	9	69	2,540	0.7	6.7	1,500
			63 um - 250 um	179	13	110	3,020	1.8	11.2	2,160
			< 63 um	169	12	101	2,750	2.5	11.1	2,080
31.5	Upland Downstream Enaville	Floodplain	BULK	65	15	90	2,760	2.8	9.6	1,840
			63 um - 250 um	70	17	101	3,110	3.0	10.4	2,000
			< 63 um	65	16	96	2,900	1.9	10.3	1,920

Data Statistics: (Data does not include Harrison Marina Trailhead due to low metal concentration.)

		ARSENIC	CADMIUM	COPPER	LEAD	MERCURY	SILVER	ZINC
	Minimum	23	5	36	946	0.5	2.3	896
	Maximum	157	46	130	5680	4.5	14.4	7180
BULK	Average	76	24	90	3132	2.7	7.7	3633
	Minimum	29	7	48	1220	1.1	3.5	957
	Maximum	195	49	152	5010	5.5	19.7	8120
63-250 um	Average	117	26	98	3094	3.0	10.3	4042
	Minimum	31	6	45	1350	0.9	4.0	956
	Maximum	394	51	159	8690	7.2	22.7	8710
<63 um	Average	157	26	103	3529	3.3	12.8	4134

		ARSENIC	CADMIUM	COPPER	LEAD	MERCURY	SILVER	ZINC
	Minimum	Cataldo Boat Ramp	Cataldo North	Cataldo North	Cataldo Boat Ramp	Cataldo North	Cataldo Boat Ramp	Cataldo North
Bulk	Maximum	Springston	Bull Run	Bull Run	Midway Black Rock-Bull R	Downstream Dudley	Thompson Lake	Bull Run
	Minimum	Cataldo Boat Ramp	Cataldo South	Cataldo South	Cataldo Boat Ramp	Cataldo South	Cataldo Boat Ramp	Midway Latour Creek-River Bend
63-250 um	Maximum	Harrison Slough	Bull Run	Cedar Grove	Black Lake Breach	Cedar Grove	Cedar Grove	Black Rock
	Minimum	Cataldo North Rocks	Cataldo South	Cataldo South	Cataldo South	Cataldo North Rocks	Cataldo North Rocks	Cataldo North Rocks
<63 um	Maximum	Springston	Bull Run	Downstream Dudley	Downstream Dudley	Cedar Grove	Downstream Dudley	Bull Run

Station	Silt/Clay Fraction	Sand Fraction
Harrison Slough	10.1%	13.0%
Anderson Lake Wayside	23.7%	18.8%
Springston	5.9%	14.4%
Thompson Lake	5.3%	1.4%
Upstream Cottonwood	10.8%	10.2%
Black Lake Breach	9.4%	32.5%
Medimont Bend Boating Site	9.9%	15.0%
Black Rock	6.5%	20.1%
Midway between Black Rock a	43.4%	2.4%
Bull Run	19.7%	7.5%
Rose Lake Boat Ramp	16.6%	1.9%
Cedar Grove	0.5%	82.1%
Downstream Dudley	9.2%	21.3%
Dudley	21.0%	17.4%
River Bend Wayside	19.8%	20.6%
Cataldo Boat Ramp	8.4%	68.7%
Cataldo South	25.0%	24.0%
Cataldo North	2.2%	86.4%
Cataldo North Rocks	20.3%	41.8%
Backwater Bay	20.1%	32.0%
Downstream Enaville	1.3%	86.9%
Upland Downstream Enaville	29.6%	17.3%

TABLE 2. 2008 Lower Coeur d'Alene River Basin Opportunistic Sediment Sampling Field Notes

	Station Description	Northing	Easting	Sed. Thickness	Floodwater Line	Sediment Characteristic
1	Harrison Marina Trailhead	47°27' 16.08" N	116°47' 13.75" W	1-2 cm	-	Fine Grain
2	Harrison Slough	47°27' 57.368" N	116°45' 54.379" W	2-3 cm	-	Fine Grain
3	Anderson Lake Wayside	47°27' 54.867" N	116°45' 49.770" W	7 cm	-	Fine Grain
4	Springston	47°28' 43.271" N	116°43' 54.381" W	3-4 cm	-	Brown Fine Particles with oxidized layers
5	Thompson Lake	47°29' 8.506" N	116°43' 29.387" W	2-5 cm	-	Light brown silt with sand
6	Upstream Cottonwood	47°28' 34.163" N	116°42' 33.806" W	2-5 cm	-	Gray Sand
7	Black Lake Breach	47°27' 30.024" N	116°39' 21.114" W	3-4 cm	-	Fine Particles
8	Medimont Bend Boating Site	47°28' 40.239" N	116°35' 43.738" W	5-6 cm	-	Dark Brown Silt with some sand
9	Rainy Hill Boat Ramp	47°28' 24.812" N	116°35' 17.415" W	<1cm	-	Fine Particles
10	Killarney Lake Boat Ramp	47°30' 55.405" N	116°33' 20.184" W	2-3 cm	-	Silty-Sand with high moisture content
11	Black Rock	47°31' 22.906" N	116°30' 58.345" W	2-4 cm	4 ft	Brown Sand with some silt
12	Midway Black Rock-Bull Run	47°31' 59" N	116°29' 58.795" W	1-3 cm	-	Brown Silt with some sand
13	Bull Run	47°32' 03.448" N	116°28' 25.456" W	7-8 cm	-	Brown Sand
14	Rose Lake Boat Ramp	47°32'17.85"N	116°28'17.59"W	2-8 cm	-	Cohesive brown silty with sand
15	Cedar Grove	47°31' 49.994" N	116°26' 58.494" W	2-10 cm	-	Dark Brown Sand
16	Downstream Dudley	47°32' 23.634" N	116°25' 58.355" W	1-10 cm	-	Sand-Fine Particles
17	Dudley	47°32' 32.700" N	116°25' 33.995" W	3-6 cm	4 ft	Brown Sand with some silt
18	River Bend Wayside	47°32' 14.935" N	116°23' 09.517" W	1-3 cm	-	Brown sand with some silt
19	Cataldo Boat Ramp	47°33' 9.356" N	116°22' 0.115" W	2-3 cm	-	Fine-grained silt with dark brown color
20	Between Latour Creek and River Bend	47°32' 42.896" N	116°22' 21.205" W	1-2 cm	-	Brown Cohesive Silt
21	Cataldo South	47°33' 16.561" N	116°19' 30.515" W	2-5 cm	-	Brown Silt with some sand
22	Cataldo North	47°33' 20.07" N	116°19' 29.656" W	1 cm	-	Fine Particles
23	Cataldo North Rocks	47°33' 22.730" N	116°19' 24.488" W	1-2 cm	4 ft	Brown Fine Particles with earthy smell
24	Backwater Bay	47°33' 22.906" N	116°30' 58.345" W	1-2 cm	-	Sand with silt, lots of organics
25	Downstream Enaville	47°33' 31.028" N	116°15' 19.278" W	4-6 cm	-	Brown coarse sand with some silt
26	Upland Downstream Enaville	47°33' 29.005" N	116°15' 17.993" W	1-2 cm	1 ft	Super fine dark brown particles