

Table 2. Location and Biological Data for 1999 Spokane River Fish Samples

Location	Species	Tissue	Sample Number	Total Length (mm)	Weight (grams)	Sex	Age
Stateline River Mile 96.0 USGS #12429500 Reach Length 1099 m 7/27/1999	Rainbow Trout	Fillet	485000	457	855	F	not yet determined
	(wild)	"	485001	405	715	F	
	"	"	485002	453	975	F	
	"	"	485003	460	895	F	
	"	"	485004	335	472	M	
	"	Whole	485005a	365	540	F	
	"	"	485005b	390	660	M	
	"	"	485005c	368	581	M	
	"	"	485005d	385	609	M	
	"	"	485005e	360	557	F	
	Largescale Sucker	Whole	485006a	490	1056	F	
"	"	485006b	492	1144	F		
"	"	485006c	485	1196	F		
"	"	485006d	470	963	M		
"	"	485006e	460	902	M		
"	Fillet	485007	490	1214	F		
"	"	485008	455	969	M		
"	"	485009	525	1275	F		
"	"	485010	427	834	M		
"	"	485011	436	803	F		

Table 2. (continued)

Total

Location	Species	Tissue	Sample Number	Length (mm)	Weight (grams)	Sex	Age	
Plante Ferry Site Park River Mile 85.0 USGS #12420800 Reach Length 1436 m 7/28/1999	Rainbow Trout (wild)	Whole	485012a	346	433	M		
		"	485012b	438	840	F		
	"	"	485012c	392	623	F		
	"	"	485012d	324	387	F		
	"	"	485012e	360	479	F		
	"	Fillet	485013	413	754	F		
	"	"	485014	276	235	M		
	"	"	485015	387	538	F		
	"	"	485016	345	438	M		
	"	"	485017	395	584	F		
	Largescale Sucker	Whole	485018a	425	810	M		
		"	485018b	405	805	F		
		"	485018c	440	925	F		
		"	485018d	447	1030	M		
		"	485018e	425	780	M		
		"	Fillet	485019	435	963	M	
		"	"	485020	445	1002	M	
		"	"	485021	450	1025	F	
		"	"	485022	395	696	M	
		"	"	485023	445	897	M	

Table 2. (continued)

Location	Species	Tissue	Sample Number	Total Length (mm)	Weight (grams)	Sex	Age
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Greene Street	Rainbow Trout	Fillet	485024	326	353	F
River Mile 77.0	(wild)	"	485025	270	209	F
USGS #12422000	"	"	485026	359	476	F
Reach Length 1300 m	"	"	485027	347	432	M
7/29/1999	"	"	485028	259	202	M
	"	Whole	485029a	247	184	F
	"	"	485029b	280	248	M
	"	"	485029c	265	223	F
	"	"	485029d	309	392	M
	"	"	485029e	338	460	F
	Mountain Whitefish	Fillet	485030	355	436	F
	"	"	485031	305	320	M
	"	"	485032	400	641	F
	"	"	485033	344	426	F
	"	"	485034	310	311	F
	"	Whole	485035a	356	489	F
	"	"	485035b	300	313	F
	"	"	485035c	302	296	M
	"	"	485035d	302	284	M
	"	"	485035e	300	301	F

Table 2. (continued)

Location	Species	Tissue	Sample Number	Total Length (mm)	Weight (grams)	Sex	Age
Greene Street	Largescale Sucker	Fillet	485036	435	877	M	
River Mile 77.0	"	"	485037	475	1087	M	
USGS #12422000	"	"	485038	415	731	M	
Reach Length 1300 m	"	"	485039	496	1221	F	
7/29/1999	"	"	485040	419	759	F	
	"	Whole	485041a	430	633	M	
	"	"	485041b	450	878	F	
	"	"	485041c	478	1039	M	
	"	"	485041d	430	648	F	
	"	"	485041e	455	753	F	
7-Mile Bridge	Rainbow Trout	Whole	485042a	334	406	F	
River Mile 63.0	(hatchery)	"	485042b	332	383	M	
USGS #1242500	"	"	485042c	324	353	M	
Reach Length 1069 m	"	"	485042d	337	363	F	
7/30/1999	"	"	485042e	343	390	F	
	"	Fillet	485043	318	340	F	
	"	"	485044	305	303	M	
	"	"	485045	335	410	M	
	"	"	485046	317	335	F	
	"	"	485047	351	506	F	
	Rainbow Trout	Fillet	485048	368	605	F	
	(wild)	"	485049	502	1300	F	

Table 2. (continued)

Location	Species	Tissue	Sample Number	Total Length (mm)	Weight (grams)	Sex	Age
7-Mile Bridge	Mountain Whitefish	Fillet	485050	374	405	F	
River Mile 63.0	"	"	485051	356	440	M	
USGS #1242500	"	"	485052	375	460	F	
Reach Length 1069 m	"	"	485053	335	351	M	
7/30/1999	"	"	485054	353	399	F	
	"	Whole	485055a	353	474	F	
	"	"	485055b	314	339	M	
	"	"	485055c	327	382	F	
	"	"	485055d	328	320	F	
	"	"	485055e	329	309	F	
	Largescale Sucker	Fillet	485056	425	846	M	
	"	"	485057	484	954	F	
	"	"	485058	425	923	M	
	"	"	485059	490	1131	F	
	"	"	485060	444	818	M	
	"	Whole	485061a	479	943	F	
	"	"	485061b	445	914	F	
	"	"	485061c	421	783	M	
	"	"	485061d	430	859	F	
	"	"	485061e	462	1074	M	

Table 2. (continued)

Carapace

Location	Species	Tissue	Sample Number	Length (mm)	Weight (grams)	Sex	Age
Plante Ferry Site Park River Mile 84.7 10/14/1999	Crayfish	Whole	485062	53	40	--	--
	"	"	"	43	32	--	--
	"	"	"	48	35	--	--
Trent Ave. Bridge River Mile 76.3 10/14/1999	Crayfish	Whole	485063	65	92	--	--
	"	"	"	50	37	--	--
	"	"	"	46	30	--	--
	"	"	"	55	47	--	--
7-Mile Bridge River Mile 62.0 10/14/1999	"	"	"	53	37	--	--
	Crayfish	Whole	485064	57	50	--	--
	"	"	"	47	25	--	--
	"	"	"	50	33	--	--
	"	"	"	37	16	--	--
"	"	"	"	43	23	--	--

Table 3. Metals Concentrations in 1999 Spokane River Fish Samples (wet weight basis)

Location	Species	Tissue	Sample Number	Zinc (mg/Kg)	Lead (mg/Kg)	Cadmium (mg/Kg)
Stateline River Mile 96.0 USGS #12429500 Reach Length 1099 m 7/27/1999	Rainbow Trout	Fillet	485000	na	0.48	na
	(wild)	"	485001	na	0.071	na
	"	"	485002	na	0.11	na
	"	"	485003	na	0.32	na
	"	"	485004	na	0.12	na
	"	Whole	485005	45.3	0.73	0.24
	Largescale Sucker	Whole	485006	150	4.34	0.35
	"	Fillet	485007	na	0.088	na
	"	"	485008	na	0.21	na
	"	"	485009	na	0.28	na
	"	"	485010	na	0.030	na
"	"	485011	na	0.036	na	
Plante Ferry Site Park River Mile 85.0 USGS #12420800 Reach Length 1436 m 7/28/1999	Rainbow Trout	Whole	485012	50.8	1.14	0.27
	(wild)	Fillet	485013	na	0.25	na
	"	"	485013-dup	na	0.21	na
	"	"	485013-dup	na	0.19	na
	"	"	485014	na	0.055	na
	"	"	485015	na	0.32	na
	"	"	485016	na	0.077	na
	"	"	485017	na	0.081	na
	Largescale Sucker	Whole	485018	86.0	1.77	0.25
	"	"	485018-dup	123	2.12	0.25
	"	"	485018-dup	109	2.05	0.26
	"	Fillet	485019	na	0.047	na
	"	"	485020	na	0.077	na
	"	"	485021	na	0.069	na
"	"	485022	na	0.16	na	
"	"	485023	na	0.088	na	
Greene Street River Mile 77.0 USGS #12422000 Reach Length 1300 m 7/29/1999	Rainbow Trout	Fillet	485024	na	0.17	na
	(wild)	"	485025	na	0.13	na
	"	"	485026	na	0.11	na
	"	"	485027	na	0.081	na
	"	"	485028	na	0.098	na
	"	Whole	485029	40.2	0.60	0.23
	Mountain Whitefish	Fillet	485030	na	0.02U	na
	"	"	485031	na	0.02U	na
	"	"	485032	na	0.02U	na
	"	"	485033	na	0.02U	na
	"	"	485034	na	0.02U	na
	"	Whole	485035	35.4	0.65	0.16

Table 3. (continued)

Location	Species	Tissue	Sample Number	Zinc (mg/Kg)	Lead (mg/Kg)	Cadmium (mg/Kg)
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Greene Street	Largescale Sucker	Fillet	485036	na	0.12	na
River Mile 77.0	"	"	485037	na	0.054	na
USGS #12422000	"	"	485038	na	0.080	na
Reach Length 1300 m	"	"	485039	na	0.059	na
7/29/1999	"	"	485040	na	0.094	na
	"	Whole	485041	90.8	3.12	0.19
7-Mile Bridge	Rainbow Trout	Whole	485042	64.0	1.59	0.30
River Mile 63.0	(hatchery)	Fillet	485043	na	0.18	na
USGS #1242500	"	"	485044	na	0.23	na
Reach Length 1069 m	"	"	485045	na	0.082	na
7/30/1999	"	"	485046	na	0.21	na
	"	"	485047	na	0.20	na
	Rainbow Trout	Fillet	485048	na	0.025	na
	(wild)	"	485049	na	0.038	na
	Mountain Whitefish	Fillet	485050	na	0.065	na
	"	"	485051	na	0.02U	na
	"	"	485052	na	0.037	na
	"	"	485053	na	0.02U	na
	"	"	485054	na	0.036	na
	"	Whole	485055	28.4	0.56	0.20
	Largescale Sucker	Fillet	485056	na	0.059	na
	"	"	485057	na	0.068	na
	"	"	485058	na	0.02U	na
	"	"	485059	na	0.09	na
	"	"	485060	na	0.046	na
	"	Whole	485061	58.8	1.80	0.21
Plante Ferry Site Park	Crayfish	Whole	485062	41.0	1.34	0.44
River Mile 84.7						
10/14/1999						
Trent Ave. Bridge	Crayfish	Whole	485063	33.0	0.89	0.37
River Mile 76.3						
10/14/1999						
7-Mile Bridge	Crayfish	Whole	485064	29.2	0.34	0.20
River Mile 62.0						
10/14/1999						

na = not analyzed

U = not detected at or above reported value

Table 1. Plan of Analysis for 1999 Spokane River Fish Samples

(Number of samples indicated; whole body samples are composites, fillets are individual fish)

Location	Species	Tissue	Zn, Pb,Cd	Pb only	Aroclor Equivaler	PCB Congeners	Percent Lipid
Stateline	Largescale Sucker	Whole	1		1		1
	"	Fillet		5	5		5
	Rainbow Trout*	Whole	1		1		1
	"	Fillet		5	5		5
Plante Ferry Park	Largescale Sucker	Whole	1		1	1	1
	"	Fillet		5	5	3	5
	Rainbow Trout*	Whole	1		1	1	1
	"	Fillet		5	5	3	5
	Crayfish	Whole	1		1	1	1
Greene Street	Largescale Sucker	Whole	1		1		1
	"	Fillet		5	5		5
	Rainbow Trout*	Whole	1		1		1
	"	Fillet		5	5		5
	Montain Whitefish	Whole	1		1	1	1
	"	Fillet		5	5	3	5
7-Mile Bridge	Crayfish	Whole	1		1		1
	Largescale Sucker	Whole	1		1		1
	"	Fillet		5	5		5
	Rainbow Trout**	Whole	1		1		1
	"	Fillet		5	5		5
	Rainbow Trout*	Fillet		2	2		2
	Montain Whitefish	Whole	1		1		1
	"	Fillet		5	5		5
Total Samples =			13	52	65	13	65

*wild **hatchery

DEPARTMENT OF ECOLOGY

February 16, 2000

TO: John Roland, TCP/ERO

FROM: Art Johnson, EAP/HQ

SUBJECT: Results from Analyzing Metals in 1999 Spokane River
Fish and Crayfish Samples

Manchester Laboratory has completed their analyses for zinc, lead, and cadmium in the Spokane River fish and crayfish samples collected in July, August, and October of last year. Their data reports and quality assurance reviews are attached. These results, without the benefit of interpretation, are being promptly delivered to support the US Environmental Protection Agency Ecological Risk Assessment for the Spokane River.

Three tables are attached that summarize the information:

[Table 1.](#) Plan of Analysis (in Adobe pdf format)

[Table 2.](#) Location Information and Biological Data (in Adobe pdf format)

[Table 3.](#) Metals Concentrations (in Adobe pdf format)

A quality assurance project plan (Johnson, 1999) describes how the tissues were prepared. The ages of the fish are being determined from scales and other parts provided to John Sneva of the Department of Fish and Wildlife. The age data will not be available until sometime this spring.

Only enough crayfish were collected to analyze three whole body samples. Some data already exist on lead in crayfish muscle from samples collected in 1994 (Johnson, 1994).

If there are questions about these data, please call me at (360) 407-6766 or send email to arjo461@ecy.wa.gov.

AJ:smr

Attachments

cc: Flora Goldstein, TCP/ERO

Will Kendra, EAP/HQ

Matt Kadlec, EAP/HQ

Terry Maret, USGS

Koenraad Marien, WDOH

References

Johnson, A., 1994. PCB and Lead Results for 1994 Spokane River Fish Samples. Memorandum to

Glen Patrick, Washington State Department of Health. Washington State Department of Ecology, Olympia, WA.

Johnson, A., 1999. Metals and PCB Analysis of Spokane River Fish and Crayfish Samples Collected in 1999 - Quality Assurance Project Plan. Washington State Department of Ecology