



Klamath River Outmigrant Trapping Summary

2008

Synopsis: The 2008 downstream migrant trapping season on the mainstem Klamath River was conducted by the USFWS Arcata Fish and Wildlife Office in cooperation with the Karuk Tribe of California and U.S. Geological Survey Fort Collins Science Center. Trapping began March 11, 2008, using two rotary screw traps (RST) near Kinsman Creek and an RST and fyke net near Carson Creek and the Interstate 5 (I-5) crossing. A fyke net was installed near Bogus Creek on March 16, 2008. A second RST was installed at the I-5 site on March 18, 2008. A fyke net was installed near Cottonwood Creek on March 26, 2008. The upstream (UPS) RST at Kinsman was positioned approximately 30 m upstream of the downstream (DNS) RST at the entrance of a split from the main channel formed by a shallow gravel bar. The UPS RST at I-5 was positioned approximately 40 m upstream of the DNS RST.

In previous years, peak catches at all traps occur prior to the beginning of the young-of-the-year (YOY) Chinook salmon release from the Iron Gate Hatchery (IGH). In 2008 only at the Bogus and Cottonwood sites did peak catches occur before the first hatchery release on May 27, 2008. Trapping continued at the I-5 and Kinsman sites after the initial hatchery release since atypically late peak catch numbers occurred at these sites. Trapping also continued at the Kinsman RSTs as a means of collecting YOY Chinook and YOY and age 1+ coho salmon for fish health analysis. This catch summary includes daily overnight trapping data from the beginning (March 12) through the conclusion (July 15) of the 2008 season. Expansions have not been applied at this time.

Trap catches primarily consisted of wild YOY Chinook salmon. Peak YOY Chinook salmon catches occurred the second week of April at the Bogus site, the second week of May at the Cottonwood site and I-5 fyke, and the last week of May at the I-5 RSTs and Kinsman site. Peak catches of YOY coho salmon occurred in the second week of May at the Bogus, Cottonwood, and I-5 sites and the third week of May at the Kinsman site. Age 1+ hatchery coho salmon with left maxillary (LM) clips were mostly caught in the I-5 RSTs the two weeks following the beginning of volitional releases by IGH on April 2, 2008. Wild age 1+ coho salmon were mostly caught at the Kinsman site with peak catch occurring the second week of May. YOY steelhead were mostly caught at the Bogus site throughout May. Age 1+ steelhead were mostly caught at the Kinsman site from early May through early June. Age 1+ Chinook salmon and hatchery-marked steelhead were not captured in significant numbers.

In addition to juvenile salmonids, a number of other native and non-native fishes were captured in the traps. Native fishes included lamprey (*Entosphenus* spp. ammocoetes, eyed juvenile and adult Pacific lamprey, and eyed juvenile and adult Klamath River lamprey), speckled dace, suckers (*Catostomus* spp.), and marbled sculpin. Non-native fishes included crappie, fathead minnow, golden shiner, bullhead, yellow perch, and various sunfish.

The last table of this document is a summary of clinical signs of disease. Percentages of live YOY Chinook salmon with distended bellies and poor gill condition are summarized. Distended bellies, a clinical sign of *Ceratomyxa shasta* and/or *Parvicapsula minibicornis* infection, were only noticed at the

Kinsman site. Gills of juvenile salmonids ≥ 45 mm FL were evaluated for color (red, pale/pink, white, or tan) and condition (normal, eroded, or fungal). Gill fungus was mostly observed at the I-5 site. Gill fungus is likely *Saprolegnia* growing upon a columnaris (*Flavobacterium columnare*) infection. Pale gills were mostly observed at the Kinsman site. Pale gills may be due to anemia associated with *Parvicapsula minibicornis* infection or a natural reaction to the smoltification process. We merely noted external symptoms of infection, which may not always be revealed by infected fish. QPCR assays and histology analyses conducted by the California-Nevada Fish Health Center will provide more accurate infection rates.

Fish collections for analyses at the California-Nevada Fish Health Center began on April 20, 2008. Our field crew sampled fish for this study on the mainstem Klamath River Reach 4 (Scott River to Shasta River) at the Kinsman trap site and at various seining spots along the river. Fish health sampling concluded once the YOY Chinook salmon had migrated downstream and samples were no longer attainable in Reach 4.

If you have any questions regarding this summary, please contact Steve Gough at (707) 825-5197.

Arcata Fish & Wildlife Office Fisheries Program



USFWS 2008 Mainstem Klamath River Outmigrant Trap Juvenile Salmonid Catch Summary

U.S. Fish & Wildlife Service, Arcata Fish & Wildlife Office, 1655 Heindon Road, Arcata, CA 95521, (707)822-7201

Preliminary Data - Subject to Revision

Trap	Survey Week	Sample Dates	IGD Q (cfs)*		Water Temp. (F)**		Trapping Days	Chinook (<i>O. tshawytscha</i>)			Coho (<i>O. kisutch</i>)			Steelhead (<i>O. mykiss</i>)		
			Min	Max	Min	Max		YOY			Age 1 +			Age 1 +		
								No Clip	AD Clip	Age 1+	YOY	No Clip	LM Clip	YOY	No Clip	AD Clip
Kinsman DNS RST	1	3/12-3/14	1880	2790	42.1	43.4	3	125	0	0	0	1	0	0	8	0
	2	3/18-3/21	2325	2935	44.6	44.6	4	94	0	0	0	2	0	0	8	0
	3	3/25-3/28	2230	2650	44.6	45.1	4	292	0	0	0	1	0	0	9	0
	4	4/1-4/4	2905	2975	43.9	47.2	4	171	0	0	1	1	1	1	10	0
	5	4/8-4/11	2905	2950	46.1	48.4	4	185	0	0	2	0	0	0	8	0
	6	4/15-4/18	2865	2895	47.4	50.0	4	115	0	0	18	0	0	0	11	0
	7	4/22-4/25	2870	2880	47.6	49.0	4	183	0	0	3	4	1	0	15	0
	8	4/29-5/2	2910	3060	49.2	51.1	4	96	0	0	4	7	1	2	26	0
	9	5/6-5/9	2310	2380	53.4	54.2	4	162	0	0	3	7	0	0	44	0
	10	5/13-5/16	1945	2050	56.3	57.1	3	104	0	0	2	1	0	6	11	0
	11	5/20-5/23	1940	1960	55.6	58.8	4	1535	0	0	28	5	0	3	73	0
	12	5/27-5/29	1935	2065	56.9	56.9	2	763	0	0	17	0	1	1	28	0
	13	6/3-6/5	2000	2040	57.9	58.6	3	639	0	0	19	0	0	8	66	0
	14	6/10	2020	2020	58.8	58.8	1	110	1	0	5	0	0	2	12	0
Kinsman UPS RST	1	3/12-3/14	1880	2790	42.1	43.4	2	35	0	0	0	2	0	0	9	0
	2	3/18-3/21	2325	2935	44.6	44.6	4	59	0	0	0	0	0	0	6	0
	3	3/25-3/28	2230	2650	44.6	45.1	4	191	0	0	0	1	0	0	15	0
	4	4/1-4/4	2905	2975	43.9	47.2	4	71	0	1	0	1	0	0	14	0
	5	4/8-4/11	2905	2950	46.1	48.4	4	90	0	0	0	2	1	2	9	0
	6	4/15-4/18	2865	2895	47.4	50.0	4	168	0	0	0	2	0	0	21	0
	7	4/22-4/25	2870	2880	47.6	49.0	4	336	0	0	2	3	0	0	14	0
	8	4/29-5/2	2910	3060	49.2	51.1	3	194	0	0	0	9	0	0	24	0
	9	5/6-5/9	2310	2380	53.4	54.2	4	426	0	0	7	14	1	1	44	0
	10	5/13-5/16	1940	2050	56.3	59.7	4	745	0	2	2	12	2	0	42	0
	11	5/20-5/23	1940	1960	55.6	58.8	4	3352	0	0	17	5	0	1	55	0
	12	5/27-5/29	1935	2065	56.9	57.6	3	5021	0	0	8	1	1	0	40	0
	13	6/3-6/5	2000	2040	57.9	58.6	3	3108	0	0	12	1	0	1	47	0
	14	6/10-6/12	1985	2020	58.8	59.4	3	1889	26	0	13	1	0	2	41	0
15	6/17-6/18	1970	1990	63.6	63.6	2	1485	27	0	2	0	0	0	7	0	
17	7/1	1515	1515	69.7	69.7	1	176	14	0	1	0	0	1	15	0	
19	7/15	1020	1020	71.4	71.4	1	3	0	0	4	0	0	0	4	1	
I-5 Fyke	1	3/12-3/13	1880	2205	43.3	43.5	2	44	0	0	0	0	0	0	0	0
	2	3/19-3/21	2325	2775	43.5	44.5	3	34	0	0	0	0	0	0	1	0
	3	3/25-3/28	2230	2650	44.8	47.6	4	224	0	0	2	0	0	0	1	0
	4	4/1-4/4	2905	2975	45.7	47.2	4	141	0	0	1	0	0	0	1	0
	5	4/8-4/11	2905	2950	46.3	47.4	4	278	0	0	6	0	0	0	2	0
	6	4/15-4/18	2865	2895	48.4	51.6	4	182	0	0	26	0	0	0	1	0
	7	4/22-4/25	2870	2880	47.0	50.1	4	193	0	0	27	0	1	0	0	0
	8	4/29-5/2	2910	3060	51.7	53.3	4	379	0	0	42	0	0	0	0	0
	9	5/6-5/9	2310	2380	54.9	58.1	4	612	0	0	57	0	0	4	0	0
	10	5/13-5/16	1940	2050	58.4	60.7	4	236	0	0	19	1	2	2	1	0
	11	5/20-5/23	1940	1960	59.3	62.3	4	205	0	0	4	1	0	2	1	0
	12	5/27-5/29	1935	2065	58.3	59.3	3	169	0	0	5	0	0	4	0	0
	13	6/3-6/4	2020	2040	62.8	63.3	2	36	0	0	0	0	0	6	0	0
I-5 DNS RST	2	3/19-3/21	2325	2775	43.5	44.5	3	75	0	0	0	0	0	0	1	0
	3	3/25-3/28	2230	2650	44.8	47.6	4	140	0	0	0	0	0	0	2	0
	4	4/1-4/4	2905	2975	45.7	47.2	4	119	0	0	0	0	7	0	0	
	5	4/8-4/11	2905	2950	46.3	47.4	4	226	0	0	0	0	6	0	2	0
	6	4/15-4/18	2865	2895	48.4	51.6	4	171	0	0	4	0	3	0	1	0
	7	4/21-4/25	2865	2880	47.0	50.1	5	225	0	0	0	0	8	0	1	0
	8	4/28-5/2	2905	3060	51.7	53.3	5	306	0	0	0	0	0	0	1	0
	9	5/6-5/9	2310	2380	54.9	58.1	4	649	0	0	3	0	0	1	2	0
	10	5/12-5/16	1940	2160	58.4	60.7	5	976	0	0	12	0	1	1	1	0
	11	5/19-5/23	1940	1965	59.3	65.6	5	900	0	0	4	0	1	6	2	1
	12	5/27	1935	1935	59.3	59.3	1	271	0	0	0	0	0	1	2	0
	I-5 UPS RST	1	3/12-3/14	1880	2790	43.3	43.5	2	58	0	0	0	0	0	0	1
2		3/18-3/21	2325	2935	43.5	44.5	4	59	0	0	0	0	0	0	3	0
3		3/25-3/28	2230	2650	44.8	47.6	4	99	0	0	0	0	0	0	2	0
4		4/1-4/4	2905	2975	45.7	47.2	4	60	0	0	0	0	11	0	3	0
5		4/8-4/11	2905	2950	46.3	47.4	4	102	0	0	0	0	14	0	1	2
6		4/15-4/18	2865	2895	48.4	51.6	4	129	0	0	2	0	1	0	3	0
7		4/21-4/25	2865	2880	47.0	50.1	5	150	0	0	0	1	8	0	4	1
8		4/28-5/2	2905	3060	51.7	53.3	5	198	0	0	0	0	1	0	2	0
9		5/6-5/9	2310	2380	54.9	58.1	4	734	0	0	8	0	2	0	9	0
10		5/12-5/16	1940	2160	58.4	60.7	5	1456	0	0	5	1	4	0	1	0
11		5/19-5/23	1940	1965	59.3	65.6	5	1724	0	0	5	1	3	2	10	0
12		5/27	1935	1935	59.3	59.3	1	380	0	0	2	0	0	1	5	0



USFWS 2008 Mainstem Klamath River Outmigrant Trap Juvenile Salmonid Catch Summary (continued)

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Preliminary Data - Subject to Revision

Trap	Survey Week	Sample Dates	IGD Q (cfs)*		Water Temp. (F)**		Trapping Days	Chinook (<i>O. tshawytscha</i>)			Coho (<i>O. kisutch</i>)			Steelhead (<i>O. mykiss</i>)			
			Min	Max	Min	Max		YOY			Age 1 +			Age 1 +			
								No Clip	AD Clip	Age 1+	YOY	No Clip	LM Clip	YOY	No Clip	AD Clip	
Cottonwood 2 Fyke	3	3/27-3/28	2400	2650	46.1	46.8	2	168	0	0	0	0	0	0	1	0	
	4	4/1-4/4	2905	2975	45.9	48.8	4	207	0	0	0	0	0	0	1	0	
	5	4/8-4/10	2905	2950	47.0	49.5	3	349	0	0	1	0	0	0	0	0	
	6	4/15-4/18	2865	2895	50.4	52.0	4	569	0	0	27	0	0	0	0	0	
	7	4/22-4/25	2870	2880	49.2	52.4	4	388	0	0	20	0	0	0	1	0	
	8	4/30-5/2	2925	3060	52.2	53.1	3	438	0	0	25	0	0	4	1	0	
	9	5/7-5/9	2310	2325	56.7	58.7	3	897	0	0	158	0	0	4	0	0	
	10	5/14-5/16	1940	1950	60.6	61.3	3	542	0	0	19	0	0	9	2	0	
	Bogus Fyke	1	3/13	2205	2205	42.4	42.4	1	81	0	0	0	0	0	0	0	0
		2	3/19-3/21	2325	2775	43.6	43.8	3	590	0	0	0	0	0	0	0	0
3		3/25-3/28	2230	2650	45.2	46.6	4	2431	0	0	3	0	0	0	1	0	
4		4/1-4/4	2905	2975	45.0	46.4	4	2246	0	0	0	0	2	0	4	0	
5		4/8-4/11	2905	2950	46.3	48.3	4	4110	0	0	12	0	8	0	3	7	
6		4/15-4/18	2865	2895	49.7	50.4	4	1751	0	0	71	0	0	0	0	0	
7		4/22-4/25	2870	2880	49.4	50.6	4	2548	0	0	86	0	0	0	0	0	
8		4/29-5/2	2910	3060	51.4	52.7	4	3132	0	0	66	0	0	1	0	0	
9		5/6-5/9	2310	2380	54.2	56.5	4	2218	0	0	142	0	0	54	2	0	
10		5/13-5/16	1940	2050	55.8	60.8	4	1100	0	0	56	0	0	62	0	0	
11		5/20-5/23	1940	1960	60.1	63.4	4	238	0	0	2	0	0	46	1	0	

* mean discharge from day of sampling and previous day

** temperature recorded at time of trap check



USFWS 2008 Mainstem Klamath River Outmigrant Trap Juvenile Salmonid Catch-per-Day Summary (continued)

U.S. Fish & Wildlife Service, Arcata Fish & Wildlife Office, 1655 Heindon Road, Arcata, CA 95521, (707)822-7201

Preliminary Data - Subject to Revision

Trap	Survey Week	Sample Dates	IGD Q (cfs)*		Water Temp. (F)**		Trapping Days	Chinook (<i>O. tshawytscha</i>)			Coho (<i>O. kisutch</i>)			Steelhead (<i>O. mykiss</i>)			
			Min	Max	Min	Max		YOY			YOY	Age 1 +		YOY	Age 1 +		
								No Clip	AD Clip	Age 1+		No Clip	LM Clip		No Clip	AD Clip	
Cottonwood 2 Fyke	3	3/27-3/28	2400	2650	46.1	46.8	2	84.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	
	4	4/1-4/4	2905	2975	45.9	48.8	4	51.75	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	
	5	4/8-4/10	2905	2950	47.0	49.5	3	116.33	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	
	6	4/15-4/18	2865	2895	50.4	52.0	4	142.25	0.00	0.00	6.75	0.00	0.00	0.00	0.00	0.00	
	7	4/22-4/25	2870	2880	49.2	52.4	4	97.00	0.00	0.00	5.00	0.00	0.00	0.00	0.25	0.00	
	8	4/30-5/2	2925	3060	52.2	53.1	3	146.00	0.00	0.00	8.33	0.00	0.00	1.33	0.33	0.00	
	9	5/7-5/9	2310	2325	56.7	58.7	3	299.00	0.00	0.00	52.67	0.00	0.00	1.33	0.00	0.00	
	10	5/14-5/16	1940	1950	60.6	61.3	3	180.67	0.00	0.00	6.33	0.00	0.00	3.00	0.67	0.00	
	Bogus Fyke	1	3/13	2205	2205	42.4	42.4	1	81.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		2	3/19-3/21	2325	2775	43.6	43.8	3	196.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3		3/25-3/28	2230	2650	45.2	46.6	4	607.75	0.00	0.00	0.75	0.00	0.00	0.00	0.25	0.00	
4		4/1-4/4	2905	2975	45.0	46.4	4	561.50	0.00	0.00	0.00	0.00	0.50	0.00	1.00	0.00	
5		4/8-4/11	2905	2950	46.3	48.3	4	1027.50	0.00	0.00	3.00	0.00	2.00	0.00	0.75	1.75	
6		4/15-4/18	2865	2895	49.7	50.4	4	437.75	0.00	0.00	17.75	0.00	0.00	0.00	0.00	0.00	
7		4/22-4/25	2870	2880	49.4	50.6	4	637.00	0.00	0.00	21.50	0.00	0.00	0.00	0.00	0.00	
8		4/29-5/2	2910	3060	51.4	52.7	4	783.00	0.00	0.00	16.50	0.00	0.00	0.25	0.00	0.00	
9		5/6-5/9	2310	2380	54.2	56.5	4	554.50	0.00	0.00	35.50	0.00	0.00	13.50	0.50	0.00	
10		5/13-5/16	1940	2050	55.8	60.8	4	275.00	0.00	0.00	14.00	0.00	0.00	15.50	0.00	0.00	
11		5/20-5/23	1940	1960	60.1	63.4	4	59.50	0.00	0.00	0.50	0.00	0.00	11.50	0.25	0.00	

* mean discharge from day of sampling and previous day

** temperature recorded at time of trap check



USFWS 2008 Mainstem Klamath River YOY Chinook Salmon Clinical Signs of Disease Summary

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Preliminary Data - Subject to Revision

Site	Survey Week	Sampling Dates	IGD Flow (cfs)*		Water Temp. (F)**		Belly Condition			Gills					
							Sample Size	Distended		Sample Size	Color		Condition		
								n	%		n	%	n	%	
Kinsman	1	Mar 12-14	1880	2790	42.1	43.4	94	0	0.0%	0	-	-	-	-	
	2	Mar 18-21	2325	2935	44.6	44.6	93	0	0.0%	0	-	-	-	-	
	3	Mar 25-28	2230	2650	44.6	45.1	120	0	0.0%	0	-	-	-	-	
	4	Apr 1-4	2905	2975	43.9	47.2	99	1	1.0%	0	-	-	-	-	
	5	Apr 8-11	2905	2950	46.1	48.4	84	0	0.0%	0	-	-	-	-	
	6	Apr 15-18	2865	2895	47.4	50	88	0	0.0%	15	0	0.0%	0	0.0%	
	7	Apr 22-25	2870	2880	47.6	49	84	0	0.0%	32	0	0.0%	0	0.0%	
	8	Apr 29 - May 2	2910	3060	49.2	51.1	85	0	0.0%	69	0	0.0%	1	1.4%	
	9	May 6-9	2310	2380	53.8	54.2	87	0	0.0%	49	1	2.0%	3	6.1%	
	10	May 12-16	1940	2160	56.3	57.1	81	0	0.0%	78	5	6.4%	4	5.1%	
	11	May 20-23	1940	1960	55.6	58.8	90	0	0.0%	81	21	25.9%	5	6.2%	
	12	May 27-29	1935	2065	56.9	56.9	120	23	19.2%	114	60	52.6%	2	1.8%	
	13	Jun 3-5	2000	2040	57.9	58.6	60	2	3.3%	60	20	33.3%	0	0.0%	
	14	Jun 10-12	1985	2020	58.8	58.8	90	10	11.1%	85	35	41.2%	1	1.2%	
	15	Jun 17-19	1960	1990	63.6	63.6	60	0	0.0%	60	16	26.7%	0	0.0%	
	17	Jul 1	1515	1515	69.7	69.7	19	0	0.0%	19	4	21.1%	0	0.0%	
	19	Jul 15	1020	1020	71.4	71.4	0	-	-	0	-	-	-	-	
	I-5	1	Mar 12-13	1880	2205	43.3	43.5	44	0	0.0%	0	-	-	-	-
		2	Mar 19-21	2325	2775	43.5	44.5	22	0	0.0%	0	-	-	-	-
3		Mar 25-28	2230	2650	44.8	47.6	90	0	0.0%	0	-	-	-	-	
4		Apr 1-4	2905	2975	45.7	47.2	86	0	0.0%	0	-	-	-	-	
5		Apr 8-11	2905	2950	46.3	47.4	90	0	0.0%	0	-	-	-	-	
6		Apr 15-18	2865	2895	48.4	51.6	89	0	0.0%	7	3	42.9%	0	0.0%	
7		Apr 22-25	2870	2880	47	50.1	89	0	0.0%	15	0	0.0%	0	0.0%	
8		Apr 29 - May 2	2910	3060	51.7	53.3	89	0	0.0%	25	1	4.0%	0	0.0%	
9		May 6-9	2310	2380	54.9	58.1	90	0	0.0%	43	2	4.7%	6	14.0%	
10		May 13-16	1940	2050	58.4	60.7	90	0	0.0%	90	8	8.9%	13	14.4%	
11		May 20-23	1940	1960	59.3	62.3	70	0	0.0%	112	48	42.9%	38	33.9%	
12		May 27-29	1935	2065	58.3	59.3	89	0	0.0%	60	20	33.3%	13	21.7%	
13		Jun 3-4	2020	2040	62.8	63.3	22	0	0.0%	15	3	20.0%	0	0.0%	
Cottonwood	3	Mar 27-28	2400	2650	46.1	46.8	30	0	0.0%	0	-	-	-	-	
	4	Apr 1-4	2905	2975	45.9	48.8	84	0	0.0%	0	-	-	-	-	
	5	Apr 8-10	2905	2950	47	49.5	90	0	0.0%	0	-	-	-	-	
	6	Apr 15-18	2865	2895	50.4	52	90	0	0.0%	1	0	0.0%	0	0.0%	
	7	Apr 22-25	2870	2880	49.2	52.4	87	0	0.0%	4	0	0.0%	0	0.0%	
	8	Apr 30 - May 2	2925	3060	52.2	53.1	60	0	0.0%	6	0	0.0%	0	0.0%	
Bogus	9	May 7-9	2310	2325	56.7	58.7	60	0	0.0%	9	1	11.1%	3	33.3%	
	10	May 14-16	1940	1950	60.6	61.3	60	0	0.0%	24	0	0.0%	4	16.7%	
	1	Mar 13	2205	2205	42.4	42.4	30	0	0.0%	0	-	-	-	-	
	2	Mar 19-21	2325	2775	43.6	43.8	60	0	0.0%	0	-	-	-	-	
	3	Mar 25-28	2230	2650	45.2	46.6	90	0	0.0%	0	-	-	-	-	
	4	Apr 1-4	2905	2975	45	46.4	90	0	0.0%	0	-	-	-	-	
	5	Apr 8-11	2905	2950	46.3	48.3	90	0	0.0%	0	-	-	-	-	
	6	Apr 15-18	2865	2895	49.7	50.4	90	0	0.0%	2	1	50.0%	0	0.0%	
	7	Apr 22-25	2870	2880	49.4	50.6	89	0	0.0%	2	0	0.0%	0	0.0%	
	8	Apr 29 - May 2	2910	3060	51.4	52.7	90	0	0.0%	2	0	0.0%	0	0.0%	
	9	May 6-9	2310	2380	54.2	56.5	90	0	0.0%	8	0	0.0%	0	0.0%	
10	May 13-16	1940	2050	55.8	60.8	90	0	0.0%	31	1	3.2%	3	9.7%		
11	May 20-23	1940	1960	60.1	63.4	76	0	0.0%	29	2	6.9%	2	6.9%		

* mean discharge from day of sampling and previous day

** temperature recorded at time of trap check